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May 9, 2023

**Via PUC's SharePoint**

Rosemary Chiavetta, Secretary  
PA Public Utility Commission  
P.O. Box 3265  
Harrisburg, PA 17105-3265

RE: The Pittsburgh Water and Sewer Authority – Water – R-2023-3039920;  
The Pittsburgh Water and Sewer Authority – Wastewater – R-2023-3039921;  
The Pittsburgh Water and Sewer Authority – Stormwater – R-2023-3039919

Dear Secretary Chiavetta:

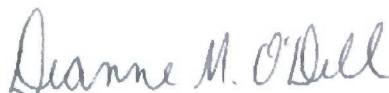
On behalf of The Pittsburgh Water and Sewer Authority (“PWSA”) enclosed for filing is PWSA’s Rate filing.

PWSA’s filing is presented as follows:

Volume I: Filing Requirements  
Volume II: Prepared Direct Testimony

PWSA will provide one hard copy of its entire filing to the Commission. Documents for this proceeding as well as the FPPTY 2024 COS and Rate Design Model will be made available through an iManage Share Folder. To receive access, please contact me directly. Copies of these filings are being served in accordance with the attached Certificate of Service.

Sincerely,



Deanne M. O'Dell

DMO/lww

Enclosure

cc: Cert. of Service w/enc.

## CERTIFICATE OF SERVICE

I hereby certify that this day I served a copy of PWSA's Rate Filing upon the persons listed below in the manner indicated in accordance with the requirements of 52 Pa. Code Section 1.54.

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Deanne M. O'Dell, Esq.



**BEFORE THE  
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

**VOLUME I**

**RESPONSES TO FILING REQUIREMENTS**

**ON BEHALF OF  
THE PITTSBURGH WATER AND SEWER AUTHORITY**

**Docket Nos.**

**R-2023-3039920 (WATER)**

**R-2023-3039921 (WASTEWATER)**

**R-2023-3039919 (STORMWATER)**

**MAY 9, 2023**

# THE PITTSBURGH WATER AND SEWER AUTHORITY

Docket Nos. R-2023-3039920 (Water); R-2023-3039921(Wastewater);  
R-2023-3039919 (Stormwater)

## INDEX TO RATE FILING PACKAGE

### Filings Simultaneous With This Filing Package:

|                 |  |
|-----------------|--|
| <b>Petition</b> | Consolidation Of Water and Wastewater Rate Proceedings And For Authorization To Use Combined Water And Wastewater Revenue Requirements |
| <b>Petition</b> | For Wavier Fully Projected Future Test Year  |

### Included With This Filing Package:

|                 |                            |        |  |
|-----------------|----------------------------|--------|--|
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|                 |                            | Tab 2  | Customer Notice of Proposed Rate Changes                   |
|                 |                            | Tab 3  | Filing Requirements – 52 Pa Code § 53.52                   |
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|  | St. No. 1 | William J. Pickering | Exhs. WJP-1 to WJP-2   |
|  | St. No. 2 | Edward Barca         | Exhs. EB-1 to EB-9   |
|  | St. No. 3 | BJ McFaddin          |  |
|  | St. No. 4 | Barry King           | Exh. BK-1 to BK-4  |
|  | St. No. 5 | Tony Igwe            | Exhs. TI-1 to TI-2   |
|  | St. No. 6 | Julie A. Mechling    | Exhs JAM-1 to JAM-10   |
|  |           |                      | Exh. JAM-11 Proposed Water Tariff Supp. No. 12 (clean)         |
|  |           |                      | Exh. JAM-12 Proposed Water Tariff Supp. No. 12 (red-lined)     |
|  |           |                      | Exh. JAM-13 Proposed Wastewater Tariff Supp No. 11 (clean)     |
|  |           |                      | Exh. JAM-14 Proposed Wastewater Tariff Supp No. 11 (red-lined) |
|  |           |                      | Exh. JAM-15 Proposed Storm Water Tariff Supp. No 3 (clean)     |
|  |           |                      | Exh. JAM-16 Proposed Storm Water Tariff Supp. No 3 (red-lined) |
|  | St. No. 7 | Harold J. Smith      | Exhs. HJS-1 to HJS-2   |
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|  |           |                      | Exhs. HJS-1WW to HJS-24WW                                      |
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|  | St. No. 8 | Keith Readling       | Exh. KR-1 – KR-3   |
|  | St. No. 9 | Christine Fay        | Exhs. CF-1 to CF-9   |

**Pittsburgh Water and Sewer Authority  
2023 Rate Filing**

**Docket Nos.**  
**R-2023-3039920 (water)**  
**R-2023-3039921 (wastewater)**  
**R-2023-3039919 (stormwater)**

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# THE PITTSBURGH WATER AND SEWER AUTHORITY

## Tariff Filings and Rate Requests

Docket Nos. R-2023-3039920(water), R-2023-3039921 (wastewater), R-2023-3039919 (stormwater)

### STATEMENT OF REASONS

PWSA is requesting a multi-year total overall rate revenue increase of \$146.1 million, which is inclusive of the Distribution System Improvement Charge (“DSIC”) cap increase. This includes a \$46.8 million or 22.5% increase in the FPFTY (FY 2024), \$45.4 million or 17.8% in FY 2025, and \$53.9 million or 17.9% in FY 2026.

The drivers for this increase are as follows: 1) capital costs; 2) inflationary operating budget costs, specifically for essential items such as energy, employee benefits, and chemical costs; 3) costs related to the Wet Weather Consent Decree with the United States Environmental Protection Agency (“US EPA”); 4) environmental compliance; 5) decreased consumption; and 6) funds to meet new financial obligations and improve financial metrics that impact PWSA’s bond rating.

Consistent with the significant progress PWSA has made in recent years, the Authority remains focused on rebuilding and upgrading Pittsburgh’s water systems and is taking every reasonable step to operate efficiently and keep its costs down. Nonetheless, the Authority’s operating and capital expenses continue to increase. PWSA’s extensive Capital Improvement Plan (“CIP”) includes the refurbishment and replacement of a significant portion of PWSA’s water supply system, which simply cannot be accomplished without additional rate relief. While grant funding enables PWSA to stay on track, accelerating the Authority’s plans to be a leader in the industry in serving our customers requires additional money. Also, addressing regulatory compliance issues and responding to unexpected situations that arise due to the age of the system are directly contributing to increases in operating costs. In PWSA’s view, the rate increase that it is seeking is the minimum amount that is needed to continue operations while meeting its required financial metrics.

PWSA is proposing to implement this increase over a three-year period. An important reason for this proposal is that such an outcome would give PWSA a level of financial security needed to continue performing its work, as well as better access to the capital markets. A multi-year rate request also provides more transparency for customers over the three-year period as to the increases that will be implemented. In addition, preparing for and litigating rate cases involves a significant cost that is borne by our ratepayers as a cash flow municipal authority. If

PWSA is able to secure approval for its three-year rate increase, it will be able to allocate the costs that would normally be allocated to the rate cases to our operations and capital projects.

As part of this proposal is to ensure that PWSA has sufficient funds to successfully complete its ambitious Capital Improvement Program, PWSA is proposing that its DSIC cap – currently at 5% – be increased to 7.5%. This will give the Authority additional internally generated funds, or “Pay-go” to pay for capital projects without having to resort to long term borrowing.

Also being proposed are two new adjustment charges: the Infrastructure Improvement Charge (“IIC”) and the Customer Assistance Charge (“CAC”). The IIC would permit PWSA to recover debt service on PENNVEST loans and loans authorized by Water Infrastructure Finance and Innovation Act (“WIFIA”). WIFIA is the Federal government equivalent of PENNVEST. The IIC will expedite PWSA’s ability to obtain additional low-cost funding through PENNVEST and WIFIA by having a stable revenue source to ensure the required debt covenants and additional bonds tests can be met, in addition to having funds available to pay annual debt service.

The CAC is being proposed because, while PWSA values the benefits that its customer service assistance program provides to vulnerable ratepayers, the administration of customer assistance program has become increasingly expensive. The Customer Assistance Charge would recover: 1) the discounts provided to customers pursuant to the Bill Discount Program, 2) the operating costs for the PGH2O Cares team, 3) the costs of PWSA’s Hardship Funding, and 4) past due arrearages forgiven pursuant to PWSA’s Arrearage Forgiveness Program. The CAC will ensure that PWSA collects the funds it needs to provide these programs.

PWSA is further proposing to begin phasing out the minimum water and wastewater charges starting in 2024 and completely removed in 2025. This proposal includes additional features intended to mitigate the rate impact for our customers. PWSA is also proposing to allocate \$432,640 to its Hardship Grant program, to increase the eligibility for its customer assistance programs, to expand availability of its Hardship Grant for wastewater conveyance customers and, in 2025, to offer a fixed bill discount for qualifying low income customers in the customer assistance program and additional discounts to various charges.



## NOTICE OF PROPOSED RATE CHANGES

To Our Customers:

The Pittsburgh Water and Sewer Authority (PWSA) has filed a request with the Pennsylvania Public Utility Commission (PUC) on May 9, 2023 to increase your rates for water, wastewater conveyance and stormwater management. This notice describes the Authority's rate request, the PUC's role, and what actions you can take. The bill impacts in this Notice do not include ALCOSAN<sup>1</sup> charges for wastewater treatment.

PWSA has requested an overall rate increase of \$146.1 million over three years. If the Authority's entire request is approved, the total bill for water, wastewater conveyance, and stormwater management for a typical Residential customer using 3,000 gallons of water per month and charged the base rate for stormwater services would increase from \$86.43 to \$103.41 per month or by 19.6% in 2024. It would increase from \$103.41 to \$123.55 or by 19.5% in 2025 and increase from \$123.55 to \$146.12 or 18.3% in 2026.

The typical Residential customer enrolled in our low-income customer assistance Bill Discount Program using 3,000 gallons of water per month and charged the base rate for stormwater currently pays \$44.15 per month under the existing rates. If the rate request is approved, this would change to \$51.85 per month or by 17.5% in 2024. It would increase from \$51.85 to \$60.83 or by 17.3% in 2025 and increase from \$60.83 to \$72.17 or 18.7% in 2026.

PWSA's rate filing will support ongoing infrastructure improvements, provide needed resources to meet more stringent environmental and regulatory requirements, and address increasing energy and chemical costs related to inflation. These factors are substantially driving the need for the rate filing and if approved, will ensure ongoing investment to modernize our water systems and provide essential water, sewer, and stormwater services for current and future generations of customers.

As a publicly owned and operated water authority, every dollar we receive is reinvested back into the water systems you rely on each day. In recent years, PWSA has made tremendous progress to renew Pittsburgh's water, sewer, and stormwater infrastructure and since 2018, has invested approximately \$524 million in capital improvements. Over the next five years, a total of approximately \$1.8 billion is budgeted for much needed upgrades to critical infrastructure. This investment will improve drinking water quality, improve system reliability, maintain stormwater infrastructure, and meet all regulatory standards.

To support this investment, PWSA aggressively pursues state and federal funding and since 2018 has received more than \$645 million in low-interest loans and grants from PENNVEST. This funding supports our capital program and provides essential financial resources to construct large components of our water pumping and distribution system, improve public health by replacing lead services lines, replace water mains, and rehabilitate aging sewer pipes. Low-interest loans from state and federal funding partners and grants that do not need to be repaid will over time, save ratepayers millions of dollars in comparison to traditional financing.

PWSA has made substantial progress on its construction projects. In early 2023 we celebrated the removal of the 10,000<sup>th</sup> lead service line from our drinking water system and are on track to remove all lead lines by 2026. We completed the first phase of the Water Reliability Plan in late 2022 and immediately began constructing the second phase of projects. These once-in-a-generation improvements will strengthen our water system, add needed redundancy, and when complete will provide PWSA's drinking water customers with more reliable service.

In 2022, PWSA rehabilitated 19.6 miles of sewer pipe, replaced 233 storm drains, and constructed six new stormwater systems in five Pittsburgh neighborhoods. While this construction is taking place, our

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<sup>1</sup> ALCOSAN is the Allegheny County Sanitary Authority, located along the Ohio River, responsible for sewage treatment in Allegheny County. They are a separate entity responsible for setting their own rates. PWSA bills and collects on their behalf.



Operations department, working in the field and at the Water Treatment Plant, perform routine tasks essential for maintaining water quality. They repair water main breaks, unclog storm drains, treat and monitor water as it moves through the treatment process, and perform thousands of water quality tests each month.

This critical work requires ongoing investment to assure that our customers have high-quality water for drinking, cooking, cleaning, and personal hygiene; that sewer pipes safely move water away from homes and businesses, and that storm drains are properly maintained to capture runoff from neighborhood streets.

**CUSTOMER ASSISTANCE**

In 2018, PWSA established a series of customer assistance programs designed to provide financial relief for income-qualified customers. These programs have since expanded and PWSA is committed to providing financial assistance for essential water services. As such, this rate filing includes enhancing these programs.

Under our proposal, we would increase income eligibility for the Bill Discount Program from 150% of the federal poverty level (FPL) to 200% FPL. More than 6,000 customers are currently enrolled in the Bill Discount Program. It offers a variety of benefits including a 100% reduction on fixed monthly water and wastewater conveyance charges, a 50% discount on volumetric charges for very low-income customers, an 85% reduction on the stormwater fee, and payment plans to help customers reduce past due balances. Customers enrolled in the Bill Discount Program are automatically enrolled in the Winter Hardship Moratorium and they are required to recertify or confirm income eligibility every two years.

This rate filing also proposes two separate \$300 grants to be made available through the Hardship Grant Program. It currently provides income-eligible customers with an annual \$300 grant to pay down past due balances for water and wastewater charges. Since 2018, we have provided grants to more than 850 households and distributed over \$200,000 in grants. If approved, the Hardship Grant Program would allocate two separate grants annually. Income-eligible customers could receive one \$300 annual grant for water services and another \$300 annual grant for wastewater services – increasing their total annual benefit to \$600.

**STORMWATER FEE**

In 2022, PWSA established a stormwater fee to equitably charge for stormwater services across Pittsburgh. It is included in the total bill amounts referenced above and is based on the amount of impervious or hard surfaces on a property. Our rate filing proposes incentivizing non-residential customers to retain runoff using green space, provided it can receive and treat runoff from ¼-inch of rain from their impervious surfaces. For residential customers, a one-time \$40 credit, applied over time for the installation of at least a 50-gallon rain barrel, is also proposed.

In Pittsburgh, the average amount of impervious surface on a property is approximately 1,650 square feet. This is equal to one equivalent residential unit (ERU) of impervious surface, which is the unit of measure for calculating the stormwater fee and is accepted as the industry standard for determining a stormwater fee. The proposed monthly stormwater fees are shown in the table below:

| <b>Stormwater Monthly Fees</b>               | <b>ERUs</b> | <b>2024</b> | <b>2025</b> | <b>2026</b> |
|--|-------------|-------------|-------------|-------------|
| Residential Tier 1<br>(>=400 to <1,015 sf)   | .5          | \$5.13      | \$6.07      | \$7.10      |
| Residential Tier 2<br>(>=1,015 to <2,710 sf) | 1           | \$10.26     | \$12.14     | \$14.20     |
| Residential Tier 3<br>(>=2,710 sf)           | 2           | \$20.52     | \$24.28     | \$28.40     |
| Non-Residential                              | Per ERU     | \$10.26     | \$12.14     | \$14.20     |

## **RATE REQUEST**

The additional revenue would be recovered through a 22.5% rate increase, or \$46.8 million, beginning in 2024, a 17.8% rate increase or \$45.4 million in 2025, and 17.9% rate increase, or \$53.9 million in 2026 for its water and wastewater conveyance operations and stormwater management. The following tables describe how the typical customer in each customer class would be impacted by this rate filing.

*The typical Residential customer uses 3,000 gallons of water per month with a 5/8-inch meter and generates stormwater runoff from 1 ERU.*

| <b>Residential</b>    | <b>Current Rates</b> | <b>2024 Rates</b> | <b>2025 Rates</b> | <b>2026 Rates</b> |
|-----------------------|----------------------|-------------------|-------------------|-------------------|
| Water                 | \$58.59              | \$71.67           | \$86.55           | \$103.17          |
| Wastewater Conveyance | \$19.89              | \$21.48           | \$24.50           | \$28.33           |
| Stormwater            | \$7.95               | \$10.26           | \$12.50           | \$14.62           |
| <b>Total</b>          | <b>\$86.43</b>       | <b>\$103.41</b>   | <b>\$123.55</b>   | <b>\$146.12</b>   |

*The typical Residential customer enrolled in the Bill Discount Program uses 3,000 gallons of water per month with a 5/8-inch meter and generates stormwater runoff from 1 ERU.*

| <b>Residential Bill Discount</b> | <b>Current Rates</b> | <b>2024 Rates</b> | <b>2025 Rates</b> | <b>2026 Rates</b> |
|----------------------------------|----------------------|-------------------|-------------------|-------------------|
| Water                            | \$30.74              | \$36.81           | \$45.31           | \$54.40           |
| Wastewater Conveyance            | \$12.20              | \$13.50           | \$13.70           | \$15.64           |
| Stormwater                       | \$1.20               | \$1.54            | \$1.82            | \$2.13            |
| <b>Total</b>                     | <b>\$44.15</b>       | <b>\$51.85</b>    | <b>\$60.83</b>    | <b>\$72.17</b>    |

*The typical Commercial customer using 13,000 gallons per month with a 1-inch meter and generating stormwater runoff from 8 ERU's, the total bill would increase from \$356.54 to \$441.19 per month or by 23.7% in 2024, from \$441.19 to \$565.41 per month or by 28.2% in 2025, and from \$565.41 to \$668.24 per month or by 18.2% in 2026 as shown below:*

| <b>Commercial</b>     | <b>Current Rates</b> | <b>2024 Rates</b> | <b>2025 Rates</b> | <b>2026 Rates</b> |
|-----------------------|----------------------|-------------------|-------------------|-------------------|
| Water                 | \$223.10             | \$285.39          | \$370.93          | \$442.18          |
| Wastewater Conveyance | \$69.84              | \$73.72           | \$94.48           | \$109.10          |
| Stormwater            | \$63.60              | \$82.08           | \$100.00          | \$116.96          |
| <b>Total</b>          | <b>\$356.54</b>      | <b>\$441.19</b>   | <b>\$565.41</b>   | <b>\$668.24</b>   |

*The typical Industrial customer using 680,000 gallons per month with a 4-inch meter and generating stormwater runoff from 30 ERU's, the total bill would increase from \$12,934.31 to \$16,945.22 per month or by 31.0% in 2024, from \$16,945.22 to \$20,846.87 per month or by 23.0% in 2025, and from \$20,846.87 to \$24,648.17 per month or by 18.2% in 2026 as shown below:*

| <b>Industrial</b>     | <b>Current Rates</b> | <b>2024 Rates</b>  | <b>2025 Rates</b>  | <b>2026 Rates</b>  |
|-----------------------|----------------------|--------------------|--------------------|--------------------|
| Water                 | \$9,148.89           | \$12,753.45        | \$15,876.61        | \$18,905.87        |
| Wastewater Conveyance | \$3,546.92           | \$3,883.98         | \$4,595.26         | \$5,303.70         |
| Stormwater            | \$238.50             | \$307.80           | \$375.00           | \$438.60           |
| <b>Total</b>          | <b>\$12,934.31</b>   | <b>\$16,945.22</b> | <b>\$20,846.87</b> | <b>\$24,648.17</b> |

*The typical Health and Education customer using 50,000 gallons per month with a 2-inch meter and generating stormwater runoff from 32 ERU's, the total bill would increase from \$1,474.16 to \$1,844.81 per month or by 25.1% in 2024, from \$1,844.81 to \$2,371.36 per month or by 28.5% in 2025, and from \$2,371.36 to \$2,804.42 per month or by 18.3% in 2026 as shown on the next page:*

| <b>Health and Education</b> | <b>Current Rates</b> | <b>2024 Rates</b> | <b>2025 Rates</b> | <b>2026 Rates</b> |
|-----------------------------|----------------------|-------------------|-------------------|-------------------|
| Water                       | \$918.59             | \$1,217.03        | \$1,589.22        | \$1,895.02        |
| Wastewater Conveyance       | \$301.17             | \$299.46          | \$382.14          | \$441.56          |
| Stormwater                  | \$254.40             | \$328.32          | \$400.00          | \$467.84          |
| <b>Total</b>                | <b>\$1,474.16</b>    | <b>\$1,844.81</b> | <b>\$2,371.36</b> | <b>\$2,804.42</b> |

PWSA’s rate request is scheduled to go into effect on July 8, 2023; however, in most cases, the PUC suspends the increase for up to an additional seven (7) months.

To find out your customer class or how the requested increase may affect your water, wastewater conveyance, and stormwater management bill contact PWSA at 412-255-2423. The rates requested by the Authority may be found in the Tariff Water – PA. P.U.C. No.1 Supp. No. 12, Tariff Wastewater – PA. P.U.C. No.1 Supp. No. 11, and Tariff Stormwater – PA. P.U.C. No. 1 Supp No. 3. You may also examine the material filed with the PUC, which explains the requested increase and the reasons for it. A copy of these documents is kept at PWSA’s office. Upon request, the Authority will send you the Statement of Reasons for these Tariffs, explaining why the rate increase has been requested.

### **PUC ROLE**

The state agency which now approves rates for PWSA is the PUC. The PUC will examine the requested rate increase and can prevent existing rates from changing until it investigates and/or holds hearings on the request. The Authority must prove that the requested rates are reasonable. After examining the evidence, the PUC may grant all, some, or none of the request or may reduce existing rates.

The PUC may change the amount of the rate increase or decrease requested by the utility for each customer class. As a result, the rate charged to you may be different than the rate requested by the utility as shown above.

### **ACTIONS YOU CAN TAKE**

There are three ways to support or challenge PWSA’s request to change its rates:

1. You can be a witness at a public input hearing. Public input hearings are held if the PUC opens an investigation of the utility’s rate increase request and if there is a large number of customers interested in the case. At these hearings, you have the opportunity to present your views in person to the PUC judge hearing the case and to the PWSA representatives. All testimony given “under oath” becomes part of the official rate case record. These hearings are held in the service area of the utility.
2. You can send the PUC a letter telling why you support or object to the requested rate increase. At times there is information in these letters that makes the PUC aware of successes or problems with the utility’s service or management. This information can be helpful when the PUC investigates the rate request.
3. You can file a formal complaint. If you want a hearing before a judge, you must file a formal complaint. By filing a formal complaint, you assure yourself the opportunity to take part in hearings about the rate increase request. All complaints should be filed with the PUC before July 8, 2023. If no formal complaints are filed, the Commission may grant all, some, or none of the request without holding a hearing before a judge. Send your letter or request for a formal complaint form to the Pennsylvania Public Utility Commission, Post Office Box 3265, Harrisburg, PA 17105-3265.

For more information, call the PUC’s Bureau of Consumer Services at 1-800-692-7380. You may leave your name and address so you can be notified of any public input hearings that may be scheduled in this case. You may also contact the Pennsylvania Office of Consumer Advocate (OCA). The OCA represents the interests of consumers in cases before the PUC. You may contact the OCA with questions or requests for public input [hearings at 1-800-684-6560 or by email at \[consumer@paoca.org\]\(mailto:consumer@paoca.org\)](https://www.paoca.org).





## Pittsburgh Water and Sewer Authority Base Rate Filing

**52 Pa. Code § 53.52****§ 53.52. Applicability; public utilities other than canal, turnpike, tunnel, bridge and wharf companies.**

(a) Whenever a public utility, other than a canal, turnpike, tunnel, bridge or wharf company files a tariff, revision or supplement effecting changes in the terms and conditions of service rendered or to be rendered, it shall submit to the Commission, with the tariff, revision or supplement, statements showing all of the following:

(1) The specific reasons for each change.

**RESPONSE:**

Please see Statement of Reasons and testimony of PWSA witnesses Barca, Fay, King, Igwe, Readling, Pickering, and Smith for additional information. PWSA is proposing an increase in minimum charges and volumetric charges for all customer classes (Residential, Commercial, Industrial, Health & Education, Municipal, and Private Fire). Please see the testimony of PWSA witness Smith and Readling for an explanation of the minimum charge and volumetric charge increases/decreases in each customer rate class as well as the Stormwater charge.

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(2) The total number of customers served by the utility.

**RESPONSE:**

Please see the schedules attached to response § 53.52(b).

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(3) A calculation of the number of customers, by tariff subdivision, whose bills will be affected by the change.

**RESPONSE:**

Please see the schedules attached to response § 53.52(b).

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(4) The effect of the change on the utility's customers.

**RESPONSE:**

Please see the schedules attached to response § 53.52(b).

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## Pittsburgh Water and Sewer Authority Base Rate Filing

**52 Pa. Code § 53.52**

(5) The direct or indirect effect of the proposed change on the utility's revenue and expenses.

**RESPONSE:**

Please see PWSA Statement No. 2 – Edward Barca and accompanying schedules.

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(6) The effect of the change on the service rendered by the utility.

**RESPONSE:**

The changes will have no effect on the service rendered by the utility.

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(7) A list of factors considered by the utility in its determination to make the change. The list shall include a comprehensive statement about why these factors were chosen and the relative importance of each. This subsection does not apply to a portion of a tariff change seeking a general rate increase as defined in 66 Pa.C.S. § 1308 (relating to voluntary changes in rates).

**RESPONSE:** Not applicable.

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(8) Studies undertaken by the utility in order to draft its proposed change. This paragraph does not apply to a portion of a tariff change seeking a general rate increase as defined in 66 Pa.C.S. § 1308.

**RESPONSE:** Not applicable.

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(9) Customer polls taken and other documents which indicate customer acceptance and desire for the proposed change. If the poll or other documents reveal discernible public opposition, an explanation of why the change is in the public interest shall be provided.

**RESPONSE:**

No customer polls or other documentation regarding customer acceptance and desire for the proposed change exists.

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Pittsburgh Water and Sewer Authority Base Rate Filing

**52 Pa. Code § 53.52**

(10) Plans the utility has for introducing or implementing the changes with respect to its ratepayers.

**RESPONSE:**

The Company is notifying customers of the proposed changes as required by 53 Pa. Code § 53.45.

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(11) FCC, FERC or Commission orders or rulings applicable to the filing.

**RESPONSE:**

There are no FCC, FERC, or Commission orders or rulings applicable to this filing.

## Pittsburgh Water and Sewer Authority Base Rate Filing

**52 Pa. Code § 53.52**

(b) Whenever a public utility other than a canal, turnpike, tunnel, bridge or wharf company files a tariff, revision or supplement which will increase or decrease the bills to its customers, it shall submit in addition to the requirements of subsection (a), to the Commission, with the tariff, revision or supplement, statements showing the following:

(1) The specific reasons for each increase or decrease.

**RESPONSE:**

Please see Statement of Reasons and testimony of PWSA witnesses Barca, Fay, King, Igwe, Readling, Pickering, and Smith for additional information. PWSA is proposing an increase in minimum charges and volumetric charges for all customer classes (Residential, Commercial, Industrial, Health & Education, Municipal, and Private Fire) in addition to introducing a Stormwater charge. Please see the testimony of PWSA witness Smith and Readling for an explanation of the minimum charge and volumetric charge increases/decreases in each customer rate class as well as the Stormwater charge.

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(2) The operating income statement of the utility for a 12-month period, the end of which may not be more than 120 days prior to the filing. Water and wastewater utilities with annual revenues under \$100,000 and municipal corporations subject to Commission jurisdiction may provide operating income statements for a 12-month period, the end of which may not be more than 180 days prior to the filing.

**RESPONSE:**

Please see attached.

PWSA notes that the information provided by PWSA covers a 12-month time period, the end of which is more than 180 days prior to the filing. This information, however, is the most-recent audited information available that covers a 12-month period. PWSA can provide the Commission additional information upon request.

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(3) A calculation of the number of customers, by tariff subdivision, whose bills will be increased.

**RESPONSE:**

Please see attached.

(4) A calculation of the total increases, in dollars, by tariff subdivision, projected to an annual basis.



Pittsburgh Water and Sewer Authority Base Rate Filing

**52 Pa. Code § 53.52**

**RESPONSE:**

Please see attached.

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(5) A calculation of the number of customers, by tariff subdivision, whose bills will be decreased.

**RESPONSE:**

Please see the response to § 53.52(b)(3).

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(6) A calculation of the total decreases, in dollars, by tariff subdivision, projected to an annual basis.

**RESPONSE:**

Please see the response to § 53.52(b)(3).

## Pittsburgh Water and Sewer Authority Base Rate Filing

**52 Pa. Code § 53.52**

(c) If a public utility files a tariff, revision or supplement which it is calculated will increase the bills of a customer or a group of customers by an amount, when projected to an annual basis, exceeding 3% of the operating revenues of the utility—subsection (b)(4) divided by the operating revenues of the utility for a 12-month period as defined in subsection (b)(2)—or which it is calculated will increase the bills of 5% or more of the number of customers served by the utility—subsection (b)(3) divided by subsection (a)(2)—it shall submit to the Commission with the tariff, revision or supplement, in addition to the statements required by subsections (a) and (b), all of the following information:

(1) A statement showing the utility's calculation of the rate of return or operating ratio (if the utility qualifies to use an operating ratio under § 53.54 (relating to small water and wastewater utilities)) earned in the 12-month period referred to in subsection (b)(2), and the anticipated rate of return or operating ratio to be earned when the tariff, revision or supplement becomes effective. The rate base used in this calculation shall be supported by summaries of original cost for the rate of return calculation. When an operating ratio is used in this calculation, it shall be supported by studies of margin above operation and maintenance expense plus depreciation as referred to in § 53.54(b)(2)(B).

**RESPONSE:** Not applicable

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(2) A detailed balance sheet of the utility as of the close of the period referred to in subsection (b)(2).

**RESPONSE:**

Please see attached.

As mentioned previously, PWSA notes that the information provided by PWSA covers a 12-month time period, the end of which is more than 120 days prior to the filing. This information, however, is the most-recent audited information available that covers a 12-month period. PWSA can provide the Commission additional information upon request.

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(3) A summary, by detailed plant accounts, of the book value of the property of the utility at the date of the balance sheet required by paragraph (2).

**RESPONSE:**

Please see attached.

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## Pittsburgh Water and Sewer Authority Base Rate Filing

**52 Pa. Code § 53.52**

(4) A statement showing the amount of the depreciation reserve, at the date of the balance sheet required by paragraph (2), applicable to the property, summarized as required by paragraph (3).

**RESPONSE:**

Please see attached.

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(5) A statement of operating income, setting forth the operating revenues and expenses by detailed accounts for the 12-month period ending on the date of the balance sheet required by paragraph (2).

**RESPONSE:**

Please see attached.

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(6) A brief description of a major change in the operating or financial condition of the utility occurring between the date of the balance sheet required by paragraph (2) and the date of transmittal of the tariff, revision or supplement. As used in this paragraph, a major change is one which materially alters the operating or financial condition of the utility from that reflected in paragraphs (1)—(5).

**RESPONSE:**

There has not been any major change in the operating or financial condition of the utility since the balance sheet dated December 31, 2019.

## Pittsburgh Water and Sewer Authority Base Rate Filing

**52 Pa. Code § 53.52**

(d) If a utility renders more than one type of public service, such as electric and gas, information required by § § 53.51—53.53 (relating to information furnished with the filing of rate changes), except subsection (c)(2), relates solely to the kind of service to which the tariff or tariff supplement is applicable. In subsection (c)(2), the book value of property used in furnishing each type of public service, as well as the depreciation reserve applicable to the property, shall be shown separately.

**RESPONSE:** Not applicable.

**Pittsburgh Water & Sewer Authority  
Rate Case 2023  
PFPTY Pro Forma Revenue at Current Rates**

|  | FY 2024          |                        |                           | PUC Approved Prior Tariff Rates |                      | FY 2024              |                      |                     |                       |
|--|------------------|------------------------|---------------------------|---------------------------------|----------------------|----------------------|----------------------|---------------------|-----------------------|
|  | Number of Meters | Number of Annual Bills | Billable Usage (Kgal) (1) | Monthly Min. Charge             | Volume Charge (Kgal) | Min. Charge Revenue  | Vol. Charge Revenue  | DSIC (5%)           | Total Rate Revenue    |
| <b>1 Water Revenues</b>                    |                  |                        |                           |                                 |                      |                      |                      |                     |                       |
| <b>2 Residential</b>                       |                  |                        |                           |                                 |                      |                      |                      |                     |                       |
| 3 5/8"                                     | 56,863           | 682,360                | 1,583,614                 | \$ 26.52                        | \$ 14.64             | \$ 18,096,198        | \$ 23,184,107        | \$ 2,064,015        | \$ 43,344,320         |
| 4 3/4"                                     | 2,526            | 30,308                 | 113,350                   | 46.47                           | 14.64                | 1,408,403            | 1,659,444            | 153,392             | 3,221,239             |
| 5 1"                                       | 2,045            | 24,535                 | 118,986                   | 102.08                          | 14.64                | 2,504,574            | 1,741,960            | 212,327             | 4,458,861             |
| 6 1 1/2"                                   | 38               | 452                    | 1,623                     | 201.85                          | 14.64                | 91,236               | 23,762               | 5,750               | 120,748               |
| 7 2"                                       | 6                | 68                     | 771                       | 337.28                          | 14.64                | 22,935               | 11,287               | 1,711               | 35,934                |
| 8 Unmetered                                | 333              | 3,996                  | -                         | 70.44                           | -                    | 281,478              | -                    | 14,074              | 295,552               |
| 9 <i>Total: Residential</i>                | 61,810           | 741,720                | 1,818,344                 |                                 |                      | \$ 22,404,824        | \$ 26,620,560        | \$ 2,451,269        | \$ 51,476,654         |
| <b>11 Residential - CAP</b>                |                  |                        |                           |                                 |                      |                      |                      |                     |                       |
| 12 5/8"                                    | 4,518            | 54,220                 | 107,437                   | \$ -                            | \$ 14.64             | \$ -                 | \$ 1,572,872         | \$ 78,644           | \$ 1,651,516          |
| 13 3/4"                                    | 42               | 502                    | 620                       | -                               | 14.64                | -                    | 9,078                | 454                 | 9,531                 |
| 14 1"                                      | 25               | 294                    | 215                       | -                               | 14.64                | -                    | 3,148                | 157                 | 3,305                 |
| 15 Unmetered                               | 1                | 12                     | -                         | 43.95                           | -                    | 527                  | -                    | 26                  | 554                   |
| 16 Volume Discount Customers               | -                | -                      | 26,271                    | -                               | 7.32                 | -                    | 192,301              | 9,615               | 201,916               |
| 17 <i>Total: Residential - CAP</i>         | 4,586            | 55,028                 | 134,542                   |                                 |                      | \$ 527               | \$ 1,777,399         | \$ 88,896           | \$ 1,866,823          |
| <b>19 Commercial</b>                       |                  |                        |                           |                                 |                      |                      |                      |                     |                       |
| 20 5/8"                                    | 2,709            | 32,509                 | 114,037                   | \$ 26.52                        | \$ 13.80             | \$ 862,139           | \$ 1,573,711         | \$ 121,793          | \$ 2,557,643          |
| 21 3/4"                                    | 696              | 8,347                  | 42,025                    | 46.47                           | 13.80                | 387,885              | 579,944              | 48,391              | 1,016,221             |
| 22 1"                                      | 1,433            | 17,201                 | 130,986                   | 102.08                          | 13.80                | 1,755,878            | 1,807,611            | 178,174             | 3,741,663             |
| 23 1 1/2"                                  | 839              | 10,062                 | 215,099                   | 201.85                          | 13.80                | 2,031,015            | 2,968,360            | 249,969             | 5,249,344             |
| 24 2"                                      | 811              | 9,730                  | 369,600                   | 337.28                          | 13.80                | 3,281,734            | 5,100,481            | 419,111             | 8,801,327             |
| 25 3"                                      | 235              | 2,822                  | 290,734                   | 766.42                          | 13.80                | 2,162,837            | 4,012,125            | 308,748             | 6,483,710             |
| 26 4"                                      | 181              | 2,167                  | 460,326                   | 1,313.93                        | 13.80                | 2,847,286            | 6,352,502            | 459,989             | 9,659,778             |
| 27 6"                                      | 77               | 918                    | 299,339                   | 3,174.80                        | 13.80                | 2,914,466            | 4,130,872            | 352,267             | 7,397,605             |
| 28 8"                                      | 6                | 75                     | 124,496                   | 5,784.48                        | 13.80                | 433,836              | 1,718,051            | 107,594             | 2,259,481             |
| 29 10" & Above                             | -                | -                      | -                         | 9,582.36                        | 13.80                | -                    | -                    | -                   | -                     |
| 30 Unmetered                               | 1                | 12                     | -                         | 82.92                           | -                    | 995                  | -                    | 50                  | 1,045                 |
| 31 <i>Total: Commercial</i>                | 6,987            | 83,843                 | 2,046,642                 |                                 |                      | \$ 16,678,072        | \$ 28,243,658        | \$ 2,246,086        | \$ 47,167,816         |
| <b>33 Industrial</b>                       |                  |                        |                           |                                 |                      |                      |                      |                     |                       |
| 34 5/8"                                    | 7                | 84                     | 1,840                     | \$ 26.52                        | \$ 12.13             | \$ 2,228             | \$ 22,323            | \$ 1,228            | \$ 25,778             |
| 35 3/4"                                    | 1                | 12                     | 6                         | 46.47                           | 12.13                | 558                  | 77                   | 32                  | 666                   |
| 36 1"                                      | 6                | 69                     | 2,568                     | 102.08                          | 12.13                | 7,044                | 31,146               | 1,909               | 40,099                |
| 37 1 1/2"                                  | -                | -                      | 16                        | 201.85                          | 12.13                | -                    | 198                  | 10                  | 208                   |
| 38 2"                                      | 5                | 60                     | 30,826                    | 337.28                          | 12.13                | 20,237               | 373,923              | 19,708              | 413,868               |
| 39 3"                                      | 3                | 33                     | 12,911                    | 766.42                          | 12.13                | 25,292               | 156,606              | 9,095               | 190,993               |
| 40 4"                                      | 5                | 65                     | 50,360                    | 1,313.93                        | 12.13                | 85,405               | 610,867              | 34,814              | 731,086               |
| 41 6"                                      | 2                | 24                     | 31,257                    | 3,174.80                        | 12.13                | 76,195               | 379,151              | 22,767              | 478,114               |
| 42 8"                                      | 2                | 24                     | 27,610                    | 5,784.48                        | 12.13                | 138,828              | 334,913              | 23,687              | 497,428               |
| 43 10" & Above                             | -                | -                      | -                         | 9,582.36                        | 12.13                | -                    | -                    | -                   | -                     |
| 44 <i>Total: Industrial</i>                | 31               | 371                    | 157,395                   |                                 |                      | \$ 355,786           | \$ 1,909,206         | \$ 113,250          | \$ 2,378,241          |
| <b>46 Health or Education</b>              |                  |                        |                           |                                 |                      |                      |                      |                     |                       |
| 47 5/8"                                    | 30               | 359                    | 688                       | \$ 26.52                        | \$ 16.29             | \$ 9,521             | \$ 11,202            | \$ 1,036            | \$ 21,759             |
| 48 3/4"                                    | 8                | 96                     | 603                       | 46.47                           | 16.29                | 4,461                | 9,817                | 714                 | 14,992                |
| 49 1"                                      | 20               | 239                    | 910                       | 102.08                          | 16.29                | 24,397               | 14,819               | 1,961               | 41,176                |
| 50 1 1/2"                                  | 63               | 755                    | 4,351                     | 201.85                          | 16.29                | 152,397              | 70,872               | 11,163              | 234,433               |
| 51 2"                                      | 130              | 1,561                  | 57,558                    | 337.28                          | 16.29                | 526,494              | 937,618              | 73,206              | 1,537,318             |
| 52 3"                                      | 87               | 1,048                  | 119,746                   | 766.42                          | 16.29                | 803,208              | 1,950,668            | 137,694             | 2,891,570             |
| 53 4"                                      | 67               | 800                    | 237,080                   | 1,313.93                        | 16.29                | 1,051,144            | 3,862,035            | 245,659             | 5,158,838             |
| 54 6"                                      | 31               | 368                    | 342,563                   | 3,174.80                        | 16.29                | 1,168,326            | 5,580,347            | 337,434             | 7,086,107             |
| 55 8"                                      | 2                | 21                     | 45,169                    | 5,784.48                        | 16.29                | 121,474              | 735,798              | 42,864              | 900,135               |
| 56 10" & Above                             | 2                | 19                     | 46,625                    | 9,582.36                        | 16.29                | 182,065              | 759,526              | 47,080              | 988,670               |
| 57 <i>Total: Health or Education</i>       | 439              | 5,266                  | 855,292                   |                                 |                      | \$ 4,043,487         | \$ 13,932,701        | \$ 898,809          | \$ 18,874,998         |
| <b>59 Municipal - Residential</b>          |                  |                        |                           |                                 |                      |                      |                      |                     |                       |
| 59 5/8"                                    | 18               | 219                    | 718                       | \$ 26.52                        | \$ 14.64             | \$ 5,808             | \$ 10,516            | \$ 816              | \$ 17,141             |
| 60 3/4"                                    | -                | -                      | -                         | 46.47                           | 14.64                | -                    | -                    | -                   | -                     |
| 61 1"                                      | 1                | 12                     | 53                        | 102.08                          | 14.64                | 1,225                | 775                  | 100                 | 2,100                 |
| 62 1 1/2"                                  | 1                | 12                     | 931                       | 201.85                          | 14.64                | 2,422                | 13,630               | 803                 | 16,855                |
| 63 2"                                      | -                | -                      | -                         | 337.28                          | 14.64                | -                    | -                    | -                   | -                     |
| 64 <i>Total: Municipal - Residential</i>   | 20               | 243                    | 1,702                     |                                 |                      | \$ 9,455             | \$ 24,922            | \$ 1,719            | \$ 36,096             |
| <b>59 Municipal - Commercial</b>           |                  |                        |                           |                                 |                      |                      |                      |                     |                       |
| 65 5/8"                                    | 58               | 697                    | 4,316                     | \$ 26.52                        | \$ 13.80             | \$ 18,484            | \$ 59,564            | \$ 3,902            | \$ 81,950             |
| 66 3/4"                                    | 6                | 77                     | 225                       | 46.47                           | 13.80                | 3,578                | 3,111                | 334                 | 7,024                 |
| 67 1"                                      | 43               | 517                    | 25,078                    | 102.08                          | 13.80                | 52,775               | 346,075              | 19,943              | 418,793               |
| 68 1 1/2"                                  | 34               | 409                    | 6,174                     | 201.85                          | 13.80                | 82,557               | 85,203               | 8,388               | 176,147               |
| 69 2"                                      | 49               | 593                    | 38,316                    | 337.28                          | 13.80                | 200,007              | 528,759              | 36,438              | 765,204               |
| 70 3"                                      | 14               | 167                    | 16,924                    | 766.42                          | 13.80                | 127,992              | 233,551              | 18,077              | 379,621               |
| 71 4"                                      | 2                | 25                     | 2,080                     | 1,313.93                        | 13.80                | 32,848               | 28,699               | 3,077               | 64,625                |
| 72 6"                                      | 3                | 35                     | 118,632                   | 3,174.80                        | 13.80                | 111,118              | 1,637,123            | 87,412              | 1,835,653             |
| 73 8"                                      | 2                | 29                     | 6,694                     | 5,784.48                        | 13.80                | 167,750              | 92,382               | 13,007              | 273,138               |
| 74 10" & Above                             | -                | -                      | -                         | 9,582.36                        | 13.80                | -                    | -                    | -                   | -                     |
| 75 <i>Total: Municipal - Commercial</i>    | 212              | 2,549                  | 218,440                   |                                 |                      | \$ 797,110           | \$ 3,014,467         | \$ 190,579          | \$ 4,002,156          |
| <b>77 Private Fire System</b>              |                  |                        |                           |                                 |                      |                      |                      |                     |                       |
| 78 1" or Less                              | 1,326            | 15,907                 | 7,469                     | \$ 15.43                        | \$ 39.05             | \$ 245,445           | \$ 291,652           | \$ 26,855           | \$ 563,952            |
| 79 1 1/2"-3"                               | 44               | 529                    | 772                       | \$ 46.28                        | \$ 39.05             | \$ 24,482            | \$ 30,134            | \$ 2,731            | \$ 57,347             |
| 80 4"                                      | 4                | 45                     | 55                        | \$ 152.25                       | \$ 39.05             | \$ 6,851             | \$ 2,148             | \$ 450              | \$ 9,449              |
| 81 6" or Greater                           | 16               | 190                    | 692                       | \$ 325.06                       | \$ 39.05             | \$ 61,761            | \$ 27,033            | \$ 4,440            | \$ 93,234             |
| 82 <i>Total: Private Fire System</i>       | 1,389            | 16,671                 | 8,982                     |                                 |                      | \$ 338,540           | \$ 350,967           | \$ 34,475           | \$ 723,982            |
| 84 Public Fire (Hydrants)                  | 7,508            | 90,096                 | -                         | \$ 14.68                        | \$ -                 | \$ 1,322,609         | \$ -                 | \$ -                | \$ 1,322,609          |
| <b>86 Total: Water (Units &amp; Sales)</b> | <b>82,982</b>    | <b>995,787</b>         | <b>5,241,345</b>          |                                 |                      | <b>\$ 45,950,411</b> | <b>\$ 75,873,880</b> | <b>\$ 6,025,084</b> | <b>\$ 127,849,375</b> |

(1) Represents billable customer usage above minimum allowance included in minimum charge

**Pittsburgh Water & Sewer Authority  
Rate Case 2023  
Rate Revenue at Proposed Rates**

|   | FY 2024          |                        | Proposed Rates            |                     |                      | FY 2024              |                      |                      |                       |
|---|------------------|------------------------|---------------------------|---------------------|----------------------|----------------------|----------------------|----------------------|-----------------------|
|   | Number of Meters | Number of Annual Bills | Billable Usage (Kgal) (1) | Monthly Min. Charge | Volume Charge (Kgal) | Min. Charge Revenue  | Vol. Charge Revenue  | DSIC (7.5%)          | Total Rate Revenue    |
| <b>1 Water Revenues</b>                           |                  |                        |                           |                     |                      |                      |                      |                      |                       |
| 2 <u>Residential</u>                              |                  |                        |                           |                     |                      |                      |                      |                      |                       |
| 3 5/8"  | 56,863           | 682,360                | 1,583,614                 | \$ 32.43            | \$ 17.12             | \$ 22,128,948        | \$ 27,111,469        | \$ 3,693,031         | \$ 52,933,448         |
| 4 3/4"  | 2,526            | 30,308                 | 113,350                   | 54.74               | 17.12                | 1,659,049            | 1,940,551            | 269,970              | 3,869,570             |
| 5 1"  | 2,045            | 24,535                 | 118,986                   | 113.88              | 17.12                | 2,794,091            | 2,037,046            | 362,335              | 5,193,473             |
| 6 1 1/2"  | 38               | 452                    | 1,623                     | 225.41              | 17.12                | 101,885              | 27,788               | 9,725                | 139,398               |
| 7 2"  | 6                | 68                     | 771                       | 373.78              | 17.12                | 25,417               | 13,200               | 2,896                | 41,513                |
| 8 Unmetered                                       | 333              | 3,996                  | -                         | 83.79               | -                    | 334,825              | -                    | 25,112               | 359,937               |
| 9 <i>Total: Residential</i>                       | 61,810           | 741,720                | 1,818,344                 |                     |                      | \$ 27,044,215        | \$ 31,130,054        | \$ 4,363,070         | \$ 62,537,340         |
| 10  |                  |                        |                           |                     |                      |                      |                      |                      |                       |
| 11 <u>Residential - CAP</u>                       |                  |                        |                           |                     |                      |                      |                      |                      |                       |
| 12 5/8"   | 4,518            | 54,220                 | 107,437                   | \$ -                | \$ 17.12             | \$ -                 | \$ 1,839,315         | \$ 137,949           | \$ 1,977,264          |
| 13 3/4"   | 42               | 502                    | 620                       | -                   | 17.12                | -                    | 10,615               | 796                  | 11,411                |
| 14 1"   | 25               | 294                    | 215                       | -                   | 17.12                | -                    | 3,681                | 276                  | 3,957                 |
| 15 Unmetered                                      | 1                | 12                     | -                         | 51.36               | -                    | 616                  | -                    | 46                   | 663                   |
| 16 Volume Discount Customers                      | -                | -                      | 26,271                    | -                   | 8.56                 | -                    | 224,877              | 16,866               | 241,743               |
| 17 <i>Total: Residential - CAP</i>                | 4,586            | 55,028                 | 134,542                   |                     |                      | \$ 616               | \$ 2,078,489         | \$ 155,933           | \$ 2,235,038          |
| 18  |                  |                        |                           |                     |                      |                      |                      |                      |                       |
| 19 <u>Commercial</u>                              |                  |                        |                           |                     |                      |                      |                      |                      |                       |
| 20 5/8"   | 2,709            | 32,509                 | 114,037                   | \$ 32.43            | \$ 18.95             | \$ 1,054,267         | \$ 2,161,002         | \$ 241,145           | \$ 3,456,414          |
| 21 3/4"   | 696              | 8,347                  | 42,025                    | 54.74               | 18.95                | 456,915              | 796,373              | 93,997               | 1,347,284             |
| 22 1"   | 1,433            | 17,201                 | 130,986                   | 113.88              | 18.95                | 1,958,850            | 2,482,190            | 333,078              | 4,774,118             |
| 23 1 1/2"   | 839              | 10,062                 | 215,099                   | 225.41              | 18.95                | 2,268,075            | 4,076,118            | 475,814              | 6,820,008             |
| 24 2"   | 811              | 9,730                  | 369,600                   | 373.78              | 18.95                | 3,636,879            | 7,003,922            | 798,060              | 11,438,861            |
| 25 3"   | 235              | 2,822                  | 290,734                   | 832.40              | 18.95                | 2,349,033            | 5,509,403            | 589,383              | 8,447,819             |
| 26 4"   | 181              | 2,167                  | 460,326                   | 1,408.27            | 18.95                | 3,051,721            | 8,723,182            | 883,118              | 12,658,021            |
| 27 6"   | 77               | 918                    | 299,339                   | 3,322.70            | 18.95                | 3,050,239            | 5,672,466            | 654,203              | 9,376,907             |
| 28 8"   | 6                | 75                     | 124,496                   | 5,968.71            | 18.95                | 447,653              | 2,359,208            | 210,515              | 3,017,375             |
| 29 10" & Above                                    | -                | -                      | -                         | 9,753.09            | 18.95                | -                    | -                    | -                    | -                     |
| 30 Unmetered                                      | 1                | 12                     | -                         | 108.23              | 18.95                | 1,299                | -                    | 97                   | 1,396                 |
| 31 <i>Total: Commercial</i>                       | 6,987            | 83,843                 | 2,046,642                 |                     |                      | \$ 18,274,931        | \$ 38,783,863        | \$ 4,279,410         | \$ 61,338,203         |
| 32  |                  |                        |                           |                     |                      |                      |                      |                      |                       |
| 33 <u>Industrial</u>                              |                  |                        |                           |                     |                      |                      |                      |                      |                       |
| 34 5/8"   | 7                | 84                     | 1,840                     | \$ 32.43            | \$ 17.14             | \$ 2,724             | \$ 31,543            | \$ 2,570             | \$ 36,837             |
| 35 3/4"   | 1                | 12                     | 6                         | 54.74               | 17.14                | 657                  | 108                  | 57                   | 823                   |
| 36 1"   | 6                | 69                     | 2,568                     | 113.88              | 17.14                | 7,858                | 44,011               | 3,890                | 55,759                |
| 37 1 1/2"   | -                | -                      | 16                        | 225.41              | 17.14                | -                    | 280                  | 21                   | 301                   |
| 38 2"   | 5                | 60                     | 30,826                    | 373.78              | 17.14                | 22,427               | 528,363              | 41,309               | 592,099               |
| 39 3"   | 3                | 33                     | 12,911                    | 832.40              | 17.14                | 27,469               | 221,289              | 18,657               | 267,415               |
| 40 4"   | 5                | 65                     | 50,360                    | 1,408.27            | 17.14                | 91,538               | 863,170              | 71,603               | 1,026,311             |
| 41 6"   | 2                | 24                     | 31,257                    | 3,322.70            | 17.14                | 79,745               | 535,751              | 46,162               | 661,658               |
| 42 8"   | 2                | 24                     | 27,610                    | 5,968.71            | 17.14                | 143,249              | 473,241              | 46,237               | 662,727               |
| 43 10" & Above                                    | -                | -                      | -                         | 9,753.09            | 17.14                | -                    | -                    | -                    | -                     |
| 44 <i>Total: Industrial</i>                       | 31               | 371                    | 157,395                   |                     |                      | \$ 375,666           | \$ 2,697,757         | \$ 230,507           | \$ 3,303,929          |
| 45  |                  |                        |                           |                     |                      |                      |                      |                      |                       |
| 46 <u>Health or Education</u>                     |                  |                        |                           |                     |                      |                      |                      |                      |                       |
| 47 5/8"   | 30               | 359                    | 688                       | \$ 32.43            | \$ 22.98             | \$ 11,642            | \$ 15,803            | \$ 2,058             | \$ 29,503             |
| 48 3/4"   | 8                | 96                     | 603                       | 54.74               | 22.98                | 5,255                | 13,849               | 1,433                | 20,536                |
| 49 1"   | 20               | 239                    | 910                       | 113.88              | 22.98                | 27,217               | 20,904               | 3,609                | 51,731                |
| 50 1 1/2"   | 63               | 755                    | 4,351                     | 225.41              | 22.98                | 170,185              | 99,978               | 20,262               | 290,425               |
| 51 2"   | 130              | 1,561                  | 57,558                    | 373.78              | 22.98                | 583,471              | 1,322,681            | 142,961              | 2,049,112             |
| 52 3"   | 87               | 1,048                  | 119,746                   | 832.40              | 22.98                | 872,355              | 2,751,771            | 271,809              | 3,895,935             |
| 53 4"   | 67               | 800                    | 237,080                   | 1,408.27            | 22.98                | 1,126,616            | 5,448,101            | 493,104              | 7,067,821             |
| 54 6"   | 31               | 368                    | 342,563                   | 3,322.70            | 22.98                | 1,222,754            | 7,872,091            | 682,113              | 9,776,958             |
| 55 8"   | 2                | 21                     | 45,169                    | 5,968.71            | 22.98                | 125,343              | 1,037,976            | 87,249               | 1,250,568             |
| 56 10" & Above                                    | 2                | 19                     | 46,625                    | 9,753.09            | 22.98                | 185,309              | 1,071,449            | 94,257               | 1,351,015             |
| 57 <i>Total: Health or Education</i>              | 439              | 5,266                  | 855,292                   |                     |                      | \$ 4,330,146         | \$ 19,654,603        | \$ 1,798,856         | \$ 25,783,605         |
| 58  |                  |                        |                           |                     |                      |                      |                      |                      |                       |
| 59 <u>Municipal - Residential</u>                 |                  |                        |                           |                     |                      |                      |                      |                      |                       |
| 60 5/8"   | 18               | 219                    | 718                       | \$ 32.43            | \$ 17.12             | \$ 7,102             | \$ 12,298            | \$ 1,455             | \$ 20,855             |
| 61 3/4"   | -                | -                      | -                         | 54.74               | 17.12                | -                    | -                    | -                    | -                     |
| 62 1"   | 1                | 12                     | 53                        | 113.88              | 17.12                | 1,367                | 907                  | 171                  | 2,444                 |
| 63 1 1/2"   | 1                | 12                     | 931                       | 225.41              | 17.12                | 2,705                | 15,939               | 1,398                | 20,042                |
| 64 2"   | -                | -                      | -                         | 373.78              | 17.12                | -                    | -                    | -                    | -                     |
| 65 <i>Total: Municipal - Residential</i>          | 20               | 243                    | 1,702                     |                     |                      | \$ 11,174            | \$ 29,144            | \$ 3,024             | \$ 43,341             |
| 66  |                  |                        |                           |                     |                      |                      |                      |                      |                       |
| 67 <u>Municipal - Commercial</u>                  |                  |                        |                           |                     |                      |                      |                      |                      |                       |
| 68 5/8"   | 58               | 697                    | 4,316                     | \$ 32.43            | \$ 18.95             | \$ 22,604            | \$ 81,792            | \$ 7,830             | \$ 112,225            |
| 69 3/4"   | 6                | 77                     | 225                       | 54.74               | 18.95                | 4,215                | 4,272                | 637                  | 9,124                 |
| 70 1"   | 43               | 517                    | 25,078                    | 113.88              | 18.95                | 58,876               | 475,226              | 40,058               | 574,160               |
| 71 1 1/2"   | 34               | 409                    | 6,174                     | 225.41              | 18.95                | 92,193               | 116,999              | 15,689               | 224,881               |
| 72 2"   | 49               | 593                    | 38,316                    | 373.78              | 18.95                | 221,652              | 726,086              | 71,080               | 1,018,818             |
| 73 3"   | 14               | 167                    | 16,924                    | 832.40              | 18.95                | 139,011              | 320,710              | 34,479               | 494,200               |
| 74 4"   | 2                | 25                     | 2,080                     | 1,408.27            | 18.95                | 35,207               | 39,410               | 5,596                | 80,213                |
| 75 6"   | 3                | 35                     | 118,632                   | 3,322.70            | 18.95                | 116,295              | 2,248,078            | 177,328              | 2,541,701             |
| 76 8"   | 2                | 29                     | 6,694                     | 5,968.71            | 18.95                | 173,093              | 126,858              | 22,496               | 322,446               |
| 77 10" & Above                                    | -                | -                      | -                         | 9,753.09            | 18.95                | -                    | -                    | -                    | -                     |
| 78 <i>Total: Municipal - Commercial</i>           | 212              | 2,549                  | 218,440                   |                     |                      | \$ 863,144           | \$ 4,139,431         | \$ 375,193           | \$ 5,377,768          |
| 79  |                  |                        |                           |                     |                      |                      |                      |                      |                       |
| 80 <u>Private Fire System</u>                     |                  |                        |                           |                     |                      |                      |                      |                      |                       |
| 81 1" or Less                                     | 1,326            | 15,907                 | 7,469                     | \$ 31.38            | \$ 31.79             | \$ 499,162           | \$ 237,430           | \$ 55,244            | \$ 791,836            |
| 82 1 1/2"-3"                                      | 44               | 529                    | 772                       | 97.59               | 31.79                | 51,625               | 24,531               | 5,712                | 81,868                |
| 83 4"   | 4                | 45                     | 55                        | 314.86              | 31.79                | 14,169               | 1,748                | 1,194                | 17,111                |
| 84 6" or Greater                                  | 16               | 190                    | 692                       | 654.53              | 31.79                | 124,361              | 22,007               | 10,978               | 157,346               |
| 85 <i>Total: Private Fire System</i>              | 1,389            | 16,671                 | 8,988                     |                     |                      | \$ 689,316           | \$ 285,177           | \$ 73,127            | \$ 1,048,160          |
| 86  |                  |                        |                           |                     |                      |                      |                      |                      |                       |
| 87 Public Fire (Hydrants)                         | 7,508            | 90,096                 | -                         | \$ 21.80            | \$ -                 | \$ 1,964,093         | \$ -                 | \$ -                 | \$ 1,964,093          |
| 88  |                  |                        |                           |                     |                      |                      |                      |                      |                       |
| 89 <b><i>Total: Water (Units &amp; Sales)</i></b> | <b>82,982</b>    | <b>995,787</b>         | <b>5,241,345</b>          |                     |                      | <b>\$ 53,553,301</b> | <b>\$ 98,799,057</b> | <b>\$ 11,279,120</b> | <b>\$ 163,631,477</b> |

(1) Represents billable customer usage above minimum allowance included in minimum charge

**Pittsburgh Water & Sewer Authority  
Rate Case 2023  
Rate Revenue at Current Rates**

|   | FY 2024          |                        | PUC Approved Prior Tariff Rates |                     |                      | FY 2024              |                      |                     |                      |
|---|------------------|------------------------|---------------------------------|---------------------|----------------------|----------------------|----------------------|---------------------|----------------------|
|   | Number of Meters | Number of Annual Bills | Billable Usage (Kgal) (1)       | Monthly Min. Charge | Volume Charge (Kgal) | Min. Charge Revenue  | Vol. Charge Revenue  | DSIC (5%)           | Total Rate Revenue   |
| <b>1 Wastewater Revenues</b>                    |                  |                        |                                 |                     |                      |                      |                      |                     |                      |
| <b>2 Residential</b>                            |                  |                        |                                 |                     |                      |                      |                      |                     |                      |
| 3 5/8"  | 78,764           | 945,171                | 2,158,090                       | \$ 7.32             | \$ 5.81              | \$ 6,918,652         | \$ 12,538,506        | \$ 972,858          | \$ 20,430,015        |
| 4 3/4"  | 2,609            | 31,308                 | 114,532                         | 11.70               | 5.81                 | 366,304              | 665,433              | 51,587              | 1,083,323            |
| 5 1"  | 2,078            | 24,933                 | 120,510                         | 24.27               | 5.81                 | 605,124              | 700,163              | 65,264              | 1,370,551            |
| 6 1 1/2"  | 46               | 546                    | 1,642                           | 46.19               | 5.81                 | 25,220               | 9,539                | 1,738               | 36,496               |
| 7 2"  | 9                | 108                    | 794                             | 76.29               | 5.81                 | 8,239                | 4,615                | 643                 | 13,497               |
| 8 Unmetered                                     | 333              | 3,996                  | -                               | 24.75               | -                    | 98,901               | -                    | 4,945               | 103,846              |
| 9 <i>Total: Residential</i>                     | 83,839           | 1,006,062              | 2,395,569                       |                     |                      | \$ 8,022,439         | \$ 13,918,255        | \$ 1,097,035        | \$ 23,037,729        |
| <b>10 Residential - CAP</b>                     |                  |                        |                                 |                     |                      |                      |                      |                     |                      |
| 11 5/8"   | 6,490            | 77,884                 | 161,366                         | \$ -                | \$ 5.81              | \$ -                 | \$ 937,539           | \$ 46,877           | \$ 984,416           |
| 12 3/4"   | 53               | 632                    | 656                             | -                   | 5.81                 | -                    | 3,810                | 190                 | 4,000                |
| 13 1"   | 29               | 342                    | 217                             | -                   | 5.81                 | -                    | 1,263                | 63                  | 1,326                |
| 14 Unmetered                                    | 1                | 12                     | -                               | 17.43               | -                    | 209                  | -                    | 10                  | 220                  |
| 15 Volume Discount Customers                    | -                | -                      | 31,931                          | -                   | 4.65                 | -                    | 148,415              | 7,421               | 155,836              |
| 16 <i>Total: Residential - CAP</i>              | 6,573            | 78,870                 | 162,239                         |                     |                      | \$ 209               | \$ 1,091,026         | \$ 54,562           | \$ 1,145,797         |
| <b>17 Commercial</b>                            |                  |                        |                                 |                     |                      |                      |                      |                     |                      |
| 18 5/8"   | 3,728            | 44,741                 | 168,905                         | \$ 7.32             | \$ 5.28              | \$ 327,504           | \$ 891,818           | \$ 60,966           | \$ 1,280,288         |
| 19 3/4"   | 816              | 9,787                  | 58,660                          | 11.70               | 5.28                 | 114,508              | 309,725              | 21,212              | 445,445              |
| 20 1"   | 1,675            | 20,095                 | 211,969                         | 24.27               | 5.28                 | 487,706              | 1,119,198            | 80,345              | 1,687,249            |
| 21 1 1/2"                                       | 876              | 10,506                 | 241,267                         | 46.19               | 5.28                 | 485,272              | 1,273,889            | 87,958              | 1,847,119            |
| 22 2"   | 895              | 10,736                 | 424,230                         | 76.29               | 5.28                 | 819,049              | 2,239,932            | 152,949             | 3,211,931            |
| 23 3"   | 233              | 2,797                  | 290,386                         | 173.03              | 5.28                 | 483,965              | 1,533,238            | 100,860             | 2,118,063            |
| 24 4"   | 193              | 2,316                  | 471,167                         | 297.52              | 5.28                 | 689,056              | 2,487,764            | 158,841             | 3,335,661            |
| 25 6"   | 90               | 1,085                  | 309,074                         | 725.62              | 5.28                 | 787,298              | 1,631,910            | 120,960             | 2,540,168            |
| 26 8"   | 6                | 75                     | 131,239                         | 1,330.48            | 5.28                 | 99,786               | 692,944              | 39,637              | 832,367              |
| 27 10" & Above                                  | -                | -                      | -                               | 2,218.44            | 5.28                 | -                    | -                    | -                   | -                    |
| 28 Unmetered                                    | 1                | 12                     | -                               | 28.44               | -                    | 341                  | -                    | 17                  | 358                  |
| 29 <i>Total: Commercial</i>                     | 8,513            | 102,150                | 2,306,897                       |                     |                      | \$ 4,294,485         | \$ 12,180,418        | \$ 823,745          | \$ 17,298,649        |
| <b>30 Industrial</b>                            |                  |                        |                                 |                     |                      |                      |                      |                     |                      |
| 31 5/8"   | 7                | 84                     | 1,840                           | \$ 7.32             | \$ 5.05              | \$ 615               | \$ 9,292             | \$ 495              | \$ 10,402            |
| 32 3/4"   | 1                | 12                     | 6                               | 11.70               | 5.05                 | 140                  | 32                   | 9                   | 181                  |
| 33 1"   | 6                | 69                     | 2,568                           | 24.27               | 5.05                 | 1,675                | 12,967               | 732                 | 15,374               |
| 34 1 1/2"                                       | -                | -                      | 16                              | 46.19               | 5.05                 | -                    | 82                   | 4                   | 87                   |
| 35 2"   | 7                | 85                     | 33,746                          | 76.29               | 5.05                 | 6,485                | 170,418              | 8,845               | 185,748              |
| 36 3"   | 3                | 33                     | 14,190                          | 173.03              | 5.05                 | 5,710                | 71,660               | 3,868               | 81,238               |
| 37 4"   | 6                | 77                     | 55,769                          | 297.52              | 5.05                 | 22,909               | 281,636              | 15,227              | 319,772              |
| 38 6"   | 2                | 24                     | 31,257                          | 725.62              | 5.05                 | 17,415               | 157,850              | 8,763               | 184,028              |
| 39 8"   | 2                | 24                     | 27,610                          | 1,330.48            | 5.05                 | 31,932               | 139,432              | 8,568               | 179,932              |
| 40 10" & Above                                  | -                | -                      | -                               | 2,218.44            | 5.05                 | -                    | -                    | -                   | -                    |
| 41 <i>Total: Industrial</i>                     | 34               | 408                    | 167,004                         |                     |                      | \$ 86,880            | \$ 843,369           | \$ 46,512           | \$ 976,761           |
| <b>42 Health or Education</b>                   |                  |                        |                                 |                     |                      |                      |                      |                     |                      |
| 43 5/8"   | 30               | 359                    | 688                             | \$ 7.32             | \$ 6.38              | \$ 2,628             | \$ 4,387             | \$ 351              | \$ 7,366             |
| 44 3/4"   | 8                | 96                     | 603                             | 11.70               | 6.38                 | 1,123                | 3,845                | 248                 | 5,216                |
| 45 1"   | 20               | 239                    | 920                             | 24.27               | 6.38                 | 5,801                | 5,867                | 583                 | 12,251               |
| 46 1 1/2"                                       | 63               | 755                    | 4,351                           | 46.19               | 6.38                 | 34,873               | 27,757               | 3,132               | 65,762               |
| 47 2"   | 130              | 1,559                  | 57,586                          | 76.29               | 6.38                 | 118,936              | 367,398              | 24,317              | 510,651              |
| 48 3"   | 87               | 1,048                  | 120,277                         | 173.03              | 6.38                 | 181,335              | 767,367              | 47,435              | 996,138              |
| 49 4"   | 67               | 800                    | 237,843                         | 297.52              | 6.38                 | 238,016              | 1,517,441            | 87,773              | 1,843,230            |
| 50 6"   | 31               | 373                    | 342,546                         | 725.62              | 6.38                 | 270,656              | 2,185,444            | 122,805             | 2,578,905            |
| 51 8"   | 2                | 21                     | 47,436                          | 1,330.48            | 6.38                 | 27,940               | 302,642              | 16,529              | 347,111              |
| 52 10" & Above                                  | 2                | 19                     | 46,625                          | 2,218.44            | 6.38                 | 42,150               | 297,469              | 16,981              | 356,601              |
| 53 <i>Total: Health or Education</i>            | 439              | 5,269                  | 858,874                         |                     |                      | \$ 923,459           | \$ 5,479,618         | \$ 320,154          | \$ 6,723,231         |
| <b>54 Municipal - Residential</b>               |                  |                        |                                 |                     |                      |                      |                      |                     |                      |
| 55 5/8"   | 31               | 375                    | 779                             | \$ 7.32             | \$ 5.81              | \$ 2,745             | \$ 4,527             | \$ 364              | \$ 7,635             |
| 56 3/4"   | -                | -                      | -                               | 11.70               | 5.81                 | -                    | -                    | -                   | -                    |
| 57 1"   | 1                | 12                     | 53                              | 24.27               | 5.81                 | 291                  | 308                  | 30                  | 629                  |
| 58 1 1/2"                                       | 1                | 12                     | 931                             | 46.19               | 5.81                 | 554                  | 5,409                | 298                 | 6,262                |
| 59 2"   | -                | -                      | -                               | 76.29               | 5.81                 | -                    | -                    | -                   | -                    |
| 60 3"   | -                | -                      | -                               | -                   | -                    | -                    | -                    | -                   | -                    |
| 61 4"   | -                | -                      | -                               | -                   | -                    | -                    | -                    | -                   | -                    |
| 62 6"   | -                | -                      | -                               | -                   | -                    | -                    | -                    | -                   | -                    |
| 63 8"   | -                | -                      | -                               | -                   | -                    | -                    | -                    | -                   | -                    |
| 64 10" & Above                                  | -                | -                      | -                               | -                   | -                    | -                    | -                    | -                   | -                    |
| 65 <i>Total: Municipal - Residential</i>        | 33               | 399                    | 1,763                           |                     |                      | \$ 3,591             | \$ 10,243            | \$ 692              | \$ 14,526            |
| <b>66 Municipal - Commercial</b>                |                  |                        |                                 |                     |                      |                      |                      |                     |                      |
| 67 5/8"   | 67               | 803                    | 4,338                           | \$ 7.32             | \$ 5.28              | \$ 5,878             | \$ 22,906            | \$ 1,439            | \$ 30,223            |
| 68 3/4"   | 7                | 89                     | 225                             | 11.70               | 5.28                 | 1,041                | 1,190                | 112                 | 2,343                |
| 69 1"   | 47               | 565                    | 25,197                          | 24.27               | 5.28                 | 13,713               | 133,040              | 7,338               | 154,091              |
| 70 1 1/2"                                       | 34               | 409                    | 6,174                           | 46.19               | 5.28                 | 18,892               | 32,599               | 2,575               | 54,066               |
| 71 2"   | 50               | 602                    | 39,540                          | 76.29               | 5.28                 | 45,927               | 208,772              | 12,735              | 267,433              |
| 72 3"   | 14               | 167                    | 16,924                          | 173.03              | 5.28                 | 28,896               | 89,359               | 5,913               | 124,167              |
| 73 4"   | 2                | 25                     | 2,080                           | 297.52              | 5.28                 | 7,438                | 10,981               | 921                 | 19,340               |
| 74 6"   | 4                | 47                     | 116,935                         | 725.62              | 5.28                 | 34,104               | 617,418              | 32,576              | 684,098              |
| 75 8"   | 2                | 29                     | 6,694                           | 1,330.48            | 5.28                 | 38,584               | 35,346               | 3,696               | 77,626               |
| 76 10" & Above                                  | -                | -                      | -                               | 2,218.44            | 5.28                 | -                    | -                    | -                   | -                    |
| 77 <i>Total: Municipal - Commercial</i>         | 228              | 2,736                  | 218,108                         |                     |                      | \$ 194,472           | \$ 1,151,611         | \$ 67,304           | \$ 1,413,387         |
| <b>78 Wholesale</b>                             |                  |                        |                                 |                     |                      |                      |                      |                     |                      |
| 79 NRG Contract                                 |                  |                        | 15,794                          | \$                  | 4.12                 |                      | \$ 65,079            |                     | \$ 65,079            |
| <b>80 Total: Wastewater (Units &amp; Sales)</b> | <b>99,658</b>    | <b>1,195,894</b>       | <b>6,158,180</b>                |                     |                      | <b>\$ 13,525,536</b> | <b>\$ 34,739,620</b> | <b>\$ 2,410,004</b> | <b>\$ 50,675,160</b> |
|   |                  |                        | <b>15,794</b>                   |                     |                      |                      |                      |                     |                      |

(1) Represents billable customer usage above minimum allowance included in minimum charge

**Pittsburgh Water & Sewer Authority  
Rate Case 2023  
Rate Revenue at Proposed Rates**

|   | FY 2024          |                        | Proposed Rates            |                     |                      | FY 2024              |                      |                     |                      |
|---|------------------|------------------------|---------------------------|---------------------|----------------------|----------------------|----------------------|---------------------|----------------------|
|   | Number of Meters | Number of Annual Bills | Billable Usage (Kgal) (1) | Monthly Min. Charge | Volume Charge (Kgal) | Min. Charge Revenue  | Vol. Charge Revenue  | DSIC (7.5%)         | Total Rate Revenue   |
| <b>1 Wastewater Revenues</b>                    |                  |                        |                           |                     |                      |                      |                      |                     |                      |
| <b>2 Residential</b>                            |                  |                        |                           |                     |                      |                      |                      |                     |                      |
| 3 5/8"  | 78,764           | 945,171                | 2,158,090                 | \$ 7.42             | \$ 6.28              | \$ 7,013,169         | \$ 13,552,808        | \$ 1,542,448        | \$ 22,108,425        |
| 4 3/4"  | 2,609            | 31,308                 | 114,532                   | 11.43               | 6.28                 | 357,850              | 719,263              | 80,784              | 1,157,897            |
| 5 1"  | 2,078            | 24,933                 | 120,510                   | 22.50               | 6.28                 | 560,993              | 756,802              | 98,835              | 1,416,630            |
| 6 1 1/2"  | 46               | 546                    | 1,642                     | 42.56               | 6.28                 | 23,238               | 10,310               | 2,516               | 36,064               |
| 7 2"  | 9                | 108                    | 794                       | 69.68               | 6.28                 | 7,525                | 4,988                | 939                 | 13,452               |
| 8 Unmetered                                     | 333              | 3,996                  | -                         | 26.26               | -                    | 104,935              | -                    | 7,870               | 112,805              |
| 9 <i>Total: Residential</i>                     | 83,839           | 1,006,062              | 2,395,569                 |                     |                      | \$ 8,067,710         | \$ 15,044,173        | \$ 1,733,391        | \$ 24,845,274        |
| <b>10 Residential - CAP</b>                     |                  |                        |                           |                     |                      |                      |                      |                     |                      |
| 11 5/8"   | 6,490            | 77,884                 | 161,366                   | \$ -                | \$ 6.28              | \$ -                 | \$ 1,013,381         | \$ 76,004           | \$ 1,089,384         |
| 12 3/4"   | 53               | 632                    | 656                       | -                   | 6.28                 | -                    | 4,118                | 309                 | 4,426                |
| 13 1"   | 29               | 342                    | 217                       | -                   | 6.28                 | -                    | 1,365                | 102                 | 1,468                |
| 14 Unmetered                                    | 1                | 12                     | -                         | 18.84               | -                    | 226                  | -                    | 17                  | 243                  |
| 15 Volume Discount Customers                    | -                | -                      | 31,931                    | -                   | 3.14                 | -                    | 100,263              | 7,520               | 107,783              |
| 16 <i>Total: Residential - CAP</i>              | 6,573            | 78,870                 | 194,170                   |                     |                      | \$ 226               | \$ 1,119,127         | \$ 83,951           | \$ 1,203,305         |
| <b>17 Commercial</b>                            |                  |                        |                           |                     |                      |                      |                      |                     |                      |
| 18 5/8"   | 3,728            | 44,741                 | 168,905                   | \$ 7.42             | \$ 5.76              | \$ 331,978           | \$ 972,892           | \$ 97,865           | \$ 1,402,736         |
| 19 3/4"   | 816              | 9,787                  | 58,660                    | 11.43               | 5.76                 | 111,865              | 337,882              | 33,731              | 483,478              |
| 20 1"   | 1,675            | 20,095                 | 211,969                   | 22.50               | 5.76                 | 452,138              | 1,220,943            | 125,481             | 1,798,562            |
| 21 1 1/2"                                       | 876              | 10,506                 | 241,267                   | 42.56               | 5.76                 | 447,135              | 1,389,697            | 137,762             | 1,974,594            |
| 22 2"   | 895              | 10,736                 | 424,230                   | 69.68               | 5.76                 | 748,084              | 2,443,562            | 239,374             | 3,431,020            |
| 23 3"   | 233              | 2,797                  | 290,386                   | 155.24              | 5.76                 | 434,206              | 1,672,623            | 158,012             | 2,264,842            |
| 24 4"   | 193              | 2,316                  | 471,167                   | 264.10              | 5.76                 | 611,656              | 2,713,924            | 249,418             | 3,574,998            |
| 25 6"   | 90               | 1,085                  | 309,074                   | 632.71              | 5.76                 | 686,490              | 1,780,266            | 185,007             | 2,651,763            |
| 26 8"   | 6                | 75                     | 131,239                   | 1,148.40            | 5.76                 | 86,130               | 755,939              | 63,155              | 905,224              |
| 27 10" & Above                                  | -                | -                      | -                         | 1,896.72            | 5.76                 | -                    | -                    | -                   | -                    |
| 28 Unmetered                                    | 1                | 12                     | -                         | 30.46               | 5.76                 | 366                  | -                    | 27                  | 393                  |
| 29 <i>Total: Commercial</i>                     | 8,513            | 102,150                | 2,306,897                 |                     |                      | \$ 3,910,049         | \$ 13,287,729        | \$ 1,289,833        | \$ 18,487,611        |
| <b>30 Industrial</b>                            |                  |                        |                           |                     |                      |                      |                      |                     |                      |
| 31 5/8"   | 7                | 84                     | 1,840                     | \$ 7.42             | \$ 5.49              | \$ 623               | \$ 10,102            | \$ 804              | \$ 11,529            |
| 32 3/4"   | 1                | 12                     | 6                         | 11.43               | 5.49                 | 137                  | 35                   | 13                  | 185                  |
| 33 1"   | 6                | 69                     | 2,568                     | 22.50               | 5.49                 | 1,553                | 14,097               | 1,174               | 16,823               |
| 34 1 1/2"                                       | -                | -                      | 16                        | 42.56               | 5.49                 | -                    | 90                   | 7                   | 96                   |
| 35 2"   | 7                | 85                     | 33,746                    | 69.68               | 5.49                 | 5,923                | 185,266              | 14,339              | 205,528              |
| 36 3"   | 3                | 33                     | 14,190                    | 155.24              | 5.49                 | 5,123                | 77,903               | 6,227               | 89,253               |
| 37 4"   | 6                | 77                     | 55,769                    | 264.10              | 5.49                 | 20,336               | 306,174              | 24,488              | 350,998              |
| 38 6"   | 2                | 24                     | 31,257                    | 632.71              | 5.49                 | 15,185               | 171,603              | 14,009              | 200,797              |
| 39 8"   | 2                | 24                     | 27,610                    | 1,148.40            | 5.49                 | 27,562               | 151,581              | 13,436              | 192,578              |
| 40 10" & Above                                  | -                | -                      | -                         | 1,896.72            | 5.49                 | -                    | -                    | -                   | -                    |
| 41 <i>Total: Industrial</i>                     | 34               | 408                    | 167,004                   |                     |                      | \$ 76,441            | \$ 916,850           | \$ 74,497           | \$ 1,067,788         |
| <b>42 Health or Education</b>                   |                  |                        |                           |                     |                      |                      |                      |                     |                      |
| 43 5/8"   | 30               | 359                    | 688                       | \$ 7.42             | \$ 6.33              | \$ 2,664             | \$ 4,353             | \$ 526              | \$ 7,543             |
| 44 3/4"   | 8                | 96                     | 603                       | 11.43               | 6.33                 | 1,097                | 3,815                | 368                 | 5,280                |
| 45 1"   | 20               | 239                    | 920                       | 22.50               | 6.33                 | 5,378                | 5,822                | 840                 | 12,039               |
| 46 1 1/2"                                       | 63               | 755                    | 4,351                     | 42.56               | 6.33                 | 32,133               | 27,540               | 4,475               | 64,148               |
| 47 2"   | 130              | 1,559                  | 57,586                    | 69.68               | 6.33                 | 108,631              | 364,519              | 35,486              | 508,636              |
| 48 3"   | 87               | 1,048                  | 120,277                   | 155.24              | 6.33                 | 162,692              | 761,353              | 69,303              | 993,348              |
| 49 4"   | 67               | 800                    | 237,843                   | 264.10              | 6.33                 | 211,280              | 1,505,549            | 128,762             | 1,845,591            |
| 50 6"   | 31               | 373                    | 342,546                   | 632.71              | 6.33                 | 236,001              | 2,168,317            | 180,324             | 2,584,641            |
| 51 8"   | 2                | 21                     | 47,436                    | 1,148.40            | 6.33                 | 24,116               | 300,270              | 24,329              | 348,715              |
| 52 10" & Above                                  | 2                | 19                     | 46,625                    | 1,896.72            | 6.33                 | 36,038               | 295,138              | 24,838              | 356,014              |
| 53 <i>Total: Health or Education</i>            | 439              | 5,269                  | 858,874                   |                     |                      | \$ 820,029           | \$ 5,436,675         | \$ 469,253          | \$ 6,725,956         |
| <b>54 Municipal - Residential</b>               |                  |                        |                           |                     |                      |                      |                      |                     |                      |
| 55 5/8"   | 31               | 375                    | 779                       | \$ 7.42             | \$ 6.28              | \$ 2,783             | \$ 4,893             | \$ 576              | \$ 8,251             |
| 56 3/4"   | -                | -                      | -                         | 11.43               | 6.28                 | -                    | -                    | -                   | -                    |
| 57 1"   | 1                | 12                     | 53                        | 22.50               | 6.28                 | 270                  | 333                  | 45                  | 648                  |
| 58 1 1/2"                                       | 1                | 12                     | 931                       | 42.56               | 6.28                 | 511                  | 5,847                | 477                 | 6,834                |
| 59 2"   | -                | -                      | -                         | 69.68               | 6.28                 | -                    | -                    | -                   | -                    |
| 60 3"   | -                | -                      | -                         | -                   | -                    | -                    | -                    | -                   | -                    |
| 61 4"   | -                | -                      | -                         | -                   | -                    | -                    | -                    | -                   | -                    |
| 62 6"   | -                | -                      | -                         | -                   | -                    | -                    | -                    | -                   | -                    |
| 63 8"   | -                | -                      | -                         | -                   | -                    | -                    | -                    | -                   | -                    |
| 64 10" & Above                                  | -                | -                      | -                         | -                   | -                    | -                    | -                    | -                   | -                    |
| 65 <i>Total: Municipal - Residential</i>        | 33               | 399                    | 1,763                     |                     |                      | \$ 3,563             | \$ 11,072            | \$ 1,098            | \$ 15,733            |
| <b>66 Municipal - Commercial</b>                |                  |                        |                           |                     |                      |                      |                      |                     |                      |
| 67 5/8"   | 67               | 803                    | 4,338                     | \$ 7.42             | \$ 5.76              | \$ 5,958             | \$ 24,988            | \$ 2,321            | \$ 33,268            |
| 68 3/4"   | 7                | 89                     | 225                       | 11.43               | 5.76                 | 1,017                | 1,299                | 174                 | 2,490                |
| 69 1"   | 47               | 565                    | 25,197                    | 22.50               | 5.76                 | 12,713               | 145,135              | 11,839              | 169,686              |
| 70 1 1/2"                                       | 34               | 409                    | 6,174                     | 42.56               | 5.76                 | 17,407               | 35,563               | 3,973               | 56,943               |
| 71 2"   | 50               | 602                    | 39,540                    | 69.68               | 5.76                 | 41,947               | 227,751              | 20,227              | 289,926              |
| 72 3"   | 14               | 167                    | 16,924                    | 155.24              | 5.76                 | 25,925               | 97,482               | 9,256               | 132,663              |
| 73 4"   | 2                | 25                     | 2,080                     | 264.10              | 5.76                 | 6,603                | 11,979               | 1,394               | 19,975               |
| 74 6"   | 4                | 47                     | 116,935                   | 632.71              | 5.76                 | 29,737               | 673,546              | 52,746              | 756,030              |
| 75 8"   | 2                | 29                     | 6,694                     | 1,148.40            | 5.76                 | 33,304               | 38,559               | 5,390               | 77,253               |
| 76 10" & Above                                  | -                | -                      | -                         | 1,896.72            | 5.76                 | -                    | -                    | -                   | -                    |
| 77 <i>Total: Municipal - Commercial</i>         | 228              | 2,736                  | 218,108                   |                     |                      | \$ 174,611           | \$ 1,256,303         | \$ 107,319          | \$ 1,538,232         |
| <b>78 Wholesale</b>                             |                  |                        |                           |                     |                      |                      |                      |                     |                      |
| 79 NRG Contract                                 |                  |                        | 15,794                    | \$                  | 4.12                 |                      | \$ 65,079            |                     | \$ 65,079            |
| <b>80 Total: Wastewater (Units &amp; Sales)</b> | <b>99,658</b>    | <b>1,195,894</b>       | <b>6,142,386</b>          |                     |                      | <b>\$ 13,052,629</b> | <b>\$ 37,137,007</b> | <b>\$ 3,759,342</b> | <b>\$ 53,948,977</b> |

(1) Represents billable customer usage above minimum allowance included in minimum charge



**Pittsburgh Water & Sewer Authority  
Rate Case 2023  
Rate Revenue at Current Rates**

|   | FY 2024           |                |                        | PUC Approved Prior Tariff Rates |  | FY 2024              |             |             |                      |
|---|-------------------|----------------|------------------------|---------------------------------|--|----------------------|-------------|-------------|----------------------|
|   | Number of Parcels | Number of EDUs | Number of Annual Bills | Monthly EDU Rate                |  | EDU Charge Revenue   |             | DSIC (0%)   | Total Revenue        |
| 1 <b>Stormwater Revenues</b>                    |                   |                |                        |                                 |  |                      |             |             |                      |
| 2 <u>Residential</u>                            |                   |                |                        |                                 |  |                      |             |             |                      |
| 3 Tier 1  | 11,231            | 5,615          | 134,772                | \$ 3.98                         |  | \$ 536,393           | \$ -        | \$ -        | \$ 536,393           |
| 4 Tier 2  | 58,537            | 58,537         | 702,444                | 7.95                            |  | 5,584,430            | -           | -           | 5,584,430            |
| 5 Tier 3  | 12,782            | 25,564         | 153,384                | 15.90                           |  | 2,438,806            | -           | -           | 2,438,806            |
| 6 Other   | -                 | -              | -                      | 7.95                            |  | -                    | -           | -           | -                    |
| 7 <i>Total: Residential</i>                     | <u>82,550</u>     | <u>89,716</u>  | <u>990,600</u>         |                                 |  | <u>\$ 8,559,628</u>  | <u>\$ -</u> | <u>\$ -</u> | <u>\$ 8,559,628</u>  |
| 8   |                   |                |                        |                                 |  |                      |             |             |                      |
| 9 <u>Residential - CAP</u>                      |                   |                |                        |                                 |  |                      |             |             |                      |
| 10 Tier 1                                       | 1,457             | 729            | 17,484                 | \$ 0.60                         |  | \$ 10,490            | \$ -        | \$ -        | \$ 10,490            |
| 11 Tier 2                                       | 5,658             | 5,658          | 67,896                 | 1.20                            |  | 81,475               | -           | -           | 81,475               |
| 12 Tier 3                                       | 669               | 1,338          | 8,028                  | 2.40                            |  | 19,267               | -           | -           | 19,267               |
| 13 Other  | -                 | -              | -                      | 1.20                            |  | -                    | -           | -           | -                    |
| 14 <i>Total: Residential - CAP</i>              | <u>7,784</u>      | <u>7,725</u>   |                        |                                 |  | <u>\$ 111,233</u>    | <u>\$ -</u> | <u>\$ -</u> | <u>\$ 111,233</u>    |
| 15  |                   |                |                        |                                 |  |                      |             |             |                      |
| 16 <u>Commercial</u>                            | 15,670            | 71,110         | 853,320                | \$ 7.95                         |  | \$ 6,783,894         | \$ -        | \$ -        | \$ 6,783,894         |
| 17 Industrial                                   | 76                | 1,512          | 18,144                 | 7.95                            |  | 144,245              | -           | -           | 144,245              |
| 18 Health or Education                          | 1,049             | 11,595         | 139,140                | 7.95                            |  | 1,106,163            | -           | -           | 1,106,163            |
| 19 Municipal                                    | 967               | 6,021          | 72,252                 | 7.95                            |  | 574,403              | -           | -           | 574,403              |
| 20 Other  | 22,464            | 28,126         | 337,512                | 7.95                            |  | 2,683,220            | -           | -           | 2,683,220            |
| 21  |                   |                |                        |                                 |  |                      |             |             |                      |
| 22 <u>Stormwater Only - Residential</u>         |                   |                |                        |                                 |  |                      |             |             |                      |
| 23 Tier 1                                       | 407               | 204            | 4,884                  | \$ 3.98                         |  | \$ 19,438            | \$ -        | \$ -        | \$ 19,438            |
| 24 Tier 2                                       | 599               | 599            | 7,188                  | 7.95                            |  | 57,145               | -           | -           | 57,145               |
| 25 Tier 3                                       | 121               | 242            | 1,452                  | 15.90                           |  | 23,087               | -           | -           | 23,087               |
| 26 Other  | -                 | -              | -                      | 7.95                            |  | -                    | -           | -           | -                    |
| 27 <i>Total: Stormwater Only - Residential</i>  | <u>1,127</u>      | <u>1,045</u>   | <u>13,524</u>          |                                 |  | <u>\$ 99,670</u>     | <u>\$ -</u> | <u>\$ -</u> | <u>\$ 99,670</u>     |
| 28  |                   |                |                        |                                 |  |                      |             |             |                      |
| 29 <u>Stormwater Only - Non-Residential</u>     |                   |                |                        |                                 |  |                      |             |             |                      |
| 30 Non-Residential                              | 10,730            | 32,026         | 384,312                | \$ 7.95                         |  | \$ 3,055,280         | \$ -        | \$ -        | \$ 3,055,280         |
| 31  |                   |                |                        |                                 |  |                      |             |             |                      |
| 32 <b>Total: Stormwater (Units &amp; Sales)</b> | <b>142,417</b>    | <b>248,876</b> | <b>2,902,212</b>       |                                 |  | <b>\$ 23,117,736</b> | <b>\$ -</b> | <b>\$ -</b> | <b>\$ 23,117,736</b> |

**Pittsburgh Water & Sewer Authority  
Rate Case 2023  
Rate Revenue at Proposed Rates**

|   | FY 2024              |                   |                          | Proposed Rates      |  | FY 2024               |             |              |                      |
|---|----------------------|-------------------|--------------------------|---------------------|--|-----------------------|-------------|--------------|----------------------|
|   | Number of<br>Parcels | Number of<br>EDUs | Number of<br>Annual EDUs | Monthly<br>EDU Rate |  | EDU Charge<br>Revenue |             | DSIC<br>(0%) | Total<br>Revenue     |
| <b>1 Stormwater Revenues</b>                    |                      |                   |                          |                     |  |                       |             |              |                      |
| 2 <u>Residential</u>                            |                      |                   |                          |                     |  |                       |             |              |                      |
| 3 Tier 1  | 11,231               | 5,615             | 134,772                  | \$ 5.13             |  | \$ 691,380            | \$ -        | \$ -         | \$ 691,380           |
| 4 Tier 2  | 58,537               | 58,537            | 702,444                  | 10.26               |  | 7,207,075             | -           | -            | 7,207,075            |
| 5 Tier 3  | 12,782               | 25,564            | 153,384                  | 20.52               |  | 3,147,440             | -           | -            | 3,147,440            |
| 6 Other   | -                    | -                 | -                        | 10.26               |  | -                     | -           | -            | -                    |
| 7 <i>Total: Residential</i>                     | <u>82,550</u>        | <u>89,716</u>     | <u>990,600</u>           |                     |  | <u>\$ 11,045,895</u>  | <u>\$ -</u> | <u>\$ -</u>  | <u>\$ 11,045,895</u> |
| 8   |                      |                   |                          |                     |  |                       |             |              |                      |
| 9 <u>Residential - CAP</u>                      |                      |                   |                          |                     |  |                       |             |              |                      |
| 10 Tier 1                                       | 1,457                | 729               | 17,484                   | \$ 0.77             |  | \$ 13,463             | \$ -        | \$ -         | \$ 13,463            |
| 11 Tier 2                                       | 5,658                | 5,658             | 67,896                   | 1.54                |  | 104,560               | -           | -            | 104,560              |
| 12 Tier 3                                       | 669                  | 1,338             | 8,028                    | 3.08                |  | 24,726                | -           | -            | 24,726               |
| 13 Other  | -                    | -                 | -                        | 1.54                |  | -                     | -           | -            | -                    |
| 14 <i>Total: Residential - CAP</i>              | <u>7,784</u>         | <u>7,725</u>      |                          |                     |  | <u>\$ 142,749</u>     | <u>\$ -</u> | <u>\$ -</u>  | <u>\$ 142,749</u>    |
| 15  |                      |                   |                          |                     |  |                       |             |              |                      |
| 16 Commercial                                   | 15,670               | 71,110            | 853,320                  | \$ 10.26            |  | \$ 8,755,063          | \$ -        | \$ -         | \$ 8,755,063         |
| 17 Industrial                                   | 76                   | 1,512             | 18,144                   | 10.26               |  | 186,157               | -           | -            | 186,157              |
| 18 Health or Education                          | 1,049                | 11,595            | 139,140                  | 10.26               |  | 1,427,576             | -           | -            | 1,427,576            |
| 19 Municipal                                    | 967                  | 6,021             | 72,252                   | 10.26               |  | 741,306               | -           | -            | 741,306              |
| 20 Other  | 22,464               | 28,126            | 337,512                  | 10.26               |  | 3,462,873             | -           | -            | 3,462,873            |
| 21  |                      |                   |                          |                     |  |                       |             |              |                      |
| 22 <u>Stormwater Only - Residential</u>         |                      |                   |                          |                     |  |                       |             |              |                      |
| 23 Tier 1                                       | 407                  | 204               | 4,884                    | \$ 5.13             |  | \$ 25,055             | \$ -        | \$ -         | \$ 25,055            |
| 24 Tier 2                                       | 599                  | 599               | 7,188                    | 10.26               |  | 73,749                | -           | -            | 73,749               |
| 25 Tier 3                                       | 121                  | 242               | 1,452                    | 20.52               |  | 29,795                | -           | -            | 29,795               |
| 26 Other  | -                    | -                 | -                        | 10.26               |  | -                     | -           | -            | -                    |
| 27 <i>Total: Stormwater Only - Residential</i>  | <u>1,127</u>         | <u>1,045</u>      | <u>13,524</u>            |                     |  | <u>\$ 128,599</u>     | <u>\$ -</u> | <u>\$ -</u>  | <u>\$ 128,599</u>    |
| 28  |                      |                   |                          |                     |  |                       |             |              |                      |
| 29 <u>Stormwater Only - Non-Residential</u>     |                      |                   |                          |                     |  |                       |             |              |                      |
| 30 Non-Residential                              | 10,730               | 32,026            | 384,312                  | \$ 10.26            |  | \$ 3,943,041          | \$ -        | \$ -         | \$ 3,943,041         |
| 31  |                      |                   |                          |                     |  |                       |             |              |                      |
| 32 <b>Total: Stormwater (Units &amp; Sales)</b> | <b>142,417</b>       | <b>248,876</b>    | <b>2,902,212</b>         |                     |  | <b>\$ 29,833,260</b>  | <b>\$ -</b> | <b>\$ -</b>  | <b>\$ 29,833,260</b> |

## Pittsburgh Water and Sewer Authority Base Rate Filing

## 52 Pa. Code § 53.52

**PITTSBURGH WATER AND SEWER AUTHORITY**STATEMENTS OF REVENUES, EXPENSES, AND  
CHANGES IN NET POSITION*(Dollars expressed in thousands)*

YEARS ENDED DECEMBER 31, 2021 AND 2020

|   | 2021             | 2020            |
|---|------------------|-----------------|
| <b>Operating Revenues:</b>                              |                  |                 |
| Residential, commercial, and industrial water sales     | \$ 181,870       | \$ 162,676      |
| Wastewater treatment                                    | 76,774           | 71,899          |
| Other   | 10,477           | 7,422           |
| Total operating revenues                                | <u>269,121</u>   | <u>241,997</u>  |
| <b>Operating Expenses:</b>                              |                  |                 |
| Direct operating expenses                               | 99,160           | 92,134          |
| Wastewater treatment                                    | 76,802           | 72,698          |
| Reimbursement for City of Pittsburgh indirect services  | 3,818            | 4,289           |
| Expense of water provided by other entities             | 120              | 386             |
| Depreciation  | 24,386           | 21,659          |
| Total operating expenses                                | <u>204,286</u>   | <u>191,166</u>  |
| Operating Income  | <u>64,835</u>    | <u>50,831</u>   |
| <b>Non-operating Revenues (Expenses):</b>               |                  |                 |
| Federal and private grants                              | 1,347            | 7,001           |
| Interest revenue  | 24               | 201             |
| Interest and amortization                               | (39,431)         | (37,463)        |
| Bond issuance costs                                     | -                | (2,075)         |
| Total non-operating revenues (expenses)                 | <u>(38,060)</u>  | <u>(32,336)</u> |
| Net Income before Capital Contribution and Special Item | 26,775           | 18,495          |
| <b>Capital Contribution:</b>                            |                  |                 |
| Donated property  | 567              | 76              |
| <b>Special Item:</b>                                    |                  |                 |
| Private lead line replacement                           | (3,088)          | (18,832)        |
| Net Income (Loss)                                       | 24,254           | (261)           |
| <b>Net Position:</b>                                    |                  |                 |
| Beginning of year                                       | 1,274            | 1,535           |
| End of year   | <u>\$ 25,528</u> | <u>\$ 1,274</u> |

The notes to financial statements are an integral part of this statement.

## Pittsburgh Water and Sewer Authority Base Rate Filing

## 52 Pa. Code § 53.52

**PITTSBURGH WATER AND SEWER AUTHORITY**

## STATEMENTS OF NET POSITION

*(Dollars expressed in thousands)*

DECEMBER 31, 2021 AND 2020

| <u>Assets</u>   | <u>2021</u>      | <u>2020</u>      |
|---|------------------|------------------|
| Current assets:   |                  |                  |
| Cash and cash equivalents                                 | \$ 76,422        | \$ 60,210        |
| Accounts receivable, net:                                 |                  |                  |
| Water:  |                  |                  |
| Billed  | 8,332            | 7,400            |
| Unbilled  | 8,576            | 7,955            |
| Total water   | <u>16,908</u>    | <u>15,355</u>    |
| Wastewater treatment:                                     |                  |                  |
| Billed  | 4,886            | 3,676            |
| Unbilled  | 4,219            | 3,457            |
| Total wastewater treatment                                | <u>9,105</u>     | <u>7,133</u>     |
| Other receivables   | 555              | 1,924            |
| Total accounts receivable, net                            | <u>26,568</u>    | <u>24,412</u>    |
| Prepaid expenses  | 1,747            | 1,737            |
| Inventory   | 2,028            | 2,075            |
| Total current assets                                      | <u>106,765</u>   | <u>88,434</u>    |
| Noncurrent assets:  |                  |                  |
| Restricted assets:  |                  |                  |
| Cash and cash equivalents                                 | 16,785           | 16,201           |
| Investments   | 9,099            | 9,705            |
| Total restricted assets                                   | <u>25,884</u>    | <u>25,906</u>    |
| Capital assets, not being depreciated                     | 158,128          | 155,050          |
| Capital assets, net of accumulated depreciation           | 857,243          | 766,600          |
| Total noncurrent assets                                   | <u>1,041,255</u> | <u>947,556</u>   |
| <b>Total Assets</b>                                       | <u>1,148,020</u> | <u>1,035,990</u> |
| <b>Deferred Outflows of Resources</b>                     |                  |                  |
| Deferred charge on refunding                              | 84,644           | 91,827           |
| Accumulated decrease in fair value of hedging derivatives | 21,465           | 33,863           |
| <b>Total Deferred Outflows of Resources</b>               | <u>106,109</u>   | <u>125,690</u>   |

(Continued)

The notes to financial statements are an integral part of this statement.

**Pittsburgh Water & Sewer Authority**  
**Utility Plant in Service**  
**As of December 31, 2022**

|  | Description                        | Department | GL Account | <u>ACTUAL 2022</u>             |                  | <u>ACTUAL 2022</u> |
|--|------------------------------------|------------|------------|--------------------------------|------------------|--------------------|
|  |                                    |            |            | <i>Beginning Plant Balance</i> | <i>Additions</i> |                    |
| <u>General Water</u>                             | Utility - Machine - Equipment      | 300        | 1803       | \$ -                           | \$ -             | \$ -               |
| <u>Water Quality (Lab)</u>                       | Utility - Building                 | 200        | 1802       | 644,181                        | -                | 644,181            |
|  | Utility - Machine - Equipment      | 200        | 1803       | 284,251                        | (6,162)          | 278,090            |
|  | Utility - Computer Equipment       | 200        | 1805       | 41,536                         | (1,200)          | 40,336             |
|  | Utility - Vehicles                 | 200        | 1806       | 48,400                         | 56,248           | 104,648            |
|  | Utility - Miscellaneous            | 200        | 1807       | 138,242                        | 3,922            | 142,164            |
| <i>Subtotal: Water Quality (Lab)</i>             |                                    |            |            | 1,156,610                      | 52,808           | 1,209,419          |
| <u>Water Treatment</u>                           | Utility - Building                 | 201        | 1802       | 1,810,100                      | 42,183,657       | 43,993,757         |
|  | Utility - Machine - Equipment      | 201        | 1803       | 99,732,758                     | 2,202,713        | 101,935,471        |
|  | Utility - Furniture - Fixtures     | 201        | 1804       | -                              | 15,351           | 15,351             |
|  | Utility - Computer Equipment       | 201        | 1805       | 3,143,219                      | 45,992           | 3,189,211          |
|  | Utility - Vehicles                 | 201        | 1806       | 994,614                        | 122,324          | 1,116,938          |
| <i>Subtotal: Water Treatment</i>                 | Utility - Miscellaneous            | 201        | 1807       | 6,469,808                      | (1,423,393)      | 5,046,415          |
|  |                                    |            |            | 112,150,499                    | 43,146,644       | 155,297,143        |
| <u>Pumping</u>                                   | Utility - Building                 | 323        | 1802       | 91,931,494                     | (91,931,494)     | -                  |
|  | Utility - Computer Equipment       | 323        | 1805       | 49,092                         | (49,092)         | -                  |
| <i>Subtotal: Pumping</i>                         | Utility - Miscellaneous            | 323        | 1807       | -                              | -                | -                  |
|  |                                    |            |            | 91,980,586                     | (91,980,586)     | -                  |
| <u>Membrane Plant</u>                            | Utility - Building                 | 324        | 1802       | 20,355,348                     | (20,355,348)     | -                  |
| <u>Distribution (Water Operations)</u>           | Utility - Building                 | 202        | 1802       | 435,650,119                    | 102,503,382      | 538,153,501        |
|  | Utility - Machine - Equipment      | 202        | 1803       | 33,776,333                     | 696,915          | 34,473,248         |
|  | Utility - Furniture - Fixtures     | 202        | 1805       | -                              | 50,292           | 50,292             |
|  | Utility - Vehicles                 | 202        | 1806       | 6,211,798                      | 665,057          | 6,876,855          |
|  | Utility - Miscellaneous            | 202        | 1807       | 11,122,242                     | -                | 11,122,242         |
| <i>Subtotal: Distribution (Water Operations)</i> | Non-Utility - Building             | 202        | 1822       | -                              | 270,951          | 270,951            |
|  |                                    |            |            | 486,760,493                    | 104,186,596      | 590,947,089        |
| <u>Sewer Operations</u>                          | Utility - Building                 | 300        | 1802       | 439,624,547                    | 13,915,720       | 453,540,266        |
|  | Utility - Machine - Equipment      | 300        | 1803       | 42,377,578                     | -                | 42,377,578         |
|  | Utility - Furniture - Fixtures     | 300        | 1804       | -                              | -                | -                  |
|  | Utility - Computer Equipment       | 300        | 1805       | 3,185                          | -                | 3,185              |
|  | Utility - Vehicles                 | 300        | 1806       | 2,548,735                      | 783,872          | 3,332,607          |
| <i>Subtotal: Sewer Operations</i>                | Utility - Miscellaneous            | 300        | 1807       | 3,608,783                      | 1,388,727        | 4,997,510          |
|  |                                    |            |            | 488,162,828                    | 16,088,319       | 504,251,146        |
| <u>Sewer Miscellaneous</u>                       | Utility - Miscellaneous            | 425        | 1807       | (30,744)                       | 30,744           | -                  |
| <u>Stormwater</u>                                | Utility - Building                 | 400        | 1802       | -                              | 4,136,546        | 4,136,546          |
| <i>Subtotal: Stormwater</i>                      |                                    |            |            | -                              | 4,136,546        | 4,136,546          |
| <u>Chief Executive Office</u>                    | Non-Utility - Building             | 100        | 1822       | 853,138                        | -                | 853,138            |
|  | Non-Utility - Furniture - Fixtures | 100        | 1824       | 62,879                         | -                | 62,879             |
| <i>Subtotal: Chief Executive Office</i>          | Non-Utility - Miscellaneous        | 100        | 1827       | -                              | 16,228           | 16,228             |
|  |                                    |            |            | 916,017                        | 16,228           | 932,245            |
| <u>Customer Service</u>                          | Utility - Computer Equipment       | 101        | 1805       | -                              | 29,700           | 29,700             |
|  | Non-Utility - Furniture - Fixtures | 101        | 1824       | 163,501                        | -                | 163,501            |
| <i>Subtotal: Customer Service</i>                | Non-Utility - Computer Equipment   | 101        | 1825       | 799,082                        | -                | 799,082            |
|  |                                    |            |            | 962,583                        | 29,700           | 992,283            |
| <u>Management Information Systems</u>            | Utility - Furniture - Fixtures     | 102        | 1804       | -                              | 19,887           | 19,887             |
|  | Utility - Computer Equipment       | 102        | 1805       | -                              | 9,844,771        | 9,844,771          |

**Pittsburgh Water & Sewer Authority**  
**Utility Plant in Service**  
**As of December 31, 2022**

|   | <u>Description</u>                 | <u>Department</u> | <u>GL Account</u> | <u>ACTUAL 2022</u><br><i>Beginning Plant</i><br><i>Balance</i> | <i>Additions</i>      | <u>ACTUAL 2022</u><br><i>Ending Plant</i><br><i>Balance</i> |
|---|------------------------------------|-------------------|-------------------|--|-----------------------|---|
|   | Non-Utility - Computer Equipment   | 102               | 1825              | 3,335,731  | (14,716)              | 3,321,015   |
|   | Non-Utility - Vehicles             | 102               | 1826              | -  | 90,232                | 90,232  |
| <i>Subtotal: Management Information Systems</i> | Non-Utility - Miscellaneous        | 102               | 1827              | 10,492   | -                     | 10,492  |
|   |                                    |                   |                   | 3,346,223  | 9,940,174             | 13,286,397  |
| <u>Finance</u>                                  |                                    |                   |                   |  |                       |   |
|   | Non-Utility - Furniture - Fixtures | 103               | 1824              | 73,472   | -                     | 73,472  |
| <i>Subtotal: Finance</i>                        | Non-Utility - Computer Equipment   | 103               | 1825              | -  | -                     | -   |
|   |                                    |                   |                   | 73,472   | -                     | 73,472  |
| <u>Legal</u>                                    |                                    |                   |                   |  |                       |   |
| <i>Subtotal: Legal</i>                          | Utility - Furniture - Fixtures     | 105               | 1804              | -  | 11,940                | 11,940  |
|   |                                    |                   |                   | -  | 11,940                | 11,940  |
| <u>Safety &amp; Security</u>                    |                                    |                   |                   |  |                       |   |
| <i>Subtotal: Safety &amp; Security</i>          | Utility - Vehicles                 | 106               | 1806              | -  | 33,150                | 33,150  |
|   |                                    |                   |                   | -  | 33,150                | 33,150  |
| <u>Warehouse</u>                                |                                    |                   |                   |  |                       |   |
|   | Utility - Vehicles                 | 107               | 1806              | -  | 31,100                | 31,100  |
|   | Non-Utility - Furniture - Fixtures | 107               | 1824              | 27,913   | -                     | 27,913  |
|   | Non-Utility - Computer Equipment   | 107               | 1825              | -  | -                     | -   |
|   | Non-Utility - Vehicles             | 107               | 1826              | -  | -                     | -   |
| <i>Subtotal: Warehouse</i>                      | Non-Utility - Miscellaneous        | 107               | 1827              | 3,671,758  | (16,228)              | 3,655,530   |
|   |                                    |                   |                   | 3,699,671  | 14,872                | 3,714,543   |
| <u>Engineering &amp; Construction</u>           |                                    |                   |                   |  |                       |   |
|   | Utility - Vehicles                 | 109               | 1806              | -  | 27,998                | 27,998  |
|   | Non-Utility - Building             | 109               | 1822              | 277,190  | (270,951)             | 6,239   |
|   | Non-Utility - Furniture - Fixtures | 109               | 1824              | 278,179  | -                     | 278,179   |
|   | Non-Utility - Computer Equipment   | 109               | 1825              | 1,284,422  | -                     | 1,284,422   |
|   | Non-Utility - Vehicles             | 109               | 1826              | 117,180  | (90,232)              | 26,947  |
| <i>Subtotal: Engineering &amp; Construction</i> | Non-Utility - Miscellaneous        | 109               | 1827              | 105,000  | (105,000)             | -   |
|   |                                    |                   |                   | 2,061,970  | (438,185)             | 1,623,785   |
| <u>Environmental Compliance</u>                 |                                    |                   |                   |  |                       |   |
| <i>Subtotal: Environmental Compliance</i>       | Utility - Vehicles                 | 110               | 1806              | -  | 26,675                | 26,675  |
|   |                                    |                   |                   | -  | 26,675                | 26,675  |
|   | <i>Total: Fixed Assets</i>         |                   |                   | \$ 1,211,595,555   | \$ 64,940,278         | \$ 1,276,535,833  |
| <u>Other Assets</u>                             |                                    |                   |                   |  |                       |   |
|   | Non Utility Right to Use Asset     |                   | 1829              | \$ -   | \$ 3,560,227          | \$ 3,560,227  |
|   | Construction in Progress           |                   | 1840              | \$ 146,581,146   | \$ 55,605,731         | \$ 202,186,877  |
|   | Capitalized Interest               |                   | 1841              | -  | -                     | -   |
|   | CIP Accrual                        |                   | 1842              | 15,179,949   | 2,913,997             | 18,093,946  |
| <b>Total Utility Plant</b>                      |                                    |                   |                   | <b>\$ 1,373,356,650</b>  | <b>\$ 127,020,232</b> | <b>\$ 1,500,376,883</b>                                     |

**Pittsburgh Water & Sewer Authority**  
**Depreciation by PWSA Department & Code**  
**As of December 31, 2022**

| <u>Description</u>                | <u>Department</u> | <u>GL Account</u> | <u>2022</u><br><i>Beginning</i><br><i>Balance</i> | <i>Depreciation</i> | <u>2022</u><br><i>Ending</i><br><i>Balance</i> |
|-----------------------------------|-------------------|-------------------|---|---------------------|--|
| <u>General Water</u>              |                   |                   |   |                     |  |
| Utility - Machine - Equipment     | 300               | 1813              | \$ -  | \$ -                | \$ -   |
| <u>Water Quality</u>              |                   |                   |   |                     |  |
| Utility - Building                | 200               | 1812              | (644,181)   | -                   | (644,181)                                      |
| Utility - Machine - Equipment     | 200               | 1813              | (114,454)   | (16,474)            | (130,928)                                      |
| Utility - Computer Equipment      | 200               | 1815              | (8,803)   | (6,867)             | (15,671)                                       |
| Utility - Vehicles                | 200               | 1816              | (14,535)  | (5,510)             | (20,044)                                       |
| Utility - Miscellaneous           | 200               | 1817              | <u>(84,107)</u>                                   | <u>(16,146)</u>     | <u>(100,253)</u>                               |
| <i>Subtotal: Water Quality</i>    |                   |                   | (866,080)   | (44,997)            | (911,077)                                      |
| <u>Water Treatment</u>            |                   |                   |   |                     |  |
| Utility - Building                | 201               | 1812              | (580,374)   | (8,397,109)         | (8,977,484)                                    |
| Utility - Machine - Equipment     | 201               | 1813              | (32,396,261)                                      | (3,945,751)         | (36,342,011)                                   |
| Utility - Computer Equipment      | 201               | 1815              | (1,942,142)                                       | (605,454)           | (2,547,596)                                    |
| Utility - Vehicles                | 201               | 1816              | (258,103)   | (88,544)            | (346,647)                                      |
| Utility - Miscellaneous           | 201               | 1817              | (1,641,990)                                       | 118,211             | (1,523,778)                                    |
| Non-Utility - Building            | 201               | 1832              | <u>-</u>  | <u>(27,105)</u>     | <u>(27,105)</u>                                |
| <i>Subtotal: Water Treatment</i>  |                   |                   | (36,818,870)                                      | (12,945,752)        | (49,764,622)                                   |
| <u>Pumping</u>                    |                   |                   |   |                     |  |
| Utility - Building                | 323               | 1812              | (49,392,695)                                      | 49,392,695          | -  |
| Utility - Computer Equipment      | 323               | 1815              | (25,899)  | 25,899              | -  |
| Utility - Miscellaneous           | 323               | 1817              | <u>-</u>  | <u>-</u>            | <u>-</u>                                       |
| <i>Subtotal: Pumping</i>          |                   |                   | (49,418,594)                                      | 49,418,594          | -  |
| <u>Membrane Plant</u>             |                   |                   |   |                     |  |
| Utility - Building                | 324               | 1812              | (7,869,441)                                       | 7,869,441           | -  |
| <u>Distribution</u>               |                   |                   |   |                     |  |
| Utility - Building                | 202               | 1812              | (81,059,408)                                      | (58,114,546)        | (139,173,954)                                  |
| Utility - Machine - Equipment     | 202               | 1813              | (17,304,701)                                      | (1,823,190)         | (19,127,891)                                   |
| Utility - Computer Equipment      | 201               | 1815              | -   | (29,330)            | (29,330)                                       |
| Utility - Vehicles                | 202               | 1816              | (1,471,059)                                       | (655,408)           | (2,126,467)                                    |
| Utility - Miscellaneous           | 202               | 1817              | (5,315,788)                                       | (227,926)           | (5,543,714)                                    |
| Non-Utility - Building            | 202               | 1832              | <u>-</u>  | <u>(143,323)</u>    | <u>(143,323)</u>                               |
| <i>Subtotal: Distribution</i>     |                   |                   | (105,150,956)                                     | (60,993,724)        | (166,144,680)                                  |
| <u>Sewer Operations</u>           |                   |                   |   |                     |  |
| Utility - Building                | 300               | 1812              | (122,654,194)                                     | (8,612,853)         | (131,267,047)                                  |
| Utility - Machine - Equipment     | 300               | 1813              | (21,871,762)                                      | (833,964)           | (22,705,726)                                   |
| Utility - Furniture - Fixtures    | 300               | 1814              | -   | -                   | -  |
| Utility - Computer Equipment      | 300               | 1815              | (1,530)   | (75)                | (1,605)  |
| Utility - Vehicles                | 300               | 1816              | (1,338,539)                                       | (177,829)           | (1,516,368)                                    |
| Utility - Miscellaneous           | 300               | 1817              | <u>(1,601,184)</u>                                | <u>(442,409)</u>    | <u>(2,043,592)</u>                             |
| <i>Subtotal: Sewer Operations</i> |                   |                   | (147,467,209)                                     | (10,067,130)        | (157,534,339)                                  |
| <u>Sewer Miscellaneous</u>        |                   |                   |   |                     |  |
| Utility - Miscellaneous           | 425               | 1817              | 30,744  | (30,744)            | -  |

**Pittsburgh Water & Sewer Authority**  
**Depreciation by PWSA Department & Code**  
**As of December 31, 2022**

| <u>Description</u>                              | <u>Department</u> | <u>GL Account</u> | <u>2022</u><br><i>Beginning</i><br><i>Balance</i> | <i>Depreciation</i> | <u>2022</u><br><i>Ending</i><br><i>Balance</i> |
|---|-------------------|-------------------|---|---------------------|--|
| <u>Stormwater</u>                               |                   |                   |   |                     |  |
| Utility - Building                              | 400               | 1812              | -   | (13,099)            | (13,099)                                       |
| <i>Subtotal: Stormwater</i>                     |                   |                   | -   | (13,099)            | (13,099)                                       |
| <u>Chief Executive Office</u>                   |                   |                   |   |                     |  |
| Non-Utility - Building                          | 100               | 1832              | (296,573)   | (19,873)            | (316,447)                                      |
| Non-Utility - Furniture - Fixtures              | 100               | 1834              | (42,993)  | (3,980)             | (46,973)                                       |
| Non-Utility - Miscellaneous                     | 100               | 1837              | -   | (7,305)             | (7,305)  |
| <i>Subtotal: Chief Executive Office</i>         |                   |                   | (339,566)   | (31,158)            | (370,725)                                      |
| <u>Customer Service</u>                         |                   |                   |   |                     |  |
| Non-Utility - Furniture - Fixtures              | 101               | 1815              | -   | (354)               | (354)  |
| Non-Utility - Furniture - Fixtures              | 101               | 1834              | (153,919)   | (4,799)             | (158,718)                                      |
| Non-Utility - Computer Equipment                | 101               | 1835              | (443,140)   | (141,396)           | (584,536)                                      |
| <i>Subtotal: Customer Service</i>               |                   |                   | (597,059)   | (146,549)           | (743,608)                                      |
| <u>Management Information Systems</u>           |                   |                   |   |                     |  |
| Utility - Computer Equipment                    | 102               | 1815              | -   | (163,865)           | (163,865)                                      |
| Non-Utility - Building                          | 102               | 1832              | -   | (546)               | (546)  |
| Non-Utility - Computer Equipment                | 102               | 1835              | (2,327,355)                                       | (324,401)           | (2,651,756)                                    |
| Non-Utility - Vehicles                          | 102               | 1836              | -   | (90,232)            | (90,232)                                       |
| Non-Utility - Miscellaneous                     | 102               | 1837              | (10,492)  | -                   | (10,492)                                       |
| <i>Subtotal: Management Information Systems</i> |                   |                   | (2,337,847)                                       | (579,044)           | (2,916,891)                                    |
| <u>Finance</u>                                  |                   |                   |   |                     |  |
| Non-Utility - Furniture - Fixtures              | 103               | 1834              | (60,144)  | (3,335)             | (63,479)                                       |
| Non-Utility - Computer Equipment                | 103               | 1835              | -   | -                   | -  |
| <i>Subtotal: Finance</i>                        |                   |                   | (60,144)  | (3,335)             | (63,479)                                       |
| <u>Legal</u>                                    |                   |                   |   |                     |  |
| Non-Utility - Building                          | 105               | 1832              | -   | (142)               | (142)  |
| <i>Subtotal: Legal</i>                          |                   |                   | -   | (142)               | (142)  |
| <u>Safety &amp; Security</u>                    |                   |                   |   |                     |  |
| Utility - Vehicles                              | 106               | 1816              | -   | (395)               | (395)  |
| <i>Subtotal: Safety &amp; Security</i>          |                   |                   | -   | (395)               | (395)  |
| <u>Warehouse</u>                                |                   |                   |   |                     |  |
| Utility - Vehicles                              | 107               | 1816              | -   | (370)               | (370)  |
| Non-Utility - Furniture - Fixtures              | 107               | 1834              | (27,913)  | -                   | (27,913)                                       |
| Non-Utility - Computer Equipment                | 107               | 1835              | -   | -                   | -  |
| Non-Utility - Vehicles                          | 107               | 1836              | -   | -                   | -  |
| Non-Utility - Miscellaneous                     | 107               | 1837              | (2,215,688)                                       | (76,440)            | (2,292,128)                                    |
| <i>Subtotal: Warehouse</i>                      |                   |                   | (2,243,601)                                       | (76,810)            | (2,320,411)                                    |
| <u>Engineering &amp; Construction</u>           |                   |                   |   |                     |  |
| Utility - Vehicles                              | 109               | 1816              | -   | (333)               | (333)  |
| Non-Utility - Building                          | 109               | 1832              | (140,696)   | 136,727             | (3,969)  |
| Non-Utility - Furniture - Fixtures              | 109               | 1834              | (195,265)   | (22,109)            | (217,374)                                      |
| Non-Utility - Computer Equipment                | 109               | 1835              | (657,734)   | (32,520)            | (690,254)                                      |
| Non-Utility - Vehicles                          | 109               | 1836              | (117,180)   | 90,232              | (26,947)                                       |
| Non-Utility - Miscellaneous                     | 109               | 1837              | (105,000)   | 105,000             | -  |
| <i>Subtotal: Engineering &amp; Construction</i> |                   |                   | (1,215,875)                                       | 276,997             | (938,878)                                      |
| <u>Environmental Compliance</u>                 |                   |                   |   |                     |  |



**Pittsburgh Water & Sewer Authority**  
**Depreciation by PWSA Department & Code**  
**As of December 31, 2022**

| <u>Description</u>                            | <u>Department</u> | <u>GL Account</u> | <u>2022</u><br><i>Beginning</i><br><i>Balance</i> | <i>Depreciation</i>    | <u>2022</u><br><i>Ending</i><br><i>Balance</i> |
|---|-------------------|-------------------|---|------------------------|--|
| Utility - Vehicles                            | 110               | 1816              | -   | (318)                  | (318)  |
| <i>Subtotal: Environmental Compliance</i>     |                   |                   | -   | (318)                  | (318)  |
| <b><i>Total: Accumulated Depreciation</i></b> |                   |                   | <b>\$ (354,354,497)</b>                           | <b>\$ (27,368,166)</b> | <b>\$ (381,722,663)</b>                        |

**Pittsburgh Water & Sewer Authority**  
**Comparative Income Statements**  
**As of December 31, 2022**

| <b>System Operating Statement</b>                       | <b>HTY<br/>Per Books<br/>12/31/2022</b> |
|---|---|
| <u>System Revenues</u>                                  |   |
| Water Sales   | \$ 110,173,919                          |
| Wholesale & Contract Revenues                           | 3,565,227                               |
| Wastewater Conveyance Sales                             | 56,769,103                              |
| Stormwater Sales  | 17,762,994                              |
| Distribution Service Improvement Charge (DSIC) Revenues | 8,304,932                               |
| Miscellaneous Revenues and Fees                         | 5,330,309                               |
| <i>System Operating Revenues</i>                        | \$ 201,906,484                          |
| <u>Operating Expenses</u>                               |   |
| <i>Direct Operating Expenses</i>                        |   |
| Administrative Division                                 |   |
| Executive Director                                      | \$ 2,570,082                            |
| Customer Service  | 7,768,329                               |
| Management Information Systems                          | 9,733,025                               |
| Finance   | 9,859,016                               |
| Human Resources   | 1,501,220                               |
| Legal   | 3,080,031                               |
| Public Affairs  | 1,229,537                               |
| Operations Division                                     |   |
| Environmental Compliance                                | 4,427,185                               |
| Warehouse   | 621,623                                 |
| Safety & Security                                       | 847,280                                 |
| Water Quality (Lab)                                     | 2,423,278                               |
| Water Treatment Plant                                   | 20,944,573                              |
| Sewer Operations  | 2,568,876                               |
| Water Distribution                                      | 15,742,708                              |
| Engineering & Construction Division                     |   |
| Engineering & Construction                              | 28,219,979                              |
| <i>Subtotal: Direct Operating Expenses</i>              | \$ 111,536,741                          |
| <i>Other Operating Expenses</i>                         |   |
| Loss / (Gain) ALCOSAN Billings                          | \$ (413,783)                            |
| Distribution Service Improvement Charge (DSIC) Expenses | \$ 8,304,932                            |
| Co-Op Agreement Op. Expenses                            | -                                       |
| Non-City Water Payments                                 | -                                       |
| Stormwater Credit Program Cost                          | 56,858                                  |
| Bad Debt Expense  | 3,931,524                               |
| <i>Subtotal: Other Operating Expenses</i>               | \$ 11,879,531                           |
| <i>Subtotal: Operating Expenses</i>                     | \$ 123,416,272                          |
| <b><i>Operating Income</i></b>                          | <b>\$ 78,490,212</b>                    |
| <u>Debt Service</u>                                     |   |
| Senior and Subordinate Debt                             | \$ 61,445,356                           |
| Pennvest  | 7,664,889                               |
| Revolving Line of Credit Interest                       | -                                       |
| <i>Subtotal: Debt Service</i>                           | \$ 69,110,245                           |
| <u>Capital Expenditures &amp; Transfers</u>             |   |
| Transfers to Reserves                                   | 122,200                                 |
| <i>Subtotal: Capital Expenditures &amp; Transfers</i>   | \$ 122,200                              |
| <b><i>Revenue Surplus/(Deficit)</i></b>                 | <b>\$ 9,257,767</b>                     |

4

**I. STATEMENT OF INCOME**

**Exhibit D – Water and Wastewater Utilities**

I.1. Provide comparative operating statements for the historic test year and the immediately preceding 12 months showing increases and decreases between the two periods. These statements should supply detailed explanation of the causes of the major (greater than 15%) variances between the historic test year and preceding year by detailed account number. Limit the explanation to differences of \$10,000 or greater.

**RESPONSE:**

Please see the attached schedule (Descriptions on schedule).

**Pittsburgh Water & Sewer Authority**  
**Comparative Income Statements**  
**As of December 31, 2022**

| System Operating Statement                              | Per Books<br>12/31/2021 | HTY<br>Per Books<br>12/31/2022 | Variance              | % Variance  | Explanation of Variance (15% and \$10k)   |
|---|-------------------------|--------------------------------|-----------------------|-------------|---|
| <b>System Revenues</b>                                  |                         |                                |                       |             |   |
| Water Sales   | \$ 108,803,079          | \$ 110,173,919                 | \$ 1,370,840          | 1%          | Overall consumption increase when compared to pandemic years                    |
| Wholesale & Contract Revenues                           | 3,307,448               | 3,565,227                      | 257,779               | 8%          | Overall consumption increase when compared to pandemic years                    |
| Wastewater Conveyance Sales                             | 65,199,173              | 56,769,103                     | (8,430,069)           | -13%        | Wastewater rate decrease due to implementation of stormwater fee                |
| Stormwater Sales  | -                       | 17,762,994                     | 17,762,994            | 100%        | New fee implemented   |
| Distribution Service Improvement Charge (DSIC) Revenues | 8,674,651               | 8,304,932                      | (369,720)             | -4%         | Wastewater rate decrease due to implementation of stormwater fee                |
| Miscellaneous Revenues and Fees                         | 9,672,503               | 5,330,509                      | (4,342,194)           | -45%        | Tap fee phase out   |
| <b>System Operating Revenues</b>                        | <b>\$ 195,656,855</b>   | <b>\$ 201,906,484</b>          | <b>6,249,629</b>      | <b>3%</b>   |   |
| <b>Operating Expenses</b>                               |                         |                                |                       |             |   |
| <i>Direct Operating Expenses</i>                        |                         |                                |                       |             |   |
| <i>Administrative Division</i>                          |                         |                                |                       |             |   |
| Executive Director                                      | \$ 2,990,200            | \$ 2,570,082                   | (420,118)             | -14%        | Costs reclassified to other departments   |
| Customer Service  | 7,623,299               | 7,768,329                      | 145,030               | 2%          | Inflationary increase in spending   |
| Management Information Systems                          | 8,931,474               | 9,733,025                      | 801,551               | 9%          | Implementation of new ERP system  |
| Finance   | 13,576,612              | 9,859,016                      | (3,717,597)           | -27%        | Reduced City co-op expenses   |
| Human Resources   | 977,857                 | 1,501,220                      | 523,363               | 54%         | Increased staffing and overall increase in professional services costs          |
| Legal   | 6,205,968               | 3,080,031                      | (3,125,937)           | -50%        | Settlement of material legal cases  |
| Public Affairs  | 974,276                 | 1,229,537                      | 255,261               | 26%         | Slight increase in staffing and overall increase in professional services costs |
| <i>Operations Division</i>                              |                         |                                |                       |             |   |
| Environmental Compliance                                | 2,627,894               | 4,427,185                      | 1,799,291             | 68%         | Increased staffing and other professional services costs                        |
| Warehouse   | 492,608                 | 621,623                        | 129,015               | 26%         | Overall increase in inventory levels and unit prices                            |
| Safety & Security                                       | -                       | 847,280                        | 847,280               | 100%        | New department established  |
| Water Quality (Lab)                                     | 1,724,973               | 2,423,278                      | 698,306               | 40%         | Increased staffing and other professional services costs                        |
| Water Treatment Plant                                   | 18,721,895              | 20,944,573                     | 2,222,677             | 12%         | Overall increase in chemical costs  |
| Sewer Operations  | 3,262,374               | 2,568,876                      | (693,498)             | -21%        | Costs reclassified to Treatment Plant and Water Operations                      |
| Water Distribution                                      | 13,493,184              | 15,742,708                     | 2,249,524             | 17%         | Increased staffing levels and operating costs increase                          |
| <i>Engineering &amp; Construction Division</i>          |                         |                                |                       |             |   |
| Engineering & Construction                              | 32,345,286              | 28,219,979                     | (4,125,307)           | -13%        | Increase in operational costs reclassified as capital expenses                  |
| <b>Subtotal: Direct Operating Expenses</b>              | <b>\$ 113,947,901</b>   | <b>\$ 111,536,741</b>          | <b>(2,411,160)</b>    | <b>-2%</b>  |   |
| <i>Other Operating Expenses</i>                         |                         |                                |                       |             |   |
| Loss / (Gain) ALCOSAN Billings                          | (5,405,693)             | \$ (413,783)                   | 4,991,910             | -92%        | Decreased ALCOSAN collections   |
| Distribution Service Improvement Charge (DSIC) Expenses | 8,674,651               | \$ 8,304,932                   | (369,719)             | -4%         | Wastewater rate decrease due to implementation of stormwater fee                |
| Stormwater Credit Program Cost                          | -                       | 56,858                         | 56,858                | 100%        | Credits associated with the new stormwater fee                                  |
| Bad Debt Expense  | 4,131,010               | 3,931,524                      | (199,486)             | -5%         | Decreased bad debt expenses   |
| <b>Subtotal: Other Operating Expenses</b>               | <b>\$ 7,399,968</b>     | <b>\$ 11,879,531</b>           | <b>4,479,563</b>      | <b>61%</b>  |   |
| <b>Subtotal: Operating Expenses</b>                     | <b>\$ 121,347,870</b>   | <b>\$ 123,416,272</b>          | <b>2,068,402</b>      | <b>2%</b>   |   |
| <b>Operating Income</b>                                 | <b>\$ 74,308,985</b>    | <b>\$ 78,490,212</b>           | <b>4,181,227</b>      | <b>6%</b>   |   |
| <b>Debt Service</b>                                     |                         |                                |                       |             |   |
| Senior and Subordinate Debt                             | \$ 58,763,656           | \$ 61,445,356                  | 2,681,700             | 5%          | New bonds and loans issued  |
| Pennvest  | 4,704,537               | 7,664,889                      | 2,960,352             | 63%         | Increased funding obtained for various programs and projects                    |
| Revolving Line of Credit Interest                       | -                       | -                              | -                     | 0%          |   |
| <b>Subtotal: Debt Service</b>                           | <b>\$ 63,468,193</b>    | <b>\$ 69,110,245</b>           | <b>5,642,052</b>      | <b>9%</b>   |   |
| <b>Capital Expenditures &amp; Transfers</b>             |                         |                                |                       |             |   |
| Transfers to Reserves                                   | 2,500,000               | 5,122,000                      | 2,622,000             | 105%        | Rate stabilization transfer   |
| <b>Subtotal: Capital Expenditures &amp; Transfers</b>   | <b>\$ 2,500,000</b>     | <b>\$ 5,122,000</b>            | <b>2,622,000</b>      | <b>105%</b> |   |
| <b>Revenue Surplus/(Deficit)</b>                        | <b>\$ 8,340,792</b>     | <b>\$ 4,257,967</b>            | <b>\$ (4,082,825)</b> | <b>-49%</b> |   |

**I. STATEMENT OF INCOME**

I.2. Prepare an income statement for the various time frames of the rate proceeding including:

Col. 1—Book recorded income statement for the test year.

Col. 2—Adjustments to book recorded income statement to annualize and normalize under present rates.

Col. 3—Income statement under present rates after adjustments in Col. 2.

Col. 4—Adjustments to Col. 3 for revenue increase requested.

Col. 5—Income statement under proposed rates.

**RESPONSE:**

Please see the attached schedule.

**Pittsburgh Water & Sewer Authority**  
**Statement of Projected Income at Present and Proposed Rates**  
**Twelve Months Ending December 31, 2022**

| <b>System Operating Statement</b>                     | <b>(1)</b><br><b>Annualized</b><br><b>12 Months</b><br><b>Ended</b><br><b>12/31/2024</b> | <b>(2)</b><br><b>Adjustments</b><br><b>Under</b><br><b>Annualized</b><br><b>Rates</b> | <b>(3)</b><br><b>Annualized</b><br><b>12 Months</b><br><b>Ended</b><br><b>12/31/2024</b> | <b>(4)</b><br><b>Adjustments</b><br><b>Under</b><br><b>Proposed</b><br><b>Rates</b> | <b>(5)</b><br><b>Adjustments</b><br><b>12 Months</b><br><b>Ended</b><br><b>12/31/2024</b> |
|---|--|---|--|---|---|
| <u>Operating Revenues</u>                             |  |   |  |   |   |
| Water Sales   | \$ 127,849,375   | \$ -  | \$ 127,849,375   | \$ 35,782,103   | \$ 163,631,477  |
| Wastewater Sales                                      | 50,610,080   | -   | 50,610,080   | 3,273,818   | 53,883,898  |
| Stormwater  |  |   |  |   | 30,531,439  |
| Sale for Resale & Contract Sales                      | 3,726,934  | -   | 3,726,934  | 677,396   | 4,404,330   |
| Other Revenues  | 2,867,901  | -   | 2,867,901  | -   | 2,867,901   |
| <i>System Operating Revenues</i>                      | <u>\$ 185,054,290</u>  | <u>\$ -</u>   | <u>\$ 185,054,290</u>  | <u>\$ 39,733,317</u>  | <u>\$ 255,319,046</u>   |
| <u>Operating Expenses</u>                             |  |   |  |   |   |
| <i>Direct Operating Expenses</i>                      |  |   |  |   |   |
| Administrative Divisions                              | \$ 42,319,046  | \$ -  | \$ 42,319,046  | \$ -  | \$ 42,319,046   |
| Operations Divisions                                  | 64,139,291   | -   | 64,139,291   | -   | 64,139,291  |
| Engineering & Construction Division                   | 27,122,905   | -   | 27,122,905   | -   | 27,122,905  |
| <i>Direct Operating Expenses</i>                      | <u>\$ 133,581,242</u>  | <u>\$ -</u>   | <u>\$ 133,581,242</u>  | <u>\$ -</u>   | <u>\$ 133,581,242</u>   |
| <i>Other Operating Expenses</i>                       |  |   |  |   |   |
| Loss on ALCOSAN Billings                              | \$ 2,066,814   | \$ -  | \$ 2,066,814   | \$ -  | \$ 2,066,814  |
| City Services   | -  | -   | -  | -   | -   |
| Non-City Water Payments                               | -  | -   | -  | -   | -   |
| Covid-related Expenses                                | 263,215  | -   | 263,215  | -   | 263,215   |
| <i>Other Operating Expenses</i>                       | <u>\$ 2,330,030</u>  | <u>\$ -</u>   | <u>\$ 2,330,030</u>  | <u>\$ -</u>   | <u>\$ 2,330,030</u>   |
| <i>Subtotal: Operating Expenses</i>                   | <u>\$ 135,911,272</u>  | <u>\$ -</u>   | <u>\$ 135,911,272</u>  | <u>\$ -</u>   | <u>\$ 135,911,272</u>   |
| <b>Operating Income</b>                               | <b>\$ 49,143,019</b>   | <b>\$ -</b>   | <b>\$ 49,143,019</b>   | <b>\$ 39,733,317</b>  | <b>\$ 119,407,775</b>   |
| <u>Debt Service</u>                                   |  |   |  |   |   |
| Existing Debt   | \$ (75,821,080)  | \$ -  | \$ (75,821,080)  | \$ -  | \$ (75,821,080)   |
| Proposed Debt   | (21,111,546)   | -   | (21,111,546)   | -   | (21,111,546)  |
| <i>Subtotal: Debt Service</i>                         | <u>\$ (96,932,626)</u>   | <u>\$ -</u>   | <u>\$ (96,932,626)</u>   | <u>\$ -</u>   | <u>\$ (96,932,626)</u>  |
| <u>Capital Expenditures &amp; Transfers</u>           |  |   |  |   |   |
| Internally Generated Funds / PAYGO                    | \$ -   | \$ -  | \$ -   | \$ -  | \$ -  |
| Internally Generated Funds / PAYGO (DSIC)             | (15,038,462)   | -   | (15,038,462)   | -   | (15,038,462)  |
| Other Transfers to Reserves                           | (1,000,000)  | -   | (1,000,000)  | -   | (1,000,000)   |
| Reimbursements (Municipalities & Pennvest)            | -  | -   | -  | -   | -   |
| Remarketing & Liquidity Charges                       | -  | -   | -  | -   | -   |
| Bad Debt Expense                                      | (5,971,536)  | -   | (5,971,536)  | -   | (5,971,536)   |
| Hardship Grant Funding                                | -  | -   | -  | -   | -   |
| <i>Subtotal: Capital Expenditures &amp; Transfers</i> | <u>\$ (22,009,997)</u>   | <u>\$ -</u>   | <u>\$ (22,009,997)</u>   | <u>\$ -</u>   | <u>\$ (22,009,997)</u>  |
| <b>Revenue Surplus/(Deficit)</b>                      | <b>\$ (69,799,604)</b>   | <b>\$ -</b>   | <b>\$ (69,799,604)</b>   | <b>\$ 39,733,317</b>  | <b>\$ 465,152</b>   |

**I. STATEMENT OF INCOME**

I.3. If a company has separate operating divisions, an income statement must be shown for each division, plus an income statement for the company as a whole.

**RESPONSE:**

Please see the response to I.2.



**I. STATEMENT OF INCOME**

I.4. Provide operating income claims under:

- a. Present rates.
- b. Pro forma present rates (annualized & normalized).
- c. Proposed rates (annualized & normalized).

**RESPONSE:**

Please see the response provided to I.2.

**I. STATEMENT OF INCOME**

I.5. Provide rate of return on original cost under:

- a. Present rates.
- b. Pro forma present rates.
- c. Proposed rates.

**RESPONSE:** Not Applicable.



## II. OPERATING REVENUES

II.1. Prepare a summary of operating revenues for the historic test year and the year preceding the historic test year, providing the following information:

a. For each classification of customers:

(i) Number of customers as of year-end.

(ii) Gallons sold.

(iii) Revenues.

b. Customers' penalties and miscellaneous water revenues.

### **RESPONSE:**

Please see the attached schedule.

**Pittsburgh Water & Sewer Authority  
Summary of Operating Revenues**

|                                    | Water                         |                               |                               |                               |                               | Wastewater Conveyance         |                               |                               |
|------------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|-------------------------------|
|                                    | 12 Months Ended<br>12/31/2020 | 12 Months Ended<br>12/31/2021 | 12 Months Ended<br>12/31/2022 | 12 Months Ended<br>12/31/2023 | 12 Months Ended<br>12/31/2024 | 12 Months Ended<br>12/31/2020 | 12 Months Ended<br>12/31/2021 | 12 Months Ended<br>12/31/2022 |
| <b>a. Operating Revenues</b>       |                               |                               |                               |                               |                               |                               |                               |                               |
| <b>(i) Number of Customers</b>     |                               |                               |                               |                               |                               |                               |                               |                               |
| Residential                        | 64,369                        | 64,072                        | 63,173                        | 63,173                        | 61,810                        | 86,276                        | 86,119                        | 85,792                        |
| Residential - CAP                  | 2,568                         | 2,704                         | 3,098                         | 3,223                         | 4,586                         | 3,596                         | 3,663                         | 4,119                         |
| Commercial                         | 6,786                         | 6,917                         | 6,987                         | 6,987                         | 6,987                         | 8,290                         | 8,418                         | 8,513                         |
| Industrial                         | 41                            | 32                            | 31                            | 31                            | 31                            | 44                            | 35                            | 34                            |
| Health or Education                | 474                           | 460                           | 439                           | 439                           | 439                           | 474                           | 460                           | 439                           |
| Municipal                          | 149                           | 197                           | 212                           | 212                           | 212                           | 157                           | 204                           | 228                           |
| Fire System                        | 1,313                         | 1,387                         | 1,389                         | 1,389                         | 1,389                         | -                             | -                             | -                             |
| Wholesale and Contract             | 11                            | 12                            | 13                            | 14                            | 15                            | 1                             | 1                             | 1                             |
| <b>Total</b>                       | <b>75,710</b>                 | <b>75,780</b>                 | <b>75,342</b>                 | <b>75,468</b>                 | <b>75,469</b>                 | <b>98,838</b>                 | <b>98,900</b>                 | <b>99,125</b>                 |
| <b>(ii) Gallons Billed (kgals)</b> |                               |                               |                               |                               |                               |                               |                               |                               |
| Residential                        | 1,951,157                     | 1,833,447                     | 1,766,983                     | 1,850,529                     | 1,818,344                     | 2,592,137                     | 2,435,500                     | 2,303,751                     |
| Residential - CAP                  | 74,938                        | 73,168                        | 80,155                        | 76,087                        | 108,272                       | 110,800                       | 117,100                       | 114,137                       |
| Commercial                         | 2,021,812                     | 2,044,982                     | 2,073,132                     | 2,046,642                     | 2,046,642                     | 2,293,724                     | 2,318,856                     | 2,308,112                     |
| Industrial                         | 172,720                       | 195,583                       | 103,883                       | 157,395                       | 157,395                       | 184,338                       | 206,245                       | 110,428                       |
| Health or Education                | 832,774                       | 902,028                       | 831,073                       | 855,292                       | 855,292                       | 832,652                       | 911,462                       | 832,509                       |
| Municipal                          | 195,754                       | 249,695                       | 209,870                       | 218,440                       | 218,440                       | 198,117                       | 247,267                       | 208,940                       |
| Fire System                        | 14,348                        | 6,888                         | 5,727                         | 8,988                         | 8,988                         | -                             | -                             | -                             |
| Wholesale and Contract             | #REF!                         | 847,201                       | 851,023                       | 880,627                       | 857,601                       | -                             | -                             | -                             |
| <b>Total</b>                       | <b>#REF!</b>                  | <b>6,152,991</b>              | <b>5,921,845</b>              | <b>6,093,999</b>              | <b>6,070,973</b>              | <b>6,211,768</b>              | <b>6,236,429</b>              | <b>5,877,878</b>              |
| <b>(iii) Revenues</b>              |                               |                               |                               |                               |                               |                               |                               |                               |
| Residential                        | \$ 45,078,918                 | \$ 45,894,588                 | \$ 46,068,603                 | \$ 49,939,884                 | \$ 58,174,270                 | \$ 29,121,819                 | \$ 28,717,207                 | \$ 25,462,107                 |
| Residential - CAP                  | 1,050,243                     | 1,079,437                     | 1,222,572                     | 1,306,741                     | 2,079,105                     | 919,382                       | 893,973                       | 798,070                       |
| Commercial                         | 35,871,584                    | 39,318,872                    | 41,243,136                    | 44,921,729                    | 57,058,794                    | 22,780,838                    | 23,679,908                    | 20,806,019                    |
| Industrial                         | 1,821,121                     | 2,302,356                     | 1,451,743                     | 2,264,992                     | 3,073,423                     | 1,262,020                     | 1,430,520                     | 770,080                       |
| Health or Education                | 15,681,552                    | 17,475,415                    | 16,595,807                    | 17,976,189                    | 23,984,749                    | 8,709,760                     | 9,588,790                     | 7,853,194                     |
| Municipal                          | 496,296                       | 1,387,881                     | 2,016,601                     | 3,049,262                     | 5,002,575                     | 305,153                       | 768,824                       | 958,118                       |
| Private Fire Systems               | 821,741                       | 822,831                       | 713,150                       | 689,507                       | 975,033                       | -                             | -                             | -                             |
| Public Fire                        | -                             | 509,223                       | 844,380                       | 1,322,609                     | 1,964,093                     | -                             | -                             | -                             |
| Wholesale and Contract             | 3,036,547                     | 3,246,542                     | 3,505,052                     | 3,661,855                     | 4,339,251                     | -                             | -                             | -                             |
| DSIC                               | -                             | 5,414,693                     | 5,466,477                     | 6,008,790                     | 11,279,120                    | 416,262                       | 60,907                        | 60,175                        |
| <b>Total Water Sales</b>           | <b>\$ 103,858,001</b>         | <b>\$ 117,451,837</b>         | <b>\$ 119,127,521</b>         | <b>\$ 131,141,558</b>         | <b>\$ 167,930,411</b>         | <b>\$ 63,515,232</b>          | <b>\$ 65,140,129</b>          | <b>\$ 56,707,764</b>          |

**Pittsburgh Water & Sewer Authority  
Summary of Operating Revenues**

|   | <b>12 Months<br/>Ended<br/>12/31/2020</b> | <b>12 Months<br/>Ended<br/>12/31/2021</b> | <b>12 Months<br/>Ended<br/>12/31/2022</b> | <b>12 Months<br/>Ended<br/>12/31/2023</b> | <b>12 Months<br/>Ended<br/>12/31/2024</b> |
|---|---|---|---|---|---|
| <b>b. Customer Penalties &amp; Misc. Revenues</b> |   |   |   |   |   |
| Certified Mail Fees                               | \$ -                                      | \$ -                                      | \$ 5,967                                  | \$ -                                      | \$ -                                      |
| Dye Testing                                       | 174,154                                   | 218,645                                   | 173,055                                   | 389,980                                   | 397,780                                   |
| Final Bill Fee                                    | -   | -   | 35,748                                    | -   | -   |
| Fire Hydrant Line Use                             | 82,777                                    | 92,166                                    | 80,048                                    | 149,077                                   | 152,059                                   |
| History Fees                                      | -   | -   | 975                                       | -   | -   |
| Fire Hydrant Sales                                | 10,049                                    | 3,218                                     | 6,200                                     | 5,295                                     | 5,401                                     |
| Map Fees  | -   | -   | 4,360                                     | -   | -   |
| Backflow Fee                                      | 66,978                                    | 76,476                                    | 146,900                                   | 136,749                                   | 139,484                                   |
| Meter Sales                                       | 133,778                                   | 140,779                                   | 63,761                                    | 265,617                                   | 270,929                                   |
| Meter Test Fees                                   | 3,940                                     | 4,270                                     | 3,211                                     | 8,028                                     | 8,189                                     |
| Non-Sufficient Funds Fees                         | 31,107                                    | 40,741                                    | 13,593                                    | 74,281                                    | 75,767                                    |
| Permit Fees                                       | -   | -   | 84,919                                    | -   | -   |
| Shut Fees   | 13,495                                    | 60,481                                    | 54,337                                    | 101,848                                   | 103,885                                   |
| Tap Fees  | 5,874,258                                 | 7,359,363                                 | 3,018,400                                 | -   | -   |
| Lien Satisfaction Fees                            | -   | 78  | -   | -   | -   |
| Lien Filing Fees                                  | -   | 13,884                                    | 19,656                                    | 23,709                                    | 24,183                                    |
| Miscellaneous Fees (300)                          | 974,665                                   | 1,662,400                                 | 1,619,178                                 | 2,341,573                                 | 2,388,404                                 |
| Penalties & Interest                              | 1,165,567                                 | -   | -   | -   | -   |
| <b>Total</b>                                      | <b>8,530,769</b>                          | <b>9,672,503</b>                          | <b>5,330,309</b>                          | <b>3,496,157</b>                          | <b>3,566,080</b>                          |

## II. OPERATING REVENUES

II.2. Prepare a summary of operating revenues for the historic test year, providing the following information:

a. For each classification of customers and for customers' penalties and miscellaneous water or wastewater revenues:

- (i) Revenues.
- (ii) Annualizing and normalizing adjustments to arrive at adjusted operating revenues for ratemaking.
- (iii) Proposed increase in operating revenues.
- (iv) Percent increase in operating revenues.
- (v) Operating revenues under proposed rates.

**RESPONSE:**

Please see the attached schedule.

**Pittsburgh Water & Sewer Authority**  
**Statement of Actual and Projected Revenues at Present and Proposed Rates**  
**Twelve Months Ending December 31, 2022, 2023, & 2024**

|                                     | HTY<br>12 Months<br>Ended<br>12/31/2022 | FTY<br>12 Months<br>Ended<br>12/31/2023 | FPFTY<br>Revenues at<br>Present Rates<br>12/31/2024 | Proposed<br>Increase | Percent<br>Increase | FPFTY<br>Revenues at<br>Proposed Rates<br>12/31/2024 |
|-------------------------------------|---|---|---|----------------------|---------------------|--|
| <b>Water</b>                        |   |   |   |                      |                     |  |
| <u>Customer Class</u>               |   |   |   |                      |                     |  |
| Residential                         | \$ 46,068,603                           | \$ 49,939,884                           | \$ 51,476,654                                       | \$ 11,060,686        | 21.5%               | \$ 62,537,340  |
| Residential - CAP                   | 1,222,572                               | 1,306,741                               | 1,866,823   | 368,215              | 19.7%               | 2,235,038  |
| Commercial                          | 41,243,136                              | 44,921,729                              | 47,167,816  | 14,170,388           | 30.0%               | 61,338,203   |
| Industrial                          | 1,451,743                               | 2,264,992                               | 2,378,241   | 925,688              | 38.9%               | 3,303,929  |
| Health or Education                 | 16,595,807                              | 17,976,189                              | 18,874,998  | 6,908,607            | 36.6%               | 25,783,605   |
| Municipal                           | 2,016,601                               | 3,049,262                               | 4,005,458   | 1,372,310            | 34.3%               | 5,377,768  |
| Private Fire System                 | 713,150                                 | 689,507                                 | 723,982   | 324,178              | 44.8%               | 1,048,160  |
| Public Fire Charges                 | 844,380                                 | 1,322,609                               | 1,322,609   | 641,484              | 48.5%               | 1,964,093  |
| Total Water Revenues                | 110,155,992                             | 121,470,913                             | 127,816,581   | 35,771,556           | 28.0%               | 163,588,136  |
| <b>Wastewater</b>                   |   |   |   |                      |                     |  |
| <u>Customer Class</u>               |   |   |   |                      |                     |  |
| Residential                         | 25,462,107                              | 22,395,042                              | 23,037,729  | 1,807,544            | 7.8%                | 24,845,274   |
| Residential - CAP                   | 909,669                                 | 755,380                                 | 1,145,797   | 57,507               | 5.0%                | 1,203,305  |
| Commercial                          | 20,806,019                              | 16,474,903                              | 17,298,649  | 1,188,962            | 6.9%                | 18,487,611   |
| Industrial                          | 770,080                                 | 930,249                                 | 976,761   | 91,027               | 9.3%                | 1,067,788  |
| Health or Education                 | 7,853,194                               | 6,403,078                               | 6,723,231   | 2,725                | 0.0%                | 6,725,956  |
| Municipal                           | 958,118                                 | 1,076,866                               | 1,413,387   | 124,845              | 8.8%                | 1,538,232  |
| Total Wastewater Revenues           | 56,759,188                              | 48,035,518                              | 50,595,555  | 3,272,611            | 6.5%                | 53,868,165   |
| <b>Stormwater</b>                   |   |   |   |                      |                     |  |
| <u>Customer Class</u>               |   |   |   |                      |                     |  |
| <i>Non-Stormwater Only</i>          |   |   |   |                      |                     |  |
| Residential                         | 7,206,391                               | 8,778,740                               | 11,045,895  | 128,599              | 1.2%                | 11,174,494   |
| Residential - CAP                   | 39,868                                  | 78,163                                  | 142,749   | -                    | 0.0%                | 142,749  |
| Commercial                          | 6,119,249                               | 6,783,894                               | 8,755,063   | 3,943,041            | 45.0%               | 12,698,104   |
| Industrial                          | 112,109                                 | 144,245                                 | 186,157   | -                    | 0.0%                | 186,157  |
| Health or Education                 | 839,598                                 | 1,106,163                               | 1,427,576   | -                    | 0.0%                | 1,427,576  |
| Municipal (Metered & Unmetered)     | 413,692                                 | 574,403                                 | 741,306   | -                    | 0.0%                | 741,306  |
| Other                               | 828,807                                 | 2,683,220                               | 3,462,873   | -                    | 0.0%                | 3,462,873  |
| Total Stormwater Revenues           | 15,559,713                              | 20,148,829                              | 25,761,620  | 4,071,640            | 15.8%               | 29,833,260   |
| <b>Wholesale &amp; Contracts</b>    |   |   |   |                      |                     |  |
| Aspinwall                           | 552,872                                 | 425,882                                 | 425,882   | 126,990              | 29.8%               | 552,872  |
| Fox Chapel                          | 2,226,791                               | 2,457,179                               | 2,457,179   | (230,388)            | -9.4%               | 2,226,791  |
| PAWC                                | 102,708                                 | 103,727                                 | 103,727   | (1,020)              | -1.0%               | 102,708  |
| RSRV - 10"                          | 408,642                                 | 451,017                                 | 451,017   | (42,375)             | -9.4%               | 408,642  |
| RSRV - 6"                           | 76,316                                  | 75,763                                  | 75,763  | 553                  | 0.7%                | 76,316   |
| Westview                            | 137,723                                 | 148,286                                 | 148,286   | (10,563)             | -7.1%               | 137,723  |
| NRG                                 | 60,175                                  | 64,755                                  | 64,755  | (4,580)              | -7.1%               | 60,175   |
| Total Wholesale & Contract Revenues | 3,565,227                               | 3,726,610                               | 3,726,610   | (161,384)            | #REF!               | 3,565,227  |
| <b>Other Operating Revenue</b>      |   |   |   |                      |                     |  |
| Certified Mail Fees                 | \$ 5,967                                | \$ -                                    | \$ -  | \$ 173,055           | 0.0%                | \$ 173,055   |
| Dye Testing                         | 173,055                                 | 389,980                                 | 397,780   | (317,732)            | -79.9%              | 80,048   |
| Final Bill Fee                      | 35,748                                  | -                                       | -   | 6,200                | 0.0%                | 6,200  |
| Fire Hydrant Line Use               | 80,048                                  | 149,077                                 | 152,059   | (147,699)            | -97.1%              | 4,360  |
| History Fees                        | 975                                     | -                                       | -   | 146,900              | 0.0%                | 146,900  |
| Fire Hydrant Sales                  | 6,200                                   | 5,295                                   | 5,401   | 58,360               | 1080.6%             | 63,761   |
| Map Fees                            | 4,360                                   | -                                       | -   | 3,211                | 0.0%                | 3,211  |
| Backflow Fee                        | 146,900                                 | 136,749                                 | 139,484   | -                    | 0.0%                | -  |
| Meter Sales                         | 63,761                                  | 265,617                                 | 270,929   | -                    | 0.0%                | -  |
| Meter Test Fees                     | 3,211                                   | 8,028                                   | 8,189   | -                    | 0.0%                | -  |
| Non-Sufficient Funds Fees           | 13,593                                  | 74,281                                  | 75,767  | -                    | 0.0%                | -  |
| Permit Fees                         | 84,919                                  | -                                       | -   | -                    | 0.0%                | -  |
| Shut Fees                           | 54,337                                  | 101,848                                 | 103,885   | (90,292)             | -86.9%              | 13,593   |
| Tap Fees                            | 3,018,400                               | -                                       | -   | 54,337               | 0.0%                | 54,337   |
| Bid Fees                            | -                                       | -                                       | -   | 3,018,400            | 0.0%                | 3,018,400  |
| Lien Satisfaction Fees              | -                                       | -                                       | -   | -                    | 0.0%                | -  |
| Lien Filing Fees                    | 19,656                                  | 23,709                                  | 24,183  | (24,183)             | -100.0%             | -  |
| Expense Reimbursement               | -                                       | -                                       | -   | 1,619,178            | 0.0%                | 1,619,178  |
| Miscellaneous Fees (300)            | 1,619,178                               | 2,341,573                               | 2,388,404   | (2,388,404)          | -100.0%             | -  |
| Miscellaneous Fees (400)            | -                                       | -                                       | -   | -                    | 0.0%                | -  |
| Penalties & Interest                | -                                       | -                                       | -   | -                    | 0.0%                | -  |
| Total Other Operating Revenues      | 5,330,309                               | 3,496,157                               | 3,566,080   | 2,111,332            | 59.2%               | 5,183,044  |
| <b>Total Operating Revenues</b>     | <b>191,370,428</b>                      | <b>196,878,027</b>                      | <b>211,466,446</b>                                  | <b>45,065,755</b>    | <b>21.3%</b>        | <b>256,037,832</b>                                   |



## **II. OPERATING REVENUES**

II.3. Provide a schedule of present and proposed tariff rates showing dollar change and percent of change by block. Provide increases to customers at various monthly uses (each 5,000 gallon consumption increment) showing billings at existing and proposed rates. Provide also an explanation of any change in block structure and the reason therefore. Provide a copy of the proposed tariff or tariff supplement on a red line basis, to easily identify any changes.

### **RESPONSE:**

Please refer to the Cost of Service analysis and the testimony of Harold J. Smith.

## **II. OPERATING REVENUES**

II.4. Provide for the future test year a detailed customer consumption analysis and the application of rates to support present and proposed revenues by customer classification and tariff rate schedule.

### **RESPONSE:**

Please see the attached schedules.

**Pittsburgh Water & Sewer Authority  
Rate Case 2023  
FPFTY Pro Forma Revenue at Current Rates**

| FY 2024                     |                                 |                           |                     | PUC Approved Prior Tariff Rates |                     | FY 2024             |               |                    |              |               |
|-----------------------------|---------------------------------|---------------------------|---------------------|---------------------------------|---------------------|---------------------|---------------|--------------------|--------------|---------------|
| Number of Meters            | Number of Annual Bills          | Billable Usage (Kgal) (1) | Monthly Min. Charge | Volume Charge (Kgal)            | Min. Charge Revenue | Vol. Charge Revenue | DSIC (5%)     | Total Rate Revenue |              |               |
| <b>1 Water Revenues</b>     |                                 |                           |                     |                                 |                     |                     |               |                    |              |               |
| <b>2 Residential</b>        |                                 |                           |                     |                                 |                     |                     |               |                    |              |               |
| <i>Current rates</i>        |                                 |                           |                     |                                 |                     |                     |               |                    |              |               |
| 3                           | 5/8"                            | 56,863                    | 682,360             | 1,583,614                       | \$ 26.52            | \$ 14.64            | \$ 18,096,198 | \$ 23,184,107      | \$ 2,064,015 | \$ 43,344,320 |
| 4                           | 3/4"                            | 2,526                     | 30,308              | 113,350                         | \$ 46.47            | 14.64               | 1,408,403     | 1,659,444          | 153,392      | 3,221,239     |
| 5                           | 1"                              | 2,045                     | 24,535              | 118,986                         | \$ 102.08           | 14.64               | 2,504,574     | 1,741,960          | 212,327      | 4,458,861     |
| 6                           | 1 1/2"                          | 38                        | 452                 | 1,623                           | \$ 201.85           | 14.64               | 91,236        | 23,762             | 5,750        | 120,748       |
| 7                           | 2"                              | 6                         | 68                  | 771                             | \$ 337.28           | 14.64               | 22,935        | 11,287             | 1,711        | 35,934        |
| 8                           | Unmetered                       | 333                       | 3,996               | -                               | 70.44               | -                   | 281,478       | -                  | 14,074       | 295,552       |
| 9                           | <i>Total: Residential</i>       | 61,810                    | 741,720             | 1,818,344                       |                     |                     | \$ 22,404,824 | \$ 26,620,560      | \$ 2,451,269 | \$ 51,476,654 |
| <b>11 Residential - CAP</b> |                                 |                           |                     |                                 |                     |                     |               |                    |              |               |
| 12                          | 5/8"                            | 4,518                     | 54,220              | 107,437                         | \$ -                | \$ 14.64            | \$ -          | \$ 1,572,872       | \$ 78,644    | \$ 1,651,516  |
| 13                          | 3/4"                            | 42                        | 502                 | 620                             | -                   | 14.64               | -             | 9,078              | 454          | 9,531         |
| 14                          | 1"                              | 25                        | 294                 | 215                             | -                   | 14.64               | -             | 3,148              | 157          | 3,305         |
| 15                          | Unmetered                       | 1                         | 12                  | -                               | 43.95               | -                   | 527           | -                  | 26           | 554           |
| 16                          | Volume Discount Customers       | -                         | -                   | 26,271                          | -                   | 7.32                | -             | 192,301            | 9,615        | 201,916       |
| 17                          | <i>Total: Residential - CAP</i> | 4,586                     | 55,028              | 134,542                         |                     |                     | \$ 527        | \$ 1,777,399       | \$ 88,896    | \$ 1,866,823  |
| <b>19 Commercial</b>        |                                 |                           |                     |                                 |                     |                     |               |                    |              |               |
| 20                          | 5/8"                            | 2,709                     | 32,509              | 114,037                         | \$ 26.52            | \$ 13.80            | \$ 862,139    | \$ 1,573,711       | \$ 121,793   | \$ 2,557,643  |
| 21                          | 3/4"                            | 696                       | 8,347               | 42,025                          | \$ 46.47            | 13.80               | 387,885       | 579,944            | 48,391       | 1,016,221     |
| 22                          | 1"                              | 1,433                     | 17,201              | 130,986                         | \$ 102.08           | 13.80               | 1,755,878     | 1,807,611          | 178,174      | 3,741,663     |
| 23                          | 1 1/2"                          | 839                       | 10,062              | 215,099                         | \$ 201.85           | 13.80               | 2,031,015     | 2,968,360          | 249,969      | 5,249,344     |
| 24                          | 2"                              | 811                       | 9,730               | 369,600                         | \$ 337.28           | 13.80               | 3,281,734     | 5,100,481          | 419,111      | 8,801,327     |
| 25                          | 3"                              | 235                       | 2,822               | 290,734                         | \$ 766.42           | 13.80               | 2,162,837     | 4,012,125          | 308,748      | 6,483,710     |
| 26                          | 4"                              | 181                       | 2,167               | 460,326                         | \$ 1,313.93         | 13.80               | 2,847,286     | 6,352,502          | 459,989      | 9,659,778     |
| 27                          | 6"                              | 77                        | 918                 | 299,339                         | \$ 3,174.80         | 13.80               | 2,914,466     | 4,130,872          | 352,267      | 7,397,605     |
| 28                          | 8"                              | 6                         | 75                  | 124,496                         | \$ 5,784.48         | 13.80               | 433,836       | 1,718,051          | 107,594      | 2,259,481     |
| 29                          | 10" & Above                     | -                         | -                   | -                               | \$ 9,582.36         | 13.80               | -             | -                  | -            | -             |
| 30                          | Unmetered                       | 1                         | 12                  | -                               | 82.92               | -                   | 995           | -                  | 50           | 1,045         |
| 31                          | <i>Total: Commercial</i>        | 6,987                     | 83,843              | 2,046,642                       |                     |                     | \$ 16,678,072 | \$ 28,243,658      | \$ 2,246,086 | \$ 47,167,816 |
| <b>33 Industrial</b>        |                                 |                           |                     |                                 |                     |                     |               |                    |              |               |
| 34                          | 5/8"                            | 7                         | 84                  | 1,840                           | \$ 26.52            | \$ 12.13            | \$ 2,228      | \$ 22,323          | \$ 1,228     | \$ 25,778     |
| 35                          | 3/4"                            | 1                         | 12                  | 6                               | 46.47               | 12.13               | 558           | 77                 | 32           | 666           |
| 36                          | 1"                              | 6                         | 69                  | 2,568                           | 102.08              | 12.13               | 7,044         | 31,146             | 1,909        | 40,099        |
| 37                          | 1 1/2"                          | -                         | -                   | 16                              | 201.85              | 12.13               | -             | 198                | 10           | 208           |
| 38                          | 2"                              | 5                         | 60                  | 30,826                          | 337.28              | 12.13               | 20,237        | 373,923            | 19,708       | 413,868       |
| 39                          | 3"                              | 3                         | 33                  | 12,911                          | 766.42              | 12.13               | 25,292        | 156,606            | 9,095        | 190,993       |
| 40                          | 4"                              | 5                         | 65                  | 50,360                          | 1,313.93            | 12.13               | 85,405        | 610,867            | 34,814       | 731,086       |
| 41                          | 6"                              | 2                         | 24                  | 31,257                          | 3,174.80            | 12.13               | 76,195        | 379,151            | 22,767       | 478,114       |
| 42                          | 8"                              | 2                         | 24                  | 27,610                          | 5,784.48            | 12.13               | 138,828       | 334,913            | 23,687       | 497,428       |
| 43                          | 10" & Above                     | -                         | -                   | -                               | 9,582.36            | 12.13               | -             | -                  | -            | -             |

**Pittsburgh Water & Sewer Authority  
Rate Case 2023  
FFTY Pro Forma Revenue at Current Rates**

| FY 2024          |                                       |                           | PUC Approved Prior Tariff Rates |                      | FY 2024             |                     |              |                    |              |               |
|------------------|---------------------------------------|---------------------------|---------------------------------|----------------------|---------------------|---------------------|--------------|--------------------|--------------|---------------|
| Number of Meters | Number of Annual Bills                | Billable Usage (Kgal) (1) | Monthly Min. Charge             | Volume Charge (Kgal) | Min. Charge Revenue | Vol. Charge Revenue | DSIC (5%)    | Total Rate Revenue |              |               |
| 44               | <i>Total: Industrial</i>              |                           | 31                              | 371                  | 157,395             | \$ 355,786          | \$ 1,909,206 | \$ 113,250         | \$ 2,378,241 |               |
| 45               |                                       |                           |                                 |                      |                     |                     |              |                    |              |               |
| 46               | <u>Health or Education</u>            |                           |                                 |                      |                     |                     |              |                    |              |               |
| 47               | 5/8"                                  | 30                        | 359                             | 688                  | \$ 26.52            | \$ 16.29            | \$ 9,521     | \$ 11,202          | \$ 1,036     | \$ 21,759     |
| 48               | 3/4"                                  | 8                         | 96                              | 603                  | 46.47               | 16.29               | 4,461        | 9,817              | 714          | 14,992        |
| 49               | 1"                                    | 20                        | 239                             | 910                  | 102.08              | 16.29               | 24,397       | 14,819             | 1,961        | 41,176        |
| 50               | 1 1/2"                                | 63                        | 755                             | 4,351                | 201.85              | 16.29               | 152,397      | 70,872             | 11,163       | 234,433       |
| 51               | 2"                                    | 130                       | 1,561                           | 57,558               | 337.28              | 16.29               | 526,494      | 937,618            | 73,206       | 1,537,318     |
| 52               | 3"                                    | 87                        | 1,048                           | 119,746              | 766.42              | 16.29               | 803,208      | 1,950,668          | 137,694      | 2,891,570     |
| 53               | 4"                                    | 67                        | 800                             | 237,080              | 1,313.93            | 16.29               | 1,051,144    | 3,862,035          | 245,659      | 5,158,838     |
| 54               | 6"                                    | 31                        | 368                             | 342,563              | 3,174.80            | 16.29               | 1,168,326    | 5,580,347          | 337,434      | 7,086,107     |
| 55               | 8"                                    | 2                         | 21                              | 45,169               | 5,784.48            | 16.29               | 121,474      | 735,798            | 42,864       | 900,135       |
| 56               | 10" & Above                           | 2                         | 19                              | 46,625               | 9,582.36            | 16.29               | 182,065      | 759,526            | 47,080       | 988,670       |
| 57               | <i>Total: Health or Education</i>     | 439                       | 5,266                           | 855,292              |                     |                     | \$ 4,043,487 | \$ 13,932,701      | \$ 898,809   | \$ 18,874,998 |
| 58               |                                       |                           |                                 |                      |                     |                     |              |                    |              |               |
| 47               | <u>Municipal - Residential</u>        |                           |                                 |                      |                     |                     |              |                    |              |               |
| 59               | 5/8"                                  | 18                        | 219                             | 718                  | \$ 26.52            | \$ 14.64            | \$ 5,808     | \$ 10,516          | \$ 816       | \$ 17,141     |
| 60               | 3/4"                                  | -                         | -                               | -                    | 46.47               | 14.64               | -            | -                  | -            | -             |
| 61               | 1"                                    | 1                         | 12                              | 53                   | 102.08              | 14.64               | 1,225        | 775                | 100          | 2,100         |
| 62               | 1 1/2"                                | 1                         | 12                              | 931                  | 201.85              | 14.64               | 2,422        | 13,630             | 803          | 16,855        |
| 63               | 2"                                    | -                         | -                               | -                    | 337.28              | 14.64               | -            | -                  | -            | -             |
| 64               | 3"                                    | -                         | -                               | -                    | -                   | -                   | -            | -                  | -            | -             |
| 65               | 4"                                    | -                         | -                               | -                    | -                   | -                   | -            | -                  | -            | -             |
| 66               | 6"                                    | -                         | -                               | -                    | -                   | -                   | -            | -                  | -            | -             |
| 67               | 8"                                    | -                         | -                               | -                    | -                   | -                   | -            | -                  | -            | -             |
| 68               | 10" & Above                           | -                         | -                               | -                    | -                   | -                   | -            | -                  | -            | -             |
| 69               | <i>Total: Municipal - Residential</i> | 20                        | 243                             | 1,702                |                     |                     | \$ 9,455     | \$ 24,922          | \$ 1,719     | \$ 36,096     |

**Pittsburgh Water & Sewer Authority  
Rate Case 2023  
FPFTY Pro Forma Revenue at Current Rates**

|    |   | FY 2024          |                        |                           | PUC Approved Prior Tariff Rates |                      | FY 2024              |                      |                     |                       |
|----|---|------------------|------------------------|---------------------------|---------------------------------|----------------------|----------------------|----------------------|---------------------|-----------------------|
|    |   | Number of Meters | Number of Annual Bills | Billable Usage (Kgal) (1) | Monthly Min. Charge             | Volume Charge (Kgal) | Min. Charge Revenue  | Vol. Charge Revenue  | DSIC (5%)           | Total Rate Revenue    |
| 59 | <u>Municipal - Commercial</u>           |                  |                        |                           |                                 |                      |                      |                      |                     |                       |
| 70 | 5/8"                                    | 58               | 697                    | 4,316                     | \$ 26.52                        | \$ 13.80             | \$ 18,484            | \$ 59,564            | \$ 3,902            | \$ 81,950             |
| 71 | 3/4"                                    | 6                | 77                     | 225                       | 46.47                           | 13.80                | 3,578                | 3,111                | 334                 | 7,024                 |
| 72 | 1"                                      | 43               | 517                    | 25,078                    | 102.08                          | 13.80                | 52,775               | 346,075              | 19,943              | 418,793               |
| 73 | 1 1/2"                                  | 34               | 409                    | 6,174                     | 201.85                          | 13.80                | 82,557               | 85,203               | 8,388               | 176,147               |
| 74 | 2"                                      | 49               | 593                    | 38,316                    | 337.28                          | 13.80                | 200,007              | 528,759              | 36,438              | 765,204               |
| 75 | 3"                                      | 14               | 167                    | 16,924                    | 766.42                          | 13.80                | 127,992              | 233,551              | 18,077              | 379,621               |
| 76 | 4"                                      | 2                | 25                     | 2,080                     | 1,313.93                        | 13.80                | 32,848               | 28,699               | 3,077               | 64,625                |
| 77 | 6"                                      | 3                | 35                     | 118,632                   | 3,174.80                        | 13.80                | 111,118              | 1,637,123            | 87,412              | 1,835,653             |
| 78 | 8"                                      | 2                | 29                     | 6,694                     | 5,784.48                        | 13.80                | 167,750              | 92,382               | 13,007              | 273,138               |
| 79 | 10" & Above                             | -                | -                      | -                         | 9,582.36                        | 13.80                | -                    | -                    | -                   | -                     |
| 80 | <i>Total: Municipal - Commercial</i>    | 212              | 2,549                  | 218,440                   |                                 |                      | \$ 797,110           | \$ 3,014,467         | \$ 190,579          | \$ 4,002,156          |
| 81 |   |                  |                        |                           |                                 |                      |                      |                      |                     |                       |
| 82 | <u>Private Fire System</u>              |                  |                        |                           |                                 |                      |                      |                      |                     |                       |
| 83 | 1" or Less                              | 1,326            | 15,907                 | 7,469                     | \$ 15.43                        | \$ 39.05             | \$ 245,445           | \$ 291,652           | \$ 26,855           | \$ 563,952            |
| 84 | 1 1/2"-3"                               | 44               | 529                    | 772                       | \$ 46.28                        | 39.05                | 24,482               | 30,134               | 2,731               | 57,347                |
| 85 | 4"                                      | 4                | 45                     | 55                        | \$ 152.25                       | 39.05                | 6,851                | 2,148                | 450                 | 9,449                 |
| 86 | 6" or Greater                           | 16               | 190                    | 692                       | \$ 325.06                       | 39.05                | 61,761               | 27,033               | 4,440               | 93,234                |
| 87 | <i>Total: Private Fire System</i>       | 1,389            | 16,671                 | 8,988                     |                                 |                      | \$ 338,540           | \$ 350,967           | \$ 34,475           | \$ 723,982            |
| 88 |   |                  |                        |                           |                                 |                      |                      |                      |                     |                       |
| 89 | Public Fire (Hydrants)                  | 7,508            | 90,096                 | -                         | \$ 14.68                        | \$ -                 | \$ 1,322,609         | \$ -                 | \$ -                | \$ 1,322,609          |
| 90 |   |                  |                        |                           |                                 |                      |                      |                      |                     |                       |
| 91 | <i>Total: Water (Units &amp; Sales)</i> | <b>82,982</b>    | <b>995,787</b>         | <b>5,241,345</b>          |                                 |                      | <b>\$ 45,950,411</b> | <b>\$ 75,873,880</b> | <b>\$ 6,025,084</b> | <b>\$ 127,849,375</b> |

(1) Represents billable customer usage above minimum allowance included in minimum charge

**Pittsburgh Water & Sewer Authority  
Rate Case 2023  
Rate Revenue at Proposed Rates**

|   |                           | FY 2024          |                        |                           | Proposed Rates      |                      | FY 2024             |                     |              |                    |
|---|---------------------------|------------------|------------------------|---------------------------|---------------------|----------------------|---------------------|---------------------|--------------|--------------------|
|   |                           | Number of Meters | Number of Annual Bills | Billable Usage (Kgal) (1) | Monthly Min. Charge | Volume Charge (Kgal) | Min. Charge Revenue | Vol. Charge Revenue | DSIC (7.5%)  | Total Rate Revenue |
| 1 | <b>Water Revenues</b>     |                  |                        |                           |                     |                      |                     |                     |              |                    |
| 2 | <u>Residential</u>        |                  |                        |                           |                     |                      |                     |                     |              |                    |
| 3 | 5/8"                      | 56,863           | 682,360                | 1,583,614                 | \$ 32.43            | \$ 17.12             | \$ 22,128,948       | \$ 27,111,469       | \$ 3,693,031 | \$ 52,933,448      |
| 4 | 3/4"                      | 2,526            | 30,308                 | 113,350                   | 54.74               | 17.12                | 1,659,049           | 1,940,551           | 269,970      | 3,869,570          |
| 5 | 1"                        | 2,045            | 24,535                 | 118,986                   | 113.88              | 17.12                | 2,794,091           | 2,037,046           | 362,335      | 5,193,473          |
| 6 | 1 1/2"                    | 38               | 452                    | 1,623                     | 225.41              | 17.12                | 101,885             | 27,788              | 9,725        | 139,398            |
| 7 | 2"                        | 6                | 68                     | 771                       | 373.78              | 17.12                | 25,417              | 13,200              | 2,896        | 41,513             |
| 8 | Unmetered                 | 333              | 3,996                  | -                         | 83.79               |                      | 334,825             | -                   | 25,112       | 359,937            |
| 9 | <i>Total: Residential</i> | 61,810           | 741,720                | 1,818,344                 |                     |                      | \$ 27,044,215       | \$ 31,130,054       | \$ 4,363,070 | \$ 62,537,340      |

**Pittsburgh Water & Sewer Authority  
Rate Case 2023  
FPFTY Pro Forma Revenue at Current Rates**

|    | FY 2024                         |                        |                           | PUC Approved Prior Tariff Rates |                      | FY 2024             |                     |               |                    |               |
|----|---------------------------------|------------------------|---------------------------|---------------------------------|----------------------|---------------------|---------------------|---------------|--------------------|---------------|
|    | Number of Meters                | Number of Annual Bills | Billable Usage (Kgal) (1) | Monthly Min. Charge             | Volume Charge (Kgal) | Min. Charge Revenue | Vol. Charge Revenue | DSIC (5%)     | Total Rate Revenue |               |
| 10 |                                 |                        |                           |                                 |                      |                     |                     |               |                    |               |
| 11 | <u>Residential - CAP</u>        |                        |                           |                                 |                      |                     |                     |               |                    |               |
| 12 | 5/8"                            | 4,518                  | 54,220                    | 107,437                         | \$ -                 | \$ 17.12            | \$ -                | \$ 1,839,315  | \$ 137,949         | \$ 1,977,264  |
| 13 | 3/4"                            | 42                     | 502                       | 620                             | -                    | 17.12               | -                   | 10,615        | 796                | 11,411        |
| 14 | 1"                              | 25                     | 294                       | 215                             | -                    | 17.12               | -                   | 3,681         | 276                | 3,957         |
| 15 | Unmetered                       | 1                      | 12                        | -                               | 51.36                | -                   | 616                 | -             | 46                 | 663           |
| 16 | Volume Discount Customers       | -                      | -                         | 26,271                          | -                    | 8.56                | -                   | 224,877       | 16,866             | 241,743       |
| 17 | <i>Total: Residential - CAP</i> | 4,586                  | 55,028                    | 134,542                         |                      |                     | \$ 616              | \$ 2,078,489  | \$ 155,933         | \$ 2,235,038  |
| 18 |                                 |                        |                           |                                 |                      |                     |                     |               |                    |               |
| 19 | <u>Commercial</u>               |                        |                           |                                 |                      |                     |                     |               |                    |               |
| 20 | 5/8"                            | 2,709                  | 32,509                    | 114,037                         | \$ 32.43             | \$ 18.95            | \$ 1,054,267        | \$ 2,161,002  | \$ 241,145         | \$ 3,456,414  |
| 21 | 3/4"                            | 696                    | 8,347                     | 42,025                          | 54.74                | 18.95               | 456,915             | 796,373       | 93,997             | 1,347,284     |
| 22 | 1"                              | 1,433                  | 17,201                    | 130,986                         | 113.88               | 18.95               | 1,958,850           | 2,482,190     | 333,078            | 4,774,118     |
| 23 | 1 1/2"                          | 839                    | 10,062                    | 215,099                         | 225.41               | 18.95               | 2,268,075           | 4,076,118     | 475,814            | 6,820,008     |
| 24 | 2"                              | 811                    | 9,730                     | 369,600                         | 373.78               | 18.95               | 3,636,879           | 7,003,922     | 798,060            | 11,438,861    |
| 25 | 3"                              | 235                    | 2,822                     | 290,734                         | 832.40               | 18.95               | 2,349,033           | 5,509,403     | 589,383            | 8,447,819     |
| 26 | 4"                              | 181                    | 2,167                     | 460,326                         | 1,408.27             | 18.95               | 3,051,721           | 8,723,182     | 883,118            | 12,658,021    |
| 27 | 6"                              | 77                     | 918                       | 299,339                         | 3,322.70             | 18.95               | 3,050,239           | 5,672,466     | 654,203            | 9,376,907     |
| 28 | 8"                              | 6                      | 75                        | 124,496                         | 5,968.71             | 18.95               | 447,653             | 2,359,208     | 210,515            | 3,017,375     |
| 29 | 10" & Above                     | -                      | -                         | -                               | 9,753.09             | 18.95               | -                   | -             | -                  | -             |
| 30 | Unmetered                       | 1                      | 12                        | -                               | 108.23               | 18.95               | 1,299               | -             | 97                 | 1,396         |
| 31 | <i>Total: Commercial</i>        | 6,987                  | 83,843                    | 2,046,642                       |                      |                     | \$ 18,274,931       | \$ 38,783,863 | \$ 4,279,410       | \$ 61,338,203 |
| 32 |                                 |                        |                           |                                 |                      |                     |                     |               |                    |               |
| 33 | <u>Industrial</u>               |                        |                           |                                 |                      |                     |                     |               |                    |               |
| 34 | 5/8"                            | 7                      | 84                        | 1,840                           | \$ 32.43             | \$ 17.14            | \$ 2,724            | \$ 31,543     | \$ 2,570           | \$ 36,837     |
| 35 | 3/4"                            | 1                      | 12                        | 6                               | 54.74                | 17.14               | 657                 | 108           | 57                 | 823           |
| 36 | 1"                              | 6                      | 69                        | 2,568                           | 113.88               | 17.14               | 7,858               | 44,011        | 3,890              | 55,759        |
| 37 | 1 1/2"                          | -                      | -                         | 16                              | 225.41               | 17.14               | -                   | 280           | 21                 | 301           |
| 38 | 2"                              | 5                      | 60                        | 30,826                          | 373.78               | 17.14               | 22,427              | 528,363       | 41,309             | 592,099       |
| 39 | 3"                              | 3                      | 33                        | 12,911                          | 832.40               | 17.14               | 27,469              | 221,289       | 18,657             | 267,415       |
| 40 | 4"                              | 5                      | 65                        | 50,360                          | 1,408.27             | 17.14               | 91,538              | 863,170       | 71,603             | 1,026,311     |
| 41 | 6"                              | 2                      | 24                        | 31,257                          | 3,322.70             | 17.14               | 79,745              | 535,751       | 46,162             | 661,658       |
| 42 | 8"                              | 2                      | 24                        | 27,610                          | 5,968.71             | 17.14               | 143,249             | 473,241       | 46,237             | 662,727       |
| 43 | 10" & Above                     | -                      | -                         | -                               | 9,753.09             | 17.14               | -                   | -             | -                  | -             |
| 44 | <i>Total: Industrial</i>        | 31                     | 371                       | 157,395                         |                      |                     | \$ 375,666          | \$ 2,697,757  | \$ 230,507         | \$ 3,303,929  |
| 45 |                                 |                        |                           |                                 |                      |                     |                     |               |                    |               |
| 46 | <u>Health or Education</u>      |                        |                           |                                 |                      |                     |                     |               |                    |               |
| 47 | 5/8"                            | 30                     | 359                       | 688                             | \$ 32.43             | \$ 22.98            | \$ 11,642           | \$ 15,803     | \$ 2,058           | \$ 29,503     |
| 48 | 3/4"                            | 8                      | 96                        | 603                             | 54.74                | 22.98               | 5,255               | 13,849        | 1,433              | 20,536        |
| 49 | 1"                              | 20                     | 239                       | 910                             | 113.88               | 22.98               | 27,217              | 20,904        | 3,609              | 51,731        |
| 50 | 1 1/2"                          | 63                     | 755                       | 4,351                           | 225.41               | 22.98               | 170,185             | 99,978        | 20,262             | 290,425       |
| 51 | 2"                              | 130                    | 1,561                     | 57,558                          | 373.78               | 22.98               | 583,471             | 1,322,681     | 142,961            | 2,049,112     |
| 52 | 3"                              | 87                     | 1,048                     | 119,746                         | 832.40               | 22.98               | 872,355             | 2,751,771     | 271,809            | 3,895,935     |
| 53 | 4"                              | 67                     | 800                       | 237,080                         | 1,408.27             | 22.98               | 1,126,616           | 5,448,101     | 493,104            | 7,067,821     |

**Pittsburgh Water & Sewer Authority  
Rate Case 2023  
FPFTY Pro Forma Revenue at Current Rates**

|     |                                       | FY 2024                |                           |                     | PUC Approved Prior Tariff Rates |                     | FY 2024             |               |                    |               |  |
|-----|---------------------------------------|------------------------|---------------------------|---------------------|---------------------------------|---------------------|---------------------|---------------|--------------------|---------------|--|
|     | Number of Meters                      | Number of Annual Bills | Billable Usage (Kgal) (1) | Monthly Min. Charge | Volume Charge (Kgal)            | Min. Charge Revenue | Vol. Charge Revenue | DSIC (5%)     | Total Rate Revenue |               |  |
| 54  | 6"                                    | 31                     | 368                       | 342,563             | 3,322.70                        | 22.98               | 1,222,754           | 7,872,091     | 682,113            | 9,776,958     |  |
| 55  | 8"                                    | 2                      | 21                        | 45,169              | 5,968.71                        | 22.98               | 125,343             | 1,037,976     | 87,249             | 1,250,568     |  |
| 56  | 10" & Above                           | 2                      | 19                        | 46,625              | 9,753.09                        | 22.98               | 185,309             | 1,071,449     | 94,257             | 1,351,015     |  |
| 57  | <i>Total: Health or Education</i>     | 439                    | 5,266                     | 855,292             |                                 |                     | \$ 4,330,146        | \$ 19,654,603 | \$ 1,798,856       | \$ 25,783,605 |  |
| 58  |                                       |                        |                           |                     |                                 |                     |                     |               |                    |               |  |
| 92  | <u>Municipal - Residential</u>        |                        |                           |                     |                                 |                     |                     |               |                    |               |  |
| 93  | 5/8"                                  | 18                     | 219                       | 718                 | \$ 32.43                        | \$ 17.12            | \$ 7,102            | \$ 12,298     | \$ 1,455           | \$ 20,855     |  |
| 94  | 3/4"                                  | -                      | -                         | -                   | 54.74                           | 17.12               | -                   | -             | -                  | -             |  |
| 95  | 1"                                    | 1                      | 12                        | 53                  | 113.88                          | 17.12               | 1,367               | 907           | 171                | 2,444         |  |
| 96  | 1 1/2"                                | 1                      | 12                        | 931                 | 225.41                          | 17.12               | 2,705               | 15,939        | 1,398              | 20,042        |  |
| 97  | 2"                                    | -                      | -                         | -                   | 373.78                          | 17.12               | -                   | -             | -                  | -             |  |
| 98  | 3"                                    | -                      | -                         | -                   | -                               | -                   | -                   | -             | -                  | -             |  |
| 99  | 4"                                    | -                      | -                         | -                   | -                               | -                   | -                   | -             | -                  | -             |  |
| 100 | 6"                                    | -                      | -                         | -                   | -                               | -                   | -                   | -             | -                  | -             |  |
| 101 | 8"                                    | -                      | -                         | -                   | -                               | -                   | -                   | -             | -                  | -             |  |
| 102 | 10" & Above                           | -                      | -                         | -                   | -                               | -                   | -                   | -             | -                  | -             |  |
| 103 | <i>Total: Municipal - Residential</i> | 20                     | 243                       | 1,702               |                                 |                     | \$ 11,174           | \$ 29,144     | \$ 3,024           | \$ 43,341     |  |
| 92  | <u>Municipal - Commercial</u>         |                        |                           |                     |                                 |                     |                     |               |                    |               |  |
| 104 | 5/8"                                  | 58                     | 697                       | 4,316               | \$ 32.43                        | \$ 18.95            | \$ 22,604           | \$ 81,792     | \$ 7,830           | \$ 112,225    |  |
| 105 | 3/4"                                  | 6                      | 77                        | 225                 | 54.74                           | 18.95               | 4,215               | 4,272         | 637                | 9,124         |  |
| 106 | 1"                                    | 43                     | 517                       | 25,078              | 113.88                          | 18.95               | 58,876              | 475,226       | 40,058             | 574,160       |  |
| 107 | 1 1/2"                                | 34                     | 409                       | 6,174               | 225.41                          | 18.95               | 92,193              | 116,999       | 15,689             | 224,881       |  |
| 108 | 2"                                    | 49                     | 593                       | 38,316              | 373.78                          | 18.95               | 221,652             | 726,086       | 71,080             | 1,018,818     |  |
| 109 | 3"                                    | 14                     | 167                       | 16,924              | 832.40                          | 18.95               | 139,011             | 320,710       | 34,479             | 494,200       |  |
| 110 | 4"                                    | 2                      | 25                        | 2,080               | 1,408.27                        | 18.95               | 35,207              | 39,410        | 5,596              | 80,213        |  |
| 111 | 6"                                    | 3                      | 35                        | 118,632             | 3,322.70                        | 18.95               | 116,295             | 2,248,078     | 177,328            | 2,541,701     |  |
| 112 | 8"                                    | 2                      | 29                        | 6,694               | 5,968.71                        | 18.95               | 173,093             | 126,858       | 22,496             | 322,446       |  |
| 113 | 10" & Above                           | -                      | -                         | -                   | 9,753.09                        | 18.95               | -                   | -             | -                  | -             |  |
| 114 | <i>Total: Municipal - Commercial</i>  | 212                    | 2,549                     | 218,440             |                                 |                     | \$ 863,144          | \$ 4,139,431  | \$ 375,193         | \$ 5,377,768  |  |
| 115 | <u>Private Fire System</u>            |                        |                           |                     |                                 |                     |                     |               |                    |               |  |
| 116 | 1" or Less                            | 1,326                  | 15,907                    | 7,469               | \$ 31.38                        | \$ 31.79            | \$ 499,162          | \$ 237,430    | \$ 55,244          | \$ 791,836    |  |

**Pittsburgh Water & Sewer Authority  
Rate Case 2023  
FPFTY Pro Forma Revenue at Current Rates**

| FY 2024          |   |                           | PUC Approved Prior Tariff Rates |                      | FY 2024             |                     |                      |                      |                      |
|------------------|---|---------------------------|---------------------------------|----------------------|---------------------|---------------------|----------------------|----------------------|----------------------|
| Number of Meters | Number of Annual Bills                  | Billable Usage (Kgal) (1) | Monthly Min. Charge             | Volume Charge (Kgal) | Min. Charge Revenue | Vol. Charge Revenue | DSIC (5%)            |                      |                      |
| 118              | 4"                                      | 4                         | 45                              | 55                   | 314.86              | 31.79               | 14,169               | 1,748                | 1,194                |
| 119              | 6" or Greater                           | 16                        | 190                             | 692                  | 654.53              | 31.79               | 124,361              | 22,007               | 10,978               |
| 120              | <i>Total: Private Fire System</i>       | 1,389                     | 16,671                          | 8,988                |                     |                     | \$ 689,316           | \$ 285,717           | \$ 73,127            |
| 121              |   |                           |                                 |                      |                     |                     |                      |                      |                      |
| 122              | Public Fire (Hydrants)                  | 7,508                     | 90,096                          | -                    | \$ 21.80            | \$ -                | \$ 1,964,093         | \$ -                 | \$ -                 |
| 123              |   |                           |                                 |                      |                     |                     |                      |                      |                      |
| 124              | <b>Total: Water (Units &amp; Sales)</b> | <b>82,982</b>             | <b>995,787</b>                  | <b>5,241,345</b>     |                     |                     | <b>\$ 53,553,301</b> | <b>\$ 98,799,057</b> | <b>\$ 11,279,120</b> |

(1) Represents billable customer usage above minimum allowance included in minimum charge

**Pittsburgh Water & Sewer Authority  
Rate Case 2023  
Rate Revenue at Current Rates**

| FY 2024          |                                 |                           | PUC Approved Prior Tariff Rates |                      | FY 2024             |                     |              |               |              |
|------------------|---------------------------------|---------------------------|---------------------------------|----------------------|---------------------|---------------------|--------------|---------------|--------------|
| Number of Meters | Number of Annual Bills          | Billable Usage (Kgal) (1) | Monthly Min. Charge             | Volume Charge (Kgal) | Min. Charge Revenue | Vol. Charge Revenue | DSIC (5%)    |               |              |
| 1                | <b>Wastewater Revenues</b>      |                           |                                 |                      |                     |                     |              |               |              |
| 2                | <u>Residential</u>              |                           |                                 |                      |                     |                     |              |               |              |
| 3                | 5/8"                            | 78,764                    | 945,171                         | 2,158,090            | \$ 7.32             | \$ 5.81             | \$ 6,918,652 | \$ 12,538,506 | \$ 972,858   |
| 4                | 3/4"                            | 2,609                     | 31,308                          | 114,532              | 11.70               | 5.81                | 366,304      | 665,433       | 51,587       |
| 5                | 1"                              | 2,078                     | 24,933                          | 120,510              | 24.27               | 5.81                | 605,124      | 700,163       | 65,264       |
| 6                | 1 1/2"                          | 46                        | 546                             | 1,642                | 46.19               | 5.81                | 25,220       | 9,539         | 1,738        |
| 7                | 2"                              | 9                         | 108                             | 794                  | 76.29               | 5.81                | 8,239        | 4,615         | 643          |
| 8                | Unmetered                       | 333                       | 3,996                           | -                    | 24.75               | -                   | 98,901       | -             | 4,945        |
| 9                | <i>Total: Residential</i>       | 83,839                    | 1,006,062                       | 2,395,569            |                     |                     | \$ 8,022,439 | \$ 13,918,255 | \$ 1,097,035 |
| 10               |                                 |                           |                                 |                      |                     |                     |              |               |              |
| 11               | <u>Residential - CAP</u>        |                           |                                 |                      |                     |                     |              |               |              |
| 12               | 5/8"                            | 6,490                     | 77,884                          | 161,366              | \$ -                | \$ 5.81             | \$ -         | \$ 937,539    | \$ 46,877    |
| 13               | 3/4"                            | 53                        | 632                             | 656                  | -                   | 5.81                | -            | 3,810         | 190          |
| 14               | 1"                              | 29                        | 342                             | 217                  | -                   | 5.81                | -            | 1,263         | 63           |
| 15               | Unmetered                       | 1                         | 12                              | -                    | 17.43               | -                   | 209          | -             | 10           |
| 16               | Volume Discount Customers       | -                         | -                               | 31,931               | -                   | 4.65                | -            | 148,415       | 7,421        |
| 17               | <i>Total: Residential - CAP</i> | 6,573                     | 78,870                          | 162,239              |                     |                     | \$ 209       | \$ 1,091,026  | \$ 54,562    |
| 18               |                                 |                           |                                 |                      |                     |                     |              |               |              |
| 19               | <u>Commercial</u>               |                           |                                 |                      |                     |                     |              |               |              |
| 20               | 5/8"                            | 3,728                     | 44,741                          | 168,905              | \$ 7.32             | \$ 5.28             | \$ 327,504   | \$ 891,818    | \$ 60,966    |
| 21               | 3/4"                            | 816                       | 9,787                           | 58,660               | 11.70               | 5.28                | 114,508      | 309,725       | 21,212       |
| 22               | 1"                              | 1,675                     | 20,095                          | 211,969              | 24.27               | 5.28                | 487,706      | 1,119,198     | 80,345       |





**Pittsburgh Water & Sewer Authority  
Rate Case 2023  
FPFTY Pro Forma Revenue at Current Rates**

|    |                                       | FY 2024          |                        |                           | PUC Approved Prior Tariff Rates |                      | FY 2024             |                     |           |
|----|---------------------------------------|------------------|------------------------|---------------------------|---------------------------------|----------------------|---------------------|---------------------|-----------|
|    |                                       | Number of Meters | Number of Annual Bills | Billable Usage (Kgal) (1) | Monthly Min. Charge             | Volume Charge (Kgal) | Min. Charge Revenue | Vol. Charge Revenue | DSIC (5%) |
| 66 | 6"                                    | -                | -                      | -                         | -                               | -                    | -                   | -                   | -         |
| 67 | 8"                                    | -                | -                      | -                         | -                               | -                    | -                   | -                   | -         |
| 68 | 10" & Above                           | -                | -                      | -                         | -                               | -                    | -                   | -                   | -         |
| 69 | <i>Total: Municipal - Residential</i> | 33               | 399                    | 1,763                     |                                 |                      | \$ 3,591            | \$ 10,243           | \$ 692    |
| 59 | <u>Municipal - Commercial</u>         |                  |                        |                           |                                 |                      |                     |                     |           |
| 70 | 5/8"                                  | 67               | 803                    | 4,338                     | \$ 7.32                         | \$ 5.28              | \$ 5,878            | \$ 22,906           | \$ 1,439  |
| 71 | 3/4"                                  | 7                | 89                     | 225                       | 11.70                           | 5.28                 | 1,041               | 1,190               | 112       |
| 72 | 1"                                    | 47               | 565                    | 25,197                    | 24.27                           | 5.28                 | 13,713              | 133,040             | 7,338     |
| 73 | 1 1/2"                                | 34               | 409                    | 6,174                     | 46.19                           | 5.28                 | 18,892              | 32,599              | 2,575     |
| 74 | 2"                                    | 50               | 602                    | 39,540                    | 76.29                           | 5.28                 | 45,927              | 208,772             | 12,735    |
| 75 | 3"                                    | 14               | 167                    | 16,924                    | 173.03                          | 5.28                 | 28,896              | 89,359              | 5,913     |
| 76 | 4"                                    | 2                | 25                     | 2,080                     | 297.52                          | 5.28                 | 7,438               | 10,981              | 921       |
| 77 | 6"                                    | 4                | 47                     | 116,935                   | 725.62                          | 5.28                 | 34,104              | 617,418             | 32,576    |

**Pittsburgh Water & Sewer Authority  
Rate Case 2023  
FPPTY Pro Forma Revenue at Current Rates**

| FY 2024   |                        |                           | PUC Approved Prior Tariff Rates |                      | FY 2024              |                      |                     |
|---|------------------------|---------------------------|---------------------------------|----------------------|----------------------|----------------------|---------------------|
| Number of Meters                                | Number of Annual Bills | Billable Usage (Kgal) (1) | Monthly Min. Charge             | Volume Charge (Kgal) | Min. Charge Revenue  | Vol. Charge Revenue  | DSIC (5%)           |
| 79 10" & Above                                  | -                      | -                         | 2,218.44                        | 5.28                 | -                    | -                    | -                   |
| 80 <i>Total: Municipal - Commercial</i>         | 228                    | 2,736                     |                                 |                      | \$ 194,472           | \$ 1,151,611         | \$ 67,304           |
| 81  |                        |                           |                                 |                      |                      |                      |                     |
| 82 <i>Total: Wastewater (Units &amp; Sales)</i> | <b>99,658</b>          | <b>1,195,894</b>          |                                 |                      | <b>\$ 13,525,536</b> | <b>\$ 34,674,541</b> | <b>\$ 2,410,004</b> |

(1) Represents billable customer usage above minimum allowance included in minimum charge

**Pittsburgh Water & Sewer Authority  
Rate Case 2023  
Rate Revenue at Proposed Rates**

| FY 2024                            |                        |                           | Proposed Rates      |                      | FY 2024             |                     |              |
|------------------------------------|------------------------|---------------------------|---------------------|----------------------|---------------------|---------------------|--------------|
| Number of Meters                   | Number of Annual Bills | Billable Usage (Kgal) (1) | Monthly Min. Charge | Volume Charge (Kgal) | Min. Charge Revenue | Vol. Charge Revenue | DSIC (7.5%)  |
| <b>1 Wastewater Revenues</b>       |                        |                           |                     |                      |                     |                     |              |
| 2 <u>Residential</u>               |                        |                           |                     |                      |                     |                     |              |
| 3 5/8"                             | 78,764                 | 945,171                   | \$ 7.42             | \$ 6.28              | \$ 7,013,169        | \$ 13,552,808       | \$ 1,542,448 |
| 4 3/4"                             | 2,609                  | 31,308                    | 11.43               | 6.28                 | 357,850             | 719,263             | 80,784       |
| 5 1"                               | 2,078                  | 24,933                    | 22.50               | 6.28                 | 560,993             | 756,802             | 98,835       |
| 6 1 1/2"                           | 46                     | 546                       | 42.56               | 6.28                 | 23,238              | 10,310              | 2,516        |
| 7 2"                               | 9                      | 108                       | 69.68               | 6.28                 | 7,525               | 4,988               | 939          |
| 8 Unmetered                        | 333                    | 3,996                     | 26.26               |                      | 104,935             | -                   | 7,870        |
| 9 <i>Total: Residential</i>        | 83,839                 | 1,006,062                 |                     |                      | \$ 8,067,710        | \$ 15,044,173       | \$ 1,733,391 |
| 10                                 |                        |                           |                     |                      |                     |                     |              |
| 11 <u>Residential - CAP</u>        |                        |                           |                     |                      |                     |                     |              |
| 12 5/8"                            | 6,490                  | 77,884                    | \$ -                | \$ 6.28              | \$ -                | \$ 1,013,381        | \$ 76,004    |
| 13 3/4"                            | 53                     | 632                       | -                   | 6.28                 | -                   | 4,118               | 309          |
| 14 1"                              | 29                     | 342                       | -                   | 6.28                 | -                   | 1,365               | 102          |
| 15 Unmetered                       | 1                      | 12                        | 18.84               | -                    | 226                 | -                   | 17           |
| 16 Volume Discount Customers       | -                      | -                         | -                   | 3.14                 | -                   | 100,263             | 7,520        |
| 17 <i>Total: Residential - CAP</i> | 6,573                  | 78,870                    |                     |                      | \$ 226              | \$ 1,119,127        | \$ 83,951    |
| 18                                 |                        |                           |                     |                      |                     |                     |              |
| 19 <u>Commercial</u>               |                        |                           |                     |                      |                     |                     |              |
| 20 5/8"                            | 3,728                  | 44,741                    | \$ 7.42             | \$ 5.76              | \$ 331,978          | \$ 972,892          | \$ 97,865    |
| 21 3/4"                            | 816                    | 9,787                     | 11.43               | 5.76                 | 111,865             | 337,882             | 33,731       |
| 22 1"                              | 1,675                  | 20,095                    | 22.50               | 5.76                 | 452,138             | 1,220,943           | 125,481      |
| 23 1 1/2"                          | 876                    | 10,506                    | 42.56               | 5.76                 | 447,135             | 1,389,697           | 137,762      |
| 24 2"                              | 895                    | 10,736                    | 69.68               | 5.76                 | 748,084             | 2,443,562           | 239,374      |
| 25 3"                              | 233                    | 2,797                     | 155.24              | 5.76                 | 434,206             | 1,672,623           | 158,012      |
| 26 4"                              | 193                    | 2,316                     | 264.10              | 5.76                 | 611,656             | 2,713,924           | 249,418      |



**Pittsburgh Water & Sewer Authority  
Rate Case 2023  
FPFTY Pro Forma Revenue at Current Rates**

|  | FY 2024          |                        |                           | PUC Approved Prior Tariff Rates |                      | FY 2024             |                     |            |
|--|------------------|------------------------|---------------------------|---------------------------------|----------------------|---------------------|---------------------|------------|
|  | Number of Meters | Number of Annual Bills | Billable Usage (Kgal) (1) | Monthly Min. Charge             | Volume Charge (Kgal) | Min. Charge Revenue | Vol. Charge Revenue | DSIC (5%)  |
| 94 <i>Total: Municipal - Residential</i> | 33               | 399                    | 1,763                     |                                 |                      | \$ 3,563            | \$ 11,072           | \$ 1,098   |
| 83 <u>Municipal - Commercial</u>         |                  |                        |                           |                                 |                      |                     |                     |            |
| 95 5/8"                                  | 67               | 803                    | 4,338                     | \$ 7.42                         | \$ 5.76              | \$ 5,958            | \$ 24,988           | \$ 2,321   |
| 96 3/4"                                  | 7                | 89                     | 225                       | 11.43                           | 5.76                 | 1,017               | 1,299               | 174        |
| 97 1"                                    | 47               | 565                    | 25,197                    | 22.50                           | 5.76                 | 12,713              | 145,135             | 11,839     |
| 98 1 1/2"                                | 34               | 409                    | 6,174                     | 42.56                           | 5.76                 | 17,407              | 35,563              | 3,973      |
| 99 2"                                    | 50               | 602                    | 39,540                    | 69.68                           | 5.76                 | 41,947              | 227,751             | 20,227     |
| 100 3"                                   | 14               | 167                    | 16,924                    | 155.24                          | 5.76                 | 25,925              | 97,482              | 9,256      |
| 101 4"                                   | 2                | 25                     | 2,080                     | 264.10                          | 5.76                 | 6,603               | 11,979              | 1,394      |
| 102 6"                                   | 4                | 47                     | 116,935                   | 632.71                          | 5.76                 | 29,737              | 673,546             | 52,746     |
| 103 8"                                   | 2                | 29                     | 6,694                     | 1,148.40                        | 5.76                 | 33,304              | 38,559              | 5,390      |
| 104 10" & Above                          | -                | -                      | -                         | 1,896.72                        | 5.76                 | -                   | -                   | -          |
| 105 <i>Total: Municipal - Commercial</i> | 228              | 2,736                  | 218,108                   |                                 |                      | \$ 174,611          | \$ 1,256,303        | \$ 107,319 |

## II. OPERATING REVENUES

II.5. Provide detailed computations of the determination of accrued revenues as of historic test year-end and year-end immediately preceding the historic test year, together with a detailed explanation of the procedures and methods used in developing accrued revenues.

### **RESPONSE:**

PWSA's audited financial statements are prepared using the economic resources measurement focus and the accrual basis of accounting in accordance with accounting principles generally accepted in the United States of America, as prescribed by the Governmental Accounting Standards Board (GASB). Revenues are recorded when earned, regardless of the timing of related cash flows.

For the purpose of this rate filing, PWSA is utilizing a cash basis and therefore there are no adjustments for accrued revenues. Revenues for each year of this filing are calculated using actual or projected customer units and the effective, or for the FPFTY, proposed, rates for the appropriate year. A collection factor is then applied to the system revenues to reflect actual cash collections for each year. More information and detailed calculations are available upon request.

## II. OPERATING REVENUES

II.6. Provide a detailed breakdown of miscellaneous water revenues for the historic test year and the two years immediately preceding the historic test year. For the historic test year, provide a monthly breakdown and an explanation of monthly variances greater than 15%.

### **RESPONSE:**

Please see attached schedule.

### **Explanations of Miscellaneous Revenues Variances**

Variances of 15% or more occur almost every month across many accounts. A generic explanation is provided below for all material accounts.

#### **Dye Testing**

PWSA charges dye testing fees under City Ordinance No. 3 of 2006, adopted March 28, 2006, effective July 5, 2006, as codified in Title Four, Public Places and Property, Article III Sewers, Chapter 433, Illegal Storm Water Connections, of the Pittsburgh Code, and includes any amendments thereto. Dye testing refers to commonly accepted plumbing test whereby a nontoxic, non-staining dye is introduced into the surface Storm Water collection system of real property to determine if any surface Storm Water is entering the Sanitary Sewer system. PWSA collects application and inspection fees that fluctuate monthly.

#### **Fire Hydrant Line Use**

All water used through the fire system except during fires is metered, and the associated sized meter will be installed for the requested line size for each line used. Customers using hydrants for non-firefighting purposes are assessed a monthly minimum charge and metered usage charge. These charges fluctuate based on customer needs.

#### **Backflow Fees**

Business Use Properties are required to be equipped with an approved Backflow prevention device per section 608 of the Health Department's Plumbing Code. Backflow refers to the flow of water and other liquids, mixtures, and substances into the Authority's Water Mains, or into other lines carrying domestic water, from any sources other than those intended by the Authority. PWSA collects various charges related to backflow prevention including application and administration fees as well as inspection fees. These collections fluctuate monthly based on demand.

## II. OPERATING REVENUES

### **Meter Sales**

PWSA previously charged associated costs with meters, remote reading devices, meter replacement charges, and their installation. Based on PA PUC regulation, PWSA may not be able to collect these charges, however, these revenues have been included in the FPPTY.

### **Non-Sufficient Funds Fees**

PWSA collects non-sufficient funds fees based on returned checks and insufficient payments. These charges are based on customer payment patterns and fluctuate monthly.

### **Shut Fees**

Customers are assessed shut off service fees when discontinuing service, whether voluntarily or involuntary. Shut fees fluctuate with service discontinuance patterns.

### **Tap Fees**

PWSA charges tap fees to customers connecting to the system. These charges, which increase by meter size, recover both a share of the operating cost associated with connection to the system as well as a capital component of system "buy-in". These fees also fluctuate significantly based on a number of external factors. Large jumps typically indicate a tap fee assessed for a large meter (or meters) or a development paying a large number of tap fees.

### **Miscellaneous Fees (300)**

The Miscellaneous Fees 300 account includes water miscellaneous revenues largely of immaterial amounts. Examples of these revenues include, tower rental payments from Verizon, scrap metal sales, immaterial reimbursements from vendors, ALCOSAN incidentals such as paper, ink, and materials for billing, past due reimbursements, occasional water billing adjustments, and other miscellaneous sources. These amounts fluctuate monthly based on various activity.

### **Miscellaneous Fees (400)**

The Miscellaneous Fees 400 account includes sewer billing adjustments largely of immaterial amounts. These adjustments occur infrequently and at varying amounts.

### **Penalties & Interest**

If current water and sewer bills are not paid in full by their due dates, interest of 10 percent per year and 0.833 percent per month is applied to the outstanding balance. Unpaid water



## **II. OPERATING REVENUES**

and sewer charges are a lien on the property and any resulting fines or penalties are the responsibility of the customer. These charges are based on customer payment patterns and fluctuate monthly.

**Pittsburgh Water Sewer Authority  
Miscellaneous Utility Revenues**

|                                     | <b>Actual<br/>12 Months<br/>Ended<br/>12/31/2019</b> | <b>Actual<br/>12 Months<br/>Ended<br/>12/31/2020</b> | <b>Actual<br/>12 Months<br/>Ended<br/>12/31/2021</b> | <b>HTY<br/>12 Months<br/>Ended<br/>12/31/2022</b> |
|-------------------------------------|--|--|--|---|
| <b>Misc. Utility Revenue</b>        |  |  |  |   |
| Certified Mail Fees                 | \$ -   | \$ -   | \$ -   | \$ 5,967.12                                       |
| Dye Testing                         | 169,710  | 174,154  | 218,645  | 173,055   |
| Final Bill Fees                     | -  | -  | -  | 35,748  |
| History Fees                        | -  | -  | -  | 975   |
| Fire Hydrant Line Use               | 135,567  | 82,777   | 92,166   | 1,256,166   |
| Fire Hydrant Sales                  | 1,000  | 10,049   | 3,218  | 6,200   |
| Map Fees                            | 55   | -  | -  | 4,360   |
| Backflow Fee                        | 85,048   | 66,978   | 76,476   | 146,900   |
| Meter Sales                         | 85,500   | 133,778  | 140,779  | 63,761  |
| Meter Test Fees                     | 4,400  | 3,940  | 4,270  | 3,211   |
| Non-Sufficient Funds Fees           | 39,463   | 31,107   | 40,741   | 13,593  |
| Permit Fees                         |  |  |  | 84,919  |
| Shut Fees                           | 149,963  | 13,495   | 60,481   | 54,337  |
| Tap Fees                            | 4,774,236  | 5,874,258  | 7,359,363  | 3,018,400   |
| Lien Satisfaction Fees              | 343  | -  | 78   |   |
| Lien Filing Fees                    | -  |  | 13,884   | 19,656  |
| Miscellaneous Fees                  | 943,491  | 974,665  | 2,467,922  | 1,650,333   |
| Penalties & Interest                | 278,546  | 1,165,567  | 1,152,443  | 1,526,321   |
| <b>Total: Misc. Utility Revenue</b> | <b>\$ 6,667,322</b>                                  | <b>\$ 8,530,769</b>                                  | <b>\$ 11,630,467</b>                                 | <b>\$ 8,063,902</b>                               |

|                                     | <b>HTY<br/>Actual<br/>Jan-22</b> | <b>HTY<br/>Actual<br/>Feb-22</b> | <b>HTY<br/>Actual<br/>Mar-22</b> | <b>HTY<br/>Actual<br/>Apr-22</b> | <b>HTY<br/>Actual<br/>May-22</b> | <b>HTY<br/>Actual<br/>Jun-22</b> | <b>HTY<br/>Actual<br/>Jul-22</b> | <b>HTY<br/>Actual<br/>Aug-22</b> | <b>HTY<br/>Actual<br/>Sep-22</b> | <b>HTY<br/>Actual<br/>Oct-22</b> | <b>HTY<br/>Actual<br/>Nov-22</b> | <b>HTY<br/>Actual<br/>Dec-22</b> |
|-------------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|----------------------------------|
| <b>Monthly Totals for HTY</b>       |                                  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| Certified Mail Fees                 | \$ -                             | \$ -                             | \$ -                             | \$ -                             | \$ -                             | \$ -                             | \$ -                             | \$ 3,689                         | \$ 1,884                         | \$ 395                           | \$ -                             | \$ -                             |
| Dye Testing                         | 15,110                           | 12,450                           | 12,575                           | 15,560                           | 15,050                           | 17,920                           | 16,970                           | 21,400                           | 11,520                           | 12,980                           | 10,980                           | 10,540                           |
| Final Bill Fees                     | -                                | -                                | -                                | -                                | -                                | -                                | -                                | 4,710                            | 10,170                           | 8,952                            | 5,948                            | 5,968                            |
| History Fees                        | -                                | -                                | -                                | -                                | -                                | -                                | -                                | -                                | 168                              | 350                              | 274                              | 183                              |
| Fire Hydrant Line Use               | 5,418                            | 6,310                            | 10,200                           | 12,690                           | 6,180                            | 8,090                            | 3,690                            | 4,920                            | 3,690                            | 7,380                            | 5,330                            | 1,182,268                        |
| Fire Hydrant Sales                  | -                                | 6,200                            | -                                | -                                | -                                | -                                | -                                | -                                | -                                | -                                | -                                | -                                |
| Map Fees                            | 80                               | 600                              | 1,080                            | 640                              | 1,000                            | 760                              | 200                              | -                                | -                                | -                                | -                                | -                                |
| Backflow Fee                        | 9,416                            | 6,066                            | 17,132                           | 6,853                            | 14,441                           | 12,360                           | 11,903                           | 11,117                           | 13,908                           | 9,644                            | 21,268                           | 12,792                           |
| Meter Sales                         | 9,276                            | 8,355                            | 5,448                            | 9,243                            | 5,978                            | 7,866                            | 6,058                            | 564                              | 847                              | 1,128                            | 1,145                            | 7,854                            |
| Meter Test Fees                     | 400                              | 230                              | 370                              | 330                              | 240                              | 160                              | 410                              | 11                               | 160                              | 130                              | 90                               | 680                              |
| Non-Sufficient Funds Fees           | 1,793                            | 1,859                            | 1,930                            | 1,760                            | 1,680                            | 2,280                            | 2,280                            | 12                               | -                                | -                                | -                                | -                                |
| Permit Fees                         | -                                | -                                | -                                | -                                | -                                | -                                | -                                | 14,350                           | 18,889                           | 14,230                           | 16,300                           | 21,150                           |
| Shut Fees                           | 6,034                            | 4,978                            | 8,236                            | 7,360                            | 10,418                           | 8,348                            | 7,112                            | -                                | -                                | 350                              | 525                              | 976                              |
| Tap Fees                            | 1,287,841                        | 1,409,968                        | 229,767                          | 25,823                           | 12,150                           | 23,946                           | 28,907                           | -                                | -                                | -                                | -                                | -                                |
| Lien Satisfaction Fees              |                                  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |                                  |
| Lien Filing Fees                    | 1,638                            | 1,716                            | 3,042                            | 1,950                            | 2,028                            | 1,560                            | 1,638                            | 1,092                            | 858                              | 1,560                            | 1,638                            | 936                              |
| Miscellaneous Fees                  | 46,284                           | 484,271                          | 20,037                           | 340,732                          | 90,435                           | 21,015                           | 192,968                          | 227,445                          | (83,559)                         | 21,538                           | 54,934                           | 234,234                          |
| Penalties & Interest                | 156,141                          | 126,175                          | 142,042                          | 147,351                          | 171,635                          | 153,434                          | 177,327                          | 23                               | (2)                              | 151,328                          | 142,841                          | 158,026                          |
| <b>Total: Misc. Utility Revenue</b> | <b>\$ 1,539,431</b>              | <b>\$ 2,069,177</b>              | <b>\$ 451,857</b>                | <b>\$ 570,292</b>                | <b>\$ 331,236</b>                | <b>\$ 257,738</b>                | <b>\$ 449,462</b>                | <b>\$ 289,331</b>                | <b>\$ (21,467)</b>               | <b>\$ 229,966</b>                | <b>\$ 261,274</b>                | <b>\$ 1,635,606</b>              |

## **II. OPERATING REVENUES**

II.7. Provide a monthly summary of customers added and lost by customer classification for the historic test year and the current year-to-date.

### **RESPONSE:**

Please see the attached schedule. Only January through June of 2022 data is available due to the conversion of the new SAP financial system. We are working on the issue to obtain the remainder of 2022 and year-to-date data for 2023.

**Pittsburgh Water & Sewer Authority**  
**Summary of Customers Added & Lost - Water**

|                      |        | Historical Test Year Ended December 31, 2022 |        |        |        |        |        |        |         |        |        |        |  |
|----------------------|--------|--|--------|--------|--------|--------|--------|--------|---------|--------|--------|--------|--|
| Class                | Jan-22 | Feb-22                                       | Mar-22 | Apr-22 | May-22 | Jun-22 | Jul-22 | Aug-22 | Sept-22 | Oct-22 | Nov-22 | Dec-22 |  |
| Residential          |        |  |        |        |        |        |        |        |         |        |        |        |  |
| Customers Added      | 431    | 471  | 717    | 373    | 472    | 376    | -      | -      | -       | -      | -      | -      |  |
| Customers Lost       | 546    | 872  | 497    | 507    | 503    | 599    | -      | -      | -       | -      | -      | -      |  |
| Residential - CAP    |        |  |        |        |        |        |        |        |         |        |        |        |  |
| Customers Added      | 121    | 142  | 124    | 93     | 75     | 63     | -      | -      | -       | -      | -      | -      |  |
| Customers Lost       | 94     | 65   | 39     | 69     | 46     | 63     | -      | -      | -       | -      | -      | -      |  |
| Commercial           |        |  |        |        |        |        |        |        |         |        |        |        |  |
| Customers Added      | 33     | 43   | 42     | 30     | 55     | 55     | -      | -      | -       | -      | -      | -      |  |
| Customers Lost       | 72     | 55   | 43     | 55     | 59     | 63     | -      | -      | -       | -      | -      | -      |  |
| Industrial           |        |  |        |        |        |        |        |        |         |        |        |        |  |
| Customers Added      | -      | -  | 2      | -      | -      | -      | -      | -      | -       | -      | -      | -      |  |
| Customers Lost       | -      | 1  | -      | -      | -      | -      | -      | -      | -       | -      | -      | -      |  |
| Health and Education |        |  |        |        |        |        |        |        |         |        |        |        |  |
| Customers Added      | 1      | -  | 1      | -      | 1      | 1      | -      | -      | -       | -      | -      | -      |  |
| Customers Lost       | -      | 1  | -      | 1      | 2      | 1      | -      | -      | -       | -      | -      | -      |  |
| Fire System          |        |  |        |        |        |        |        |        |         |        |        |        |  |
| Customers Added      | 6      | 9  | 8      | 7      | 9      | 3      | -      | -      | -       | -      | -      | -      |  |
| Customers Lost       | 6      | 5  | 4      | 5      | 3      | 8      | -      | -      | -       | -      | -      | -      |  |
| Flower               |        |  |        |        |        |        |        |        |         |        |        |        |  |
| Customers Added      | 11     | -  | -      | 33     | 2      | 30     | -      | -      | -       | -      | -      | -      |  |
| Customers Lost       | 1      | -  | 34     | 12     | 43     | 4      | -      | -      | -       | -      | -      | -      |  |
| Total                |        |  |        |        |        |        |        |        |         |        |        |        |  |
| Customers Added      | 603    | 665  | 894    | 536    | 614    | 528    | -      | -      | -       | -      | -      | -      |  |
| Customers Lost       | 719    | 999  | 617    | 649    | 656    | 738    | -      | -      | -       | -      | -      | -      |  |

## **II. OPERATING REVENUES**

II.8. Provide for the historic test year and the current year-to-date, the number of customers and monthly consumption for each classification of customers.

### **RESPONSE:**

Please see the attached schedule for the customer billing information for the HTY (Jan-Dec 2022) and the FTY YTD (Jan-Apr 2023). The attached billing information was used for the customer billing analysis as a part of the Cost of Service Study and the direct testimony of Harold J. Smith. Additional year-to-date information is available upon request.

**Pittsburgh Water & Sewer Authority**  
**HTY & YTD Customers and Consumption**

| Class                       | Historical Test Year Ended December 31, 2022 |            |            |            |            |            |            |            |            |            |            |            |
|-----------------------------|--|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|
|                             | Jan-22                                       | Feb-22     | Mar-22     | Apr-22     | May-22     | Jun-22     | Jul-22     | Aug-22     | Sept-22    | Oct-22     | Nov-22     | Dec-22     |
| <b>Residential</b>          |  |            |            |            |            |            |            |            |            |            |            |            |
| Number of Accounts Billed   | 67,521                                       | 67,425     | 67,340     | 67,357     | 67,278     | 67,285     | 67,396     | 67,136     | 67,503     | 69,105     | 68,407     | 68,276     |
| Total Consumption           | 216,494                                      | 230,517    | 196,791    | 214,023    | 214,756    | 200,668    | 233,401    | 225,284    | 215,316    | 214,872    | 209,660    | 202,165    |
| Billable Consumption        | 8,521,911                                    | 9,455,830  | 8,425,726  | 8,928,781  | 8,590,681  | 8,521,808  | 9,506,304  | 8,926,635  | 8,646,935  | 8,757,869  | 8,506,548  | 8,278,032  |
| <b>Commercial</b>           |  |            |            |            |            |            |            |            |            |            |            |            |
| Number of Accounts Billed   | 7,114  | 7,054      | 7,042      | 7,040      | 7,039      | 7,054      | 7,089      | 7,940      | 7,962      | 8,099      | 7,953      | 8,061      |
| Total Consumption           | 246,851                                      | 223,048    | 207,385    | 235,234    | 232,312    | 259,091    | 321,899    | 384,824    | 321,206    | 309,478    | 261,404    | 320,210    |
| Billable Consumption        | 7,557,903                                    | 7,863,014  | 7,421,831  | 8,185,746  | 7,977,117  | 8,631,798  | 10,160,159 | 12,156,238 | 11,015,274 | 10,379,285 | 9,383,217  | 9,940,928  |
| <b>Industrial</b>           |  |            |            |            |            |            |            |            |            |            |            |            |
| Number of Accounts Billed   | 33   | 33         | 34         | 34         | 34         | 34         | 36         | 32         | 32         | 33         | 28         | 31         |
| Total Consumption           | 9,062  | 8,914      | 9,184      | 9,725      | 9,160      | 12,040     | 14,619     | 16,914     | 14,537     | 8,952      | 21,488     | 9,989      |
| Billable Consumption        | 263,764                                      | 279,372    | 289,359    | 301,589    | 298,024    | 369,962    | 448,077    | 498,885    | 445,096    | 290,827    | 597,868    | 263,552    |
| <b>Health and Education</b> |  |            |            |            |            |            |            |            |            |            |            |            |
| Number of Accounts Billed   | 453  | 452        | 454        | 453        | 453        | 452        | 451        | 416        | 416        | 426        | 398        | 434        |
| Total Consumption           | 66,303                                       | 75,694     | 71,643     | 83,430     | 77,957     | 82,931     | 104,826    | 83,377     | 89,444     | 106,972    | 67,308     | 68,984     |
| Billable Consumption        | 2,499,982                                    | 2,825,872  | 2,693,701  | 3,086,724  | 2,913,162  | 3,101,785  | 3,860,202  | 3,102,957  | 3,284,403  | 3,953,400  | 2,503,363  | 2,606,594  |
| <b>Fire System</b>          |  |            |            |            |            |            |            |            |            |            |            |            |
| Number of Accounts Billed   | 1,386  | 1,386      | 1,390      | 1,392      | 1,409      | 1,397      | 1,400      | 1,406      | 1,409      | 1,430      | 1,421      | 1,423      |
| Total Consumption           | 487  | 517        | 476        | 579        | 602        | 543        | 1,163      | 588        | 490        | 520        | 518        | 494        |
| Billable Consumption        | 69,333                                       | 62,124     | 61,139     | 63,786     | 64,674     | 63,102     | 78,071     | 62,734     | 60,680     | 61,763     | 61,739     | 61,287     |
| <b>Total</b>                |  |            |            |            |            |            |            |            |            |            |            |            |
| Number of Accounts Billed   | 76,507                                       | 76,350     | 76,260     | 76,276     | 76,213     | 76,222     | 76,372     | 76,930     | 77,322     | 79,093     | 78,207     | 78,225     |
| Total Consumption           | 539,197                                      | 538,690    | 485,479    | 542,991    | 534,787    | 555,273    | 675,908    | 710,987    | 640,993    | 640,794    | 560,378    | 601,842    |
| Billable Consumption        | 18,912,893                                   | 20,486,212 | 18,891,757 | 20,566,625 | 19,843,659 | 20,688,455 | 24,052,813 | 24,747,450 | 23,452,387 | 23,443,143 | 21,052,734 | 21,150,393 |



**II. OPERATING REVENUES**

II.9. Provide by customer classification for the historic test year and for the 2 prior years the number of customers and consumption, and projected number of customers and consumption for the 2 subsequent years.

**RESPONSE:**

Please see the attached schedule.



**Pittsburgh Water & Sewer Authority  
Historical & Projected Billing Units**

|                                    | <b>HTY<br/>12 Months<br/>Ended<br/>12/31/2020</b> | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2021</b> | <b>FPFTY<br/>12 Months<br/>Ended<br/>12/31/2022</b> | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2023</b> | <b>FPFTY<br/>12 Months<br/>Ended<br/>12/31/2024</b> |
|------------------------------------|---|---|---|---|---|
| <b>Water</b>                       |   |   |   |   |   |
| <u>Billed Accounts</u>             |   |   |   |   |   |
| Residential                        | 64,369  | 64,072  | 63,173  | 63,173  | 61,810  |
| Residential - CAP                  | 2,568   | 2,704   | 3,098   | 3,223   | 4,586   |
| Residential - CAP - 50FPL          | -   | 567   | 860   | 928   | 928   |
| Commercial                         | 6,786   | 6,917   | 6,987   | 6,987   | 6,987   |
| Industrial                         | 41  | 32  | 31  | 31  | 31  |
| Health or Education                | 474   | 460   | 439   | 439   | 439   |
| Private Fire System                | 1,313   | 1,387   | 1,389   | 1,389   | 1,389   |
| Municipal - Residential            | 53  | 28  | 20  | 20  | 20  |
| Municipal - Commercial             | 149   | 197   | 212   | 212   | 212   |
| <i>Total</i>                       | 75,752  | 76,363  | 76,210  | 76,403  | 76,403  |
| <u>Number of Bills</u>             |   |   |   |   |   |
| Residential                        | 772,422   | 768,864   | 758,074   | 758,074   | 741,720   |
| Residential - CAP                  | 30,810  | 32,449  | 37,174  | 38,674  | 55,028  |
| Residential - CAP - 50FPL          | -   | 6,798   | 10,324  | 11,141  | 11,141  |
| Commercial                         | 81,431  | 83,002  | 83,843  | 83,843  | 83,843  |
| Industrial                         | 492   | 380   | 371   | 371   | 371   |
| Health or Education                | 5,688   | 5,520   | 5,266   | 5,266   | 5,266   |
| Private Fire System                | 15,757  | 16,641  | 16,671  | 16,671  | 16,671  |
| Municipal - Residential            | 635   | 340   | 243   | 243   | 243   |
| Municipal - Commercial             | 1,787   | 2,362   | 2,549   | 2,549   | 2,549   |
| <i>Total</i>                       | 909,022   | 916,356   | 914,515   | 916,831   | 916,832   |
| <u>Billable Consumption (Kgal)</u> |   |   |   |   |   |
| Residential                        | 1,951,157   | 1,833,447   | 1,766,983   | 1,850,529   | 1,818,344   |
| Residential - CAP                  | 74,938  | 73,168  | 80,155  | 76,087  | 108,272   |
| Residential - CAP - 50FPL          | -   | 19,062  | 26,271  | 26,271  | 26,271  |
| Commercial                         | 2,021,812   | 2,044,982   | 2,073,132   | 2,046,642   | 2,046,642   |
| Industrial                         | 172,720   | 195,583   | 103,883   | 157,395   | 157,395   |
| Health or Education                | 832,774   | 902,028   | 831,073   | 855,292   | 855,292   |
| Private Fire System                | 14,348  | 6,888   | 5,727   | 8,988   | 8,988   |
| Municipal - Residential            | 1,952   | 1,581   | 1,574   | 1,702   | 1,702   |
| Municipal - Commercial             | 195,754   | 249,695   | 209,870   | 218,440   | 218,440   |
| <i>Total</i>                       | 5,265,456   | 5,326,432   | 5,098,667   | 5,241,345   | 5,241,345   |
| <b>Wastewater</b>                  |   |   |   |   |   |
| <u>Billed Accounts</u>             |   |   |   |   |   |
| Residential                        | 86,276  | 86,119  | 85,792  | 85,792  | 83,839  |
| Residential - CAP                  | 3,596   | 3,663   | 4,119   | 4,618   | 6,572   |
| Residential - CAP - 50FPL          | -   | 811   | 1,252   | 1,377   | 1,377   |
| Commercial                         | 8,290   | 8,418   | 8,513   | 8,513   | 8,513   |
| Industrial                         | 44  | 35  | 34  | 34  | 34  |
| Health or Education                | 474   | 460   | 439   | 439   | 439   |
| Municipal - Residential            | 58  | 41  | 33  | 33  | 33  |
| Municipal - Commercial             | 157   | 204   | 228   | 228   | 228   |
| <i>Total</i>                       | 98,895  | 99,750  | 100,409   | 101,034   | 101,034   |
| <u>Number of Bills</u>             |   |   |   |   |   |
| Residential                        | 1,035,309   | 1,033,432   | 1,029,504   | 1,029,504   | 1,006,062   |
| Residential - CAP                  | 43,155  | 43,951  | 49,422  | 55,416  | 78,858  |
| Residential - CAP - 50FPL          | -   | 9,726   | 15,018  | 16,524  | 16,524  |
| Commercial                         | 99,481  | 101,018   | 102,150   | 102,150   | 102,150   |
| Industrial                         | 524   | 416   | 408   | 408   | 408   |
| Health or Education                | 5,688   | 5,520   | 5,269   | 5,269   | 5,269   |
| Municipal - Residential            | 696   | 491   | 399   | 399   | 399   |
| Municipal - Commercial             | 1,883   | 2,449   | 2,736   | 2,736   | 2,736   |
| <i>Total</i>                       | 1,186,736   | 1,197,003   | 1,204,906   | 1,212,406   | 1,212,406   |
| <u>Billable Consumption (Kgal)</u> |   |   |   |   |   |
| Residential                        | 2,592,137   | 2,435,500   | 2,303,751   | 2,443,796   | 2,395,569   |
| Residential - CAP                  | 110,800   | 117,100   | 114,137   | 114,012   | 162,239   |
| Residential - CAP - 50FPL          | -   | 19,646  | 31,931  | 31,931  | 31,931  |
| Commercial                         | 2,293,724   | 2,318,856   | 2,308,112   | 2,306,897   | 2,306,897   |
| Industrial                         | 184,338   | 206,245   | 110,428   | 167,004   | 167,004   |
| Health or Education                | 832,652   | 911,462   | 832,509   | 858,874   | 858,874   |
| Municipal - Residential            | 1,956   | 1,585   | 1,748   | 1,763   | 1,763   |
| Municipal - Commercial             | 198,117   | 247,267   | 208,940   | 218,108   | 218,108   |
| <i>Total</i>                       | 6,213,724   | 6,257,661   | 5,911,557   | 6,142,386   | 6,142,386   |

**II. OPERATING REVENUES**

II.10. Provide a breakdown of the number and size of private fire services according to the general water service class of customers.

- a. Provide a listing of all public fire protection customers at historic test year-end and the pro forma billing of current rates for each customer.

**RESPONSE:**

Please see the table below. Private fire protection customers have been grouped by their existing rate classifications.

| Line Size     | HTY<br>2022<br>Actual | FTY<br>2023<br>Projected | FPFTY<br>2024<br>Projected |
|---------------|-----------------------|--------------------------|----------------------------|
| 1" or Less    | 15,907                | 15,907                   | 15,907                     |
| 1 1/2"-3"     | 529                   | 529                      | 529                        |
| 4"            | 45                    | 45                       | 45                         |
| 6" or Greater | 160                   | 160                      | 160                        |

- a. The City of Pittsburgh represents all of PWSA's public fire protection customers.

## **II. OPERATING REVENUES**

II.11. Provide a detailed schedule of sales for resale revenues for the historic test year and 2 preceding years showing revenues and units sold by customer.

**RESPONSE:**

Please see the attached schedule.

**Pittsburgh Water & Sewer Authority**  
**Water Sales for Resale**

|                                      | <b>HTY</b>        |                   |                   |
|--------------------------------------|-------------------|-------------------|-------------------|
|                                      | <b>12 Months</b>  | <b>12 Months</b>  | <b>12 Months</b>  |
|                                      | <b>Ended</b>      | <b>Ended</b>      | <b>Ended</b>      |
|                                      | <b>12/31/2020</b> | <b>12/31/2021</b> | <b>12/31/2022</b> |
| <b>Resale Customer Units (kgal)</b>  |                   |                   |                   |
| Aspinwall                            | 64,174            | 114,114           | 155,301           |
| Fox Chapel                           | 671,023           | 628,708           | 622,966           |
| Hampton                              | 3,346             | 7                 | -                 |
| PAWC                                 | -                 | 1,650             | 2,100             |
| Reserve - 10'                        | 92,650            | 93,323            | 85,537            |
| Reserve - 6"                         | 13,316            | 13,219            | 14,723            |
| Sharpsburg                           | -                 | -                 | -                 |
| WestView                             | 2,692             | 2                 | -                 |
| <i>Total Units</i>                   | 847,201           | 851,023           | 880,627           |
| <b>Resale Customer Water Billing</b> |                   |                   |                   |
| Aspinwall                            | \$ 216,266        | \$ 389,129        | \$ 552,872        |
| Fox Chapel                           | 2,111,755         | 2,142,047         | 2,226,791         |
| Hampton                              | 22,251            | 55                | -                 |
| PAWC                                 | 77,411            | 94,876            | 102,708           |
| Reserve - 10'                        | 400,668           | 422,097           | 408,642           |
| Reserve - 6"                         | 64,107            | 66,785            | 76,316            |
| Sharpsburg                           | -                 | -                 | -                 |
| WestView                             | 144,089           | 131,553           | 137,723           |
| <i>Total Billings</i>                | \$ 3,036,547      | \$ 3,246,542      | \$ 3,505,052      |

## **II. OPERATING REVENUES**

II.12. Provide for the historic test year and the 2 prior years consumption and billings for the ten largest customers at current rates. Provide the historic and future test year consumption priced at proposed rates.

**RESPONSE:**

Please see the attached schedule.

|   | <b>Actual</b>     | <b>Actual</b>     | <b>HTY</b>        | <b>FTY</b>        | <b>FPFTY</b>      |
|---|-------------------|-------------------|-------------------|-------------------|-------------------|
|   | <b>12 Months</b>  | <b>12 Months</b>  | <b>Actual</b>     | <b>Actual</b>     | <b>Actual</b>     |
|   | <b>Ending</b>     | <b>Ending</b>     | <b>12 Months</b>  | <b>12 Months</b>  | <b>12 Months</b>  |
|   | <b>12/31/2020</b> | <b>12/31/2021</b> | <b>Ending</b>     | <b>Ending</b>     | <b>Ending</b>     |
|   | <b>12/31/2020</b> | <b>12/31/2021</b> | <b>12/31/2022</b> | <b>12/31/2023</b> | <b>12/31/2024</b> |
| <b>Top 10 Customers - Usage</b>             |                   |                   |                   |                   |                   |
| Allegheny County                            | 86,191            | 117,298           | 123,163           | 125,665           | 128,217           |
| Allegheny County Sanitary Authority         | 52,011            | 54,612            | 57,342            | 60,209            | 63,219            |
| Borough of Aspinwall                        | 69,975            | 70,401            | 73,921            | 77,617            | 81,498            |
| Fox Chapel Water Authority                  | 671,023           | 684,175           | 718,383           | 747,654           | 778,118           |
| Housing Authority of the City of Pittsburgh | 60,902            | 114,091           | 119,795           | 125,785           | 132,074           |
| Pittsburgh Zoo & Aquarium                   | 116,067           | 121,870           | 127,964           | 134,362           | 141,080           |
| Reserve Township Water Department           | 92,650            | 104,730           | 109,967           | 115,466           | 121,240           |
| University of Pittsburgh                    | 48,167            | 308,190           | 323,600           | 339,781           | 356,770           |
| Veterans Affairs                            | 53,594            | 65,918            | 69,214            | 71,290            | 73,429            |
| West Penn Hospital                          | 49,843            | 52,335            | 54,952            | 57,700            | 60,585            |
| <b>Total Units</b>                          | <b>1,300,423</b>  | <b>1,693,620</b>  | <b>1,778,301</b>  | <b>1,855,528</b>  | <b>1,936,230</b>  |
| <b>Top 10 Customers - Billings</b>          |                   |                   |                   |                   |                   |
| Allegheny County                            | 917,573           | 1,171,325         | 1,229,891         | 1,283,258         | 1,338,941         |
| Allegheny County Sanitary Authority         | 468,381           | 491,800           | 516,390           | 542,209           | 569,320           |
| Borough of Aspinwall                        | 235,816           | 235,433           | 247,205           | 259,566           | 272,544           |
| Fox Chapel Water Authority                  | 2,064,845         | 2,024,387         | 2,125,606         | 2,266,648         | 2,417,048         |
| Housing Authority of the City of Pittsburgh | 646,943           | 1,262,021         | 1,325,122         | 1,391,378         | 1,460,947         |
| Pittsburgh Zoo & Aquarium                   | 232,450           | 244,073           | 256,276           | 269,090           | 282,544           |
| Reserve Township Water Department           | 374,226           | 438,796           | 460,736           | 464,617           | 468,531           |
| University of Pittsburgh                    | 690,377           | 4,049,941         | 4,252,438         | 4,465,060         | 4,688,313         |
| Veterans Affairs                            | 771,937           | 925,224           | 971,486           | 1,000,631         | 1,030,649         |
| West Penn Hospital                          | 709,773           | 745,262           | 782,525           | 821,651           | 862,734           |
| <b>Total Charges</b>                        | <b>7,112,321</b>  | <b>11,588,262</b> | <b>12,167,675</b> | <b>12,764,107</b> | <b>13,391,571</b> |

## **II. OPERATING REVENUES**

II.13. Provide for the historic test year and the 2 prior years consumption and billings for the ten largest sales for resale customers if such sales are not included in sales to the ten largest customers requested in Part II.12.

**RESPONSE:**

Please refer to schedule II.11.





**III. OPERATING EXPENSE**

III.1. Prepare a summary of operating expenses by operating expense account for the historic test year and the 2 years preceding the test year.

**RESPONSE:**

Please see the attached schedule.

**Pittsburgh Water & Sewer Authority**  
**Operating Expenses by Account**

|                                  | HTY<br>12 Months<br>Ended<br>12/31/2020 | FTY<br>12 Months<br>Ended<br>12/31/2021 | FTY<br>12 Months<br>Ended<br>12/31/2022 | FTY<br>12 Months<br>Ended<br>12/31/2023 | Difference    | FTY<br>12 Months<br>Ended<br>12/31/2024 |
|----------------------------------|---|---|---|---|---------------|---|
| <b>Direct Operating Expenses</b> |   |   |   |   |               |   |
| <u>Wages &amp; Salaries</u>      |   |   |   |   |               |   |
| 4001 Salary Wages                | \$ 5,268,233                            | \$ 5,212,763                            | \$ 2,319,541                            | \$ 1,784,109                            | \$ 37,466,296 | \$ 38,215,622                           |
| 4005 OT Premium Pay              | (332,525)                               | 89,358                                  | 94,660                                  | 100,277                                 | 1,798,638     | 1,834,611                               |
| 4010 Shift Differential          | (32,368)                                | 5,667                                   | 6,005                                   | 6,363                                   | 113,217       | 115,481                                 |
| 4015 Semi Skill                  | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 4020 Pay Adjustments             | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 4025 Bonus                       | (197,513)                               | 2,673                                   | 2,833                                   | 3,003                                   | 53,060        | 54,121                                  |
| 4030 Holiday Pay                 | 366,339                                 | 310,055                                 | 138,094                                 | 105,539                                 | 2,216,312     | 2,260,639                               |
| 4035 Vacation Pay                | 658,606                                 | 459,228                                 | 204,580                                 | 149,924                                 | 3,148,404     | 3,211,372                               |
| 4040 Other                       | (1,787)                                 | -                                       | -                                       | -                                       | -             | -                                       |
| 4045 Sick Pay                    | (23,235)                                | 720                                     | 763                                     | 809                                     | 14,292        | 14,578                                  |
| 4050 Personal Time Pay           | 654,107                                 | 326,533                                 | 142,040                                 | 105,538                                 | 2,216,296     | 2,260,622                               |
| 4055 Comp Time Taken             | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 4060 Comp Time Earned            | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 4065 Jury Duty                   | (5,022)                                 | -                                       | -                                       | -                                       | -             | -                                       |
| 4070 Military Leave              | (342)                                   | -                                       | -                                       | -                                       | -             | -                                       |
| 4075 Supper Pay                  | (1,880)                                 | 1,777                                   | 1,883                                   | 1,995                                   | 35,675        | 36,388                                  |
| 4080 Bereavement                 | (37,146)                                | -                                       | -                                       | -                                       | -             | -                                       |
| 4081 Paid Parental Leave         | (53,634)                                | -                                       | -                                       | -                                       | -             | -                                       |
| 4085 Special                     | (5,246)                                 | 2,160                                   | 2,290                                   | 2,427                                   | 42,877        | 43,734                                  |
| 4090 Admin Leave                 | (196,210)                               | -                                       | -                                       | -                                       | -             | -                                       |
| 4095 Severance                   | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| Total Wages & Salaries           | \$ 6,060,375                            | \$ 6,410,935                            | \$ 2,912,688                            | \$ 2,259,984                            | \$ 47,105,066 | \$ 48,047,168                           |
| <u>Employee Benefits</u>         |   |   |   |   |               |   |
| 4110 Fed Ins Contr Act Tx        | 389,485                                 | 437,306                                 | 180,385                                 | 131,075                                 | 2,907,906     | 2,966,064                               |
| 4115 Medicare                    | 92,219                                  | 92,519                                  | 42,187                                  | 30,655                                  | 680,075       | 693,676                                 |
| 4120 Fed Unemploy Tax            | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 4125 State Unemploy Tax          | 7,315                                   | 2,100                                   | 2,226                                   | 2,360                                   | 41,686        | 42,519                                  |
| 4130 Workers Comp Insur          | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 4135 Med Health Ins              | 1,632,878                               | 844,402                                 | 1,321,164                               | 1,732,193                               | 10,393,161    | 10,601,024                              |
| 4140 Med Hlth Ins Waiver         | 1,275                                   | -                                       | -                                       | -                                       | 59,399        | 60,587                                  |
| 4145 Short Term Disability       | 52,933                                  | 15,769                                  | 16,400                                  | 17,056                                  | 443,448       | 452,317                                 |
| 4150 Long Term Disability        | 29,823                                  | 2,067                                   | 2,149                                   | 2,235                                   | 58,121        | 59,284                                  |
| 4155 Life Ins <50k               | 13,892                                  | 2,390                                   | 2,485                                   | 2,585                                   | 67,204        | 68,548                                  |
| 4160 Accident Death Dismember    | 1,852                                   | 319                                     | 331                                     | 345                                     | 8,961         | 9,140                                   |
| 4165 Dental Ins                  | 29,588                                  | 2,104                                   | 2,125                                   | 2,146                                   | 216,737       | 221,072                                 |
| 4170 Vision Insur                | 5,626                                   | 1,217                                   | 1,265                                   | 1,316                                   | 34,216        | 34,900                                  |
| 4174 Cust Serv Week              | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 4175 Uniforms                    | (150,702)                               | -                                       | -                                       | -                                       | -             | -                                       |
| 4180 Tuition Reimburse           | 53,011                                  | 9,658                                   | 5,997                                   | 6,357                                   | 112,313       | 114,559                                 |
| 4185 Retirement Benefit          | 529,200                                 | 37,208                                  | 38,860                                  | 40,588                                  | 978,655       | 998,228                                 |
| 4195 Misc Benefits               | (10,189)                                | (3,150)                                 | (3,337)                                 | (3,535)                                 | (63,303)      | (64,569)                                |
| 4199 Payroll Upload Except       | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| Total Employee Benefits          | \$ 2,678,207                            | \$ 1,443,908                            | \$ 1,612,238                            | \$ 1,965,374                            | \$ 15,938,579 | \$ 16,257,350                           |
| TOTAL SALARIES & BENEFITS        | \$ 8,738,582                            | \$ 7,854,843                            | \$ 4,524,926                            | \$ 4,225,358                            | \$ 63,043,645 | \$ 64,304,518                           |

**Pittsburgh Water & Sewer Authority**  
**Operating Expenses by Account**

|                                  | HTY<br>12 Months<br>Ended<br>12/31/2020 | FTY<br>12 Months<br>Ended<br>12/31/2021 | FTY<br>12 Months<br>Ended<br>12/31/2022 | FTY<br>12 Months<br>Ended<br>12/31/2023 | Difference    | FTY<br>12 Months<br>Ended<br>12/31/2024 |
|----------------------------------|---|---|---|---|---------------|---|
| <b>Direct Operating Expenses</b> |   |   |   |   |               |   |
| <u>Chemicals</u>                 |   |   |   |   |               |   |
| 5005 Alum                        | (6,681)                                 | 75,840                                  | 91,008                                  | 109,210                                 | 655,258       | 655,258                                 |
| 5010 Boiler Chemicals            | (11,308)                                | 6,720                                   | 8,064                                   | 9,677                                   | 58,061        | 58,061                                  |
| 5015 Calcium Hypochlorite        | 20,000                                  | 4,000                                   | 4,800                                   | 5,760                                   | 34,560        | 34,560                                  |
| 5020 Cat Flocc TL                | 6,405                                   | 19,560                                  | 23,472                                  | 28,166                                  | 168,998       | 168,998                                 |
| 5025 Caustic Soda                | 1,708                                   | 480                                     | 576                                     | 691                                     | 4,147         | 4,147                                   |
| 5030 Chlorine Cylinders          | 7,905                                   | 17,000                                  | 20,400                                  | 24,480                                  | 146,880       | 146,880                                 |
| 5035 Chlorine Rail Car           | 504,098                                 | 170,000                                 | 204,000                                 | 244,800                                 | 1,468,800     | 1,468,800                               |
| 5040 Citric Acid                 | (17,042)                                | 1,600                                   | 1,920                                   | 2,304                                   | 13,824        | 13,824                                  |
| 5045 Copper Sulphate             | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5050 Ferric Chloride             | (76,476)                                | 480,000                                 | 576,000                                 | 691,200                                 | 4,147,200     | 4,147,200                               |
| 5055 Hydrofluorosilic Acid       | 18,933                                  | 38,400                                  | 46,080                                  | 55,296                                  | 331,776       | 331,776                                 |
| 5060 Lime                        | 32,135                                  | 130,000                                 | 156,000                                 | 187,200                                 | 1,123,200     | 1,123,200                               |
| 5065 Potassium Permanganate      | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5070 Powdered Active Carbon      | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5075 Soda Ash                    | (22,644)                                | 105,960                                 | 127,152                                 | 152,582                                 | 915,494       | 915,494                                 |
| 5080 Sodium Hypochlorite         | (21,297)                                | 160,080                                 | 192,096                                 | 230,515                                 | 1,383,091     | 1,383,091                               |
| 5085 Sodium Carbonate Peroxyhy   | (3,600)                                 | 3,600                                   | 4,320                                   | 5,184                                   | 31,104        | 31,104                                  |
| Chemicals                        | \$ 432,135                              | \$ 1,213,240                            | \$ 1,455,888                            | \$ 1,747,066                            | \$ 10,482,394 | \$ 10,482,394                           |
| <u>Equipment</u>                 |   |   |   |   |               |   |
| 5120 Computer & Peripherals      | (130,118)                               | 16,454                                  | 17,441                                  | 18,488                                  | 326,620       | 326,620                                 |
| 5125 Computers Networking        | (4,580,794)                             | 10,552                                  | 11,185                                  | 11,856                                  | 209,451       | 209,451                                 |
| 5140 Furniture Fixture           | (74,520)                                | 1,410                                   | 1,495                                   | 1,585                                   | 27,997        | 27,997                                  |
| 5145 Grounds Maint               | (90,088)                                | 21,645                                  | 22,944                                  | 24,320                                  | 429,659       | 429,659                                 |
| 5147 Lab Equip                   | 1,128                                   | 6,000                                   | 6,360                                   | 6,742                                   | 119,102       | 119,102                                 |
| 5150 Machinery                   | (227,642)                               | 19,980                                  | 21,179                                  | 22,450                                  | 396,608       | 396,608                                 |
| 5160 Office Equipment            | (2,096)                                 | -                                       | -                                       | -                                       | -             | -                                       |
| 5170 Pumps & Motors              | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5180 SCADA Equipment             | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5190 Vehicles                    | 839,776                                 | (343,253)                               | 124,070                                 | 131,515                                 | 2,323,425     | 2,323,425                               |
| Equipment                        | \$ (4,264,354)                          | \$ (267,212)                            | \$ 204,674                              | \$ 216,954                              | \$ 3,832,862  | \$ 3,832,862                            |
| <u>Materials</u>                 |   |   |   |   |               |   |
| 5205 Asphalt Cold Patch          | (662)                                   | 305,043                                 | 23,703                                  | 25,125                                  | 443,870       | 443,870                                 |
| 5210 Asphalt Cold-City           | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5215 Asphalt Hot-City            | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5220 Asphalt Hotmix              | 7,667                                   | 1,440                                   | 1,526                                   | 1,618                                   | 28,584        | 28,584                                  |
| 5225 Asphalt Patch Bit Sealer    | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5227 Brick                       | 1,200                                   | 72                                      | 76                                      | 81                                      | 1,429         | 1,429                                   |
| 5230 Cement Bagged               | (2,101)                                 | 144                                     | 153                                     | 162                                     | 2,858         | 2,858                                   |
| 5235 Gravel                      | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5240 Iron Steel Brass            | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5245 Lumber                      | (2,008)                                 | 2,160                                   | 2,290                                   | 2,427                                   | 42,877        | 42,877                                  |
| 5250 Sand                        | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5255 Slag                        | 20,503                                  | 32,400                                  | 34,344                                  | 36,405                                  | 643,149       | 643,149                                 |
| 5260 Stone                       | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5265 Top Soil                    | 653                                     | 288                                     | 305                                     | 324                                     | 5,717         | 5,717                                   |

**Pittsburgh Water & Sewer Authority**  
**Operating Expenses by Account**

|                                      | HTY<br>12 Months<br>Ended<br>12/31/2020 | FTY<br>12 Months<br>Ended<br>12/31/2021 | FTY<br>12 Months<br>Ended<br>12/31/2022 | FTY<br>12 Months<br>Ended<br>12/31/2023 | Difference    | FTY<br>12 Months<br>Ended<br>12/31/2024 |
|--------------------------------------|---|---|---|---|---------------|---|
| <b>Direct Operating Expenses</b>     |   |   |   |   |               |   |
| Materials                            | \$ 25,253                               | \$ 341,547                              | \$ 62,397                               | \$ 66,141                               | \$ 1,168,484  | \$ 1,168,484                            |
| <u>Operating Contracts</u>           |   |   |   |   |               |   |
| 5305 Annual Sewer Contract           | 585,223                                 | 512,443                                 | 543,189                                 | 575,781                                 | 10,172,128    | 10,172,128                              |
| 5310 Boiler Compressr Elevtr         | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5315 CB Cleaning                     | 207,052                                 | 33,000                                  | 34,980                                  | 37,079                                  | 655,059       | 655,059                                 |
| 5316 CB Repairs                      | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5328 Curb Box Repair                 | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5330 Debris Removal                  | 40,076                                  | 15,798                                  | 16,746                                  | 17,751                                  | 313,594       | 313,594                                 |
| 5335 Drag Bucket                     | 734,333                                 | 44,172                                  | 46,822                                  | 49,632                                  | 876,826       | 876,826                                 |
| 5340 Dumpster                        | (6,237)                                 | 1,692                                   | 1,794                                   | 1,901                                   | 33,587        | 33,587                                  |
| 5341 Vactor Debri Remove Cont        | 26,258                                  | 13,200                                  | 13,992                                  | 14,832                                  | 262,024       | 262,024                                 |
| 5342 Emergency WaterLine Repair      | (400,641)                               | 273,787                                 | 290,215                                 | 307,628                                 | 5,434,753     | 5,434,753                               |
| 5343 Manhole & Point Repair Contract | -                                       | -                                       | -                                       | -                                       | 1,786,524     | -                                       |
| 5344 Pump & Motor Contract           | -                                       | -                                       | -                                       | -                                       | 714,610       | -                                       |
| 5345 Inspection                      | (1,138)                                 | 4,050                                   | 4,293                                   | 4,551                                   | 80,394        | 80,394                                  |
| 5347 Inspection Field                | (55,121)                                | 165,070                                 | 174,974                                 | 185,473                                 | 3,276,681     | 3,276,681                               |
| 5348 Line Televising                 | -                                       | -                                       | -                                       | -                                       | 858,425       | -                                       |
| 5350 Key Lock Serv                   | (435)                                   | -                                       | -                                       | -                                       | -             | -                                       |
| 5355 Landscape (Grounds)             | 85,378                                  | 19,965                                  | 21,163                                  | 22,433                                  | 396,318       | 396,318                                 |
| 5360 Meters                          | 249,990                                 | 14,999                                  | 15,899                                  | 16,853                                  | 297,742       | 297,742                                 |
| 5370 Operating Contract Other        | (3,965,884)                             | 7,577,334                               | 2,331,975                               | 3,011,893                               | 14,210,110    | 14,210,110                              |
| 5375 Radionuclides                   | 651,399                                 | 39,084                                  | 41,429                                  | 43,915                                  | 775,827       | 775,827                                 |
| 5380 Intr-Gov Proj Panther Hollow    | 556,260                                 | (84,552)                                | 28,303                                  | 30,001                                  | 530,012       | 530,012                                 |
| 5383 Sewage Treatment                | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5385 Temporary Help                  | (31,201)                                | -                                       | -                                       | -                                       | -             | -                                       |
| 5390 Welding                         | -                                       | 117,927                                 | 7,076                                   | 7,500                                   | 132,503       | 132,503                                 |
| 5395 Water Relay DISC                | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5396 Sewer Relay DISC                | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| Operating Contracts                  | \$ (1,324,687)                          | \$ 8,747,971                            | \$ 3,572,849                            | \$ 4,327,220                            | \$ 40,807,115 | \$ 37,447,556                           |
| <u>Repairs &amp; Maintenance</u>     |   |   |   |   |               |   |
| 5402 Annual Software Support         | 1,181,293                               | 228,469                                 | 242,177                                 | 256,707                                 | 4,535,162     | 4,535,162                               |
| 5405 Bldg Property Repairs           | (468,518)                               | 1,970                                   | 2,088                                   | 2,213                                   | 39,097        | 39,097                                  |
| 5408 Computer Hardware               | 21,178                                  | 4,269                                   | 4,525                                   | 4,797                                   | 84,739        | 84,739                                  |
| 5411 Computer Software Support       | (37,097)                                | 2,994                                   | 3,174                                   | 3,364                                   | 59,432        | 59,432                                  |
| 5413 Concrete Repairs                | (1,016,743)                             | 443,567                                 | 470,181                                 | 498,392                                 | 8,804,924     | 8,804,924                               |
| 5415 Cranes Repairs                  | 88,955                                  | 5,400                                   | 5,724                                   | 6,067                                   | 107,191       | 107,191                                 |
| 5417 Electrical Repairs              | 101,754                                 | 8,712                                   | 9,235                                   | 9,789                                   | 172,936       | 172,936                                 |
| 5420 Fence Repairs                   | (2,960)                                 | -                                       | -                                       | -                                       | -             | -                                       |
| 5422 Fence Installation              | 97,695                                  | 10,140                                  | 10,748                                  | 11,393                                  | 201,282       | 201,282                                 |
| 5427 GIS Hardware Software           | 1,444                                   | 299                                     | 317                                     | 336                                     | 5,931         | 5,931                                   |
| 5432 Hardware Repairs                | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5437 Heavy Equip Repair              | (2,860)                                 | -                                       | -                                       | -                                       | -             | -                                       |
| 5439 HVAC Plumbing                   | 13,701                                  | 6,012                                   | 6,373                                   | 6,755                                   | 119,340       | 119,340                                 |
| 5444 Hydrant A Section               | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5445 Hydrant Misc Parts              | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5447 Hydrant Repair Parts            | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5452 Machinery Repairs               | 156,702                                 | 19,324                                  | 20,484                                  | 21,713                                  | 383,588       | 383,588                                 |
| 5457 Office Equip Repairs            | (323)                                   | -                                       | -                                       | -                                       | -             | -                                       |
| 5462 Plant Repairs                   | 67,735                                  | 31,290                                  | 33,167                                  | 35,157                                  | 621,115       | 621,115                                 |
| 5467 Power Tool Repairs              | 2,327                                   | 180                                     | 191                                     | 202                                     | 3,573         | 3,573                                   |
| 5472 Road Repair Plant               | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5475 Scanner                         | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5482 Tool Repairs                    | (4,913)                                 | 600                                     | 636                                     | 674                                     | 11,910        | 11,910                                  |
| 5484 Hand Tool Repairs               | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5486 Misc Tool Repairs               | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5488 CC TV Repairs                   | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5490 Vactor Repairs                  | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 5491 Vehicle Repairs                 | 52,332                                  | 61,380                                  | 65,063                                  | 68,966                                  | 1,218,408     | 1,218,408                               |

**Pittsburgh Water & Sewer Authority**  
**Operating Expenses by Account**

|                                    | HTY<br>12 Months<br>Ended<br>12/31/2020 | FTY<br>12 Months<br>Ended<br>12/31/2021 | FTY<br>12 Months<br>Ended<br>12/31/2022 | FTY<br>12 Months<br>Ended<br>12/31/2023 | Difference    | FTY<br>12 Months<br>Ended<br>12/31/2024 |
|------------------------------------|---|---|---|---|---------------|---|
| <b>Direct Operating Expenses</b>   |   |   |   |   |               |   |
| 5496 Repair Maint Other            | (30,023)                                | 4,668                                   | 6,008                                   | 6,369                                   | 112,516       | 112,516                                 |
| Repairs & Maintenance              | \$ 221,680                              | \$ 829,273                              | \$ 880,090                              | \$ 932,895                              | \$ 16,481,144 | \$ 16,481,144                           |
| <u>Misc. Operating</u>             |   |   |   |   |               |   |
| 5570 Testing Misc                  | (42,472)                                | 18,870                                  | 20,002                                  | 21,202                                  | 374,575       | 374,575                                 |
| Misc. Operating                    | \$ (42,472)                             | \$ 18,870                               | \$ 20,002                               | \$ 21,202                               | \$ 374,575    | \$ 374,575                              |
| <u>Inventory - Castings</u>        |   |   |   |   |               |   |
| 6015 Casting Manhole CBasin        | 36,261                                  | 2,544                                   | 2,697                                   | 2,858                                   | 50,499        | 50,499                                  |
| 6025 Casting Risers Lids           | 14,509                                  | 2,760                                   | 2,926                                   | 3,101                                   | 54,787        | 54,787                                  |
| 6035 Casting Sewer Inlet           | 15,351                                  | 1,080                                   | 1,145                                   | 1,213                                   | 21,438        | 21,438                                  |
| 6060 Casting Water Valve Box       | 47,782                                  | 7,560                                   | 8,014                                   | 8,494                                   | 150,068       | 150,068                                 |
| Inventory - Castings               | \$ 113,904                              | \$ 13,944                               | \$ 14,781                               | \$ 15,667                               | \$ 276,792    | \$ 276,792                              |
| <u>Inventory - Clarifier</u>       |   |   |   |   |               |   |
| 6115 Clarifier Part Floc           | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 6120 Clarifier Part Screw          | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 6125 Clarifier Part Sludge         | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| Inventory - Clarifier              | \$ -                                    | \$ -                                    | \$ -                                    | \$ -                                    | \$ -          | \$ -                                    |
| <u>Inventory - Equipment</u>       |   |   |   |   |               |   |
| 6200 Inventory-Equip               | (45,451)                                | -                                       | -                                       | -                                       | -             | -                                       |
| 6220 Fire Extinguishers            | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 6245 Materials Handling            | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 6260 Safety Equipment              | 28,320                                  | 3,672                                   | 3,892                                   | 4,126                                   | 72,890        | 72,890                                  |
| 6280 Vacuum Chlorinators           | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| Inventory - Equipment              | \$ (17,131)                             | \$ 3,672                                | \$ 3,892                                | \$ 4,126                                | \$ 72,890     | \$ 72,890                               |
| <u>Inventory - Hardware</u>        |   |   |   |   |               |   |
| 6300 Inventory-Hardware            | (439,618)                               | 960                                     | 1,018                                   | 1,079                                   | 19,056        | 19,056                                  |
| 6315 Fittings                      | 62,565                                  | 11,196                                  | 11,868                                  | 12,580                                  | 222,244       | 222,244                                 |
| 6320 Hardware Other                | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 6325 Hose Fitting                  | 4,710                                   | 742                                     | 786                                     | 833                                     | 14,721        | 14,721                                  |
| 6330 Keys & Locks                  | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 6335 Lights                        | 3,726                                   | 324                                     | 343                                     | 364                                     | 6,431         | 6,431                                   |
| 6340 Machinery Misc                | 2,404                                   | 600                                     | 636                                     | 674                                     | 11,910        | 11,910                                  |
| 6345 Meters                        | (1,756)                                 | 720                                     | 763                                     | 809                                     | 14,292        | 14,292                                  |
| 6350 Plumbing Inv Exp              | 11,192                                  | 1,200                                   | 1,272                                   | 1,348                                   | 23,820        | 23,820                                  |
| 6355 Power Tool Inv Exp            | 5,987                                   | 720                                     | 763                                     | 809                                     | 14,292        | 14,292                                  |
| 6360 Tools Inv Exp                 | 43,697                                  | 6,900                                   | 7,314                                   | 7,753                                   | 136,967       | 136,967                                 |
| 6365 Hand Tools Inv Exp            | 19,000                                  | 1,140                                   | 1,208                                   | 1,281                                   | 22,629        | 22,629                                  |
| Inventory - Hardware               | \$ (288,093)                            | \$ 24,502                               | \$ 25,972                               | \$ 27,530                               | \$ 486,363    | \$ 486,363                              |
| <u>Inventory - Heavy Equipment</u> |   |   |   |   |               |   |
| 6420 Backhoe                       | -                                       | -                                       | -                                       | -                                       | -             | -                                       |

**Pittsburgh Water & Sewer Authority**  
**Operating Expenses by Account**

|                                  | HTY<br>12 Months<br>Ended<br>12/31/2020 | FTY<br>12 Months<br>Ended<br>12/31/2021 | FTY<br>12 Months<br>Ended<br>12/31/2022 | FTY<br>12 Months<br>Ended<br>12/31/2023 | Difference    | FTY<br>12 Months<br>Ended<br>12/31/2024 |
|----------------------------------|---|---|---|---|---------------|---|
| <b>Direct Operating Expenses</b> |   |   |   |   |               |   |
| Inventory - Heavy Equipment      | \$ -                                    | \$ -                                    | \$ -                                    | \$ -                                    | \$ -          | \$ -                                    |
| <u>Inventory - Miscellaneous</u> |   |   |   |   |               |   |
| 6500 Inventory-Misc              | 6,098                                   | 1,920                                   | 2,035                                   | 2,157                                   | 38,113        | 38,113                                  |
| 6506 Batteries                   | 455                                     | 60                                      | 64                                      | 67                                      | 1,191         | 1,191                                   |
| 6515 Cleaning                    | 2,973                                   | 497                                     | 527                                     | 558                                     | 9,862         | 9,862                                   |
| 6518 Concrete Accessories        | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 6520 Copier Paper                | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 6525 Filters                     | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 6526 Filters HVAC                | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 6530 FirstAid                    | 699                                     | 72                                      | 76                                      | 81                                      | 1,429         | 1,429                                   |
| 6540 Lamps                       | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 6544 Lubricating Oil             | 1,755                                   | 187                                     | 198                                     | 210                                     | 3,716         | 3,716                                   |
| 6548 Paint Oils Putty Glass      | 175                                     | 108                                     | 114                                     | 121                                     | 2,144         | 2,144                                   |
| 6552 Paper Products              | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 6555 Pump Oil                    | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 6565 Sewer Mats Supplies         | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 6570 Testing Dyes                | 2,355                                   | 360                                     | 382                                     | 404                                     | 7,146         | 7,146                                   |
| 6580 Vehicle Oil                 | 1,200                                   | 72                                      | 76                                      | 81                                      | 1,429         | 1,429                                   |
| 6585 Welding Supplies-Inventory  | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| Inventory - Miscellaneous        | \$ 15,709                               | \$ 3,276                                | \$ 3,473                                | \$ 3,681                                | \$ 65,029     | \$ 65,029                               |
| <u>Inventory - Parts</u>         |   |   |   |   |               |   |
| 6645 Parts Other                 | 3,148                                   | 2,304                                   | 2,442                                   | 2,589                                   | 45,735        | 45,735                                  |
| 6680 Yard                        | 74,913                                  | 10,800                                  | 11,448                                  | 12,135                                  | 214,383       | 214,383                                 |
| Inventory - Parts                | \$ 78,061                               | \$ 13,104                               | \$ 13,890                               | \$ 14,724                               | \$ 260,118    | \$ 260,118                              |
| <u>Inventory - Pipe</u>          |   |   |   |   |               |   |
| 6705 Pipe                        | (254,405)                               | -                                       | -                                       | -                                       | -             | -                                       |
| 6710 Pipe Ductile                | 309,004                                 | 45,000                                  | 47,700                                  | 50,562                                  | 893,262       | 893,262                                 |
| 6755 Pipe Plastic                | (1,685)                                 | 270                                     | 286                                     | 303                                     | 5,360         | 5,360                                   |
| 6765 Pipe Service Line           | 4,299                                   | 732                                     | 776                                     | 822                                     | 14,530        | 14,530                                  |
| Inventory - Pipe                 | \$ 57,213                               | \$ 46,002                               | \$ 48,762                               | \$ 51,688                               | \$ 913,152    | \$ 913,152                              |
| <u>Inventory - Valves</u>        |   |   |   |   |               |   |
| 6805 Valves <12in                | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 6810 Valves >16in                | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 6820 Valves GA                   | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 6825 Valves Misc                 | (90,513)                                | 13,080                                  | 13,865                                  | 14,697                                  | 259,641       | 259,641                                 |
| Inventory - Valves               | \$ (90,513)                             | \$ 13,080                               | \$ 13,865                               | \$ 14,697                               | \$ 259,641    | \$ 259,641                              |
| INVENTORY TOTAL                  | \$ (130,850)                            | \$ 117,580                              | \$ 124,634                              | \$ 132,112                              | \$ 2,333,986  | \$ 2,333,986                            |
| DIRECT OPERATING TOTAL           | \$ (1,280,421)                          | \$ 13,553,989                           | \$ 8,431,260                            | \$ 9,784,562                            | \$ 99,259,271 | \$ 96,375,287                           |
| <u>Fees</u>                      |   |   |   |   |               |   |
| 7003 Bank Fees                   | 42,462                                  | 21,600                                  | 22,896                                  | 24,270                                  | 428,766       | 428,766                                 |
| 7005 Certification Fees          | 23,255                                  | 1,554                                   | 1,648                                   | 1,746                                   | 30,854        | 30,854                                  |
| 7010 Membership Fees             | (7,700)                                 | 7,184                                   | 7,615                                   | 8,071                                   | 142,595       | 142,595                                 |
| 7015 Permits                     | 83,762                                  | 33,008                                  | 34,989                                  | 37,088                                  | 655,223       | 655,223                                 |
| 7020 Registration Fees           | 10,657                                  | 1,185                                   | 1,256                                   | 1,331                                   | 23,523        | 23,523                                  |
| 7030 Licenses                    | 2,100                                   | 126                                     | 134                                     | 142                                     | 2,501         | 2,501                                   |
| 7035 Customer CC Fees            | 34,798                                  | (433,800)                               | 2,172                                   | 2,302                                   | 40,674        | 40,674                                  |
| Total Fees                       | \$ 189,334                              | \$ (369,143)                            | \$ 70,709                               | \$ 74,951                               | \$ 1,324,135  | \$ 1,324,135                            |
| <u>Freight and Postage</u>       |   |   |   |   |               |   |
| 7105 Freight Hauling             | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 7110 Freight Shipping            | 17,463                                  | 209                                     | 221                                     | 235                                     | 4,145         | 4,145                                   |

**Pittsburgh Water & Sewer Authority**  
**Operating Expenses by Account**

|                                  | HTY<br>12 Months<br>Ended<br>12/31/2020 | FTY<br>12 Months<br>Ended<br>12/31/2021 | FTY<br>12 Months<br>Ended<br>12/31/2022 | FTY<br>12 Months<br>Ended<br>12/31/2023 | Difference    | FTY<br>12 Months<br>Ended<br>12/31/2024 |
|----------------------------------|---|---|---|---|---------------|---|
| <b>Direct Operating Expenses</b> |   |   |   |   |               |   |
| 7115 Postage                     | (38,938)                                | 26,685                                  | 28,286                                  | 29,983                                  | 529,704       | 529,704                                 |
| Total Freight and Postage        | \$ (21,475)                             | \$ 26,894                               | \$ 28,507                               | \$ 30,218                               | \$ 533,849    | \$ 533,849                              |
| <u>Leases &amp; Rents</u>        |   |   |   |   |               |   |
| 7210 Copier Fax Machine          | (1,522)                                 | 3,487                                   | 3,697                                   | 3,918                                   | 69,224        | 69,224                                  |
| 7215 Equip Rental                | (87,689)                                | 1,689                                   | 1,790                                   | 1,898                                   | 33,524        | 33,524                                  |
| 7255 Office Rent                 | 50,170                                  | 1,015,130                               | 118,540                                 | 125,652                                 | 2,219,851     | 2,219,851                               |
| 7260 Pagers                      | 60,000                                  | 3,600                                   | 3,816                                   | 4,045                                   | 71,461        | 71,461                                  |
| 7265 RadioLease(City)            | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| Total Leases & Rents             | \$ 20,959                               | \$ 1,023,906                            | \$ 127,842                              | \$ 135,513                              | \$ 2,394,060  | \$ 2,394,060                            |
| <u>Professional Services</u>     |   |   |   |   |               |   |
| 7305 Advertising                 | 16,969                                  | 1,874                                   | 1,987                                   | 2,106                                   | 37,203        | 37,203                                  |
| 7306 Annual Report               | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 7307 Advertising - Marketing     | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 7310 Annual Audit                | 3,568                                   | 3,432                                   | 3,638                                   | 3,856                                   | 68,126        | 68,126                                  |
| 7315 Billing Contract            | (87,633)                                | 12,960                                  | 13,738                                  | 14,562                                  | 257,259       | 257,259                                 |
| 7321 Coll Agency Sewage          | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 7323 Consultants                 | 525,101                                 | (1,702,151)                             | (2,454,280)                             | 148,463                                 | 2,622,849     | 2,622,849                               |
| 7325 Consumer Confidence Rpt     | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 7328 Contingencies               | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 7330 Construction Management     | -                                       | -                                       | -                                       | -                                       | 1,565,694     | -                                       |
| 7332 Consulting Engineers        | 121,141                                 | 2,119                                   | 10,567                                  | 11,201                                  | 197,888       | 197,888                                 |
| 7335 Misc Serv NonCapital        | (1,908,672)                             | 20,250                                  | 21,465                                  | 22,753                                  | 401,968       | 401,968                                 |
| 7345 Ins Auto                    | (38,337)                                | 4,499                                   | 4,769                                   | 5,055                                   | 89,305        | 89,305                                  |
| 7348 Ins Commercial Prop         | 42,924                                  | 19,745                                  | 20,930                                  | 22,185                                  | 391,943       | 391,943                                 |
| 7353 Ins Gen Liability           | 6,179                                   | 5,005                                   | 5,305                                   | 5,623                                   | 99,346        | 99,346                                  |
| 7359 Ins Officers Director       | 11,274                                  | 9,132                                   | 9,680                                   | 10,261                                  | 181,269       | 181,269                                 |
| 7365 Ins WorkersComp             | -                                       | 26,829                                  | 28,439                                  | 30,145                                  | 532,565       | 532,565                                 |
| 7366 Ins WorkersComp City        | (7,083)                                 | 744                                     | 789                                     | 836                                     | 14,775        | 14,775                                  |
| 7368 Internet Connection Serv    | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 7370 Legal                       | 762,936                                 | (721,593)                               | 135,111                                 | 143,218                                 | 2,530,187     | 2,530,187                               |
| 7371 Legal Self Ins              | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 7373 Minority Women Bus Enter    | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 7375 Meter Services              | (18,740)                                | 45,235                                  | 47,949                                  | 50,826                                  | 897,923       | 897,923                                 |
| 7382 Payroll Services            | 33,639                                  | 10,164                                  | 10,774                                  | 11,420                                  | 201,755       | 201,755                                 |
| 7383 Prof Service Other          | (1,390,006)                             | 218,086                                 | (118,829)                               | 224,041                                 | 3,958,057     | 3,958,057                               |
| 7389 Trust Admin                 | 24,515                                  | 5,100                                   | 5,406                                   | 5,730                                   | 101,236       | 101,236                                 |
| 7390 Water Liens                 | 19,886                                  | (80,000)                                | -                                       | -                                       | -             | -                                       |
| Total Professional Services      | \$ (1,882,340)                          | \$ (2,118,570)                          | \$ (2,252,564)                          | \$ 712,282                              | \$ 14,149,348 | \$ 12,583,653                           |
| <u>Supplies</u>                  |   |   |   |   |               |   |
| 7405 Computer Software Supplies  | (42,218)                                | 87,800                                  | 8,268                                   | 8,764                                   | 154,832       | 154,832                                 |
| 7422 Fuel-Gasses                 | 13,337                                  | 103,200                                 | 38,832                                  | 41,162                                  | 727,194       | 727,194                                 |
| 7423 Fuel Kerosene               | 696                                     | 72                                      | 76                                      | 81                                      | 1,429         | 1,429                                   |
| 7424 Fuel Propane                | 626                                     | 108                                     | 114                                     | 121                                     | 2,144         | 2,144                                   |
| 7435 GIS Plotter Xerox           | 173,270                                 | 10,396                                  | 11,020                                  | 11,681                                  | 206,367       | 206,367                                 |
| 7440 Grounds & Maint Supp        | (173,536)                               | 23,928                                  | 25,364                                  | 26,885                                  | 474,977       | 474,977                                 |
| 7443 ICE                         | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 7445 Lab Chemicals               | 3,946                                   | 360                                     | 382                                     | 404                                     | 7,146         | 7,146                                   |
| 7447 Lab Supplies                | (39,295)                                | 6,000                                   | 6,360                                   | 6,742                                   | 119,102       | 119,102                                 |
| 7450 Office Supplies             | 11,901                                  | 2,745                                   | 2,910                                   | 3,084                                   | 54,491        | 54,491                                  |
| 7460 Uniforms                    | -                                       | -                                       | -                                       | -                                       | -             | -                                       |
| 7490 Welding Supplies            | (8,720)                                 | 1,080                                   | 1,145                                   | 1,213                                   | 21,438        | 21,438                                  |

**Pittsburgh Water & Sewer Authority**  
**Operating Expenses by Account**

|  | HTY<br>12 Months<br>Ended<br>12/31/2020 | FTY<br>12 Months<br>Ended<br>12/31/2021 | FTY<br>12 Months<br>Ended<br>12/31/2022 | FTY<br>12 Months<br>Ended<br>12/31/2023 | Difference           | FTY<br>12 Months<br>Ended<br>12/31/2024 |
|--|---|---|---|---|----------------------|---|
| <b>Direct Operating Expenses</b>           |   |   |   |   |                      |   |
| Total Supplies                             | \$ (59,992)                             | \$ 235,689                              | \$ 94,471                               | \$ 100,139                              | \$ 1,769,120         | \$ 1,769,120                            |
| <u>Travel &amp; Entertainment</u>          |   |   |   |   |                      |   |
| 7505 TE Airfare                            | 4,500                                   | 270                                     | 286                                     | 303                                     | 5,360                | 5,360                                   |
| 7510 TE Auto Rentals                       | 150                                     | 9                                       | 10                                      | 10                                      | 179                  | 179                                     |
| 7520 TE Fuel                               | -                                       | -                                       | -                                       | -                                       | -                    | -                                       |
| 7540 TE Lodging                            | 11,585                                  | 702                                     | 744                                     | 789                                     | 13,935               | 13,935                                  |
| 7545 TE Meals                              | (1,671)                                 | 60                                      | 64                                      | 67                                      | 1,191                | 1,191                                   |
| 7550 TE Mileage                            | -                                       | -                                       | -                                       | -                                       | -                    | -                                       |
| 7555 TE Seminars/Conferences               | 62,685                                  | 3,844                                   | 4,075                                   | 4,319                                   | 76,302               | 76,302                                  |
| 7560 TE Training                           | (41,803)                                | 9,960                                   | 10,558                                  | 11,191                                  | 197,709              | 197,709                                 |
| 7575 TE Travel Misc                        | (51,096)                                | 1,057                                   | 1,120                                   | 1,188                                   | 20,980               | 20,980                                  |
| 7590 TE Travel Purch Orders                | -                                       | -                                       | -                                       | -                                       | -                    | -                                       |
| Total Travel & Entertainment               | \$ (15,650)                             | \$ 15,902                               | \$ 16,856                               | \$ 17,867                               | \$ 315,655           | \$ 315,655                              |
| <u>Utilities</u>                           |   |   |   |   |                      |   |
| 7605 Electric                              | 441,196                                 | 900,000                                 | 1,035,000                               | 1,190,250                               | 9,125,250            | 9,125,250                               |
| 7650 Natural Gas City                      | (10,175)                                | 54,000                                  | 62,100                                  | 71,415                                  | 547,515              | 547,515                                 |
| 7675 Telemeter                             | (49,804)                                | 14,400                                  | 15,264                                  | 16,180                                  | 285,844              | 285,844                                 |
| 7680 Cellular Phone                        | 9,630                                   | 12,796                                  | 13,564                                  | 14,377                                  | 254,001              | 254,001                                 |
| 7681 Local Phones                          | (11,987)                                | 10,296                                  | 10,914                                  | 11,569                                  | 204,378              | 204,378                                 |
| 7682 Long Distance                         | -                                       | -                                       | -                                       | -                                       | -                    | -                                       |
| 7683 Internet                              | 13,662                                  | 3,059                                   | 3,243                                   | 3,437                                   | 60,726               | 60,726                                  |
| Total Utilities                            | \$ 392,522                              | \$ 994,551                              | \$ 1,140,084                            | \$ 1,307,228                            | \$ 10,477,714        | \$ 10,477,714                           |
| <u>Miscellaneous Admin</u>                 |   |   |   |   |                      |   |
| 7705 Bad Debt                              | -                                       | -                                       | -                                       | -                                       | -                    | -                                       |
| 7710 Capital Asset Reclass                 | (3,284,237)                             | (797,678)                               | (845,539)                               | (896,271)                               | (15,834,128)         | (15,834,128)                            |
| 7711 DISC Asset Reclass                    | -                                       | -                                       | -                                       | -                                       | -                    | -                                       |
| 7712 Cash Discount Taken                   | 705                                     | (144)                                   | (153)                                   | (162)                                   | (2,858)              | (2,858)                                 |
| 7715 Claims Deductibles                    | 244,902                                 | 45,000                                  | 47,700                                  | 50,562                                  | 893,262              | 893,262                                 |
| 7720 Customer Refund CSM                   | (19,384)                                | (30,000)                                | (31,800)                                | (33,708)                                | (595,508)            | (595,508)                               |
| 7721 Customer Refund AP                    | (286,109)                               | 30,000                                  | 31,800                                  | 33,708                                  | 595,508              | 595,508                                 |
| 7730 Fines Penalties                       | (10,026)                                | 1,080                                   | 1,145                                   | 1,213                                   | 21,438               | 21,438                                  |
| 7735 LienBuyBkExp                          | -                                       | -                                       | -                                       | -                                       | -                    | -                                       |
| 7742 Education & Outreach                  | 10,976                                  | 4,242                                   | 4,497                                   | 4,766                                   | 84,205               | 84,205                                  |
| 7743 Employee Fund                         | -                                       | -                                       | -                                       | -                                       | -                    | -                                       |
| 7750 Inv Adjustments                       | (120,360)                               | -                                       | -                                       | -                                       | -                    | -                                       |
| 7760 Misc Gen Admin Exp                    | (657,887)                               | -                                       | -                                       | -                                       | -                    | -                                       |
| 7765 One Call                              | 6,331                                   | 1,440                                   | 1,526                                   | 1,618                                   | 28,584               | 28,584                                  |
| 7770 Publication Subscription              | 3,923                                   | 1,286                                   | 1,363                                   | 1,445                                   | 25,533               | 25,533                                  |
| 7787 3rd Pty LW Exp                        | -                                       | -                                       | -                                       | -                                       | -                    | -                                       |
| 7789 3rd Pty Sew Trt Exp                   | -                                       | -                                       | -                                       | -                                       | -                    | -                                       |
| 7799 Grants Awarded by PWSA                | -                                       | -                                       | -                                       | -                                       | -                    | -                                       |
| 8005 City Indirect Costs (Pension & Taxes) | 1,571,107                               | 97,950                                  | 103,827                                 | 110,057                                 | 1,944,334            | 1,944,334                               |
| 8070 Sewer Direct                          | -                                       | -                                       | -                                       | -                                       | -                    | -                                       |
| 8071 Sewer Indirect                        | -                                       | -                                       | -                                       | -                                       | -                    | -                                       |
| 8180 Non.City Water Reimburse              | (1,973)                                 | 10,228                                  | 10,841                                  | 11,492                                  | 203,022              | 203,022                                 |
| Total Miscellaneous Admin                  | \$ (2,542,032)                          | \$ (636,596)                            | \$ (674,792)                            | \$ (715,280)                            | \$ (12,636,608)      | \$ (12,636,608)                         |
| <b>IRECT OPERATING EXPENSES</b>            | <b>\$ (263,387)</b>                     | <b>\$ 18,028,743</b>                    | <b>\$ 9,396,573</b>                     | <b>\$ 13,331,867</b>                    | <b>\$156,851,478</b> | <b>\$ 153,187,098</b>                   |



**III. OPERATING EXPENSE**

III.2. Prepare a summary of operating expenses for the historic test year providing annualizing and normalizing adjustments to arrive at adjusted future operating expenses for ratemaking, including supporting data.

**RESPONSE:**

Please see the attached schedule.

**Pittsburgh Water & Sewer Authority**  
**Operating Expenses by Account**

| <b>Direct Operating Expenses</b>     | <b>HTY<br/>12 Months<br/>Ended<br/>12/31/2020</b> | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2021</b> | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2022</b> | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2023</b> | <b>Difference</b>   | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2024</b> |
|--------------------------------------|---|---|---|---|---------------------|---|
| <u>Wages &amp; Salaries</u>          |   |   |   |   |                     |   |
| 4001 Salary Wages                    | \$ 18,617,022                                     | \$ 20,717,547                                     | \$ 22,881,649                                     | \$ 28,149,882                                     | \$ 5,212,763        | \$ 33,362,646                                     |
| 4005 OT Premium Pay                  | 1,571,406   | 1,594,793   | 1,846,868   | 1,514,343   | 89,358              | 1,603,701   |
| 4010 Shift Differential              | 7,028   | 112,650   | 127,551   | 95,182  | 5,667               | 100,849   |
| 4015 Semi Skill                      | 2,741   | 1,843   | -   | -   | -                   | -   |
| 4020 Pay Adjustments                 | -   | -   | -   | -   | -                   | -   |
| 4025 Bonus                           | -   | 20,500  | 242,063   | 44,550  | 2,673               | 47,223  |
| 4030 Holiday Pay                     | 915,618   | 1,005,600   | 1,296,286   | 1,662,625   | 310,055             | 1,972,680   |
| 4035 Vacation Pay                    | 1,279,163   | 1,580,964   | 1,676,066   | 2,334,672   | 459,228             | 2,793,900   |
| 4040 Other                           | -   | -   | 1,787   | -   | -                   | -   |
| 4045 Sick Pay                        | 27,431  | 55,215  | 35,235  | 12,000  | 720                 | 12,720  |
| 4050 Personal Time Pay               | 630,179   | 856,786   | 988,078   | 1,642,185   | 326,533             | 1,968,718   |
| 4055 Comp Time Taken                 | -   | -   | -   | -   | -                   | -   |
| 4060 Comp Time Earned                | -   | -   | -   | -   | -                   | -   |
| 4065 Jury Duty                       | 819   | 1,479   | 5,022   | -   | -                   | -   |
| 4070 Military Leave                  | 792   | 4,904   | 342   | -   | -                   | -   |
| 4075 Supper Pay                      | 20,104  | 24,285  | 31,900  | 30,020  | 1,777               | 31,797  |
| 4080 Bereavement                     | 24,901  | 39,833  | 37,146  | -   | -                   | -   |
| 4081 Paid Parental Leave             | 17,939  | -   | 53,634  | -   | -                   | -   |
| 4085 Special                         | 76,630  | -   | 41,246  | 36,000  | 2,160               | 38,160  |
| 4090 Admin Leave                     | 955,265   | 183,281   | 196,210   | -   | -                   | -   |
| 4095 Severence                       | 3,600   | 117,468   | -   | -   | -                   | -   |
| Total Wages & Salaries               | \$ 24,147,039                                     | \$ 26,199,680                                     | \$ 29,461,084                                     | \$ 35,521,459                                     | \$ 6,410,935        | \$ 41,932,394                                     |
| <u>Employee Benefits</u>             |   |   |   |   |                     |   |
| 4110 Fed Ins Contr Act Tx            | 1,453,301   | 1,587,241   | 1,769,656   | 2,159,140   | 437,306             | 2,596,446   |
| 4115 Medicare                        | 346,428   | 378,015   | 422,495   | 514,714   | 92,519              | 607,233   |
| 4120 Fed Unemploy Tax                | -   | -   | -   | -   | -                   | -   |
| 4125 State Unemploy Tax              | 10,670  | 25,415  | 27,685  | 35,000  | 2,100               | 37,100  |
| 4130 Workers Comp Insur              | -   | -   | -   | -   | -                   | -   |
| 4135 Med Health Ins                  | 4,210,424   | 4,545,633   | 4,862,522   | 6,495,401   | 844,402             | 7,339,803   |
| 4140 Med Hlth Ins Waiver             | 72,359  | 59,104  | 58,124  | 59,399  | -                   | 59,399  |
| 4145 Short Term Disability           | 226,692   | 346,435   | 341,291   | 394,224   | 15,769              | 409,993   |
| 4150 Long Term Disability            | 27,775  | 27,039  | 21,847  | 51,670  | 2,067               | 53,737  |
| 4155 Life Ins <50k                   | 38,413  | 43,615  | 45,852  | 59,744  | 2,390               | 62,134  |
| 4160 Accident Death Dismember        | 5,171   | 5,815   | 6,114   | 7,966   | 319                 | 8,285   |
| 4165 Dental Ins                      | 151,738   | 173,099   | 180,775   | 210,363   | 2,104               | 212,466   |
| 4170 Vision Insur                    | 15,287  | 21,559  | 24,791  | 30,417  | 1,217               | 31,634  |
| 4174 Cust Serv Week                  | -   | -   | -   | -   | -                   | -   |
| 4175 Uniforms                        | 155,684   | 160,760   | 150,702   | -   | -                   | -   |
| 4180 Tuition Reimburse               | 64,196  | 71,861  | 37,289  | 90,300  | 9,658               | 99,958  |
| 4185 Retirement Benefit              | 95,076  | 96,963  | 332,801   | 862,000   | 37,208              | 899,208   |
| 4195 Misc Benefits                   | (23,442)  | 55,317  | (43,091)  | (53,280)  | (3,150)             | (56,430)  |
| 4199 Payroll Upload Except           | (1,385)   | (5,192)   | -   | -   | -                   | -   |
| Total Employee Benefits              | \$ 6,851,987                                      | \$ 7,710,148                                      | \$ 8,238,852                                      | \$ 10,917,059                                     | \$ 1,443,908        | \$ 12,360,967                                     |
| <b>TOTAL SALARIES &amp; BENEFITS</b> | <b>\$ 30,999,026</b>                              | <b>\$ 33,909,828</b>                              | <b>\$ 37,699,936</b>                              | <b>\$ 46,438,518</b>                              | <b>\$ 7,854,843</b> | <b>\$ 54,293,361</b>                              |

**Pittsburgh Water & Sewer Authority**  
**Operating Expenses by Account**

| <b>Direct Operating Expenses</b> | <b>HTY<br/>12 Months<br/>Ended<br/>12/31/2020</b> | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2021</b> | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2022</b> | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2023</b> | <b>Difference</b> | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2024</b> |
|----------------------------------|---|---|---|---|-------------------|---|
| <u>Chemicals</u>                 |   |   |   |   |                   |   |
| 5005 Alum                        | 262,617   | 220,342   | 385,881   | 379,200   | 75,840            | 455,040   |
| 5010 Boiler Chemicals            | 37,852  | 31,447  | 44,908  | 33,600  | 6,720             | 40,320  |
| 5015 Calcium Hypochlorite        | 17,000  | -   | -   | 20,000  | 4,000             | 24,000  |
| 5020 Cat Flocc TL                | 88,779  | 75,641  | 91,395  | 97,800  | 19,560            | 117,360   |
| 5025 Caustic Soda                | 3,978   | 1,665   | 692   | 2,400   | 480               | 2,880   |
| 5030 Chlorine Cylinders          | -   | 1,493   | 77,095  | 85,000  | 17,000            | 102,000   |
| 5035 Chlorine Rail Car           | -   | 29,447  | 345,902   | 850,000   | 170,000           | 1,020,000   |
| 5040 Citric Acid                 | 9,920   | 6,720   | 25,042  | 8,000   | 1,600             | 9,600   |
| 5045 Copper Sulphate             | -   | -   | -   | -   | -                 | -   |
| 5050 Ferric Chloride             | 1,504,817   | 1,496,523   | 2,476,476   | 2,400,000   | 480,000           | 2,880,000   |
| 5055 Hydrofluorosil Acid         | 150,933   | 138,961   | 173,067   | 192,000   | 38,400            | 230,400   |
| 5060 Lime                        | 529,609   | 546,091   | 617,865   | 650,000   | 130,000           | 780,000   |
| 5065 Potassium Permanganate      | 125,776   | 128,024   | -   | -   | -                 | -   |
| 5070 Powdered Active Carbon      | -   | 88,050  | -   | -   | -                 | -   |
| 5075 Soda Ash                    | 732,716   | 487,117   | 552,444   | 529,800   | 105,960           | 635,760   |
| 5080 Sodium Hypochlorite         | 445,308   | 459,862   | 821,697   | 800,400   | 160,080           | 960,480   |
| 5085 Sodium Carbonate Peroxyhy   | 16,480  | 4,000   | 21,600  | 18,000  | 3,600             | 21,600  |
| Chemicals                        | \$ 3,925,786                                      | \$ 3,715,383                                      | \$ 5,634,065                                      | \$ 6,066,200                                      | \$ 1,213,240      | \$ 7,279,440                                      |
| <u>Equipment</u>                 |   |   |   |   |                   |   |
| 5120 Computer & Peripherals      | 337,329   | 1,120,979   | 404,355   | 274,237   | 16,454            | 290,691   |
| 5125 Computers Networking        | 3,860   | 5,168,583   | 4,756,653   | 175,859   | 10,552            | 186,411   |
| 5140 Furniture Fixture           | 140,096   | 58,933  | 98,026  | 23,507  | 1,410             | 24,917  |
| 5145 Grounds Maint               | 143,863   | 300,015   | 450,838   | 360,750   | 21,645            | 382,395   |
| 5147 Lab Equip                   | 96,553  | 273,282   | 98,872  | 100,000   | 6,000             | 106,000   |
| 5150 Machinery                   | 173,961   | 398,031   | 560,642   | 333,000   | 19,980            | 352,980   |
| 5160 Office Equipment            | 37,070  | 6,547   | 2,096   | -   | -                 | -   |
| 5170 Pumps & Motors              | -   | -   | 32,142  | 64,000  | (64,000)          | -   |
| 5180 SCADA Equipment             | -   | -   | 32,656  | 282,682   | (282,682)         | -   |
| 5190 Vehicles                    | 577   | 801,884   | 1,571,317   | 2,411,093   | (343,253)         | 2,067,840   |
| Equipment                        | \$ 933,309  | \$ 8,128,254                                      | \$ 8,007,597                                      | \$ 4,025,128                                      | \$ (613,894)      | \$ 3,411,233                                      |
| <u>Materials</u>                 |   |   |   |   |                   |   |
| 5205 Asphalt Cold Patch          | 85,097  | 66,238  | 90,662  | 90,000  | 305,043           | 395,043   |
| 5210 Asphalt Cold-City           | -   | -   | -   | -   | -                 | -   |
| 5215 Asphalt Hot-City            | -   | -   | -   | -   | -                 | -   |
| 5220 Asphalt Hotmix              | -   | -   | 16,333  | 24,000  | 1,440             | 25,440  |
| 5225 Asphalt Patch Bit Sealer    | -   | -   | -   | -   | -                 | -   |
| 5227 Brick                       | 402   | 1,331   | -   | 1,200   | 72                | 1,272   |
| 5230 Cement Bagged               | 811   | 3,467   | 4,501   | 2,400   | 144               | 2,544   |
| 5235 Gravel                      | -   | -   | -   | -   | -                 | -   |
| 5240 Iron Steel Brass            | 205   | -   | -   | -   | -                 | -   |
| 5245 Lumber                      | 26,047  | 37,554  | 38,008  | 36,000  | 2,160             | 38,160  |
| 5250 Sand                        | 2,658   | 4,786   | -   | -   | -                 | -   |
| 5255 Slag                        | 338,716   | 372,554   | 519,497   | 540,000   | 32,400            | 572,400   |
| 5260 Stone                       | -   | -   | -   | -   | -                 | -   |
| 5265 Top Soil                    | 1,871   | 4,069   | 4,147   | 4,800   | 288               | 5,088   |
| Materials                        | \$ 455,807  | \$ 489,999  | \$ 673,147  | \$ 698,400  | \$ 341,547        | \$ 1,039,947                                      |

**Pittsburgh Water & Sewer Authority**  
**Operating Expenses by Account**

|                                      | <b>HTY</b>        | <b>FTY</b>        | <b>FTY</b>        | <b>FTY</b>        |                   | <b>FTY</b>        |
|--------------------------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|
|                                      | <b>12 Months</b>  | <b>12 Months</b>  | <b>12 Months</b>  | <b>12 Months</b>  |                   | <b>12 Months</b>  |
| <b>Direct Operating Expenses</b>     | <b>Ended</b>      | <b>Ended</b>      | <b>Ended</b>      | <b>Ended</b>      | <b>Difference</b> | <b>Ended</b>      |
|                                      | <b>12/31/2020</b> | <b>12/31/2021</b> | <b>12/31/2022</b> | <b>12/31/2023</b> |                   | <b>12/31/2024</b> |
| <u>Operating Contracts</u>           |                   |                   |                   |                   |                   |                   |
| 5305 Annual Sewer Contract           | 8,056,519         | 13,197,606        | 7,955,492         | 8,540,715         | 512,443           | 9,053,157         |
| 5310 Boiler Compressr Elevtr         | -                 | 1,789             | -                 | -                 | -                 | -                 |
| 5315 CB Cleaning                     | 752,218           | 766,916           | 342,948           | 550,000           | 33,000            | 583,000           |
| 5316 CB Repairs                      | -                 | -                 | -                 | -                 | -                 | -                 |
| 5328 Curb Box Repair                 | -                 | -                 | -                 | -                 | -                 | -                 |
| 5330 Debris Removal                  | 302,860           | 253,044           | 223,224           | 263,300           | 15,798            | 279,098           |
| 5335 Drag Bucket                     | -                 | -                 | 1,867             | 736,200           | 44,172            | 780,372           |
| 5340 Dumpster                        | 46,827            | 54,765            | 34,437            | 28,200            | 1,692             | 29,892            |
| 5341 Vactor Debris Remove Cont       | 154,930           | 216,304           | 193,742           | 220,000           | 13,200            | 233,200           |
| 5342 Emergency WaterLine Repair      | 5,365,542         | 4,175,951         | 4,963,764         | 4,563,124         | 273,787           | 4,836,911         |
| 5343 Manhole & Point Repair Contract | -                 | -                 | -                 | 1,500,000         | 90,000            | 1,590,000         |
| 5344 Pump & Motor Contract           | -                 | -                 | -                 | 600,000           | 36,000            | 636,000           |
| 5345 Inspection                      | (34,374)          | -                 | 68,638            | 67,500            | 4,050             | 71,550            |
| 5347 Inspection Field                | 1,424,101         | 2,706,352         | 2,806,286         | 2,751,165         | 165,070           | 2,916,235         |
| 5348 Line Televising                 | -                 | -                 | -                 | 720,750           | 43,245            | 763,995           |
| 5350 Key Lock Serv                   | 1,230             | 143               | 435               | -                 | -                 | -                 |
| 5355 Landscape (Grounds)             | 118,865           | 334,444           | 247,378           | 332,756           | 19,965            | 352,721           |
| 5360 Meters                          | -                 | -                 | -                 | 249,990           | 14,999            | 264,989           |
| 5370 Operating Contract Other        | 5,296,671         | 5,937,187         | 5,254,792         | 1,288,908         | 7,577,334         | 8,866,242         |
| 5375 Radionuclides                   | -                 | -                 | -                 | 651,399           | 39,084            | 690,483           |
| 5380 Intr-Gov Proj Panther Hollow    | -                 | -                 | -                 | 556,260           | (84,552)          | 471,709           |
| 5383 Sewage Treatment                | -                 | -                 | -                 | -                 | -                 | -                 |
| 5385 Temporary Help                  | -                 | 68,100            | 31,201            | -                 | -                 | -                 |
| 5390 Welding                         | 15,500            | -                 | -                 | -                 | 117,927           | 117,927           |
| 5395 Water Relay DISC                | -                 | -                 | -                 | -                 | -                 | -                 |
| 5396 Sewer Relay DISC                | -                 | -                 | -                 | -                 | -                 | -                 |
| Operating Contracts                  | \$ 21,500,889     | \$ 27,712,600     | \$ 22,124,203     | \$ 23,620,266     | \$ 8,917,216      | \$ 32,537,482     |
| <u>Repairs &amp; Maintenance</u>     |                   |                   |                   |                   |                   |                   |
| 5402 Annual Software Support         | 1,424,283         | 1,657,369         | 2,626,517         | 3,807,809         | 228,469           | 4,036,278         |
| 5405 Bldg Property Repairs           | 173,305           | 370,605           | 501,344           | 32,827            | 1,970             | 34,796            |
| 5408 Computer Hardware               | 43,050            | 122,291           | 49,971            | 71,149            | 4,269             | 75,418            |
| 5411 Computer Software Support       | 48,050            | 66,307            | 86,997            | 49,900            | 2,994             | 52,894            |
| 5413 Concrete Repairs                | 5,248,496         | 7,394,000         | 8,409,527         | 7,392,784         | 443,567           | 7,836,351         |
| 5415 Cranes Repairs                  | 40,971            | 26,400            | 1,045             | 90,000            | 5,400             | 95,400            |
| 5417 Electrical Repairs              | 175,886           | 73,479            | 43,446            | 145,200           | 8,712             | 153,912           |
| 5420 Fence Repairs                   | 42,175            | 52,760            | 2,960             | -                 | -                 | -                 |
| 5422 Fence Installation              | 13,309            | 251,252           | 71,305            | 169,000           | 10,140            | 179,140           |
| 5427 GIS Hardware Software           | 3,068             | 2,992             | 3,536             | 4,980             | 299               | 5,279             |
| 5432 Hardware Repairs                | -                 | -                 | -                 | -                 | -                 | -                 |
| 5437 Heavy Equip Repair              | 32,326            | 7,099             | 2,860             | -                 | -                 | -                 |
| 5439 HVAC Plumbing                   | 157,489           | 134,772           | 86,499            | 100,200           | 6,012             | 106,212           |
| 5444 Hydrant A Section               | -                 | -                 | -                 | -                 | -                 | -                 |
| 5445 Hydrant Misc Parts              | -                 | -                 | -                 | -                 | -                 | -                 |
| 5447 Hydrant Repair Parts            | -                 | -                 | -                 | -                 | -                 | -                 |
| 5452 Machinery Repairs               | 43,085            | 181,084           | 165,366           | 322,068           | 19,324            | 341,392           |
| 5457 Office Equip Repairs            | 1,156             | 1,540             | 323               | -                 | -                 | -                 |
| 5462 Plant Repairs                   | 297,515           | 320,729           | 453,765           | 521,500           | 31,290            | 552,790           |
| 5467 Power Tool Repairs              | 1,736             | 13,103            | 673               | 3,000             | 180               | 3,180             |
| 5472 Road Repair Plant               | -                 | -                 | -                 | -                 | -                 | -                 |
| 5475 Scanner                         | -                 | -                 | -                 | -                 | -                 | -                 |
| 5482 Tool Repairs                    | 983               | 5,309             | 14,913            | 10,000            | 600               | 10,600            |
| 5484 Hand Tool Repairs               | 1,475             | 2,208             | -                 | -                 | -                 | -                 |
| 5486 Misc Tool Repairs               | 779               | 1,299             | -                 | -                 | -                 | -                 |
| 5488 CC TV Repairs                   | 25,493            | -                 | -                 | -                 | -                 | -                 |
| 5490 Vactor Repairs                  | 17,358            | -                 | -                 | -                 | -                 | -                 |
| 5491 Vehicle Repairs                 | 890,330           | 674,450           | 970,667           | 1,022,999         | 61,380            | 1,084,379         |
| 5496 Repair Maint Other              | 108,291           | 68,994            | 125,494           | 95,471            | 4,668             | 100,139           |
| Repairs & Maintenance                | \$ 8,790,610      | \$ 11,428,042     | \$ 13,617,207     | \$ 13,838,886     | \$ 829,273        | \$ 14,668,160     |

**Pittsburgh Water & Sewer Authority**  
**Operating Expenses by Account**

| <b>Direct Operating Expenses</b>   | <b>HTY<br/>12 Months<br/>Ended<br/>12/31/2020</b> | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2021</b> | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2022</b> | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2023</b> | <b>Difference</b> | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2024</b> |
|------------------------------------|---|---|---|---|-------------------|---|
| <u>Misc. Operating</u>             |   |   |   |   |                   |   |
| 5570 Testing Misc                  | 448,212   | 627,450   | 356,972   | 314,500   | 18,870            | 333,370   |
| Misc. Operating                    | \$ 448,212  | \$ 627,450  | \$ 356,972  | \$ 314,500  | \$ 18,870         | \$ 333,370  |
| <u>Inventory - Castings</u>        |   |   |   |   |                   |   |
| 6015 Casting Manhole CBasin        | 33,882  | 35,438  | 6,139   | 42,400  | 2,544             | 44,944  |
| 6025 Casting Risers Lids           | 8,481   | 78,996  | 31,491  | 46,000  | 2,760             | 48,760  |
| 6035 Casting Sewer Inlet           | 15,068  | 18,700  | 2,649   | 18,000  | 1,080             | 19,080  |
| 6060 Casting Water Valve Box       | 130,605   | 304,884   | 78,218  | 126,000   | 7,560             | 133,560   |
| Inventory - Castings               | \$ 188,036  | \$ 438,019  | \$ 118,496  | \$ 232,400  | \$ 13,944         | \$ 246,344  |
| <u>Inventory - Clarifier</u>       |   |   |   |   |                   |   |
| 6115 Clarifier Part Floc           | -   | -   | -   | -   | -                 | -   |
| 6120 Clarifier Part Screw          | -   | -   | -   | -   | -                 | -   |
| 6125 Clarifier Part Sludge         | -   | -   | -   | -   | -                 | -   |
| Inventory - Clarifier              | \$ -  | \$ -  | \$ -  | \$ -  | \$ -              | \$ -  |
| <u>Inventory - Equipment</u>       |   |   |   |   |                   |   |
| 6200 Inventory-Equip               | -   | -   | 45,451  | -   | -                 | -   |
| 6220 Fire Extinguishers            | -   | -   | -   | -   | -                 | -   |
| 6245 Materials Handling            | 2,475   | 3,960   | -   | -   | -                 | -   |
| 6260 Safety Equipment              | 62,634  | 71,621  | 32,880  | 61,200  | 3,672             | 64,872  |
| 6280 Vacuum Chlorinators           | -   | -   | -   | -   | -                 | -   |
| Inventory - Equipment              | \$ 65,109   | \$ 75,581   | \$ 78,331   | \$ 61,200   | \$ 3,672          | \$ 64,872   |
| <u>Inventory - Hardware</u>        |   |   |   |   |                   |   |
| 6300 Inventory-Hardware            | 11,554  | 15,636  | 455,618   | 16,000  | 960               | 16,960  |
| 6315 Fittings                      | 135,925   | 200,645   | 124,035   | 186,600   | 11,196            | 197,796   |
| 6320 Hardware Other                | -   | -   | -   | -   | -                 | -   |
| 6325 Hose Fitting                  | 8,331   | 12,035  | 7,650   | 12,360  | 742               | 13,102  |
| 6330 Keys & Locks                  | -   | -   | -   | -   | -                 | -   |
| 6335 Lights                        | 4,180   | 9,895   | 1,674   | 5,400   | 324               | 5,724   |
| 6340 Machinery Misc                | 10,015  | 13,514  | 7,596   | 10,000  | 600               | 10,600  |
| 6345 Meters                        | 10,825  | 10,683  | 13,756  | 12,000  | 720               | 12,720  |
| 6350 Plumbing Inv Exp              | 10,945  | 22,634  | 8,808   | 20,000  | 1,200             | 21,200  |
| 6355 Power Tool Inv Exp            | 9,265   | 13,646  | 6,013   | 12,000  | 720               | 12,720  |
| 6360 Tools Inv Exp                 | 125,316   | 148,504   | 71,303  | 115,000   | 6,900             | 121,900   |
| 6365 Hand Tools Inv Exp            | -   | -   | -   | 19,000  | 1,140             | 20,140  |
| Inventory - Hardware               | \$ 326,356  | \$ 447,193  | \$ 696,453  | \$ 408,360  | \$ 24,502         | \$ 432,862  |
| <u>Inventory - Heavy Equipment</u> |   |   |   |   |                   |   |
| 6420 Backhoe                       | 556   | 789   | -   | -   | -                 | -   |
| Inventory - Heavy Equipment        | \$ 556  | \$ 789  | \$ -  | \$ -  | \$ -              | \$ -  |
| <u>Inventory - Miscellaneous</u>   |   |   |   |   |                   |   |
| 6500 Inventory-Misc                | 18,516  | 121,075   | 25,902  | 32,000  | 1,920             | 33,920  |
| 6506 Batteries                     | 596   | 216   | 545   | 1,000   | 60                | 1,060   |
| 6515 Cleaning                      | 14,283  | 6,319   | 5,307   | 8,280   | 497               | 8,777   |
| 6518 Concrete Accessories          | -   | -   | -   | -   | -                 | -   |
| 6520 Copier Paper                  | -   | -   | -   | -   | -                 | -   |
| 6525 Filters                       | -   | -   | -   | -   | -                 | -   |
| 6526 Filters HVAC                  | -   | -   | -   | -   | -                 | -   |
| 6530 FirstAid                      | 1,883   | 470   | 501   | 1,200   | 72                | 1,272   |
| 6540 Lamps                         | -   | -   | -   | -   | -                 | -   |
| 6544 Lubricating Oil               | 10,676  | 8,901   | 1,365   | 3,120   | 187               | 3,307   |
| 6548 Paint Oils Putty Glass        | 4,818   | 8,431   | 1,625   | 1,800   | 108               | 1,908   |
| 6552 Paper Products                | -   | -   | -   | -   | -                 | -   |
| 6555 Pump Oil                      | -   | -   | -   | -   | -                 | -   |
| 6565 Sewer Matls Supplies          | 143   | -   | -   | -   | -                 | -   |
| 6570 Testing Dyes                  | 5,364   | 8,104   | 3,645   | 6,000   | 360               | 6,360   |
| 6580 Vehicle Oil                   | 1,588   | 1,942   | -   | 1,200   | 72                | 1,272   |
| 6585 Welding Supplies-Inventory    | -   | 1   | -   | -   | -                 | -   |
| Inventory - Miscellaneous          | \$ 57,866   | \$ 155,459  | \$ 38,891   | \$ 54,600   | \$ 3,276          | \$ 57,876   |
| <u>Inventory - Parts</u>           |   |   |   |   |                   |   |
| 6645 Parts Other                   | 36,631  | 111,017   | 35,252  | 38,400  | 2,304             | 40,704  |
| 6680 Yard                          | 136,439   | 258,300   | 105,087   | 180,000   | 10,800            | 190,800   |
| Inventory - Parts                  | \$ 173,070  | \$ 369,316  | \$ 140,339  | \$ 218,400  | \$ 13,104         | \$ 231,504  |

**Pittsburgh Water & Sewer Authority**  
**Operating Expenses by Account**

| <b>Direct Operating Expenses</b> | <b>HTY<br/>12 Months<br/>Ended<br/>12/31/2020</b> | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2021</b> | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2022</b> | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2023</b> | <b>Difference</b>    | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2024</b> |
|----------------------------------|---|---|---|---|----------------------|---|
| <u>Inventory - Pipe</u>          |   |   |   |   |                      |   |
| 6705 Pipe                        | 4,452   | 1,855   | 254,405   | -   | -                    | -   |
| 6710 Pipe Ductile                | 523,557   | 532,629   | 440,996   | 750,000   | 45,000               | 795,000   |
| 6755 Pipe Plastic                | 2,909   | 2,047   | 6,185   | 4,500   | 270                  | 4,770   |
| 6765 Pipe Service Line           | 10,934  | 14,081  | 7,901   | 12,200  | 732                  | 12,932  |
| Inventory - Pipe                 | \$ 541,853  | \$ 550,611  | \$ 709,487  | \$ 766,700  | \$ 46,002            | \$ 812,702  |
| <u>Inventory - Valves</u>        |   |   |   |   |                      |   |
| 6805 Valves <12in                | -   | -   | -   | -   | -                    | -   |
| 6810 Valves >16in                | -   | -   | -   | -   | -                    | -   |
| 6820 Valves GA                   | -   | -   | -   | -   | -                    | -   |
| 6825 Valves Misc                 | 96,029  | 135,740   | 308,513   | 218,000   | 13,080               | 231,080   |
| Inventory - Valves               | \$ 96,029   | \$ 135,740  | \$ 308,513  | \$ 218,000  | \$ 13,080            | \$ 231,080  |
| <b>INVENTORY TOTAL</b>           | <b>\$ 1,448,874</b>                               | <b>\$ 2,172,709</b>                               | <b>\$ 2,090,510</b>                               | <b>\$ 1,959,660</b>                               | <b>\$ 117,580</b>    | <b>\$ 2,077,240</b>                               |
| <b>DIRECT OPERATING TOTAL</b>    | <b>\$ 48,314,085</b>                              | <b>\$ 65,871,925</b>                              | <b>\$ 65,475,120</b>                              | <b>\$ 67,297,333</b>                              | <b>\$ 13,376,552</b> | <b>\$ 80,673,885</b>                              |
| <u>Fees</u>                      |   |   |   |   |                      |   |
| 7003 Bank Fees                   | 269,922   | 284,867   | 317,538   | 360,000   | 21,600               | 381,600   |
| 7005 Certification Fees          | 2,759   | 3,984   | 2,651   | 25,905  | 1,554                | 27,460  |
| 7010 Membership Fees             | 98,652  | 90,456  | 127,425   | 119,726   | 7,184                | 126,909   |
| 7015 Permits                     | 757,270   | 2,399,202   | 466,375   | 550,138   | 33,008               | 583,146   |
| 7020 Registration Fees           | 1,587   | 103,213   | 9,093   | 19,750  | 1,185                | 20,935  |
| 7030 Licenses                    | 825   | -   | -   | 2,100   | 126                  | 2,226   |
| 7035 Customer CC Fees            | 518,324   | 432,702   | 435,202   | 470,000   | (433,800)            | 36,200  |
| Total Fees                       | \$ 1,649,339                                      | \$ 3,314,425                                      | \$ 1,358,284                                      | \$ 1,547,618                                      | \$ (369,143)         | \$ 1,178,475                                      |
| <u>Freight and Postage</u>       |   |   |   |   |                      |   |
| 7105 Freight Hauling             | -   | -   | -   | -   | -                    | -   |
| 7110 Freight Shipping            | 40,208  | 16,446  | 4,452   | 3,480   | 209                  | 3,689   |
| 7115 Postage                     | 330,345   | 414,313   | 483,688   | 444,750   | 26,685               | 471,435   |
| Total Freight and Postage        | \$ 370,553  | \$ 430,759  | \$ 488,140  | \$ 448,230  | \$ 26,894            | \$ 475,124  |
| <u>Leases &amp; Rents</u>        |   |   |   |   |                      |   |
| 7210 Copier Fax Machine          | 84,898  | 85,132  | 59,644  | 58,122  | 3,487                | 61,609  |
| 7215 Equip Rental                | 191,672   | 93,343  | 115,836   | 28,148  | 1,689                | 29,836  |
| 7255 Office Rent                 | 971,698   | 866,472   | 910,359   | 960,530   | 1,015,130            | 1,975,659   |
| 7260 Pagers                      | -   | -   | -   | 60,000  | 3,600                | 63,600  |
| 7265 RadiolEase(City)            | -   | -   | -   | -   | -                    | -   |
| Total Leases & Rents             | \$ 1,248,268                                      | \$ 1,044,947                                      | \$ 1,085,840                                      | \$ 1,106,799                                      | \$ 1,023,906         | \$ 2,130,705                                      |
| <u>Professional Services</u>     |   |   |   |   |                      |   |
| 7305 Advertising                 | 13,754  | 18,618  | 14,267  | 31,236  | 1,874                | 33,110  |
| 7306 Annual Report               | -   | 50,198  | -   | -   | -                    | -   |
| 7307 Advertising - Marketing     | -   | -   | -   | -   | -                    | -   |
| 7310 Annual Audit                | 48,613  | -   | 53,632  | 57,200  | 3,432                | 60,632  |
| 7315 Billing Contract            | 408,853   | 253,616   | 303,633   | 216,000   | 12,960               | 228,960   |
| 7321 Coll Agency Sewage          | -   | -   | -   | -   | -                    | -   |
| 7323 Consultants                 | 2,298,014   | 1,966,571   | 6,105,716   | 6,630,817   | (1,702,151)          | 4,928,666   |
| 7325 Consumer Confidence Rpt     | 1,476   | -   | -   | -   | -                    | -   |
| 7328 Contingencies               | 134,585   | 49,600  | -   | -   | -                    | -   |
| 7330 Construction Management     | -   | -   | -   | 1,401,077   | (7,615)              | 1,393,463   |
| 7332 Consulting Engineers        | 69,487  | 124,419   | 52,859  | 174,000   | 2,119                | 176,119   |
| 7335 Misc Serv NonCapital        | 3,565,869   | 2,451,037   | 2,246,172   | 337,500   | 20,250               | 357,750   |
| 7345 Ins Auto                    | 128,253   | 48,707  | 113,320   | 74,983  | 4,499                | 79,482  |
| 7348 Ins Commercial Prop         | 255,350   | 241,203   | 286,159   | 329,083   | 19,745               | 348,828   |
| 7353 Ins Gen Liability           | 22,500  | 26,495  | 77,234  | 83,413  | 5,005                | 88,417  |
| 7359 Ins Officers Director       | 77,306  | 117,308   | 140,923   | 152,197   | 9,132                | 161,329   |
| 7365 Ins WorkersComp             | 480,217   | 425,469   | 447,152   | 447,152   | 26,829               | 473,981   |
| 7366 Ins WorkersComp City        | 33,352  | 28,219  | 19,488  | 12,406  | 744                  | 13,150  |
| 7368 Internet Connection Serv    | 1,568   | -   | -   | -   | -                    | -   |
| 7370 Legal                       | 2,620,392   | 3,304,993   | 2,210,514   | 2,973,450   | (721,593)            | 2,251,857   |
| 7371 Legal Self Ins              | -   | -   | -   | -   | -                    | -   |
| 7373 Minority Women Bus Enter    | -   | -   | -   | -   | -                    | -   |
| 7375 Meter Services              | 788,812   | 844,923   | 772,653   | 753,913   | 45,235               | 799,148   |
| 7382 Payroll Services            | 125,460   | 123,422   | 135,758   | 169,397   | 10,164               | 179,561   |
| 7383 Prof Service Other          | 6,143,089   | 5,844,560   | 5,024,765   | 3,634,759   | 218,086              | 3,852,845   |
| 7389 Trust Admin                 | 77,385  | 76,885  | 60,485  | 85,000  | 5,100                | 90,100  |
| 7390 Water Liens                 | 30,000  | 385,217   | 60,114  | 80,000  | (80,000)             | -   |
| Total Professional Services      | \$ 17,324,335                                     | \$ 16,381,461                                     | \$ 18,124,845                                     | \$ 17,643,582                                     | \$ (2,126,185)       | \$ 15,517,397                                     |

**Pittsburgh Water & Sewer Authority  
Operating Expenses by Account**

|  | <b>HTY<br/>12 Months<br/>Ended<br/>12/31/2020</b> | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2021</b> | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2022</b> | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2023</b> | <b>Difference</b>   | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2024</b> |
|--|---|---|---|---|---------------------|---|
| <b>Direct Operating Expenses</b>           |   |   |   |   |                     |   |
| <u>Supplies</u>                            |   |   |   |   |                     |   |
| 7405 Computer Software Supplies            | 68,804  | 41,807  | 92,218  | 50,000  | 87,800              | 137,800   |
| 7422 Fuel-Gasses                           | 351,684   | 207,784   | 530,663   | 544,000   | 103,200             | 647,200   |
| 7423 Fuel Kerosene                         | 1,212   | 644   | 504   | 1,200   | 72                  | 1,272   |
| 7424 Fuel Propane                          | 1,066   | 1,843   | 1,174   | 1,800   | 108                 | 1,908   |
| 7435 GIS Plotter Xerox                     | -   | -   | -   | 173,270   | 10,396              | 183,666   |
| 7440 Grounds & Maint Supp                  | 504,239   | 407,910   | 572,336   | 398,800   | 23,928              | 422,728   |
| 7443 ICE                                   | -   | -   | -   | -   | -                   | -   |
| 7445 Lab Chemicals                         | 2,673   | 2,009   | 2,054   | 6,000   | 360                 | 6,360   |
| 7447 Lab Supplies                          | 69,045  | 141,047   | 139,295   | 100,000   | 6,000               | 106,000   |
| 7450 Office Supplies                       | 41,414  | 37,298  | 33,851  | 45,751  | 2,745               | 48,496  |
| 7460 Uniforms                              | -   | -   | 21,081  | -   | -                   | -   |
| 7490 Welding Supplies                      | 20,209  | 7,340   | 26,720  | 18,000  | 1,080               | 19,080  |
| Total Supplies                             | \$ 1,060,346                                      | \$ 847,683  | \$ 1,419,894                                      | \$ 1,338,821                                      | \$ 235,689          | \$ 1,574,511                                      |
| <u>Travel &amp; Entertainment</u>          |   |   |   |   |                     |   |
| 7505 TE Airfare                            | 13,192  | -   | -   | 4,500   | 270                 | 4,770   |
| 7510 TE Auto Rentals                       | -   | -   | -   | 150   | 9                   | 159   |
| 7520 TE Fuel                               | -   | -   | -   | -   | -                   | -   |
| 7540 TE Lodging                            | 5,944   | -   | 115   | 11,700  | 702                 | 12,402  |
| 7545 TE Meals                              | 613   | 540   | 2,671   | 1,000   | 60                  | 1,060   |
| 7550 TE Mileage                            | 63  | 5,725   | -   | -   | -                   | -   |
| 7555 TE SeminarsConferences                | 379   | 1,280   | 1,380   | 64,065  | 3,844               | 67,909  |
| 7560 TE Training                           | 23,132  | 89,523  | 207,803   | 166,000   | 9,960               | 175,960   |
| 7575 TE Travel Misc                        | 30,206  | 34,282  | 68,711  | 17,615  | 1,057               | 18,672  |
| 7590 TE Travel Purch Orders                | -   | -   | -   | -   | -                   | -   |
| Total Travel & Entertainment               | \$ 73,528   | \$ 131,350  | \$ 280,680  | \$ 265,030  | \$ 15,902           | \$ 280,932  |
| <u>Utilities</u>                           |   |   |   |   |                     |   |
| 7605 Electric                              | 3,784,526   | 4,759,105   | 5,558,804   | 6,000,000   | 900,000             | 6,900,000   |
| 7650 Natural Gas City                      | 314,785   | 340,044   | 370,175   | 360,000   | 54,000              | 414,000   |
| 7675 Telemeter                             | 110,655   | 186,385   | 289,804   | 240,000   | 14,400              | 254,400   |
| 7680 Cellular Phone                        | 144,037   | 169,538   | 203,634   | 213,264   | 12,796              | 226,060   |
| 7681 Local Phones                          | 151,083   | 169,432   | 183,587   | 171,600   | 10,296              | 181,896   |
| 7682 Long Distance                         | 182   | -   | -   | -   | -                   | -   |
| 7683 Internet                              | 39,490  | 33,928  | 37,325  | 50,987  | 3,059               | 54,046  |
| Total Utilities                            | \$ 4,544,758                                      | \$ 5,658,432                                      | \$ 6,643,329                                      | \$ 7,035,851                                      | \$ 994,551          | \$ 8,030,402                                      |
| <u>Miscellaneous Admin</u>                 |   |   |   |   |                     |   |
| 7705 Bad Debt                              | -   | -   | -   | -   | -                   | -   |
| 7710 Capital Asset Reclass                 | (5,917,956)                                       | (7,141,744)                                       | (10,010,402)                                      | (13,294,639)                                      | (797,678)           | (14,092,317)                                      |
| 7711 DISC Asset Reclass                    | -   | -   | -   | -   | -                   | -   |
| 7712 Cash Discount Taken                   | (680)   | (1,959)   | (3,105)   | (2,400)   | (144)               | (2,544)   |
| 7715 Claims Deductibles                    | 556,304   | 988,353   | 505,098   | 750,000   | 45,000              | 795,000   |
| 7720 Customer Refund CSM                   | -   | (600,149)   | (480,616)   | (500,000)   | (30,000)            | (530,000)   |
| 7721 Customer Refund AP                    | 494,192   | 497,270   | 786,109   | 500,000   | 30,000              | 530,000   |
| 7730 Fines Penalties                       | 24,455  | 27,274  | 28,026  | 18,000  | 1,080               | 19,080  |
| 7735 LienBuyBkExp                          | -   | -   | -   | -   | -                   | -   |
| 7742 Education & Outreach                  | 71,710  | 74,802  | 59,724  | 70,700  | 4,242               | 74,942  |
| 7743 Employee Fund                         | -   | -   | -   | -   | -                   | -   |
| 7750 Inv Adjustments                       | -   | (5,201)   | 120,360   | -   | -                   | -   |
| 7760 Misc Gen Admin Exp                    | 19,701  | 19  | 657,887   | -   | -                   | -   |
| 7765 One Call                              | 18,186  | 25,144  | 17,669  | 24,000  | 1,440               | 25,440  |
| 7770 Publication Subscription              | 14,089  | 21,036  | 17,515  | 21,438  | 1,286               | 22,724  |
| 7787 3rd Pty LW Exp                        | -   | -   | -   | -   | -                   | -   |
| 7789 3rd Pty Sew Trt Exp                   | -   | -   | -   | -   | -                   | -   |
| 7799 Grants Awarded by PWSA                | -   | -   | -   | -   | -                   | -   |
| 8005 City Indirect Costs (Pension & Taxes) | 4,049,473   | 3,892,872   | 61,393  | 1,632,500   | 97,950              | 1,730,450   |
| 8070 Sewer Direct                          | -   | -   | -   | -   | -                   | -   |
| 8071 Sewer Indirect                        | -   | -   | -   | -   | -                   | -   |
| 8180 Non.City Water Reimburse              | 435,952   | 176,864   | 172,434   | 170,461   | 10,228              | 180,689   |
| Total Miscellaneous Admin                  | \$ (234,573)                                      | \$ (2,045,419)                                    | \$ (8,067,908)                                    | \$ (10,609,940)                                   | \$ (636,596)        | \$ (11,246,536)                                   |
| <b>IRECT OPERATING EXPENSES</b>            | <b>\$94,539,067</b>                               | <b>\$113,947,901</b>                              | <b>\$111,536,741</b>                              | <b>\$115,737,550</b>                              | <b>\$17,843,692</b> | <b>\$133,581,242</b>                              |

**III. OPERATING EXPENSE**

III.3. List extraordinary property losses as a separate item, not included in operating expenses or depreciation and amortization. Sufficient supporting data must be provided, such as explanation and breakdown of costs.

**RESPONSE:** Not applicable.



**III. OPERATING EXPENSE**

III.4. Supply detailed calculations of normalization of rate case expense, including supporting data for outside services rendered. Provide the items comprising the rate case expense claim (include the actual billings or invoices in support of each kind of rate case expense) and the items comprising the actual expenses of the prior rate cases.

**RESPONSE:**

**Rate Case & DSIC Expenses**

|                     | FTY<br>2023<br>Rate Case | PFFTY<br>2024<br>Rate Case |
|---------------------|--------------------------|----------------------------|
| Legal Counsel Costs | \$ 2,865,750.00          | \$ 2,137,695.00            |
| Other Consultant    | \$ 970,000.00            | \$ 428,200.00              |
| <b>Total</b>        | <b>\$ 3,835,750.00</b>   | <b>\$ 2,565,895.00</b>     |

The aforementioned projected rate case costs are expected to be incurred by PWSA in 2023 and 2024 if the PWSA files another base rate case proceeding in 2022. These costs are anticipated to be expensed as incurred with the full amount of the 2023 costs recognized in the FTY and the full amount of the 2024 costs recognized in the PFFTY.

### III. OPERATING EXPENSE

III.5. Submit detailed computation of adjustments to operating expenses for salary, wage and fringe benefit increases (union and nonunion merit, progression, promotion and general) granted during the historic test year and during the 12 months subsequent to the historic test year. Supply data for the historic test year showing:

- a. Actual payroll expense (regular and overtime separately) by categories of operating expenses, i.e., maintenance, operating transmission, distribution, other.
- b. Date, percentage increase and annual amount of each general payroll increase during the historic test year and future test year.
- c. Dates and annual amounts of merit increases or management salary adjustments.
- d. Total annual payroll increases in the historic and future test years.
- e. Proof that the actual payroll plus the increases equal the payroll expense claimed in the supporting data by categories of expenses.
- f. Detailed list of employee benefits and cost thereof for union and nonunion personnel. Specific benefits for executives and officers should be included, and costs thereof.
- g. Support the annualized pension cost figures by providing the following:
  - (i) State whether these figures include any unfunded pension costs. Explain.
  - (ii) Provide latest actuarial study used for determining pension accrual rates.
- h. Submit a schedule showing any deferred income and consultant fee, paid to both, corporate officers and employees in historic and future test years.

#### **RESPONSE:**

**III.5a** Please see the attached schedule.

Pittsburgh Water and Sewer Authority's Base Rate Filing

**III. OPERATING EXPENSE**

**III.5b** See below.

|  | Date Effective   | Percent Increase | Estimated FY 2023 Impact <sup>2</sup> |
|--|------------------|------------------|---------------------------------------|
| Pittsburgh Joint Collective Bargaining Committee | 2022 / 2023      | 3% / 3%          | \$ 499,468                            |
| District Council 84 AFSCME Local 2037            | 2022 / 2023      | 3% / 3%          | 32,553                                |
| District Council 84 AFSCME Local 2719            | TBD <sup>1</sup> | 5% / 3%          | 246,001                               |
| Non-Union  | 2022 / 2023      | 3% / 3%          | 2,429,878                             |

1. Contract currently being negotiated.
2. Estimates include implementation of new positions not budgeted during HTY

**III.5c** See below.

|                          | Date Effective | Percent Increase | Estimated Annual Amount |
|--------------------------|----------------|------------------|-------------------------|
| Supervisory / Management | Jan-20         | 51.88%           | \$58,072.35             |
| Supervisory / Management | Jan-20         | 5.56%            | 4,999.90                |
| Supervisory / Management | Apr-20         | 7.23%            | 2,902.64                |
| Supervisory / Management | Jul-20         | 9.75%            | 11,549.82               |
| Supervisory / Management | Nov-20         | 2.37%            | 1,585.37                |
| Supervisory / Management | Dec-20         | 1.76%            | 1,052.48                |
| Supervisory / Management | Dec-20         | 0.11%            | 66.56                   |
| Supervisory / Management | Dec-20         | 15.02%           | 7,953.92                |

**III.5d** See below.

|   | Estimated Annual Amount |
|---|-------------------------|
| 2022 - 2023 Increase in Salaries, Wages, & Benefits | \$ 8,738,582            |
| 2023 - 2024 Increase in Salaries, Wages, & Benefits | 7,854,843               |

**III. OPERATING EXPENSE**

**III.5e** See the attached schedule.

**III.5f** See below.

**III.5g** Support the annualized pension cost figures

- (i) Not applicable. Please see response to III.14 for additional information.
- (ii) Please see response to III.14 for additional information.

**III.5h.** Submit a schedule showing any deferred income and consultant fee to corporate officers or employees.

PWSA has not paid any deferred income and consultant fee to corporate officers or employees.

**Pittsburgh Water & Sewer Authority**  
**Operating Expenses for Ratemaking**

|  | <b>FPFTY</b>      |                    | <b>FTY</b>        |                    | <b>FPFTY</b>      |
|--|-------------------|--------------------|-------------------|--------------------|-------------------|
|  | <b>12 Months</b>  |                    | <b>12 Months</b>  |                    | <b>12 Months</b>  |
|  | <b>Ended</b>      |                    | <b>Ended</b>      |                    | <b>Ended</b>      |
| <b>Salary, Wage, &amp; Fringe Benefits</b> | <b>12/31/2022</b> | <b>Adjustments</b> | <b>12/31/2023</b> | <b>Adjustments</b> | <b>12/31/2024</b> |
| <u>Administrative Division</u>             |                   |                    |                   |                    |                   |
| Executive Director                         |                   |                    |                   |                    |                   |
| Salary & Wages                             | \$ 720,215        | \$ 29,692          | \$ 749,907        | \$ 304,656         | \$ 1,054,563      |
| Overtime                                   | -                 | -                  | -                 | -                  | -                 |
| Other Compensation                         | 149,431           | 107,502            | 256,933           | 80,645             | 337,579           |
| Benefits                                   | <u>187,663</u>    | <u>45,973</u>      | <u>233,636</u>    | <u>69,575</u>      | <u>303,211</u>    |
| Subtotal: Executive Director               | \$ 1,057,310      | \$ 183,167         | \$ 1,240,477      | \$ 454,877         | \$ 1,695,353      |
| Customer Service                           |                   |                    |                   |                    |                   |
| Salary & Wages                             | \$ 3,121,283      | \$ 701,168         | \$ 3,822,451      | \$ 383,596         | \$ 4,206,047      |
| Overtime                                   | 142,830           | (21,541)           | 121,288           | 7,277              | 128,566           |
| Other Compensation                         | 564,572           | 183,636            | 748,209           | 74,614             | 822,822           |
| Benefits                                   | <u>1,224,702</u>  | <u>405,190</u>     | <u>1,629,892</u>  | <u>185,750</u>     | <u>1,815,642</u>  |
| Subtotal: Customer Service                 | \$ 5,053,387      | \$ 1,268,453       | \$ 6,321,840      | \$ 651,237         | \$ 6,973,077      |
| Management Information Systems             |                   |                    |                   |                    |                   |
| Salary & Wages                             | \$ 1,370,641      | \$ 234,926         | \$ 1,605,567      | \$ 420,529         | \$ 2,026,095      |
| Overtime                                   | 1,105             | 895                | 2,000             | 120                | 2,120             |
| Other Compensation                         | 224,534           | 109,781            | 334,315           | 87,564             | 421,878           |
| Benefits                                   | <u>400,553</u>    | <u>167,552</u>     | <u>568,105</u>    | <u>85,305</u>      | <u>653,410</u>    |
| Subtotal: Management Information Systems   | \$ 1,996,833      | \$ 513,153         | \$ 2,509,986      | \$ 593,517         | \$ 3,103,504      |
| Finance                                    |                   |                    |                   |                    |                   |
| Salary & Wages                             | \$ 1,253,865      | \$ 27,132          | \$ 1,280,997      | \$ 361,700         | \$ 1,642,697      |
| Overtime                                   | 29                | (29)               | -                 | -                  | -                 |
| Other Compensation                         | 234,057           | 77,912             | 311,969           | 88,087             | 400,056           |
| Benefits                                   | <u>361,007</u>    | <u>83,709</u>      | <u>444,715</u>    | <u>70,428</u>      | <u>515,144</u>    |
| Subtotal: Finance                          | \$ 1,848,958      | \$ 188,724         | \$ 2,037,681      | \$ 520,216         | \$ 2,557,897      |
| Procurement                                |                   |                    |                   |                    |                   |
| Salary & Wages                             | \$ -              | \$ -               | \$ -              | \$ -               | \$ -              |
| Overtime                                   | -                 | -                  | -                 | -                  | -                 |
| Other Compensation                         | -                 | -                  | -                 | -                  | -                 |
| Benefits                                   | <u>-</u>          | <u>-</u>           | <u>-</u>          | <u>-</u>           | <u>-</u>          |
| Subtotal: Procurement                      | \$ -              | \$ -               | \$ -              | \$ -               | \$ -              |
| Human Resources                            |                   |                    |                   |                    |                   |
| Salary & Wages                             | \$ 726,940        | \$ 142,113         | \$ 869,053        | \$ 478,610         | \$ 1,347,664      |
| Overtime                                   | 7                 | (7)                | -                 | -                  | -                 |
| Other Compensation                         | 142,314           | 76,889             | 219,203           | 114,832            | 334,035           |
| Benefits                                   | <u>214,283</u>    | <u>100,888</u>     | <u>315,171</u>    | <u>70,926</u>      | <u>386,097</u>    |
| Subtotal: Human Resources                  | \$ 1,083,544      | \$ 319,883         | \$ 1,403,427      | \$ 664,368         | \$ 2,067,795      |
| Legal                                      |                   |                    |                   |                    |                   |
| Salary & Wages                             | \$ 356,337        | \$ 273,835         | \$ 630,173        | \$ 180,939         | \$ 811,112        |
| Overtime                                   | -                 | -                  | -                 | -                  | -                 |
| Other Compensation                         | 69,000            | 72,018             | 141,017           | 40,490             | 181,507           |
| Benefits                                   | <u>91,629</u>     | <u>127,162</u>     | <u>218,791</u>    | <u>37,328</u>      | <u>256,119</u>    |
| Subtotal: Legal                            | \$ 516,966        | \$ 473,015         | \$ 989,981        | \$ 258,757         | \$ 1,248,738      |
| Safety & Security                          |                   |                    |                   |                    |                   |
| Salary & Wages                             | \$ 253,199        | \$ 353,459         | \$ 606,658        | \$ 155,456         | \$ 762,114        |
| Overtime                                   | 26                | (26)               | -                 | -                  | -                 |
| Other Compensation                         | 44,686            | 88,255             | 132,941           | 34,066             | 167,007           |
| Benefits                                   | <u>98,595</u>     | <u>195,864</u>     | <u>294,459</u>    | <u>39,295</u>      | <u>333,754</u>    |
| Subtotal: Safety & Security                | \$ 396,506        | \$ 637,552         | \$ 1,034,058      | \$ 228,817         | \$ 1,262,875      |
| Public Affairs                             |                   |                    |                   |                    |                   |
| Salary & Wages                             | \$ 493,158        | \$ 19,823          | \$ 512,981        | \$ 283,567         | \$ 796,549        |
| Overtime                                   | 2,358             | (1,549)            | 809               | 49                 | 858               |
| Other Compensation                         | 102,681           | 21,222             | 123,903           | 68,491             | 192,395           |
| Benefits                                   | <u>154,066</u>    | <u>37,222</u>      | <u>191,288</u>    | <u>42,282</u>      | <u>233,569</u>    |
| Subtotal: Public Affairs                   | \$ 752,263        | \$ 76,718          | \$ 828,981        | \$ 394,389         | \$ 1,223,370      |

**Pittsburgh Water & Sewer Authority**  
**Operating Expenses for Ratemaking**

|  | <b>FPFTY</b>      |                    | <b>FTY</b>        |                    | <b>FPFTY</b>      |
|--|-------------------|--------------------|-------------------|--------------------|-------------------|
|  | <b>12 Months</b>  |                    | <b>12 Months</b>  |                    | <b>12 Months</b>  |
|  | <b>Ended</b>      |                    | <b>Ended</b>      |                    | <b>Ended</b>      |
|  | <b>12/31/2022</b> | <b>Adjustments</b> | <b>12/31/2023</b> | <b>Adjustments</b> | <b>12/31/2024</b> |
| <b>Salary, Wage, &amp; Fringe Benefits</b> |                   |                    |                   |                    |                   |
| Total: Administration Division             | \$ 12,705,765     | \$ 3,660,667       | \$ 16,366,432     | \$ 3,766,178       | \$ 20,132,609     |

**Pittsburgh Water & Sewer Authority**  
**Operating Expenses for Ratemaking**

|  | <b>FPFTY<br/>12 Months<br/>Ended<br/>12/31/2022</b> | <b>Adjustments</b>  | <b>FTY<br/>12 Months<br/>Ended<br/>12/31/2023</b> | <b>Adjustments</b>  | <b>FPFTY<br/>12 Months<br/>Ended<br/>12/31/2024</b> |
|--|---|---------------------|---|---------------------|---|
| <b>Salary, Wage, &amp; Fringe Benefits</b>                   |   |                     |   |                     |   |
| <u>Operations Division</u>                                   |   |                     |   |                     |   |
| Environmental Compliance                                     |   |                     |   |                     |   |
| Salary & Wages   | \$ 462,503  | \$ 60,169           | \$ 522,671  | \$ 137,581          | \$ 660,253  |
| Overtime   | -   | -                   | -   | -                   | -   |
| Other Compensation   | 57,169  | 63,433              | 120,602   | 31,746              | 152,348   |
| Benefits   | <u>136,029</u>                                      | <u>69,063</u>       | <u>205,092</u>                                    | <u>31,952</u>       | <u>237,044</u>                                      |
| Subtotal: Environmental Compliance                           | \$ 655,701  | \$ 192,665          | \$ 848,366  | \$ 201,278          | \$ 1,049,644  |
| Warehouse  |   |                     |   |                     |   |
| Salary & Wages   | \$ 285,371  | \$ 27,052           | \$ 312,423  | \$ 11,571           | \$ 323,993  |
| Overtime   | 3,552   | (216)               | 3,336   | 200                 | 3,536   |
| Other Compensation   | 53,030  | 6,835               | 59,865  | 2,220               | 62,085  |
| Benefits   | <u>108,044</u>                                      | <u>15,440</u>       | <u>123,484</u>                                    | <u>16,742</u>       | <u>140,226</u>                                      |
| Subtotal: Warehouse  | \$ 449,998  | \$ 49,110           | \$ 499,108  | \$ 30,733           | \$ 529,840  |
| Ops Capital Assets   |   |                     |   |                     |   |
| Salary & Wages   | \$ -  | \$ -                | \$ -  | \$ -                | \$ -  |
| Overtime   | -   | -                   | -   | -                   | -   |
| Other Compensation   | -   | -                   | -   | -                   | -   |
| Benefits   | <u>-</u>  | <u>-</u>            | <u>-</u>  | <u>-</u>            | <u>-</u>  |
| Subtotal: Ops Capital Assets                                 | \$ -  | \$ -                | \$ -  | \$ -                | \$ -  |
| Water Quality (Lab)  |   |                     |   |                     |   |
| Salary & Wages   | \$ 670,630  | \$ 168,375          | \$ 839,005  | \$ 143,777          | \$ 982,782  |
| Overtime   | 43,312  | 3,025               | 46,336  | 2,780               | 49,116  |
| Other Compensation   | 165,470   | (134)               | 165,336   | 28,333              | 193,669   |
| Benefits   | <u>246,099</u>                                      | <u>65,666</u>       | <u>311,765</u>                                    | <u>39,203</u>       | <u>350,968</u>                                      |
| Subtotal: Water Quality (Lab)                                | \$ 1,125,511  | \$ 236,931          | \$ 1,362,442                                      | \$ 214,093          | \$ 1,576,535  |
| Water Treatment Plant  |   |                     |   |                     |   |
| Salary & Wages   | \$ 3,009,849  | \$ 1,172,940        | \$ 4,182,789                                      | \$ 437,293          | \$ 4,620,082  |
| Overtime   | 538,957   | (61,266)            | 477,692   | 28,661              | 506,353   |
| Other Compensation   | 663,114   | 100,826             | 763,940   | 78,049              | 841,989   |
| Benefits   | <u>1,218,513</u>                                    | <u>511,929</u>      | <u>1,730,442</u>                                  | <u>191,216</u>      | <u>1,921,659</u>                                    |
| Subtotal: Water Treatment Plant                              | \$ 5,430,434  | \$ 1,724,429        | \$ 7,154,863                                      | \$ 735,220          | \$ 7,890,083  |
| Sewer Operations   |   |                     |   |                     |   |
| Salary & Wages   | \$ 892,202  | \$ 416,706          | \$ 1,308,908                                      | \$ 334,749          | \$ 1,643,657  |
| Overtime   | 82,491  | (7,385)             | 75,105  | 3,004               | 78,110  |
| Other Compensation   | 196,729   | 24,571              | 221,300   | 55,859              | 277,159   |
| Benefits   | <u>354,378</u>                                      | <u>85,222</u>       | <u>439,599</u>                                    | <u>63,926</u>       | <u>503,525</u>                                      |
| Subtotal: Sewer Operations                                   | \$ 1,525,799  | \$ 519,114          | \$ 2,044,913                                      | \$ 457,537          | \$ 2,502,450  |
| Water Distribution   |   |                     |   |                     |   |
| Salary & Wages   | \$ 6,338,840  | \$ 886,625          | \$ 7,225,464                                      | \$ 978,411          | \$ 8,203,875  |
| Overtime   | 1,024,283   | (245,501)           | 778,783   | 46,727              | 825,510   |
| Other Compensation   | 1,519,441   | (136,714)           | 1,382,727   | 181,126             | 1,563,853   |
| Benefits   | <u>2,458,731</u>                                    | <u>332,684</u>      | <u>2,791,415</u>                                  | <u>326,251</u>      | <u>3,117,665</u>                                    |
| Subtotal: Water Distribution                                 | \$ 11,341,295                                       | \$ 837,094          | \$ 12,178,388                                     | \$ 1,532,515        | \$ 13,710,903                                       |
| <b>Total: Operations Division</b>                            | <b>\$ 20,528,737</b>                                | <b>\$ 3,559,342</b> | <b>\$ 24,088,079</b>                              | <b>\$ 3,171,376</b> | <b>\$ 27,259,456</b>                                |
| <u>Engineering &amp; Construction Division</u>               |   |                     |   |                     |   |
| Engineering & Construction                                   |   |                     |   |                     |   |
| Salary & Wages   | \$ 2,926,616  | \$ 754,219          | \$ 3,680,835                                      | \$ 600,327          | \$ 4,281,162  |
| Overtime   | 7,919   | 1,075               | 8,993   | 540                 | 9,533   |
| Other Compensation   | 546,338   | 328,636             | 874,975   | 142,692             | 1,017,667   |
| Benefits   | <u>984,561</u>                                      | <u>434,643</u>      | <u>1,419,204</u>                                  | <u>173,730</u>      | <u>1,592,934</u>                                    |
| Subtotal: Engineering & Construction                         | \$ 4,465,434  | \$ 1,518,573        | \$ 5,984,007                                      | \$ 917,288          | \$ 6,901,295  |
| <b>Total: Systemwide Salary, Wage, &amp; Fringe Benefits</b> | <b>\$ 37,699,936</b>                                | <b>\$ 8,738,582</b> | <b>\$ 46,438,518</b>                              | <b>\$ 7,854,843</b> | <b>\$ 54,293,361</b>                                |

**III. OPERATING EXPENSE**

III.6. Supply an exhibit showing an analysis, by functional accounts, of the charges by affiliates (service corporations, etc.) for services rendered included in the operating expenses of the filing company for the historic and future test years and for the 12-month period ended prior to the historic test year:

- a. Supply a copy of contracts, if applicable.
- b. Explain the nature of the services provided.
- c. Explain the basis on which charges are made.
- d. If charges are allocated, identify allocation factors used.
- e. Supply the components and amounts comprising the expense in this account.
- f. Provide details of initial source of charge and reason thereof.

**RESPONSE:** Not applicable.



**III. OPERATING EXPENSE**

III.7. Describe costs relative to leasing equipment, computer rentals, and office space, including terms and conditions of the lease. Explain the method of calculating monthly or annual payments. If allocated from the parent company, provide the method of allocation.

**RESPONSE:**

PWSA has leasing arrangements with various companies for the leasing of office and equipment and technology. The following table identifies the long-term leases with an explanation for the method used for calculating the monthly or annual payments.

|   | <b>Annual Payment</b> |
|---|-----------------------|
| <b>Name: <u>The Buncher Corporation</u></b>   | <b>910,349</b>        |
| Under this agreement, PWSA leases office space of 45,618 square feet for the main administrative, field ops and engineering offices. Additionally, PWSA leases outdoor space of 196 square feet for a backup generator. Payments are made at a rental rate using a predetermined rental rate equation throughout the term of 219 months of the lease agreement. |                       |
| <b>Name: <u>Public Parking Authority of Pittsburgh</u></b>  | <b>42,900</b>         |
| Under this agreement, PWSA leases 25 parking spaces for employees at a set monthly market rate.   |                       |
| <b>Name: <u>Pitney Bowes</u></b>  | <b>1,648</b>          |
| Under this agreement, PWSA leases a mail machine to provide the authority with an automated mail room solution, including meter rental, installation rate changes, training, shipping of the equipment and maintenance for the term of the lease.   |                       |
| <b>Name: <u>Sensus USA, Inc.</u></b>  | <b>646,990</b>        |
| This agreement is for an advanced metering infrastructure lease that is overseen by the customer service. Payments are made at a predetermined rate constant through June 2029, of the lease agreement.   |                       |

**III. OPERATING EXPENSE**

III.8. Submit detailed calculations (or best estimates) of the cost resulting from storm damage.

**RESPONSE:**

There are no costs for storm damage included in the HTY, FTY, or FPFTY.

**III. OPERATING EXPENSE**

III.9. Submit details of expenditures for advertising (national, institutional and local media). Provide a schedule of advertising expense by media categories for the historic test year and the prior two comparable years with respect to:

- a. Public health and safety.
- b. Conservation of energy.
- c. Explanation of billing practices, rates, rules and regulations.
- d. Provision of factual and objective data programs in educational institutions.
- e. Other advertising programs.
- f. Total advertising expense.

**RESPONSE:**

Despite “advertising” line items within PWSA’s budget, the Authority does not advertise on national, institutional, or local media. The Advertising account (7305) includes costs such as: Board of Directors meeting solicitations and job postings which mostly represent payments to the New Pittsburgh Courier and the Pittsburgh Post-Gazette. The Advertising Marketing account (7307) largely consists of payments to local businesses for staff business cards, website design and support, banners, and other printed material needs. Education and Outreach (7742) consists of payments to Dollar Energy Fund for CAP costs, sponsorships, brochures, and other materials.

Public Affairs costs have been included in the HTY, FTY, and FPFTY but these costs largely include salaries for Public Affairs staff and professional services costs. Advertising-Marketing and Education & Outreach include budgeted amounts for minimal advertising. These costs are identified below.

|                       | <b>FTY<br/>2023</b> | <b>FPFTY<br/>2024</b> |
|-----------------------|---------------------|-----------------------|
| Educational Campaigns | \$ 12,196           | \$ 12,928             |
| <b>Total</b>          | <b>\$ 12,196</b>    | <b>\$ 12,928</b>      |

**III. OPERATING EXPENSE**

III.10. Prepare a detailed schedule for the historic test year showing types of social and service organization memberships paid for by the company and the cost thereof.

**RESPONSE:**

PWSA pays membership fees to water industry organizations and other industry-related associations. The payments for 2022 are included in III.24. There were no social and/or service memberships paid during the test year by PWSA.

Pittsburgh Water and Sewer Authority's Base Rate Filing

**III. OPERATING EXPENSE**

III.11. Submit a schedule showing a breakdown by the expenditures associated with outside services employed, regulatory commission expenses, showing expenses relating to rate cases separately, and miscellaneous general expenses, for the historic test year and prior 2 comparable years.

**RESPONSE:**

**7300: Professional Services**

|   | <b>Actual<br/>2020</b> | <b>Actual<br/>2021</b> | <b>HTY<br/>2022</b>  |
|---|------------------------|------------------------|----------------------|
| <b><u>Twelve Months Ended:</u></b>                    |                        |                        |                      |
| 7305 Advertising                                      | \$ 13,754              | \$ 18,618              | \$ 14,267            |
| 7306 Annual Report (removed starting 2023)            | -                      | -                      | -                    |
| 7307 Advertising - Marketing (removed starting 2023)  | -                      | -                      | -                    |
| 7310 Annual Audit                                     | 48,613                 | 50,198                 | 53,632               |
| 7315 Billing Contract                                 | 408,853                | 253,616                | 303,633              |
| 7321 Coll Agency Sewage                               | -                      | -                      | -                    |
| 7323 Consultants                                      | 2,298,014              | 1,966,571              | 6,105,716            |
| 7325 Consumer Confidence Rpt                          | 1,476                  | -                      | -                    |
| 7328 Contingencies (removed starting 2023)            | 134,585                | 49,600                 | -                    |
| 7330 Construction Management (new starting 2023)      | -                      | -                      | -                    |
| 7332 Consulting Engineers                             | 69,487                 | 124,419                | 52,859               |
| 7335 Misc Serv NonCapital                             | 3,565,869              | 2,451,037              | 2,246,172            |
| 7345 Ins Auto   | 128,253                | 48,707                 | 113,320              |
| 7348 Ins Commercial Prop                              | 255,350                | 241,203                | 286,159              |
| 7353 Ins Gen Liability                                | 22,500                 | 26,495                 | 77,234               |
| 7359 Ins Officers Director                            | 77,306                 | 117,308                | 140,923              |
| 7365 Ins WorkersComp                                  | 480,217                | 425,469                | 447,152              |
| 7366 Ins WorkersComp City                             | 33,352                 | 28,219                 | 19,488               |
| 7368 Internet Connection Serv                         | 1,568                  | -                      | -                    |
| 7370 Legal  | 2,620,392              | 3,304,993              | 2,210,514            |
| 7371 Legal Self Ins (removed starting 2023)           | -                      | -                      | -                    |
| 7373 Minority Women Bus Enter (removed starting 2023) | -                      | -                      | -                    |
| 7375 Meter Services                                   | 788,812                | 844,923                | 772,653              |
| 7382 Payroll Services                                 | 125,460                | 123,422                | 135,758              |
| 7383 Prof Service Other                               | 6,143,089              | 5,844,559              | 5,024,765            |
| 7389 Trust Admin                                      | 77,385                 | 76,885                 | 60,485               |
| 7390 Water Liens                                      | 30,000                 | 385,217                | 60,114               |
| <b>Total Professional Services Expenses</b>           | <b>\$ 17,324,335</b>   | <b>\$ 16,381,460</b>   | <b>\$ 18,124,845</b> |

**Regulatory Commission Expenses (7370, 7383, and 7323)**

|  | <b>Actual<br/>2020</b> | <b>Actual<br/>2021</b> | <b>HTY<br/>2022</b> |
|--|------------------------|------------------------|---------------------|
| <b><u>Twelve Months Ended:</u></b>               |                        |                        |                     |
| PUC Assessments (910)                            | \$ 1,512,494           | \$ 1,492,964           | \$ 1,427,933        |
| PUC Support                                      |                        |                        |                     |
| Finance (913)                                    | 2,452,160              | 1,480,301              | 931,181             |
| Legal (916)                                      | 2,850,657              | 4,505,422              | 2,023,782           |
| <b>Total regulatory &amp; Rate Case Expenses</b> | <b>\$ 6,815,311</b>    | <b>\$ 7,478,687</b>    | <b>\$ 4,382,896</b> |

Pittsburgh Water and Sewer Authority's Base Rate Filing

**III. OPERATING EXPENSE**

**7700: Miscellaneous Admin**

|   | <b>Actual</b>       | <b>Actual</b>       | <b>HTY</b>          |
|---|---------------------|---------------------|---------------------|
| <b><u>Twelve Months Ended:</u></b>                  | <b>2020</b>         | <b>2021</b>         | <b>2022</b>         |
| 7712 Cash Discount Taken                            | \$ (680.10)         | \$ (1,959.14)       | \$ (3,105.00)       |
| 7715 Claims Deductibles                             | 556,304             | 988,353             | 505,098             |
| 7720 Customer Refund CSM                            | (497,572)           | (600,149)           | (480,616)           |
| 7721 Customer Refund AP                             | 494,192             | 497,270             | 786,109             |
| 7730 Fines Penalties                                | 24,455              | 27,274              | 28,026              |
| 7735 LienBuyBkExp (removed starting 2023)           | -                   | -                   | 59,724              |
| 7742 Education & Outreach                           | 71,710              | 74,802              | 120,360             |
| 7743 Employee Fund (removed starting 2023)          | -                   | -                   | 657,887             |
| 7750 Inv Adjustments                                | -                   | 22,478              | 17,669              |
| 7760 Misc Gen Admin Exp                             | 19,701              | 19                  | 17,515              |
| 7765 One Call                                       | 18,186              | 25,144              | -                   |
| 7770 Publication Subscription                       | 14,089              | 21,036              | -                   |
| 7787 3rd Pty LW Exp (removed starting 2023)         | -                   | -                   | -                   |
| 7789 3rd Pty Sew Trt Exp (removed starting 2023)    | -                   | -                   | -                   |
| 7799 Grants Awarded by PWSA (removed starting 2023) | -                   | -                   | -                   |
| 8180 Non.City Water Reimburse                       | 435,953             | 176,864             | 172,434             |
| 8005 City Indirect Costs (Pension & Taxes)          | 4,049,473           | 3,892,872           | 61,393              |
| <b>Total Miscellaneous Expenses</b>                 | <b>\$ 5,185,812</b> | <b>\$ 5,124,004</b> | <b>\$ 1,942,494</b> |

**III. OPERATING EXPENSE**

III. 12. Submit details of information covering research and development expenditures, by project, within the company and note forecasted company programs.

**RESPONSE:**

No research and development expenditures were incurred during the HTY nor are any expected to be incurred in the FTY and FPFTY.

**III. OPERATING EXPENSE**

III.13. Provide a detailed schedule of all charitable and civic contributions by recipient and amount for the historic test year.

**RESPONSE:**

There were no charitable and civic contributions paid during the historic test year by PWSA.



### **III. OPERATING EXPENSE**

III.14. Provide the two most recent actuarial studies for both pension expense and postretirement benefits other than pensions (OPEBs).

#### **RESPONSE:**

PWSA employees participate in the City of Pittsburgh Municipal Pension Fund Plan (Plan). Employees who became members of the Plan prior to January 1, 1988 are required to contribute 5% of pre-tax pay. Those joining thereafter are required to contribute 4%. The City's obligations relative to the Plan are determined in accordance with various Pennsylvania statutes. The extent of the Authority's participation in such obligations with respect to those former City employees whose membership continued upon becoming employees of the Authority is determined by the shared interpretation of the City and Authority of the intent of the Cooperation Agreement.

The Plan has not reported or attributed measurements of assets or the net pension liability on the basis of the group of members who are Authority employees. As of the date of this filing, the amount of the assets and liabilities of the Plan that is attributable to PWSA participants (both employees and retirees) is unknown as a detailed study has not been performed to separate the plan between the City and the Authority. As such, this information is unavailable at this time.

Eligibility for ongoing non-union employee participation in the City's Plan ended on March 1, 2019, as the Authority has introduced another retirement plan. At this time, all new non-union, PJCBC, and AFSCME 2037 employees of the Authority may elect to contribute to an established 401a plan with the benefit of an employer match once vested. No new non-union, PJCBC, AND AFSCME 2037 employees hired after March 1, 2019 are eligible for participation in the City of Pittsburgh Municipal Pension Fund Plan.

**III. OPERATING EXPENSE**

III.15. Identify the total pension expense under statement of accounting standards (SFAS 87) for the historic test year and the portion charged to operation and maintenance (O & M). Include an analysis showing the contribution to the pension plan and the amount deferred or expensed for each of the past 2 years and the historic test year. Also provide any estimates for the future year.

**RESPONSE:**

Please see the response to III.14.

**III. OPERATING EXPENSE**

III.16. Provide an analysis of OPEBs showing the accrual amount under SFAS 106 and the pay-as-you-go expense.

**RESPONSE:**

Not applicable. PWSA does not offer other post-employment benefits.

**III. OPERATING EXPENSE**

III.17. Reconcile the historic and future test year SFAS No. 106 expense levels with the amount identified in the actuarial report.

**RESPONSE:**

Not applicable. PWSA does not offer other post-employment benefits.

**III. OPERATING EXPENSE**

III.18. Identify the actual or projected amounts contributed to SFAS No. 106 funds for the historic and future test years. Identify the actual or projected dates and amounts of the contributions.

**RESPONSE:**

Not applicable. PWSA does not offer other post-employment benefits.

**III. OPERATING EXPENSE**

III.19. Explain the funding options or plans which are being used for SFAS No. 106 costs. Identify the portion of costs which are eligible for tax preferred funding.

**RESPONSE:**

Not applicable. PWSA does not offer other post-employment benefits.

**III. OPERATING EXPENSE**

III.20. State whether the company is studying or anticipating any changes to its postretirement benefits offered to employees as a result of SFAS No. 106 or for other reasons. If yes, provide the study and explain the anticipated change.

**RESPONSE:**

We do not anticipate any changes in postretirement benefits during the FTY or FPFTY and therefore have not included any cost for such changes.

**III. OPERATING EXPENSE**

III.21. State whether the historic test year expenses reflect any accruals for postemployment benefits under SFAS 112. If yes, provide complete details including supporting documentation, assumptions, and funding mechanisms.

**RESPONSE:**

The historical test year does not include any accruals for postemployment benefits.



### **III. OPERATING EXPENSE**

III.22. Provide a copy of all incentive compensation and bonus plans and provide the level of related bonus payments included in the cost of service. Provide information for the preceding 2 years and any changes since the last rate case.

#### **RESPONSE:**

In June 2020, Mr. Will Pickering was named the Executive Director of the Pittsburgh Water and Sewer Authority (PWSA). In January, Mr. Pickering was given the title of Chief Executive Officer. Per Mr. Pickering's employment contract, he is eligible for an annual bonus up to 15% of his base salary. The agreement is revolving and is valid unless either party decides to terminate or amend.

The PWSA Board of Directors retains the sole discretion to determine the terms, conditions, objectives, goals, and metrics of any such bonus(es) and the amount of any such bonus payments, if any.

Pittsburgh Water and Sewer Authority's Base Rate Filing

**III. OPERATING EXPENSE**

III.23. Provide the most recent insurance premiums for each type of insurance coverage, both employee benefit and those purchased for the company, reflected in the company's filing. If available, provide estimated premiums for the subsequent calendar year.

**RESPONSE:**

Please see the tables below.

**4100: Employee Benefits - Insurance**

|  |                                | <b>HTY</b>          | <b>FTY</b>          | <b>FPFTY</b>         |
|--|--------------------------------|---------------------|---------------------|----------------------|
| <b><u>Twelve Months Ended:</u></b>                 |                                | <b>2022</b>         | <b>2023</b>         | <b>2024</b>          |
| 4110   | Fed Insurance Contract Act Tax | \$ 1,769,656        | \$ 2,159,140        | \$ 2,596,446         |
| 4135   | Med Health Insurance           | 4,862,522           | 6,495,401           | 7,339,803            |
| 4140   | Med Health Insurance Waiver    | 58,124              | 59,399              | 59,399               |
| 4145   | Short Term Disability          | 341,291             | 394,224             | 409,993              |
| 4150   | Long Term Disability           | 21,847              | 51,670              | 53,737               |
| 4155   | Life Insurance <50k            | 45,852              | 59,744              | 62,134               |
| 4160   | Accidental Death/Dismember     | 6,114               | 7,966               | 8,285                |
| 4165   | Dental Insurance               | 180,775             | 210,363             | 212,466              |
| 4170   | Vision Insurance               | 24,791              | 30,417              | 31,634               |
| <b>Total Employee Benefit - Insurance Expenses</b> |                                | <b>\$ 7,310,972</b> | <b>\$ 9,468,324</b> | <b>\$ 10,773,897</b> |

**7300: Professional Services - Insurance**

|  |                                     | <b>HTY</b>          | <b>FTY</b>          | <b>FPFTY</b>        |
|--|-------------------------------------|---------------------|---------------------|---------------------|
| <b><u>Twelve Months Ended:</u></b>                 |                                     | <b>2022</b>         | <b>2023</b>         | <b>2024</b>         |
| 7345   | Insurance Auto                      | \$ 113,320          | \$ 74,983           | \$ 79,482           |
| 7348   | Insurance Commercial Property       | 286,159             | 329,083             | 348,828             |
| 7353   | Insurance General Liability         | 77,234              | 83,413              | 88,417              |
| 7359   | Insurance Officer & Director        | 140,923             | 152,197             | 161,329             |
| 7365   | Insurance Workers Compensation      | 447,152             | 447,152             | 473,981             |
| 7366   | Insurance Workers Compensation City | 19,488              | 12,406              | 13,150              |
| 7368   | Insurance Cyber                     | -                   | -                   | -                   |
| <b>Total Employee Benefit - Insurance Expenses</b> |                                     | <b>\$ 1,084,276</b> | <b>\$ 1,099,233</b> | <b>\$ 1,165,187</b> |

Pittsburgh Water and Sewer Authority's Base Rate Filing

**III. OPERATING EXPENSE**

III.24. Provide the level of payments made to industry organizations included in the cost of service along with a description of each payee organization.

**RESPONSE:**

Please see below.

| Organization                                       | Per Books<br>12/31/2022 | Description  |
|--|-------------------------|--|
| PA ASSOCIATION OF ENVIRONMENTAL LAB                | \$ 300.00               | 2022 Membership                                      |
| PAWARN   | 2,600.00                | PAWARN Annual Dues                                   |
| PA Rural Water Association                         | 1,072.00                | Renewal Membership Dues 2022                         |
| Allegheny Conference on Community Development      | 10,000.00               | Membership/Pledge 2022-2023                          |
| Waterisac  | 3,300.00                | Annual Membership                                    |
| Americas SAP User Group                            | 2,050.00                | ASUG Membership 1 Year                               |
| Vibrant Pittsburgh                                 | 5,000.00                | 2022 Membership                                      |
| Society of Human Resource Management               | 229.00                  | R. Salerno SHRM Membership                           |
| African American Chamber of Commerce of Western PA | 5,000.00                | Associate Member Renewal                             |
| PRSA   | 380.00                  | Membership Dues                                      |
| IAP2 USA   | 180.00                  | Membership Renewal                                   |
| ISLE Inc.  | 20,900.00               | Tag Membership                                       |
| American Water Works Association                   | 14,979.00               | Membership Renewal                                   |
| Pennsylvania Municipal Auth. Association           | 2,600.00                | 2022 Membership Dues                                 |
| PA Municipal League                                | 65.00                   | Member Renewal                                       |
| Water Environment Federation                       | 15,000.00               | A/R ECI  |
| WPWPCA   | 20.00                   | Annual Dues  |
| LEADERSHIP PITTSBURGH INC.                         | 6,400.00                | Leadership Pittsburgh 2022-2023 Program Year Tuition |
| NACWA  | 7,620.00                | Fiscal Year 2023 Membership Dues (10/1/22-9/30/23)   |
| NATIONAL INSTITUTE OF GOVERNMENTAL                 | 575.00                  | NIGP Membership T. Simpson (10/25/22-11/30/23)       |
| PWEA   | 60.00                   | Kate Mechler Membership Dues                         |
| PWEA   | 55.00                   | Robert Herring Membership Dues                       |
| ASSOCIATION OF METROPOLITAN WATER AGENCIE          | 9,000.00                | Association Dues (1/1/23-12/31/23)                   |
| PA ASSOCIATION OF ENVIRONMENTAL LAB                | 300.00                  | 2023 PAAEL Membership                                |
| GLOBAL PHILANTHROPY PARTNERSHIP                    | 1,800.00                | Exchange Membership                                  |
| ALLEGHENY LEAGUE OF MUNICIPALITIES                 | 440.00                  | 2023 Yearly Dues for affiliate membership            |
| US WATER ALLIANCE                                  | 16,000.00               | 2023 Organizational Membership Dues                  |

**III. OPERATING EXPENSE**

III.25. If the company has included any costs associated with canceled construction projects or obsolete inventory in requested rates, separately identify the items, provide the related amounts and explain the reason for the cancellation or obsolescence.

**RESPONSE:**

PWSA has not included any costs associated with cancelled construction or obsolete inventory.

### **III. OPERATING EXPENSE**

III.26. Explain how the company accounts for vacation pay for book and ratemaking purposes.

**RESPONSE:**

For accrual-basis financial reporting (PWSA Audit), a liability for vacation, personal, and sick days is accrued when related benefits are attributable to services rendered and to the extent it is probable that the Authority will ultimately compensate employees.

PWSA is filing this rate case on a cash-basis and, accordingly, PWSA has made no claim for vacation pay for ratemaking purposes since a full cash salary and wage costs for each employee has been included in PWSA's Revenue Requirement.

**III. OPERATING EXPENSE**

III.27. Indicate whether any employee positions have been eliminated since the commencement of the historic test year or are expected to be eliminated during the future test year.

**RESPONSE:**

PWSA eliminated a total of 14 positions since the commencement of the historic test year. The eliminations were made due to financial constraints of the organization. PWSA does not expect to eliminate any more positions during the future test year. However, if revenue collections or operating expenses do not end near or below budget, additional eliminations may be needed for the fully projected future test year.

PWSA has terminated employees and employees have resigned from various positions throughout the organization. However, it is the expectation that those position will be refilled instead of being eliminated.

**III. OPERATING EXPENSE**

III.28. Furnish the name of each supplier, gallonage and expense for water purchased as recorded in Water Purchased for Resale-Account 706 for the historic test year and two preceding years.

**RESPONSE:**

PWSA has not purchased water for resale in the HTY nor the two preceding years.





**IV. TAXES**

IV.1. Provide a copy of the latest Pennsylvania Corporate Tax report and the latest Pennsylvania Corporate Tax settlement.

**RESPONSE:**

Not applicable to PWSA as tax-exempt municipally-owned authority.

**IV. TAXES**

IV.2. Submit details of calculations for taxes, other than income, where a company is assessed taxes for doing business in another state, or on its property located in another state.

**RESPONSE:**

Not applicable to PWSA as tax-exempt municipally-owned authority.

**IV. TAXES**

IV.3. Submit a schedule showing for the last 3 years the Income Tax refunds, plus interest, net of taxes, received from the Federal government due to prior years' claims.

**RESPONSE:**

Not applicable to PWSA as tax-exempt municipally-owned authority.

#### **IV. TAXES**

IV.4. Provide detailed computations showing the deferred income taxes derived by using accelerated tax depreciation applicable to post-1969 utility property that increases productive capacity, and accelerated depreciation rate (ADR) rates on property (separate between State and Federal; also, rate used). If based on the historic test year, justify.

a. State whether tax depreciation is based on all rate base items claimed as of the end of the future test year, and whether it is the annual tax depreciation at the end of the future test year.

b. Reconcile any difference between the deferred tax balance, as shown as a reduction to measures of value (rate base), and the deferred tax balance as shown on the balance sheet.

#### **RESPONSE:**

Not applicable to PWSA as tax-exempt municipally-owned authority.

**IV. TAXES**

IV.5. Submit a schedule showing a breakdown of accumulated investment tax credits, (3%, 4%, 7%, 10% and 11%), together with details of methods used to write-off the unamortized balances.

**RESPONSE:**

Not applicable to PWSA as tax-exempt municipally-owned authority.

**IV. TAXES**

IV.6. Submit a schedule showing the adjustments for taxable net income per book, including below-the-line items, and pro-forma under existing rates, together with an explanation of any difference between the adjustments. Indicate charitable donations and contributions in the tax calculation for ratemaking purposes.

**RESPONSE:**

Not applicable to PWSA as tax-exempt municipally-owned authority.

**IV. TAXES**

IV.7. Submit detailed calculations supporting historic and future taxable income before State and Federal Income Taxes where the income tax is subject to allocation due to operations in another state, or due to operation of other taxable utility or nonutility business, or by operating divisions or areas.

**RESPONSE:**

Not applicable to PWSA as tax-exempt municipally-owned authority.

**IV. TAXES**

IV.8. Furnish a breakdown of major items comprising prepaid and deferred Income Tax charges and other deferred income tax credits and reserves by accounting areas.

**RESPONSE:**

Not applicable to PWSA as tax-exempt municipally-owned authority.



**IV. TAXES**

IV.9. Explain the reason for the use of cost of removal of any retired plant figures in the Income Tax calculations.

**RESPONSE:**

Not applicable to PWSA as tax-exempt municipally-owned authority.

**IV. TAXES**

IV.10. State whether all tax savings due to accelerated depreciation on property installed prior to 1970 have been passed through to income. If not, explain.

**RESPONSE:**

Not applicable to PWSA as tax-exempt municipally-owned authority.

**IV. TAXES**

IV.11. Show any income tax loss/gain carryovers from previous years that may affect historic test year income taxes or future test year Income Taxes. Show loss or gain carryovers by years of origin and amounts remaining by years at the end of the historic test year.

**RESPONSE:**

Not applicable to PWSA as tax-exempt municipally-owned authority.

**IV. TAXES**

IV.12. Provide a detailed analysis of taxes accrued per books as of the historic and future test year date. Also supply the basis for the accrual and the amount of taxes accrued monthly.

**RESPONSE:**

Not applicable to PWSA as tax-exempt municipally-owned authority.

#### IV. TAXES

IV.13. Under Section 1552 of the Internal Revenue Code and Regulations at 1.1552-1 if applicable, a parent company, in filing a consolidated Income Tax return for the group, must choose one of four options by which it must allocate total income tax liability of the group to the participating members to determine each member's tax liability to the Federal government. If this request is not applicable, provide an explanation.

- a. State what option has been chosen by the group.
- b. Provide, in summary form, the amount of tax liability that has been allocated to each of the participating members in the consolidated Income Tax return.
- c. Provide a schedule, in summary form, of contributions, which were determined on the basis of separate tax return calculations, made by each of the participating members to the tax liability indicated in the consolidated group tax return. Provide total amounts of actual payments to the tax depository for the tax year, as computed on the basis of separate returns of members.
- d. Provide annual Income Tax return for group, and if Income Tax return shows net operating loss, provide details of amount of net operating loss allocated to the Income Tax returns of each of the members of the consolidated group.

**RESPONSE:**

Not applicable to PWSA as tax-exempt municipally-owned authority.

**IV. TAXES**

IV.14. Provide a copy of the Corporate Federal Tax Returns and supporting schedules for the preceding 3 years and, if applicable, a copy of the calculation workpapers for the company's consolidated tax savings adjustment.

**RESPONSE:**

Not applicable to PWSA as tax-exempt municipally-owned authority.

**IV. TAXES**

IV.15. Provide a schedule of Federal and Pennsylvania taxes, other than Income Taxes, calculated on the basis of test year per book, pro forma at present rates, and pro forma at proposed rates, to include the following categories:

- a. Social Security.
- b. Unemployment.
- c. Capital Stock.
- d. Public Utility Realty.
- e. PUC assessment.
- f. Other property.
- g. Any other appropriate categories.

**RESPONSE:**

**15.a. Social Security**

PWSA's employer share of Social Security and Medicare Taxes is as follows:

|                                      |    |           |
|--------------------------------------|----|-----------|
| Fiscal Year Ending December 31, 2022 | \$ | 2,192,151 |
| Fiscal Year Ending December 31, 2023 |    | 2,673,854 |
| Fiscal Year Ending December 31, 2024 |    | 3,203,680 |

**15.b. Unemployment**

PWSA's employer Pennsylvania Unemployment Tax is as follows:

|                                      |    |        |
|--------------------------------------|----|--------|
| Fiscal Year Ending December 31, 2022 | \$ | 27,685 |
| Fiscal Year Ending December 31, 2023 |    | 35,000 |
| Fiscal Year Ending December 31, 2024 |    | 37,100 |

**15.c. Capital Stock**

Not applicable.

**IV. TAXES**

**15. Public Utility Realty**

Not applicable.

**15.e. PUC Assessment**

PWSA's PUC assessment is expensed as follows:

|                                      |    |           |
|--------------------------------------|----|-----------|
| Fiscal Year Ending December 31, 2022 | \$ | 1,310,226 |
| Fiscal Year Ending December 31, 2023 |    | 1,300,950 |
| Fiscal Year Ending December 31, 2024 |    | 1,379,007 |

**15.f. Other Property**

Not applicable.

**15.g. Any Other Appropriate Categories**

Not applicable.



**IV. TAXES**

IV.16. Submit a schedule showing a breakdown of the deferred Income Taxes by State and Federal per book, pro forma, existing rates, and under proposed rates.

**RESPONSE:**

Not applicable to PWSA as tax-exempt municipally-owned authority.

**IV. TAXES**

IV.17. With respect to determination of income taxes, Federal and State:

- a. Show Income Tax results of the annualizing and normalizing adjustments to the historic test year before any rate increase.
- b. Show Income Taxes for the annualized and normalized test year.
- c. Show Income Tax effect of the rate increase requested.
- d. Show Income Taxes for the normalized and annualized test year after application of the full rate increase.

**RESPONSE:**

Not applicable to PWSA as tax-exempt municipally-owned authority.

**IV. TAXES**

IV.18. State amount of debt interest utilized for Income Tax calculations, and details of debt interest computations, under each of the following rate case bases:

- a. Actual per book test year.
- b. Annualized historic test year-end.
- c. Proposed future test year-end.

**RESPONSE:**

Not applicable to PWSA as tax-exempt municipally-owned authority.



**V. RATE BASE**

V.1. Provide a schedule showing the measures of value and the rates of return at the original cost in the current case. All claims made on this exhibit should be cross-referenced to appropriate exhibits.

**RESPONSE:** Not applicable.

**V. RATE BASE**

V.2. If a claim is made for construction work in progress, include, in the form of an exhibit, the summary page from all work orders, amount expended at the end of the historic and future test year and anticipated in-service dates. Indicate if any of the construction work in progress will result in insurance recoveries, reimbursements, or retirements of existing facilities. Describe in exact detail the necessity of each project claimed if not detailed on the summary page from the work order. Include final completion dates and estimated total amounts to be spent on each project. This exhibit should be updated at the conclusion of these proceedings.

**RESPONSE:** Not applicable.

**V. RATE BASE**

V.3. If a claim is made for nonrevenue producing construction work in progress, include, in the form of an exhibit, the summary page from all work orders, amount expended at the end of the historic and future test year and anticipated in-service dates. Indicate if any of the construction work in progress will result in insurance recoveries, reimbursements, or retirements of existing facilities. Describe in exact detail the necessity of each project claimed if not detailed on the summary page from the work order. Include a list of items needed to complete each project, such as landscaping and fencing, and estimated total amounts to be spent to complete each project. These exhibits should be updated at the conclusion of these proceedings.

**RESPONSE:**

Not applicable.

**V. RATE BASE**

V.4. If a claim is made for plant held for future use, supply the following:

- a. A brief description of the plant or land site and its original cost.
- b. expected date of use for each item claimed.
- c. Explanation as to why it is necessary to acquire each item in advance of its date of use.
- d. Date when each item was acquired.
- e. Date when each item was placed in the plant held for future use account.

**RESPONSE:** Not applicable.



**V. RATE BASE**

V.5. If fuel stocks comprise part of the cash working capital claim, provide an exhibit showing the actual book balances, noting quantity and price for the fuel inventories by type of fuel for the 13 months prior to the end of the historic test year by location, station, etc. Explain the method of determining the claim if other than that described above.

**RESPONSE:** Not applicable.

**V. RATE BASE**

V.6. Explain in detail by statement or exhibit the appropriateness of claiming any additional items, not previously mentioned, in the measures of value.

**RESPONSE:** Not applicable.

**V. RATE BASE**

V.7. Provide schedules and data in support of the following working capital items:

- a. Prepayments—list and identify all items.
- b. Federal Income Tax accrued or prepaid.
- c. Pennsylvania State Income Tax accrued or prepaid.
- d. Pennsylvania Capital Stock Tax accrued or prepaid.
- e. Pennsylvania Public Utility Realty Tax accrued or prepaid.
- f. Payroll taxes accrued or prepaid.
- g. Any adjustments related to the above items for ratemaking purposes.

**RESPONSE:**

- 7.a. Prepayments—list and identify all items – See the response to FR X.6.
- 7.b. Federal Income Tax accrued or prepaid - Not applicable.
- 7.c. Pennsylvania State Income Tax accrued or prepaid - Not applicable.
- 7. Pennsylvania Capital Stock Tax accrued or prepaid - Not applicable.
- 7.e. Pennsylvania Public Utility Realty Tax accrued or prepaid - Not applicable.
- 7.f. Payroll taxes accrued or prepaid – Not applicable.
- 7.g. Any adjustments related to the above items for ratemaking purposes - Not applicable.

**V. RATE BASE**

V.8. Supply an exhibit supporting the claim for cash working capital requirement based on the lead-lag method.

a. Pro forma expenses and revenues are to be used in lieu of book data for computing lead-lag days.

**RESPONSE:** Not applicable.

**V. RATE BASE**

V.9. Indicate if amortized expenses have been removed from the lead-lag study. If so, please provide documentation showing such removal. If not, provide a list of such amortization expenses included.

**RESPONSE:** Not applicable.

## V. RATE BASE

V.10. Identify the funds availability arrangements or terms which the company has with its banks with respect to deposits of customer checks. For example, does the company have same day or next day access to funds deposited?

### **RESPONSE:**

PWSA has a number of payment options for the collection of customer accounts receivables. Payments for PWSA service are accepted by customer check, credit card, ACH (electronic) transfer, in-person at 7-Eleven, Family Dollar, Dollar General, or CVS Pharmacy stores, or with Zipcheck.

The following excerpt is from the PNC Bank, PWSA's primary checking and deposit account, Corporate Funds Availability Policy for PWSA regarding the availability of customer deposits.

#### Same Day Availability

Funds from the following deposits are available on the same business day as the day of their deposit:

- All cash deposits made to a PNC Bank teller
- Wire Transfers
- Electronic Deposits

#### Next Day Availability

If you make a deposit before the cut-off time on a business day that we are open, funds from deposits of checks or money orders identified below will be available on the first business day after the business day of your deposit for all purposes.

- Checks and money orders drawn on PNC Bank
- U.S. Treasury checks payable to you
- Federal Reserve Bank checks, Federal Home Loan Bank checks and U.S. Postal Service money orders payable to you
- State and local government checks that are payable to you, if you use a special deposit ticket available upon request at a PNC Bank branch office
- Non-PNC Bank cashier's, certified and teller's checks that are payable to you, if you use a special deposit ticket available upon request at a PNC Bank branch office

You are required to separate checks requiring special deposit tickets from other checks you are depositing.

## V. RATE BASE

### Longer Delays May Apply

Funds you deposit by check may be delayed for a longer period under the following circumstances:

- We believe a check you deposited will not be paid.
- You deposit checks in any one day totaling more than \$5,000.
- You redeposit a check that has been returned unpaid.
- You have overdrawn your account repeatedly in the last six months.
- There is an emergency such as a failure of communications or computer equipment.

We will notify you of the delay in your ability to withdraw funds for any of the reasons listed, and we will tell you when the funds will be available. In this case, funds from items deposited as set forth above under "Other Check Deposits" will usually be available no later than the fifth business day after the business day of your deposit for all purposes.

**V. RATE BASE**

V.11. In reference to materials and supplies:

- a. What method of inventory valuation was used to develop the claim for materials and supplies?
- b. Does the utility use a material and supply model to calculate needed material and supply levels?
- c. If so, provide the model. Supply an illustrative example of how the monthly balances are derived.
- d. Provide the actual monthly value for the inventory of materials and supplies for the past 12 months. Supply as of the end of the historic test year, a 13-month average, by month, for the material and supply account.
- e. Provide the monthly level of materials and supplies for 3 years prior to the conclusion of the historic test year.

**RESPONSE:**

**11.a.** What method of inventory valuation was used to develop the claim for materials and supplies?

Not applicable to a cash-basis utility.

**11.b.** Does the utility use a material and supply model to calculate needed material and supply levels?

No, it does not.

**11.c.** If so, provide the model. Supply an illustrative example of how the monthly balances are derived.

Please refer to response to question 11b.



**V. RATE BASE**

- 11.d** Provide the actual monthly value for the inventory of materials and supplies for the past 12 months. Supply as of the end of the historic test year, a 13-month average, by month, for the material and supply account.

PWSA expenses materials and supplies as incurred and does not track materials and supplies in a balance sheet account. In addition, PWSA is filing on a cash basis and, therefore, is not making a claim for materials and supplies.

- 11.e.** Provide the monthly level of materials and supplies for 3 years prior to the conclusion of the historic test year.

Please see the response to 11d.

## V. RATE BASE

V.12. For each nonblanket or projected plant addition to cost the greater of \$100,000 or 0.5% of current rate base, included in the future test year, please provide:

- a. Description of the project.
- b. Original budgeted cost broken down by allowance for funds used during construction (AFUDC) and non-AFUDC components.
- c. Current budgeted cost broken down by AFUDC and non-AFUDC components.
- d. Reason for change in budgeted cost.
- e. Original estimated date of completion and in service.
- f. Current estimated date of completion and in service.
- g. Reason for change in completion date.
- h. Anticipated retirement related to the plant addition.
- i. Starting date of project.
- j. Amount expended to date.
- k. Percent of project currently complete.
- l. The depreciation rate applicable.
- m. Identify which projects are due to a Pennsylvania Department of Environmental Protection (PA-DEP) or Federal Environmental Protection Agency (EPA) requirement.

### **RESPONSE:**

PWSA's Capital Improvement's Plan (CIP) is addressed in the written testimony of Barry King and Edward Barca. The testimonies include summary level descriptions of the key projects as well as the CIP itself. A detailed listing of planned capital projects and information related to their intended use is included as part of the Water and Wastewater LTIIP documents, which were approved on January 12, 2023.

**V. RATE BASE**

V.13. Explain how the future test year plant balances were projected and provide supporting workpapers and documentation.

**RESPONSE:**

PWSA is filing on a cash-basis fully projected test year. Due to the nature of a cash basis filing, projected plant balances do not directly impact the revenue requirement and resulting rates. However, utilizing the five-year CIP, PWSA has projected future plant and fixed asset balances. The objective of this projection is to show the magnitude of the CIP and it's means for financing. For the CIP and projected plant balances, please refer to the written testimony of Barry King and Edward Barca.

**V. RATE BASE**

V.14. Are all of the assets used in the plant-in-service claim used exclusively by the water or wastewater utility? If not, provide the estimated percentage that each shared asset is used by other entities.

**RESPONSE:**

All assets in the plant-in-service claim are used by the water or wastewater utility.

**V. RATE BASE**

V.15. Is all plant included in rate base currently being used in providing water or wastewater service? If not, provide a schedule which presents those plant items which are not, and indicate the corresponding amounts and account numbers. Further, provide a detailed narrative explaining the reason why such plant is not being used and the anticipated future disposition of the plant.

**RESPONSE:**

All plant in service included in the rate base is used and useful. All projected investments during 2024 will be placed in service by the end of 2024 and be used and useful. All projected investments during 2025 will be placed into service by the end of 2025 and will be used and useful. All projected investments during 2026 will be placed into service by the end of 2026 and will be used and useful.

**V. RATE BASE**

V.16. Provide all workpapers and supporting documentation showing the derivation of the projected balances of contributions in aid of construction, customer advances for construction and company service line and customer deposits for the future test year.

**RESPONSE:**

In 2021, PWSA received donated property, or contributions in aid of construction, of \$567,000. For the purposes of this rate filing and since PWSA is filing on a cash basis, PWSA has not projected balances contributions in aid of construction, customer advances for construction and company service line and customer deposits. Projects identified in the CIP are assumed to be funded through the issuance of debt or available utility cash from operations and reserve funds.



## **VI. DEPRECIATION**

If any of the following questions under this section have been previously answered pursuant to 52 Pa. Code Chapter 73, please note in your response. It is not necessary to provide responses to questions previously answered.

VI.1. Provide a description of the depreciation methods used to calculate annual depreciation amounts and depreciation reserves, together with a discussion of the factors which were considered in arriving at estimates of service life and dispersion by account. Supply a comprehensive statement of any changes made in method of depreciation. Provide dates of all field inspections and facilities visited.

### **RESPONSE:**

Depreciation of capital assets owned by the Authority is provided on the straight-line method based on the estimated useful lives of the various classes of assets with no salvage value. Utility assets (such as treatment plant and distribution fixed assets) have estimated useful lives ranging from 30 to 70 years. Non-utility assets (such as administration fixtures) have estimated useful lives ranging from five to 10 years.

The Authority also receives donated property relating mostly to dedicated water and sewer lines. These assets are capitalized at acquisition value at the date of the donation and depreciated in accordance with the estimated useful lives noted above.

The water and sewer system represents assets leased from the City. Amortization of capital lease assets is provided on the straight-line basis applying an estimated average remaining useful life from the inception of the lease.



**VI. DEPRECIATION**

VI.2. Set forth, in exhibit form, charts depicting the original and estimated survivor curves and a tabular presentation of the original life table plotted on the chart for each account where the retirement rate method of analysis is utilized.

**RESPONSE:**

Not applicable.

**VI. DEPRECIATION**

VI.3. Provide the surviving original cost at historic test year-end by vintage by account and include applicable depreciation reserves and accruals. These calculations should be provided for plant in service as well as other categories of plant, including contributions in aid of construction and customers' advances for construction.

**RESPONSE:**

Please see attached schedule.

**Pittsburgh Water & Sewer Authority**  
**Utility Plant in Service Net of Accumulated Depreciation**  
**As of December 31, 2022**

| <b>Cost Center</b>                     | <b>Sum of Acquisition Value</b> | <b>Sum of Accumulated Depreciation</b> | <b>Sum of Book Value</b> |
|--|---------------------------------|--|--------------------------|
| Chief Executive Officer - CC100        | \$ 932,245                      | (370,725)                              | 561,520                  |
| Customer Service - CC101               | 992,283                         | (743,608)                              | 248,675                  |
| Management Information Systems - CC102 | 13,286,397                      | (2,916,891)                            | 10,369,506               |
| Finance - CC103                        | 73,472                          | (63,479)                               | 9,994                    |
| Legal - CC105                          | 11,940                          | (142)                                  | 11,798                   |
| Safety & Security - CC106              | 33,150                          | (395)                                  | 32,755                   |
| Warehouse - CC107                      | 3,714,543                       | (2,320,411)                            | 1,394,132                |
| Engineering - CC109                    | 1,623,785                       | (938,878)                              | 684,908                  |
| Environmental Compliance - CC110       | 26,675                          | (318)                                  | 26,357                   |
| Laboratory - CC200                     | 1,209,419                       | (911,077)                              | 298,342                  |
| Water Treatment Plant - CC201          | 155,297,143                     | (49,764,622)                           | 105,532,521              |
| Water Operations - CC202               | 590,947,089                     | (166,144,680)                          | 424,802,409              |
| Wastewater Operations - CC300          | 504,251,146                     | (157,534,339)                          | 346,716,807              |
| Stormwater - CC400                     | 4,136,546                       | (13,099)                               | 4,123,447                |
| <b>Grand Total</b>                     | <b>\$ 1,276,535,834</b>         | <b>(381,722,663)</b>                   | <b>894,813,172</b>       |

**VI. DEPRECIATION**

VI.4. Provide a comparison of the calculated depreciation reserve used for ratemaking purposes v. the book reserve by account at the end of the test year, if they differ.

**RESPONSE:**

Not applicable.

**VI. DEPRECIATION**

VI.5. Supply a schedule by account and depreciable group showing the survivor curve and annual accrual rate estimated to be appropriate:

- a. For the purposes of this filing.
- b. For the purposes of the most recent rate increase filing prior to the current proceedings.

**RESPONSE:**

**5.a.** For the purposes of this filing.

Please see response for VI.3.

**5.b.** For the purposes of the most recent rate increase filing prior to the current proceedings.

Not applicable.

**VI. DEPRECIATION**

VI.6. Provide an exhibit showing gross salvage, cost of removal, and net salvage for the 5 most recent calendar or fiscal years by account.

**RESPONSE:**

Not applicable.

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**VII. RATE OF RETURN**

VII.1. Provide capitalization and capitalization ratios for the last 5-year period and projected through the next 2 years (with short-term debt and without short-term debt) for the company, parent and consolidated system.

a. Provide year-end interest coverages before and after taxes for the last 3 years and at the latest date, including indenture and Securities and Exchange Commission (SEC) bases, for the company, parent and consolidated system.

b. Provide year-end preferred stock dividend coverages for the last 3 years and at latest date, including charter and SEC bases.

**RESPONSE:**

Not applicable.



**VII. RATE OF RETURN**

VII.2. Provide latest prospectus for the company and the parent.

**RESPONSE:** Not applicable.

Pittsburgh Water and Sewer Authority's Base Rate Filing

**VII. RATE OF RETURN**

VII.3. Supply projected capital requirements and the sources of company, parent and consolidated system for the historic test year and each of 3 comparable future years.

**RESPONSE:**

Attached are PWSA's sources and uses of cash for capital improvement expenditures for Fiscal Years 2022 - 2027.

|                                     | HTY<br>12 Months<br>Ending<br>12/31/2022 | HTY<br>12 Months<br>Ending<br>12/31/2023 | HTY<br>12 Months<br>Ending<br>12/31/2024 | HTY<br>12 Months<br>Ending<br>12/31/2025 | HTY<br>12 Months<br>Ending<br>12/31/2026 | HTY<br>12 Months<br>Ending<br>12/31/2027 |
|-------------------------------------|--|--|--|--|--|--|
| <b>Capital Requirements</b>         |  |  |  |  |  |  |
| Water Treatment Plant               | \$ 5,418,616                             | \$ 16,030,211                            | \$ 26,885,665                            | \$ 24,038,988                            | \$ 54,790,691                            | \$ 78,451,718                            |
| Water Pumping & Storage             | 24,854,673                               | 55,304,597                               | 115,127,475                              | 121,491,637                              | 113,245,473                              | 30,009,851                               |
| Water Distribution                  | 62,185,044                               | 143,302,527                              | 125,439,446                              | 155,468,790                              | 143,283,004                              | 184,525,120                              |
| Wastewater System                   | 19,400,249                               | 50,634,240                               | 31,442,487                               | 27,579,779                               | 45,751,309                               | 54,918,077                               |
| Stormwater                          | 14,635,632                               | 29,822,932                               | 34,827,423                               | 36,884,821                               | 33,038,424                               | 26,808,750                               |
| Other                               | 1,362,110                                | 11,439,316                               | 15,500,000                               | 33,000,000                               | 500,000                                  | 500,000                                  |
|                                     | 127,856,325                              | 306,533,823                              | 349,222,497                              | 398,464,014                              | 390,608,900                              | 375,213,516                              |
| <b>Funding Sources</b>              |  |  |  |  |  |  |
| Debt (Revenue Bonds)                | \$ 75,491,996                            | \$ 122,335,310                           | \$ 150,214,517                           | \$ 203,743,270                           | \$ 236,469,077                           | \$ 316,179,204                           |
| Debt (Project Fund)                 | -  | -  | -  | -  | -  | -  |
| DSIC - Water (Source of PAYGO)      | 10,028,311                               | 6,028,526                                | 6,058,669                                | 6,088,962                                | 6,119,407                                | 6,150,004                                |
| DSIC - Wastewater (Source of PAYGO) | 5,852,125                                | 2,359,691                                | 2,371,490                                | 2,383,347                                | 2,395,264                                | 2,407,240                                |
| PENNVEST                            | 32,021,374                               | 127,409,339                              | 97,299,382                               | 86,216,706                               | 47,511,528                               | 10,020,526                               |
| PENNVEST/WIFIA                      | -  | 35,113,456                               | 89,843,438                               | 98,036,402                               | 98,113,624                               | 40,456,543                               |
| WIFIA                               | -  | 2,540,345                                | 3,310,501                                | 1,995,327                                | -  | -  |
| ARPA                                | 4,462,519                                | 10,582,757                               | -  | -  | -  | -  |
| PAYGO                               | -  | 164,400                                  | 124,500                                  | -  | -  | -  |
|                                     | 127,856,325                              | 306,533,823                              | 349,222,497                              | 398,464,014                              | 390,608,900                              | 375,213,516                              |

## VII. RATE OF RETURN

VII.4. Provide a schedule of debt and preferred stock of company, parent and consolidated system as of historic test year-end and latest date, detailing for each issue (if applicable):

- a. Date of issue.
- b. Date of maturity.
- c. Amount issued.
- d. Amount outstanding.
- e. Amount retired.
- f. Amount required.
- g. Gain on reacquisition.
- h. Coupon rate.
- i. Discount or premium at issuance.
- j. Issuance expenses.
- k. Net proceeds.
- l. Sinking fund requirements.
- m. Effective interest rate.
- n. Dividend rate.
- o. Effective cost rate.
- p. Total average weighted effective cost rate.

### **RESPONSE:**

Please see the attached FY 2023 debt schedules for the response to: a, b, c, d, e, h, i, j, k, l, and m.

In order to accurately reflect the PWSA's debt portfolio, additional columns have been added to provide information related to the variable rate debt and the related swap agreements, currently outstanding. The debt structure of the Authority is very

**VII. RATE OF RETURN**

complicated and includes fixed rate debt, hedged and unhedged variable rate debt, senior and subordinate lien debt. The summary attempts to summarize all aspects of the Authority's debt.

**4.f.** Not applicable.

**4.g.** Not applicable.

**4.n.** Not applicable.

**4.o.** Not applicable.

**4.p.** Not applicable.

| The Pittsburgh Water and Sewer Authority Debt Summary |               |                  |               |                       |                          |                        |                               |          |                      |                     |                                  |              |         |
|---|---------------|------------------|---------------|-----------------------|--------------------------|------------------------|-------------------------------|----------|----------------------|---------------------|----------------------------------|--------------|---------|
| Outstanding Bonds and Loans Payable (\$000's)         |               |                  |               |                       |                          |                        |                               |          |                      |                     |                                  |              |         |
| As of February 1, 2023                                |               |                  |               |                       |                          |                        |                               |          |                      |                     |                                  |              |         |
|   | A             | B                | C             | D                     | E                        | F                      | G                             | H        | I                    | J                   | K                                | L            |         |
| <b>Senior Lien</b>                                    |               |                  |               |                       |                          |                        |                               |          |                      |                     |                                  |              |         |
| Series Name   | Date of Issue | Date of Maturity | Amount Issued | Amount Outstanding    | Coupon Rate / Bank Index | Fixed Rate Swap (Paid) | Variable Swap Rate (Received) | Net Rate | Discount at Issuance | Premium at Issuance | Issuance Expenses <sup>1</sup>   | Net Proceeds |         |
| Series B of 1998 <sup>2</sup>                         | Mar-1998      | 9/1/2030         | \$ 36,440     | \$ 66,454             | 5.18%                    | N/A                    | N/A                           | N/A      | \$ -                 | \$ -                | \$ -                             | \$ -         | 32,400  |
| Series 2013A  | Dec-2013      | 9/1/2033         | 130,215       | 50,700                | 0.75%-5.00%              | N/A                    | N/A                           | N/A      | -                    | 10,903              | 798                              | -            | 127,682 |
| Series 2013B  | Dec-2013      | 9/1/2040         | 86,695        | 38,760                | 3.00%-5.25%              | N/A                    | N/A                           | N/A      | -                    | 3,926               | 553                              | -            | 90,068  |
| Series 2017A  | Dec-2017      | 9/1/2032         | 159,795       | 101,600               | 3.00%-5.00%              | N/A                    | N/A                           | N/A      | -                    | 23,374              | 1,778                            | -            | 181,391 |
| Series 2017C-1 (JPM Swap) <sup>3,4</sup>              | Dec-2017      | 9/1/2039         | 72,748        | 72,748                | SIFMA + .65%             | 3.784% + 0.118%        | SIFMA                         | 4.5520%  | -                    | -                   | 693                              | -            | 72,054  |
| Series 2017C-2 (MLCS Swap) <sup>3,4</sup>             | Dec-2017      | 9/1/2039         | 72,748        | 72,748                | SIFMA + .65%             | 3.77% + 0.118%         | SIFMA                         | 4.5380%  | -                    | -                   | 693                              | -            | 72,054  |
| Series 2017C-3 (JPM Swap) <sup>3,4</sup>              | Dec-2017      | 9/1/2040         | 71,225        | 71,225                | SIFMA + .65%             | 3.826% + 0.118%        | SIFMA                         | 4.5935%  | -                    | -                   | 679                              | -            | 70,546  |
| Series 2017C-4 (Unhedged) <sup>5</sup>                | Dec-2017      | 9/1/2035         | 2,085         | 2,085                 | SIFMA + .65%             | N/A                    | N/A                           | 2.5000%  | -                    | -                   | 20                               | -            | 2,065   |
| Series 2019A  | July-2019     | 9/1/2044         | 109,855       | 102,605               | 5.00%                    | N/A                    | N/A                           | N/A      | -                    | 22,468              | 1,123                            | -            | 131,200 |
| Series 2020B  | Dec-2020      | 9/1/2050         | 91,520        | 90,725                | 3.00%-5.00%              | N/A                    | N/A                           | N/A      | -                    | 16,665              | 1,185                            | -            | 107,000 |
| Series 2022A  | Nov-2022      | 9/1/2052         | 44,550        | 44,550                | 5.00%-5.50%              | N/A                    | N/A                           | N/A      | -                    | 986                 | 537                              | -            | 45,537  |
| <b>Total Senior</b>                                   |               |                  |               | <b>\$ 714,200</b>     |                          |                        |                               |          |                      |                     |                                  |              |         |
| <b>Subordinate Lien</b>                               |               |                  |               |                       |                          |                        |                               |          |                      |                     |                                  |              |         |
| Series Name   | Date of Issue | Final Maturity   | Issue Size    | Outstanding Principal | Coupon Rate / Bank Index | Fixed Rate Swap (Paid) | Variable Swap Rate (Received) | Net Rate | Discount at Issuance | Premium at Issuance | Issuance Expenses <sup>1,6</sup> | Net Proceeds |         |
| Series 2019B  | July-2019     | 9/1/2035         | 104,290       | 104,290               | 4.00%-5.00%              | N/A                    | N/A                           | N/A      | -                    | 22,621              | 28,952                           | -            | 103,660 |
| <b>Total Subordinate</b>                              |               |                  |               | <b>\$ 104,290</b>     |                          |                        |                               |          |                      |                     |                                  |              |         |
| <b>Third Lien</b>                                     |               |                  |               |                       |                          |                        |                               |          |                      |                     |                                  |              |         |
| Series Name   | Date of Issue | Final Maturity   | Issue Size    | Outstanding Principal | Coupon Rate / Bank Index | Fixed Rate Swap (Paid) | Variable Swap Rate (Received) | Net Rate | Discount at Issuance | Premium at Issuance | Issuance Expenses                | Net Proceeds |         |
| Pennvest Loans  | Various       | 4/1/2045         | 588,970       | 546,387               | 1.00% - 2.97%            | N/A                    | N/A                           | N/A      | -                    | -                   | -                                | -            | -       |
| PNC Capital Line of Credit <sup>7</sup>               | June-2022     | 6/23/2025        | 150,000       | 131,712               | SIFMA + 0.39%            | N/A                    | N/A                           | N/A      | -                    | -                   | -                                | -            | -       |
| <b>Total Third Lien</b>                               |               |                  |               | <b>\$ 678,099</b>     |                          |                        |                               |          |                      |                     |                                  |              |         |

<sup>1</sup> Includes legal and professional costs, underwriters' discount, bond insurance premium, surety premium and/or swap termination payments, if applicable, to respective series of bonds.

<sup>2</sup> Column C is the Initial Stated Amount (Capital Appreciation Bonds); Column D is based on accreted value as of 02/01/2023 and Column E is the total amount paid and/or refunded as of 02/01/2023.

<sup>3</sup> Column C represents the portion of the Series C of 2017 which is connected to certain swap agreements or is unhedged.

<sup>4</sup> The Authority entered into a SIFMA vs. 70% of 1M LIBOR overlay basis swap with Merrill Lynch Capital Services to manage variable rate interest payments associated with the 2017C Bonds. The overlay basis swap effectively converts the floating leg receipts of the Authority's three fixed payer swaps from 70% of 1M LIBOR to SIFMA in order to match the floating leg payment of the remarketed 2017C Bonds for the three year remarketed period. The overlay basis swap also contains a fixed leg component, payable by the Authority to the swap counterparty, of 0.1180% which effectively increases the fixed rates paid by the Authority on its three fixed payer swaps while the overlay basis swap is outstanding.

<sup>5</sup> Net rate is assumed of 2.50% for the purposes of this summary.

<sup>6</sup> Issuance expense includes \$27.605 million for a swap termination payment.

<sup>7</sup> Has unutilized fee of 0.40% if less than 50% is drawn on the LOC and an unutilized fee of 0.25% if more than 50% is drawn on the LOC.



**VII. RATE OF RETURN**

VII.5. Supply financial data of company and/or parent for last 5 years:

- a. Earnings-price ratio (average).
- b. Earnings-book value ratio (per share basis) (average book value).
- c. Dividend yield (average).
- d. Earnings per share (dollar).
- e. Dividends per share (dollars).
- f. Average book value per share yearly.
- g. Average yearly market price per share (monthly high-low basis).
- h. Pre-tax funded debt interest coverage.
- i. Post-tax funded debt interest coverage.
- j. Market price-book value ratio.

**RESPONSE:**

Not applicable to a municipally-owned, cash flow method.

**VII. RATE OF RETURN**

VII.6. Provide AFUDC charged by company at historic test year-end and latest date, explain method by which rate was calculated and provide workpaper showing derivation of the company's current AFUDC rate.

**RESPONSE:**

PWSA does not utilize a AFUDC accrual in its accounting system. PWSA has not utilized capitalized interest in the HTY nor do they anticipate utilizing any in the FTY and FPFTY. Financing costs incurred during construction are expensed as they occur.

## **VII. RATE OF RETURN**

VII.7. Set forth provisions of company's and parent's charter and indentures, if applicable, which describe coverage requirements, limits on proportions of types of capital outstanding, and restrictions on dividend payouts.

### **RESPONSE:**

The following documents are attached:

- Amended and Restated Senior Trust Indenture
- 2019-1 Supplemental Senior Trust Indenture
- 2020-1 Supplemental Senior Trust Indenture
- 2022-1 Supplemental Senior Trust Indenture
- Amended and Restated Supplemental Subordinate Trust Indenture



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2019-1 SUPPLEMENTAL SUBORDINATE TRUST INDENTURE

Constituting the

AMENDED AND RESTATED SUBORDINATE TRUST INDENTURE

dated as of July 1, 2019

BETWEEN

THE PITTSBURGH WATER AND SEWER AUTHORITY

and

THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A.  
as Trustee

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Relating to the Issuance of

\$104,290,000

The Pittsburgh Water and Sewer Authority  
Water and Sewer System Subordinate Revenue Refunding Bonds, Series B of 2019

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2019-1 SUPPLEMENTAL SUBORDINATE TRUST INDENTURE CONSTITUTING THE  
AMENDED AND RESTATED SUBORDINATE TRUST INDENTURE

THIS 2019-1 SUPPLEMENTAL SUBORDINATE TRUST INDENTURE<sup>1</sup> constituting the AMENDED AND RESTATED SUBORDINATE TRUST INDENTURE dated as of the 1<sup>st</sup> day of July, 2019 (as amended and supplemented from time to time, the "Subordinate Indenture"), is by and between THE PITTSBURGH WATER AND SEWER AUTHORITY, a body corporate and politic organized and existing under the laws of the Commonwealth of Pennsylvania, having its principal office in the City of Pittsburgh, Allegheny County, Pennsylvania (the "Authority"), and THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., a national banking corporation organized and existing under and by virtue of the laws of the United States of America, having power and authority to accept and execute trusts and having a corporate trust office in the City of Pittsburgh, Allegheny County, Pennsylvania, as trustee (the "Trustee").

WHEREAS, the Authority makes the following findings and statements:

1. The Act. The Authority is a public body, corporate and politic, duly organized and validly existing under the provisions of the Pennsylvania Municipality Authorities Act of the Commonwealth of Pennsylvania (the "Commonwealth"), Title 53 of the Pennsylvania Consolidated Statutes, Section 5601, et seq., as amended (the "Act").

2. Relationship with the City. The Authority was organized in February 1984 by the City of Pittsburgh, Allegheny County, Pennsylvania (the "City") for the purpose of assuming the responsibility for the operation of the City's water supply and distribution and wastewater collection systems (as further modified as defined herein, the "System"). Pursuant to a Lease and Management Agreement dated as of March 29, 1984 between the City and the Authority (the "Lease and Management Agreement"), the System was leased by the City to the Authority. The Authority then designated the City as its agent to operate and maintain the System. The City and the Authority entered into a Capital Lease Agreement dated as of July 15, 1995 (the "Capital Lease Agreement") under which the Lease and Management Agreement was terminated and the Authority was granted the option to acquire the portion of the System owned by the City. Pursuant to the Capital Lease Agreement, which has a term of 30 years, the Authority made three payments totaling \$101,416,974.60 during the first three years, and on September 1, 2025, upon the payment of \$1.00, the Authority will acquire title to the System. At the same time the City and the Authority entered into the Capital Lease Agreement, they also entered into a Cooperation Agreement dated as of June 15, 1995, effective January 1, 1995, as amended by a First Amendment to Cooperation Agreement dated March 21, 2011 (as amended and supplemented from time to time, the "Cooperation Agreement"). The Cooperation Agreement provides for the following matters: the Authority agreed to assume responsibility for management and operation of the System, with some sewer functions remaining with the City. The City provides certain specified services to the Authority on a fee for services basis and the Authority makes certain payments to the City to reimburse it for costs incurred by the City in regard to the operation and maintenance of the System. The Authority agrees to provide the City with water without charge to be used by the City, its departments, agencies and instrumentalities,

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<sup>1</sup> Amending and supplementing the Existing Subordinate Indenture defined in paragraph 4 below.

and the Authority agrees to reimburse the City for equalization payments made by the City to a private utility which serves customers in a portion of the City. In the 2011 amendment to the Cooperation Agreement, the City agreed to subordinate the payments it is entitled to under the Cooperation Agreement to the Authority's debt obligations.

3. Existing Senior Indenture. The Authority's existing senior lien debt in the approximate principal amount of \$551,392,00 is outstanding under an Amended and Restated Trust Indenture dated as of October 15, 1993, amended and restated as of November 1, 2017, and effective on December 28, 2017 (the "Original Indenture") with The Bank of New York Mellon Trust Company, N.A., as trustee (the "Trustee"), as amended and supplemented by a 2017-1 Supplemental Trust Indenture dated as of November 1, 2017 (the "2017-1 Supplemental Indenture"), and a 2017-2 Supplemental Trust Indenture dated as of December 1, 2017 (the "2017-2 Supplemental Indenture") (the Original Indenture, as amended and supplemented by the 2017-1 Supplemental Indenture and the 2017-2 Supplemental Indenture, collectively, the "Existing Senior Indenture").

4. Existing Subordinate Indenture. The Authority's subordinate lien bond debt has been issued to date under a Subordinate Trust Indenture dated as of July 15, 1995 (the "Original Subordinate Indenture") between the Authority and a bond trustee, now being The Bank of New York Mellon Trust Company, N.A. (the "Subordinate Trustee"), as amended and supplemented by a First Supplemental Subordinate Indenture dated as of March 1, 1998 (the "First Supplemental Subordinate Indenture"), a Second Supplemental Subordinate Indenture dated as of June 1, 2008 (the "Second Supplemental Subordinate Indenture"), an Amending Supplement to the Initial Subordinate Indenture and Second Supplemental Subordinate Indenture dated as of November 1, 2009 (the "2009-1 Supplemental Subordinate Indenture"), an Amendment to the Amending Supplement to the Initial Subordinate Indenture and Second Supplemental Subordinate Indenture dated as of November 15, 2009 (the "2009-2 Supplemental Subordinate Indenture"), a Second Amending Supplement to the Second Supplemental Indenture dated as of September 1, 2012 (the "2012 Supplemental Subordinate Indenture"), a Third Amending Supplement to the Second Supplemental Subordinate Indenture dated as of September 1, 2013 (the "Third Supplemental Subordinate Indenture"), a Fourth Amending Supplement to the Second Supplemental Indenture dated as of November 3, 2014 (the "2014 Supplemental Subordinate Indenture"), a Fifth Amending Supplement to the Second Supplemental Indenture dated as of September 1, 2015 (the "2015 Supplemental Subordinate Indenture"), a 2018-1 Supplemental Subordinate Trust Indenture dated as of August 31, 2018 (the "2018-1 Supplemental Subordinate Indenture") and a 2018-2 Supplemental Subordinate Trust Indenture dated as of August 31, 2018 (the "2018-2 Supplemental Subordinate Indenture") (the Original Subordinate Indenture, as amended and supplemented by the First Supplemental Subordinate Indenture, the Second Supplemental Subordinate Indenture, the 2009-1 Supplemental Subordinate Indenture, the 2009-2 Supplemental Subordinate Indenture, the 2012 Supplemental Subordinate Indenture, the 2013 Supplemental Subordinate Indenture, the 2014 Supplemental Subordinate Indenture, the 2015 Supplemental Subordinate Indenture, the 2018-1 Supplemental Subordinate Indenture and the 2018-2 Supplemental Subordinate Indenture (the "Existing Subordinate Indenture").

5. 2008C-1 Subordinate Bonds, 2008C-2 Subordinate Bonds and Swaps. In 2008, the Authority issued its \$51,910,000 (Variable Rate Demand) Water and Sewer System

Subordinate Revenue Refunding Bonds, Series C-1 of 2008 (the “2008C-1 Subordinate Bonds”) and its \$51,885,000 (Variable Rate Demand) Water and Sewer System Subordinate Revenue Refunding Bonds, Series C of 2008 (the “2008C-2 Subordinate Bonds”) pursuant to the Second Supplemental Subordinate Indenture. The 2008C-1 Subordinate Bonds and the 2008C-2 Subordinate Bonds are variable rate bonds issued to refund certain prior debt. With respect to such bonds, the Authority entered into long-term interest rate swap agreements with J.P. Morgan Chase Bank, National Association and Merrill Lynch Capital Services, Inc. These swaps are insured by Assured Guaranty Municipal Corp. (“AGM”). AGM provides the debt service reserve fund policy for the 2008C-1 Subordinate Bonds and the 2008C-2 Subordinate Bonds.

6. Subseries of 2008C-1 Subordinate Bonds. The 2008C-1 Subordinate Bonds were initially insured by AGM with a liquidity facility provided by Dexia Credit Local. In 2009, the Authority, pursuant to the 2009-1 Supplemental Subordinate Indenture and an Amendment to the Amending Supplement to the Initial Subordinate Indenture and the 2009-2 Supplemental Subordinate Indenture, divided the 2008C-1 Subordinate Bonds into four subseries: the \$10,000,000 Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1A of 2008 (the “2008C-1A Subordinate Bonds”); the \$10,000,000 Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1B of 2008 (the “2008C-1B Subordinate Bonds”); the \$5,000,000 Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1C of 2008 (the “2008C-1C Subordinate Bonds”); and the \$26,910,000 Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1D of 2008 (the “2008C-1D Subordinate Bonds”). All of these bonds were converted into a term mode. Dexia Credit Local was removed as the liquidity facility for all of these bonds. New banks were designated as liquidity facility providers for the 2008C-1A Subordinate Bonds, the 2008C-1B Subordinate Bonds and the 2008C-1C Subordinate Bonds. The 2008C-1D Subordinate Bonds were remarketed in 2009 without a liquidity facility. In 2012, the 2008C-1D Subordinate Bonds were remarketed again without a liquidity facility and the Authority entered into the 2012 Supplemental Subordinate Indenture.

7. 2008C-2 Subordinate Bonds. The 2008C-2 Subordinate Bonds are insured by AGM.

8. Direct Placement of 2008C-1ABC Subordinate Bonds. In 2013, the Authority began a process in which all of the subordinate bonds would eventually be put into direct placements by 2016. Pursuant to the Third Supplemental Subordinate Indenture, the AGM insurance on the 2008C-1A Subordinate Bonds, the 2008C-1B Subordinate Bonds and the 2008C-1C Subordinate Bonds (collectively, the “2008C-1ABC Subordinate Bonds”) was terminated, and the 2008C-1ABC Subordinate Bonds were directly placed with Banc of America Preferred Funding Corporation. In connection with the direct placement, the Authority and Banc of America Preferred Funding Corporation entered into a Continuing Covenant Agreement dated as of September 1, 2013 (the “2008C-1ABC Continuing Covenant Agreement”).

9. Direct Placement of 2008C-2 Subordinate Bonds; LIBOR Rates for 2008C-1ABC Subordinate Bonds, 2008C-2 Subordinate Bonds and Swaps. In 2014 and 2015, the rest of the subordinate bonds were put into direct placements. Pursuant to the 2014 Supplemental Indenture, the 2008C-1ABC Subordinate Bonds, which were directly placed with the Banc of America Preferred Funding Corporation in 2013, were converted to a LIBOR-based



interest rate mode; and the 2008C-2 Subordinate Bonds were directly placed with DNT Asset Trust (an affiliate of J.P. Morgan Chase Bank, N.A.) in a LIBOR-based interest rate mode. The Authority and Banc of America Preferred Funding Corporation entered into a First Amendment to Continuing Covenant Agreement dated as of November 3, 2014 (the “2008C-1ABC First Amendment to Continuing Covenant Agreement”). The Authority and DNT Asset Trust entered into a Continuing Covenant Agreement dated as of November 3, 2014 (the “2008C-2 Continuing Covenant Agreement”). In connection with these actions, the Authority entered into amendments to the long-term interest rate swap agreements with J.P. Morgan Chase Bank, National Association and Merrill Lynch Capital Services, Inc. to provide for LIBOR-based payments by the counterparties under the swap agreements (with respect to all of the 2008C Subordinate Bonds). In November 2018, DNT Asset Trust tendered the 2008C-2 Bonds, and such bonds were purchased by JPMorgan Chase Bank, National Association<sup>2</sup> pursuant to a Bond Purchase Agreement dated as of October 19, 2018 (the “JPMorgan 2008C-2 BPA”). Pursuant to the JPMorgan BPA and the 2018-2 Supplemental Subordinate Indenture, the 2008C-2 Bonds were converted into a new, two-year interest period ending on November 2, 2020 with a LIBOR-based interest rate.

10. Direct Placement of 2008C-1D Subordinate Bonds. In 2015, pursuant to the 2015 Supplemental Indenture, the 2008C-1D Subordinate Bonds were directly placed with Bank of America, N.A. in a LIBOR-based interest rate mode. The Authority and Bank of America, N.A. entered into a Continuing Covenant Agreement dated as of September 1, 2015 (the “2008C-1D Continuing Covenant Agreement”). In August 2018, the Authority and Bank of America, N.A. entered into a First Amendment to Continuing Covenant Agreement (the “First Amendment to 2008C-1D Continuing Covenant Agreement”), and, pursuant to that amended agreement and the 2008-1 Supplemental Subordinate Indenture, the 2008C-1D Bonds were converted into a new, three-year interest period ending on August 31, 2021 with a LIBOR-based interest rate.

11. Agreements with AGM Regarding Swap Insurance. The Authority has two agreements with AGM regarding the interest rate swap agreements that AGM insures related to the 2008C Subordinate Bonds: an Agreement Regarding Insured Swap Transaction dated as of September 1, 2013, as amended by an Amendment dated as of July 11, 2017 (collectively, the “AGM 2008C-1ABC and 2008C-1D Agreement”), and an Agreement Regarding Insured Swap Transaction dated as of November 1, 2014 (the “AGM 2008C-2 Agreement”). These agreements require the swaps or the insurance thereof to be terminated in certain circumstances.

12. Non-Bond Subordinate Debt: PENNVEST Loans, 2018 Revolving Credit Agreement, and 2018 Operating Line of Credit. In addition to the senior and subordinate bonds, the Authority has three other types of debt which are subordinate to both the senior and the subordinate bonds, but are on parity with each other with respect to the Authority’s Revenues (as hereinafter defined). The first type of debt consists of multiple loans (the “PENNVEST Loans”) from the Pennsylvania Infrastructure Investment Authority (“PENNVEST”). The PENNVEST Loans were entered into by the Authority between 2001 and 2019 and have an outstanding principal amount of approximately \$62 million. The second type of debt is a \$150 million maximum principal amount revolving construction loan evidenced by a Revenue Note, Series of

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<sup>2</sup> An affiliate of DNT Asset Trust.

2018 (the “2018 Note”). The 2018 Note was issued pursuant to a Revolving Credit and Security Agreement dated as of August 31, 2018 (the “2018 Revolving Credit Agreement”) between the Authority and the lender, JPMorgan Chase Bank, National Association. The third type of debt is \$20 million maximum principal amount revolving line of credit with PNC Bank, National Association for operating expenses (the “2018 Operating Line of Credit”). In connection with the execution of the 2018 Revolving Credit Agreement and the 2018 Operating Line of Credit, the Authority, PENNVEST, JPMorgan Chase Bank, National Association, PNC Bank, National Association and The Bank of New York Mellon Trust Company, N.A., as collateral trustee, entered into an Amended and Restated Intercreditor Agreement dated as of July 1, 2016 and amended and restated as of August 31, 2018 (the “2018 Intercreditor Agreement”) setting forth their respective rights with respect to the Revenues.

13. This Amended and Restated Subordinate Indenture. The Authority intends to issue its \$104,290,000 aggregate principal amount Water and Sewer System Subordinate Revenue Refunding Bonds, Series B of 2019 (the “2019B Subordinate Bonds”), the proceeds of which will be applied (a) to currently redeem all of the 2008C-1ABC Bonds, 2008C-1D Bonds and 2008C-2 Bonds (the “Refunded Subordinate Bonds”), (b) to pay a portion of the swap termination payments relating to the termination of the interest rate swap agreements related to the Refunded Subordinate Bonds, (c) to pay the premium relating to a Debt Service Reserve Fund Policy, and (d) to pay the costs of issuing and insuring the 2019B Subordinate Bonds (the “2019 Project”). Since all of the subordinate bonds under the Existing Subordinate Indenture are being redeemed, this 2019-1 Supplemental Subordinate Indenture is totally amending and restating the Existing Subordinate Indenture by constituting the new Amended and Restated Subordinate Trust Indenture hereunder (referred to herein as the “Subordinate Indenture”), and by their purchase of the 2019B Subordinate Bonds, the 2019B Bondholders are consenting to this new Subordinate Indenture.

WHEREAS, the execution and delivery of this Subordinate Indenture have been duly authorized by a resolution of the Authority; and

WHEREAS, all acts, conditions and things required by the Constitution and laws of the Commonwealth, including the Act, to happen, exist and be performed precedent to and in the execution and delivery of this Subordinate Indenture have happened, exist and have been performed as so required, in order to make this Subordinate Indenture a valid and binding trust indenture for the security of the Subordinate Bonds, subject to the lien on Revenues created under this Subordinate Indenture, in accordance with its terms;

NOW, THEREFORE, THIS AMENDED AND RESTATED TRUST INDENTURE WITNESSETH: that in consideration of the premises and of the acceptance by the Trustee of the trusts hereby created, and of the purchase and acceptance of the Subordinate Bonds by the registered Owners thereof, and for the purpose of fixing and declaring the terms and conditions upon which the Subordinate Bonds are or may be issued, authenticated, delivered, secured and accepted by all persons who shall from time to time be or become Owners thereof, and to declare the terms and conditions upon which the Subordinate Bonds are secured, and to secure equally and on parity the payment of (i) the principal of, and interest and premium (if any) on all Subordinate Bonds at any time issued and outstanding hereunder, according to their tenor, purport and effect, and (ii) Other Subordinate Parity Indebtedness and to secure the performance

and observance of all of the covenants, agreements and conditions therein and herein contained, the Authority, intending to be legally bound, has executed and delivered this Subordinate Indenture and by these presents does hereby sell, assign, transfer, set over, grant a security interest in and pledge unto The Bank of New York Mellon Trust Company, N.A., as Trustee, its successors in the trust and its assigns forever, to the extent provided in this Subordinate Indenture, subject to the lien of the Senior Indenture, as the same may be amended or supplemented from time to time, the Revenues (as defined in this Subordinate Indenture), after payment of the Current Expenses (as defined in this Subordinate Indenture), together with all cash and investments from time to time held in any fund (other than the Subordinate Rebate Fund) by the Trustee hereunder or held by the Authority in the Revenue Fund, the Operating Reserve Fund or the Rate Stabilization Fund (such funds created pursuant to the Senior Indenture) (collectively, the "Trust Estate").

TO HAVE AND TO HOLD the same unto the Trustee, its successors and assigns in trust forever, IN TRUST, NEVERTHELESS, upon the terms and trusts herein set forth, to secure the payment of all Subordinate Bonds issued hereunder and the interest thereon and the observance and performance of all the terms, provisions and conditions of this Subordinate Indenture, and for the equal and ratable benefit and security of all and singular the present and future holders of the Subordinate Bonds and Other Subordinate Parity Indebtedness Parties, without preference, priority or distinction as to lien or otherwise, except as otherwise hereinafter provided, of any one Subordinate Bond or Other Subordinate Parity Indebtedness over any other Subordinate Bond or Other Subordinate Parity Indebtedness by the reason of priority in the issue, sale or authentication thereof or otherwise and to secure the performance and observance of all of the covenants, agreements and conditions therein and herein contained, including the payment of Other Subordinate Parity Indebtedness, and it is hereby covenanted and agreed by and between the parties hereto that the terms and conditions upon which the Subordinate Bonds are to be issued, authenticated, delivered, secured and accepted by all persons who shall from time to time be or become registered Owners thereof, and the trusts and conditions upon which the pledged Revenues are to be held and disposed of, are as follows:

## ARTICLE I

### DEFINITIONS AND GENERAL INDENTURE MATTERS

#### Section 1.01 Definitions.

(a) The following terms defined in the Recitals of this Subordinate Indenture shall have the meanings as defined therein for all purposes of this Subordinate Indenture (including any Supplemental Indentures), unless the context clearly otherwise requires:

Act  
AGM  
Capital Lease Agreement  
City  
Commonwealth  
Cooperation Agreement  
Existing Senior Indenture

Existing Subordinate Indenture  
Intercreditor Agreement  
PENNVEST  
Refunded Subordinate Bonds

(b) Terms used but not defined herein, which relate to the Senior Indenture or the Senior Bonds, shall have the meanings set forth in the Senior Indenture. Terms defined below in this Article I shall have the meanings set forth below for all purposes of this Subordinate Indenture (including any Supplemental Indentures), unless the context clearly otherwise requires:

Account

The term “Account” shall mean any of the various accounts, sometimes created within a Fund, under this Subordinate Indenture including in a Supplemental Indenture.

Accreted Values

The term "Accreted Values" with respect to any Capital Appreciation Bonds, Capital Appreciation and Income Bonds, and Current Interest Capital Appreciation Bonds shall mean an amount equal to the Principal Amount of such Subordinate Bonds (determined on the basis of the Principal Amount per \$5,000 at maturity thereof) plus the amount assuming semiannual compounding of earnings which would be produced on the investment of such Principal Amount, beginning on the dated date of such Subordinate Bonds and ending at the maturity date thereof, at a yield which if produced until maturity will produce \$5,000 at maturity. As of any Valuation Date, the Accreted Value of any such Subordinate Bonds shall mean the amount set forth for such date in the Supplemental Indenture and as of any date other than a Valuation Date, the sum of (a) the Accreted Value on the preceding Valuation Date and (b) the product of (i) a fraction, the numerator of which is the number of days having elapsed from the preceding Valuation Date and denominator of which is the number of days from such preceding Valuation Date to the next succeeding Valuation Date, and (ii) the difference between the Accreted Values for such Valuation Dates. For purposes of consents, voting rights, Bondowner rights, or any other matter herein determined by a percentage of the aggregate Principal Amount of Subordinate Bonds Outstanding, Capital Appreciation Bonds, Capital Appreciation and Income Bonds, and Current Interest Capital Appreciation Bonds shall be valued at their Accreted Values.

Additional Bonds

The term “Additional Bonds” shall mean Subordinate Bonds authenticated and delivered hereunder of any Series other than the 2019B Subordinate Bonds.

Additional Indebtedness Test

The term “Additional Indebtedness Test” shall mean the certification requirement set forth in Section 3.02(g)(ii) or 3.02(h)(ii) hereof for the issuance of Additional Bonds, and in Section 3.03(a) hereof for the issuance of Other Subordinate Parity Indebtedness.

Additional Indebtedness Test Net Revenues

The term “Additional Indebtedness Test Net Revenues” shall mean Net Revenues adjusted for the purpose of determining fulfillment of the Additional Indebtedness Test to exclude for the relevant Test Period any Revenues consisting of Grants, proceeds of any business interruption insurance, and investment income earned on the Construction Fund and Rate Stabilization Fund.

#### Annual Budget

The term “Annual Budget” shall mean the budget required by Section 7.11 herein.

#### Annual Debt Service

The term "Annual Debt Service" shall mean the amount of payments scheduled to come due within a specified Fiscal Year for principal of and interest on any specified Indebtedness. For purposes of calculating Annual Debt Service, the following assumptions are to be used to calculate the principal and interest due in such specified Fiscal Year:

(a) In determining the Principal Amount due in the Fiscal Year, except to the extent that another subparagraph of this definition applies, payment shall be assumed to be made in accordance with any amortization schedule established for such Indebtedness, including any scheduled redemption of such specified Indebtedness and, for such purpose, the redemption payment shall be deemed a principal payment. In determining the amount of interest due in each Fiscal Year, except to the extent subparagraphs (b) through (h) of this definition apply, (i) interest payable at a fixed rate shall be assumed to be made at such fixed rate and on the required payment dates and (ii) the interest rate to be used for Variable Rate Indebtedness that has been Outstanding for at least twelve (12) months shall be the average rate over the twelve (12) months immediately preceding the date of calculation, or for Variable Rate Indebtedness that has been Outstanding less than twelve (12) months the interest rate to be used shall be the actual rate on the date of calculation, or, for Variable Rate Indebtedness proposed to be issued the interest rate to be used for such computation shall be determined by (1) a Qualified Independent Consultant to be a reasonable market rate for fixed-rate bonds of a corresponding term issued under this Subordinate Indenture on the date of such calculation, with no credit enhancement and taking into consideration whether such Indebtedness bears interest that is or is not excluded from gross income for federal income tax purposes and that is or is not subject to any alternative minimum tax or (2) an Authorized Representative of the Authority by applying the Municipal Market Data (MMD) Index of the same rating category as the Authority for fixed-rate bonds of the most closely corresponding final term and parameters in (1) above.

For the purpose of verifying compliance with the rate covenant contained in Section 7.01 hereof, Variable Rate Indebtedness shall be deemed to bear interest at the actual rate or rates borne during any applicable Fiscal Year.

The amount of Capitalized Interest on deposit in the Subordinate Debt Service Fund shall be subtracted from the amount of interest due for any related Fiscal Year, but

only to the extent that such Capitalized Interest is dedicated to a particular interest payment coming due during such Fiscal Year.

(b) Each maturity of Indebtedness that constitutes Balloon Indebtedness shall be treated as if it were to be amortized over a term of not more than forty (40) years and with substantially level annual debt service payments commencing not later than the year following the year in which such Balloon Indebtedness was issued, and extending not later than forty (40) years from the date such Balloon Indebtedness was originally issued. For fixed rate obligations, the interest rate used for such computation shall be determined by (1) a Qualified Independent Consultant to be a reasonable market rate for fixed-rate bonds of a corresponding term issued under this Subordinate Indenture on the date of such calculation, with no credit enhancement and taking into consideration whether such Indebtedness bears interest that is or is not excluded from gross income for federal income tax purposes and that is or is not subject to any alternative minimum tax or (2) an Authorized Representative of the Authority by applying the Municipal Market Data (MMD) Index of the same rating category as the Authority for fixed-rate bonds of the most closely corresponding final term and parameters in (1) above in this sentence. For Balloon Indebtedness that also constitutes Variable Rate Indebtedness, the interest rate used for such computation shall be determined by (1) a Qualified Independent Consultant to be a reasonable market rate for fixed-rate Subordinate Bonds of a corresponding term issued under this Subordinate Indenture on the date of such calculation, with no credit enhancement and taking into consideration whether such Subordinate Bonds bear interest that is or is not excluded from gross income for federal income tax purposes and that is or is not subject to any alternative minimum tax or (2) an Authorized Representative of the Authority by applying the Municipal Market Data (MMD) Index of the same rating category as the Authority for fixed-rate bonds of the most closely corresponding final term and parameters in (1) above.

(c) Notwithstanding subparagraph (b) above, if any stated maturity date of Indebtedness that constitutes Balloon Indebtedness occurs within twelve (12) months from the date of the calculation of Annual Debt Service, the principal amount maturing shall be assumed to become due and payable on the stated maturity date unless there is delivered a certificate of an Authorized Representative of the Authority stating that (i) the Authority intends to refinance such maturity and (ii) the probable terms of such refinancing. Upon delivery of such certificate, such Balloon Indebtedness shall be assumed to be refinanced, and Annual Debt Service shall be calculated, in accordance with the probable terms set out in such certificate, except that such assumption shall not result in an interest rate lower than that which would be assumed under subparagraph (b) above and such Balloon Indebtedness shall be amortized over a term of not more than forty (40) years from the date of refinancing.

(d) If any Indebtedness that is then proposed to be issued constitutes Tender Indebtedness, then Tender Indebtedness shall be treated as if the principal amount of such Subordinate Bonds were to be amortized over a term of not more than 40 years from the date such Tender Indebtedness was originally issued, except that if any principal maturity or amortization schedule is set forth in a Supplemental Indenture or other applicable agreement, such schedule shall be used to determine the principal maturity or

amortization of such Indebtedness. The interest rate used for such computation shall be determined by (1) a Qualified Independent Consultant to be a reasonable market rate for fixed-rate Subordinate Bonds of a corresponding term issued under this Subordinate Indenture on the date of such calculation, with no credit enhancement and taking into consideration whether such Indebtedness bears interest that is or is not excluded from gross income for federal income tax purposes and that is or is not subject to any alternative minimum tax or (2) an Authorized Representative of the Authority by applying the Municipal Market Data (MMD) Index of the same rating category as the Authority for fixed-rate bonds of the most closely corresponding final term and parameters in (1) above. For all principal and interest payments becoming due prior to the year in which such Tender Indebtedness is first subject to tender, such payments shall be treated as described in the other applicable subparagraphs of this definition.

(e) With respect to any Interim Indebtedness, it shall be assumed that the principal amount of the Interim Indebtedness will be continuously refinanced and will remain Outstanding until the first Fiscal Year for which interest on the Interim Indebtedness has not been capitalized or otherwise funded or provided for. For such first Fiscal Year, it shall be assumed that (i) the Outstanding principal amount of the Interim Indebtedness will be refinanced with a Series of Additional Bonds that will be amortized over a period not to exceed forty (40) years in such manner as will cause the maximum annual debt service payments applicable to such Series in any twelve (12) month period not to exceed 110% of the minimum annual debt service payments applicable to such Series for any other twelve (12) month period, and (ii) the Series of Additional Bonds will bear interest at a fixed interest rate estimated by (1) a Qualified Independent Consultant to be the interest rate such Series of Additional Bonds would bear if issued on such terms on the date of such estimate to be a reasonable market rate for fixed-rate bonds of a corresponding term issued under this Subordinate Indenture on the date of such calculation, with no credit enhancement and taking into consideration whether such Indebtedness bears interest that is or is not excluded from gross income for federal income tax purposes and that is or is not subject to any alternative minimum tax or (2) an Authorized Representative of the Authority by applying the Municipal Market Data (MMD) Index of the same rating category as the Authority for fixed-rate bonds of the most closely corresponding final term and parameters in (1) above. Indebtedness which is Interim Indebtedness shall not be treated as Balloon Indebtedness.

(f) Except for Hedge Agreements, Qualified Interest Rate Swap Agreements are to be disregarded in calculating the Debt Service Reserve Requirement. Upon incurrence of a Hedge Agreement, all calculations, including for the annual amount on account of principal and interest on Indebtedness subject to the Hedge Agreement, shall be made using the Hedge Fixed Rate for the applicable period and such Indebtedness shall not be considered as Variable Rate Indebtedness for such period.

(g) If money that is not included in the definition of "Revenues" has been used to pay or has been irrevocably deposited with and is held by the Authority to pay principal and/or interest on Indebtedness, then the principal and/or interest paid from such money shall be excluded from the computation of Annual Debt Service.

(h) For any Indebtedness for which a binding commitment, letter of credit or other credit arrangement providing for the extension of such Indebtedness beyond its original maturity date exists, the computation of the annual amount payable on account of principal and interest on such Indebtedness shall, at the option of the Authority, be made on the assumption that such Indebtedness will be amortized in accordance with such credit arrangement.

#### Approval Amount

The term "Approval Amount" shall mean a majority in aggregate Principal Amount of the applicable Subordinate Bonds then Outstanding.

#### Authority

The term "Authority" shall mean The Pittsburgh Water and Sewer Authority, a body corporate and politic existing and operating under the Act.

#### Authority Bonds

The term "Authority Bonds" shall mean all Senior Bonds Outstanding under the Senior Indenture and all Subordinate Bonds Outstanding under this Subordinate Indenture.

#### Authorized Representative of the Authority

The term "Authorized Representative of the Authority" shall mean the Chairman, the Vice Chairperson, the Secretary, the Assistant Secretary, the Executive Director, the Chief Financial Officer, the Director of Finance, the Chief Corporate Counsel/Chief of Administration, the Treasurer, the Budget Director or any such other person or persons as may be designated to act on behalf of the Authority by a certificate executed by the Chairman of the Authority and on file with the Trustee.

#### Balloon Indebtedness

The term "Balloon Indebtedness" shall mean all or any portion of any Indebtedness 25% or more of the initial principal of which matures on the same date or within such Fiscal Year. For purposes of this definition, the principal amount maturing on any date shall be reduced by the amount of such Indebtedness scheduled to be amortized by prepayment or redemption prior to its stated maturity date. If any indebtedness consists partially of Variable Rate Indebtedness and partially of indebtedness bearing interest at a fixed rate, the portion constituting Variable Rate Indebtedness and the portion bearing interest at a fixed rate shall be treated as separate issues for purposes of determining whether any such indebtedness constitutes Balloon Indebtedness.

#### Board

The term "Board" shall mean the governing body of the Authority.



### Bond Counsel

The term “Bond Counsel” shall mean an attorney or firm of attorneys selected by the Authority which is a nationally recognized and experienced bond counsel relating to the financing of facilities through the issuance of tax-exempt or taxable bonds.

### Bond Insurance Policy

The term “Bond Insurance Policy” shall mean a municipal bond insurance policy or policies, including any endorsements thereto, issued by a Bond Insurer guaranteeing the scheduled payment of the principal of and interest on Subordinate Bonds.

### Bond Insurer or Insurer

The term “Bond Insurer” or “Insurer” shall mean an insurance company guaranteeing the payment of principal and interest on Subordinate Bonds when due.

### Bond Year

The term “Bond Year” shall mean, each year, the twelve (12) month period commencing on the date of issuance of a Series of Subordinate Bonds or the anniversary date thereof, or as otherwise provided in the Supplemental Indenture or the Tax Regulatory Certificate for a Series of Subordinate Bonds.

### Business Day

Except as otherwise defined in a Supplemental Indenture related to a Series of Subordinate Bonds, the term “Business Day” shall mean a day on which banking business is transacted, but not including a Saturday, Sunday or legal holiday, or any day on which banks located in each of the cities in which the offices of the Trustee and the Paying Agent responsible for the administration of this Subordinate Indenture are located are authorized by law to close, or any day on which the New York Stock Exchange is closed.

### Capital Additions

The term "Capital Additions" shall mean all new or additional property, which the Authority has authority to, or is required to, construct or acquire with respect to the System, and any and all permanent improvements, replacements, additions, extensions and betterments to real or fixed property of the Authority with respect to the System.

### Capital Appreciation Bonds

The term “Capital Appreciation Bonds” shall mean Subordinate Bonds as to which the Accreted Value is payable only at the maturity or prior redemption of the Subordinate Bonds. For purposes of consents, voting rights, Bondowner rights, or any other matter herein determined by a percentage of the aggregate Principal Amount of Subordinate Bonds Outstanding, Capital Appreciation Bonds shall be valued at their Accreted Values.

### Capital Appreciation and Income Bonds

The term “Capital Appreciation and Income Bonds” shall mean Subordinate Bonds as to which interest is deferred and compounded prior to the date after which interest ceases to be deferred and compounded and the interest becomes currently payable. For purposes of consents, voting rights, Bondowner rights, or any other matter in herein determined by a percentage of the aggregate Principal Amount of Subordinate Bonds Outstanding, Capital Appreciation and Income Bonds shall be valued at their Accreted Values.

### Capitalized Interest

The term “Capitalized Interest” shall mean the amount of interest on Subordinate Bonds, if any, funded from the proceeds of the Subordinate Bonds or other money that are deposited with the Trustee in the Debt Service Fund as shall be described in a Supplemental Indenture upon issuance of Subordinate Bonds to be used to pay interest on the Subordinate Bonds.

### Code

The term “Code” shall mean the Internal Revenue Code of 1986, as amended, including applicable regulations, rulings and revenue procedures promulgated or applicable thereunder.

### Common Debt Service Reserve Requirement

The term “Common Debt Service Reserve Requirement” shall mean, for all Common Debt Service Reserve Secured Bonds, the least of (i) 10% of the aggregate original stated Principal Amount of all Common Debt Service Reserve Secured Bonds (provided that if any Common Debt Service Reserve Secured Bonds have more than a *de minimis* (2%) amount of original issue discount or premium, the issue price of such Common Debt Service Reserve Secured Bonds (net of pre-issuance accrued interest) is used to measure the 10% limitation in lieu of its stated Principal Amount), (ii) the maximum amount of aggregate Annual Debt Service on all Common Debt Service Reserve Secured Bonds in any Fiscal Year, or (iii) 125% of average aggregate Annual Debt Service on all Common Debt Service Reserve Secured Bonds.

### Common Debt Service Reserve Secured Bonds

The term “Common Debt Service Reserve Secured Bonds” shall mean any Series of Subordinate Bonds for which this Subordinate Indenture or the Supplemental Indenture authorizes said Bonds to be secured by the Common Debt Service Reserve Requirement. The 2019B Subordinate Bonds shall be Common Debt Service Reserve Secured Bonds.

### Construction Fund

The term “Construction Fund” shall mean the Construction Fund designated and established pursuant to Section 5.01 hereof.

### Construction Project

The term "Construction Project" shall mean the acquisition or construction of Capital Additions or other improvements to the System, as the same may be amended from time to time.

### Consulting Engineer

The term "Consulting Engineer" shall mean a person who is a registered professional engineer under the laws of the Commonwealth qualified to pass on engineering questions relating to the operation and maintenance of water, stormwater and sewer systems, who is appointed by the Board, who is in fact independent (although such person may be regularly retained by the Authority) and who is not unsatisfactory to the Trustee. If such person be an individual, such person shall not be a member of the Board or an officer or employee of the Authority or the City. If such person be a partnership or corporation, such person shall not have a partner, director, officer or substantial stockholder who is a member of the Board or an officer or employee of the Authority or the City. The Consulting Engineer may perform similar services for the City.

### Continuing Disclosure Undertaking

The term "Continuing Disclosure Undertaking" shall mean the continuing disclosure undertaking or continuing disclosure agreement, if any, relating to a Series of Subordinate Bonds.

### Cost

The term "Cost", when used with reference to a Construction Project or with reference to Capital Additions, shall mean the amounts required to be paid to construct and complete the Construction Project or to construct or otherwise acquire such Capital Additions, and shall include, in addition to such other items as are included within any proper definition of cost, allowances or charges for interest during construction and for a reasonable period thereafter, which is not otherwise provided for, taxes, engineering, legal, fiscal and superintendence expenses and premiums for casualty and other insurance and all expenses incurred by the Authority in connection with the preparation, issue and sale of the Subordinate Bonds or other Indebtedness including discounts (if any) incurred on the sale of the Subordinate Bonds or other Indebtedness.

### Counsel

The term "Counsel" shall mean legal counsel admitted to practice before the Supreme Court of the Commonwealth, who may but need not be counsel regularly retained by the Authority, and not unsatisfactory to the Trustee.

### Counsel's Opinion

The term “Counsel’s Opinion” shall mean an opinion signed by an attorney or firm of attorneys selected by the Authority or the Trustee, respectively.

Counterparty

The term “Counterparty” shall mean any counterparty (the party other than the Authority) on a Qualified Interest Rate Swap Agreement.

Credit Facility

The term “Credit Facility” shall mean a letter of credit, liquidity facility, a bond insurance policy, surety bond or similar arrangement securing any obligation of the Authority with respect to any Indebtedness.

Current Expenses

The term "Current Expenses" shall mean all current expenses directly or indirectly attributable to the ownership or operation of the System, including reasonable and necessary usual expenses of administration, operation, maintenance and repair; costs for billing and collecting the rates; insurance premiums; costs and expenses of any Credit Facility; and legal, engineering, auditing and financial advisory expenses; all as determined (except as otherwise specified in this Subordinate Indenture) in accordance with GAAP for entities such as the Authority consistently applied, excluding (a) any payments payable by the Authority to the City under the Cooperation Agreement, (b) any payments in lieu of taxes or allowance for depreciation or amortization, and (c) expenses which constitute extraordinary, nonrecurring and non-continuing expenses of the System in the written opinion of the Qualified Independent Consultant.

Current Interest Capital Appreciation Bonds

The term “Current Interest Capital Appreciation Bonds” shall mean Subordinate Bonds as to which a portion of interest is currently payable and a portion of the interest is deferred and compounded until the Accreted Value is payable only at the maturity or prior redemption of the Subordinate Bonds. For purposes of consents, voting rights, Bondowner rights, or any other matter herein determined by a percentage of the aggregate Principal Amount of Subordinate Bonds Outstanding, Current Interest Capital Appreciation Bonds shall be valued at their Accreted Values.

Debt Service Reserve Fund Policy

The term “Debt Service Reserve Fund Policy” shall mean a Municipal Bond Debt Service Reserve Fund Policy or Policies issued by a Bond Insurer and deposited into the Subordinate Debt Service Reserve Fund.

### Debt Service Reserve Requirement

The term “Debt Service Reserve Requirement” shall mean the applicable Common Debt Service Reserve Requirement or the Series Debt Service Reserve Requirement.

### DTC

The term “DTC” shall have the meaning set forth in Section 2.10 hereof.

### DTC Representation Letter

The term “DTC Representation Letter” shall have the meaning set forth in Section 2.10 hereof.

### EMMA

The term “EMMA” shall mean the Electronic Municipal Market Access system operated by the MSRB, or any successor system.

### Fiscal Year

The term "Fiscal Year" shall mean the period of twelve months beginning on January 1 of each year or such other twelve month period as may be designated by the Authority.

### Fund

The term “Fund” shall mean any of the various funds created under this Subordinate Indenture including in a Supplemental Indenture.

### GAAP

The term “GAAP” shall mean generally accepted accounting principles.

### Grant

The term “Grant” shall mean a grant provided by any entity to or for the Authority for the payment of Current Expenses.

### Hedge Agreement

The term “Hedge Agreement” shall mean an Interest Rate Swap, cap, collar, floor, forward or other hedging agreement, arrangement or security however denominated, expressly identified pursuant to its terms as being entered into in connection with and in order to hedge interest rate fluctuations on all or a portion of any Indebtedness where (a) interest on such Indebtedness or such portion of such Indebtedness is payable at a variable rate of interest for any future period of time or is calculated at a varying rate per annum, and (b) a fixed rate is specified by the Authority in such agreement, or such Indebtedness, taken together with such agreement

results in a net fixed rate payable by the Authority for such period of time (the “Hedge Fixed Rate”), assuming the Authority and the party(ies) with whom the Authority has entered into the agreement make all payments required to be made by the terms of the agreement, provided that no such agreement may be entered into by the Authority unless any termination or similar payment which may be payable by the Authority thereunder is expressly subordinate to the obligation of the Authority on the Indebtedness.

#### Hedge Fixed Rate

The term “Hedge Fixed Rate” shall have the meaning set forth in the definition of Hedge Agreement above.

#### Holder of Subordinate Bonds

The term “Holder of Subordinate Bonds” or “Bondholder” or “Holder” or “Owner of Subordinate Bonds” or “Owner” or “Bondowner” or any similar term shall mean any registered owner of any Subordinate Bond.

#### Indebtedness

The term “Indebtedness” shall mean (a) Senior Debt, including the Senior Bonds and Other Senior Parity Indebtedness, (b) Subordinate Debt, including Subordinate Bonds, Other Subordinate Parity Indebtedness and Secondary Subordinate Debt, and (c) other debt of the Authority not secured by the Revenues.

#### Independent Auditor

The term "Independent Auditor" shall mean a person who is engaged in the accounting profession, who is a nationally recognized certified public accountant under the laws of the Commonwealth, who is in fact independent (although such person may be regularly retained by the Authority) who is appointed by the Board and who is not unsatisfactory to the Trustee. If such person be an individual, such person shall not be a member of the Board, or an officer or employee of the Authority. If such person be a partnership or corporation, such person shall not have a partner, director, officer or substantial stockholder who is a member of the Board or an officer or employee of the Authority.

#### Interest Account

The term “Interest Account” shall mean the Interest Account in the Subordinate Debt Service Fund so designated and created by Section 6.01(b)(1) hereof.

#### Interest Payment Date

The term “Interest Payment Date” shall mean the interest payment dates specified herein or in any Supplemental Indenture with respect to Subordinate Bonds issued thereunder, or the applicable interest payment dates for any other Indebtedness.

### Interim Indebtedness

The term “Interim Indebtedness” shall mean any Indebtedness (i) for or with respect to which no principal payments are required to be made other than on the maturity date thereof, which date shall be no later than five (5) years from the date of its delivery to the initial purchasers, and (ii) which are authorized by an agreement that declares the Authority’s intent, at the time of issuance, to refund or refinance all or a part of the same prior to or on such maturity date, including commercial paper, notes, and similar obligations.

### Letter of Credit

The term “Letter of Credit” shall mean an irrevocable transferable direct-pay letter of credit or standby letter of credit issued for a Series of Subordinate Bonds by a Letter of Credit Bank for the account of the Authority in favor of the Trustee supporting a Series of Subordinate Bonds as set forth in a Reimbursement Agreement.

### Letter of Credit Bank

The term “Letter of Credit Bank” shall mean the issuer of a Letter of Credit pursuant to a Reimbursement Agreement.

### Liquidity Facility

The term “Liquidity Facility” shall mean a standby bond purchase agreement or other liquidity facility pursuant to which the provider or providers agree to purchase Subordinate Bonds issued pursuant to this Subordinate Indenture tendered for purchase in accordance with a Supplemental Indenture, (ii) the provider of which has short-term ratings of at least “A-1” from S&P and “P-1” from Moody’s (unless such requirement is waived by the applicable Bond Insurer or Letter of Credit Bank) and (iii) which is acceptable to the applicable Bond Insurer or Letter of Credit Bank and each Rating Service and otherwise satisfying the requirements of a Supplemental Indenture pursuant to which Subordinate Bonds supported by such Liquidity Facility were issued.

### Liquidity Facility Issuer

The term “Liquidity Facility Issuer” shall mean the issuer of a Liquidity Facility pursuant to a Reimbursement Agreement.

### Moody's

The term "Moody's" shall mean Moody's Investors Service, its successors and assigns, and, if such corporation shall be dissolved or liquidated or shall no longer perform the functions of a securities rating agency, "Moody's" shall be deemed to refer to any other nationally recognized securities rating agency designated by the Authority, by notice to the Trustee.

### MSRB

The term “MSRB” shall mean the Municipal Securities Rulemaking Board, or any successor agency.

#### Net Revenues

The term "Net Revenues", when used with reference to any period, shall mean the Revenues of the Authority for such period, less all Current Expenses for such period.

#### Other Senior Parity Indebtedness

The term “Other Senior Parity Indebtedness” shall have the meaning set forth in the Senior Indenture.

#### Other Subordinate Parity Indebtedness

The term “Other Subordinate Parity Indebtedness” shall mean any other Indebtedness incurred by the Authority under this Subordinate Indenture or secured by this Subordinate Indenture that the Authority is required, or has elected, to treat as payable on a parity with the Subordinate Bonds with respect to the pledge of Revenues, including Reimbursement Obligations under Reimbursement Agreements and Periodic Payments under Qualified Interest Rate Swap Agreements.

#### Other Subordinate Parity Indebtedness Party

The term “Other Subordinate Parity Indebtedness Party” shall mean the other party (not the Authority) on Other Subordinate Parity Indebtedness, including, without limitation, any Letter of Credit Bank, Liquidity Facility Issuer, or Counterparty (but only with respect to Periodic Payments).

#### Outstanding

The term “Outstanding under this Subordinate Indenture” or “Outstanding hereunder” or “Outstanding”, when used with reference to Subordinate Bonds, shall mean, at any date as of which the amount of Outstanding Subordinate Bonds is to be determined, the aggregate of all Subordinate Bonds authenticated and delivered under this Subordinate Indenture, except

- (i) Subordinate Bonds cancelled at or prior to such date;
- (ii) Subordinate Bonds for the payment of which funds shall have been theretofore deposited in trust with the Trustee and which shall have matured by their terms but shall not have been surrendered for payment;
- (iii) Subordinate Bonds for the redemption or payment of which funds in the full amount required, either alone or together with the interest to be earned thereon, but without the need to reinvest interest or principal, shall then be irrevocably held in trust by the Trustee, provided that notice of such



redemption shall have been provided as set forth in Article IV or provisions satisfactory to the Trustee shall have been made for providing such notice;

- (iv) Subordinate Bonds deemed to be paid pursuant to the provisions of Article XII hereof.

With respect to Indebtedness other than Subordinate Bonds, "Outstanding" shall mean Indebtedness which has not been paid and with respect to which payment has not been provided for.

#### Paying Agent

The term "Paying Agent" shall initially mean The Bank of New York Mellon Trust Company, N.A., its successors and assigns, and any successor paying agent or co-paying agent appointed by the Authority.

#### Periodic Payments

The term "Periodic Payments" shall mean any regularly scheduled fixed payment payable by the Authority to the Counterparty pursuant to the terms of any Qualified Interest Rate Swap Agreement(s); however, Periodic Payments shall not include any termination payments or any other sums payable under the Qualified Interest Rate Swap Agreement that are not regularly scheduled payments payable by the Authority.

#### Policy Costs

The term "Policy Costs" shall mean, collectively, the repayment of any draws under a Debt Service Reserve Fund Policy and related reasonable expenses incurred by a Bond Insurer (together with interest thereon).

#### Prime Rate

The term "Prime Rate" means the rate of interest announced, from time to time, by the Trustee as its prime rate.

#### Principal Account

The term "Principal Account" shall mean the Principal Account in the Subordinate Debt Service Fund so designated and created by Section 6.01(b)(1) hereof.

#### Principal Amount

The term "Principal Amount" with respect to any Indebtedness, shall mean the stated principal thereon, the Accreted Value thereof, as applicable, or such other amount payable on any Indebtedness that is designated as principal pursuant to a Supplemental Indenture.

### Principal Office of the Trustee

The term “Principal Office” shall mean the designated corporate trust office of the Trustee responsible for the administration of this Subordinate Indenture or at the office of any successor trustee or paying agent appointed under this Subordinate Indenture.

### Qualified Independent Consultant

The term “Qualified Independent Consultant” shall mean an independent professional consultant having the skill and experience necessary to provide the particular certificate, report or approval required by the provision of this Subordinate Indenture or any Supplemental Indenture in which such requirement appears, including without limitation a Consulting Engineer and an Independent Auditor.

### Qualified Interest Rate Swap Agreement

The term “Qualified Interest Rate Swap Agreement” shall mean any agreement relating to any Subordinate Bonds issued or to be issued under this Subordinate Indenture with a Counterparty whereby the Authority will pay to the Counterparty periodic fixed amounts based upon a fixed percentage of a notional amount specified in such agreement and such Counterparty will pay to the Authority certain periodic floating amounts based upon a variable percent of the same notional amount; provided, that the underwriter for the applicable Subordinate Bonds or the Authority's financial advisor has certified to the Authority and the Trustee that (based upon then current market conditions) such Qualified Interest Rate Swap Agreement creates an overall lower Debt Service Requirement than would be attained through the issuance of Additional Bonds in an amount equal to such notional amounts at a fixed rate without such Qualified Interest Rate Swap Agreement. Periodic Payments under a Qualified Interest Rate Swap Agreement may be on parity with the Subordinate Bonds to which the Qualified Interest Rate Swap Agreement relates.

### Rate Covenant

The term “Rate Covenant” shall mean the obligation of the Authority to fix, charge, collect and revise rates, fees and other charges for the use of, and the services furnished by, the System sufficient to meet the requirements of this Subordinate Indenture, including without limitation Section 7.01.

### Rate Covenant Net Revenues

The term “Rate Covenant Net Revenues” shall mean Net Revenues, provided that Net Revenues shall be adjusted for the purpose of determining compliance with the Rate Covenant as follows: (i) to include transfers from the Rate Stabilization Fund to the Revenue Fund (as provided in Section 6.08 of the Senior Indenture), and (ii) to exclude transfers to the Rate Stabilization Fund from the Revenue Fund (as provided in Section 6.08 of the Senior Indenture).

### Rating Agency

The term “Rating Agency” shall mean Moody’s or S&P, or either of them, and their successors, or any other nationally recognized statistical rating organization selected by the Authority.

### Record Date

The term "Record Date" shall mean the fifteenth day (whether or not such day is a Business Day) immediately preceding any Interest Payment Date or such other date set forth in a Supplemental Indenture.

### Reimbursement Agreement

The term “Reimbursement Agreement” shall mean an agreement between the Authority and a Letter of Credit Bank or between the Authority and a Liquidity Facility Issuer, which agreements may be amended from time to time in accordance with the terms hereof and thereof.

### Reimbursement Obligations

The term “Reimbursement Obligations” shall mean the obligations to reimburse the Letter of Credit Bank for draws on such Letter of Credit Bank’s Letter of Credit, or to reimburse a Liquidity Facility Issuer making liquidity payments pursuant to a Liquidity Facility and to pay all other amounts due or to become due under the applicable Reimbursement Agreement.

### Reserve Determination Date

The term “Reserve Determination Date” shall mean any date established in writing by an Authorized Representative of the Authority for the valuation of investments, including any Debt Service Reserve Fund Policy and other applicable credit facilities, in the Subordinate Debt Service Reserve Fund, which valuation shall be at least annually.

### Resolution of the Board or Resolution of the Authority

The term "Resolution of the Board" or “Resolution of the Authority” shall mean a resolution certified by the Secretary or Assistant Secretary of the Authority to have been duly adopted by the Board and to be in full force and effect on the date of such certification.

### Revenue Fund

The term “Revenue Fund” shall mean the fund so designated and created by Section 6.01(1) of the Senior Indenture.

## Revenues

The term "Revenues" shall mean any and all rates, fees, rents and charges established or to be established, levied and collected in connection with, and all other payments, revenues of whatever kind or character arising from, the operation or ownership of any property of the Authority or any part thereof (except tap or connection fees and charges to the extent such fees or charges are pledged in accordance with the Act as a refund to such person who has paid for the construction of any extension of the System), any income earned on the moneys or investments on deposit in the Debt Service Fund, Debt Service Reserve Fund, Construction Fund, Revenue Fund, Operating Fund, Operating Reserve Fund, Rate Stabilization Fund and any sinking, purchase or analogous fund created under the Senior Indenture and hereunder and any Periodic Payments received by the Authority from the Counterparty pursuant to any Qualified Interest Rate Swap Agreement which, upon receipt, shall be transferred to and deposited in the Revenue Fund, all as determined (except as otherwise specified in this Subordinate Indenture or the Senior Indenture) in accordance with GAAP for entities such as the Authority consistently applied. Revenues shall not include refundable customer deposits or other payments solely in aid of construction, any Grants, payments from PENNVEST or similar payments, or the proceeds resulting from the sale of all or a portion of the System.

## Secondary Subordinate Debt

The term "Secondary Subordinate Debt" shall mean Subordinate Debt which has pledged to its payment Net Revenues, alone or in conjunction with other sources, as a subordinate lien pledge after the pledge of Net Revenues to secure the Senior Debt and to secure Subordinate Bonds and Other Subordinate Parity Indebtedness. Such debt as of the date hereof includes the PENNVEST Loans, the 2018 Revolving Credit Agreement with JPMorgan Chase Bank, N.A. and the 2018 Operating Line of Credit with PNC Bank, National Association.

## Senior Bond or Senior Bonds

The term "Senior Bond" or "Senior Bonds" shall mean any bond or all the bonds, as the case may be, authenticated and delivered under the Senior Indenture, and not including Subordinate Bonds.

## Senior Debt

The term "Senior Debt" shall mean the Senior Bonds and Other Senior Parity Indebtedness.

## Senior Indenture

The term "Senior Indenture" shall mean the Amended and Restated Trust Indenture dated as of October 15, 1993, amended and restated as of November 1, 2017, and effective on December 28, 2017, with The Bank of New York Mellon Trust Company, N.A., as trustee, as amended and supplemented from time to time, together with any replacement indenture pursuant to which a first lien on Revenues is pledged.

### Separate Series Debt Service Reserve Requirement

The term “Separate Series Debt Service Reserve Requirement” shall mean, for any Series of Additional Bonds hereunder for which the Supplemental Indenture authorizes a Separate Series Debt Service Reserve Requirement, the amount, if any, specified in such Supplemental Indenture as the Separate Series Debt Service Reserve Requirement; provided, however, that such amount shall not exceed the maximum amount permitted by the Code. Such amount may be zero.

### Separate Series Debt Service Reserve Secured Bonds

The term “Separate Series Debt Service Reserve Secured Bonds” shall mean any Series of Subordinate Bonds for which the Supplemental Indenture authorizes said Bonds to be secured by funds constituting a Separate Series Debt Service Reserve Requirement.

### Series or Series of Subordinate Bonds

The term “Series” or “Series of Subordinate Bonds” shall mean a separate series or subseries of Subordinate Bonds issued hereunder or under a Supplemental Indenture.

### Series Debt Service Reserve Account

The term “Series Debt Service Reserve Account” shall mean each account in the Debt Service Reserve Fund related to a particular Series of Bonds that is required to be funded as required in a Supplemental Indenture.

### Series Debt Service Reserve Requirement

The term “Series Debt Service Reserve Requirement” shall mean for any Series of the Subordinate Bonds, the Common Debt Service Reserve Requirement or the Separate Series Debt Service Reserve Requirement set forth in the Supplemental Indenture authorizing such Series of Subordinate Bonds.

### Sinking Fund Account

The term “Sinking Fund Account” shall mean the Sinking Fund Account in the Subordinate Debt Service Fund created in Section 6.01(b)(1) hereof.

### S&P

The term “S&P” shall mean Standard & Poor's Corporation, its successors and assigns, and, if such corporation shall be dissolved or liquidated or shall no longer perform the functions of a securities rating agency, "S&P" shall be deemed to refer to any other nationally recognized securities rating agency designated by the Authority, by notice to the Trustee.

### Subordinate Bond or Subordinate Bonds

The term "Subordinate Bond" or "Subordinate Bonds" shall mean any bond or all the bonds, as the case may be, authenticated and delivered under this Subordinate Indenture, and not including Senior Bonds.

### Subordinate Debt

The term "Subordinate Debt" shall mean any bonds, notes or other obligations issued in connection with the System (a) which are designated by the Authority as Subordinate Debt, and (b) which may have pledged to their payment Net Revenues, alone or in conjunction with other sources, as a subordinate lien pledge after the pledge of Net Revenues to Senior Debt. Subordinate Debt shall include amounts owed to letter of credit banks or liquidity facility providers securing Subordinate Debt or periodic payments due on interest rate swap agreements related to Subordinate Debt, which shall be payable in accordance with Section 6.02(3) of the Senior Indenture, or termination or other payments (other than periodic payments) due under interest rate swap agreements related to Subordinate Debt, which shall be payable in accordance with Section 6.02(5) of the Senior Indenture.

### Subordinate Debt Service Fund

The term "Subordinate Debt Service Fund" is the fund so designated and created by Section 6.01(b)(1) hereof.

### Subordinate Debt Service Reserve Fund

The term "Subordinate Debt Service Reserve Fund" is the fund so designated and created by Section 6.01(b)(2) hereof.

### Subordinate Indenture

The term "Subordinate Indenture" or "this Subordinate Indenture" shall mean this amended and restated subordinate trust indenture and all indentures supplemental hereto.

### Subordinate Rebate Fund

The term "Subordinate Rebate Fund" shall mean the fund so designated and created pursuant to Section 6.01(b)(4) hereof.

### Subordinate Redemption Fund

The term "Subordinate Redemption Fund" shall mean the fund so designated and created pursuant to Section 6.01(b)(3) hereof.

### Supplemental Indenture

The term "Supplemental Indenture" or "Indenture supplemental hereto" shall mean any indenture now or hereafter duly authorized and entered into in accordance with the provisions of this Subordinate Indenture.

### System

The term "System" shall mean and include, as of any particular time, (i) all tangible property, fixed or moveable, then owned or operated by the Authority and used in the rendering of water service, stormwater service, and sewer service by the Authority, (ii) all Capital Additions then constructed or otherwise acquired relating to water service, stormwater service, and sewer service, and (iii) all franchises used or useful to the Authority at such particular time in the rendering of water service, stormwater service, and sewer service by the Authority.

### Tax Regulatory Certificate

The term "Tax Regulatory Certificate" shall mean a Tax Regulatory Certificate, Tax Regulatory Agreement, Non-Arbitrage Certificate or similar tax certificate of the Authority executed and delivered by the Authority in respect of a Series of Subordinate Bonds issued under this Subordinate Indenture.

### Tender Indebtedness

The term "Tender Indebtedness" shall mean any Indebtedness a feature of which is an option or obligation on the part of the holders of such Indebtedness to tender all or a portion of such Indebtedness to a fiduciary for payment or purchase and requiring that such Indebtedness or a portion of such Indebtedness be purchased if properly tendered.

### Term Bonds

The term "Term Bonds" shall mean any Subordinate Bonds stated to mature on a specified date and required to be redeemed in part prior to maturity according to a sinking fund schedule.

### Test Period

The term "Test Period" shall mean any 12 consecutive months of the last 24 months prior to the testing date.

### Trust Estate

The term “Trust Estate” shall have the meaning set forth in the Granting Clause hereto.

### Trustee

The term "Trustee" shall mean The Bank of New York Mellon Trust Company, N.A., its successors in the trust hereunder.

### Valuation Date

The term “Valuation Date” with respect to any Capital Appreciation Bonds, Capital Appreciation and Income Bonds, or Current Interest Capital Appreciation Bonds, shall mean the date or dates set forth in the Supplemental Indenture on which specific Accreted Values are assigned to such Capital Appreciation Bonds, Capital Appreciation and Income Bonds, or Current Interest Capital Appreciation Bonds.

### Variable Rate Indebtedness

The term “Variable Rate Indebtedness” shall mean any Indebtedness the interest rate on which is not fixed to maturity at the time of calculation, or other relevant time.

Section 1.02 Rules of Interpretation. Except where the context otherwise requires, (i) words importing one gender shall include all genders and words importing the singular number shall include the plural and vice versa, (ii) references to any entities shall include their successors and assigns, and (iii) references to any documents shall include any subsequent amendments and supplements thereto.

Section 1.03 Effect on Existing Subordinate Indenture. This 2019-1 Supplemental Subordinate Trust Indenture constitutes the Amended and Restated Subordinate Trust Indenture and it replaces in its entirety the Existing Subordinate Indenture without impairment to the liens created by the Existing Subordinate Indenture. By their purchase of the 2019B Subordinate Bonds, the Holders of the 2019B Subordinate Bonds, on behalf of themselves and all future holders of the 2019B Subordinate Bonds, consent to the provisions of this Amended and Restated Subordinate Indenture and to the replacement in its entirety of the Existing Subordinate Indenture.

## ARTICLE II

### DESCRIPTION, EXECUTION AND REGISTRATION OF BONDS

Section 2.01 Issuance of Subordinate Bonds; 2019B Subordinate Bonds; Form and Terms thereof. The Subordinate Bonds may, at the election of the Authority, be issued in one or more Series and shall be designated generally as the “Water and Sewer System Subordinate Revenue Bonds” of the Authority or similar designation.



There is hereby created one new series of Subordinate Bonds to be issued under and secured by this Subordinate Indenture, on a parity with the other Subordinate Bonds of the Authority which may be issued in the future pursuant to Section 3.02 of this Subordinate Indenture, to be designated "The Pittsburgh Water and Sewer Authority, Water and Sewer System Subordinate Revenue Refunding Bonds, Series B of 2019," in the aggregate principal amount of \$104,290,000. The 2019B Subordinate Bonds shall be issued for the purpose of providing funds for the payment of the cost of the 2019 Project. The 2019B Subordinate Bonds shall be substantially in the form attached hereto as Exhibit C, with such necessary or appropriate insertions, omissions and variations as may be required or permitted by this Subordinate Indenture. The 2019B Subordinate Bonds shall be executed in the form and manner herein specified and delivered to the Trustee for authentication and the Trustee shall authenticate and deliver the principal amount of 2019B Subordinate Bonds, but only upon receipt by the Trustee of the Resolution, this 2019-1 Supplemental Indenture and certificates, opinions and all other materials and documents as provided in Section 3.02 of this Subordinate Indenture. The 2019B Subordinate Bonds as issued hereunder will be subject to the provisions of this Subordinate Indenture. The 2019B Subordinate Bonds are Common Debt Service Reserve Secured Bonds hereunder.

The 2019B Subordinate Bonds shall be issuable only as fully registered bonds in denominations of \$5,000 or any integral multiple thereof. The 2019B Subordinate Bonds shall be numbered and shall bear such prefixes as may be satisfactory to the Authority and the Trustee. The 2019B Subordinate Bonds shall bear interest on the unpaid principal thereof at the annual fixed rates set forth below, computed on the basis of a 360-day year consisting of twelve 30-day months, payable semiannually on March 1 and September 1 of each year, commencing September 1, 2019 until the principal thereof shall have been paid or provided for. The 2019B Subordinate Bonds shall mature on the following dates and in the following principal amounts and bear interest at the following rates:

2019B Subordinate Bonds

| <u>Maturity Date<br/>(September 1)</u> | <u>Principal</u> | <u>Interest Rate</u> |
|--|------------------|----------------------|
| 2030                                   | \$2,990,000      | 5.000%               |
| 2031                                   | \$15,405,000     | 5.000%               |
| 2032                                   | \$25,600,000     | 5.000%               |
| 2033                                   | \$26,635,000     | 5.000%               |
| 2034                                   | \$27,880,000     | 4.000%               |
| 2035                                   | \$5,780,000      | 4.000%               |

Each 2019B Subordinate Bond shall bear interest from the immediately preceding Interest Payment Date to which interest has been paid, (a) unless the date of authentication is after the Record Date and on or before the succeeding Interest Payment Date in which case such 2019B Subordinate Bond shall bear interest from such succeeding Interest Payment Date or (b) unless the date of authentication is on or prior to September 1, 2019 and if no interest has been paid on such 2019B Subordinate Bond, such 2019B Subordinate Bond shall bear interest from July 2, 2019.

The debt service schedule for the 2019B Subordinate Bonds is set forth in Exhibit D hereto.

The 2019B Subordinate Bonds shall be redeemable as provided therein and in Article IV hereof.

Subject to applicable provisions hereof, all Additional Bonds shall be issued and shall contain such maturities, payment terms, interest rate provisions, redemption or prepayment features and other provisions as shall be set forth in the Supplemental Indenture providing for the issuance of such Additional Bonds.

The Subordinate Bonds shall be limited obligations of the Authority, payable solely from the Trust Estate. The Subordinate Bonds shall constitute a valid claim of the respective Owners thereof against the Trust Estate, which is pledged, subject to the pledge to secure Senior Debt under the Senior Indenture, to secure the payment of the principal of, redemption premium, if any, and interest on the Subordinate Bonds, and which shall be utilized for no other purpose, except as expressly authorized in this Subordinate Indenture and the Senior Indenture. The Subordinate Bonds shall not constitute general obligations of the Authority and under no circumstances shall the Subordinate Bonds be payable from, nor shall the registered Owners thereof have any rightful claim to, any income, revenues, funds or assets of the Authority other than those pledged hereunder as security for the payment of the Subordinate Bonds.

Section 2.02 Registration of Subordinate Bonds. The Authority shall keep or cause to be kept at the Principal Office of the Trustee books for the registration and transfer of Subordinate Bonds; and the Authority will register or transfer or cause to be registered or transferred therein, as hereinafter provided and under such reasonable regulations as it may prescribe, any Subordinate Bond entitled to be so registered or transferred, upon presentation for such purpose. The Trustee is hereby appointed as registrar of the Authority for the purpose of registering, transferring and exchanging the Subordinate Bonds. A Bond Insurer shall, upon the occurrence of an event of default triggering an obligation to make payments under the Insurance Policy, have the right to inspect the registration books maintained pursuant to this Section 2.02.

Section 2.03 Uniform Commercial Code. The Subordinate Bonds shall be securities under the Pennsylvania Uniform Commercial Code Investment Securities and shall be negotiable instruments to the extent provided therein.

Section 2.04 Transfers and Exchanges of Subordinate Bonds. Upon surrender for transfer of any fully registered Subordinate Bond at the Principal Office of the Trustee, the Trustee shall authenticate and deliver in the name of the transferee or transferees one or more new fully registered Subordinate Bonds of authorized denominations for the aggregate Principal Amount which the Bondholder is entitled to receive.

Any Subordinate Bond shall be exchangeable for Subordinate Bonds of any authorized denomination, in an aggregate Principal Amount equal to the Principal Amount of the Subordinate Bond presented for exchange.

All Subordinate Bonds presented for transfer or exchange shall be accompanied by a written instrument or instruments of transfer or authorization for exchange, in form satisfactory to the Trustee, duly executed by the Bondholder or by his duly authorized attorney. No transfer of any Subordinate Bond shall be valid unless made on the registration books by the registered Owner in person, or by his duly authorized attorney. Such registrations, exchanges and transfers shall be without expense to the Holders of the Subordinate Bonds, but any taxes, fees or other governmental charges required to be paid with respect to the same shall be paid by the Holder requesting any such registration, exchange or transfer as a condition precedent to the exercise of such privilege. Subordinate Bonds may be presented for exchange or transfer only at the Principal Office of the Trustee or at the office of any Paying Agent as the Authority may hereafter appoint.

The Trustee shall not be required to register the transfer or exchange of any Subordinate Bond (i) during a period beginning at the opening of business fifteen (15) days before the day of the mailing of notice of redemption of the Subordinate Bonds and ending at the close of business on the date of such mailing, (ii) at any time following the selection of such Subordinate Bonds, in whole or in part, for redemption, or (iii) during the period commencing on a Record Date and ending on the corresponding Interest Payment Date.

In the event the Subordinate Bonds are no longer Book-Entry Bonds, to the extent that the Holder of the Subordinate Bonds under this Subordinate Indenture is not an exempt recipient under Treas. Reg. § 1.6045-(c)(3), such Holder shall provide or cause to be provided to the Trustee information regarding the amount paid for the Subordinate Bonds, any brokers' fees or commissions, and any other capitalized costs relating to the Subordinate Bonds, in each case to the extent necessary for the Trustee to comply with any applicable tax reporting obligations, including without limitation any cost basis reporting obligations under Internal Revenue Code Section 6045. The Trustee may rely on the information provided to it and shall have no responsibility to verify or ensure the accuracy of such information.

Section 2.05 Form of Subordinate Bonds; Temporary Subordinate Bonds. Subordinate Bonds in definitive form shall be printed or typewritten. Until Subordinate Bonds in definitive form of any Series are ready for delivery, the Authority may execute and upon its request in writing the Trustee shall initially authenticate and deliver in lieu of any thereof, and subject to the same provisions, limitations and conditions, one or more printed, or typewritten Subordinate Bonds in temporary form, substantially of the tenor of the Subordinate Bonds hereinbefore described, and with appropriate omissions, variations and insertions, with regard to the Subordinate Bonds. Such Subordinate Bonds or Subordinate Bonds in temporary form may be for the amount of \$5,000 or any multiple or multiples thereof, as the Authority may determine. Until exchanged for Subordinate Bonds in definitive form such Subordinate Bonds in temporary form shall be entitled to the lien and benefit of this Subordinate Indenture. The Authority shall, without unreasonable delay, prepare, execute and deliver to the Trustee, and thereupon, upon the presentation and surrender of any Subordinate Bond or Subordinate Bonds in temporary form, the Trustee shall authenticate and deliver, in exchange therefor, a Subordinate Bond or Subordinate Bonds in definitive form of the same Series and same maturity for the same aggregate Principal Amount as the Subordinate Bond or Subordinate Bonds in temporary form surrendered. Such exchange shall be made by the Authority at its own expense and without making any charge therefor. Until such Subordinate Bonds in definitive form are ready for

delivery, the Holder of one or more Subordinate Bonds in temporary form may, with the consent of the Authority, exchange the same, upon the surrender thereof to the Trustee for cancellation, for Subordinate Bonds in temporary form of like aggregate Principal Amount, of the same Series and maturity, in authorized denominations.

Section 2.06 Numbering of Subordinate Bonds. Any Subordinate Bond may bear such numbers, letters, or other marks of identification or designation, and may be endorsed with or have incorporated in the text thereof such legends or recitals with respect to transferability or in respect of the Subordinate Bond or Subordinate Bonds for which it is exchangeable and may contain such provisions, specifications and descriptive words, not inconsistent with the provisions of this Subordinate Indenture, as may be determined by the Authority and approved by the Trustee.

Section 2.07 Execution of Subordinate Bonds. All the Subordinate Bonds shall, from time to time, be executed on behalf of the Authority by the manual or facsimile signature of its Chairman or its Vice Chairperson and its corporate seal (which may be in facsimile) shall be thereunto affixed or thereon imprinted and attested by the manual or facsimile signature of its Secretary or its Assistant Secretary. If any of the officers whose signature shall be upon the Subordinate Bonds shall cease to be such officers of the Authority before the Subordinate Bonds so signed and sealed shall have been actually authenticated by the Trustee or delivered by the Authority, such Subordinate Bonds nevertheless may be authenticated, issued, and delivered with the same force and effect as though the person or persons whose signature shall be upon such Subordinate Bonds had not ceased to be such officer or officers of the Authority; and also any such Subordinate Bond may be signed and sealed on behalf of the Authority by the signature of such persons as at the actual date of the execution of such Subordinate Bond shall be the proper officers of the Authority, although at the nominal date of such Subordinate Bond any such person shall not have been such officer of the Authority.

Section 2.08 Mutilated, Lost, Stolen or Destroyed Subordinate Bonds. Upon receipt by the Authority and the Trustee of evidence satisfactory to both of them that any Outstanding Subordinate Bond has been mutilated, destroyed, lost or stolen, and of indemnity satisfactory to both of them, the Authority, in its discretion, may execute and thereupon the Trustee shall authenticate and deliver, a new Subordinate Bond of the same Series and same maturity and of like tenor in exchange and substitution for, and upon surrender and cancellation of, the mutilated Subordinate Bond or in lieu of and in substitution for the Subordinate Bond so destroyed, lost or stolen. The Authority may, for each new Subordinate Bond authenticated and delivered under the provisions of this Section, require the payment of the expenses, including counsel fees, which may be incurred by the Trustee in taking action pursuant to this Section 2.04. Any Subordinate Bond issued under the provisions of this Section in lieu of any Subordinate Bond alleged to be destroyed, lost or stolen, shall constitute an original additional contractual obligation on the part of the Authority whether or not the Subordinate Bond so alleged to be destroyed, lost or stolen be at any time enforceable by anyone; and shall be equally and proportionately entitled to the benefits of this Subordinate Indenture with all other Subordinate Bonds issued under this Subordinate Indenture.

Section 2.09 Certificate of Authentication. Subject to the qualifications hereinbefore set forth, the Subordinate Bonds to be secured hereby shall be substantially of the

tenor and effect hereinbefore recited, and no Bonds shall be secured hereby or entitled to the benefit hereof, or shall be or become valid or obligatory for any purpose, unless there shall be endorsed thereon a certificate of authentication, substantially set forth in the form of the Subordinate Bond as shall be set forth in this Subordinate Indenture or in the Supplemental Indenture providing for the issuance of such Bonds, executed by the Trustee; and such certificate on any Subordinate Bond issued by the Authority shall be conclusive evidence and the only competent evidence that it has been duly authenticated and delivered hereunder. The Subordinate Bonds shall be authenticated by the Trustee.

Section 2.10 Book-Entry Only Subordinate Bonds. Unless a Supplemental Indenture shall provide otherwise with respect to a Series of Bonds, the Subordinate Bonds of a Series shall be initially issued in book-entry only form. Unless a Supplemental Indenture shall provide otherwise with respect to a Series, in the event that any provision of this Section 2.10 is inconsistent with other provisions of this Subordinate Indenture, so long as the Subordinate Bonds shall be in book-entry only form, the provisions of this Section 2.10 shall govern. The Depository Trust Company ("DTC") will act as securities depository for the Subordinate Bonds. The ownership of one fully registered Subordinate Bond for each maturity set forth in this Subordinate Indenture, each in the aggregate Principal Amount of such maturity, will be registered in the name of CEDE & Co., as nominee for DTC; provided that if DTC shall request that the Subordinate Bonds be registered in the name of a different nominee, the Trustee shall exchange all or any portion of the Subordinate Bonds for an equal aggregate Principal Amount of Subordinate Bonds registered in the name of such nominee or nominees of DTC. No person other than DTC or its nominee shall be entitled to receive from the Authority or the Trustee either a Subordinate Bond or any other evidence of ownership of the Subordinate Bonds, or any right to receive any payment in respect thereof unless DTC or its nominee shall transfer record ownership of all or any portion of the Subordinate Bonds on the registration books maintained by the Trustee, in connection with discontinuing the book entry system or otherwise.

So long as the Subordinate Bonds or any portion thereof are registered in the name of DTC or any nominee thereof, all payments of the principal or redemption price of or interest on such Subordinate Bonds shall be made to DTC or its nominee in New York Clearing House or equivalent next day funds on the dates provided for such payments under this Subordinate Indenture. Each such payment to DTC or its nominee shall be valid and effective to fully discharge all liability of the Authority or the Trustee with respect to the principal or redemption price of or interest on the Subordinate Bonds to the extent of the sum or sums so paid. In the event of the redemption of less than all of the Subordinate Bonds Outstanding, the Trustee shall not require surrender by DTC or its nominee of the Subordinate Bonds so redeemed, but DTC or its nominee may retain such Subordinate Bonds and make an appropriate notation on the Subordinate Bond certificate as to the amount of such partial redemption; provided that, in each case the Trustee shall request, and DTC shall deliver to the Trustee, a written confirmation of such partial redemption and thereafter the records maintained by the Trustee shall be conclusive as to the amount of the Subordinate Bonds which have been redeemed.

The Authority and the Trustee may treat DTC or its nominee as the sole and exclusive Owner of the Subordinate Bonds registered in its name for the purposes of payment of the principal or redemption price of or interest on the Subordinate Bonds, selecting the Bonds or

portions thereof to be redeemed, giving any notice permitted or required to be given to Bondholders under this Subordinate Indenture, registering the transfer of Subordinate Bonds, obtaining any consent or other action to be taken by Bondholders and for all other purposes whatsoever; and neither the Authority nor the Trustee shall be affected by any notice to the contrary. Neither the Authority nor the Trustee shall have any responsibility or obligation to any participant in DTC, any person claiming a beneficial ownership interest in the Subordinate Bonds under or through DTC or any such participant, or any other person which is not shown on the registration books of the Trustee as being a Bondholder, with respect to either: (i) the Subordinate Bonds; or (ii) the accuracy of any records maintained by DTC or any such participant; or (iii) the payment by DTC or any such participant of any amount in respect of the principal or redemption price of or interest on the Subordinate Bonds; or (iv) any notice which is permitted or required to be given to Bondholders under this Subordinate Indenture; or (v) the selection by DTC or any such participant of any person to receive payment in the event of a partial redemption of the Subordinate Bonds; or (vi) any consent given or other action taken by DTC as Bondholder.

So long as the Subordinate Bonds or any portion thereof are registered in the name of DTC or any nominee thereof, all notices required or permitted to be given to the Bondholders under this Subordinate Indenture shall be given to DTC as provided in the Representation Letter between the Authority and DTC (the "DTC Representation Letter"), in such form as is acceptable to the Trustee, the Authority and DTC.

In connection with any notice or other communication to be provided to Bondholders pursuant to this Subordinate Indenture by the Authority or the Trustee with respect to any consent or other action to be taken by Bondholders, DTC shall consider the date of receipt of notice requesting such consent or other action as the record date for such consent or other action, provided that the Authority or the Trustee may establish a special record date for such consent or other action. The Authority or the Trustee shall give DTC notice of such special record date not fewer than fifteen (15) calendar days in advance of such special record date to the extent possible.

At or prior to the issuance of the Subordinate Bonds, the Authority and the Trustee shall execute or signify their approval of the DTC Representation Letter. Any successor Trustee shall, in its written acceptance of its duties under this Subordinate Indenture, agree to take any actions necessary from time to time to comply with the requirements of the DTC Representation Letter.

The book-entry system for registration of the ownership of the Subordinate Bonds may be discontinued at any time if either: (i) DTC determines to resign as securities depository for the Subordinate Bonds; or (ii) the Authority provides thirty (30) days' notice of such discontinuation to the Trustee and DTC that continuation of the system of book-entry transfers through DTC (or through a successor securities depository) is not in the best interests of the Authority. Upon occurrence of either such event, the Authority may attempt to establish a securities depository book-entry relationship with another securities depository. If the Authority does not do so, or is unable to do so, and after the Authority has notified DTC and upon surrender to the Trustee of the Subordinate Bonds held by DTC, the Authority will issue and the Trustee will authenticate and deliver the Subordinate Bonds in registered certificate form in

denominations of \$5,000 and integral multiples thereof (or such other denominations as are applicable to a Series as set forth in a Supplemental Indenture), at the expense of the Authority, to such persons, and in such maturities and Principal Amounts, as may be designated by DTC, but without any liability on the part of the Authority or the Trustee for the accuracy of such designation. Whenever DTC requests the Authority or the Trustee to do so, the Authority or the Trustee shall cooperate with DTC in taking appropriate action after reasonable notice to arrange for another securities depository to maintain custody of certificates evidencing the Subordinate Bonds.

In connection with any proposed transfer outside the Book-Entry Only system, prior to or in conjunction with the issuance of certificated Subordinate Bonds, the Bondholder shall provide or cause to be provided to the Trustee all information necessary to allow the Trustee to comply with any applicable tax reporting obligations, including, without limitation, any cost basis reporting obligations under the Internal Revenue Code Section 6045.

The Authority acknowledges such tax reporting obligations and, if necessary, agrees to use commercially reasonable efforts to assist the Trustee in obtaining such information. The Trustee shall conclusively rely on the information provided to it and shall have no responsibility to verify or ensure the accuracy of such information.

### ARTICLE III

#### AUTHENTICATION AND DELIVERY OF SUBORDINATE BONDS

Section 3.01 Purposes of Subordinate Bonds. The Authority may issue Additional Bonds from time to time under this Subordinate Indenture. Additional Bonds may be issued (a) to pay Costs, (b) to refund Subordinate Bonds or any other Indebtedness (including Senior Debt or Subordinate Debt or other debt not secured by the Revenues), (c) to pay costs of issuance, (d) to fund reserves and/or pay costs associated with Capitalized Interest or terminating Qualified Interest Rate Swap Agreements, or (e) for a combination of such purposes.

In the event that any Policy Costs are due and owing at the time of issuance of the Additional Bonds, for the purpose of the debt tests required by Section 3.02 hereof, Revenues of the Authority shall be reduced by the amount of any Policy Costs then due and owing.

No Additional Bonds may be issued without the prior written consent of a Bond Insurer if any Policy Costs are past due and owing to the Bond Insurer.

Section 3.02 Conditions for Issuing Subordinate Bonds. Before the issuance and authentication of any Series of Subordinate Bonds by the Trustee, there shall be filed with the Trustee:

- (a) In connection with the initial execution of this Subordinate Indenture:
  - (i) A certified copy of this Subordinate Indenture;
  - (ii) A Counsel's Opinion, subject to customary exceptions and qualifications, substantially to the effect that this Subordinate Indenture has been duly authorized,

executed and delivered to the Trustee and is a valid, binding and enforceable obligation of the Authority.

(b) A certified copy of a Supplemental Indenture (or this Subordinate Indenture only with respect to the 2019B Subordinate Bonds) which (1) shall include: (A) provisions authorizing the issuance, fixing the Principal Amount and setting forth the details of such Subordinate Bonds, including their date, the interest rate or rates and the manner in which the Subordinate Bonds are to bear and pay interest (including whether such Bonds constitute Capital Appreciation Bonds, Capital Appreciation and Income Bonds or Current Interest Capital Appreciation Bonds), the principal and Interest Payment Dates of the Subordinate Bonds; the purposes for which such Subordinate Bonds are being issued, the manner of numbering of such Subordinate Bonds, the Series designation, the denominations, the maturity dates and principal maturities, the Principal Amounts required to be redeemed pursuant to any mandatory redemption provisions or the manner for determining such Principal Amounts, any provisions for optional or extraordinary redemption before maturity, and any provisions regarding the Common Debt Service Reserve Requirement or Series Debt Service Reserve Requirement; and (B) provisions for the application of the proceeds of such Subordinate Bonds; and (2) may include: (A) provisions for Credit Facilities and for other Funds and Accounts to be established with respect to such Subordinate Bonds; (B) provisions necessary or expedient for the issuance and administration of Subordinate Bonds bearing interest at a variable rate or other manner of bearing interest, including remarketing provisions, liquidity facility provisions and provisions for establishing the variable rate and converting to a fixed rate; (C) provisions for entering into credit enhancement devices permitted by Commonwealth law; and (D) such other provisions as the Authority may deem appropriate.

(c) A certified copy of applicable Resolution of the Board authorizing, as required by law, the issuance, sale, award, execution and delivery of such Subordinate Bonds and, in the case of a Series of Bonds issued to refund Indebtedness, calling for redemption or payment of the Indebtedness to be refunded, fixing any redemption date and authorizing any required notice of redemption in accordance with the provisions of this Subordinate Indenture.

(d) A certificate signed by an Authorized Representative of the Authority and dated the date of such issuance, to the effect that:

(i) Either (A) upon and immediately following such issuance, no Event of Default has occurred which has not been cured or waived, and no event or condition exists which, with the giving of notice or lapse of time or both, would become an Event of Default or (B) if any such event or condition is happening or existing, specifying such event or condition, stating that the Authority will act with due diligence to correct such event or condition after the issuance of such Subordinate Bonds, and describing in reasonable detail the actions to be taken by the Authority toward such correction; and

(ii) All required approvals, limitations, conditions and provisions precedent to the issuance of such Series of Subordinate Bonds have been obtained, observed, met and satisfied.



(e) A Counsel's Opinion, subject to customary exceptions and qualifications, substantially to the effect that the Supplemental Indenture for such Series of Subordinate Bonds (or this Subordinate Indenture only in connection with the 2019B Subordinate Bonds) has been duly authorized, executed and delivered, is binding on the Authority and complies in all respects with the requirements of this Subordinate Indenture.

(f) An opinion of Bond Counsel, subject to customary exceptions and qualifications, substantially to the effect that the issuance of such Subordinate Bonds has been duly authorized, that such Bonds are valid and binding limited obligations of the Authority, and with respect to Subordinate Bonds to be issued on a tax-exempt basis, that the interest on such Bonds is excludable from gross income for purposes of Federal income taxation.

(g) If a Series of Subordinate Bonds are issued to pay Costs, the following:

(i) (A) if the Subordinate Bonds are Common Debt Service Reserve Secured Bonds, evidence that upon issuance of such Subordinate Bonds, the Common Debt Service Reserve Requirement will be fully funded, or (B) if the Subordinate Bonds are Separate Series Debt Service Reserve Secured Bonds, evidence that, upon issuance of such Subordinate Bonds, the Separate Series Debt Service Reserve Requirement for such Subordinate Bonds will be fully funded or will be funded in accordance with the requirements of the applicable Supplemental Indenture; and

(ii) A certificate of (A) a Qualified Independent Consultant, stating that based on the Authority's financial records for a Test Period, the Authority would have been able to meet the Rate Covenant in Section 7.01 of the Senior Indenture, taking into account (i) the maximum Annual Debt Service on the proposed Series of Additional Bonds in the current or any future Fiscal Year, (ii) the additional Net Revenues from the rates, fees and other charges adjusted to reflect any rate increases that had not been in effect throughout the Test Period but that have been approved by and can be implemented by the Authority at the time of the delivery of the proposed Series of Additional Bonds to go into effect within the following five years; and (iii) additional Net Revenues that the Authority may realize from the addition to the System of the assets it proposes to finance through the issuance of the proposed Series of Additional Bonds or other funding sources within the following five years or (B) the Authorized Representative of the Authority stating that based on the Authority's financial records for a Test Period, the Authority has met the Rate Covenant in Section 7.01 of the Senior Indenture, taking into account the maximum Annual Debt Service on the proposed Series of Additional Bonds. In making the certifications required under this paragraph, the Authorized Representative of the Authority or the Qualified Independent Consultant, as applicable, shall determine and utilize the Additional Indebtedness Test Net Revenues in place of the Rate Covenant Net Revenues in determining whether the Authority would have been able to meet the Rate Covenant in Section 7.01 of the Senior Indenture.

(h) If any Subordinate Bonds are issued to refund any Indebtedness, the following:

(i) Evidence that the Authority has made provision as required by this Subordinate Indenture for the payment or redemption of all Indebtedness to be refunded;

(ii) A certificate of an Authorized Representative of the Authority demonstrating that the proposed refunding will not result in an increase in the Annual Debt Service payable on all Indebtedness in any Fiscal Year. If the proposed refunding will result in an increase in the Annual Debt Service payable on all Indebtedness in any Fiscal Year, then the issuance of that Series of Additional Bonds shall be subject to the same requirements as the issuance of a Series of Additional Bonds to pay Costs under Section 3.02(g)(ii).

(i) A request and authorization of the Authority, signed by an Authorized Representative of the Authority, to the Trustee to authenticate and deliver such Subordinate Bonds to the purchaser upon payment to the Trustee of a specified sum plus accrued interest to the date of delivery.

Except for the requirements of subsection (d) of this Section (which may be waived by the purchasers of such Bonds by an instrument or concurrent instruments in writing signed by such purchasers), none of the requirements in this Section may be waived without the consent of the holders of not less than a majority in aggregate Principal Amount of the Outstanding Bonds.

### Section 3.03 Other Subordinate Parity Indebtedness.

(a) The Authority may incur or refinance Other Subordinate Parity Indebtedness provided that:

(1) the documents relating to the Other Subordinate Parity Indebtedness acknowledge that such debt constitutes Other Subordinate Parity Indebtedness under this Subordinate Indenture and is subject to the applicable terms and conditions hereof as if it were Subordinate Bonds, and specify the amounts and due dates of Annual Debt Service with respect to the Other Subordinate Parity Indebtedness;

(2) the requirements of Sections 3.02(g) or 3.02(h), as appropriate, have been met as if the Other Subordinate Parity Indebtedness was an additional Series of Subordinate Bonds;

(3) the Trustee receives written notice of the issuance of the Other Subordinate Parity Indebtedness and the material terms and conditions thereof and the Trustee shall register the holder as owner thereof as such on its books and records, and

(4) the Trustee receives a Counsel's Opinion that the documents creating the Other Subordinate Parity Indebtedness have been duly authorized, executed and delivered on behalf of the Authority and constitute valid, binding and enforceable obligations.

(b) The Authority shall fulfill its obligations under all contracts or agreements creating Other Subordinate Parity Indebtedness as they may exist from time to time.

Section 3.04 Secondary Subordinate Debt of Authority. In addition to the foregoing and in addition to any subordinate pledge granted by the Authority to a Bond Insurer in connection with a Debt Service Reserve Fund Policy, the Authority may incur or assume Secondary Subordinate Debt provided that:

(1) the security for such Secondary Subordinate Debt is subordinate to the lien of and security interests granted by this Subordinate Indenture; and

(2) any agreement for the repayment of such Secondary Subordinate Debt and any instrument evidencing or securing such Secondary Subordinate Debt shall provide: (i) that an event of default thereunder may be an event of default under this Subordinate Indenture, and (ii) that, notwithstanding the occurrence of any event of default in respect of any Secondary Subordinate Debt, the lender shall not be entitled to exercise any rights or remedies with respect to the Revenues until and unless the Trustee shall have instituted proceedings to exercise its rights pursuant to Article VIII hereof.

Section 3.05 Covenant as to Prior Lien Debt. The Authority will not incur or assume any debt which will be secured by a lien on the Revenues which will be prior to the lien granted by the terms of this Subordinate Indenture, except as permitted under the Senior Indenture.

Section 3.06 Deposit of Subordinate Bond Proceeds. Upon receipt of the proceeds of any Series of Subordinate Bonds issued under this Subordinate Indenture, such moneys shall be deposited to a Clearing Fund for such Subordinate Bonds and shall be disbursed for the purposes and in the amounts set forth in the closing certificate of the Authority executed on the date of issuance of such Subordinate Bonds. To the extent it is determined on or before thirty (30) days after the date of issuance of such Subordinate Bonds that any remaining moneys in such fund will not be necessary to pay costs of issuance, such moneys shall be transferred to the Subordinate Debt Service Fund and applied to pay interest on such Subordinate Bonds on the next Interest Payment Date for such Subordinate Bonds.

## ARTICLE IV

### REDEMPTION OF BONDS

Section 4.01 Redemption of Subordinate Bonds; Redemption of 2019B Subordinate Bonds.

(a) The 2019B Subordinate Bonds shall be subject to redemption as follows:

#### Optional Redemption.

The 2019B Subordinate Bonds maturing on or after September 1, 2034 are subject to redemption prior to maturity, at the option of the Authority, as a whole or in part, at any time, in the order of maturity selected by the Authority and by lot within a maturity on or after September 1, 2029. Any such redemption will be made at a redemption price equal to 100% of the principal amount thereof plus accrued interest to the redemption date.

(b) The Subordinate Bonds of any Series issued under the provisions of this Subordinate Indenture (other than the 2019B Subordinate Bonds) shall be subject to redemption, in whole or in part, and at such times and prices as may be provided in the Supplemental Indenture pursuant to which such Subordinate Bonds are issued. The Subordinate Bonds of any Series to be called for redemption shall be selected as provided in the applicable Supplemental Indenture. The Trustee shall treat each Subordinate Bond of a denomination greater than the minimum denomination authorized in the applicable Supplement Indenture as can be obtained by dividing the Subordinate Bond's actual Principal Amount by such minimum denomination.

Section 4.02 Notice of Redemption. Whenever the Authority shall redeem all or part of the Subordinate Bonds, it shall cause a written notice of intention to redeem, signed in the name of the Authority by an Authorized Representative of the Authority to be sent, by the Trustee by first class mail to each registered Owner of the Bonds to be redeemed at the last address of said registered Owner appearing upon the registration books not less than twenty (20) days or more than sixty (60) days before the redemption date (unless the applicable Supplemental Indenture provides for other timing for the notice). Failure to mail any such notice shall not affect the validity of the proceeding for redemption. Such notice shall specify the information set forth in the next following paragraph. The notice shall further state that, from and after such redemption date, interest thereon will cease to accrue. Simultaneously with the mailing of notice to Bondholders, the Trustee shall notify a Bond Insurer of any redemption, other than mandatory sinking fund redemption, of Subordinate Bonds being insured by a Bond Insurer. In the case of an optional redemption, the notice may, at the Authority's discretion, state (1) that it is conditioned upon the deposit of moneys, in an amount equal to the amount necessary to effect the redemption, with the Trustee no later than the redemption date or (2) that the Authority retains the right to rescind such notice at any time prior to the scheduled redemption date if the Authority delivers a certificate of an Authorized Representative of the Authority to the Trustee instructing the Trustee to rescind the redemption notice (in either case, a "Conditional Redemption"), and such notice and optional redemption shall be of no effect if such monies are not so deposited or if the notice is rescinded as described below.

In addition to the foregoing, the redemption notice shall contain with respect to each Subordinate Bond being redeemed, (1) the CUSIP number as provided in Section 4.04 hereof, (2) the date of issue; (3) the interest rate, (4) the maturity date, and (5) any other descriptive information determined by the Trustee to be needed to identify the Subordinate Bonds. If a redemption is a Conditional Redemption, the notice shall so state. The Trustee also shall send each notice of redemption to (i) any Rating Service then rating the Subordinate Bonds to be redeemed; (ii) all of the registered clearing agencies known to the Trustee to be in the business of holding substantial amounts of bonds of a type similar to the Subordinate Bonds; and (iii) one or more national information services that disseminate notices of redemption of bonds such as the Subordinate Bonds, such services to be identified by the Trustee.

Any Conditional Redemption may be rescinded in whole or in part at any time prior to the redemption date if the Authority delivers a certificate of an Authorized Representative of the Authority to the Trustee instructing the Trustee to rescind the redemption notice. The Trustee shall give prompt notice of such rescission to the affected Bondholders. Any Subordinate Bonds subject to Conditional Redemption where redemption has been rescinded shall remain Outstanding, and the rescission shall not constitute an Event of Default.

Further, in the case of a Conditional Redemption, the failure of the Authority to make funds available in part or in whole on or before the redemption date shall not constitute an Event of Default.

Section 4.03 Nonpresentment of Subordinate Bonds. Notice having been given in the manner hereinbefore provided in this Article and irrevocable instructions having been given to the Trustee to pay said Subordinate Bonds or portions thereof and cash equal to the redemption price of said Subordinate Bonds and the interest accrued thereon to the date of redemption having been deposited in trust with the Trustee on or prior to the date set for redemption, the Subordinate Bonds so called for redemption shall become due and payable on the redemption date so designated, and interest on such Subordinate Bonds shall cease to accrue from such redemption date, whether such Subordinate Bonds are presented for redemption or not. The Principal Amount of all Subordinate Bonds so called for redemption, together with the premium, if any, and accrued interest thereon, shall be paid by the Trustee, upon presentation and surrender thereof.

Section 4.04 CUSIP Numbers. The Trustee shall use the "CUSIP" numbers assigned to the Subordinate Bonds, if then generally in use, in notices of redemption of Subordinate Bonds as a convenience to Bondholders; provided that any such notice shall state that no representation is made as to the correctness of such numbers either as printed on the Subordinate Bonds or as contained in any notice of redemption and that reliance may only be placed on the identification numbers established under this Subordinate Indenture.

## ARTICLE V

### CONSTRUCTION FUND

Section 5.01 Construction Fund. There is hereby created a special fund known as the "Construction Fund", which shall be held in trust by the Trustee. Money shall be deposited to the Construction Fund pursuant to the provisions of Section 3.06 and from any other sources identified by the Authority. To the extent Costs of a Construction Project are paid for from Subordinate Bonds, the Authority must deposit the construction proceeds of the Subordinate Bonds in the Construction Fund and must follow the provisions of this Article V. To the extent the Authority is self-funding Costs from other than proceeds of Subordinate Bonds, the Authority may use moneys in the Revenue Fund and the Operating Fund under the Senior Indenture to pay such Costs, and the Authority need not use the Construction Fund or follow the provisions of this Article V.

Payment of the Costs of a Construction Project shall be made from the Construction Fund. A special account shall be created and identified for each such Construction Project, although funds, at the written direction of the Authority, may be transferred from one such account in the Construction Fund to another account in such Fund. On the date of issuance of Subordinate Bonds to finance in whole or in part a Construction Project, the moneys directed, in writing, by the Authority to be transferred from the Clearing Fund shall be deposited into the Construction Fund or an account therein. All moneys on deposit in the Construction Fund shall be held in Trust by the Trustee as security under this Subordinate Indenture and disbursed by the Trustee pursuant to this Section 5.01 in payment of the Costs of the Construction Project. Before

each such withdrawal and payment of the Costs of the Construction Project from the Construction Fund by the Trustee, the Authority shall deliver to the Trustee the following:

(a) A requisition, signed by any two of the Authorized Representatives of the Authority, or signed by such other person or persons who is or are authorized to do so pursuant to a Resolution of the Board, stating in respect of each payment to be made:

- (1) the item number of the payment;
- (2) the name and address of the person to whom payment is due;
- (3) the amount to be paid and the Construction Fund from which payment is to be made;
- (4) the purpose for which the obligation was incurred;
- (5) that obligations in the stated amount have been incurred by the Authority and that each item thereof is a proper part of the Cost of the Construction Project and has not been paid;
- (6) that there has not been filed with or served upon the Authority notice of any lien, right to lien or attachment upon, or claim affecting the right to receive payment of any of the moneys payable to any persons named in such requisition;
- (7) that such requisition contains no items representing payment on account of any retained percentage which the Authority is on the date of such certificate entitled to retain;
- (8) that neither the Authority nor any of its officers or members has received any discount, rebate, commission, fee, proceeds from insurance or other abatement which is not reflected on the requisition in connection with any such expenditures or indebtedness; and
- (9) that no part of any such item has been included in any previous requisition for the withdrawal of moneys from the Construction Fund; and

(b) Except to the extent to which a requisition relates to financing costs, a certificate signed by the Consulting Engineer approving such requisition and certifying that each item to be paid as set forth in such requisition constitutes an obligation which has been properly incurred as part of the Cost of the Construction Project and is then due and unpaid. For purposes of this Section 7.09, the term Consulting Engineer shall also include an employee of the City or the Authority who is otherwise qualified to act as Consulting Engineer under this Subordinate Indenture.

Upon the receipt of each such requisition and the accompanying certificate, the Trustee shall pay to the persons named in such requisition, the respective amounts stated therein to be due to such persons.

Investment earnings on the amounts on deposit in the Construction Fund shall be retained in the Construction Fund unless the Authority directs the Trustee, in writing, to transfer such earnings to the Subordinate Debt Service Fund.

Any moneys remaining in the Construction Fund after all amounts due in respect of the Construction Project shall have been paid (including any Costs of any amendment or revision of the Construction Project pursuant to Section 5.02 below), which fact shall be evidenced to the Trustee by delivery of a certificate of an Authorized Representative of the Authority to that effect, shall be transferred by the Trustee to the Revenue Fund and applied as directed in writing by the Authority; with respect to such application, the Authority will obtain an opinion of Bond Counsel that such application in and of itself will not adversely affect the exclusion from gross income of interest on the Series of Subordinate Bonds issued to fund such Construction Project. If an Event of Default pursuant to Section 8.01(a) or (b) occurs, and only to the extent that no other available moneys are held under this Subordinate Indenture, the Trustee shall transfer moneys from the Construction Fund to the Subordinate Debt Service Fund to pay principal and interest on the Subordinate Bonds.

All requisitions received by the Trustee pursuant to Section 5.01(a) may be relied upon without investigation or inquiry by and shall be retained in the possession of the Trustee for a period of five (5) years, subject at all times to the inspection of the Authority, its agents and representatives, and any other person authorized by a certificate of an Authorized Representative of the Authority.

Section 5.02 Amendment of Construction Project. The Authority may from time to time amend or revise a Construction Project with the approval of the Consulting Engineer, but only if the Authority shall have first delivered to the Trustee (i) a written statement describing the proposed amendments and revisions, (ii) a Resolution of the Board approving the proposed amendments and revisions, (iii) a certificate signed by the Consulting Engineer setting forth the general effect of such proposed amendments and revisions and certifying in his opinion that such proposed amendments and revisions are in the best interests of the Authority, and (iv) an opinion of Bond Counsel that such amendment or revision in and of itself will not adversely affect the exclusion from gross income of interest on the Series of Subordinate Bonds issued to fund such Construction Project.

Section 5.03 Contract Security. All contracts which provide for the furnishing of material or the doing of work with regard to a Construction Project shall be in compliance with all federal and state statutes, rules and regulations and shall be subject to the approval of the Consulting Engineer. The Authority will require each person with whom it may contract for construction to furnish a performance security and a labor and materialmen's security each for not less than 100% of the full amount of the contract entered into with such person or such greater or lesser amount as may be required by applicable law, and to carry such insurance as may be required by law and as may be recommended by the Consulting Engineer. The proceeds of any such performance security shall forthwith, upon the receipt thereof by the Authority, be deposited to the credit of the applicable Construction Fund or account therein and applied toward the completion of the construction covered by the contract in connection with which such performance security shall have been furnished except that any such proceeds as shall constitute liquidated damages for delay shall be deposited to the credit of the Revenue Fund. For purposes

of this Section 5.03, the term Consulting Engineer shall also include an employee of the City or the Authority who is otherwise qualified to act as Consulting Engineer under this Subordinate Indenture.

## ARTICLE VI

### REVENUES, FUNDS AND INVESTMENTS

#### Section 6.01 Funds and Accounts.

(a) Reference is made to Article VI of the Senior Indenture which describes the Revenue Fund and various other funds created under or pursuant to the Senior Indenture and this Subordinate Indenture. The periodic transfer of funds from the Revenue Fund is described in Section 6.02 of the Senior Indenture.

(b) In addition to the Construction Fund established in Section 5.01 hereof, there are hereby established the following Funds and Accounts to be held by the Trustee pursuant to this Subordinate Indenture:

(1) Subordinate Debt Service Fund to be held by the Trustee, subject to the lien of this Subordinate Indenture, in which there shall be established an Interest Account, a Principal Account and a Sinking Fund Account, and a separate subaccount in each such Account with respect to (i) all Series of Common Debt Service Reserve Secured Bonds and (ii) each Series of Separately Secured Debt Service Reserve Fund Bonds; and (iii) Other Senior Parity Indebtedness;

(2) Subordinate Debt Service Reserve Fund to be held by the Trustee, subject to the lien of this Subordinate Indenture;

(3) Subordinate Redemption Fund to be held by the Trustee, subject to the lien of this Subordinate Indenture; and

(4) Subordinate Rebate Fund to be held by the Trustee, but is not subject to the lien of this Subordinate Indenture.

Section 6.02 Subordinate Debt Service Fund. The Authority shall deposit and the Trustee shall apply the amounts required to be deposited on the applicable dates pursuant to the provisions of this Subordinate Indenture and any documents related to the Subordinate Debt for the purpose of paying the interest on and principal of Subordinate Debt.

#### Section 6.03 Subordinate Debt Service Reserve Fund.

The Series Debt Service Reserve Account maintained for all Common Debt Service Reserve Secured Bonds shall be funded at all times to the Common Debt Service Reserve Requirement, and all other Series Debt Service Reserve Accounts shall be funded at all times to the applicable Separate Series Debt Service Reserve Requirement as set forth in a Supplemental Indenture. Amounts in each Series Debt Service Reserve Account shall be used to



pay debt service on the related Series of Subordinate Bonds on the date such debt service is due if insufficient funds for that purpose are available in the related Series subaccount in the Interest Account and the related Series subaccount in the Principal Account (but only to the extent amounts in such subaccounts are less than the amounts required). Amounts in each Series Debt Service Reserve Account shall be pledged to Holders of the Subordinate Bonds secured by such Series Debt Service Reserve Account.

The Authority shall withdraw from the Revenue Fund and deposit into the Subordinate Debt Service Reserve Fund:

(a) on the dates specified in the Senior Indenture or this Subordinate Indenture or any Supplemental Indenture, the amounts required to be deposited on such dates to the credit of the applicable accounts of the Subordinate Debt Service Reserve Fund; and

(b) if a deficiency exists in any account of the Subordinate Debt Service Reserve Fund, on the dates specified in the Senior Indenture or this Subordinate Indenture or a Supplemental Indenture, such amounts as will be sufficient to repair any deficiencies in such account of the Subordinate Debt Service Reserve Fund in not more than twenty-four equal monthly payments.

In lieu of or in addition to cash or investments, at any time the Authority may cause to be deposited to the credit of the Subordinate Debt Service Reserve Fund any form of Credit Facility, including a Debt Service Reserve Fund Policy, in the amount of all or a portion of the Subordinate Debt Service Reserve Fund, irrevocably payable to the Trustee as beneficiary for the Holders of the respective Series of Subordinate Bonds, provided that the Trustee has received evidence satisfactory to it that the provider of the Credit Facility has a credit rating in one of the three highest credit rating categories by one Rating Agency.

If a disbursement is made pursuant to any Credit Facility, the Authority shall either (a) reinstate the maximum limits of such Credit Facility, or (b) deposit to the credit of the Subordinate Debt Service Reserve Fund moneys in the amount of the disbursement made under such Credit Facility from available Net Revenues. To the extent such moneys are still insufficient, then the Authority shall transfer to the Trustee from any legally available moneys the amount of such deficiency as soon as practicable and in any event within 24 months by depositing one-twenty-fourth of the required amount each month.

Amounts, if any, released from any Subordinate Debt Service Reserve Fund upon deposit to the credit of such Subordinate Debt Service Reserve Fund of a Credit Facility shall, upon designation by an Authorized Representative of the Authority, accompanied by an opinion of Bond Counsel that such use in and of itself will not adversely affect the exclusion from gross income of interest on the respective Series of Bonds, be transferred (a) to the Subordinate Debt Service Fund and used to pay interest on, principal of or to redeem such Subordinate Bonds, or (b) to the Authority to be used to pay all or any portion of the Costs designated by the Authority and approved by Bond Counsel.

On or within five days after each Reserve Determination Date, the Trustee shall determine if the balance on deposit in the Subordinate Debt Service Reserve Fund was, as of the

Reserve Determination Date, at least equal to the Debt Service Reserve Requirement. In making such determination, any obligations in the Subordinate Debt Service Reserve Fund shall be valued in accordance with Section 6.07.

In the event the amount on deposit in the Subordinate Debt Service Reserve Fund exceeds the applicable Debt Service Reserve Fund Requirement, the Trustee shall (a) transfer such excess to the Debt Service Fund to be used to pay interest and principal on Bonds on the next Interest Payment Date, and (b) transfer such excess to the Authority to be used to pay all or any portion of Costs designated by the Authority and approved by Bond Counsel; provided, however, that if an Authorized Representative of the Authority calls for a Reserve Determination Date in connection with the refunding and/or defeasance of a Series of Subordinate Bonds, then the Trustee is authorized to take such refunding and/or defeasance into account in valuing the Subordinate Debt Service Reserve Fund securing such Series of Subordinate Bonds and is further authorized to apply the amount of any surplus arising from such valuation to reduce the amount of the refunding bonds and/or to provide for the defeasance of the Subordinate Bonds in such manner as the Authorized Representative of the Authority may direct.

The Trustee shall ascertain the necessity for a claim upon a Debt Service Reserve Fund Policy and provide notice to the Bond Insurer of any such claim in accordance with the Debt Service Reserve Fund Policy at least two Business Days prior to each Interest Payment Date. The Trustee shall without any direction from the Authority, transfer moneys from the Subordinate Debt Service Reserve Fund to the Subordinate Debt Service Fund or to any sinking, purchase or analogous fund to the extent that the moneys in the Subordinate Debt Service Fund or any sinking, purchase or analogous fund may on any Interest Payment Date be insufficient to make the payments for which the Subordinate Debt Service Fund or any sinking, purchase or analogous fund was established as the same shall become due. If and to the extent that cash has been deposited into the Subordinate Debt Service Reserve Fund in addition to a Debt Service Reserve Fund Policy, all such cash shall be used (or investments purchased with such cash shall be liquidated and the proceeds applied as required) prior to any drawing under the Debt Service Reserve Fund Policy, and repayment of any Policy Costs shall be made prior to replenishment of any such cash amounts.

If, in addition to the Debt Service Reserve Fund Policy, any other reserve fund substitute instrument ("Additional Reserve Fund Policy") is provided, drawings on the Debt Service Reserve Fund Policy and any such Additional Reserve Fund Policy, and of repayment of Policy Costs and reimbursement of amounts due under the Additional Reserve Policy, shall be made on a pro rata basis (calculated by reference to maximum amounts available thereunder) after applying all cash available in the Subordinate Debt Service Reserve Fund and prior to replenishment of any such cash draws, respectively.

If the Authority shall fail to pay any Policy Costs in accordance with the provisions of this Subordinate Indenture, the Bond Insurer shall be entitled to exercise any and all remedies under this Subordinate Indenture other than (i) acceleration of the maturity of the Subordinate Bonds, or (ii) remedies which would adversely affect Bondholders.

The Trustee shall notify the Bond Insurer of any withdrawal from the Subordinate Debt Service Reserve Fund due to a deficiency in any other fund or of any deficiency in the

Subordinate Debt Service Reserve Fund due to market fluctuation of the investments held therein.

The Authority's obligation to repay any Policy Costs to a Bond Insurer related to the Subordinate Debt Service Reserve Fund shall have the same priority and be paid in the same manner from the Revenue Fund as the obligation to maintain and refill the Subordinate Debt Service Reserve Fund. Repayment of Policy Costs shall commence in the first month following each draw on the Subordinate Debt Service Reserve Fund Policy, and each such monthly payment shall be in an amount at least equal to one-twelfth of the aggregate of the Policy Costs related to such draw.

Section 6.04 Subordinate Redemption Fund. The Authority may transfer to the Trustee for deposit to the credit of the Subordinate Redemption Fund such amounts as it may elect for the purchase of Subordinate Bonds or redemption of Subordinate Bonds at the option of the Authority and the Trustee shall apply such moneys to the redemption of Subordinate Bonds in the amounts directed, in writing, by the Authority. Upon any such purchase or redemption, the Trustee shall transfer from the Subordinate Debt Service Fund to the Subordinate Redemption Fund any amount deposited in the Subordinate Debt Service Fund with respect to interest on the Subordinate Bonds being redeemed and shall pay the interest due on the redemption date out of such moneys.

The Trustee shall provide for a mandatory sinking fund redemption of any Term Bonds in accordance with the schedules set forth in this Subordinate Indenture or in the Supplemental Indenture for such Subordinate Bonds; provided, however, that on or before the 45th day next preceding any such sinking fund payment date, the Authority may:

- (i) deliver to the Trustee for cancellation Term Bonds of the maturity required to be redeemed on such sinking fund payment date in any aggregate Principal Amount desired; or
- (ii) instruct the Trustee, in writing, to apply a credit against the Authority's next sinking fund redemption obligation for any such Term Bonds that previously have been redeemed (other than through the operation of the sinking fund) and canceled but not theretofore applied as a credit against any sinking fund redemption obligation.

Upon the occurrence of any of the events described in the subsections (i) or (ii) above, the Trustee shall credit against the Authority's sinking fund redemption obligation on the next sinking fund payment date the amount of such Term Bonds so delivered or previously redeemed. Any Principal Amount of such Term Bonds in excess of the Principal Amount required to be redeemed on such sinking fund payment date shall be similarly credited in such order as may be determined by the Authority against future payments to the Subordinate Redemption Fund and shall similarly reduce the Principal Amount of the Term Bonds of the applicable Series to be redeemed on the next sinking fund payment date. Within seven days of receipt of such Term Bonds or instructions to apply as a credit, any amounts remaining in the Subordinate Redemption Fund in excess of the amount required to fulfill the remaining required sinking fund redemption obligation on the next sinking fund payment date shall be used in such manner as determined at the direction of the Authority.

Section 6.05 Subordinate Rebate Fund. The Subordinate Rebate Fund related to the Subordinate Bonds is established with the Trustee separate and apart from the pledge of this Subordinate Indenture. The Trustee shall make deposits to and disbursements from the Subordinate Rebate Fund upon directions furnished by the Authority. The Authority will retain a Qualified Independent Consultant, experienced in preparing rebate reports, to assist the Authority with respect to rebate requirements related to the Subordinate Bonds. The Trustee has undertaken no duty, and is under no obligation to calculate any amount due with respect to such rebate, to verify amounts contained in any written request or direction, or to make such payments.

Section 6.06 Other Funds and Accounts. The Authority may establish in each Supplemental Indenture such other Funds and Accounts as the Authority determines to be desirable.

Section 6.07 Authorized Investments. At the written direction of the Authority, signed by any two of the Authorized Representatives of the Authority, or signed by such other person or persons who is or are authorized to do so pursuant to a Resolution of the Board, a certified copy of which shall be on file with the Trustee, moneys to the credit of the following Funds shall be invested by the Trustee in the following securities:

(a) Obligations of the United States of America or any of its agencies or instrumentalities backed by the full faith and credit of the United States of America; and short term obligations of the United States Government or its agencies or instrumentalities.

(b) Deposits in savings accounts or time deposits or share accounts of institutions insured by the Federal Deposit Insurance Corporation or the National Credit Union Share Investment Fund to the extent such accounts are so insured and for any amounts above the insured maximum if the approved collateral as provided by law shall be pledged by the depository (including pursuant to Pennsylvania Act 72 of 1971, as amended).

(c) Obligations, participations or other instruments of any Federal agency, instrumentality or United States government-sponsored enterprise, including those issued or fully guaranteed as the principal and interest by Federal agencies, instrumentalities or United States government-sponsored enterprises, if the debt obligations are rated at least "A" or its equivalent by at least two Rating Agencies.

(d) Repurchase agreements with respect to United States Treasury bills or obligations, participations or other instruments of or guaranteed by the United States or any Federal agency, instrumentality or United States government-sponsored enterprise.

(e) Negotiable certificates of deposit or other evidences of deposit, with a remaining maturity of three years or less, issued by a nationally or State-chartered bank, a Federal or State savings and loan association or a State-licensed branch of a foreign bank. For obligations with a maturity of one year or less, the debt obligations of the issuing institution or its parent must be rated in the top short-term rating category by at least two Rating Agencies. For obligations with a maturity in excess of one year, the senior debt obligations of the issuing institution or its parent must be rated at least "A" or its equivalent by at least two Rating Agencies.

(f) Bills of exchange or time drafts drawn on and accepted by a commercial bank, otherwise known as bankers' acceptances, if the bankers' acceptances do not exceed 180 days' maturity and the accepting bank is rated in the top short-term category by at least two Rating Agencies.

(g) Commercial paper issued by corporations or other business entities organized in accordance with Federal or State law, with a maturity not to exceed 270 days, if the issuing corporation or business entity is rated in the top short-term category by at least two Rating Agencies.

(h) Shares of an investment company registered under the Investment Company Act of 1940 (54 Stat. 789, 15 U.S.C. § 80a-1 et seq.) whose shares are registered under the Securities Act of 1933 (48 Stat. 74, 15 U.S.C. § 77a et seq.), if all of the following conditions are met: (1) the investments of the company are the authorized investments under this definition; (2) the investment company is managed in accordance with 17 CFR 270-2a7 (relating to money market funds); and (3) the investment company is rated in the highest category by a Rating Agency.

(i) Savings or demand deposits placed in accordance with the following conditions: (1) the money is initially deposited and invested through a federally insured institution having a place of business in the Commonwealth which is selected by the Authority; (2) the selected institution arranges for the redeposit of the money in savings or demand deposits in one or more financial institutions insured by the Federal Deposit Insurance Corporation for the account of the Authority; the full amount of principal and any accrued interest of each such deposit is insured by the Federal Deposit Insurance Corporation; and (4) on the same date that the money is redeposited pursuant to paragraph (2), the selected institution receives an amount of deposits from customers of other financial institutions equal to or greater than the amount of money initially invested through the selected institution by the Authority.

All investments shall mature or shall be subject to withdrawal, as the case may be, not later than the date required for the operation of such Fund and in no event later than the date or the number of months or years after the date of such investment or deposit as specified in the following columns:

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| <u>Fund</u>                           | <u>Period of Investment</u>  |
|---------------------------------------|--|
| Construction Fund                     | Such dates as may be specified by the Authority to permit it to meet its obligations to be paid therefrom. |
| Subordinate Debt Service Fund         | Not later than one day prior to the next interest or principal payment date.                               |
| Subordinate Debt Service Reserve Fund | Not later than 7 years from the date of investment.  |
| Subordinate Redemption Fund           | Not later than the day prior to the redemption date with respect to which such deposit has been made.      |
| Subordinate Rebate Fund               | Such dates as may be specified by the Authority to permit it to meet its obligations to be paid therefrom. |

In any such case, the full purchase price (including accrued interest and premiums, if any) of obligations, shall be paid out of the Fund for which the investment was made. Upon a like direction by the Authority, or whenever the moneys in said Funds are to be applied and paid out pursuant to any provisions of this Subordinate Indenture, or, whenever the Trustee shall deem such action to be advisable, the Trustee shall sell all or any part of the obligations in which the moneys in one or more such Funds shall be invested or withdraw moneys from such accounts or certificates of deposit, and the proceeds of such sale or the amount of such withdrawal shall be deposited to the credit of the respective Fund or Funds. Interest and income derived from any such investments or deposits shall be held and transferred as follows, unless otherwise directed by the Authority:

- (a) Construction Fund – remain in that fund;
- (b) Subordinate Debt Service Fund - remain in that fund;
- (c) Subordinate Debt Service Reserve Fund - remain in that fund to make up any deficiency therein; otherwise, transferred to Revenue Fund;
- (d) Subordinate Redemption Fund - transferred to Revenue Fund; and
- (e) Subordinate Rebate Fund - remain in that fund.

Any loss resulting from any such investment shall be charged to the respective Fund or Funds, for which such investment was made. Obligations purchased as an investment of any of said Funds shall be deemed at all times to be a part of such Fund. The Trustee shall not be liable or responsible for any loss resulting from any investment made in accordance with the provisions of this Section or resulting from any sale by the Trustee of such investment made in accordance with instructions from the Authority.

Cash in each of the Funds and accounts therein and all certificates of deposit, repurchase agreements and investment agreements all as referred to in this Article, to the extent that the same is not insured or guaranteed by the Federal Deposit Insurance Corporation or other Federal agency, shall be continuously secured by a pledge of securities described in (a) and/or (b) of this Section having an aggregate market value, exclusive of accrued interest in the case of certificates of deposit and including accrued interest in the case of repurchase agreements or other investment agreements, at all times at least equal to 100% (or 102% in the case of repurchase agreements or investment agreements) of the balance on deposit (including interest earned in the case of repurchase agreements or investment agreements) in such Fund or account. Such securities shall be held by a Trustee or agent satisfactory to the Authority and to the Trustee. In the event the Authority determines that the market value of such security is determined by the Trustee to be less than the required amount, the Authority shall provide written instructions to Trustee to obtain additional security.

All Authorized Investments (except investment agreements) shall be valued by the Trustee as frequently as deemed necessary by a Bond Insurer, but not less often than annually, at the market value thereof, exclusive of accrued interest.

No later than 20 days before each Interest Payment Date, the Trustee shall advise the Authority of the amount of interest credited and to be credited to the Subordinate Debt Service Fund prior to the next Interest Payment Date to enable the Authority to determine the amount to be transferred from the Revenue Fund on such Interest Payment Date.

Ratings of authorized investments shall be determined at the time of purchase of such authorized investments and the Trustee shall have no responsibility to monitor the ratings thereof. The Trustee may make any and all such investments through its own investment department or that of its affiliates or subsidiaries, and may charge its ordinary and customary fees for such trades, including cash sweep account fees. In the absence of investment instructions from the Authority, the Trustee shall not be responsible or liable for keeping the moneys held by it hereunder fully invested in authorized investments. Although the Authority recognizes that it may obtain brokerage confirmations or written instructions containing comparable information at no additional cost, the Authority agrees that confirmations are not required to be issued by the Trustee for each month in which a monthly statement of investments is provided it; provided that no statement is required for any Fund and/or Account held by the Trustee for any month in which no investment activity occurred during such month in such Fund or Account.

## ARTICLE VII

### RATE COVENANT AND PARTICULAR COVENANTS

Section 7.01 Authority Rate Covenant. The Rate Covenant set forth in Section 7.01 of the Senior Indenture is incorporated by reference in this Section 7.01 of this Subordinate Indenture as if fully set forth herein, including all applicable definitions.

Section 7.02 No Extension of Payment. The Authority will not directly or indirectly extend or assent to the extension of the time of payment of any claim for interest upon any of the Subordinate Bonds by purchasing or funding such claim or by any other arrangement, and, in case the time for payment of any such claim for interest shall be extended, such claim shall not be entitled, in case of any default hereunder, to the benefits of this Subordinate Indenture, or to any payment out of the assets of the Authority, except subject to the prior payment of the principal of all Subordinate Bonds issued and Outstanding hereunder, and of such portion of the accrued interest thereon as shall not be represented by such extended claims.

Section 7.03 Appointment of Trustee. The Authority hereby irrevocably appoints the Trustee as its agent to maintain an office or agency at its corporate trust office in the City, where Subordinate Bonds may be presented for registration and transfer and where notices, presentations and demands in respect to the Subordinate Bonds, or of this Subordinate Indenture, may be served. The Trustee shall not be under any liability to the Authority or to any other corporation or person in respect of any such presentation, demand or notice. The Authority shall have the right to appoint a Paying Agent to perform any of the Trustee's duties hereunder with respect to the authentication, transfer, exchange or payment of the Subordinate Bonds hereunder.

Section 7.04 Corporate Existence. The Authority is duly authorized under its certificate of incorporation and all applicable laws to issue the Subordinate Bonds and execute and deliver this Subordinate Indenture and to pledge the Revenues pledged hereby, and all corporate action on its part to that end has been duly and validly taken; this Subordinate Indenture is and will be a legal, binding and enforceable instrument in accordance with its terms except to the extent that the enforcement of the remedies provided for herein may be limited by bankruptcy laws or the Act; and the Subordinate Bonds are and will be valid and binding obligations of the Authority entitled to the benefits and security of this Subordinate Indenture. The Authority will at all times preserve and protect the security of the Subordinate Bonds and the rights of the Trustee and the Bondholders hereunder.

Section 7.05 Compliance with Act; Maintenance of Existence. The Authority will at all times comply with the laws of the Commonwealth applicable to the Authority, particularly the Act and its amendments and supplements, and it will take such actions and proceedings as may be required, from time to time, to preserve its corporate existence, rights and franchises.

Section 7.06 Liens; Sale of Assets. So long as any of the Subordinate Bonds secured hereby are Outstanding, none of the Revenues shall be used for any purpose other than as provided in the Senior Indenture and this Subordinate Indenture, and no contract or contracts



will be entered into or any action taken by which the rights of the Trustee or of the Bondholders might be impaired or diminished.

The Authority will not voluntarily create or permit to be created any debt, lien or charge on a parity with (except pursuant to Section 3.03 hereof) or having priority over the lien of this Subordinate Indenture (except pursuant to the Senior Indenture) upon any of the Revenues pledged hereby or any other revenues or other amounts at any time pledged for the payment of the Subordinate Bonds. The Authority will not sell or otherwise dispose of or encumber the System or any part thereof except as herein and in the Senior Indenture otherwise having provided. No sale or other disposition of fixed properties having a fair market value in excess of One Million Dollars (\$1,000,000) shall be made unless the Consulting Engineer shall first have filed his certificate with the Authority and the Trustee recommending such sale or other disposition of said fixed properties and shall have stated in such certificate that the sale or other disposition of said properties is in the best interests of the Authority and will not impair the security of the Subordinate Bonds and the retention of said properties is not necessary for the efficient operation of the System. If, after receiving the certificate of the Consulting Engineer, the Authority determines to sell or otherwise dispose of said fixed properties, it shall by Resolution of the Authority adopted by a majority vote of a quorum of the Board, authorize such sale or other disposition and shall file a certified copy of such Resolution of the Authority with the Trustee.

The proceeds from such sale or other disposition of any such fixed properties shall be deposited in the Revenue Fund.

The Authority may from time to time sell or otherwise dispose of property other than fixed property included in the System if the Authority shall determine that the sale or other disposition of such property is in the best interests of the Authority and will not impair the security of the Subordinate Bonds and the retention of said properties is not necessary for the efficient operation of the System. The proceeds from the sale or other disposition of such property shall be deposited in the Revenue Fund.

In case the Authority shall have acquired any property constituting part of the System within or after the period for which any calculation of Net Revenues is made there shall be included in ascertaining the Net Revenues for such period, the net earnings or net losses, as the case may be, of such property for the whole of such period to the extent the same may not have been otherwise included. The net earnings or net losses, as the case may be, of such property for the period preceding its acquisition by the Authority shall be computed as if such property had been operated by the Authority during such period. If within or after the period for which any such calculation is made, the Authority shall have disposed of any property constituting part of the System, then the net earnings or net losses, as the case may be, of such property for the whole of such period shall be excluded, to the extent the same may not have been otherwise excluded, in ascertaining the Net Revenues for such period. If the rates, rents and charges during all or any part of the period for which any such calculation is made shall be different from the rates, rents and charges which are in effect at the time such calculation is made, there shall be added to or deducted from the Net Revenues so calculated, any increase or decrease of the Revenues for such period which would result from the computation of such

Revenues on the basis of the rates, rents and charges in effect at the date of said calculation, rather than the rates, rents and charges which were actually in effect during that period.

Section 7.07 Payment of Taxes and other Governmental Charges. The Authority will pay all taxes, assessments and other governmental charges lawfully imposed upon its properties or the Revenues when the same shall become due as well as all lawful claims for labor, material and supplies, which, if unpaid, might by law become a lien or charge on the System or the Revenues or any part thereof prior to or on a parity with the lien hereof, or which might impair the security of this Subordinate Indenture, so that the priority and security of this Subordinate Indenture shall be preserved, provided that nothing in this Section contained shall require the Authority to pay and discharge any such tax, assessment, charge or claim so long as the validity thereof shall be contested in good faith by appropriate proceedings diligently conducted (unless and until foreclosure, distraint, sale or other similar proceedings shall have been commenced) and if such reserves or other appropriate provisions, if any, as shall be required by generally accepted accounting principles shall have been made therefor.

Section 7.08 Insurance of System. The Authority will at all times cause all the property of the System which is of a character usually insured by persons operating properties of a similar nature to be properly insured and kept insured by a reputable insurance company or companies against loss or damage by fire or other hazards to the extent that such properties are usually insured by persons operating properties of a similar nature in the same or similar localities. All policies shall be so written that the Trustee will be notified of cancellation or amendment at least fifteen (15) days prior to the effective date of such cancellation or amendment. In case the Trustee shall at any time notify the Authority in writing that it disapproves of any insurance company issuing a policy of insurance covering any one or more such risks, the Authority will forthwith affect other insurance with companies satisfactory to the Trustee.

All such policies shall be for the benefit of the Trustee and the Authority as their interests may appear. All policies shall provide that claims in excess of \$5,000,000 shall be made payable to the Trustee and shall be deposited with the Trustee and the Trustee shall have the sole right to receive the proceeds of such policies and to collect and receipt for claims in excess of \$5,000,000 thereunder. The Trustee may accept as conclusive the adjustment of any loss or losses by the Authority and any insurance company. The proceeds of all such policies paid to the Trustee shall be held by it as additional security hereunder until paid out by it as herein provided. All claims of \$5,000,000 or less shall be paid to the Authority.

Section 7.09 Damage, Destruction or Condemnation of System; Application of Proceeds. In the event of any damage to the System covered by insurance or condemnation or taking by eminent domain of any part of the System for which the cost of repair or replacement shall exceed \$5,000,000, the proceeds shall be deposited in the Revenue Fund and the Authority shall promptly notify the Trustee and file with the Trustee a Consulting Engineer's certificate stating whether, in the signer's opinion, it is practicable and advantageous to repair or replace the damaged or condemned property. If the certificate states that repair or replacement is practicable and advantageous, the Consulting Engineer shall, if appropriate, prepare and file with the Trustee plans and specifications therefor with an estimate of the cost thereof, and the insurance or condemnation proceeds, if any, shall be transferred to the Operating Fund of the Senior Indenture

and applied thereto. If the certificate states that the repair or replacement is not practical and advantageous, the proceeds shall be deposited in the Revenue Fund. For purposes of this Section 7.09, the term Consulting Engineer shall also include an employee of the City or the Authority who is otherwise qualified to act as Consulting Engineer under this Subordinate Indenture.

Section 7.10 Employment of Consulting Engineer; Reports. The Authority will employ a Consulting Engineer to perform such duties as are imposed on the Consulting Engineer by the provisions of this Subordinate Indenture and the Senior Indenture.

It shall be the duty of the Consulting Engineer, in addition to the other duties prescribed elsewhere in this Subordinate Indenture, to prepare and file with the Authority and with the Trustee on or before thirty days prior to the beginning of each Fiscal Year thereafter, a report setting forth the following:

(a) Advice and recommendations as to the proper maintenance, repair and operation of the System during the next Fiscal Year and an estimate of the amounts of money that should be expended for such purposes;

(b) Advice and recommendations as to the Capital Additions that should be made during the next Fiscal Year, and an estimate of the amount of money that is recommended for such purposes; and

(c) Whether the properties of the System have been maintained in good repair and sound operating condition and the Consulting Engineer's estimate of the amount, if any, required to place such properties in such condition and the details of such expenditures and the approximate time required therefor.

Section 7.11 Adoption of Annual Budget. The Authority covenants that it will on or before each December 31, prior to the beginning of each Fiscal Year thereafter, prepare and adopt a budget of Current Expenses for the next Fiscal Year, which budget shall contain an estimate of the Revenues to be derived for the period covered by such budget, and a copy of such budget shall be promptly filed with the Trustee and each Bond Insurer. Any budget may be amended from time to time by the Authority and such amended budget shall be promptly filed with the Trustee and each Bond Insurer. The Annual Budget shall also be filed, if and when required under a Continuing Disclosure Undertaking, with the EMMA system of the MSRB. Filing of the Annual Budget with EMMA and placement of the Annual Budget on the Authority's website with notice provided to the Trustee and Bond Insurer will constitute compliance with this section.

Until the adoption of the Annual Budget of Current Expenses for a particular Fiscal Year, the budget for the preceding Fiscal Year shall be deemed to be in force for such particular Fiscal Year.

Section 7.12 Maintenance of System. The Authority will at all times maintain or cause to be maintained the System and every part thereof in good repair, working order and condition, will continuously operate the same and will, from time to time, make or cause to be made all needful and proper repairs, renewals and replacements so that the aggregate efficiency and capacity of the System shall at no time be unreasonably impaired or reduced.

Section 7.13 Employment of Independent Auditor; Annual Financial Report. Authority covenants that it has employed and will continue to employ an Independent Auditor to perform such duties as are imposed on the Independent Auditor by this Subordinate Indenture and the Senior Indenture.

The Authority has caused an accurate system of accounts to be installed as recommended by its Independent Auditor. The Authority will keep proper books of record and accounts in which complete and correct entries shall be made of all its dealings and transactions in accordance with generally accepted accounting principles, consistently applied. On or before July 17 of each year, the Authority will furnish to the Trustee and each Bond Insurer, and to any Holder of any of the Subordinate Bonds, at the written request of such Holder, a copy of its audit report for the preceding Fiscal Year. The Authority shall also file said audit report, if and when required under a Continuing Disclosure Undertaking, with the EMMA system of the MSRB. Filing of said audit with EMMA and placement of said audit on the Authority's website with notice provided to the Trustee and Bond Insurer will constitute compliance with this section. Said audit report shall, in each instance, have been prepared by an Independent Auditor after having made an audit of the Authority's books and accounts pertaining to the System for such year and shall include therein for the year in question a statement as to whether the schedule of rates then in effect complies with the covenants incorporated by reference in Section 7.01.

Section 7.14 Advances by Trustee. If the Authority shall fail to perform any of the covenants contained in this Article, the Trustee or any Bondholder through the Trustee may, but has no duty to, make advances to perform the same on behalf of the Authority, but shall be under no duty so to do; and all sums so advanced shall be at once repayable by the Authority and shall bear interest at the Prime Rate until paid, and shall be secured hereby, having the benefit of a lien hereby created on a parity with the Subordinate Bonds, but no such advances shall be deemed to relieve the Authority from any default hereunder.

Section 7.15 Further Assurances. The Authority shall execute and deliver such further instruments and do such further acts as may be necessary or proper to carry out more effectually the purposes of this Subordinate Indenture and the transfer to any new trustee of the estate, powers, instruments or funds held in trust hereunder. The Authority shall, on an ongoing basis, execute and deliver all documents and make or cause to be made all filings and recordings necessary or desirable in order to perfect, preserve and protect the interest of the Trustee in the Trust Estate to the extent possible under applicable law. The Trustee shall not be responsible for and makes no representation as to the legality, effectiveness or sufficiency of any security document or for the creation, perfection, priority or protection of any lien securing the Subordinate Bonds. The Trustee shall not be responsible for filing any financing or continuation statement or recording any documents or instruments in any public office at any time or otherwise for perfecting or maintaining the perfection of any lien or security interest in the trust estate it being understood that the Authority shall be obligated to make such filings on behalf of the Trustee and provide a copy of the filed initial financing statement to the Trustee.

Section 7.16 Construction of Construction Projects; Operation of System. The Authority covenants that upon the completion of any Construction Project it will operate and maintain the same as a part of the System. The Authority further covenants that it will operate the System in an efficient and economical manner.

Section 7.17 Covenant Against Encumbrances. The Authority further covenants that it will duly observe and comply with all valid requirements of any governmental authority relative to the System, that it will not create or suffer to be created any lien or charge upon the System or any part thereof, other than as provided in this Subordinate Indenture, and that it will pay or cause to be discharged, or will make adequate provision to satisfy and discharge all lawful claims and demands for labor, materials, supplies or other objects which, if unpaid, might by law become a lien upon the System or any part thereof or the Revenues; provided, however, that nothing contained in this Section shall require the Authority to pay or cause to be discharged, or make provisions for, any such lien or charge so long as the validity thereof shall be contested in good faith and by appropriate legal proceedings.

Section 7.18 Use of Revenues. The Authority covenants and agrees that, so long as any of the Subordinate Bonds secured hereby shall be Outstanding, none of the Revenues will be used for any purpose other than as provided in this Subordinate Indenture and the Senior Indenture, and that no contract or contracts will be entered into or any action taken to impair or diminish the rights of Holders of the Subordinate Bonds. This provision, however, does not limit the Authority's ability to issue additional bonds under the terms of the Senior Indenture or to issue Secondary Subordinate Debt.

Section 7.19 No Free Service. The Authority will not render or cause to be rendered any free services of any nature by the facilities of the System nor will any preferential rates be established for users of the same class, excluding (a) as provided in the Cooperation Agreement, and (b) the provision to several municipalities of conveyance without charge of storm water and sanitary sewer flows through Authority trunk lines to the Allegheny County Sanitary Authority.

Section 7.20 Failure of Customers to Pay; Enforcement of Collections. The Authority will diligently enforce and collect the rates, fees and other charges from customers for the services of the System; will take all steps, actions and proceedings for the enforcement and collections of such rates, fees and charges as shall become delinquent to the full extent permitted or authorized by law; and will maintain accurate records with respect thereto. All such rates, fees, charges and revenues herein pledged shall, as collected, be held in trust to be applied as provided in this Subordinate Indenture and the Senior Indenture and not otherwise.

Section 7.21 Covenants with Bond Insurers, Letter Credit Banks, Liquidity Facility Issuer, etc. The Authority may make such covenants and agreements in a Supplemental Indenture and related documents as it may determine to be appropriate with any Bond Insurer, Letter of Credit Bank, Liquidity Facility Issuer, or other financial institution that agrees to insure or to provide credit or liquidity support to enhance the security or the value of any Subordinate Bonds.

Section 7.22 Internal Revenue Code and Other Covenants. The Authority hereby covenants with the registered Owners, from time to time, of the Subordinate Bonds that no part of the proceeds of the Subordinate Bonds or of any moneys on deposit with the Trustee hereunder will be used, at any time, directly or indirectly, in a manner which, if such use had been reasonably expected on the date of issuance of the Subordinate Bonds, would have caused the Subordinate Bonds to be arbitrage bonds within the meaning of Section 148 of the Code, and

that it will comply with the requirements of that section and the regulations throughout the term of the Subordinate Bonds. In the event the Authority is of the opinion that is necessary to restrict or limit the yield on the investment of any moneys paid to or held by the Trustee to comply with the covenants herein set forth, the Authority shall issue to the Trustee a written certificate to such effect, with appropriate instructions, and the Trustee shall thereupon take such action in accordance with such certificate and instructions. The Authority's covenants set forth in any Tax Regulatory Certificate are incorporated herein.

Section 7.23 Amendments to Senior Indenture. The Authority will not amend the Senior Indenture in any way which will have a material adverse effect on the provisions of this Subordinate Indenture without the consent of the Holders of not less than a majority in principal amount of the Subordinate Bonds and the consent of the Bond Insurer.

## ARTICLE VIII

### EVENTS OF DEFAULT AND REMEDIES

Section 8.01 Events of Default. Each of the following events is hereby declared an "Event of Default" for any Subordinate Bond issued hereunder:

(a) failure by the Authority to pay the principal of, or the premium (if any) payable upon the redemption of, any Subordinate Bond when due and payable either at maturity, declaration, or by proceedings for redemption, or otherwise (no effect being given to payments made under a Bond Insurance Policy); or

(b) failure by the Authority to pay any installment of interest on any Subordinate Bond when due and payable (no effect being given to payments made under a Bond Insurance Policy); or

(c) the entry of an order or decree appointing a receiver or receivers of the System or of the Revenues with the consent or acquiescence of the Authority, or, if such order or decree shall have been entered without the acquiescence or consent of the Authority, the failure of the Authority to cause such order or decree to be vacated or discharged or stayed on appeal within ninety (90) days after entry; or

(d) the institution of any proceeding with the consent or acquiescence of the Authority for the purpose of effecting a composition between the Authority and its creditors, or for the purpose of adjusting the claims of such creditors pursuant to any Federal or Commonwealth statute now or hereafter enacted, if the claims of such creditors are under any circumstances payable out of the Revenues, or if such proceeding shall have been instituted without the consent or acquiescence of the Authority, the failure of the Authority to have such proceeding withdrawn, or any order entered therein vacated or discharged, within ninety (90) days after the institution of such proceeding or the entry of such order; or

(e) the entry of a final judgment against the Authority, which judgment constitutes or could result in a lien or charge upon the System or the Revenues, or which materially and adversely affects the ownership, control or operation of the System, if such judgment shall not be discharged within ninety (90) days from the entry thereof, or if an appeal shall not be taken

therefrom, or from the order, decree or process upon which or pursuant to which such judgment was granted or entered, in such manner as to conclusively set aside the execution or levy under such judgment, order, decree or process, or the enforcement thereof; or

(f) the failure or refusal of the Authority to comply with any provisions of the Act applicable to the Authority, or the rendering of the Authority, for any reason, incapable of fulfilling its obligations hereunder or thereunder; or

(g) the failure of the Authority to observe any other covenant, condition or agreement of the Authority contained in the Subordinate Bonds or in this Subordinate Indenture and the continuation of such failure for a period of sixty (60) days after written notice of such failure from the Trustee, which may give such notice in its discretion and shall give such notice at the written request of the Holders of not less than twenty-five per centum (25%) in aggregate Principal Amount of the Subordinate Bonds then outstanding, provided that, the failure of the Authority to meet the Rate Covenant set forth in Section 7.01 hereof (which incorporates Section 7.01 of the Senior Indenture) shall not constitute an Event of Default hereunder, and provided further that if such failure is not capable of being remedied within sixty (60) days after such notice, no Event of Default shall exist if the Authority commences the actions necessary for the cure of such failure within such sixty (60) day period and diligently pursues such actions thereafter; or

(h) failure by the Authority to pay principal of, or the premium (if any) payable upon the redemption of any Subordinate Debt when due and payable either at maturity, or otherwise or to pay any installment of interest on any Subordinate Debt when due and payable (no effect being given to payments made under a Bond Insurance Policy); or

(i) the Trustee shall have received written notice from a Letter of Credit Bank that an Event of Default shall have occurred under the Reimbursement Agreement, with a direction from the Letter of Credit Bank to the Trustee to accelerate the principal and interest on the respective Series of Subordinate Bonds secured by such Letter of Credit Bank's Letter of Credit; or

(j) any acceleration of the payment of principal of any Series of Subordinate Bonds or the payment of Reimbursement Obligations pursuant to Section 8.02 shall have occurred; or

(k) failure by the Authority to pay the principal of any Reimbursement Obligation when due or within any applicable grace period, if any, set forth in the applicable Reimbursement Agreement; or

(l) failure by the Authority to pay any installment of interest on any Reimbursement Obligation when due or within any applicable grace period, if any, set forth in the applicable Reimbursement Agreement; or

(m) the occurrence of an Event of Default (as defined under the Senior Indenture) under the Senior Indenture.

The Trustee shall (i) provide immediate notice to each Bond Insurer of the occurrence of an Event of Default under clause (a), (b), (i) or (j) above and (ii) provide notice to

each Bond Insurer of any other Event of Default known to the Trustee within thirty (30) days of the Trustee's knowledge thereof.

Section 8.02 Acceleration of Principal. Upon the occurrence and continuance of any Event of Default described in Section 8.01, the Trustee may, and at the written request of Bondholders of not less than 25% in Principal Amount of the Subordinate Bonds then Outstanding, shall by written notice to the Authority, declare the Subordinate Bonds to be immediately due and payable, whereupon they shall, without further action, become and be immediately due and payable, anything in this Subordinate Indenture or in the Subordinate Bonds to the contrary notwithstanding, and the Trustee shall give notice thereof to the Authority and shall give notice thereof by certified mail to all Holders of Outstanding Subordinate Bonds.

A Bond Insurer or a Letter of Credit Bank securing a Series of Subordinate Bonds, provided the Bond Insurer or Letter of Credit Bank is not in default under its Bond Insurance Policy or Letter of Credit, may exercise all rights of the Bondholders of such Series under this Article VIII, including without limitation giving notice, making a request, giving a direction or giving a waiver under Section 8.01(g), Section 8.02, Section 8.03, Section 8.04 and Section 8.08. That is, the Bond Insurer or Letter of Credit Bank may, in such cases, vote the Subordinate Bonds of the Bondholders of the Series secured by such Bond Insurer or Letter of Credit Bank, as the case may be. If a Series of Subordinate Bonds is both insured by a Bond Insurance Policy and secured by a Letter of Credit, the Bond Insurer shall exercise such rights not the Letter of Credit Bank. In any such cases, the Trustee shall not take direction by the Owners of the Subordinate Bonds of such Series.

In addition, the Trustee shall be entitled to exercise any or all of the remedies granted to a trustee or under a Bond Insurance Policy, a Credit Facility or the Act.

The above provision, however, is subject to the condition that if, after the principal of said Subordinate Bonds shall have been so declared to be due and payable, all arrears of interest, if any, upon the Subordinate Bonds and interest on overdue installments of interest at the rate of interest specified therein, and the principal of all Subordinate Bonds which have matured other than by reason of such declaration, shall have been paid by the Authority, and the Authority shall also have performed all other things in respect to which it may have been in default hereunder, and shall have paid the reasonable charges of the Trustee and its counsel and of the Holders of said Subordinate Bonds, including reasonable attorneys' fees paid or incurred, then, and in every such case, the Holders of not less than a majority in aggregate Principal Amount of the Subordinate Bonds then outstanding, by written notice to the Authority and to the Trustee, may waive such default and its consequences and such waiver shall be binding upon the Trustee and upon all Holders of Subordinate Bonds issued hereunder; but no such waiver shall extend to or affect any subsequent default or impair any rights or remedy consequent thereon.

Upon the occurrence or continuance of an Event of Default, the Trustee may judicially seek specific performance with respect to the Rate Covenant. Notwithstanding any other provision herein,, however, for so long as the Senior Indenture is operative, the Trustee may not exercise rights or remedies hereunder with respect to the Revenues until and unless the



trustee of the Senior Indenture shall have instituted proceedings to exercise its rights pursuant to Article VIII of the Senior Indenture.

Section 8.03 Remedies of Trustee and Bondholders; Rights of Entry. Subject to Sections 8.02 and 9.06, upon the happening and during the continuance of any Event of Default specified in Section 8.01, then and in every such case, the Trustee may and, upon written request of the Holders of not less than twenty-five per centum (25%) in aggregate Principal Amount of the Subordinate Bonds then Outstanding, shall enter into and upon and take possession of the System and each and every part thereof as for a condition broken and may exclude the Authority, its agents and employees and all persons claiming under them wholly therefrom and have, hold, use, operate, manage and control the same and each and every part thereof, and in the name of the Authority or otherwise as the Trustee shall deem best, conduct the business thereof and exercise all the rights and powers of the Authority with respect to the System and use all its then existing property, assets and franchises for that purpose and out of the Revenues, maintain, restore, insure and keep insured, the System against such hazards as are ordinarily insured against by a person operating a water, stormwater and sewer system similar to the System and from time to time may make all such necessary or proper repairs as to it may seem expedient, and establish, levy, maintain and collect such rates, rents and charges in connection with the System as it may deem necessary, proper, desirable and reasonable, and collect and receive all Revenues, and after deducting therefrom the expenses of operation, maintenance and repair and all expenses incurred hereunder and all other proper outlays herein authorized and all such payments which may be made for insurance and other proper charges, including just and reasonable compensation for its own services, and for the services of such attorneys, agents and employees as it may, in the exercise of its discretion, employ for any of the purposes aforesaid, the Trustee shall apply the rest and residue of the moneys received by it, as well as all cash and investments held by the Trustee in any fund hereunder, subject to the provisions hereof with respect to claims for principal and interest, to the payment of the principal of and interest on the Subordinate Bonds. Whenever all that is due upon such Subordinate Bonds and installments of interest and under any of the terms of this Subordinate Indenture shall have been paid or deposited with the Trustee and all defaults made good, the Trustee in possession shall surrender possession to the Authority, its successors or assigns. However, the same right of entry shall exist upon any subsequent default or defaults.

Section 8.04 Judicial Action. In case of the breach of any of the covenants or conditions of this Subordinate Indenture, the Trustee shall have the right and power to take appropriate judicial proceedings for the enforcement of its rights and the rights of the Bondholders hereunder, including, as appropriate, an action in mandamus. Upon the happening of an event of default hereunder, the Trustee may either after entry, or without entry, proceed by suit or suits, actions or special proceedings at law or in equity to enforce its rights and the rights of the Bondholders hereunder, and it shall be obligatory upon the Trustee to take action to that end, either by such proceedings or by the exercise of its powers with respect to entry or otherwise, as it may determine, upon being requested to do so by the Holders of twenty-five per centum (25%) in aggregate Principal Amount of the Subordinate Bonds then Outstanding hereunder and upon being indemnified as hereinafter provided.

No remedy by the terms of this Subordinate Indenture conferred upon or reserved to the Trustee or to the Bondholders is intended to be exclusive of any other remedy, but each

and every such remedy shall be cumulative and shall be in addition to any other remedy given hereunder or now or hereafter existing at law or in equity or by statute.

The Holders of a majority in aggregate Principal Amount of the Subordinate Bonds then Outstanding hereunder, at any time, by an instrument in writing executed and delivered to the Trustee, may reasonably direct the method and place of conducting all proceedings to be taken for the enforcement of any of the rights of the Bondholders; provided that such direction shall not be otherwise than in accordance with the provisions of law or of this Subordinate Indenture.

Section 8.05 Payments by Authority. The Authority covenants that if any default shall be made in the payment of the principal of or interest on any Subordinate Bond hereby secured when the same shall become payable, the Authority will pay to the Trustee, upon demand, for the benefit of the Holders of the Subordinate Bonds so in default, the whole amount then due and payable for principal and interest, with interest upon the overdue principal and upon the overdue installments of interest at the rate of interest specified in the Subordinate Bonds from the date of default to the date of payment; and in case the Authority shall fail to pay the same forthwith upon such demand, the Trustee in its own name and as trustee of an express trust shall be entitled to sue for and to recover judgment for the whole amount so due and unpaid.

Section 8.06 Application of Moneys. Any moneys received by the Trustee or by any receiver from the operation of the System, shall, after payment of the costs and expenses of the operation thereof, be applied,

First: to the payment of the fees, counsel fees and expenses of the Trustee and of the receivers, if any, and all costs and disbursements allowed by the court, if there be any court action.

Second: to the payment of principal of and interest on the Senior Debt, and then to the payment of any Policy Costs related to the Debt Service Reserve Fund Policies for Senior Bonds or other amounts owed to an Insurer of Senior Debt.

Third: supplemental to the instructions in Section 8.06-Third of the Senior Indenture, to the payment of the whole amount of principal and interest which shall then be owing or unpaid upon the Subordinate Bonds, or to the payment of the whole amount of any Reimbursement Obligations which shall then be owing or unpaid, then to the payment of such principal and interest or Reimbursement Obligations ratably, without preference or priority of principal over interest or Reimbursement Obligations, Reimbursement Obligations over principal or interest or of interest over principal or Reimbursement Obligations or of any installment of interest over any other installment of interest and without preference or priority of any such payments over Periodic Payments (such principal and interest on Subordinate Bonds, amounts owing under Reimbursement Obligations and Periodic Payments to be paid ratably), then to the payment of Policy Costs related to the Debt Service Reserve Fund Policies for the Subordinate Bonds and any other amounts owed to an Insurer of Subordinate Bonds.

Fourth: to pay the principal of and interest on the Secondary Subordinate Debt.

Fifth: to the payment of the surplus, if any, to the Authority, or to whoever is lawfully entitled to receive the same or as a court of competent jurisdiction may direct.

Section 8.07 Trustee's Rights. Any right of action under this Subordinate Indenture, or under any of the Subordinate Bonds, may be enforced by the Trustee without the possession of any of the Subordinate Bonds or the production thereof on any trial or other proceedings relative thereto and any such suit or proceeding instituted by the Trustee shall be brought in its name as Trustee and any recovery of judgment shall be for the equal benefit of the registered Owners of the Subordinate Bonds in respect of which such judgment shall have been recovered, subject to the provisions hereof with respect to extended claims for interest.

Section 8.08 Limitations on Bondholders. No Holder of any Subordinate Bonds shall have any right to institute any suit, action, or proceeding in equity or at law for the enforcement of this Subordinate Indenture or for the execution of any trust hereof or for the appointment of a receiver or to exercise any other remedy hereunder, unless such Holder shall have previously given to the Trustee written notice of an event of default and of the continuance thereof as hereinbefore provided nor unless also the Holders of at least twenty-five per centum (25%) in aggregate Principal Amount of the Subordinate Bonds then Outstanding hereunder shall have made written request of the Trustee and shall have offered it reasonable opportunity either to proceed to exercise the powers hereinbefore granted or to institute such action, suit or proceeding in its own name nor unless also they shall have offered to the Trustee adequate security and indemnity against the costs, expenses and liability to be incurred therein or thereby; and such notification, request and offer of indemnity are hereby declared in every such case at the option of the Trustee to be conditions precedent to the execution of the powers and trusts of this Subordinate Indenture or for the appointment of a receiver or for any other remedy hereunder; it being understood and intended that no one or more holders or registered Owners of the Subordinate Bonds shall have any right in any manner whatsoever to affect, disturb or prejudice the lien of this Subordinate Indenture by his own or their action or to enforce any right hereunder except in the manner herein provided, and that all such proceedings at law or in equity shall be instituted, had and maintained in the manner herein provided and for the benefit of all Holders of outstanding Subordinate Bonds, subject to the provisions hereof with respect to claims for interest.

Nothing in this Article shall, however, affect or impair the right of any Bondholder which is absolute and unconditional, to enforce the payment of the principal and interest of such Bondholder's Subordinate Bonds, or the obligation of the Authority which is also absolute and unconditional, to pay the principal of and interest on each of the Subordinate Bonds issued hereunder to the respective holders or registered Owners thereof at the time and place in said Subordinate Bonds expressed.

Section 8.09 Waiver by Authority. The Authority may waive any period of grace provided for in this Article.

Section 8.10 Waiver of Default; Delay or Omission of Trustee. No waiver of any default hereunder, whether by the Trustee, a Bond Insurer or the Bondholders shall extend to or shall affect any subsequent default or shall impair any rights or remedies consequent thereon. No delay or omission of the Trustee, a Bond Insurer or of any Holders of Subordinate Bonds

hereby secured to exercise any right or power accruing upon any default shall impair any such right or power or shall be construed to be a waiver of any such default, or acquiescence therein; and every right, power and remedy given by this Subordinate Indenture to the Trustee, a Bond Insurer or to the Bondholders may be exercised from time to time and as often as may be deemed expedient by the Trustee, the Bond Insurer or in an appropriate case, by the Bondholders.

In case the Trustee shall have proceeded to enforce any right under this Subordinate Indenture by entry or otherwise, and such proceedings shall have been discontinued or abandoned for any reason, or shall have been determined adversely to the Trustee, then and in every such case the Authority and the Trustee shall be restored to their former positions and rights hereunder with respect to the pledged revenues, and all rights, remedies and powers of the Trustee shall continue as if no such proceedings had been taken.

Section 8.11 Appointment of Receiver. Subject to Section 8.02, as provided by the Act, as amended, the Trustee shall be entitled as a matter of right to the appointment of a receiver, and the Trustee, the Bondholders, the Bond Insurer of any Subordinate Bonds, any receiver so appointed and any Letter of Credit Bank then supporting any Series of Bonds with a Letter of Credit shall have all such rights and powers and shall be subject to such limitations and restrictions as are contained in the Act.

Section 8.12 Limitation on Rights to Transfer. It is expressly understood and agreed that nothing in the provisions of the Subordinate Bonds or in this Subordinate Indenture shall be taken to authorize the Trustee, or any receiver appointed hereunder to operate and maintain the System, or to sell, assign, mortgage or otherwise dispose of any of the assets of whatever kind and character belonging to the Authority.

Section 8.13 Issuer of Bond Insurance Policy as Subrogee of Holders of Subordinate Bonds. Any Subordinate Bond delivered to the Bond Insurer pursuant to the Bond Insurance Policy shall be deemed to continue to be Outstanding under and secured by this Subordinate Indenture.

## ARTICLE IX

### CONCERNING THE TRUSTEE

Section 9.01 Acceptance of Trust. The Trustee shall, prior to an Event of Default, and after the curing of all Events of Default which shall have occurred, perform such duties and only such duties as are specifically set forth in this Subordinate Indenture and shall not be liable except for the performance of such duties and obligations as are specifically set forth in this Subordinate Indenture, and no implied covenants or obligations shall be read into this Subordinate Indenture against the Trustee, as the case may be. The Trustee shall, during the existence of any Event of Default (which has not been cured), exercise such of the rights and powers vested in it by this Subordinate Indenture, and use the same degree of care and skill in their exercise, as prudent persons would exercise or use under the circumstances in the conduct of their own affairs. The Trustee shall not be liable to the parties hereto or deemed in breach or default hereunder if and to the extent its performance hereunder is prevented by reason of force majeure. The term “force majeure” means an occurrence that is beyond the control of the

Trustee and could not have been avoided by exercising due care. Force majeure shall include acts of God, terrorism, war, riots, strikes, floods, earthquakes, epidemics or other similar occurrences.

Section 9.02 Responsibility for Statements in Subordinate Indenture or Subordinate Bonds. The recitals of fact herein and in the Subordinate Bonds contained, except only the Trustee's certificate of authentication upon the Subordinate Bonds, shall be taken as the statements of the Authority and the Trustee assumes no responsibility for the correctness of the same. The Trustee makes no representations as to the validity or sufficiency of this Subordinate Indenture or the due execution or acknowledgment thereof on the part of the Authority or in respect of the Subordinate Bonds issued hereunder, and the Trustee shall incur no responsibility in respect of such matter.

Section 9.03 Maintenance of Insurance. The Trustee shall be under no obligation to effect or maintain insurance or to renew any policies of insurance or to inquire as to the adequacy of any insurance or for responsibility of insurers, or to report, make or file claims or proofs of loss for any loss or damage insured against or which may occur or to keep itself advised or informed as to the payment of any insurance premiums, taxes or assessments or to see to or require such payment to be made nor shall the Trustee be under any liability for the failure of the Authority to effect or renew any insurance; but the Trustee may, in its discretion, do any or all of the matters and things in this Section set forth, or require the same to be done.

Section 9.04 Disposition of Subordinate Bonds and Proceeds. The Trustee shall be under no responsibility or duty with respect to the disposition of the Subordinate Bonds authenticated and delivered hereunder or the application of the proceeds of any of the Subordinate Bonds or of any other moneys deposited with it and withdrawn in the manner provided in this Subordinate Indenture.

Section 9.05 Agents of Trustee; Responsibility for Default of Agents. The Trustee may execute any of the trusts or powers hereof and perform any duty hereunder by or through its attorneys or agents, and it shall not be answerable or accountable for any act, default, neglect or misconduct of any such attorney or agent, if reasonable care has been exercised in his appointment and retention, nor shall the Trustee be otherwise answerable or accountable under any circumstances whatever in connection with the Trust, except for its own gross negligence or willful misconduct.

Section 9.06 Indemnity; No Duty to Notice Default. The Trustee shall be under no obligation or duty to perform any act which would involve it in expense or liability or to institute or defend any suit in respect hereof unless properly indemnified against such expense or liability to its satisfaction. The Trustee shall not be required to take notice, or be deemed to have knowledge, of any default of the Authority hereunder, except a default pursuant to Section 8.01(a) or (b), and may conclusively assume that there has been no such default unless and until it shall have been specifically notified in writing of such default by the Authority or the Holders of not less than twenty-five per centum (25%) in aggregate Principal Amount of the Subordinate Bonds then Outstanding hereunder. The Trustee shall provide each Bond Insurer with immediate notice of a default pursuant to Section 8.01(a) or (b) and, within thirty (30) days of the Trustee's knowledge thereof, any other default known to the Trustee. The Trustee shall

not be under any obligation to take any action in respect of any default or otherwise, or to institute, appear in or defend any suit or other proceeding in connection therewith or to ascertain or inquire as to the performance of any of the covenants or agreements herein contained on the part of the Authority, unless requested in writing so to do by the Holders of not less than twenty-five per centum (25%) in aggregate Principal Amount of the Subordinate Bonds then Outstanding hereunder and indemnified to its satisfaction but this provision shall not affect any discretionary power herein given to the Trustee. The Trustee shall, however, take actions pursuant to Section 13.02 hereof, as required therein.

The foregoing provisions are intended only for the protection of the Trustee, and shall not affect any discretion or power given by any provision of this Subordinate Indenture to the Trustee to take action in respect to any default without such notice or request from the Bondholders or without such security or indemnity. The Trustee may, at any time in its discretion, require of the Authority full information and advice as to the performance of any of the covenants, conditions and agreements, and may further make or cause to be made independent investigations at the expense of the Authority, concerning the affairs of the Authority insofar as such affairs are related to the System.

Section 9.07 Right to Rely Upon Documents. The Trustee shall be protected and shall incur no liability in relying, acting or proceeding in good faith upon any notice, resolution, request, consent, order, certificate, report, opinion, bond, telephonic notice, facsimile transmission, waiver, statement, affidavit, voucher, appraisal, application or other paper or document believed by it to be genuine and to have been signed, passed or presented by the proper person or authority, or to have been prepared and furnished pursuant to the provisions of this Subordinate Indenture, and before acting upon any of the same the Trustee shall not be bound to make any investigation into the matters stated therein.

The Trustee may consult with legal counsel to be selected and employed by it and the opinion of such counsel shall be full and complete authorization and protection in respect of any action taken or suffered by it hereunder in good faith and in accordance with the opinion of such counsel.

The Trustee shall not be bound to recognize any person as the Holder of a Subordinate Bond Outstanding hereunder unless and until his Subordinate Bond is submitted to the Trustee for inspection, if required, and his title thereto satisfactorily established, if disputed.

Whenever in the administration of the trusts imposed upon it by this Subordinate Indenture the Trustee shall deem it necessary or desirable that a matter be proved or established prior to taking or suffering any action hereunder, such matter (unless other evidence in respect thereof be herein specifically prescribed) may be deemed to be conclusively proved and established by a certificate of the Authority, and such certificate shall be full warrant to the Trustee for any action taken or suffered in good faith under the provisions of this Subordinate Indenture in reliance upon such Certificate, but in its discretion the Trustee may, in lieu thereof, accept other evidence of such matter or may require such additional evidence as it may deem reasonable.

Any action taken, or omitted to be taken, by the Trustee in good faith pursuant to this Subordinate Indenture upon the request or authority or consent of any person who, at the time of making such request or giving such authority or consent, is a Bondholder, shall be conclusive and binding upon all future Bondholders and upon Subordinate Bonds executed and delivered in exchange therefore or in place thereof. The permissive right of the Trustee to do things enumerated in this Subordinate Indenture shall not be construed as a duty.

The Trustee shall have no responsibility, opinion or liability with respect to any information statement or recital found in any official statement or other disclosure material, prepared or distributed with respect to the issuance of the Subordinate Bonds, except for information provided by the Trustee.

**Section 9.08 Trustee Compensation; Indemnification of Trustee.** The Authority shall, out of the Revenues, pay to the Trustee, from time to time, reasonable compensation for all services rendered hereunder, and shall also reimburse the Trustee for all of its reasonable expenses, charges and other disbursements and those of its attorneys, agents and employees, incurred in and about the administration and execution of the trusts hereby created, and the performance of its powers and duties hereunder, and the Trustee shall have a lien on the Revenues therefor, prior and superior to the lien of the Subordinate Bonds issued hereunder. The Authority further covenants and agrees to protect, exonerate, defend, indemnify and save the Trustee and its officers, directors, employees and agents (collectively, the "Indemnitees") harmless from and against any and all liabilities, losses, damages, fines, suits, actions, demands, penalties, costs and expenses, including out-of-pocket, incidental expenses, legal fees and expenses, the allocated costs and expenses of in-house counsel and legal staff and the costs and expenses of defending or preparing to defend against any claim ("Losses") that may be imposed on, incurred by, or assessed against, the Indemnitees or any of them for following any instruction or other direction upon which the Trustee is authorized to rely pursuant to the terms of this Subordinate Indenture. In addition to and not in limitation of the immediately preceding sentence, the Authority also covenants and agrees to indemnify and hold the Indemnitees and each of them harmless from and against any and all Losses that may be imposed on, incurred by, or asserted against the Indemnitees or any of them in connection with or arising out of the Trustee's performance, as applicable, under this Subordinate Indenture provided that such party has not acted with negligence or engaged in willful misconduct. The provisions of this Section shall survive the termination of this Subordinate Indenture and the resignation or removal of the Trustee.

**Section 9.09 Trustee's Right to Make Advances.** If the Authority shall fail to perform any of the covenants or agreements contained in this Subordinate Indenture, the Trustee may, in its discretion and without notice to the Bondholders, at any time and from time to time, make advances to effect performance of the same on behalf of the Authority, but the Trustee shall be under no obligation so to do; and any and all moneys paid or advanced by the Trustee for any such purpose, together with interest thereon at the rate equal to 102% of the Prime Rate in effect at the time of such advance, shall be a lien in favor of the Trustee upon the Revenues prior and superior to the lien of the Subordinate Bonds issued hereunder; but no such advance shall operate to relieve the Authority from any default hereunder. Nothing herein shall be construed to require the Trustee to expend its own funds.

Section 9.10 Right to Own and Deal in Subordinate Bonds. The Trustee may become the Owner of Subordinate Bonds issued hereunder and secured hereby, with the same rights it would have if it were not Trustee. The Trustee may also engage in, or be interested in any financial or other transaction with the Authority and may act as depositary for and permit any of its officers or directors to act as a member of, or in any other capacity with respect to, any committee formed to protect the rights of Bondholders or to effect or aid any reorganization growing out of the enforcement of the Subordinate Bonds or this Subordinate Indenture, whether or not any such committee shall represent the Holders of a majority in Principal Amount of the Bonds Outstanding hereunder.

Section 9.11 Construction of Provisions of Indenture. The Trustee may construe any of the provisions of this Subordinate Indenture insofar as the same may appear to be ambiguous or inconsistent with any other provisions hereof; and any construction of any such provisions hereof by the Trustee in good faith shall be binding upon the Bondholders.

Section 9.12 Resignation or Replacement of Trustee. The Trustee may resign on its motion or may be removed at any time by an instrument or instruments in writing signed by (1) the Authority, provided no Event of Default has occurred and is continuing or (2) the Holders of not less than fifty percent (50%) of the Principal Amount of Subordinate Bonds then Outstanding, if an Event of Default has occurred and is continuing. No such resignation or removal shall become effective unless and until a successor Trustee (or temporary successor trustee as provided below) has been appointed and has assumed the trusts created hereby. Written notice of such resignation or removal shall be given to each Holder of a Subordinate Bond then Outstanding to the address then reflected on the books of the Trustee and such resignation or removal shall take effect upon the appointment, qualification and acceptance of a successor Trustee. A successor Trustee may be appointed at the direction of the Authority, or if the Authority shall fail to appoint a successor Trustee, a successor Trustee may be appointed at the direction of the Holders of not less than fifty percent (50%) in aggregate Principal Amount of Subordinate Bonds Outstanding. In the event a successor Trustee has not been appointed and qualified within sixty (60) days of the date notice of resignation or removal is given, the Trustee or any Bondholders may apply to any court of competent jurisdiction for the appointment of a temporary successor Trustee to act until such time as a successor is appointed as above provided. No resignation or removal of the Trustee shall be effective until a successor has been appointed and has accepted the duties of the Trustee hereunder.

Every successor shall always be a bank or trust company in good standing, qualified to act hereunder, and having a combined capital, surplus and undivided profits of not less than Fifty Million Dollars (\$50,000,000). Any successor appointed hereunder shall execute, acknowledge and deliver to the Authority an instrument accepting such appointment hereunder, and thereupon such successor shall, without any further act, deed or conveyance, become vested with all the estates, properties, rights, powers and trusts of its predecessor in the trust hereunder with like effect as if originally named as Trustee herein; but the Trustee retiring shall, nevertheless, on the written demand of its successor, execute and deliver an instrument conveying and transferring to such successor, upon the trusts herein expressed, all the estates, properties, rights, powers and trusts of the predecessor, who shall duly assign, transfer and deliver to the successor all properties and moneys held by it under this Subordinate Indenture. Should any instrument in writing from the Authority be required by any successor for more fully



and certainly vesting in and confirming to it all of such estates, properties, rights, powers and trusts, the Authority shall, on request of such successor, make, execute, acknowledge and deliver the deeds, conveyances and necessary instruments in writing.

The notices herein provided for shall be given by mailing a copy thereof to the registered Owners at their addresses as the same shall last appear on the Bond register. A copy shall be provided to each Bond Insurer.

The instruments evidencing the resignation or removal of the Trustee and the appointment of a successor hereunder together with all instruments provided for in this Section shall be filed and/or recorded by the successor Trustee in each recording office, if any, where this Subordinate Indenture shall have been filed and/or recorded.

Section 9.13 Successor Trustee by Merger. Any bank or trust company having power to execute the trusts of this Subordinate Indenture and otherwise qualified to act as Trustee hereunder, with or into which the Trustee may be merged or consolidated or any such bank or trust company resulting from any merger or consolidation to which the Trustee shall be a party, shall be the successor trustee under this Subordinate Indenture, without the execution or filing of any paper or the performance of any further act on the part of any other parties hereto, anything herein to the contrary notwithstanding.

Section 9.14 Appointment of Paying Agent. The Authority may appoint a successor Paying Agent or a co-paying agent at any time upon written notice to each Bond Insurer and the Trustee.

Section 9.15 Trustee to Notify S&P and Moody's. The Trustee hereby agrees to notify S&P and Moody's of (i) any change of the Trustee, (ii) any change in the Bond Insurance Policy, and (iii) any mandatory redemption of Subordinate Bonds other than mandatory sinking fund redemption. Notices shall be sent to Moody's Investors Service at 7 World Trade Center, 250 Greenwich Street, New York, New York 10007, Attention: Municipal Department/Structured Finance Group. Notices shall be sent to Standard & Poor's Corporation at 55 Water Street, New York, New York 10041.

## ARTICLE X

### CONCERNING THE HOLDERS OF THE SUBORDINATE BONDS

Section 10.01 Execution of Instruments. Whenever in this Supplemental Indenture it is provided that the Holders of a specified percentage or a majority of the Subordinate Bonds Outstanding hereunder may take any action (including the making of any demand or request, the giving of any notice, consent or waiver or the taking of any other action) the fact that at the time of taking any such action the Holders of such specified percentage or majority have joined therein may be evidenced by any instrument or any number of instruments of similar tenor executed by Bondholders in person or by agent or proxy appointed in writing.

Section 10.02 Proof of Ownership. Subject to the provisions of Article IX, proof of the execution of any instrument by a Bondholder or his agent or proxy and proof of the

holding by any persons of any of the Subordinate Bonds shall be sufficient if made in the following manner:

(1) The fact and date of the execution by any such persons of any instrument may be proved by the certificate of any notary public or other officer authorized to take acknowledgments of deeds to be recorded in any State within the United States, that the person executing such instrument acknowledged to him the execution thereof, or by an affidavit of a witness to such execution sworn to before any such notary or other such officer; and

(2) The ownership of Subordinate Bonds may be proved by the registration books for such Subordinate Bonds maintained by the Authority at the Principal Office of the Trustee.

The Trustee and any Paying Agent may require such additional proof of any matter referred to in this Section as it shall deem necessary or may accept such other proof as it may deem appropriate.

## ARTICLE XI

### AMENDMENTS AND MODIFICATIONS

Section 11.01 Waivers and Supplemental Indentures Not Requiring Consent of Bondholders. In addition to any Supplemental Indenture otherwise authorized by this Subordinate Indenture, the Authority, and the Trustee may, from time to time and at any time, enter into such indentures or agreements supplemental hereto as shall not be inconsistent with the terms and provisions hereof and which shall not adversely affect the rights of the Holders of the Subordinate Bonds Outstanding hereunder (which supplemental indentures or agreements shall thereafter form a part thereof) for the following purposes:

(a) to cure any ambiguity, formal defect or omission in this Subordinate Indenture or any Supplemental Indenture; or

(b) to grant or confer upon the Trustee for the benefit of the Bondholders any additional rights, remedies, powers, authority or security that may lawfully be granted to or conferred upon the Bondholders, or the Trustee; or

(c) to add to the covenants and agreements of the Authority in this Subordinate Indenture contained, other covenants and agreements thereafter to be observed, or to surrender any right or power herein reserved to or conferred upon the Authority; or

(d) to modify any of the provisions of this Subordinate Indenture or to relieve the Authority of any of the obligations, conditions or restrictions contained in this Subordinate Indenture, provided that such modification or relief shall not, by the express terms of the particular Supplemental Indenture, become effective until all Subordinate Bonds Outstanding on the date of the execution and delivery of such Supplemental Indenture shall no longer be Outstanding; or

(e) to make such provision in regard to matters or questions arising under this Subordinate Indenture as may be necessary or desirable and not inconsistent with this Subordinate Indenture; or

(f) to close this Subordinate Indenture against, or to restrict, in addition to the limitations and restrictions herein contained, the issue of Additional Bonds hereunder, by imposing additional conditions and restrictions to be thereafter observed, whether applicable in respect to all Subordinate Bonds issued and to be issued hereunder or in respect of one or more Series of Subordinate Bonds, or otherwise; or

(g) to modify, amend or supplement this Subordinate Indenture in such manner as required to permit the Authority to comply with the provisions of the Code relating to the rebate to the United States of America of earnings derived from the investment of the proceeds of Subordinate Bonds, provided that such modification, amendment or supplement does not materially adversely affect the Holders of all Outstanding Subordinate Bonds; or

(h) to modify, amend or supplement this Subordinate Indenture in such manner as may be required by a Rating Agency to maintain or enhance its rating on the Subordinate Bonds, provided that such modification, amendment or supplement does not materially adversely affect the Holders of all Outstanding Subordinate Bonds; or

(i) to modify, amend or supplement this Subordinate Indenture to implement any covenants or agreements contemplated by Section 7.21; or

(j) to authorize the issuance of, to describe the terms of, and to secure one or more Series of Additional Bonds pursuant to Article III; or

(k) to amend any agreement with a securities depository relating to a book-entry system to be maintained with respect to any Subordinate Bonds; or

(l) to modify, amend or supplement this Subordinate Indenture in any manner that the Trustee concludes is not materially adverse to the Holders of all Outstanding Subordinate Bonds; or

(m) to modify, amend or supplement the exhibits to this Subordinate Indenture containing Bond Insurer provisions, provided the Authority and the Bond Insurers consent to such modifications, amendments or supplements.

Section 11.02 Supplemental Indentures Requiring Consent of Bondholders. With the consent, evidenced as provided in Section 10.01, of the Holders of not less than the Approval Amount or, in the case one or more but less than all of the Series of the Subordinate Bonds then Outstanding are affected, then, in addition, with the consent of the Holders of the Approval Amount of each Series so affected, and with the consent of any guarantor of principal and interest of any Series of Subordinate Bonds issued under a Supplemental Indenture, the Authority and the Trustee may from time to time and at any time enter into an Indenture or Indentures Supplemental hereto for the purpose of eliminating any of the provisions of this Subordinate Indenture or of any Supplemental Indenture or of modifying in any manner the

rights of the Holders of the Subordinate Bonds so affected; provided, however, that no such supplemental Indenture shall (i) extend the fixed maturity date of any Subordinate Bond, or reduce the Principal Amount thereof, or reduce the rate or extend the time of payment of interest thereon, or reduce any premium payable upon the redemption thereof, without the consent of the Holder of each Subordinate Bond so affected, or (ii) permit the creation by the Authority of any lien prior to the lien of this Subordinate Indenture (except as provided in the Senior Indenture) upon any part of the Revenues, or reduce the Approval Amount, without the consent of the Holders of all Subordinate Bonds then Outstanding. It shall not be necessary for the consent of the Bondholders under this Section to approve the particular form of any proposed Supplemental Indenture, but it shall be sufficient if such consent shall approve the substance thereof. Nothing herein contained, however, shall be construed as making necessary the approval by the Bondholders of the execution of any Supplemental Indenture or agreement as authorized in Section 11.01.

Section 11.03 Authorization to Trustee; Opinion of Counsel. The Trustee shall join with the Authority in the execution of any Supplemental Indenture which the Authority is authorized to execute under the provisions of Section 11.01 or Section 11.02 upon the delivery by the Authority to the Trustee of the following:

(a) (i) A certified copy of a Resolution of the Board authorizing such Supplemental Indenture and requesting the execution thereof by the Trustee and (ii) evidence of consent to such amendment by any party whose consent is required hereunder;

(b) An opinion of counsel (i) to the effect that the Authority and the Trustee are authorized to enter into such Supplemental Indenture by the provisions of Section 11.01 and that all other conditions precedent have been satisfied, or (ii) to the effect that the Authority and the Trustee are authorized to enter into such Supplemental Indenture by the provisions of Section 11.02, that the consent of the Bondholders required has been secured and is evidenced by specified documents meeting the requirements of Section 10.01, and that all other conditions precedent have been satisfied; and

(c) If the opinion of counsel shall state that the Authority and the Trustee are authorized to enter into such Supplemental Indenture by the provisions of Section 11.02, the documents evidencing the consent of the Bondholders as specified in said opinion;

provided, however, that the Trustee shall not be obligated to join in any such Supplemental Indenture which, in its opinion, adversely affects its own duties, rights or immunities under this Subordinate Indenture.

Section 11.04 Effectiveness of Amendments, Modifications. Upon the execution of any Supplemental Indenture pursuant to the provisions of this Article, this Subordinate Indenture shall be and be deemed to be modified and amended in accordance therewith and the respective rights, limitations of rights, obligations, duties and immunities under this Subordinate Indenture of the Trustee, the Authority and the Holders of Subordinate Bonds shall thereafter be determined, exercised and enforced hereunder subject in all respect to such modifications and amendments, and all the terms and conditions of any such Supplemental Indenture shall be and be deemed to be part of the terms and conditions of this Subordinate Indenture for any and all

purposes. The Authority shall provide each Bond Insurer with a full transcript of all proceedings relating to the execution of any supplement or amendment to this Subordinate Indenture. The Authority shall provide Moody's and S&P with a notice of each amendment to this Subordinate Indenture and a copy thereof at least fifteen (15) days in advance of its execution.

## ARTICLE XII

### DISCHARGE OF INDENTURE

Section 12.01 Release of Indenture. If the Authority, its successors or assigns, shall pay or cause to be paid unto the Holders of all Subordinate Bonds Outstanding hereunder the principal and interest to become due thereon and the premium thereon, if any, at the times and in the manner stipulated therein, then this Subordinate Indenture and the estate and rights hereby granted shall cease, determine and be void, and thereupon the Trustee shall, upon the request of the Authority, deliver to the Authority such instruments as shall be requisite to satisfy the lien hereof, and reconvey to the Authority the estate and title hereby conveyed, and assign and deliver to the Authority any property at the time subject to the lien of this Subordinate Indenture which may then be in the possession of the Trustee; but the Trustee shall take any such action only upon the receipt of an officer's certificate and an opinion of counsel, each stating in substance that in the opinion of the respective signers all conditions precedent provided for in this Subordinate Indenture relating to such release, cancellation and discharge have been complied with. In addition, this Subordinate Indenture shall not be discharged until all Policy Costs owing to any Bond Insurer shall have been paid in full.

Subordinate Bonds for the payment or redemption of which there shall have been deposited with the Trustee cash or Defeasance Obligations (which shall mean direct non-callable obligations of the United States of America and securities fully and unconditionally guaranteed as to the timely payment of principal and interest by the United States of America, to which the direct obligation or guarantee of the full faith and credit of the United States of America has been pledged, Refcorp interest strips, CATS, TIGRS, STRPS, or defeased municipal bonds rated "AAA" by S&P or "Aaa" by Moody's, any combination thereof or any other security approved by the applicable Bond Insurer), the principal of and interest on which when due, will, without reinvestment of principal or interest, provide sufficient moneys to pay the Subordinate Bonds in full at maturity or the date fixed for redemption, shall be deemed to be paid within the meaning of this Article. In the event of an advance refunding, the Authority shall cause to be delivered a verification report of a Qualified Independent Consultant experienced in delivering verification reports. For purposes of determining whether any Outstanding Variable Rate Indebtedness is deemed paid and discharged pursuant to this Article XII, such Variable Rate Indebtedness shall be deemed to bear interest at the maximum rate of interest such Variable Rate Indebtedness may bear pursuant to the applicable Supplemental Indenture.

The release, cancellation and discharge of this Subordinate Indenture, however, shall be without prejudice to the right of the Trustee to be paid any compensation then due to it hereunder and to be protected and saved harmless by the Authority from any and all losses, liabilities, costs and expenses, including counsel fees, at any time incurred by the Trustee hereunder or connected with any Subordinate Bond issued hereunder, of and from which, if this Subordinate Indenture had not been released, cancelled and discharged, the Authority would

have been obligated by the terms of this Subordinate Indenture to protect and save the Trustee harmless, and the Authority hereby covenants to protect and save the Trustee harmless of and from such losses, liabilities, costs and expenses.

If any Subordinate Bond shall not be presented for payment when the principal thereof shall become due, either at maturity or otherwise, or at the date fixed for the redemption thereof, and if the Authority shall have deposited with the Trustee, for the purpose, or left with it in trust if previously so deposited, funds sufficient to pay the principal of such Subordinate Bond (and the premium, if any payable upon the redemption thereof), together with all interest due thereon, to the date of maturity thereof or to the date fixed for redemption thereof, for the benefit of the Holder or Holders thereof, respectively, all liability of the Authority to the Holder of such Subordinate Bond for the payment of the principal thereof, the interest thereon, and the premium, if any, shall forthwith cease, determine and be completely discharged, and thereupon it shall be the duty of the Trustee, to hold said fund or funds, without liability for interest thereon, for the benefit of the Holder of such Subordinate Bond who shall thereafter be restricted exclusively to said fund or funds for any claim of whatsoever nature on his part under this Subordinate Indenture or on, or with respect to, said Subordinate Bond.

Any moneys deposited with the Trustee, by the Authority, pursuant to the terms of this Subordinate Indenture, for the payment or redemption of Subordinate Bonds which remain unclaimed by the Holders of the Subordinate Bonds for five (5) years after the date of maturity or the date fixed for redemption, as the case may be, shall upon the written request of the Authority if the Authority is not at that time, to the knowledge of the Trustee, in default hereunder be paid to the Authority. Thereafter, such Holders of the Subordinate Bonds shall thereafter look only to the Authority for payment and then only to the extent of the amounts so received without interest thereon.

### ARTICLE XIII

#### MISCELLANEOUS

Section 13.01 Limitation of Rights, Remedy or Claim. With the exception of rights herein expressly conferred, nothing in this Subordinate Indenture, expressed or implied, is intended or shall be construed to confer upon, or to give to, any person or corporation, other than the parties hereto and the Holders of the Subordinate Bonds outstanding hereunder, any rights, remedy or claim under or by reason of this Subordinate Indenture or any covenant, condition or stipulation hereof; and all the covenants, stipulations, promises and agreements in this Subordinate Indenture contained by and on behalf of the Authority shall be for the sole and exclusive benefit of the parties hereto, and of the Holders of the Subordinate Bonds Outstanding hereunder.

Section 13.02 Notices to Rating Agencies. The Authority shall instruct the Trustee to give notice to the Rating Agencies upon an occurrence of any of the following that relates to the Subordinate Bonds:

- (i) expiration of any credit enhancement;

- (ii) termination of any credit enhancement;
- (iii) extension of any credit enhancement;
- (iv) substitution of any credit enhancement;
- (v) redemption;
- (vi) acceleration;
- (vii) conversion;
- (viii) changes in bond documents;
- (ix) changes in any Credit Facility;
- (x) changes in Trustee and/or any remarketing agent; or
- (xi) defeasance.

Section 13.03 Invalidity of Provisions. If any one or more of the covenants or agreements provided in this Subordinate Indenture on the part of the Authority or the Trustee to be performed should be finally determined by a court of competent jurisdiction to be contrary to law, then such covenant or covenants or agreement or agreements shall be null and void and shall be deemed separable from the remaining covenants and agreements, and shall in no way affect the validity of this Subordinate Indenture.

Section 13.04 Governing Law. This Supplemental Indenture shall be deemed to be and shall be construed as a Pennsylvania contract and wherever enforced shall be construed in accordance with the laws of the Commonwealth.

Section 13.05 Limitation of Liability. No covenant, agreement or obligation contained in the Subordinate Bonds or in this Subordinate Indenture shall be deemed to be the covenant, agreement or obligation of any member, agent or employee of the Authority in his individual capacity and neither the members of the Board of the Authority nor any official executing the Subordinate Bonds shall be liable personally on the Subordinate Bonds or be subject to any personal liability or accountability by reason of the issuance thereof.

Section 13.06 Execution in Counterparts. This Subordinate Indenture may be executed in multiple counterparts, each of which shall be regarded for all purposes as an original; but such counterparts shall constitute but one and the same instrument.

Section 13.07 Payment on Saturday, Sunday or Legal Holiday. If any case where the date of maturity of interest on or principal of any Subordinate Bond or the date fixed for redemption or tender of any Subordinate Bond shall be a Saturday, Sunday or a legal holiday or a day on which banking institutions in the Commonwealth are authorized by law to close, then payment of such interest or principal and premium, if any, need not be made on such date but may be made on the next succeeding Business Day not a Saturday, Sunday nor a legal holiday

nor a day upon which banking institutions are authorized by law to close, with the same force and effect as if made on the date of maturity or the date fixed for redemption, and no interest shall accrue for the period after such date.

Section 13.08 Notices. Except as otherwise expressly provided in this Subordinate Indenture, or in any indenture supplemental hereto, any request, opinion, consent, demand, notice, order, appointment, or other direction required or permitted to be made or given by the Authority, shall be deemed to have been sufficiently made or given if executed on behalf of the Authority by an Authorized Representative of the Authority, or signed by such other person or persons who is or are authorized to do so pursuant to a Resolution of the Board.

Any notice to or demand upon the Trustee may be served, presented, or made at the Principal Office of the Trustee at The Bank of New York Mellon Trust Company, N.A., 500 Ross Street, 12<sup>th</sup> Floor, Pittsburgh, PA 15262, Attention: Corporate Trust Administration. Any notice to or demand upon the Authority shall be deemed to have been sufficiently given or served by the Trustee for all purposes, by being sent by certified or registered United States mail, postage prepaid, to the Authority at The Pittsburgh Water and Sewer Authority, 1200 Penn Avenue, Pittsburgh, Pennsylvania 15222, Attention: Executive Director or at such other address as may be filed in writing by the Authority with the Trustee.

The Trustee shall have the right to accept and act upon instructions, including funds transfer instructions (“Instructions”) given pursuant to this Subordinate Indenture and delivered using Electronic Means; provided, however, that the Authority shall provide to the Trustee an incumbency certificate listing Authorized Representatives of the Authority to provide such Instructions and containing specimen signatures of such Authorized Representatives of the Authority, which incumbency certificate shall be amended by the Authority whenever a person is to be added or deleted from the listing. If the Authority elects to give the Trustee Instructions using Electronic Means and the Trustee in its discretion elects to act upon such Instructions, the Trustee’s understanding of such Instructions shall be deemed controlling. The Authority understands and agrees that the Trustee cannot determine the identity of the actual sender of such Instructions and that the Trustee shall conclusively presume that directions that purport to have been sent by an Authorized Representative of the Authority listed on the incumbency certificate provided to the Trustee have been sent by such Authorized Representative of the Authority. The Authority shall be responsible for ensuring that only Authorized Representatives of the Authority transmit such Instructions to the Trustee and that the Authority and all Authorized Representatives of the Authority are solely responsible to safeguard the use and confidentiality of applicable user and authorization codes, passwords and/or authentication keys upon receipt by the Authority. The Trustee shall not be liable for any losses, costs or expenses arising directly or indirectly from the Trustee’s reliance upon and compliance with such Instructions notwithstanding such directions conflict or are inconsistent with a subsequent written instruction. The Authority agrees: (i) to assume all risks arising out of the use of Electronic Means to submit Instructions to the Trustee, including without limitation the risk of the Trustee acting on unauthorized Instructions, and the risk of interception and misuse by third parties; (ii) that it is fully informed of the protections and risks associated with the various methods of transmitting Instructions to the Trustee and that there may be more secure methods of transmitting Instructions than the method(s) selected by the Authority; (iii) that the security procedures (if any) to be followed in connection with its transmission of Instructions provide to



it a commercially reasonable degree of protection in light of its particular needs and circumstances; and (iv) to notify the Trustee immediately upon learning of any compromise or unauthorized use of the security procedures.

"Electronic Means" shall mean the following communications methods: S.W.I.F.T., e-mail, facsimile transmission, secure electronic transmission containing applicable authorization codes, passwords and/or authentication keys issued by the Trustee, or another method or system specified by the Trustee as available for use in connection with its services hereunder.

Section 13.09 Binding Effect of Covenants. All the covenants, promises and agreements in this Subordinate Indenture contained by or on behalf of the Authority, or by or on behalf of the Trustee shall bind and inure to the benefit of their respective successors and assigns, whether so expressed or not.

Section 13.10 Provisions Related to Bond Insurance and Reserve Policies. The provisions related to bond insurance set forth in Exhibit A hereto are incorporated herein by reference as if fully set forth herein. The provisions related to reserve policies set forth in Exhibit B hereto are incorporated herein by reference as if fully set forth herein.

IN WITNESS WHEREOF, The Pittsburgh Water and Sewer Authority, party of the first part, has caused this Amended and Restated Trust Indenture to be executed by its Chairman or its Vice Chairperson and its corporate seal to be hereunto impressed and attested by its Secretary or its Assistant Secretary, and The Bank of New York Mellon Trust Company, N.A., party of the second part, in evidence of its acceptance of the trusts hereby created, has caused this Subordinate Indenture to be executed by one of its authorized officers.

ATTEST: *Edward Barca*  
*2/4*

*Jan W. Turner*  
\_\_\_\_\_  
Secretary

[SEAL]

THE PITTSBURGH WATER AND  
SEWER AUTHORITY

By *Paul Lopez*  
\_\_\_\_\_  
Chairman

THE BANK OF NEW YORK MELLON  
TRUST COMPANY, N.A., as Trustee

By \_\_\_\_\_  
Authorized Officer  
Title: \_\_\_\_\_

IN WITNESS WHEREOF, The Pittsburgh Water and Sewer Authority, party of the first part, has caused this Amended and Restated Trust Indenture to be executed by its Chairman or its Vice Chairperson and its corporate seal to be hereunto impressed and attested by its Secretary or its Assistant Secretary, and The Bank of New York Mellon Trust Company, N.A., party of the second part, in evidence of its acceptance of the trusts hereby created, has caused this Subordinate Indenture to be executed by one of its authorized officers.

ATTEST:

THE PITTSBURGH WATER AND  
SEWER AUTHORITY

\_\_\_\_\_  
Secretary

By \_\_\_\_\_  
Chairman

[SEAL]

THE BANK OF NEW YORK MELLON  
TRUST COMPANY, N.A., as Trustee

By *Rhonda J. Brannon*  
Authorized Officer  
Title: *Vice President*

## **EXHIBIT A**

### **PROVISIONS RELATED TO BOND INSURANCE**

The provisions set forth in this Exhibit A shall, with respect to the Subordinate Indenture and the Subordinate Bonds insured by Assured Guaranty Municipal Corp., or any successor thereto or assignee thereof, apply to such Subordinate Bonds notwithstanding any other provision of this Subordinate Indenture to the contrary.

- (a) "Bond Insurance Policy" shall mean the insurance policy issued by the Insurer guaranteeing the scheduled payment of principal of and interest on the Insured Bonds when due. "Insured Bonds" shall mean the Subordinate Bonds insured by the Insurer. "Insurer" shall mean, with respect to Subordinate Bonds insured by Assured Guaranty Municipal Corp.: Assured Guaranty Municipal Corp., a New York stock insurance company, or any successor thereto or assignee thereof. "Insured Bondholder" shall mean the Holder of an Insured Bond.
- (b) The prior written consent of the Insurer shall be a condition precedent to the deposit of any credit instrument provided in lieu of a cash deposit into the Subordinate Debt Service Reserve Fund, if any, except for a credit instrument provided by the Insurer. Amounts on deposit in the Subordinate Debt Service Reserve Fund shall be applied solely to the payment of debt service due on the Subordinate Bonds secured by the Subordinate Debt Service Reserve Fund.
- (c) The Insurer shall be deemed to be the sole holder of the Insured Bonds for the purpose of exercising any voting right or privilege or giving any consent or direction or taking any other action that the holders of the Insured Bonds are entitled to take pursuant to the Subordinate Indenture pertaining to (i) defaults and remedies and (ii) the duties and obligations of the Trustee. In furtherance thereof and as a term of the Subordinate Indenture and each Insured Bond, each Insured Bondholder appoints the Insurer as their agent and attorney-in-fact and agree that the Insurer may at any time during the continuation of any proceeding by or against the Authority under the United States Bankruptcy Code or any other applicable bankruptcy, insolvency, receivership, rehabilitation or similar law (an "Insolvency Proceeding") direct all matters relating to such Insolvency Proceeding (to the extent of their voting rights with respect to the Insured Bonds), including without limitation, (A) all matters relating to any claim or enforcement proceeding in connection with an Insolvency Proceeding (a "Claim"), (B) the direction of any appeal of any order relating to any Claim, (C) the posting of any surety, supersedeas or performance bond pending any such appeal, and (D) the right to vote to accept or reject any plan of adjustment. In addition, each Insured Bondholder delegates and assigns to the Insurer, to the fullest extent permitted by law, the rights of each Insured Bondholder in the conduct of any Insolvency Proceeding, including, without limitation, all rights of any party to an adversary proceeding or action with respect to any court order issued in connection with any such Insolvency Proceeding. The Trustee acknowledges such appointment, delegation and assignment by each Insured Bondholder for the Insurer's benefit, and agrees to cooperate with the Insurer in taking any action reasonably necessary or

appropriate in connection with such appointment, delegation and assignment. Remedies granted in Section 8.04 of the Subordinate Indenture include mandamus.

- (d) Acceleration of the Subordinate Bonds is permitted under the Subordinate Indenture. As set forth in paragraph (c) above, the Insurer is deemed to be the sole holder of the Insured Bonds for purposes of voting on acceleration. In the event the maturity of the Insured Bonds is accelerated, the Insurer shall not be obligated to pay any accelerated amount but may elect, in its sole discretion, to pay accelerated principal and interest accrued, on such principal to the date of acceleration (to the extent unpaid by the Authority) and the Trustee shall be required to accept such amounts. Upon payment of such accelerated principal and interest accrued to the acceleration date as provided above, the Insurer's obligations under the Bond Insurance Policy with respect to such Insured Bonds shall be fully discharged.
- (e) No grace period for a covenant default shall exceed sixty (60) days or be extended for more than sixty (60) days, without the prior written consent of the Insurer. No grace period shall be permitted for payment defaults.
- (f) The Insurer is a third party beneficiary to the Subordinate Indenture.
- (g) Upon the occurrence of an extraordinary optional, special or extraordinary mandatory redemption in part, if any, the selection of Insured Bonds to be redeemed shall be subject to the approval of the Insurer. The exercise of any provision of the Subordinate Indenture which permits the purchase of Insured Bonds in lieu of redemption shall require the prior written approval of the Insurer if any Insured Bond so purchased is not cancelled upon purchase.
- (h) Any amendment, supplement, modification to, or waiver of, the Subordinate Indenture or any other transaction document, including any underlying security agreement (each a "Related Document"), that requires the consent of Bondowners or adversely affects the rights and interests of the Insurer shall be subject to the prior written consent of the Insurer.
- (i) The rights granted to the Insurer under the Subordinate Indenture or any other Related Document to request, consent to or direct any action are rights granted to the Insurer in consideration of its issuance of the Bond Insurance Policy. Any exercise by the Insurer of such rights is merely an exercise of the Insurer's contractual rights and shall not be construed or deemed to be taken for the benefit, or on behalf, of the holders of the Insured Bonds, and such action does not evidence any position of the Insurer, affirmative or negative, as to whether the consent of the owners of the Insured Bonds or any other person is required in addition to the consent of the Insurer.
- (j) Only (1) cash, (2) non-callable direct obligations of the United States of America ("Treasuries"), (3) evidences of ownership of proportionate interests in future interest and principal payments on Treasuries held by a bank or trust company as custodian, under which the owner of the investment is the real party in interest and has the right to proceed directly and individually against the obligor and the underlying Treasuries are not available to any person claiming through the custodian or to whom the custodian may be

obligated, (4) subject to the prior written consent of the Insurer, pre-refunded municipal obligations rated "AAA" and "Aaa" by S&P and Moody's, respectively, or (5) subject to the prior written consent of the Insurer, securities eligible for "AAA" defeasance under then existing criteria of S&P or any combination thereof, shall be used to effect defeasance of the Insured Bonds unless the Insurer otherwise approves.

To accomplish defeasance, the Authority shall cause to be delivered to the Insurer (i) a report of an independent firm of nationally recognized certified public accountants or such other accountant or financial firm as shall be acceptable to the Insurer ("Accountant") verifying the sufficiency of the escrow established to pay the Insured Bonds in full on the maturity or redemption date ("Verification"), (ii) an Escrow Deposit Agreement (which shall be acceptable in form and substance to the Insurer), (iii) an opinion of nationally recognized bond counsel to the effect that the Insured Bonds are no longer "Outstanding" under the Subordinate Indenture and (iv) a certificate of discharge of the Trustee with respect to the Insured Bonds; each Verification and defeasance opinion shall be acceptable in form and substance, and addressed, to the Authority, Trustee and Insurer. The Insurer shall be provided with final drafts of the above-referenced documentation not less than five business days prior to the funding of the escrow.

Insured Bonds shall be deemed "Outstanding" under the Subordinate Indenture unless and until they are in fact paid and retired or the above criteria are met.

- (k) Amounts paid by the Insurer under the Bond Insurance Policy shall not be deemed paid for purposes of the Subordinate Indenture and the Insured Bonds relating to such payments shall remain Outstanding and continue to be due and owing until paid by the Authority in accordance with the Subordinate Indenture. The Subordinate Indenture shall not be discharged unless all amounts due or to become due to the Insurer have been paid in full or duly provided for.
- (l) The Authority covenants and agrees to take such action (including, as applicable, filing of UCC financing statements and continuations thereof) as is necessary from time to time to preserve the priority of the pledge of the Trust Estate under applicable law. The Trustee agrees to use commercially reasonable efforts to assist the Authority in filing any necessary continuation statements of UCC financing statements, including advising the Authority of any due dates of continuation statements of which the Trustee has knowledge.
- (m) Claims Upon the Bond Insurance Policy and Payments by and to the Insurer.

If, on the third Business Day prior to the related scheduled interest payment date or principal payment date ("Payment Date") there is not on deposit with the Trustee, after making all transfers and deposits required under the Subordinate Indenture, moneys sufficient to pay the principal of and interest on the Insured Bonds due on such Payment Date, the Trustee shall give notice to the Insurer and to its designated agent (if any) (the "Insurer's Fiscal Agent") by telephone or telecopy of the amount of such deficiency by 12:00 noon, New York City time, on such Business Day. If, on the second Business Day

prior to the related Payment Date, there continues to be a deficiency in the amount available to pay the principal of and interest on the Insured Bonds due on such Payment Date, the Trustee shall make a claim under the Bond Insurance Policy and give notice to the Insurer and the Insurer's Fiscal Agent (if any) by telephone of the amount of such deficiency, and the allocation of such deficiency between the amount required to pay interest on the Bonds and the amount required to pay principal of the Insured Bonds, confirmed in writing to the Insurer and the Insurer's Fiscal Agent by 12:00 noon, New York City time, on such second Business Day by filling in the form of Notice of Claim and Certificate delivered with the Bond Insurance Policy.

The Trustee shall designate any portion of payment of principal on Insured Bonds paid by the Insurer, whether by virtue of mandatory sinking fund redemption, maturity or other advancement of maturity, on its books as a reduction in the principal amount of Insured Bonds registered to the then current Insured Bondholder, whether DTC or its nominee or otherwise, and shall issue a replacement Insured Bond to the Insurer, registered in the name of Assured Guaranty Municipal Corp., in a principal amount equal to the amount of principal so paid (without regard to authorized denominations); provided that the Trustee's failure to so designate any payment or issue any replacement Insured Bond shall have no effect on the amount of principal or interest payable by the Authority on any Insured Bond or the subrogation rights of the Insurer.

The Trustee shall keep a complete and accurate record of all funds deposited by the Insurer into the Policy Payments Account (defined below) and the allocation of such funds to payment of interest on and principal of any Insured Bond. The Insurer shall have the right to inspect such records at reasonable times upon reasonable notice to the Trustee.

Upon payment of a claim under the Bond Insurance Policy, the Trustee shall establish a separate special purpose trust account for the benefit of Insured Bondholders referred to herein as the "Policy Payments Account" and over which the Trustee shall have exclusive control and sole right of withdrawal. The Trustee shall receive any amount paid under the Bond Insurance Policy in trust on behalf of Insured Bondholders and shall deposit any such amount in the Policy Payments Account and distribute such amount only for purposes of making the payments for which a claim was made. Such amounts shall be disbursed by the Trustee to Insured Bondholders in the same manner as principal and interest payments are to be made with respect to the Insured Bonds under the sections hereof regarding payment of Insured Bonds. It shall not be necessary for such payments to be made by checks or wire transfers separate from the check or wire transfer used to pay debt service with other funds available to make such payments. Notwithstanding anything herein to the contrary, the Authority agrees to pay to the Insurer (i) a sum equal to the total of all amounts paid by the Insurer under the Bond Insurance Policy (the "Insurer Advances"); and (ii) interest on such Insurer Advances from the date paid by the Insurer until payment thereof in full, payable to the Insurer at the Late Payment Rate per annum (collectively, the "Insurer Reimbursement Amounts"). "Late Payment Rate" means the lesser of (a) the greater of (i) the per annum rate of interest, publicly announced from time to time by JPMorgan Chase Bank at its principal office in The City

of New York, as its prime or base lending rate (any change in such rate of interest to be effective on the date such change is announced by JPMorgan Chase Bank) plus 3%, and (ii) the then applicable highest rate of interest on the Insured Bonds and (b) the maximum rate permissible under applicable usury or similar laws limiting interest rates. The Late Payment Rate shall be computed on the basis of the actual number of days elapsed over a year of 360 days. The Authority hereby covenants and agrees that the Insurer Reimbursement Amounts are secured by a lien on and pledge of the Trust Estate and payable from such Trust Estate on a parity with debt service due on the Insured Bonds.

Funds held in the Policy Payments Account shall not be invested by the Trustee and may not be applied to satisfy any costs, expenses or liabilities of the Trustee. Any funds remaining in the Policy Payments Account following an Insured Bond payment date shall promptly be remitted to the Insurer.

- (n) The Insurer shall, to the extent it makes any payment of principal of or interest on the Insured Bonds, become subrogated to the rights of the recipients of such payments in accordance with the terms of the Bond Insurance Policy (which subrogation rights shall also include the rights of any such recipients in connection with any Insolvency Proceeding). Each obligation of the Authority to the Insurer under the Related Documents shall survive discharge or termination of such Related Documents.
- (o) The Authority shall pay or reimburse the Insurer any and all charges, fees, costs and expenses that the Insurer may reasonably pay or incur in connection with (i) the administration, enforcement, defense or preservation of any rights or security in any Related Document; (ii) the pursuit of any remedies under the Subordinate Indenture or any other Related Document or otherwise afforded by law or equity, (iii) any amendment, waiver or other action with respect to, or related to, the Subordinate Indenture or any other Related Document whether or not executed or completed, or (iv) any litigation or other dispute in connection with this Subordinate Indenture or any other Related Document or the transactions contemplated thereby, other than costs resulting from the failure of the Insurer to honor its obligations under the Bond Insurance Policy. The Insurer reserves the right to charge a reasonable fee as a condition to executing any amendment, waiver or consent proposed in respect of the Subordinate Indenture or any other Related Document.
- (p) After payment of reasonable expenses of the Trustee, the application of funds realized upon default shall be applied to the payment of expenses of the Authority only after the payment of past due and current debt service on the Insured Bonds and amounts required to restore the Subordinate Debt Service Reserve Fund to the Reserve Requirement.
- (q) The Insurer shall be entitled to pay principal or interest on the Insured Bonds that shall become Due for Payment but shall be unpaid by reason of Nonpayment by the Authority (as such terms are defined in the Bond Insurance Policy) and any amounts due on the Insured Bonds as a result of acceleration of the maturity thereof in accordance with the Subordinate Indenture, whether or not the Insurer has received a Notice of Nonpayment



(as such terms are defined in the Bond Insurance Policy) or a claim upon the Bond Insurance Policy.

- (r) The notice address of the Insurer Assured Guaranty Municipal Corp. is: Assured Guaranty Municipal Corp., 1633 Broadway, New York, New York 10019, Attention: Managing Director – Surveillance, Re: Policy No. 219492-N, Telephone: (212) 974-0100; Telecopier: (212) 339-3556. In each case in which notice or other communication refers to an Event of Default, then a copy of such notice or other communication shall also be sent to the attention of the Deputy General Counsel – Public Finance and shall be marked to indicate "URGENT MATERIAL ENCLOSED."
- (s) The Insurer shall be provided with the following information by the Authority or Trustee, as the case may be:
  - (i) Annual audited financial statements within 180 days after the end of the Authority's fiscal year (together with a certification of the Authority that it is not aware of any default or Event of Default under the Subordinate Indenture), and the Authority's Annual Budget within 30 days after the approval thereof together with such other information, data or reports as the Insurer shall reasonably request from time to time;
  - (ii) Notice of any draw upon the Subordinate Debt Service Reserve Fund within two Business Days after knowledge thereof other than (i) withdrawals of amounts in excess of the Debt Service Reserve Requirement and (ii) withdrawals in connection with a refunding of Insured Bonds;
  - (iii) Notice of any default under the Subordinate Indenture known to the Trustee or Authority within five Business Days after knowledge thereof;
  - (iv) Prior notice of the advance refunding or redemption of any of the Insured Bonds, including the principal amount, maturities and CUSIP numbers thereof;
  - (v) Notice of the resignation or removal of the Trustee and bond registrar and the appointment of, and acceptance of duties by, any successor thereto;
  - (vi) Notice of the commencement of any proceeding by or against the Authority commenced under the United States Bankruptcy Code or any other applicable bankruptcy, insolvency, receivership, rehabilitation or similar law (an "Insolvency Proceeding");

- (vii) Notice of the making of any claim in connection with any Insolvency Proceeding seeking the avoidance as a preferential transfer of any payment of principal of, or interest on, the Insured Bonds;
  - (viii) A full original transcript of all proceedings relating to the execution of any amendment, supplement, or waiver to the Related Documents;
  - (ix) All reports, notices and correspondence to be delivered to holders of Insured Bonds under the terms of the Related Documents; and
  - (x) To the extent that the Authority has entered into a continuing disclosure agreement, covenant or undertaking with respect to the Subordinate Bonds, all information furnished pursuant to such agreements shall also be provided to the Insurer, simultaneously with the furnishing of such information. The Authority shall also provide the Insurer with copies of all amendments, modifications, supplements and restatements relating to such documents.
- (t) The Insurer shall have the right to receive such additional information as it may reasonably request.
  - (u) The Authority will permit the Insurer to discuss the affairs, finances and accounts of the Authority or any information the Insurer may reasonably request regarding the security for the Bonds with appropriate officers of the Authority and will use commercially reasonable efforts to enable the Insurer to have access to the facilities, books and records of the Authority on any business day upon reasonable prior notice.
  - (v) The Trustee shall notify the Insurer of any failure of the Authority to provide notices, certificates and other information under the transaction documents.
  - (w) Notwithstanding satisfaction of the other conditions to the issuance of Additional Bonds set forth in the Subordinate Indenture, no such issuance may occur (1) if an Event of Default (or any event which, once all notice or grace periods have passed, would constitute an Event of Default) exists unless such default shall be cured upon such issuance and (2) unless the Subordinate Debt Service Reserve Fund is fully funded at the Debt Service Reserve Requirement (including the proposed issue) upon the issuance of such Additional Bonds, in either case unless otherwise permitted by the Insurer.
  - (x) In determining whether any amendment, consent, waiver or other action to be taken, or any failure to take action, under the Subordinate Indenture would adversely affect the security for the Insured Bonds or the rights of the holders of Insured Bonds, the Trustee shall consider the effect of any such amendment, consent, waiver, action or inaction as if there were no Bond Insurance Policy.
  - (y) No contract shall be entered into or any action taken by which the rights of the Insurer or security for or sources of payment of the Subordinate Bonds may be impaired or

prejudiced in any material respect except upon obtaining the prior written consent of the Insurer.

- (z) If the Bonds are issued for refunding purposes, there shall be delivered an opinion of Bond Counsel addressed to the Insurer (or a reliance letter relating thereto), or a certificate of discharge of the trustee for the Refunded Bonds, to the effect that, upon the making of the required deposit to the escrow, the legal defeasance of the Refunded Bonds shall have occurred. If the Refunded Bonds are insured by Assured Guaranty Municipal Corp., at least three business days prior to the proposed date for delivery of the Policy with respect to the Refunding Bonds, the Insurer shall also receive (i) the verification letter, of which the Insurer shall be an addressee, by an independent firm of certified public accountants or other financial firm which is either nationally recognized or otherwise acceptable to the Insurer, of the adequacy of the escrow established to provide for the payment of the Refunded Bonds in accordance with the terms and provisions of the Escrow Deposit Agreement, and (ii) the form of an opinion of Bond Counsel addressed to the Insurer (or a reliance letter relating thereto) to the effect that the Escrow Deposit Agreement is a valid and binding obligation of the parties thereto, enforceable in accordance with its terms (such Escrow Deposit Agreement shall provide that no amendments are permitted without the prior written consent of the Insurer). An executed copy of each of such opinion and reliance letter, if applicable, or Trustee's discharge certificate, as the case may be, shall be forwarded to the Insurer prior to delivery of the Bonds.
  
- (aa) Any interest rate exchange agreement ("Swap Agreement") entered into by the Authority shall meet the following conditions: (i) the Swap Agreement must be entered into to manage interest costs related to, or a hedge against (a) assets then held, or (b) debt then outstanding, or (iii) debt reasonably expected to be issued within the next twelve (12) months, and (ii) the Swap Agreement shall not contain any leverage element or multiplier component greater than 1.0x unless there is a matching hedge arrangement which effectively off-sets the exposure from any such element or component. Unless otherwise consented to in writing by the Insurer, any uninsured net settlement, breakage or other termination amount then in effect shall be subordinate to debt service on the Subordinate Bonds and on any debt on parity with the Subordinate Bonds. The Authority shall not terminate a Swap Agreement unless it demonstrates to the satisfaction of the Insurer prior to the payment of any such termination amount that such payment will not cause the Authority to be in default under the Related Documents, including but not limited to, any monetary obligations thereunder.

## **EXHIBIT B**

### **PROVISIONS RELATED TO RESERVE POLICIES**

The provisions set forth in this Exhibit B shall, with respect to Reserve Policies issued by Assured Guaranty Municipal Corp., or any successor thereto or assignee thereof ("AGM") related to Subordinate Bonds issued under this Subordinate Indenture, apply to such Reserve Policies notwithstanding any other provision of this Subordinate Indenture to the contrary.

(a) The prior written consent of AGM shall be a condition precedent to the deposit of any credit facility (other than a credit facility provided by AGM) (a "Credit Facility") credited to the Subordinate Debt Service Reserve Fund established for the Bonds (the "Reserve Fund") in lieu of a cash deposit into the Reserve Fund. Amounts drawn under the Reserve Policy shall be available only for the payment of scheduled principal and interest on the Subordinate Debt Service Bonds when due.

(b) The Authority shall repay any draws under the Reserve Policy and pay all related reasonable expenses incurred by AGM and shall pay interest thereon from the date of payment by AGM at the Late Payment Rate. "Late Payment Rate" means the lesser of (x) the greater of (i) the per annum rate of interest, publicly announced from time to time by JPMorgan Chase Bank at its principal office in the City of New York, as its prime or base lending rate ("Prime Rate") (any change in such Prime Rate to be effective on the date such change is announced by JPMorgan Chase Bank) plus 5% (3% to the extent AGM is the bond insurer of the related Subordinate Debt Service Bonds), and (ii) the then applicable highest rate of interest on the Subordinate Debt Service Bonds and (y) the maximum rate permissible under applicable usury or similar laws limiting interest rates. The Late Payment Rate shall be computed on the basis of the actual number of days elapsed over a year of 360 days. In the event JPMorgan Chase Bank ceases to announce its Prime Rate publicly, Prime Rate shall be the publicly announced prime or base lending rate of such national bank as AGM shall specify. If the interest provisions of this subparagraph (b) shall result in an effective rate of interest which, for any period, exceeds the limit of the usury or any other laws applicable to the indebtedness created herein, then all sums in excess of those lawfully collectible as interest for the period in question shall, without further agreement or notice between or by any party hereto, be applied as additional interest for any later periods of time when amounts are outstanding hereunder to the extent that interest otherwise due hereunder for such periods plus such additional interest would not exceed the limit of the usury or such other laws, and any excess shall be applied upon principal immediately upon receipt of such moneys by AGM, with the same force and effect as if the Authority had specifically designated such extra sums to be so applied and AGM had agreed to accept such extra payment(s) as additional interest for such later periods. In no event shall any agreed-to or actual exaction as consideration for the indebtedness created herein exceed the limits imposed or provided by the law applicable to this transaction for the use or detention of money or for forbearance in seeking its collection.

Repayment of draws and payment of expenses and accrued interest thereon at the Late Payment Rate (collectively, "Policy Costs") shall be made from all available funds and shall

commence in the first month following each draw, and each such monthly payment shall be in an amount at least equal to 1/12 of the aggregate of Policy Costs related to such draw.

Amounts in respect of Policy Costs paid to AGM shall be credited first to interest due, then to the expenses due and then to principal due. As and to the extent that payments are made to AGM on account of principal due, the coverage under the Reserve Policy will be increased by a like amount, subject to the terms of the Reserve Policy. The obligation to pay Policy Costs shall be secured by a valid lien on all revenues and other collateral pledged as security for the Subordinate Bonds (subject only to the priority of payment provisions set forth under the Subordinate Indenture and the Senior Indenture).

All cash and investments in the Reserve Fund shall be transferred to the Debt Service Fund for payment of debt service on Bonds before any drawing may be made on the Reserve Policy or any other Credit Facility credited to the Reserve Fund in lieu of cash. Payment of any Policy Costs shall be made prior to replenishment of any such cash amounts. Draws on all Credit Facilities (including the Reserve Policy) on which there is available coverage shall be made on a pro-rata basis (calculated by reference to the coverage then available thereunder) after applying all available cash and investments in the Reserve Fund. Payment of Policy Costs and reimbursement of amounts with respect to other Credit Facilities shall be made on a pro-rata basis prior to replenishment of any cash drawn from the Reserve Fund. For the avoidance of doubt, "available coverage" means the coverage then available for disbursement pursuant to the terms of the applicable alternative credit instrument without regard to the legal or financial ability or willingness of the provider of such instrument to honor a claim or draw thereon or the failure of such provider to honor any such claim or draw.

(c) Upon a failure to pay Policy Costs when due or any other breach of the terms of this Exhibit B, AGM shall be entitled to exercise any and all legal and equitable remedies available to it, including those provided under the Subordinate Indenture, other than (i) acceleration of the maturity of the Subordinate Bonds or (ii) remedies which would adversely affect owners of the Subordinate Bonds.

(d) The Subordinate Indenture shall not be discharged until all Policy Costs owing to AGM shall have been paid in full. The Authority's obligation to pay such amounts shall expressly survive payment in full of the Subordinate Bonds.

(e) The Authority shall include any Policy Costs then due and owing AGM in the calculation of the additional bonds test and the Rate Covenant in the Subordinate Indenture.

(f) The Subordinate Indenture shall require the Trustee to ascertain the necessity for a claim upon the Reserve Policy in accordance with the provisions of subparagraph (b) hereof and to provide notice to AGM in accordance with the terms of the Reserve Policy at least two business days prior to each date upon which interest or principal is due on the Subordinate Bonds. Where deposits are required to be made by the Authority with the Trustee to the debt service fund for the Subordinate Bonds more often than semi-annually, the Trustee shall be instructed to give notice to AGM of any failure of the Authority to make timely payment in full of such deposits within two business days of the date due.

(g) The Authority will pay or reimburse AGM any and all reasonable charges, fees, costs, losses, liabilities and expenses which AGM may pay or incur, including, but not limited to, reasonable fees and expenses of attorneys, accountants, consultants and auditors and reasonable costs of investigations, in connection with (i) any accounts established to facilitate payments under the Reserve Policy, (ii) the administration, enforcement, defense or preservation of any rights in respect of the Subordinate Indenture or any document executed in connection with the Subordinate Bonds (the "Related Documents"), including defending, monitoring or participating in any litigation or proceeding (including any bankruptcy proceeding in respect of the Authority) relating to the Subordinate Indenture or any other Related Document, any party to the Subordinate Indenture or any other Related Document or the transactions contemplated by the Related Documents, (iii) the foreclosure against, sale or other disposition of any collateral securing any obligations under the Subordinate Indenture or any other Related Document, if any, or the pursuit of any remedies under the Subordinate Indenture or any other Related Document, to the extent such costs and expenses are not recovered from such foreclosure, sale or other disposition, (iv) any amendment, waiver or other action with respect to, or related to the Subordinate Indenture, the Reserve Policy or any other Related Document whether or not executed or completed, or (v) any action taken by AGM to cure a default or termination or similar event (or to mitigate the effect thereof) under the Subordinate Indenture or any other Related Document; costs and expenses shall include a reasonable allocation of compensation and overhead attributable to time of employees of AGM spent in connection with the actions described in clauses (ii) through (v) above. AGM reserves the right to charge a reasonable fee as a condition to executing any amendment, waiver or consent proposed in respect of the Subordinate Indenture or any other Related Document. Amounts payable by the Authority hereunder shall bear interest at the Late Payment Rate from the date such amount is paid or incurred by AGM until the date AGM is paid in full.

(h) The obligation of the Authority to pay all amounts due to AGM shall be an absolute and unconditional obligation of the Authority and will be paid or performed strictly in accordance with the provisions of this Exhibit B, irrespective of (i) any lack of validity or enforceability of or any amendment or other modifications of, or waiver with respect to the Subordinate Bonds, the Subordinate Indenture or any other Related Document, or (ii) any amendment or other modification of, or waiver with respect to the Reserve Policy; (iii) any exchange, release or non-perfection of any security interest in property securing the Subordinate Bonds, the Subordinate Indenture or any other Related Documents; (iv) whether or not such Subordinate Bonds are contingent or matured, disputed or undisputed, liquidated or unliquidated; (v) any amendment, modification or waiver of or any consent to departure from the Reserve Policy, the Subordinate Indenture or all or any of the other Related Documents; (vi) the existence of any claim, setoff, defense (other than the defense of payment in full), reduction, abatement or other right which the Authority may have at any time against the Trustee or any other person or entity other than the Insurer, whether in connection with the transactions contemplated herein or in any other Related Documents or any unrelated transactions; (vii) any statement or any other document presented under or in connection with the Reserve Policy proving in any and all respects invalid, inaccurate, insufficient, fraudulent or forged or any statement therein being untrue or inaccurate in any respect; or (viii) any payment by the Insurer under the Reserve Policy

against presentation of a certificate or other document which does not strictly comply with the terms of the Reserve Policy.

(i) The Authority shall fully observe, perform, and fulfill each of the provisions (as each of those provisions may be amended, supplemented, modified or waived with the prior written consent of the Insurer) of the Subordinate Indenture applicable to it, each of the provisions thereof being expressly incorporated into this Exhibit B by reference solely for the benefit of AGM as if set forth directly herein. No provision of the Subordinate Indenture or any other Related Document shall be amended, supplemented, modified or waived, without the prior written consent of AGM, in any material respect or otherwise in a manner that could adversely affect the payment obligations of the Authority hereunder or the priority accorded to the reimbursement of Policy Costs under the Subordinate Indenture. The Insurer is hereby expressly made a third party beneficiary of the Subordinate Indenture and each other Related Document.

(j) The Authority covenants to provide to AGM, promptly upon written request, any information regarding the Subordinate Bonds or the financial condition and operations of the Authority as reasonably requested by AGM. The Authority will permit AGM to discuss the affairs, finances and accounts of the Authority or any information AGM may reasonably request regarding the security for the Subordinate Bonds with appropriate officers of the Authority and will use commercially reasonable efforts to enable AGM to have access to the facilities, books and records of the Authority on any business day upon reasonable prior notice.

Notices and other information to AGM shall be sent to the following address (or such other address as AGM may designate in writing): Assured Guaranty Municipal Corp., 1633 Broadway, New York, New York 10019, Attention: Managing Director – Surveillance, Re: Policy No. 219492-R.

**EXHIBIT C**

FORM OF 2019B BOND



**REGISTERED  
NO.**

**\$**

**United States of America  
Commonwealth of Pennsylvania**

**THE PITTSBURGH WATER AND SEWER AUTHORITY  
Water and Sewer System  
Subordinate Revenue Refunding Bonds,  
Series B of 2019**

| <b>ISSUE DATE</b>   | <b>MATURITY DATE</b>      | <b>CUSIP</b>       |
|---------------------|---------------------------|--------------------|
| <b>July 2, 2019</b> | <b>September 1, _____</b> | <b>725304 ____</b> |

**REGISTERED OWNER: CEDE & CO.**

**PRINCIPAL AMOUNT: \_\_\_\_\_ Dollars**

**INTEREST RATE: \_\_\_\_\_**

The Pittsburgh Water and Sewer Authority (the "Authority"), a body corporate and politic duly organized and existing under the laws of the Commonwealth of Pennsylvania (the "Commonwealth"), for value received, promises to pay, solely from the receipts and revenues and other moneys hereinafter mentioned, to the Registered Owner (named above) or registered assigns, on the Maturity Date (stated above), upon surrender hereof, the Principal Amount (stated above) and to pay interest thereon from the date described herein until maturity or, if this Bond shall have been duly called for earlier redemption and payment of the redemption price shall have been made or provided for, until the date fixed for redemption hereof, at the Interest Rate (stated above) per annum, computed on the basis of a 360-day year of twelve thirty-day months, payable semi-annually on the first day of March and September of each year, commencing September 1, 2019 (each an "Interest Payment Date") or if any Interest Payment Date shall not be a Business Day, then on the next following Business Day. Should this Bond be presented for payment at maturity and payment not be made in accordance with the terms hereof, the principal sum hereof shall thereafter (without prejudice to the rights of the Owner hereof to pursue any other remedy available at law or equity) bear interest until paid at the rate of interest set forth above or at such lesser maximum rate of interest as is permitted by law.

Principal and interest will be payable in such coin or currency of the United States of America as, at the respective times of payment, shall be legal tender for the payment of public and private debts. Principal shall be payable at the designated corporate trust agency office of The Bank of New York Mellon Trust Company, N.A., as Trustee and Paying Agent (the "Trustee") in East Syracuse, New York or at the office of any successor trustee or paying agent appointed under the Subordinate Indenture hereinafter mentioned. Interest is payable to the registered Owner hereof as shown on the registration books as of the close of business on the fifteenth day of the month (whether or not such day is a Business Day) next preceding the

Interest Payment Date (the "Record Date"). Payment shall be made by check mailed on the applicable Interest Payment Date to such Owner at the address shown on the registration books, by wire transfer to an Owner of \$1,000,000 or more of aggregate principal amount of 2019B Bonds (hereinafter defined) (upon receipt by the Trustee of written notice not less than two Business Days prior to the Record Date for the applicable Interest Payment Date, such notice to contain the wire transfer address within the continental United States to which such Owner desires to have such wire transfer directed), or in any other manner as may be mutually acceptable to the registered Owner and the Trustee.

This Bond shall initially be dated July 2, 2019, and thereafter will be dated as of the date of its authentication. This Bond shall bear interest from the most recent Interest Payment Date preceding the date of such Bond to which interest has been paid, unless the date of such Bond is after the Record Date and on or before the succeeding Interest Payment Date, in which event it shall bear interest as of such succeeding Interest Payment Date, or, if dated on or prior to September 1, 2019 in which event it shall bear interest from July 2, 2019.

This Bond is one of a series entitled "The Pittsburgh Water and Sewer Authority, Water and Sewer System Subordinate Revenue Refunding Bonds, Series B of 2019", in the aggregate principal amount of \$104,290,000 (the "2019B Bonds") of the Authority. The 2019B Bonds are issued under and pursuant to a Subordinate Trust Indenture dated as of July 15, 1995 (the "Initial Subordinate Indenture") between the Authority and The Bank of New York Mellon Trust Company, N.A. (the "Trustee"), as amended and supplemented, including by a 2019-1 Supplemental Subordinate Trust Indenture dated as of July 1, 2019 (the "2019-1 Supplemental Indenture" and, together with the Initial Subordinate Indenture as previously amended and supplemented, the "Existing Subordinate Indenture"); the 2019-1 Supplemental Indenture constitutes the Amended and Restated Subordinate Trust Indenture dated as of July 1, 2019 (the Existing Subordinate Indenture as amended and supplemented to date, including by the 2019-1 Supplemental Indenture, and as amended and restated by the Amended and Restated Subordinate Trust Indenture is referred to herein as the "Subordinate Indenture"), duly executed and delivered by the Authority to the Trustee, an executed counterpart of which is on file at the corporate trust office of the Trustee responsible for the administration of the Subordinate Indenture, all equally and ratably secured by the Subordinate Indenture, except as hereinafter provided. The proceeds of the 2019B Bonds shall be applied (a) to currently redeem all of the subordinate bonds currently outstanding under the Existing Subordinate Indenture (the "Refunded Subordinate Bonds"), (b) to pay a portion of the swap termination payments relating to the termination of the interest rate swap agreements related to the Refunded Subordinate Bonds, (c) to pay the premium relating to a Debt Service Reserve Fund Policy, and (d) to pay the costs of issuing and insuring the 2019B Bonds.

THE PURCHASERS OF THE 2019B BONDS ARE HEREBY DEEMED, BY VIRTUE OF THEIR PURCHASE OF THE 2019B BONDS, TO HAVE CONSENTED TO THE EXISTING SUBORDINATE INDENTURE AS AMENDED AND RESTATED BY THE 2019-1 SUPPLEMENTAL INDENTURE CONSTITUTING THE AMENDED AND RESTATED SUBORDINATE INDENTURE ON BEHALF OF THEMSELVES AND ALL FUTURE OWNERS OF THE 2019B BONDS.

It is expressly agreed and understood that the Subordinate Indenture and the obligations thereby secured, including this Bond, are corporate obligations of the Authority, and that the 2019B Bonds are payable only out of the sources set forth in the Subordinate Indenture. In addition, the Subordinate Indenture provides that the 2019B Bonds shall be secured by a pledge under the Subordinate Indenture of the revenues of the Authority, after deduction of the proper expenses of the operation, maintenance and repair of the water and sewer system and reserves therefor as provided in the Subordinate Indenture; such pledge is subordinate to the pledge of such revenues securing the obligations under the Amended and Restated Trust Indenture dated as of October 15, 1993, Amended and Restated as of November 1, 2017, and Effective on December 28, 2017, as amended and supplemented (the "Senior Indenture"). The Subordinate Indenture provides for the fixing and charging by the Authority of rates, rents and charges for the water and sewer service furnished by its water and sewer system at least sufficient in the aggregate to provide, together with other revenues derived by the Authority, funds for paying the cost of operating, maintaining and repairing the water and sewer system, paying the principal of and the interest on its Bonds and other obligations as such principal and interest shall become due, and establishing the reserves required by the Subordinate Indenture.

Neither the credit nor the taxing power of the City of Pittsburgh (the "City") or the Commonwealth or any political subdivision thereof is pledged for the payment of the principal of, the interest on, or the premium (if any) payable upon the redemption of, this Bond; nor shall this Bond be deemed an obligation of the City or the Commonwealth or any political subdivision thereof; nor shall the City, or the Commonwealth or any political subdivision thereof be liable for the payment of the principal of, the interest on, or the premium (if any) payable upon the redemption of this Bond, and neither the Trustee or any receiver appointed to operate and maintain any of the facilities of the Authority and to collect revenues arising therefrom for the benefit of the Bondholders shall be authorized to sell, assign, mortgage or otherwise dispose of any assets of whatever kind or character belonging to the Authority. **The Authority has no taxing power.**

In case an Event of Default, as defined in the Subordinate Indenture, shall occur, the principal of all the Bonds at any such time Outstanding under the Subordinate Indenture may be declared to be due and payable by the Trustee or may become due and payable upon the conditions and in the manner and with the effect provided in the Subordinate Indenture. The Owner of this Bond shall have no right to enforce the provisions of the Subordinate Indenture or to institute action to enforce the covenants thereof or to take any action with regard to any Event of Default under the Subordinate Indenture, or to institute, appear in or defend any suit or other proceeding with respect thereto, except as provided in this Subordinate Indenture or by the Act (as hereinafter defined). An Event of Default under the Subordinate Indenture may be an event of default under the Senior Indenture. Notwithstanding the occurrence of any Event of Default in respect of Subordinate Bonds issued under the Subordinate Indenture, the Trustee under the Subordinate Indenture shall not be entitled to exercise any rights or remedies with respect to the revenues until and unless the trustee under the Senior Indenture shall have instituted proceedings to exercise its rights pursuant to Article VIII of the Senior Indenture.

The 2019B Bonds which mature on or after September 1, 2034, are subject to optional redemption, at the option of the Authority, in whole or in part, in the order of maturity selected by the Authority and by lot within a maturity, at any time on or after September 1, 2029. Any

such redemption will be made at a redemption price equal to 100% of the principal amount thereof plus accrued interest to the date fixed for redemption.

In the event that less than all of the 2019B Bonds are to be redeemed as provided above, they shall be redeemed at random in any reasonable manner determined by the Trustee, unless otherwise directed in writing by the Authority. Any redemption of the 2019B Bonds shall be upon at least twenty (20) days and not more than sixty (60) days prior written notice by first-class mail to the Owner of the Bonds so called for redemption.

If the Authority shall have duly sent notice of redemption and shall have provided funds for the payment of the principal of the 2019B Bonds so called for redemption and interest thereon to the date of redemption, interest on such 2019B Bonds shall cease to accrue from and after said redemption date.

Certain modifications and alterations of the Subordinate Indenture not adversely affecting rights of Owners of the Bonds Outstanding thereunder may be made without consent of Owners of said Bonds in the manner and upon the terms and conditions provided in the Subordinate Indenture. Any other modification or alteration of the Subordinate Indenture and or rights and obligations of the Authority and of Owners of the Bonds Outstanding thereunder may be made only in the manner and upon the terms and conditions provided in the Subordinate Indenture. Any consent by the Owner of this Bond, when required by the Subordinate Indenture (unless revoked as provided in the Subordinate Indenture), shall be conclusive and binding upon such Owner and all future Owners of this Bond, irrespective of whether any notation of such consent is made upon this Bond.

The Authority and the Trustee may treat the Person in whose name this Bond is registered as the absolute Owner hereof whether or not this Bond or any installment of interest shall be overdue, for the purpose of receiving payment thereof and for all other purposes whatsoever, and shall not be affected by any notice to the contrary.

The Owner of this Bond shall have no right to enforce provisions of this Bond or the Subordinate Indenture, except as provided in the Subordinate Indenture.

No recourse shall be had for the payment of the principal of, or the interest or premium, if any, on, this Bond or for any claim based hereon or on the Subordinate Indenture or on any indenture supplemental thereto, against any member, officer, or employee, past, present or future, of the Authority, or of any successor body, either directly or through the Authority or any such successor body, whether by virtue of any constitutional provision, statute or rule of law, or by the enforcement of any assessment or penalty, or otherwise, all such liability of such members, officers or employees being released as a condition of and as consideration for the execution of the Subordinate Indenture and the issuance of this Bond.

This Bond will be transferred or exchanged for an equal aggregate principal amount of Bonds of similar term and tenor in any authorized denomination, only by presentation and surrender of this Bond to the designated office of the Trustee, together with an assignment duly executed by the Owner hereof or by this attorney-in-fact or legal representative. As a

precondition to the transfer of this Bond, the Authority or the Trustee may charge the Owner hereof for any tax, fee or governmental charge required to be paid with respect to such transfer.

The Trustee shall not be required to register the transfer or exchange of any Bond (i) during a period beginning at the opening of business fifteen (15) days before the day of the mailing of notice of redemption of the 2019B Bonds and ending at the close of business on the date of such mailing, (ii) at any time following the selection of such 2019B Bonds, in whole or in part, for redemption, or (iii) during the period commencing on a Record Date and ending on the corresponding Interest Payment Date.

In the event the 2019B Bonds are no longer Book-Entry Bonds, to the extent that the Holder of this 2019B Bond under the Subordinate Indenture is not an exempt recipient under Treas. Reg. § 1.6045-(c)(3), such Holder shall provide or cause to be provided to the Trustee information regarding the amount paid for the 2019B Bonds, any brokers' fees or commissions, and any other capitalized costs relating to the 2019B Bonds, in each case to the extent necessary for the Trustee to comply with any applicable tax reporting obligations, including without limitation any cost basis reporting obligations under Internal Revenue Code Section 6045. The Trustee may rely on the information provided to it and shall have no responsibility to verify or ensure the accuracy of such information.

In connection with any transfer of this 2019B Bond outside the Book-Entry Only system, prior to or in conjunction with the issuance of certificated 2019B Bonds, the Bondholder shall provide or cause to be provided to the Trustee all information necessary to allow the Trustee to comply with any applicable tax reporting obligations, including, without limitation, any cost basis reporting obligations under the Internal Revenue Code Section 6045.

It is hereby certified, recited and declared that all acts, conditions and things required by the Constitution and laws of the Commonwealth to exist, to have happened or be performed precedent to and in the issuance of this Bond and the execution and delivery of the Subordinate Indenture exist, have happened and have been performed as so required. This Bond is issued and the Subordinate Indenture was made and entered unto under and pursuant to the Pennsylvania Municipality Authorities Act, Title 53 of the Pennsylvania Consolidated Statutes Annotated, Section 5601, et seq., as amended (the "Act"), and under and pursuant to resolutions duly adopted by the Authority.

*[Remainder of page left intentionally blank.]*

This Bond shall not be valid or become obligatory for any purpose until this Bond shall have been authenticated by the execution by the Trustee of the Certificate of Authentication endorsed hereon. Capitalized terms used in this Bond but not defined herein shall have the meanings ascribed to them in the Subordinate Indenture.

IN WITNESS WHEREOF, The Pittsburgh Water and Sewer Authority has caused this Bond to be executed in its name and on its behalf by the manual or facsimile signature of its Chairman or Vice Chairperson, and its corporate seal or a facsimile thereof to be hereunto affixed, duly attested by the manual or facsimile signature of its Secretary or Assistant Secretary.

THE PITTSBURGH WATER AND SEWER  
AUTHORITY

[SEAL]

ATTEST:

\_\_\_\_\_  
Secretary

By: \_\_\_\_\_  
Chairman

CERTIFICATE OF AUTHENTICATION

This Bond is one of the Water and Sewer System Subordinate Revenue Refunding Bonds, Series B of 2019 (the "Bonds") described in the within-mentioned Subordinate Indenture. Attached hereto is the complete text of the opinion of McNees Wallace & Nurick LLC, dated the date of delivery of and payment for the Bonds, a signed original of which is on file with the Trustee.

**THE BANK OF NEW YORK  
MELLON TRUST COMPANY,  
N.A., as Trustee**

DATED: \_\_\_\_\_

By: \_\_\_\_\_

ASSIGNMENT

FOR VALUE RECEIVED the undersigned hereby sells, assigns and transfers unto

Please insert Social Security or other identifying  
number of assignee

Please print or typewrite name and address  
including postal zip code of transferee

the within Bond and all rights thereunder, and hereby irrevocably constitutes and appoints

\_\_\_\_\_ Agent to transfer the within Bond on the books kept for registration thereof, with  
full power of substitution in the premises.

Dated

Signature(s) Guaranteed:

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NOTICE: Signature(s) must be  
guaranteed by a member firm of an  
approved Signature Guaranteed  
Medallion Program.

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NOTICE: The signature(s) to this  
assignment must correspond with  
the name(s) as written upon the  
face of the Bond, in every  
particular, without alteration or  
enlargement, or any change  
whatever.



## STATEMENT OF INSURANCE

Assured Guaranty Municipal Corp. ("AGM"), New York, New York, has delivered its municipal bond insurance policy (the "Policy") with respect to the scheduled payments due of principal of and interest on this Bond to The Bank of New York Mellon Trust Company, N.A., or its successor, as paying agent for the Bonds (the "Paying Agent"). Said Policy is on file and available for inspection at the principal office of the Paying Agent and a copy thereof may be obtained from AGM or the Paying Agent. All payments required to be made under the Policy shall be made in accordance with the provisions thereof. The owner of this Bond acknowledges and consents to the subrogation rights of AGM as more fully set forth in the Policy.

**EXHIBIT D**

**2019B SUBORDINATE BONDS  
DEBT SERVICE SCHEDULE**

| Period Ending | Principal   | Coupon | Interest      | Debt Service   | Annual Debt Service |
|---------------|-------------|--------|---------------|----------------|---------------------|
| 09/01/2019    |             |        | 799,433.61    | 799,433.61     |                     |
| 12/31/2019    |             |        |               |                | 799,433.61          |
| 03/01/2020    |             |        | 2,438,950.00  | 2,438,950.00   |                     |
| 09/01/2020    |             |        | 2,438,950.00  | 2,438,950.00   |                     |
| 12/31/2020    |             |        |               |                | 4,877,900.00        |
| 03/01/2021    |             |        | 2,438,950.00  | 2,438,950.00   |                     |
| 09/01/2021    |             |        | 2,438,950.00  | 2,438,950.00   |                     |
| 12/31/2021    |             |        |               |                | 4,877,900.00        |
| 03/01/2022    |             |        | 2,438,950.00  | 2,438,950.00   |                     |
| 09/01/2022    |             |        | 2,438,950.00  | 2,438,950.00   |                     |
| 12/31/2022    |             |        |               |                | 4,877,900.00        |
| 03/01/2023    |             |        | 2,438,950.00  | 2,438,950.00   |                     |
| 09/01/2023    |             |        | 2,438,950.00  | 2,438,950.00   |                     |
| 12/31/2023    |             |        |               |                | 4,877,900.00        |
| 03/01/2024    |             |        | 2,438,950.00  | 2,438,950.00   |                     |
| 09/01/2024    |             |        | 2,438,950.00  | 2,438,950.00   |                     |
| 12/31/2024    |             |        |               |                | 4,877,900.00        |
| 03/01/2025    |             |        | 2,438,950.00  | 2,438,950.00   |                     |
| 09/01/2025    |             |        | 2,438,950.00  | 2,438,950.00   |                     |
| 12/31/2025    |             |        |               |                | 4,877,900.00        |
| 03/01/2026    |             |        | 2,438,950.00  | 2,438,950.00   |                     |
| 09/01/2026    |             |        | 2,438,950.00  | 2,438,950.00   |                     |
| 12/31/2026    |             |        |               |                | 4,877,900.00        |
| 03/01/2027    |             |        | 2,438,950.00  | 2,438,950.00   |                     |
| 09/01/2027    |             |        | 2,438,950.00  | 2,438,950.00   |                     |
| 12/31/2027    |             |        |               |                | 4,877,900.00        |
| 03/01/2028    |             |        | 2,438,950.00  | 2,438,950.00   |                     |
| 09/01/2028    |             |        | 2,438,950.00  | 2,438,950.00   |                     |
| 12/31/2028    |             |        |               |                | 4,877,900.00        |
| 03/01/2029    |             |        | 2,438,950.00  | 2,438,950.00   |                     |
| 09/01/2029    |             |        | 2,438,950.00  | 2,438,950.00   |                     |
| 12/31/2029    |             |        |               |                | 4,877,900.00        |
| 03/01/2030    |             |        | 2,438,950.00  | 2,438,950.00   |                     |
| 09/01/2030    | 2,990,000   | 5.000% | 2,438,950.00  | 5,428,950.00   |                     |
| 12/31/2030    |             |        |               |                | 7,867,900.00        |
| 03/01/2031    |             |        | 2,364,200.00  | 2,364,200.00   |                     |
| 09/01/2031    | 15,405,000  | 5.000% | 2,364,200.00  | 17,769,200.00  |                     |
| 12/31/2031    |             |        |               |                | 20,133,400.00       |
| 03/01/2032    |             |        | 1,979,075.00  | 1,979,075.00   |                     |
| 09/01/2032    | 25,600,000  | 5.000% | 1,979,075.00  | 27,579,075.00  |                     |
| 12/31/2032    |             |        |               |                | 29,558,150.00       |
| 03/01/2033    |             |        | 1,339,075.00  | 1,339,075.00   |                     |
| 09/01/2033    | 26,635,000  | 5.000% | 1,339,075.00  | 27,974,075.00  |                     |
| 12/31/2033    |             |        |               |                | 29,313,150.00       |
| 03/01/2034    |             |        | 673,200.00    | 673,200.00     |                     |
| 09/01/2034    | 27,880,000  | 4.000% | 673,200.00    | 28,553,200.00  |                     |
| 12/31/2034    |             |        |               |                | 29,226,400.00       |
| 03/01/2035    |             |        | 115,600.00    | 115,600.00     |                     |
| 09/01/2035    | 5,780,000   | 4.000% | 115,600.00    | 5,895,600.00   |                     |
| 12/31/2035    |             |        |               |                | 6,011,200.00        |
|               | 104,290,000 |        | 67,398,633.61 | 171,688,633.61 | 171,688,633.61      |

THE PITTSBURGH WATER AND SEWER AUTHORITY

To

THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A.,  
As Trustee

2019-1 SUPPLEMENTAL TRUST INDENTURE  
DATED AS OF JULY 1, 2019

Relating to the Issuance of

\$109,855,000

The Pittsburgh Water and Sewer Authority  
Water and Sewer System First Lien Revenue Bonds, Series A of 2019

This 2019-1 SUPPLEMENTAL TRUST INDENTURE (the "2019-1 Supplemental Indenture") is dated as of July 1, 2019 by and between THE PITTSBURGH WATER AND SEWER AUTHORITY (the "Authority") and THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., as trustee (the "Trustee").

**WITNESSETH:**

**WHEREAS**, the Authority is a public body, politic and corporate, exercising public powers of the Commonwealth of Pennsylvania (the "Commonwealth") as an agency thereof, duly organized and validly existing under the provisions of the Pennsylvania Municipality Authorities Act of the Commonwealth, Title 53 of the Pennsylvania Consolidated Statutes Annotated, Section 5601, et seq., as amended (the "Act"); and

**WHEREAS**, the Authority's senior lien debt has been issued under a Trust Indenture dated as of October 15, 1993, Amended and Restated as of November 1, 2017 and Effective on December 28, 2017 (the "Original Indenture") with a bond trustee, being The Bank of New York Mellon Trust Company, N.A. (the "Trustee"), as amended and supplemented by a 2017-1 Supplemental Trust Indenture dated as of November 1, 2017 (the "2017-1 Supplemental Indenture") and a 2017-2 Supplemental Trust Indenture dated as of December 1, 2017 (the "2017-2 Supplemental Indenture") (the Original Indenture, as amended and supplemented by the 2017-1 Supplemental Indenture and the 2017-2 Supplemental Indenture, collectively, the "Existing Senior Indenture"); and

**WHEREAS**, Sections 3.01 and 3.02 of the Original Indenture empower the Trustee and the Authority to enter into a Supplemental Indenture in connection with the issuance of additional bonds to refund any indebtedness including subordinate indebtedness, to pay costs of issuance, to fund costs associated with Capitalized Interest, and to fund reserves; and

**WHEREAS**, in order to promote the health, safety and welfare of those it serves, the Authority adopted Resolution No. 36 of 2016 under which it (a) approved the undertaking of capital projects with respect to the Water and Sewer System (the "Capital Project") consisting of projects related to lead service line replacements, water treatment plant improvements, wastewater/sewer rehabilitation, water distribution, and green infrastructure, and (b) authorized the issuance of its \$80,000,000 maximum principal amount Revenue Note, Series of 2016 (the "2016 Note") representing a drawdown, revolving, interim construction loan from JPMorgan Chase Bank, National Association ("JPMorgan Bank"); and

**WHEREAS**, in order to increase the drawdown, revolving, interim construction loan, the Authority adopted Resolution No. 64 of 2018 in which it authorized (a) the issuance of its \$150,000,000 maximum principal amount Revenue Note, Series of 2018 (the "2018 Note"), and (b) the refunding and retirement of the 2016 Note with proceeds of the 2018 Note; and

**WHEREAS**, both the 2016 Note and the 2018 Note have constituted Subordinate Debt; and

**WHEREAS**, the Authority has drawn on the 2016 Note and the 2018 Note to fund Costs of the Capital Project, and the Authority now desires to refund all or a portion of the interim debt evidenced by the 2018 Note with long-term Senior Debt under the Indenture (defined below);

and

**WHEREAS**, in order to provide funds (a) to refund, on a long-term basis, all or a portion of the interim debt evidenced by the 2018 Note, the proceeds of which were used to fund the Capital Project, (b) to pay the premium related to a Debt Service Reserve Fund Policy, and (c) to pay the costs of issuing the 2019A Bonds (defined below) and insuring the 2019A Insured Bonds (defined below) (collectively, the “Refunding Project”), the Authority desires to issue its \$109,855,000 Water and Sewer System First Lien Revenue Bonds, Series A of 2019 (the “2019A Bonds”); and

**WHEREAS**, the 2019A Bonds are being issued under and secured by the terms of the Existing Senior Indenture as supplemented by this 2019-1 Supplemental Indenture (the Existing Senior Indenture, as amended and supplemented by this 2019-1 Supplemental Indenture, and as amended and supplemented from time to time in the future, is referred to herein as the “Indenture”); and

**WHEREAS**, the definitive form of the 2019A Bonds, including the certificate of authentication thereon, will be substantially in the form attached hereto and incorporated herein as Exhibit A, with such necessary or appropriate insertions, omissions and variations as may be required or permitted by the Indenture; and

**WHEREAS**, the execution and delivery of this 2019-1 Supplemental Indenture has been duly authorized by a resolution of the Authority adopted on April 5, 2019 (the “Resolution”), and all things necessary to make the 2019A Bonds, when executed by the Authority, authenticated by the Trustee and issued by the Authority, the valid, binding and legal obligations of the Authority, and to constitute this 2019-1 Supplemental Indenture a valid, binding and legal pledge of the security therefor, as hereinafter provided, have been duly done and performed; and

**WHEREAS**, the scheduled payment of principal of and interest on the 2019A Insured Bonds (hereinafter defined) when due will be guaranteed under an insurance policy to be issued by Assured Guaranty Municipal Corp. concurrently with the delivery of the 2019A Bonds;

**NOW, THEREFORE**, the parties hereto, intending to be legally bound, hereby agree as follows:

## **ARTICLE I DEFINITIONS**

SECTION 1.01 Definitions. The terms previously defined in the recitals hereto and in the Existing Senior Indenture shall, for all purposes of the Indenture, have the meanings therein specified, unless the context clearly otherwise requires. In addition, the following terms shall have the following meanings herein, unless the context clearly otherwise requires:

### Bond Insurer

The term "Bond Insurer" or "Insurer" shall mean, with respect to the 2019A Insured Bonds, Assured Guaranty Municipal Corp., a stock insurance company incorporated under the laws of the State of New York, or any successor thereto.

### Interest Payment Date

The term "Interest Payment Date" for the 2019A Bonds shall mean each March 1 and September 1, commencing September 1, 2019.

### Official Statement

The term "Official Statement" means the Official Statement for the 2019A Bonds dated June 18, 2019.

### Rating Agency

The term "Rating Agency" shall mean S&P when the 2019A Bonds are rated by S&P and Moody's when the 2019A Bonds are rated by Moody's.

### Tax Regulatory Certificate

The term "Tax Regulatory Certificate" shall mean the Tax Certificate of the Authority dated July 2, 2019 related to the 2019A Bonds.

### 2019A Bond Insurance Policy

The term "2019A Bond Insurance Policy" shall mean the financial guaranty insurance policy issued by the Bond Insurer insuring the scheduled payment when due of the principal of and interest on the 2019A Insured Bonds as provided therein.

### 2019A Insured Bonds

The term "2019A Insured Bonds" shall mean the 2019A Bonds stated to mature on September 1, 2024 through 2039 and on September 1, 2044. These are the 2019A Bonds that are insured by the Bond Insurer; the 2019A Bonds stated to mature on September 1, 2020 through 2023 are not insured by the Bond Insurer.

**ARTICLE II  
CONCERNING 2019A BONDS**

SECTION 2.01 The 2019A Bonds. There is hereby created one new series of Bonds to be issued under and secured by the Indenture, on a parity with the other first lien Bonds of the Authority, issued or to be issued pursuant to Sections 3.01 and 3.02 of the Existing Senior Indenture, to be designated "The Pittsburgh Water and Sewer Authority, Water and Sewer System First Lien Revenue Bonds, Series A of 2019," in the aggregate principal amount of \$109,855,000. The 2019A Bonds shall be issued for the purpose of providing funds for the payment of the costs of the Refunding Project. The 2019A Bonds shall be substantially in the form attached hereto as Exhibit A, with such necessary or appropriate insertions, omissions and variations as may be required or permitted by the Indenture. The 2019A Bonds shall be executed in the form and manner herein specified and delivered to the Trustee for authentication and the Trustee shall authenticate and deliver the principal amount of 2019A Bonds, but only upon receipt by the Trustee of the Resolution, this 2019-1 Supplemental Indenture and certificates, opinions and all other materials and documents as provided in Section 3.01 and 3.02 of the Existing Senior Indenture. The 2019A Bonds as issued hereunder will be subject to the provisions of the Existing Senior Indenture and this 2019-1 Supplemental Indenture.

SECTION 2.02 Maturities and Interest Rates. The 2019A Bonds shall be issuable only as fully registered bonds in denominations of \$5,000 or any integral multiple thereof. The 2019A Bonds shall be numbered and shall bear such prefixes as may be satisfactory to the Authority and the Trustee. The 2019A Bonds shall bear interest on the unpaid principal thereof at the annual fixed rates set forth below, computed on the basis of a 360-day year consisting of twelve 30-day months, payable semiannually on March 1 and September 1 of each year, commencing September 1, 2019 until the principal thereof shall have been paid or provided for. The 2019A Bonds shall mature on the following dates and in the following principal amounts and bear interest at the following rates:

| <u>2019A Bonds</u>                           |                  |                      |
|--|------------------|----------------------|
| <u>Maturity Date</u><br><u>(September 1)</u> | <u>Principal</u> | <u>Interest Rate</u> |
| 2020   | \$2,295,000      | 5.000%               |
| 2021   | \$2,415,000      | 5.000%               |
| 2022   | \$2,540,000      | 5.000%               |
| 2023   | \$2,665,000      | 5.000%               |
| 2024   | \$2,800,000      | 5.000%               |
| 2025   | \$2,940,000      | 5.000%               |
| 2026   | \$3,085,000      | 5.000%               |
| 2027   | \$3,240,000      | 5.000%               |
| 2028   | \$3,400,000      | 5.000%               |
| 2029   | \$3,570,000      | 5.000%               |
| 2030   | \$3,750,000      | 5.000%               |
| 2031   | \$3,935,000      | 5.000%               |
| 2032   | \$4,135,000      | 5.000%               |
| 2033   | \$4,340,000      | 5.000%               |

|      |              |        |
|------|--------------|--------|
| 2034 | \$4,560,000  | 5.000% |
| 2035 | \$4,785,000  | 5.000% |
| 2036 | \$5,025,000  | 5.000% |
| 2037 | \$5,275,000  | 5.000% |
| 2038 | \$5,540,000  | 5.000% |
| 2039 | \$5,815,000  | 5.000% |
| 2044 | \$33,745,000 | 5.000% |

Each 2019A Bond shall bear interest from the immediately preceding Interest Payment Date to which interest has been paid, (a) unless the date of authentication is after the Record Date and on or before the succeeding Interest Payment Date in which case such 2019A Bond shall bear interest from such succeeding Interest Payment Date or (b) unless the date of authentication is on or prior to September 1, 2019 and if no interest has been paid on such 2019A Bond, such 2019A Bond shall bear interest from July 2, 2019.

The debt service schedule for the 2019A Bonds is set forth in Exhibit B hereto.

SECTION 2.03 Redemption Provisions.

Optional Redemption.

The 2019A Bonds maturing on or after September 1, 2030 are subject to redemption prior to maturity, at the option of the Authority, as a whole or in part, at any time, in the order of maturity selected by the Authority and by lot within a maturity on or after September 1, 2029. Any such redemption will be made at a redemption price equal to 100% of the principal amount thereof plus accrued interest to the redemption date.

Mandatory Sinking Fund Redemption.

The 2019A Bonds stated to mature on September 1, 2044 are subject to mandatory sinking fund redemption in part, by lot, on the dates and in the principal amounts set out below at par plus accrued interest to the date fixed for redemption:

2019A Bonds Maturing on September 1, 2044

| <u>Redemption Date</u><br><u>(September 1)</u> | <u>Principal Amount</u><br><u>To Be Redeemed</u> |
|--|--|
| 2040   | \$6,105,000                                      |
| 2041   | \$6,410,000                                      |
| 2042   | \$6,735,000                                      |
| 2043   | \$7,070,000                                      |
| 2044 (maturity)                                | \$7,425,000                                      |

Extraordinary Optional Redemption. The 2019A Bonds are subject to extraordinary redemption prior to maturity at the option of the Authority, in whole or in part, at any time, in the event of condemnation, damage or destruction of the Water and Sewer System, from



moneys deposited with or held by the Trustee for such purpose, upon payment of 100% of the principal amount thereof being redeemed, plus interest accrued to the date fixed for redemption for the 2019A Bonds.

SECTION 2.04 Notice of Redemption. When required to redeem 2019A Bonds under any provision of this 2019-1 Supplemental Indenture, other than Mandatory Sinking Fund Redemption under Section 2.03, or when directed to do so by the Authority pursuant to the provisions of this 2019-1 Supplemental Indenture, the Trustee shall cause notice of the redemption to be given not less than 20 days prior to the redemption date, by mailing copies of such notice of redemption by first class mail, postage prepaid, to all Holders of 2019A Bonds to be redeemed at their registered addresses, but failure to mail any such notice or defect in the mailing thereof in respect of any 2019A Bond shall not affect the validity of the redemption of any other 2019A Bond with respect to which notice was properly given. Each such notice shall be dated and shall be given in the name of the Authority and shall state the following information:

(a) the identification numbers, as established under this 2019-1 Supplemental Indenture, and the CUSIP numbers, if any, of the 2019A Bonds being redeemed, provided that any such notice shall state that no representation is made as to the correctness of CUSIP numbers either as printed on such 2019A Bonds or as contained in the notice of redemption and that reliance may be placed only on the identification numbers contained in the notice or printed on such 2019A Bonds;

(b) any descriptive information needed to identify accurately the 2019A Bonds being redeemed;

(c) in the case of partial redemption of any 2019A Bonds, the respective principal amounts thereof to be redeemed;

(d) the redemption date;

(e) the redemption price;

(f) that on the redemption date the redemption price will become due and payable upon each such 2019A Bond or portion thereof called for redemption, and that interest thereon shall cease to accrue from and after said date; and

(g) the place where such 2019A Bonds are to be surrendered for payment of the redemption price.

In addition, the Trustee shall at all reasonable times upon prior written request and at the expense of the requesting party make available to the Authority and the Bond Insurer complete information as to 2019A Bonds which have been redeemed or called for redemption.

If at the time of mailing of notice of any optional redemption there shall not have been deposited monies in the Redemption Fund available for payment pursuant to Section 6.09 of the Existing Senior Indenture sufficient to redeem all the 2019A Bonds called for redemption, such notice shall state that it is conditional in that it is subject to the deposit of the redemption

monies in the Redemption Fund available for payment on the redemption date, in which case such notice shall be of no effect unless monies are so deposited.

**SECTION 2.05 Book-Entry Only Bonds.** The 2019A Bonds shall be initially issued in book-entry only form. In the event that any provision of this Section 2.05 is inconsistent with other provisions of this 2019-1 Supplemental Indenture, so long as the 2019A Bonds shall be in book-entry only form, the provisions of this Section 2.05 shall govern. The Depository Trust Company ("DTC") will act as securities depository for the 2019A Bonds. The ownership of one fully registered 2019A Bond for each maturity set forth in this 2019-1 Supplemental Indenture, each in the aggregate principal amount of such maturity, will be registered in the name of CEDE & Co., as nominee for DTC; provided that if DTC shall request that the 2019A Bonds be registered in the name of a different nominee, the Trustee shall exchange all or any portion of the 2019A Bonds for an equal aggregate principal amount of 2019A Bonds of the applicable Series registered in the name of such nominee or nominees of DTC. No person other than DTC or its nominee shall be entitled to receive from the Authority or the Trustee either a 2019A Bond or any other evidence of ownership of the 2019A Bonds, or any right to receive any payment in respect thereof unless DTC or its nominee shall transfer record ownership of all or any portion of the 2019A Bonds on the registration books maintained by the Trustee, in connection with discontinuing the book entry system or otherwise.

So long as the 2019A Bonds or any portion thereof are registered in the name of DTC or any nominee thereof, all payments of the principal or redemption price of or interest on such 2019A Bonds shall be made to DTC or its nominee in New York Clearing House or equivalent next day funds on the dates provided for such payments under the Indenture. Each such payment to DTC or its nominee shall be valid and effective to fully discharge all liability of the Authority or the Trustee with respect to the principal or redemption price of or interest on the 2019A Bonds to the extent of the sum or sums so paid. In the event of the redemption of less than all of the 2019A Bonds Outstanding, the Trustee shall not require surrender by DTC or its nominee of the 2019A Bonds so redeemed, but DTC or its nominee may retain such 2019A Bonds and make an appropriate notation on the 2019A Bond certificate as to the amount of such partial redemption; provided that, in each case the Trustee shall request, and DTC shall deliver to the Trustee, a written confirmation of such partial redemption and thereafter the records maintained by the Trustee shall be conclusive as to the amount of the 2019A Bonds which have been redeemed.

The Authority and the Trustee may treat DTC or its nominee as the sole and exclusive Owner of the 2019A Bonds registered in its name for the purposes of payment of the principal or redemption price of or interest on the 2019A Bonds, selecting the 2019A Bonds or portions thereof to be redeemed, giving any notice permitted or required to be given to Bondholders under the Indenture, registering the transfer of 2019A Bonds, obtaining any consent or other action to be taken by Bondholders and for all other purposes whatsoever; and neither the Authority nor the Trustee shall be affected by any notice to the contrary. Neither the Authority nor the Trustee shall have any responsibility or obligation to any participant in DTC, any person claiming a beneficial ownership interest in the 2019A Bonds under or through DTC or any such participant, or any other person which is not shown on the registration books of the Trustee as being a Bondholder, with respect to either: (i) the 2019A Bonds; or (ii) the accuracy of any records maintained by DTC or any such participant; or (iii) the payment by DTC or any such

participant of any amount in respect of the principal or redemption price of or interest on the 2019A Bonds; or (iv) any notice which is permitted or required to be given to Bondholders under the Indenture; or (v) the selection by DTC or any such participant of any person to receive payment in the event of a partial redemption of any Series of the 2019A Bonds; or (vi) any consent given or other action taken by DTC as Bondholder.

So long as the 2019A Bonds or any portion thereof are registered in the name of DTC or any nominee thereof, all notices required or permitted to be given to the Bondholders under the Indenture shall be given to DTC as provided in the Representation Letter between the Authority and DTC (the "DTC Representation Letter"), in such form as is acceptable to the Trustee, the Authority and DTC.

In connection with any notice or other communication to be provided to Bondholders pursuant to the Indenture by the Authority or the Trustee with respect to any consent or other action to be taken by Bondholders, DTC shall consider the date of receipt of notice requesting such consent or other action as the record date for such consent or other action, provided that the Authority or the Trustee may establish a special record date for such consent or other action. The Authority or the Trustee shall give DTC notice of such special record date not fewer than fifteen (15) calendar days in advance of such special record date to the extent possible.

At or prior to the issuance of the 2019A Bonds, the Authority and the Trustee shall execute or signify their approval of the DTC Representation Letter. Any successor Trustee shall, in its written acceptance of its duties under the Indenture, agree to take any actions necessary from time to time to comply with the requirements of the DTC Representation Letter.

The book-entry system for registration of the ownership of the 2019A Bonds may be discontinued at any time if either: (i) DTC determines to resign as securities depository for the 2019A Bonds; or (ii) the Authority provides thirty (30) days' notice of such discontinuation to the Trustee and DTC that continuation of the system of book-entry transfers through DTC (or through a successor securities depository) is not in the best interests of the Authority. Upon occurrence of either such event, the Authority may attempt to establish a securities depository book-entry relationship with another securities depository. If the Authority does not do so, or is unable to do so, and after the Authority has notified DTC and upon surrender to the Trustee of the Bonds held by DTC, the Authority will issue and the Trustee will authenticate and deliver the 2019A Bonds in registered certificate form in denominations of \$5,000 and integral multiples thereof, at the expense of the Authority, to such persons, and in such maturities and principal amounts, as may be designated by DTC, but without any liability on the part of the Authority or the Trustee for the accuracy of such designation. Whenever DTC requests the Authority or the Trustee to do so, the Authority or the Trustee shall cooperate with DTC in taking appropriate action after reasonable notice to arrange for another securities depository to maintain custody of certificates evidencing the 2019A Bonds.

SECTION 2.06 Consent to Amendment and Restatement of Original Indenture.  
In 2017, the Authority and the Trustee entered into the Original Indenture as then so amended and restated. See Sections 1.03, 1.04 and 1.05, on pages 31-32, of the Original Indenture. THE PURCHASERS OF THE 2019A BONDS ARE HEREBY DEEMED, BY VIRTUE OF THEIR

PURCHASE OF THE 2019A BONDS, TO HAVE CONSENTED TO THE ORIGINAL INDENTURE AS SO AMENDED AND RESTATED IN 2017 ON BEHALF OF THEMSELVES AND ALL FUTURE OWNERS OF THE 2019A BONDS.

**ARTICLE III  
DEPOSITS TO FUNDS AND DISBURSEMENT OF MONEYS**

SECTION 3.01 Deposit of 2019A Bond Proceeds into Clearing Fund; Prepayment of Revenue Note, Series of 2018. Upon receipt, the proceeds of the 2019A Bonds shall be deposited to a Clearing Fund for the 2019A Bonds, which is hereby created, and shall be disbursed for the purposes and in the amounts set forth in a closing certificate of the Authority executed on the date of issuance of the 2019A Bonds. The closing certificate shall also state the amount of the proceeds of the 2019A Bonds that is to be delivered to the Trustee for application as hereinafter described.

A portion of the proceeds of the 2019A Bonds in the amount of \$131,200,000 in the Clearing Fund shall be applied to optionally prepay \$131,200,000 principal amount on the Authority's Revenue Note, Series of 2018, the registered owner of which is JPMorgan Chase Bank, National Association. The remaining proceeds of the 2019A Bonds shall be applied as set forth in the closing certificate of the Authority.

Amounts remaining on deposit in the Clearing Fund on August 1, 2019 shall, without further direction from the Authority, be applied by the Trustee to pay interest on the 2019A Bonds on the next applicable Interest Payment Date.

SECTION 3.02 Revenue Fund.

A. The Authority, in accordance with Section 6.02 of the Existing Senior Indenture, will transfer from the Revenue Fund to the Debt Service Fund from time to time, the amounts required to pay the principal of and interest on the 2019A Bonds.

The foregoing provisions relating to the Debt Service Fund are subject to the provision that there shall be credited to the transfer from the Revenue Fund available moneys deposited to the Debt Service Fund or earned as interest on moneys on deposit to the credit of the Debt Service Fund, and in determining the amount required to be transferred from the Revenue Fund to the Debt Service Fund pursuant to this Section, effect shall be given to the anticipated receipt on or before the appropriate payment date of the available moneys in the Debt Service Fund.

B. On or before each Interest Payment Date and on or before each date on which 2019A Bonds are to be redeemed, the Trustee shall pay from moneys held in the Debt Service Fund (or, the Debt Service Reserve Fund in the event that there are insufficient funds in the Debt Service Fund available for that purpose), the amount of principal, interest or redemption price payable with respect to the 2019A Bonds on such Interest Payment Date or redemption date; provided, however, that the principal or redemption price shall be paid only on presentation of the 2019A Bonds which are being paid, subject, however, to Section 2.05 hereof.

The Authority may deposit into the Debt Service Fund such additional funds as the

Authority shall determine which shall be applied by the Trustee at the written request of the Authority to the purchase of 2019A Bonds and such moneys shall be withdrawn by the Trustee and deposited in the Redemption Fund and applied to the payment of the purchase price of such 2019A Bonds which the Authority or the Trustee may agree to purchase; provided, however, that the Authority shall not purchase and the Trustee shall not apply moneys in the Debt Service Fund to the purchase of such 2019A Bonds at a price in excess of 100% of the principal amount thereof, plus accrued interest thereon to the date of purchase. At any time that the Trustee shall be requested to apply such moneys in the Debt Service Fund to purchase such 2019A Bonds, the Authority shall furnish to the Trustee not later than sixty (60) days prior to the next maturity date of any applicable year an Officers' Certificate specifying the 2019A Bonds which it has agreed to purchase, the purchase price thereof, the names of the sellers and the expenses involved in connection with such purchase.

SECTION 3.03 Deposit to Debt Service Reserve Fund. On the date of issuance of the 2019A Bonds there shall be on deposit to the Debt Service Reserve Fund, the existing Debt Service Reserve Insurance Policy No. 210578-R (the "Existing Reserve Policy") and a Debt Service Reserve Insurance Policy No. 219439-R (the "2019A Reserve Policy") both of Assured Guaranty Municipal Corp., which shall enable the amount on deposit in the Common Debt Service Reserve Fund to equal the Maximum Annual Debt Service Requirements on all Bonds Outstanding under the Indenture including the 2019A Bonds. The Authority confirms that the provisions in the Existing Senior Indenture and any insurance or reimbursement agreement entered into with the Bond Insurer shall remain in effect with respect to the Reserve Policy. The 2019A Bonds and all other Outstanding Bonds under the Indenture are Common Debt Service Reserve Secured Bonds (as defined in the Indenture).

**ARTICLE IV**  
**INTERNAL REVENUE CODE AND OTHER COVENANTS**

SECTION 4.01 Internal Revenue Code and Other Covenants. The Authority hereby covenants with the registered owners, from time to time, of the 2019A Bonds that no part of the proceeds of the 2019A Bonds or of any moneys on deposit with the Trustee hereunder will be used, at any time, directly or indirectly, in a manner which, if such use had been reasonably expected on the date of issuance of the 2019A Bonds, would have caused the 2019A Bonds to be arbitrage bonds within the meaning of Section 148 of the Internal Revenue Code of 1986, as amended (the "Code"), and the regulations thereunder proposed or in effect at the time of such use and applicable to the 2019A Bonds, and that it will comply with the requirements of that section and the regulations throughout the term of the 2019A Bonds. In the event the Authority is of the opinion that it is necessary to restrict or limit the yield on the investment of any moneys paid to or held by the Trustee to comply with the covenants herein set forth, the Authority shall issue to the Trustee a written certificate to such effect, with appropriate instructions, and the Trustee shall thereupon take such action in accordance with such certificate and instructions. The Authority's covenants set forth in the Tax Regulatory Certificate are hereby incorporated herein and made applicable to the 2019A Bonds.

**ARTICLE V**  
**AMENDMENTS**

SECTION 5.01 Amendments to Existing Senior Indenture. Pursuant to Section 11.01(a) and (e) of the Existing Senior Indenture, the Existing Senior Indenture may be amended without the consent of the Bondholders “to cure any ambiguity, formal defect or omission in this Indenture or any Supplemental Indenture” and “to make any such provision in regard to matters or questions arising under the Indenture as may be necessary or desirable and not inconsistent with the Indenture”.

SECTION 5.02 Transfers and Exchanges of Bonds. Pursuant to Section 11.01(a) and (e) of the Existing Senior Indenture, Section 2.04 of the Existing Senior Indenture is amended to add the following paragraph to the end of such section:

In the event the Bond are no longer Book-Entry Bonds, to the extent that the Holder of the Bonds under this Subordinate Indenture is not an exempt recipient under Treas. Reg. § 1.6045-(c)(3), such Holder shall provide or cause to be provided to the Trustee information regarding the amount paid for the Bonds, any brokers’ fees or commissions, and any other capitalized costs relating to the Bonds, in each case to the extent necessary for the Trustee to comply with any applicable tax reporting obligations, including without limitation any cost basis reporting obligations under Internal Revenue Code Section 6045. The Trustee may rely on the information provided to it and shall have no responsibility to verify or ensure the accuracy of such information.

SECTION 5.03 Book-Entry Only Bonds. Pursuant to Section 11.01(a) and (e) of the Existing Senior Indenture, Section 2.10 of the Existing Senior Indenture is amended to add the following two paragraphs to the end of such section:

In connection with any proposed transfer outside the Book-Entry Only system, prior to or in conjunction with the issuance of certificated Bonds, the Bondholder shall provide or cause to be provided to the Trustee all information necessary to allow the Trustee to comply with any applicable tax reporting obligations, including, without limitation, any cost basis reporting obligations under the Internal Revenue Code Section 6045.

The Authority acknowledges such tax reporting obligations and, if necessary, agrees to use commercially reasonable efforts to assist the Trustee in obtaining such information. The Trustee shall conclusively

rely on the information provided to it and shall have no responsibility to verify or ensure the accuracy of such information.

Section 5.04 Authorized Investments. Pursuant to Section 11.01(a) and (e) of the Existing Senior Indenture, Section 6.12 of the Existing Senior Indenture is amended to revise the last sentence of such section to read as follows:

Although the Authority recognizes that it may obtain brokerage confirmations or written instructions containing comparable information at no additional cost, the Authority agrees that confirmations are not required to be issued by the Trustee for each month in which a monthly statement of investments is provided it; provided that no statement is required for any Fund and/or Account held by the Trustee for any month in which no investment activity occurred during such month in such Fund or Account.

SECTION 5.05 Rate Covenant Net Revenues and Rate Covenant Tests. Pursuant to Section 11.01(a) and (e) of the Existing Senior Indenture, the last paragraph of Section 7.01(c) of the Existing Senior Indenture is amended to read as follows (new language underlined):

The Authority shall test for compliance with this Section 7.01(c) within 120 days after the end of each Fiscal Year. For purposes of such testing under Section 7.01(c)(i) and (ii), Rate Covenant Net Revenues may take into account for a Fiscal Year, transfers from or to the Rate Stabilization Fund made within 60 days after the end of such Fiscal Year.

SECTION 5.06 Bondholders Consent to Original Indenture as Amended and Supplemented. In 2017, the Holders of in excess of 66 2/3% in principal amount of the Bonds Outstanding consented to the Original Indenture (being an amended and restated indenture). By their purchase of the 2019A Bonds, the Holders of the 2019A Bonds, on behalf of themselves and all future holders of the 2019A Bonds, consent to the provisions of the Original Indenture, as amended and supplemented.



## ARTICLE VI

### MISCELLANEOUS PROVISIONS

SECTION 6.01 Provisions Related to Bond Insurance. The provisions related to the 2019A Bond Insurance Policy are set forth in Exhibit C hereto, and such provisions are incorporated herein by reference as if fully set forth herein.

SECTION 6.02 Benefitted Parties. Nothing in this 2019-1 Supplemental Indenture, expressed or implied, is intended or shall be construed to confer upon or give any Person, other than the parties hereto, the Bond Insurer (to the extent rights are granted to the Bond Insurer in this 2019-1 Supplemental Indenture) and the registered Owners of the 2019A Bonds, any right, remedy or claim under or by reason of this 2019-1 Supplemental Indenture or any covenant, condition or stipulation hereof; and the covenants, stipulations and agreements contained in this 2019-1 Supplemental Indenture are and shall be for the sole and exclusive benefit of the parties hereto, the Bond Insurer and the registered Owners of the 2019A Bonds.

SECTION 6.03 Successors and Assigns. All the covenants and agreements by or on behalf of the Authority, or by or on behalf of the Trustee, contained in this 2019-1 Supplemental Indenture for all purposes shall bind and inure to the benefit of their respective successors and assigns, whether so expressed or not.

SECTION 6.04 Meanings of Terms and Phrases. All terms and phrases used in this 2019-1 Supplemental Indenture for all purposes hereof, shall have the meanings given to such terms and phrases in the Existing Senior Indenture, as supplemented hereby, unless otherwise specifically defined herein or unless the context plainly otherwise requires.

SECTION 6.05 Governing Law. The laws of the Commonwealth of Pennsylvania shall govern the construction of this 2019-1 Supplemental Indenture.

SECTION 6.06 Counterparts. This 2019-1 Supplemental Indenture may be executed in any number of counterparts, each of which when so executed and delivered shall be an original, but such counterparts shall together constitute but one and the same instrument.

SECTION 6.07 In Full Force and Effect. The Indenture, as supplemented hereby, shall be and remain in full force and effect.

IN WITNESS WHEREOF, THE PITTSBURGH WATER AND SEWER AUTHORITY has caused this 2019-1 Supplemental Indenture to be executed in its name by its Chairman or Vice-Chairman and attested by its Secretary or Assistant Secretary and THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., has caused this 2019-1 Supplemental Indenture to be executed in its name by one of its authorized officers, and corporate seal to be hereunder affixed, attested by one of its authorized officers, all as of the day and year first above written.

THE PITTSBURGH WATER AND SEWER  
AUTHORITY

By: Paul Lopez  
Chairman

Edward Barca  
Attest: Edward Barca  
John W. Turner  
(Assistant) Secretary

THE BANK OF NEW YORK MELLON TRUST  
COMPANY, N.A., as Trustee

By: \_\_\_\_\_  
Authorized Officer

Attest:

\_\_\_\_\_  
Authorized Officer

IN WITNESS WHEREOF, THE PITTSBURGH WATER AND SEWER AUTHORITY has caused this 2019-1 Supplemental Indenture to be executed in its name by its Chairman or Vice-Chairman and attested by its Secretary or Assistant Secretary and THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., has caused this 2019-1 Supplemental Indenture to be executed in its name by one of its authorized officers, and corporate seal to be hereunder affixed, attested by one of its authorized officers, all as of the day and year first above written.

THE PITTSBURGH WATER AND SEWER  
AUTHORITY

By: \_\_\_\_\_  
Chairman

Attest:

\_\_\_\_\_  
(Assistant) Secretary

THE BANK OF NEW YORK MELLON TRUST  
COMPANY, N.A., as Trustee

By: Rhonda J. Brannon  
Authorized Officer

Attest:

Maranda Mangini  
Authorized Officer

**EXHIBIT A**

FORM OF 2019A BOND

**REGISTERED  
NO.**

**\$**

**United States of America  
Commonwealth of Pennsylvania**

**THE PITTSBURGH WATER AND SEWER AUTHORITY  
Water and Sewer System  
First Lien Revenue Bonds  
Series A of 2019**

| <b>ISSUE DATE</b>   | <b>MATURITY DATE</b>      | <b>CUSIP</b>       |
|---------------------|---------------------------|--------------------|
| <b>July 2, 2019</b> | <b>September 1, _____</b> | <b>725304_____</b> |

**REGISTERED OWNER: CEDE & CO.**

**PRINCIPAL AMOUNT: \_\_\_\_\_ Dollars**

**INTEREST RATE: \_\_\_\_\_**

The Pittsburgh Water and Sewer Authority (the "Authority"), a body corporate and politic duly organized and existing under the laws of the Commonwealth of Pennsylvania (the "Commonwealth"), for value received, promises to pay, solely from the receipts and revenues and other moneys hereinafter mentioned, to the Registered Owner (named above) or registered assigns, on the Maturity Date (stated above), upon surrender hereof, the Principal Amount (stated above) and to pay interest thereon from the date described herein until maturity or, if this Bond shall have been duly called for earlier redemption and payment of the redemption price shall have been made or provided for, until the date fixed for redemption hereof, at the Interest Rate (stated above) per annum, computed on the basis of a 360-day year of twelve thirty-day months, payable semi-annually on the first day of March and September of each year, commencing September 1, 2019 (each an "Interest Payment Date") or if any Interest Payment Date shall not be a Business Day, then on the next following Business Day. Should this Bond be presented for payment at maturity and payment not be made in accordance with the terms hereof, the principal sum hereof shall thereafter (without prejudice to the rights of the Owner hereof to pursue any other remedy available at law or equity) bear interest until paid at the rate of interest set forth above or at such lesser maximum rate of interest as is permitted by law.

Principal and interest will be payable in such coin or currency of the United States of America as, at the respective times of payment, shall be legal tender for the payment of public and private debts. Principal shall be payable at the designated corporate trust agency office of The Bank of New York Mellon Trust Company, N.A., as Trustee and Paying Agent (the "Trustee") in East Syracuse, New York or at the office of any successor trustee or paying agent appointed under the Indenture hereinafter mentioned. Interest is payable to the registered Owner hereof as shown on the registration books as of the close of business on the fifteenth day of the

month (whether or not such day is a Business Day) next preceding the Interest Payment Date (the "Record Date"). Payment shall be made by check mailed on the applicable Interest Payment Date to such Owner at the address shown on the registration books, by wire transfer to an Owner of \$1,000,000 or more of aggregate principal amount of 2019A Bonds (hereinafter defined) (upon receipt by the Trustee of written notice not less than two Business Days prior to the Record Date for the applicable Interest Payment Date, such notice to contain the wire transfer address within the continental United States to which such Owner desires to have such wire transfer directed), or in any other manner as may be mutually acceptable to the registered Owner and the Trustee.

This Bond shall initially be dated July 2, 2019, and thereafter will be dated as of the date of its authentication. This Bond shall bear interest from the most recent Interest Payment Date preceding the date of such Bond to which interest has been paid, unless the date of such Bond is after the Record Date and on or before the succeeding Interest Payment Date, in which event it shall bear interest as of such succeeding Interest Payment Date, or, if dated on or prior to September 1, 2019 in which event it shall bear interest from July 2, 2019.

This Bond is one of a duly authorized issue of bonds (the "2019A Bonds") of the Authority, which issue of bonds consists or may consist of several series of varying denominations, dates, maturities and tenors, all issued and to be issued under and pursuant to a Trust Indenture dated as of October 15, 1993, Amended and Restated as of November 1, 2017 and Effective on December 28, 2017 (the "Original Indenture") with a bond trustee, being The Bank of New York Mellon Trust Company, N.A. (the "Trustee"), as amended and supplemented by a 2017-1 Supplemental Trust Indenture dated as of November 1, 2017 (the "2017-1 Supplemental Indenture") and a 2017-2 Supplemental Trust Indenture dated as of December 1, 2017 (the "2017-2 Supplemental Indenture") (the Original Indenture, as amended and supplemented by the 2017-1 Supplemental Indenture and the 2017-2 Supplemental Indenture, collectively, the "Existing Senior Indenture"), as amended and supplemented by a 2019-1 Supplemental Trust Indenture dated as of July 1, 2019 (the "2019-1 Supplemental Indenture") (the Existing Senior Indenture as amended and supplemented by the 2019-1 Supplemental Indenture, and as amended and supplemented in the future from time to time is referred to herein as the "Indenture"), duly executed and delivered by the Authority to the Trustee, an executed counterpart of which is on file at the corporate trust office of the Trustee responsible for the administration of the Indenture, all equally and ratably secured by the Indenture, except as hereinafter provided. This Bond is one of a series entitled "The Pittsburgh Water and Sewer Authority, Water and Sewer System First Lien Revenue Bonds, Series A of 2019", in the aggregate principal amount of \$109,855,000 issued to fund the costs of (a) prepaying a portion of an interim drawdown construction loan incurred by the Authority to fund costs of certain capital projects, (b) the premium relating to a debt service reserve fund policy, and (c) issuing the 2019A Bonds and insuring a portion of the 2019A Bonds. The 2019A Bonds are issued in registered form in the denomination of \$5,000 principal amount or any integral multiple thereof.

In 2017, the Authority and the Trustee entered into the Original Indenture as then so amended and restated. See Sections 1.03, 1.04 and 1.05, pages 31-32, of the Original Indenture. **THE PURCHASERS OF THE 2019A BONDS ARE HEREBY DEEMED, BY VIRTUE OF THEIR PURCHASE OF THE 2019A BONDS, TO HAVE CONSENTED TO**

THE ORIGINAL INDENTURE AS SO AMENDED AND RESTATED IN 2017 ON BEHALF OF THEMSELVES AND ALL FUTURE OWNERS OF THE 2019A BONDS.

It is expressly agreed and understood that the Indenture and the obligations thereby secured, including this Bond, are corporate obligations of the Authority, and that the 2019A Bonds are payable only out of the sources set forth in the Indenture. In addition, the Indenture provides that the 2019A Bonds shall be secured by a pledge of the revenues of the Authority, after deduction of the proper expenses of the operation, maintenance and repair of the water and sewer system and reserves therefor as provided in the Indenture. The Indenture provides for the fixing and charging by the Authority of rates, rents and charges for the water and sewer service furnished by its water and sewer system at least sufficient in the aggregate to provide, together with other revenues derived by the Authority, funds for paying the cost of operating, maintaining and repairing the water and sewer system, paying the principal of and the interest on its Bonds and other obligations as such principal and interest shall become due, and establishing the reserves required by the Indenture.

Neither the credit nor the taxing power of the City of Pittsburgh (the "City") or the Commonwealth or any political subdivision thereof is pledged for the payment of the principal of, the interest on, or the premium (if any) payable upon the redemption of, this Bond; nor shall this Bond be deemed an obligation of the City or the Commonwealth or any political subdivision thereof; nor shall the City, or the Commonwealth or any political subdivision thereof be liable for the payment of the principal of, the interest on, or the premium (if any) payable upon the redemption of this Bond, and neither the Trustee or any receiver appointed to operate and maintain any of the facilities of the Authority and to collect revenues arising therefrom for the benefit of the Bondholders shall be authorized to sell, assign, mortgage or otherwise dispose of any assets of whatever kind or character belonging to the Authority. **The Authority has no taxing power.**

In case an Event of Default, as defined in the Indenture, shall occur, the principal of all the Bonds at any such time Outstanding under the Indenture may be declared to be due and payable by the Trustee or may become due and payable upon the conditions and in the manner and with the effect provided in the Indenture. The Owner of this Bond shall have no right to enforce the provisions of the Indenture or to institute action to enforce the covenants thereof or to take any action with regard to any Event of Default under the Indenture, or to institute, appear in or defend any suit or other proceeding with respect thereto, except as provided in the Indenture or by the Act (as hereinafter defined).

The 2019A Bonds which mature on or after September 1, 2030, are subject to optional redemption, at the option of the Authority, in whole or in part, in the order of maturity selected by the Authority and by lot within a maturity, at any time on or after September 1, 2029. Any such redemption will be made at a redemption price equal to 100% of the principal amount thereof plus accrued interest to the date fixed for redemption.

The 2019A Bonds stated to mature on September 1, 2044 are subject to mandatory sinking fund redemption in part, by lot, on the dates and in the principal amounts set out below at par plus accrued interest to the date fixed for redemption:

2019A Bonds Maturing on September 1, 2044

| <u>Redemption Date<br/>(September 1)</u> | <u>Principal Amount<br/>To Be Redeemed</u> |
|--|--|
| 2040                                     | \$6,105,000                                |
| 2041                                     | \$6,410,000                                |
| 2042                                     | \$6,735,000                                |
| 2043                                     | \$7,070,000                                |
| 2044 (maturity)                          | \$7,425,000                                |

The 2019A Bonds are subject to extraordinary redemption prior to maturity at the option of the Authority, in whole or in part, at any time, in the event of condemnation, damage or destruction of the Water and Sewer System, from moneys deposited with or held by the Trustee for such purpose, upon payment of 100% of the principal amount thereof being redeemed, plus interest accrued to the date fixed for redemption for the 2019A Bonds.

Extraordinary optional redemption shall be made in the manner and upon the terms and conditions set forth in the Indenture. In the event that less than all of the 2019A Bonds are to be redeemed as provided above, they shall be redeemed at random in any reasonable manner determined by the Trustee, unless otherwise directed in writing by the Authority. Any redemption of the 2019A Bonds shall be upon at least thirty (30) days prior written notice by first-class mail to the Owner of the Bonds so called for redemption.

If the Authority shall have duly sent notice of redemption and shall have provided funds for the payment of the principal of the 2019A Bonds so called for redemption and interest thereon to the date of redemption, interest on such 2019A Bonds shall cease to accrue from and after said redemption date.

Certain modifications and alterations of the Indenture not adversely affecting rights of Owners of the Bonds Outstanding thereunder may be made without consent of Owners of said Bonds in the manner and upon the terms and conditions provided in the Indenture. Any other modification or alteration of the Indenture and or rights and obligations of the Authority and of Owners of the Bonds Outstanding thereunder may be made only in the manner and upon the terms and conditions provided in the Indenture. Any consent by the Owner of this Bond, when required by the Indenture (unless revoked as provided in the Indenture), shall be conclusive and binding upon such Owner and all future Owners of this Bond, irrespective of whether any notation of such consent is made upon this Bond.

The Authority and the Trustee may treat the Person in whose name this Bond is registered as the absolute Owner hereof whether or not this Bond or any installment of interest shall be overdue, for the purpose of receiving payment thereof and for all other purposes whatsoever, and shall not be affected by any notice to the contrary.

The Owner of this Bond shall have no right to enforce provisions of this Bond or the



Indenture, except as provided in the Indenture.

No recourse shall be had for the payment of the principal of, or the interest or premium, if any, on, this Bond or for any claim based hereon or on the Indenture or on any indenture supplemental thereto, against any member, officer, or employee, past, present or future, of the Authority, or of any successor body, either directly or through the Authority or any such successor body, whether by virtue of any constitutional provision, statute or rule of law, or by the enforcement of any assessment or penalty, or otherwise, all such liability of such members, officers or employees being released as a condition of and as consideration for the execution of the Indenture and the issuance of this Bond.

This Bond will be transferred or exchanged for an equal aggregate principal amount of Bonds of similar term and tenor in any authorized denomination, only by presentation and surrender of this Bond to the designated office of the Trustee, together with an assignment duly executed by the Owner hereof or by this attorney-in-fact or legal representative. As a precondition to the transfer of this Bond, the Authority or the Trustee may charge the Owner hereof for any tax, fee or governmental charge required to be paid with respect to such transfer.

The Trustee shall not be required to register the transfer or exchange of any Bond (i) during a period beginning at the opening of business fifteen (15) days before the day of the mailing of notice of redemption of the 2019A Bonds and ending at the close of business on the date of such mailing, (ii) at any time following the selection of such 2019A Bonds, in whole or in part, for redemption, or (iii) during the period commencing on a Record Date and ending on the corresponding Interest Payment Date.

In the event the 2019A Bonds are no longer Book-Entry Bonds, to the extent that the Holder of this 2019A Bond under the Indenture is not an exempt recipient under Treas. Reg. § 1.6045-(c)(3), such Holder shall provide or cause to be provided to the Trustee information regarding the amount paid for the 2019A Bonds, any brokers' fees or commissions, and any other capitalized costs relating to the 2019A Bonds, in each case to the extent necessary for the Trustee to comply with any applicable tax reporting obligations, including without limitation any cost basis reporting obligations under Internal Revenue Code Section 6045. The Trustee may rely on the information provided to it and shall have no responsibility to verify or ensure the accuracy of such information.

In connection with any transfer of this Bond outside the Book-Entry Only system, prior to or in conjunction with the issuance of certificated 2019A Bonds, the Bondholder shall provide or cause to be provided to the Trustee all information necessary to allow the Trustee to comply with any applicable tax reporting obligations, including, without limitation, any cost basis reporting obligations under the Internal Revenue Code Section 6045.

It is hereby certified, recited and declared that all acts, conditions and things required by the Constitution and laws of the Commonwealth to exist, to have happened or be performed precedent to and in the issuance of this Bond and the execution and delivery of the Indenture exist, have happened and have been performed as so required. This Bond is issued and the Indenture was made and entered unto under and pursuant to the Pennsylvania Municipality Authorities Act, Title 53 of the Pennsylvania Consolidated Statutes Annotated, Section 5601, et

seq., as amended (the "Act"), and under and pursuant to resolutions duly adopted by the Authority.

*[Remainder of page left intentionally blank.]*

This Bond shall not be valid or become obligatory for any purpose until this Bond shall have been authenticated by the execution by the Trustee of the Certificate of Authentication endorsed hereon. Capitalized terms used in this Bond but not defined herein shall have the meanings ascribed to them in the Indenture.

IN WITNESS WHEREOF, The Pittsburgh Water and Sewer Authority has caused this Bond to be executed in its name and on its behalf by the manual or facsimile signature of its Chairman or Vice Chairperson, and its corporate seal or a facsimile thereof to be hereunto affixed, duly attested by the manual or facsimile signature of its Secretary or Assistant Secretary.

[SEAL]

THE PITTSBURGH WATER AND SEWER  
AUTHORITY

ATTEST:

\_\_\_\_\_  
Secretary

By: \_\_\_\_\_  
Chairman

CERTIFICATE OF AUTHENTICATION

This Bond is one of the Water and Sewer System First Lien Revenue Bonds, Series A of 2019 (the "Bonds") described in the within-mentioned Indenture. Attached hereto is the complete text of the opinion of McNees Wallace & Nurick LLC, dated the date of delivery of and payment for the Bonds, a signed original of which is on file with the Trustee.

**THE BANK OF NEW YORK  
MELLON TRUST COMPANY,  
N.A., as Trustee**

DATED: \_\_\_\_\_

By: \_\_\_\_\_

ASSIGNMENT

FOR VALUE RECEIVED the undersigned hereby sells, assigns and transfers unto

Please insert Social Security or other identifying  
number of assignee

Please print or typewrite name and address  
including postal zip code of transferee

the within Bond and all rights thereunder, and hereby irrevocably constitutes and appoints

\_\_\_\_\_ Agent to transfer the within Bond on the books kept for registration thereof, with  
full power of substitution in the premises.

Dated

Signature(s) Guaranteed:

---

NOTICE: Signature(s) must be  
guaranteed by a member firm of an  
approved Signature Guaranteed  
Medallion Program.

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NOTICE: The signature(s) to this  
assignment must correspond with  
the name(s) as written upon the  
face of the Bond, in every  
particular, without alteration or  
enlargement, or any change  
whatever.

STATEMENT OF INSURANCE

Assured Guaranty Municipal Corp. (“AGM”), New York, New York, has delivered its municipal bond insurance policy (the “Policy”) with respect to the scheduled payments due of principal of and interest on this Bond to The Bank of New York Mellon Trust Company, N.A., or its successor, as paying agent for the Bonds (the "Paying Agent"). Said Policy is on file and available for inspection at the principal office of the Paying Agent and a copy thereof may be obtained from AGM or the Paying Agent. All payments required to be made under the Policy shall be made in accordance with the provisions thereof. The owner of this Bond acknowledges and consents to the subrogation rights of AGM as more fully set forth in the Policy.

[STATEMENT OF INSURANCE ONLY FOR THE 2019A INSURED BONDS –  
BEING THE 2024 TO 2039 AND 2044 MATURITIES]

## EXHIBIT B

### 2019A BONDS DEBT SERVICE SCHEDULE

| Period<br>Ending | Principal   | Coupon | Interest      | Debt Service   | Annual<br>Debt Service |
|------------------|-------------|--------|---------------|----------------|------------------------|
| 09/01/2019       |             |        | 900,200.69    | 900,200.69     |                        |
| 12/31/2019       |             |        |               |                | 900,200.69             |
| 03/01/2020       |             |        | 2,746,375.00  | 2,746,375.00   |                        |
| 09/01/2020       | 2,295,000   | 5.000% | 2,746,375.00  | 5,041,375.00   |                        |
| 12/31/2020       |             |        |               |                | 7,787,750.00           |
| 03/01/2021       |             |        | 2,689,000.00  | 2,689,000.00   |                        |
| 09/01/2021       | 2,415,000   | 5.000% | 2,689,000.00  | 5,104,000.00   |                        |
| 12/31/2021       |             |        |               |                | 7,793,000.00           |
| 03/01/2022       |             |        | 2,628,625.00  | 2,628,625.00   |                        |
| 09/01/2022       | 2,540,000   | 5.000% | 2,628,625.00  | 5,168,625.00   |                        |
| 12/31/2022       |             |        |               |                | 7,797,250.00           |
| 03/01/2023       |             |        | 2,565,125.00  | 2,565,125.00   |                        |
| 09/01/2023       | 2,665,000   | 5.000% | 2,565,125.00  | 5,230,125.00   |                        |
| 12/31/2023       |             |        |               |                | 7,795,250.00           |
| 03/01/2024       |             |        | 2,498,500.00  | 2,498,500.00   |                        |
| 09/01/2024       | 2,800,000   | 5.000% | 2,498,500.00  | 5,298,500.00   |                        |
| 12/31/2024       |             |        |               |                | 7,797,000.00           |
| 03/01/2025       |             |        | 2,428,500.00  | 2,428,500.00   |                        |
| 09/01/2025       | 2,940,000   | 5.000% | 2,428,500.00  | 5,368,500.00   |                        |
| 12/31/2025       |             |        |               |                | 7,797,000.00           |
| 03/01/2026       |             |        | 2,355,000.00  | 2,355,000.00   |                        |
| 09/01/2026       | 3,085,000   | 5.000% | 2,355,000.00  | 5,440,000.00   |                        |
| 12/31/2026       |             |        |               |                | 7,795,000.00           |
| 03/01/2027       |             |        | 2,277,875.00  | 2,277,875.00   |                        |
| 09/01/2027       | 3,240,000   | 5.000% | 2,277,875.00  | 5,517,875.00   |                        |
| 12/31/2027       |             |        |               |                | 7,795,750.00           |
| 03/01/2028       |             |        | 2,196,875.00  | 2,196,875.00   |                        |
| 09/01/2028       | 3,400,000   | 5.000% | 2,196,875.00  | 5,596,875.00   |                        |
| 12/31/2028       |             |        |               |                | 7,793,750.00           |
| 03/01/2029       |             |        | 2,111,875.00  | 2,111,875.00   |                        |
| 09/01/2029       | 3,570,000   | 5.000% | 2,111,875.00  | 5,681,875.00   |                        |
| 12/31/2029       |             |        |               |                | 7,793,750.00           |
| 03/01/2030       |             |        | 2,022,625.00  | 2,022,625.00   |                        |
| 09/01/2030       | 3,750,000   | 5.000% | 2,022,625.00  | 5,772,625.00   |                        |
| 12/31/2030       |             |        |               |                | 7,795,250.00           |
| 03/01/2031       |             |        | 1,928,875.00  | 1,928,875.00   |                        |
| 09/01/2031       | 3,935,000   | 5.000% | 1,928,875.00  | 5,863,875.00   |                        |
| 12/31/2031       |             |        |               |                | 7,792,750.00           |
| 03/01/2032       |             |        | 1,830,500.00  | 1,830,500.00   |                        |
| 09/01/2032       | 4,135,000   | 5.000% | 1,830,500.00  | 5,965,500.00   |                        |
| 12/31/2032       |             |        |               |                | 7,796,000.00           |
| 03/01/2033       |             |        | 1,727,125.00  | 1,727,125.00   |                        |
| 09/01/2033       | 4,340,000   | 5.000% | 1,727,125.00  | 6,067,125.00   |                        |
| 12/31/2033       |             |        |               |                | 7,794,250.00           |
| 03/01/2034       |             |        | 1,618,625.00  | 1,618,625.00   |                        |
| 09/01/2034       | 4,560,000   | 5.000% | 1,618,625.00  | 6,178,625.00   |                        |
| 12/31/2034       |             |        |               |                | 7,797,250.00           |
| 03/01/2035       |             |        | 1,504,625.00  | 1,504,625.00   |                        |
| 09/01/2035       | 4,785,000   | 5.000% | 1,504,625.00  | 6,289,625.00   |                        |
| 12/31/2035       |             |        |               |                | 7,794,250.00           |
| 03/01/2036       |             |        | 1,385,000.00  | 1,385,000.00   |                        |
| 09/01/2036       | 5,025,000   | 5.000% | 1,385,000.00  | 6,410,000.00   |                        |
| 12/31/2036       |             |        |               |                | 7,795,000.00           |
| 03/01/2037       |             |        | 1,259,375.00  | 1,259,375.00   |                        |
| 09/01/2037       | 5,275,000   | 5.000% | 1,259,375.00  | 6,534,375.00   |                        |
| 12/31/2037       |             |        |               |                | 7,793,750.00           |
| 03/01/2038       |             |        | 1,127,500.00  | 1,127,500.00   |                        |
| 09/01/2038       | 5,540,000   | 5.000% | 1,127,500.00  | 6,667,500.00   |                        |
| 12/31/2038       |             |        |               |                | 7,795,000.00           |
| 03/01/2039       |             |        | 989,000.00    | 989,000.00     |                        |
| 09/01/2039       | 5,815,000   | 5.000% | 989,000.00    | 6,804,000.00   |                        |
| 12/31/2039       |             |        |               |                | 7,793,000.00           |
| 03/01/2040       |             |        | 843,625.00    | 843,625.00     |                        |
| 09/01/2040       | 6,105,000   | 5.000% | 843,625.00    | 6,948,625.00   |                        |
| 12/31/2040       |             |        |               |                | 7,792,250.00           |
| 03/01/2041       |             |        | 691,000.00    | 691,000.00     |                        |
| 09/01/2041       | 6,410,000   | 5.000% | 691,000.00    | 7,101,000.00   |                        |
| 12/31/2041       |             |        |               |                | 7,792,000.00           |
| 03/01/2042       |             |        | 530,750.00    | 530,750.00     |                        |
| 09/01/2042       | 6,735,000   | 5.000% | 530,750.00    | 7,265,750.00   |                        |
| 12/31/2042       |             |        |               |                | 7,796,500.00           |
| 03/01/2043       |             |        | 362,375.00    | 362,375.00     |                        |
| 09/01/2043       | 7,070,000   | 5.000% | 362,375.00    | 7,432,375.00   |                        |
| 12/31/2043       |             |        |               |                | 7,794,750.00           |
| 03/01/2044       |             |        | 185,625.00    | 185,625.00     |                        |
| 09/01/2044       | 7,425,000   | 5.000% | 185,625.00    | 7,610,625.00   |                        |
| 12/31/2044       |             |        |               |                | 7,796,250.00           |
|                  | 109,855,000 |        | 85,908,950.69 | 195,763,950.69 | 195,763,950.69         |

Note: The principal amounts in 2040 to 2043 are sinking fund redemptions from the 2044 maturity, and the principal amount in 2044 is the remaining principal amount after such sinking fund redemptions.

## EXHIBIT C

### 2019A BOND INSURANCE POLICY PROVISIONS

The provisions set forth in this Exhibit A shall, with respect to the 2019A Insured Bonds (being the 2019A Bonds stated to mature on September 1 of the years 2024 to 2039 and 2044) insured by Assured Guaranty Municipal Corp., or any successor thereto or assignee thereof, apply to such Bonds notwithstanding any other provision of the Indenture to the contrary.

- (a) "Bond Insurance Policy" shall mean the insurance policy issued by the Insurer guaranteeing the scheduled payment of principal of and interest on the Insured Bonds when due. "Insured Bonds" shall mean the 2019A Insured Bonds insured by the Insurer. "Insurer" shall mean, with respect to Bonds insured by Assured Guaranty Municipal Corp., a New York stock insurance company, or any successor thereto or assignee thereof; "Related Document" shall have the meaning set forth in paragraph (h) below. "Bonds" shall mean the 2019A Bonds.
- (b) The prior written consent of the Insurer shall be a condition precedent to the deposit of any credit instrument provided in lieu of a cash deposit into the Debt Service Reserve Fund, if any, except for a credit instrument provided by the Insurer. Amounts on deposit in the Debt Service Reserve Fund shall be applied solely to the payment of debt service due on the Bonds secured by the Debt Service Reserve Fund.
- (c) The Insurer shall be deemed to be the sole holder of the Insured Bonds for the purpose of exercising any voting right or privilege or giving any consent or direction or taking any other action that the holders of the Insured Bonds are entitled to take pursuant to the Indenture pertaining to (i) defaults and remedies and (ii) the duties and obligations of the Trustee. In furtherance thereof and as a term of the Indenture and each Insured Bond, each Insured Bondholder appoints the Insurer as their agent and attorney-in-fact and agrees that the Insurer may at any time during the continuation of any proceeding by or against the Authority under the United States Bankruptcy Code or any other applicable bankruptcy, insolvency, receivership, rehabilitation or similar law (an "Insolvency Proceeding") direct all matters relating to such Insolvency Proceeding (to the extent of their voting rights with respect to the Insured Bonds), including without limitation, (A) all matters relating to any claim or enforcement proceeding in connection with an Insolvency Proceeding (a "Claim"), (B) the direction of any appeal of any order relating to any Claim, (C) the posting of any surety, supersedeas or performance bond pending any such appeal, and (D) the right to vote to accept or reject any plan of adjustment. In addition, each Insured Bondholder delegates and assigns to the Insurer, to the fullest extent permitted by law, the rights of each Insured Bondholder in the conduct of any Insolvency Proceeding, including, without limitation, all rights of any party to an adversary proceeding or action with respect to any court order issued in connection with any such Insolvency Proceeding. The Trustee acknowledges such appointment, delegation and assignment by each Insured Bondholder for the Insurer's benefit, and agrees to cooperate with the Insurer in taking any action reasonably necessary or appropriate in connection with such appointment, delegation and assignment. Remedies granted in Section 8.04 of the Indenture include mandamus.



- (d) Acceleration of the Bonds is permitted under the Indenture. As set forth in paragraph (c) above, the Insurer is deemed to be the sole holder of the Insured Bonds for purposes of voting on acceleration. In the event the maturity of the Insured Bonds is accelerated, the Insurer shall not be obligated to pay any accelerated amount but may elect, in its sole discretion, to pay accelerated principal and interest accrued, on such principal to the date of acceleration (to the extent unpaid by the Authority) and the Trustee shall be required to accept such amounts. Upon payment of such accelerated principal and interest accrued to the acceleration date as provided above, the Insurer's obligations under the Bond Insurance Policy with respect to such Insured Bonds shall be fully discharged.
- (e) No grace period for a covenant default shall exceed sixty (60) days or be extended for more than sixty (60) days, without the prior written consent of the Insurer. No grace period shall be permitted for payment defaults.
- (f) The Insurer is a third party beneficiary to the Indenture.
- (g) Upon the occurrence of an extraordinary optional, special or extraordinary mandatory redemption in part, the selection of Insured Bonds to be redeemed shall be subject to the approval of the Insurer. The exercise of any provision of the Indenture which permits the purchase of Insured Bonds in lieu of redemption shall require the prior written approval of the Insurer if any Insured Bond so purchased is not cancelled upon purchase.
- (h) Any amendment, supplement, modification to, or waiver of, the Indenture or any other transaction document, including any underlying security agreement (each a "Related Document"), that requires the consent of Bondowners or adversely affects the rights and interests of the Insurer shall be subject to the prior written consent of the Insurer.
- (i) The rights granted to the Insurer under the Indenture or any other Related Document to request, consent to or direct any action are rights granted to the Insurer in consideration of its issuance of the Bond Insurance Policy. Any exercise by the Insurer of such rights is merely an exercise of the Insurer's contractual rights and shall not be construed or deemed to be taken for the benefit, or on behalf, of the holders of the Insured Bonds, and such action does not evidence any position of the Insurer, affirmative or negative, as to whether the consent of the owners of the Insured Bonds or any other person is required in addition to the consent of the Insurer.
- (j) Only (1) cash, (2) non-callable direct obligations of the United States of America ("Treasuries"), (3) evidences of ownership of proportionate interests in future interest and principal payments on Treasuries held by a bank or trust company as custodian, under which the owner of the investment is the real party in interest and has the right to proceed directly and individually against the obligor and the underlying Treasuries are not available to any person claiming through the custodian or to whom the custodian may be obligated, (4) subject to the prior written consent of the Insurer, pre-refunded municipal obligations rated "AAA" and "Aaa" by S&P and Moody's, respectively, or (5) subject to the prior written consent of the Insurer, securities eligible for "AAA" defeasance under

then existing criteria of S&P or any combination thereof, shall be used to effect defeasance of the Insured Bonds unless the Insurer otherwise approves.

To accomplish defeasance, the Authority shall cause to be delivered to the Insurer (i) a report of an independent firm of nationally recognized certified public accountants or such other accountant or financial firm as shall be acceptable to the Insurer ("Accountant") verifying the sufficiency of the escrow established to pay the Insured Bonds in full on the maturity or redemption date ("Verification"), (ii) an Escrow Deposit Agreement (which shall be acceptable in form and substance to the Insurer), (iii) an opinion of nationally recognized bond counsel to the effect that the Insured Bonds are no longer "Outstanding" under the Indenture and (iv) a certificate of discharge of the Trustee with respect to the Insured Bonds; each Verification and defeasance opinion shall be acceptable in form and substance, and addressed, to the Authority, Trustee and Insurer. The Insurer shall be provided with final drafts of the above-referenced documentation not less than five business days prior to the funding of the escrow.

Insured Bonds shall be deemed "Outstanding" under the Indenture unless and until they are in fact paid and retired or the above criteria are met.

- (k) Amounts paid by the Insurer under the Bond Insurance Policy shall not be deemed paid for purposes of the Indenture and the Insured Bonds relating to such payments shall remain Outstanding and continue to be due and owing until paid by the Authority in accordance with the Indenture. The Indenture shall not be discharged unless all amounts due or to become due to the Insurer have been paid in full or duly provided for.
- (l) The Authority covenants and agrees to take such action (including, as applicable, filing of UCC financing statements and continuations thereof) as is necessary from time to time to preserve the priority of the pledge of the Trust Estate under applicable law. The Trustee agrees to use commercially reasonable efforts to assist the Authority in filing any necessary continuation statements of UCC financing statements, including advising the Authority of any due dates of continuation statements of which the Trustee has knowledge.
- (m) Claims Upon the Bond Insurance Policy and Payments by and to the Insurer.

If, on the third Business Day prior to the related scheduled interest payment date or principal payment date ("Payment Date") there is not on deposit with the Trustee, after making all transfers and deposits required under the Indenture, moneys sufficient to pay the principal of and interest on the Insured Bonds due on such Payment Date, the Trustee shall give notice to the Insurer and to its designated agent (if any) (the "Insurer's Fiscal Agent") by telephone or telecopy of the amount of such deficiency by 12:00 noon, New York City time, on such Business Day. If, on the second Business Day prior to the related Payment Date, there continues to be a deficiency in the amount available to pay the principal of and interest on the Insured Bonds due on such Payment Date, the Trustee shall make a claim under the Bond Insurance Policy and give notice to the Insurer and the Insurer's Fiscal Agent (if any) by telephone of the amount of such deficiency, and the

allocation of such deficiency between the amount required to pay interest on the Bonds and the amount required to pay principal of the Insured Bonds, confirmed in writing to the Insurer and the Insurer's Fiscal Agent by 12:00 noon, New York City time, on such second Business Day by filling in the form of Notice of Claim and Certificate delivered with the Bond Insurance Policy.

The Trustee shall designate any portion of payment of principal on Insured Bonds paid by the Insurer, whether by virtue of mandatory sinking fund redemption, maturity or other advancement of maturity, on its books as a reduction in the principal amount of Insured Bonds registered to the then current Insured Bondholder, whether DTC or its nominee or otherwise, and shall issue a replacement Insured Bond to the Insurer, registered in the name of Assured Guaranty Municipal Corp., as the case may be, in a principal amount equal to the amount of principal so paid (without regard to authorized denominations); provided that the Trustee's failure to so designate any payment or issue any replacement Insured Bond shall have no effect on the amount of principal or interest payable by the Authority on any Insured Bond or the subrogation rights of the Insurer.

The Trustee shall keep a complete and accurate record of all funds deposited by the Insurer into the Policy Payments Account (defined below) and the allocation of such funds to payment of interest on and principal of any Insured Bond. The Insurer shall have the right to inspect such records at reasonable times upon reasonable notice to the Trustee.

Upon payment of a claim under the Bond Insurance Policy, the Trustee shall establish a separate special purpose trust account for the benefit of Insured Bondholders referred to herein as the "Policy Payments Account" and over which the Trustee shall have exclusive control and sole right of withdrawal. The Trustee shall receive any amount paid under the Bond Insurance Policy in trust on behalf of Insured Bondholders and shall deposit any such amount in the Policy Payments Account and distribute such amount only for purposes of making the payments for which a claim was made. Such amounts shall be disbursed by the Trustee to Insured Bondholders in the same manner as principal and interest payments are to be made with respect to the Insured Bonds under the sections hereof regarding payment of Insured Bonds. It shall not be necessary for such payments to be made by checks or wire transfers separate from the check or wire transfer used to pay debt service with other funds available to make such payments. Notwithstanding anything herein to the contrary, the Authority agrees to pay to the Insurer (i) a sum equal to the total of all amounts paid by the Insurer under the Bond Insurance Policy (the "Insurer Advances"); and (ii) interest on such Insurer Advances from the date paid by the Insurer until payment thereof in full, payable to the Insurer at the Late Payment Rate per annum (collectively, the "Insurer Reimbursement Amounts"). "Late Payment Rate" means the lesser of (a) the greater of (i) the per annum rate of interest, publicly announced from time to time by JPMorgan Chase Bank at its principal office in The City of New York, as its prime or base lending rate (any change in such rate of interest to be effective on the date such change is announced by JPMorgan Chase Bank) plus 3%, and (ii) the then applicable highest rate of interest on the Insured Bonds and (b) the maximum rate permissible under applicable usury or similar laws limiting interest rates. The Late

Payment Rate shall be computed on the basis of the actual number of days elapsed over a year of 360 days. The Authority hereby covenants and agrees that the Insurer Reimbursement Amounts are secured by a lien on and pledge of the Trust Estate and payable from such Trust Estate on a parity with debt service due on the Insured Bonds.

Funds held in the Policy Payments Account shall not be invested by the Trustee and may not be applied to satisfy any costs, expenses or liabilities of the Trustee. Any funds remaining in the Policy Payments Account following an Insured Bond payment date shall promptly be remitted to the Insurer.

- (n) The Insurer shall, to the extent it makes any payment of principal of or interest on the Insured Bonds, become subrogated to the rights of the recipients of such payments in accordance with the terms of the Bond Insurance Policy (which subrogation rights shall also include the rights of any such recipients in connection with any Insolvency Proceeding). Each obligation of the Authority to the Insurer under the Related Documents shall survive discharge or termination of such Related Documents.
- (o) The Authority shall pay or reimburse the Insurer any and all charges, fees, costs and expenses that the Insurer may reasonably pay or incur in connection with (i) the administration, enforcement, defense or preservation of any rights or security in any Related Document; (ii) the pursuit of any remedies under the Indenture or any other Related Document or otherwise afforded by law or equity, (iii) any amendment, waiver or other action with respect to, or related to, the Indenture or any other Related Document whether or not executed or completed, or (iv) any litigation or other dispute in connection with the Indenture or any other Related Document or the transactions contemplated thereby, other than costs resulting from the failure of the Insurer to honor its obligations under the Bond Insurance Policy. The Insurer reserves the right to charge a reasonable fee as a condition to executing any amendment, waiver or consent proposed in respect of the Indenture or any other Related Document.
- (p) After payment of reasonable expenses of the Trustee, the application of funds realized upon default shall be applied to the payment of expenses of the Authority only after the payment of past due and current debt service on the Insured Bonds and amounts required to restore the Debt Service Reserve Fund to the Reserve Requirement.
- (q) The Insurer shall be entitled to pay principal or interest on the Insured Bonds that shall become Due for Payment but shall be unpaid by reason of Nonpayment by the Authority (as such terms are defined in the Bond Insurance Policy) and any amounts due on the Insured Bonds as a result of acceleration of the maturity thereof in accordance with the Indenture, whether or not the Insurer has received a Notice of Nonpayment (as such terms are defined in the Bond Insurance Policy) or a claim upon the Bond Insurance Policy.
- (r) The notice address of the Insurer is: Assured Guaranty Municipal Corp., 1633 Broadway, New York, New York 10019, Attention: Managing Director – Surveillance, Re: Policy No. 219493-N, Telephone: (212) 974-0100; Telecopier: (212) 339-3556. In

each case in which notice or other communication refers to an Event of Default, then a copy of such notice or other communication shall also be sent to the attention of the Deputy General Counsel – Public Finance and shall be marked to indicate "URGENT MATERIAL ENCLOSED."

- (s) The Insurer shall be provided with the following information by the Authority or Trustee, as the case may be:
- (i) Annual audited financial statements within 180 days after the end of the Authority's fiscal year (together with a certification of the Authority that it is not aware of any default or Event of Default under the Indenture), and the Authority's annual budget within 30 days after the approval thereof together with such other information, data or reports as the Insurer shall reasonably request from time to time;
  - (ii) Notice of any draw upon the Debt Service Reserve Fund within two Business Days after knowledge thereof other than (i) withdrawals of amounts in excess of the Debt Service Reserve Requirement and (ii) withdrawals in connection with a refunding of Insured Bonds;
  - (iii) Notice of any default under the Indenture known to the Trustee or Authority within five Business Days after knowledge thereof;
  - (iv) Prior notice of the advance refunding or redemption of any of the Insured Bonds, including the principal amount, maturities and CUSIP numbers thereof;
  - (v) Notice of the resignation or removal of the Trustee and bond registrar and the appointment of, and acceptance of duties by, any successor thereto;
  - (vi) Notice of the commencement of any proceeding by or against the Authority commenced under the United States Bankruptcy Code or any other applicable bankruptcy, insolvency, receivership, rehabilitation or similar law (an "Insolvency Proceeding");
  - (vii) Notice of the making of any claim in connection with any Insolvency Proceeding seeking the avoidance as a preferential transfer of any payment of principal of, or interest on, the Insured Bonds;
  - (viii) A full original transcript of all proceedings relating to the execution of any amendment, supplement, or waiver to the Related Documents;
  - (ix) All reports, notices and correspondence to be delivered to holders of Insured Bonds under the terms of the Related Documents; and

- (x) To the extent that the Authority has entered into a continuing disclosure agreement, covenant or undertaking with respect to the Bonds, all information furnished pursuant to such agreements shall also be provided to the Insurer, simultaneously with the furnishing of such information.
- (t) The Insurer shall have the right to receive such additional information as it may reasonably request.
- (u) The Authority will permit the Insurer to discuss the affairs, finances and accounts of the Authority or any information the Insurer may reasonably request regarding the security for the Bonds with appropriate officers of the Authority and will use commercially reasonable efforts to enable the Insurer to have access to the facilities, books and records of the Authority on any business day upon reasonable prior notice.
- (v) The Trustee shall notify the Insurer of any failure of the Authority to provide notices, certificates and other information under the transaction documents.
- (w) Notwithstanding satisfaction of the other conditions to the issuance of Additional Bonds set forth in the Indenture, no such issuance may occur (1) if an Event of Default (or any event which, once all notice or grace periods have passed, would constitute an Event of Default) exists unless such default shall be cured upon such issuance and (2) unless the Debt Service Reserve Fund is fully funded at the Debt Service Reserve Requirement (including the proposed issue) upon the issuance of such Additional Bonds, in either case unless otherwise permitted by the Insurer.
- (x) In determining whether any amendment, consent, waiver or other action to be taken, or any failure to take action, under the Indenture would adversely affect the security for the Insured Bonds or the rights of the holders of Insured Bonds, the Trustee shall consider the effect of any such amendment, consent, waiver, action or inaction as if there were no Bond Insurance Policy.
- (y) No contract shall be entered into or any action taken by which the rights of the Insurer or security for or sources of payment of the Bonds may be impaired or prejudiced in any material respect except upon obtaining the prior written consent of the Insurer.
- (z) If the Bonds are issued for refunding purposes, there shall be delivered an opinion of Bond Counsel addressed to the Insurer (or a reliance letter relating thereto), or a certificate of discharge of the trustee for the Refunded Bonds, to the effect that, upon the making of the required deposit to the escrow, the legal defeasance of the Refunded Bonds shall have occurred. If the Refunded Bonds are insured by Assured Guaranty Municipal Corp., at least three business days prior to the proposed date for delivery of the Policy with respect to the Refunding Bonds, the Insurer shall also receive (i) the verification letter, of which the Insurer shall be an addressee, by an independent firm of certified public accountants or other financial firm which is either nationally recognized or otherwise acceptable to the Insurer, of the adequacy of the escrow established to provide

for the payment of the Refunded Bonds in accordance with the terms and provisions of the Escrow Deposit Agreement, and (ii) the form of an opinion of Bond Counsel addressed to the Insurer (or a reliance letter relating thereto) to the effect that the Escrow Deposit Agreement is a valid and binding obligation of the parties thereto, enforceable in accordance with its terms (such Escrow Deposit Agreement shall provide that no amendments are permitted without the prior written consent of the Insurer). An executed copy of each of such opinion and reliance letter, if applicable, or Trustee's discharge certificate, as the case may be, shall be forwarded to the Insurer prior to delivery of the Bonds.

- (aa) Any interest rate exchange agreement ("Swap Agreement") entered into by the Authority shall meet the following conditions: (i) the Swap Agreement must be entered into to manage interest costs related to, or a hedge against (a) assets then held, or (b) debt then outstanding, or (iii) debt reasonably expected to be issued within the next twelve (12) months, and (ii) the Swap Agreement shall not contain any leverage element or multiplier component greater than 1.0x unless there is a matching hedge arrangement which effectively off-sets the exposure from any such element or component. Unless otherwise consented to in writing by the Insurer, any uninsured net settlement, breakage or other termination amount then in effect shall be subordinate to debt service on the Bonds and on any debt on parity with the Bonds. The Authority shall not terminate a Swap Agreement unless it demonstrates to the satisfaction of the Insurer prior to the payment of any such termination amount that such payment will not cause the Authority to be in default under the Related Documents, including but not limited to, any monetary obligations thereunder.

THE PITTSBURGH WATER AND SEWER AUTHORITY

To

THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A.,  
As Trustee

2020-1 SUPPLEMENTAL TRUST INDENTURE  
DATED AS OF DECEMBER 1, 2020

Relating to the Issuance of

\$890,000

The Pittsburgh Water and Sewer Authority  
Water and Sewer System First Lien Revenue Bonds, Series A of 2020  
(Federally Taxable)

And to the Issuance of

\$91,520,000

The Pittsburgh Water and Sewer Authority  
Water and Sewer System First Lien Revenue Bonds, Series B of 2020

And to the Remarketing of

\$218,805,000 The Pittsburgh Water and Sewer Authority  
Water and Sewer System First Lien Revenue Refunding Bonds, Series C of 2017



This 2020-1 SUPPLEMENTAL TRUST INDENTURE (the "2020-1 Supplemental Indenture") is dated as of December 1, 2020 by and between THE PITTSBURGH WATER AND SEWER AUTHORITY (the "Authority") and THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., as trustee (the "Trustee").

**WITNESSETH:**

**WHEREAS**, the Authority is a public body, politic and corporate, exercising public powers of the Commonwealth of Pennsylvania (the "Commonwealth") as an agency thereof, duly organized and validly existing under the provisions of the Pennsylvania Municipality Authorities Act of the Commonwealth, Title 53 of the Pennsylvania Consolidated Statutes Annotated, Section 5601, et seq., as amended (the "Act"); and

**WHEREAS**, the Authority's senior lien debt has been issued under an Amended and Restated Trust Indenture originally dated as of October 15, 1993, amended and restated as of November 1, 2017 and effective as of December 28, 2017 (the "Original Senior Indenture"), as amended and supplemented by the 2017-1 Supplemental Trust Indenture dated as of November 1, 2017 (the "2017-1 Supplemental Indenture"), the 2017-2 Supplemental Trust Indenture dated as of December 1, 2017 (the "2017-2 Supplemental Indenture") and the 2019-1 Supplemental Trust Indenture dated as of July 1, 2019 (the "2019-1 Supplemental Indenture") (the Original Senior Indenture as amended and supplemented by the 2017-1 Supplemental Indenture, the 2017-2 Supplemental Indenture and the 2019-1 Supplemental Indenture is referred to herein as the "Existing Senior Indenture"), as such Existing Senior Indenture is further amended and supplemented by this 2020-1 Supplemental Indenture (the Existing Senior Indenture as amended and supplemented by this 2020-1 Supplemental Indenture, and as amended and supplemented from time to time, is referred to herein as the "Indenture"); and

**WHEREAS**, Section 3.02 of the Original Senior Indenture empowers the Trustee and the Authority to enter into a Supplemental Indenture in connection with the issuance of additional bonds under the Indenture; and

**WHEREAS**, the Authority currently has the following senior debt outstanding under the Indenture: Series B of 1998 (capital appreciation bonds – current outstanding accreted value of approximately \$61,996,886), Series A of 2013 (\$67,420,000 outstanding principal amount) (the "2013A Bonds"), Series B of 2013 (\$38,760,000 outstanding principal amount) (the "2013B Bonds") (the 2013A Bonds and the 2013B Bonds are referred to herein collectively as the "2013AB Bonds"), Series A of 2017 (\$129,610,000 outstanding principal amount), Series C of 2017 (\$218,805,000 outstanding principal amount) (the "2017C Bonds") and Series A of 2019 (\$107,560,000 outstanding principal amount); and

**WHEREAS**, , the Authority desires to undertake two financings:

- (a) The 2017C Bonds are in a variable rate mode with an upcoming mandatory tender date of December 1, 2020. The Authority desires to remarket the 2017C Bonds (the "2017C Refinancing") (such project is the "2017C Refinancing Project" – see Article VI hereof); and in order to pay the costs of remarketing related to the 2017C Refinancing Project, the Authority desires to issue its Water and Sewer System First Lien Revenue Bonds, Series A of 2020 (Federally Taxable) (the "2020A Bonds"); and

- (b) The Authority desires to issue new, fixed rate Water and Sewer System First Lien Revenue Bonds, Series B of 2020 (the “2020B Bonds” and together with the 2020A Bonds, the “2020AB Bonds”), the proceeds of which will pay down all or a portion of the outstanding principal amount under a capital line of credit revenue note Series of 2020 in favor of PNC Bank, N.A. in the maximum principal amount of \$150,000,000 (the “2020 PNC Note”) thereby providing long-term financing for the Authority’s capital projects, and pay the costs of issuance and insuring of the 2020B Bonds (such project is the “PNC Paydown Project”); and

**WHEREAS**, the 2020AB Bonds are being issued under and secured by the terms of the Existing Senior Indenture as supplemented by this 2020-1 Supplemental Indenture; and

**WHEREAS**, the definitive form of the 2020A Bonds, including the certificate of authentication thereon, will be substantially in the form attached hereto and incorporated herein as Exhibit A, with such necessary or appropriate insertions, omissions and variations as may be required or permitted by the Indenture; and

**WHEREAS**, the definitive form of the 2020B Bonds, including the certificate of authentication thereon, will be substantially in the form attached hereto and incorporated herein as Exhibit B, with such necessary or appropriate insertions, omissions and variations as may be required or permitted by the Indenture; and

**WHEREAS**, the definitive form of the 2017C Bonds, including the certificate of authentication thereon, as of December 1, 2020 for the new Interest Period, will be substantially in the form attached hereto and incorporated herein as Exhibit E, with such necessary or appropriate insertions, omissions and variations as may be required or permitted by the Indenture; and

**WHEREAS**, the execution and delivery of this 2020-1 Supplemental Indenture has been duly authorized by a resolution adopted on September 25, 2020 (the “Resolution”) by the Board the Authority, and all things necessary to make the 2020AB Bonds, when executed by the Authority, authenticated by the Trustee and issued by the Authority, the valid, binding and legal obligations of the Authority, and to constitute the Indenture a valid, binding and legal pledge of the security, as therein provided, have been duly done and performed; and

**WHEREAS**, the scheduled payment of principal of and interest on the 2020B Bonds when due will be guaranteed under insurance policies to be issued concurrently with the delivery of the 2020B Bonds by Assured Guaranty Municipal Corp.; and

**WHEREAS**, the Authority desires to effectuate certain technical amendments to the Indenture as set forth in Article V hereof in order to cure any ambiguity, formal defect or omission in the Indenture and to make such provisions in regard to matters or questions arising under the Indenture as may be necessary or desirable and not inconsistent with the Indenture; and

**NOW, THEREFORE**, the parties hereto, intending to be legally bound, hereby agree as follows:

## **ARTICLE I DEFINITIONS**

SECTION 1.01 Definitions. The terms previously defined in the recitals hereto and in the Existing Senior Indenture shall, for all purposes of the Indenture, have the meanings therein specified, unless the context clearly otherwise requires. In addition, the following terms shall have the following meanings herein, unless the context clearly otherwise requires:

### Bond Insurer

The term "Bond Insurer" or "Insurer" shall mean, with respect to the 2020B Bonds, Assured Guaranty Municipal Corp., a stock insurance company incorporated under the laws of the State of New York, or any successor thereto.

### Interest Payment Date

The term "Interest Payment Date" for the 2020AB Bonds shall mean each March 1 and September 1, commencing March 1, 2021.

### Official Statement

The term "Official Statement" means the Official Statement for the 2020AB Bonds dated December 1, 2020.

### Rating Agency

The term "Rating Agency" shall mean Standard & Poor's when the 2020AB Bonds are rated by Standard and Poor's and Moody's when the 2020AB Bonds are rated by Moody's.

### Tax Regulatory Certificate

The term "Tax Regulatory Certificate" shall mean the Tax Certificate of the Authority dated December 1, 2020 related to the 2020B Bonds.

### 2020B Bond Insurance Policy

The term "2020B Bond Insurance Policy" shall mean the financial guaranty insurance policy or policies issued by the Bond Insurer insuring the scheduled payment when due of the principal of and interest on the 2020B Bonds as provided therein.

**ARTICLE II  
CONCERNING 2020AB BONDS**

SECTION 2.01 The 2020A Bonds and the 2020B Bonds. There are hereby created two new series of Bonds to be issued under and secured by the Indenture, on a parity with the other first lien Bonds of the Authority, issued or to be issued pursuant to Section 3.02 of the Existing Senior Indenture, and Other Senior Parity Indebtedness, to be designated "The Pittsburgh Water and Sewer Authority, Water and Sewer System First Lien Revenue Bonds, Series A of 2020 (Federally Taxable)," in the aggregate principal amount of \$890,000 and the "The Pittsburgh Water and Sewer Authority, Water and Sewer System First Lien Revenue Bonds, Series B of 2020," in the aggregate principal amount of \$91,520,000. The 2020A Bonds shall be issued for the purpose of paying the costs of remarketing related to the 2017C Refinancing Project. The 2020B Bonds shall be issued for the purpose of providing funds for the payment of the costs of the PNC Paydown Project. The 2020A Bonds shall be substantially in the form attached hereto as Exhibit A, with such necessary or appropriate insertions, omissions and variations as may be required or permitted by the Indenture. The 2020B Bonds shall be substantially in the form attached hereto as Exhibit B, with such necessary or appropriate insertions, omissions and variations as may be required or permitted by the Indenture. The 2020AB Bonds shall be executed in the form and manner herein specified and delivered to the Trustee for authentication and the Trustee shall authenticate and deliver the principal amount of 2020A Bonds and the principal amount of the 2020B Bonds, but only upon receipt by the Trustee of the Resolution, this 2020-1 Supplemental Indenture and certificates, opinions and all other materials and documents as provided in Section 3.02 of the Existing Senior Indenture. The 2020AB Bonds as issued hereunder will be subject to the provisions of the Existing Senior Indenture and this 2020-1 Supplemental Indenture.

SECTION 2.02 Maturities and Interest Rates. The 2020AB Bonds shall be issuable only as fully registered bonds in denominations of \$5,000 or any integral multiple thereof. The 2020AB Bonds shall be numbered and shall bear such prefixes as may be satisfactory to the Authority and the Trustee. The 2020AB Bonds shall bear interest on the unpaid principal thereof at the annual rates set forth below, computed on the basis of a 360-day year consisting of twelve 30-day months, payable semiannually on March 1 and September 1 of each year, commencing March 1, 2021 until the principal thereof shall have been paid or provided for. The 2020AB Bonds shall mature on the following dates and in the following principal amounts and bear interest at the following rates:

| <u>2020A Bonds</u>                           |                  |                      |
|--|------------------|----------------------|
| <u>Maturity Date</u><br><u>(September 1)</u> | <u>Principal</u> | <u>Interest Rate</u> |
| 2022   | \$890,000        | 0.70%                |

| <u>Maturity Date<br/>(September 1)</u> | <u>2020B Bonds</u> |                      |
|--|--------------------|----------------------|
|  | <u>Principal</u>   | <u>Interest Rate</u> |
| 2022                                   | \$795,000          | 3.00%                |
| 2023                                   | \$1,710,000        | 4.00%                |
| 2024                                   | \$1,780,000        | 4.00%                |
| 2025                                   | \$1,850,000        | 4.00%                |
| 2026                                   | \$1,920,000        | 5.00%                |
| 2027                                   | \$2,020,000        | 5.00%                |
| 2028                                   | \$2,120,000        | 5.00%                |
| 2029                                   | \$2,225,000        | 5.00%                |
| 2030                                   | \$2,335,000        | 5.00%                |
| 2031                                   | \$2,455,000        | 5.00%                |
| 2032                                   | \$2,575,000        | 5.00%                |
| 2033                                   | \$2,705,000        | 5.00%                |
| 2034                                   | \$2,840,000        | 5.00%                |
| 2035                                   | \$2,980,000        | 4.00%                |
| 2036                                   | \$3,100,000        | 4.00%                |
| 2037                                   | \$3,225,000        | 4.00%                |
| 2038                                   | \$3,355,000        | 4.00%                |
| 2039                                   | \$3,490,000        | 3.00%                |
| 2040                                   | \$3,595,000        | 3.00%                |
| 2045                                   | \$20,050,000       | 4.00%                |
| 2050                                   | \$24,395,000       | 4.00%                |

Each 2020AB Bond shall bear interest from the immediately preceding Interest Payment Date to which interest has been paid, (a) unless the date of authentication is after the Record Date and on or before the succeeding Interest Payment Date in which case such 2020AB Bond shall bear interest from such succeeding Interest Payment Date or (b) unless the date of authentication is on or prior to March 1, 2021 and if no interest has been paid on such 2020AB Bond, such 2020AB Bond shall bear interest from December 1, 2020.

The debt service schedule for the 2020A Bonds is set forth in Exhibit C hereto.

The debt service schedule for the 2020B Bonds is set forth in Exhibit D hereto.

SECTION 2.03 Redemption Provisions.

Optional Redemption.

The 2020A Bonds are not subject to optional redemption prior to maturity.

The 2020B Bonds maturing on or after September 1, 2031 are subject to redemption prior to maturity, at the option of the Authority, as a whole or in part, at any time, in the order of maturity selected by the Authority and by lot within a maturity on or after September 1, 2030. Any such redemption will be made at a redemption price equal to 100% of the principal amount thereof plus accrued interest to the redemption date.

Mandatory Sinking Fund Redemption.

The 2020A Bonds are not subject to mandatory sinking fund redemption prior to maturity.

The 2020B Bonds are subject to mandatory sinking fund redemption prior to maturity as follows:

Bonds Stated to Mature on September 1, 2045:

| <u>Redemption Date</u> | <u>Amounts</u> |
|------------------------|----------------|
| September 1, 2041      | \$3,700,000    |
| September 1, 2042      | \$3,850,000    |
| September 1, 2043      | \$4,005,000    |
| September 1, 2044      | \$4,165,000    |
| September 1, 2045*     | \$4,330,000    |

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\* Final maturity

Bonds Stated to Mature on September 1, 2050:

| <u>Redemption Date</u> | <u>Amounts</u> |
|------------------------|----------------|
| September 1, 2046      | \$4,505,000    |
| September 1, 2047      | \$4,685,000    |
| September 1, 2048      | \$4,870,000    |
| September 1, 2049      | \$5,065,000    |
| September 1, 2050*     | \$5,270,000    |

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\* Final maturity

Extraordinary Optional Redemption. The 2020AB Bonds are subject to extraordinary redemption prior to maturity at the option of the Authority, in whole or in part, at any time, in

the event of condemnation, damage or destruction of the Water and Sewer System, from moneys deposited with or held by the Trustee for such purpose, upon payment of 100% of the principal amount thereof being redeemed, plus interest accrued to the date fixed for redemption for the 2020AB Bonds.

SECTION 2.04 Notice of Redemption. When required to redeem 2020AB Bonds under any provision of this 2020-1 Supplemental Indenture, other than Mandatory Sinking Fund Redemption under Section 2.03, or when directed to do so by the Authority pursuant to the provisions of this 2020-1 Supplemental Indenture, the Trustee shall cause notice of the redemption to be given not less than 30 days prior to the redemption date, by mailing copies of such notice of redemption by first class mail, postage prepaid, to all Holders of 2020AB Bonds to be redeemed at their registered addresses, but failure to mail any such notice or defect in the mailing thereof in respect of any 2020AB Bond shall not affect the validity of the redemption of any other 2020AB Bond with respect to which notice was properly given. Each such notice shall be dated and shall be given in the name of the Authority and shall state the following information:

(a) the identification numbers, as established under this 2020-1 Supplemental Indenture, and the CUSIP numbers, if any, of the 2020AB Bonds being redeemed, provided that any such notice shall state that no representation is made as to the correctness of CUSIP numbers either as printed on such 2020AB Bonds or as contained in the notice of redemption and that reliance may be placed only on the identification numbers contained in the notice or printed on such 2020AB Bonds;

(b) any descriptive information needed to identify accurately the 2020AB Bonds being redeemed;

(c) in the case of partial redemption of any series of 2020AB Bonds, the respective principal amounts thereof to be redeemed;

(d) the redemption date;

(e) the redemption price;

(f) that on the redemption date the redemption price will become due and payable upon each such 2020AB Bond or portion thereof called for redemption, and that interest thereon shall cease to accrue from and after said date; and

(g) the place where such 2020AB Bonds are to be surrendered for payment of the redemption price.

In addition, the Trustee shall at all reasonable times upon prior written request and at the expense of the requesting party make available to the Authority complete information as to 2020AB Bonds and the Bond Insurer complete information as to 2020B Bonds which have been redeemed or called for redemption.

If at the time of mailing of notice of any optional redemption there shall not have been deposited monies in the Redemption Fund available for payment pursuant to Section 6.09 of

the Original Senior Indenture sufficient to redeem all the 2020AB Bonds called for redemption, such notice shall state that it is conditional in that it is subject to the deposit of the redemption monies in the Redemption Fund available for payment on the redemption date, in which case such notice shall be of no effect unless monies are so deposited.

**SECTION 2.05 Book-Entry Only Bonds.** The 2020AB Bonds shall be initially issued in book-entry only form. In the event that any provision of this Section 2.05 is inconsistent with other provisions of this 2020-1 Supplemental Indenture, so long as the 2020AB Bonds shall be in book-entry only form, the provisions of this Section 2.05 shall govern. The Depository Trust Company ("DTC") will act as securities depository for the 2020AB Bonds. The ownership of one fully registered Bond for each maturity of each Series set forth in this 2020-1 Supplemental Indenture, each in the aggregate Principal Amount of such maturity, will be registered in the name of CEDE & Co., as nominee for DTC; provided that if DTC shall request that the 2020AB Bonds be registered in the name of a different nominee, the Trustee shall exchange all or any portion of the 2020AB Bonds for an equal aggregate Principal Amount of 2020AB Bonds of the applicable Series registered in the name of such nominee or nominees of DTC. No person other than DTC or its nominee shall be entitled to receive from the Authority or the Trustee either a 2020AB Bond or any other evidence of ownership of the 2020AB Bonds, or any right to receive any payment in respect thereof unless DTC or its nominee shall transfer record ownership of all or any portion of the 2020AB Bonds on the registration books maintained by the Trustee, in connection with discontinuing the book entry system or otherwise.

So long as the 2020AB Bonds or any portion thereof are registered in the name of DTC or any nominee thereof, all payments of the principal or redemption price of or interest on such 2020AB Bonds shall be made to DTC or its nominee in New York Clearing House or equivalent next day funds on the dates provided for such payments under the Indenture. Each such payment to DTC or its nominee shall be valid and effective to fully discharge all liability of the Authority or the Trustee with respect to the principal or redemption price of or interest on the 2020AB Bonds to the extent of the sum or sums so paid. In the event of the redemption of less than all of the 2020AB Bonds Outstanding, the Trustee shall not require surrender by DTC or its nominee of the 2020AB Bonds so redeemed, but DTC or its nominee may retain such 2020AB Bonds and make an appropriate notation on the 2020AB Bond certificate as to the amount of such partial redemption; provided that, in each case the Trustee shall request, and DTC shall deliver to the Trustee, a written confirmation of such partial redemption and thereafter the records maintained by the Trustee shall be conclusive as to the amount of the 2020AB Bonds which have been redeemed.

The Authority and the Trustee may treat DTC or its nominee as the sole and exclusive Owner of the 2020AB Bonds registered in its name for the purposes of payment of the principal or redemption price of or interest on the 2020AB Bonds, selecting the 2020AB Bonds or portions thereof to be redeemed, giving any notice permitted or required to be given to Bondholders under the Indenture, registering the transfer of 2020AB Bonds, obtaining any consent or other action to be taken by Bondholders and for all other purposes whatsoever; and neither the Authority nor the Trustee shall be affected by any notice to the contrary. Neither the Authority nor the Trustee shall have any responsibility or obligation to any participant in DTC, any person claiming a beneficial ownership interest in the 2020AB Bonds under or through DTC or any such participant, or any other person which is not shown on the registration books of the



Trustee as being a Bondholder, with respect to either: (i) the 2020AB Bonds; or (ii) the accuracy of any records maintained by DTC or any such participant; or (iii) the payment by DTC or any such participant of any amount in respect of the principal or redemption price of or interest on the 2020AB Bonds; or (iv) any notice which is permitted or required to be given to Bondholders under the Indenture; or (v) the selection by DTC or any such participant of any person to receive payment in the event of a partial redemption of any Series of the 2020AB Bonds; or (vi) any consent given or other action taken by DTC as Bondholder.

So long as the 2020AB Bonds or any portion thereof are registered in the name of DTC or any nominee thereof, all notices required or permitted to be given to the Bondholders under the Indenture shall be given to DTC as provided in the Representation Letter between the Authority and DTC (the "DTC Representation Letter"), in such form as is acceptable to the Trustee, the Authority and DTC.

In connection with any notice or other communication to be provided to Bondholders pursuant to the Indenture by the Authority or the Trustee with respect to any consent or other action to be taken by Bondholders, DTC shall consider the date of receipt of notice requesting such consent or other action as the record date for such consent or other action, provided that the Authority or the Trustee may establish a special record date for such consent or other action. The Authority or the Trustee shall give DTC notice of such special record date not fewer than fifteen (15) calendar days in advance of such special record date to the extent possible.

At or prior to the issuance of the 2020AB Bonds, the Authority and the Trustee shall execute or signify their approval of the DTC Representation Letter. Any successor Trustee shall, in its written acceptance of its duties under the Indenture, agree to take any actions necessary from time to time to comply with the requirements of the DTC Representation Letter.

The book-entry system for registration of the ownership of the 2020AB Bonds may be discontinued at any time if either: (i) DTC determines to resign as securities depository for the 2020AB Bonds; or (ii) the Authority provides thirty (30) days' notice of such discontinuation to the Trustee and DTC that continuation of the system of book-entry transfers through DTC (or through a successor securities depository) is not in the best interests of the Authority. Upon occurrence of either such event, the Authority may attempt to establish a securities depository book-entry relationship with another securities depository. If the Authority does not do so, or is unable to do so, and after the Authority has notified DTC and upon surrender to the Trustee of the Bonds held by DTC, the Authority will issue and the Trustee will authenticate and deliver the 2020AB Bonds of each Series in registered certificate form in denominations of \$5,000 and integral multiples thereof, at the expense of the Authority, to such persons, and in such maturities and Principal Amounts, as may be designated by DTC, but without any liability on the part of the Authority or the Trustee for the accuracy of such designation. Whenever DTC requests the Authority or the Trustee to do so, the Authority or the Trustee shall cooperate with DTC in taking appropriate action after reasonable notice to arrange for another securities depository to maintain custody of certificates evidencing the 2020AB Bonds. Prior to any transfer of the Bonds outside the Book-Entry Only system (including, but not limited to, the initial transfer outside the Book-Entry Only system), the transferor shall provide or cause to be provided to the Trustee all information necessary to allow the Trustee to comply

with any applicable tax reporting obligations, including without limitation any cost basis reporting obligations under Internal Revenue Code Section 6045, as amended. The Trustee shall conclusively rely on the information provided to it and shall have no responsibility to verify or ensure the accuracy of such information.

SECTION 2.06 Consent to Current Senior Indenture. The Current Senior Indenture contained certain amendments and restatements in 2017. THE PURCHASERS OF THE 2020AB BONDS ARE HEREBY DEEMED, BY VIRTUE OF THEIR PURCHASE OF THE 2020AB BONDS, TO HAVE CONSENTED TO THE INDENTURE (INCLUDING ALL AMENDMENTS AND RESTATEMENTS INCLUDED IN THE ORIGINAL SENIOR INDENTURE AND THE SUPPLEMENTS THERETO) ON BEHALF OF THEMSELVES AND ALL FUTURE OWNERS OF THE 2020AB BONDS.

**ARTICLE III  
DEPOSITS TO FUNDS AND DISBURSEMENT OF MONEYS**

SECTION 3.01 Deposit of 2020AB Bond Proceeds. Upon receipt of the proceeds of the 2020AB Bonds, such moneys shall be deposited to a Clearing Fund for the 2020AB Bonds, which is hereby created, and shall be disbursed for the purposes and in the amounts set forth in the closing certificate or closing certificates of the Authority executed on the date of issuance of the 2020AB Bonds. Each closing certificate shall also state the amount of the proceeds of the 2020AB Bonds that is to be delivered to the Trustee for application as hereinafter described.

A portion of the proceeds of the 2020A Bonds shall be applied to pay costs of remarketing the 2017C Bonds.

A portion of the proceeds of the 2020B Bonds shall be applied to pay down a portion of the 2020 PNC Note.

A portion of the proceeds of the 2020AB Bonds shall be applied to pay the costs of issuance of the 2020AB Bonds and the costs of insuring the 2020B Bonds.

Amounts remaining on deposit in the Clearing Fund on February 1, 2021 shall, without further direction from the Authority, be applied by the Trustee to pay interest on the 2020A Bonds on the next applicable Interest Payment Date.

SECTION 3.02 Revenue Fund.

A. The Authority will transfer from the Revenue Fund to the Debt Service Fund from time to time, the amounts required to pay the principal of and interest on the 2020AB Bonds.

The foregoing provisions relating to the Debt Service Fund are subject to the provision that there shall be credited to the Revenue Fund available moneys deposited to the Debt Service Fund or earned as interest on moneys on deposit to the credit of the Debt Service Fund, and in determining the amount required to be transferred from the Revenue Fund to the Debt Service Fund pursuant to this Section, effect shall be given to the anticipated receipt on or before the appropriate payment date of the available moneys in the Debt Service Fund.

B. On or before each Interest Payment Date and on or before each date on which 2020AB Bonds are to be redeemed, the Trustee shall pay from moneys held in the Debt Service Fund (or, the Debt Service Reserve Fund in the event that there are insufficient funds in the Debt Service Fund available for that purpose), the amount of principal, interest or redemption price payable with respect to the 2020AB Bonds on such Interest Payment Date or redemption date; provided, however, that the principal or redemption price shall be paid only on presentment of the 2020AB Bond which is being paid, subject, however, to Section 2.05 hereof.

The Authority may deposit into the Debt Service Fund such additional funds as the Authority shall determine which shall be applied by the Trustee at the written request of the Authority to the purchase of 2020AB Bonds and such moneys shall be withdrawn by the Trustee and deposited in the Redemption Fund and applied to the payment of the purchase price of such 2020AB Bonds which the Authority or the Trustee may agree to purchase; provided, however,

that the Authority shall not purchase and the Trustee shall not apply moneys in the Debt Service Fund to the purchase of such 2020AB Bonds at a price in excess of 100% of the principal amount thereof, plus accrued interest thereon to the date of purchase. At any time that the Trustee shall be requested to apply such moneys in the Debt Service Fund to purchase such 2020AB Bonds, the Authority shall furnish to the Trustee not later than sixty (60) days prior to the next maturity date of any applicable year an Officers' Certificate specifying the 2020AB Bonds which it has agreed to purchase, the purchase price thereof, the names of the sellers and the expenses involved in connection with such purchase.

SECTION 3.03 Deposit to Debt Service Reserve Fund. On the date of issuance of the 2020AB Bonds there shall be on deposit to the Debt Service Reserve Fund, the existing Debt Service Reserve Insurance Policy No. 210578-R and Policy No. 219493-R (the "Reserve Policies") of Assured Guaranty Municipal Corp., which together with other funds on deposit shall enable the amount on deposit in the Common Debt Service Reserve Fund to be sufficient to meet the Common Debt Service Reserve Requirement on all Bonds Outstanding under the Indenture including the 2020AB Bonds. The Authority confirms that the provisions in the Indenture and any insurance or reimbursement agreement entered into with the Bond Insurer shall remain in effect with respect to the Reserve Policies. The 2020AB Bonds and all other Outstanding Bonds under the Indenture are Common Debt Service Reserve Secured Bonds (as defined in the Indenture).

**ARTICLE IV  
INTERNAL REVENUE CODE AND OTHER COVENANTS**

SECTION 4.01 Internal Revenue Code and Other Covenants. The Authority hereby covenants with the registered owners, from time to time, of the 2020B Bonds that no part of the proceeds of the 2020B Bonds or of any moneys on deposit with the Trustee hereunder will be used, at any time, directly or indirectly, in a manner which, if such use had been reasonably expected on the date of issuance of the 2020B Bonds, would have caused the 2020B Bonds to be arbitrage bonds within the meaning of Section 148 of the Internal Revenue Code of 1986, as amended (the "Code"), and the regulations thereunder proposed or in effect at the time of such use and applicable to the 2020B Bonds, and that it will comply with the requirements of that section and the regulations throughout the term of the 2020B Bonds. In the event the Authority is of the opinion that it is necessary to restrict or limit the yield on the investment of any moneys paid to or held by the Trustee to comply with the covenants herein set forth, the Authority shall issue to the Trustee a written certificate to such effect, with appropriate instructions, and the Trustee shall thereupon take such action in accordance with such certificate and instructions. The Authority's covenants set forth in the Tax Regulatory Certificate are hereby incorporated herein.

## ARTICLE V

### AMENDMENTS

SECTION 5.01 Amendments Regarding Requisitions. The Construction Fund requisition provisions of the Current Senior Indenture are amended as follows (underlined text is new language; bracketed text is removed language):

(a) The definition of Consulting Engineer in Section 1.01 of the Original Senior Indenture is amended to read as follows:

#### Consulting Engineer

The term "Consulting Engineer" shall mean a person who is a registered professional engineer under the laws of the Commonwealth qualified to pass on engineering questions relating to the operation and maintenance of water, stormwater and sewer systems, who is appointed by the Board, who is in fact independent (although such person may be regularly retained by the Authority) and who is not unsatisfactory to the Trustee. If such person be an individual, such person shall not be a member of the Board or an officer or employee of the Authority or the City. If such person be a partnership or corporation, such person shall not have a partner, director, officer or substantial stockholder who is a member of the Board or an officer or employee of the Authority or the City. The Consulting Engineer may perform similar services for the City. Notwithstanding the foregoing, with respect to the Consulting Engineer approval of requisitions under Section 5.01(b) hereof, the term Consulting Engineer may include a licensed professional engineer who is not independent and is an employee of the Authority and who is not signing the requisition under Section 5.01(a) hereof.

(b) Section 5.01 of the Original Senior Indenture is amended to read as follows:

Construction Fund. There is hereby created a special fund known as the "Construction Fund", which shall be held in trust by the Trustee. Money shall be deposited to the Construction Fund pursuant to the provisions of Article II and from any other sources identified by the Authority. To the extent Costs of a Construction Project are paid for from Bonds, the Authority must deposit the construction proceeds of the Bonds in the Construction Fund and must follow the provisions of this Article V. To the extent the Authority is self-funding Costs from other than proceeds of Bonds, the Authority may use moneys in the Revenue Fund and the Operating Fund to pay such Costs, and the Authority need not use the Construction Fund or follow the provisions of this Article V.

Payment of the Costs of a Construction Project shall be made from the Construction Fund as described below. A special account shall be created and identified for each such Construction Project, although funds, at the written direction of the Authority, may be transferred from one such account in the Construction Fund to another account in such Fund. On the date of issuance of Bonds to finance in whole or in part a Construction Project, the moneys directed, in writing, by the Authority to be transferred from the Clearing Fund shall be deposited into the Construction Fund or an account therein. All moneys on deposit in the Construction Fund shall be held in Trust by the Trustee as security under this Indenture and disbursed by the Trustee pursuant to this Section 5.01 in payment of the Costs of the Construction Project. Before each such withdrawal and payment of the Costs of the Construction Project from the Construction Fund by the Trustee, the Authority shall deliver to the Trustee the following:

A requisition, signed by any [two] one of the Chairperson or Vice Chairperson or Secretary or Assistant Secretary or the Executive Director or the Chief Financial Officer or the Director of Finance of the Authority, or signed by such other person [or persons] who is [or are] authorized to do so pursuant to a Resolution of the Board, stating in respect of each payment to be made:

- (1) the item number of the payment;
- (2) the name and address of the person to whom payment is due;
- (3) the amount to be paid and the Construction Fund from which payment is to be made;
- (4) the purpose for which the obligation was incurred;
- (5) that obligations in the stated amount have been incurred by the Authority and that each item thereof is a proper part of the Cost of the Construction Project and has not been paid;
- (6) that there has not been filed with or served upon the Authority notice of any lien, right to lien or attachment upon, or claim affecting the right to receive payment of any of the moneys payable to any persons named in such requisition;

(7) that such requisition contains no items representing payment on account of any retained percentage which the Authority is on the date of such certificate entitled to retain;

(8) that neither the Authority nor any of its officers or members has received any discount, rebate, commission, fee, proceeds from insurance or other abatement which is not reflected on the requisition in connection with any such expenditures or indebtedness; and

(9) that no part of any such item has been included in any previous requisition for the withdrawal of moneys from the Construction Fund; and

Except to the extent to which a requisition relates to financing costs, a certificate signed by the Consulting Engineer approving such requisition and certifying that each item to be paid as set forth in such requisition constitutes an obligation which has been properly incurred as part of the Cost of the Construction Project and is then due and unpaid.

Upon the receipt of each such requisition and the accompanying certificate, the Trustee shall (a) unless otherwise requested by the Authority under clause (b) of this sentence, pay to the persons named in such requisition, the respective amounts stated therein to be due to such persons; or (b) if requested to do so by the Authority, forward the aggregate amount payable pursuant to the requisition to an account designated by the Authority for payment by the Authority to the persons named in the requisition, the respective amounts stated in the requisition to be due to such persons (if such amounts are paid by the Authority, the Authority will then give the Trustee evidence that the Authority has paid such amounts).

Investment earnings on the amounts on deposit in the Construction Fund shall be retained in the Construction Fund unless the Authority directs the Trustee, in writing, to transfer such earnings to the Debt Service Fund.

Any moneys remaining in the Construction Fund after all amounts due in respect of the Construction Project shall have been paid (including any Costs of any amendment or revision of the Construction Project pursuant to Section 5.02 below), which fact shall be evidenced to the Trustee by delivery of a certificate of an Authorized Representative of the Authority to that effect, shall be transferred by the Trustee to the Revenue Fund and applied as directed in writing by the Authority; with respect to such



application, the Authority will obtain an opinion of Bond Counsel that such application in and of itself will not adversely affect the exclusion for federal income tax purposes from gross income of interest on the Series of Bonds issued to fund such Construction Project if interest on such Series of Bonds is excludable from gross income for federal income tax purposes. If an Event of Default pursuant to Section 8.01(a) or (b) occurs, and only to the extent that no other available moneys are held under this Indenture, the Trustee shall transfer moneys from the Construction Fund to the Debt Service Fund to pay principal and interest on the Bonds.

All requisitions received by the Trustee pursuant to Section 5.01(a) may be relied upon without investigation or inquiry by and shall be retained in the possession of the Trustee for a period of five (5) years, subject at all times to the inspection of the Authority, its agents and representatives, and any other person authorized by a certificate of an Authorized Representative of the Authority.

## ARTICLE VI

### REMARKETING OF 2017C BONDS

#### SECTION 6.01 Remarketing of 2017C Bonds.

(a) The 2017C Bonds are outstanding under the Indenture and, pursuant to the terms of the 2017-2 Supplemental Indenture, are currently in an Initial Period described as follows: the 2017C Bonds (1) are issued in one Series with no Sub-Series, (2) bear interest at an Index Rate, being the lesser of (i) the LIBOR Index Rate, and (ii) the Maximum Rate, (3) are Soft Tender Index Rate Bonds, (4) have an Initial Index Rate Bonds Purchase Date of December 1, 2020, (5) are subject to optional redemption on any Business Day on or after June 1, 2020 in whole or in part at a redemption price equal to 100% of principal amount to be redeemed plus interest accrued to the redemption date, upon giving notice in accordance with Section 3.02, (6) are subject to mandatory sinking fund redemption in accordance with Section 3.01(b) of the Original Senior Indenture, (7) are subject to extraordinary optional indenture in accordance with Section 3.01(d) of the Original Senior Indenture, and (8) are in Authorized Denominations of \$5,000 and integral multiples thereof.

(b) The 2017C Bonds are being remarketed as of December 1, 2020 in a new Interest Period, pursuant to Section 2.03(f) of the 2017-2 Supplemental Indenture, described as follows: the 2017C Bonds as of December 1, 2020 (1) will be in one Series with no Sub-Series, (2) will bear interest at an Index Rate, being the lesser of (i) the SIFMA Index Rate, and (ii) the Maximum Rate, (3) are Soft Tender Index Rate Bonds, (4) have a Purchase Date of December 1, 2023, (5) are subject to optional redemption on any Business Day on or after June 1, 2023 in whole or in part at a redemption price equal to 100% of principal amount to be redeemed plus interest accrued to the redemption date, upon giving notice in accordance with Section 3.02, (6) are subject to mandatory sinking fund redemption in accordance with Section 3.01(b) of the Original Senior Indenture, (7) are subject to extraordinary optional indenture in accordance with Section 3.01(d) of the Original Senior Indenture, and (8) are in Authorized Denominations of \$5,000 and integral multiples thereof. The 2017C Bonds shall bear interest at SIFMA Index plus 0.65%, not to exceed Maximum Rate during the period December 1, 2020 to December 1, 2023.

(c) The 2017C Bonds, as of December 1, 2020 for the new Interest Period, shall be substantially in the form attached hereto as Exhibit E, with such necessary or appropriate insertions, omissions and variations as may be required or permitted by the Indenture.

(d) Also on December 1, 2020, the Authority will enter into a new interest rate swap agreement for a three year term with Merrill Lynch Capital Services, Inc. related to certain of the 2017C Bonds under which the Authority will pay a LIBOR-based rate and receive a SIFMA-based rate thereby matching the LIBOR-based rate for three years under the Authority's existing interest rate swap agreements with J.P. Morgan Chase Bank, National Association and Merrill Lynch Capital Services, Inc. related to certain of the 2017C Bonds.

(e) BofA Securities Inc. ("BofA"), together with Morgan Stanley and Boenning & Scattergood, Inc., have been appointed by the Authority as Remarketing Agent hereunder for the remarketing of the 2017C Bonds in connection with the December 1, 2020 Conversion Date. The Authority and BofA, on behalf of itself, Morgan Stanley and Boenning & Scattergood, Inc., have entered into a Remarketing Agreement dated November 12, 2020 with respect to such remarketing.

## ARTICLE VII

### MISCELLANEOUS PROVISIONS

SECTION 7.01 Provisions Related to Bond Insurance. The provisions related to the 2020B Bond Insurance Policy are set forth in Exhibit F hereto, and such provisions are incorporated herein by reference as if fully set forth herein.

SECTION 7.02 Benefitted Parties. Nothing in this 2020-1 Supplemental Indenture, expressed or implied, is intended or shall be construed to confer upon or give any Person, other than the parties hereto, the Bond Insurer (to the extent rights are granted to the Bond Insurer in this 2020-1 Supplemental Indenture) and the registered Owners of the 2020AB Bonds, any right, remedy or claim under or by reason of this 2020-1 Supplemental Indenture or any covenant, condition or stipulation hereof; and the covenants, stipulations and agreements contained in this 2020-1 Supplemental Indenture are and shall be for the sole and exclusive benefit of the parties hereto, the Bond Insurer and the registered Owners of the 2020AB Bonds and 2017C Bonds.

SECTION 7.03 Successors and Assigns. All the covenants and agreements by or on behalf of the Authority, or by or on behalf of the Trustee, contained in this 2020-1 Supplemental Indenture for all purposes shall bind and inure to the benefit of their respective successors and assigns, whether so expressed or not.

SECTION 7.04 Meanings of Terms and Phrases. All terms and phrases used in this 2020-1 Supplemental Indenture for all purposes hereof, shall have the meanings given to such terms and phrases in the Indenture, as supplemented hereby, unless otherwise specifically defined herein or unless the context plainly otherwise requires.

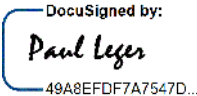
SECTION 7.05 Governing Law. The laws of the Commonwealth of Pennsylvania shall govern the construction of this 2020-1 Supplemental Indenture.

SECTION 7.06 Counterparts. This 2020-1 Supplemental Indenture may be executed in any number of counterparts, each of which when so executed and delivered shall be an original, but such counterparts shall together constitute but one and the same instrument.

SECTION 7.07 In Full Force and Effect. The Indenture, as amended and supplemented hereby, shall be and remain in full force and effect, and is hereby ratified, approved and confirmed.

IN WITNESS WHEREOF, THE PITTSBURGH WATER AND SEWER AUTHORITY has caused this 2020-1 Supplemental Indenture to be executed in its name by its Chair or Vice-Chair and attested by its Secretary or Assistant Secretary and THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., has caused this 2020-1 Supplemental Indenture to be executed in its name by one of its authorized officers, all as of the day and year first above written.

THE PITTSBURGH WATER AND SEWER AUTHORITY

By:  \_\_\_\_\_  
Chair

Attest:  \_\_\_\_\_  
(Assistant) Secretary

THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., as Trustee

By: \_\_\_\_\_  
Authorized Officer

IN WITNESS WHEREOF, THE PITTSBURGH WATER AND SEWER AUTHORITY has caused this 2020-1 Supplemental Indenture to be executed in its name by its Chair or Vice-Chair and attested by its Secretary or Assistant Secretary and THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., has caused this 2020-1 Supplemental Indenture to be executed in its name by one of its authorized officers, all as of the day and year first above written.

THE PITTSBURGH WATER AND SEWER  
AUTHORITY

By: \_\_\_\_\_  
Chair

Attest:

\_\_\_\_\_  
(Assistant) Secretary

THE BANK OF NEW YORK MELLON TRUST  
COMPANY, N.A., as Trustee

By: Rhonda J. Branna  
Authorized Officer

**EXHIBIT A**

FORM OF 2020A BOND

**REGISTERED  
NO. RA-**

**\$**

**United States of America  
Commonwealth of Pennsylvania**

**THE PITTSBURGH WATER AND SEWER AUTHORITY  
Water and Sewer System  
First Lien Revenue Bonds  
Series A of 2020  
(Federally Taxable)**

| <b>ISSUE DATE</b>       | <b>MATURITY DATE</b>      | <b>CUSIP</b> |
|-------------------------|---------------------------|--------------|
| <b>December 1, 2020</b> | <b>September 1, _____</b> | <b>_____</b> |

**REGISTERED OWNER:** CEDE & CO.

**PRINCIPAL AMOUNT:** \_\_\_\_\_ Dollars

**INTEREST RATE:** \_\_\_\_\_

The Pittsburgh Water and Sewer Authority (the "Authority"), a body corporate and politic duly organized and existing under the laws of the Commonwealth of Pennsylvania (the "Commonwealth"), for value received, promises to pay, solely from the receipts and revenues and other moneys hereinafter mentioned, to the Registered Owner (named above) or registered assigns, on the Maturity Date (stated above), upon surrender hereof, the Principal Amount (stated above) and to pay interest thereon from the date described herein until maturity or, if this Bond shall have been duly called for earlier redemption and payment of the redemption price shall have been made or provided for, until the date fixed for redemption hereof, at the Interest Rate (stated above) per annum, computed on the basis of a 360-day year of twelve thirty-day months, payable semi-annually on the first day of March and September of each year, commencing March 1, 2021 (each an "Interest Payment Date") or if any Interest Payment Date shall not be a Business Day, then on the next following Business Day. Should this Bond be presented for payment at maturity and payment not be made in accordance with the terms hereof, the principal sum hereof shall thereafter (without prejudice to the rights of the Owner hereof to pursue any other remedy available at law or equity) bear interest until paid at the rate of interest set forth above or at such lesser maximum rate of interest as is permitted by law.

Principal and interest will be payable in such coin or currency of the United States of America as, at the respective times of payment, shall be legal tender for the payment of public and private debts. Principal shall be payable at the designated corporate trust agency office of The Bank of New York Mellon Trust Company, N.A., as Trustee and Paying Agent (the "Trustee") in East Syracuse, New York or at the office of any successor trustee or paying agent appointed under the Indenture hereinafter mentioned. Interest is payable to the Registered

Owner hereof as shown on the registration books as of the close of business on the fifteenth day of the month (whether or not such day is a Business Day) next preceding the Interest Payment Date (the "Record Date"). Payment shall be made by check mailed on the applicable Interest Payment Date to such Owner at the address shown on the registration books, or in any other manner as may be mutually acceptable to the Registered Owner and the Trustee.

This Bond shall initially be dated December 1, 2020, and thereafter will be dated as of the date of its authentication. This Bond shall bear interest from the most recent Interest Payment Date preceding the date of such Bond to which interest has been paid, unless the date of such Bond is after the Record Date and on or before the succeeding Interest Payment Date, in which event it shall bear interest as of such succeeding Interest Payment Date, or, if dated on or prior to March 1, 2021 in which event it shall bear interest from December 1, 2020.

This Bond is one of a duly authorized issue of bonds (the "2020A Bonds") of the Authority, which issue of bonds consists or may consist of several series of varying denominations, dates, maturities and tenors, all issued and to be issued under and pursuant to an Amended and Restated Trust Indenture originally dated as of October 15, 1993, amended and restated as of November 1, 2017 and effective as of December 28, 2017 (the "Original Senior Indenture"), as amended and supplemented by the 2017-1 Supplemental Trust Indenture dated as of November 1, 2017 (the "2017-1 Supplemental Indenture"), the 2017-2 Supplemental Trust Indenture dated as of December 1, 2017 (the "2017-2 Supplemental Indenture"), and the 2019-1 Supplemental Trust Indenture dated as of July 1, 2019 (the "2019-1 Supplemental Indenture") (the Original Senior Indenture as amended by the 2017-1 Supplemental Indenture, the 2017-2 Supplemental Indenture and the 2019-1 Supplemental Indenture is referred to herein as the "Existing Senior Indenture"), as such Existing Senior Indenture is further amended and supplemented by the 2020-1 Supplemental Trust Indenture dated as of December 1, 2020 (the "2020-1 Supplemental Indenture") (the Existing Senior Indenture as amended by the 2020-1 Supplemental Indenture is referred to herein as the "Indenture"), duly executed and delivered by the Authority to the Trustee, an executed counterpart of which is on file at the corporate trust office of the Trustee responsible for the administration of the Indenture, all equally and ratably secured by the Indenture, except as hereinafter provided. This Bond is one of a series entitled "The Pittsburgh Water and Sewer Authority, Water and Sewer System First Lien Revenue Bonds, Series A of 2020 (Federally Taxable)", in the aggregate principal amount of \$890,000 issued for the purpose of (a) paying the costs of remarketing related to the 2017C Refinancing Project (as defined in the 2020-1 Supplemental Indenture) and (b) paying the costs of issuing the 2020A Bonds. The 2020A Bonds are issued in registered form in the denomination of \$5,000 principal amount or any integral multiple thereof.

THE PURCHASERS OF THE 2020A BONDS ARE HEREBY DEEMED, BY VIRTUE OF THEIR PURCHASE OF THE 2020A BONDS, TO HAVE CONSENTED TO THE INDENTURE (INCLUDING ALL AMENDMENTS AND RESTATEMENTS INCLUDED IN THE ORIGINAL SENIOR INDENTURE AND THE SUPPLEMENTS THERETO) ON BEHALF OF THEMSELVES AND ALL FUTURE OWNERS OF THE 2020A BONDS.

It is expressly agreed and understood that the Indenture and the obligations thereby secured, including this Bond, are corporate obligations of the Authority, and that the 2020A Bonds are payable only out of the sources set forth in the Indenture. In addition, the Indenture



provides that the 2020A Bonds shall be secured by a pledge of the revenues of the Authority, after deduction of the proper expenses of the operation, maintenance and repair of the water and sewer system and reserves therefor as provided in the Indenture. The Indenture provides for the fixing and charging by the Authority of rates, rents and charges for the water and sewer service furnished by its water and sewer system at least sufficient in the aggregate to provide, together with other revenues derived by the Authority, funds for paying the cost of operating, maintaining and repairing the water and sewer system, paying the principal of and the interest on its Bonds and other obligations as such principal and interest shall become due, and establishing the reserves required by the Indenture.

Neither the credit nor the taxing power of the City of Pittsburgh (the "City") or the Commonwealth or any political subdivision thereof is pledged for the payment of the principal of, the interest on, or the premium (if any) payable upon the redemption of, this Bond; nor shall this Bond be deemed an obligation of the City or the Commonwealth or any political subdivision thereof; nor shall the City, or the Commonwealth or any political subdivision thereof be liable for the payment of the principal of, the interest on, or the premium (if any) payable upon the redemption of this Bond, and neither the Trustee or any receiver appointed to operate and maintain any of the facilities of the Authority and to collect revenues arising therefrom for the benefit of the Bondholders shall be authorized to sell, assign, mortgage or otherwise dispose of any assets of whatever kind or character belonging to the Authority. **The Authority has no taxing power.**

In case an Event of Default, as defined in the Indenture, shall occur, the principal of all the Bonds at any such time Outstanding under the Indenture may be declared to be due and payable by the Trustee or may become due and payable upon the conditions and in the manner and with the effect provided in the Indenture. The Owner of this Bond shall have no right to enforce the provisions of the Indenture or to institute action to enforce the covenants thereof or to take any action with regard to any Event of Default under the Indenture, or to institute, appear in or defend any suit or other proceeding with respect thereto, except as provided in the Indenture or by the Act (as hereinafter defined).

The 2020A Bonds are not subject to optional redemption or mandatory sinking fund redemption prior to maturity.

Extraordinary optional redemption of the 2020A Bonds, if any, shall be made in the manner and upon the terms and conditions set forth in the Indenture. In the event that less than all of the 2020A Bonds are to be redeemed as provided above, they shall be redeemed at random in any reasonable manner determined by the Trustee, unless otherwise directed in writing by the Authority. Any redemption of the 2020A Bonds shall be upon at least thirty (30) days prior written notice by first-class mail to the Owner of the Bonds so called for redemption.

If the Authority shall have duly sent notice of redemption and shall have provided funds for the payment of the principal of the 2020A Bonds so called for redemption and interest thereon to the date of redemption, interest on such 2020A Bonds shall cease to accrue from and after said redemption date.

Certain modifications and alterations of the Indenture not adversely affecting rights of

Owners of the Bonds Outstanding thereunder may be made without consent of Owners of said Bonds in the manner and upon the terms and conditions provided in the Indenture. Any other modification or alteration of the Indenture and or rights and obligations of the Authority and of Owners of the Bonds Outstanding thereunder may be made only in the manner and upon the terms and conditions provided in the Indenture. Any consent by the Owner of this Bond, when required by the Indenture (unless revoked as provided in the Indenture), shall be conclusive and binding upon such Owner and all future Owners of this Bond, irrespective of whether any notation of such consent is made upon this Bond.

The Authority and the Trustee may treat the Person in whose name this Bond is registered as the absolute Owner hereof whether or not this Bond or any installment of interest shall be overdue, for the purpose of receiving payment thereof and for all other purposes whatsoever, and shall not be affected by any notice to the contrary.

The Owner of this Bond shall have no right to enforce provisions of this Bond or the Indenture, except as provided in the Indenture.

No recourse shall be had for the payment of the principal of, or the interest or premium, if any, on, this Bond or for any claim based hereon or on the Indenture or on any indenture supplemental thereto, against any member, officer, or employee, past, present or future, of the Authority, or of any successor body, either directly or through the Authority or any such successor body, whether by virtue of any constitutional provision, statute or rule of law, or by the enforcement of any assessment or penalty, or otherwise, all such liability of such members, officers or employees being released as a condition of and as consideration for the execution of the Indenture and the issuance of this Bond.

This Bond will be transferred or exchanged for an equal aggregate principal amount of Bonds of similar term and tenor in any authorized denomination, only by presentation and surrender of this Bond to the designated office of the Trustee, together with an assignment duly executed by the Owner hereof or by this attorney-in-fact or legal representative. As a precondition to the transfer of this Bond, the Authority or the Trustee may charge the Owner hereof for any tax, fee or governmental charge required to be paid with respect to such transfer.

The Trustee shall not be required to register the transfer or exchange of any Bond (i) during a period beginning at the opening of business fifteen (15) days before the day of the mailing of notice of redemption of the 2020A Bonds and ending at the close of business on the date of such mailing, (ii) at any time following the selection of such 2020A Bonds, in whole or in part, for redemption, or (iii) during the period commencing on a Record Date and ending on the corresponding Interest Payment Date.

It is hereby certified, recited and declared that all acts, conditions and things required by the Constitution and laws of the Commonwealth to exist, to have happened or be performed precedent to and in the issuance of this Bond and the execution and delivery of the Indenture exist, have happened and have been performed as so required. This Bond is issued and the Indenture was made and entered unto under and pursuant to the Pennsylvania Municipality

Authorities Act, Title 53 of the Pennsylvania Consolidated Statutes Annotated, Section 5601, et seq., as amended (the "Act"), and under and pursuant to resolutions duly adopted by the Authority.

This Bond shall not be valid or become obligatory for any purpose until this Bond shall have been authenticated by the execution by the Trustee of the Certificate of Authentication endorsed hereon. Capitalized terms used in this Bond but not defined herein shall have the meanings ascribed to them in the Indenture.

IN WITNESS WHEREOF, The Pittsburgh Water and Sewer Authority has caused this Bond to be executed in its name and on its behalf by the manual or facsimile signature of its Chair or Vice Chair, and its corporate seal or a facsimile thereof to be hereunto affixed, duly attested by the manual or facsimile signature of its Secretary or Assistant Secretary.

[SEAL]

THE PITTSBURGH WATER AND SEWER  
AUTHORITY

ATTEST:

\_\_\_\_\_  
Secretary

By: \_\_\_\_\_  
Chair

CERTIFICATE OF AUTHENTICATION

This Bond is one of the Water and Sewer System First Lien Revenue Bonds, Series A of 2020 (Federally Taxable) (the "Bonds") described in the within-mentioned Indenture. Attached hereto is the complete text of the opinion of McNeese Wallace & Nurick LLC, dated the date of delivery of and payment for the Bonds, a signed original of which is on file with the Trustee.

**THE BANK OF NEW YORK  
MELLON TRUST COMPANY,  
N.A., as Trustee**

DATED: \_\_\_\_\_

By: \_\_\_\_\_

ASSIGNMENT

FOR VALUE RECEIVED the undersigned hereby sells, assigns and transfers unto

Please insert Social Security or other identifying  
number of assignee

Please print or typewrite name and address  
including postal zip code of transferee

the within Bond and all rights thereunder, and hereby irrevocably constitutes and appoints

\_\_\_\_\_ Agent to transfer the within Bond on the books kept for registration thereof, with  
full power of substitution in the premises.

Dated

Signature(s) Guaranteed:

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NOTICE: Signature(s) must be  
guaranteed by a member firm of an  
approved Signature Guaranteed  
Medallion Program.

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NOTICE: The signature(s) to this  
assignment must correspond with  
the name(s) as written upon the  
face of the Bond, in every  
particular, without alteration or  
enlargement, or any change  
whatever.

**EXHIBIT B**

FORM OF 2020B BOND

**REGISTERED  
NO. RB-**

\$ \_\_\_\_\_

**United States of America  
Commonwealth of Pennsylvania**

**THE PITTSBURGH WATER AND SEWER AUTHORITY  
Water and Sewer System  
First Lien Revenue Bonds  
Series B of 2020**

| <b>ISSUE DATE</b>       | <b>MATURITY DATE</b>     | <b>CUSIP</b> |
|-------------------------|--------------------------|--------------|
| <b>December 1, 2020</b> | <b>September 1, 20__</b> | _____        |

**REGISTERED OWNER:** CEDE & CO.

**PRINCIPAL AMOUNT:** \_\_\_\_\_ DOLLARS (\$ \_\_\_\_\_)

**INTEREST RATE:** \_\_\_\_\_%

The Pittsburgh Water and Sewer Authority (the "Authority"), a body corporate and politic duly organized and existing under the laws of the Commonwealth of Pennsylvania (the "Commonwealth"), for value received, promises to pay, solely from the receipts and revenues and other moneys hereinafter mentioned, to the Registered Owner (named above) or registered assigns, on the Maturity Date (stated above), upon surrender hereof, the Principal Amount (stated above) and to pay interest thereon from the date described herein until maturity or, if this Bond shall have been duly called for earlier redemption and payment of the redemption price shall have been made or provided for, until the date fixed for redemption hereof, at the Interest Rate (stated above) per annum, computed on the basis of a 360-day year of twelve thirty-day months, payable semi-annually on the first day of March and September of each year, commencing March 1, 2021 (each an "Interest Payment Date") or if any Interest Payment Date shall not be a Business Day, then on the next following Business Day. Should this Bond be presented for payment at maturity and payment not be made in accordance with the terms hereof, the principal sum hereof shall thereafter (without prejudice to the rights of the Owner hereof to pursue any other remedy available at law or equity) bear interest until paid at the rate of interest set forth above or at such lesser maximum rate of interest as is permitted by law.

Principal and interest will be payable in such coin or currency of the United States of America as, at the respective times of payment, shall be legal tender for the payment of public and private debts. Principal shall be payable at the designated corporate trust agency office of The Bank of New York Mellon Trust Company, N.A., as Trustee and Paying Agent (the "Trustee") in East Syracuse, New York or at the office of any successor trustee or paying agent appointed under the Indenture hereinafter mentioned. Interest is payable to the Registered Owner hereof as shown on the registration books as of the close of business on the fifteenth day

of the month (whether or not such day is a Business Day) next preceding the Interest Payment Date (the "Record Date"). Payment shall be made by check mailed on the applicable Interest Payment Date to such Owner at the address shown on the registration books, by wire transfer to an Owner of \$1,000,000 or more of aggregate principal amount of 2020B Bonds (hereinafter defined) (upon receipt by the Trustee of written notice not less than two Business Days prior to the Record Date for the applicable Interest Payment Date, such notice to contain the wire transfer address within the continental United States to which such Owner desires to have such wire transfer directed), or in any other manner as may be mutually acceptable to the Registered Owner and the Trustee.

This Bond shall initially be dated December 1, 2020, and thereafter will be dated as of the date of its authentication. This Bond shall bear interest from the most recent Interest Payment Date preceding the date of such Bond to which interest has been paid, unless the date of such Bond is after the Record Date and on or before the succeeding Interest Payment Date, in which event it shall bear interest as of such succeeding Interest Payment Date, or, if dated on or prior to March 1, 2021 in which event it shall bear interest from December 1, 2020.

This Bond is one of a duly authorized issue of bonds (the "2020B Bonds") of the Authority, which issue of bonds consists or may consist of several series of varying denominations, dates, maturities and tenors, all issued and to be issued under and pursuant to an Amended and Restated Trust Indenture originally dated as of October 15, 1993, amended and restated as of November 1, 2017 and effective as of December 28, 2017 (the "Original Senior Indenture"), as amended and supplemented by the 2017-1 Supplemental Trust Indenture dated as of November 1, 2017 (the "2017-1 Supplemental Indenture"), the 2017-2 Supplemental Trust Indenture dated as of December 1, 2017 (the "2017-2 Supplemental Indenture"), and the 2019-1 Supplemental Trust Indenture dated as of July 1, 2019 (the "2019-1 Supplemental Indenture") (the Original Senior Indenture as amended by the 2017-1 Supplemental Indenture, the 2017-2 Supplemental Indenture and the 2019-1 Supplemental Indenture is referred to herein as the "Existing Senior Indenture"), as such Existing Senior Indenture is further amended and supplemented by the 2020-1 Supplemental Trust Indenture dated as of December 1, 2020 (the "2020-1 Supplemental Indenture") (the Existing Senior Indenture as amended by the 2020-1 Supplemental Indenture is referred to herein as the "Indenture"), duly executed and delivered by the Authority to the Trustee, an executed counterpart of which is on file at the corporate trust office of the Trustee responsible for the administration of the Indenture, all equally and ratably secured by the Indenture, except as hereinafter provided. This Bond is one of a series entitled "The Pittsburgh Water and Sewer Authority, Water and Sewer System First Lien Revenue Bonds, Series B of 2020", in the aggregate principal amount of \$91,520,000 issued for the purpose of paying down all or a portion of the outstanding principal amount under the capital line of credit evidenced by a note in favor of PNC Bank, N.A., thereby providing long-term financing for the Authority's capital projects, and paying the costs of issuing and insuring the 2020B Bonds. The 2020B Bonds are issued in registered form in the denomination of \$5,000 principal amount or any integral multiple thereof.

THE PURCHASERS OF THE 2020B BONDS ARE HEREBY DEEMED, BY VIRTUE OF THEIR PURCHASE OF THE 2020B BONDS, TO HAVE CONSENTED TO THE INDENTURE (INCLUDING ALL AMENDMENTS AND RESTATEMENTS INCLUDED IN THE ORIGINAL SENIOR INDENTURE AND THE SUPPLEMENTS



THERE TO) ON BEHALF OF THEMSELVES AND ALL FUTURE OWNERS OF THE 2020B BONDS.

It is expressly agreed and understood that the Indenture and the obligations thereby secured, including this Bond, are corporate obligations of the Authority, and that the 2020B Bonds are payable only out of the sources set forth in the Indenture. In addition, the Indenture provides that the 2020B Bonds shall be secured by a pledge of the revenues of the Authority, after deduction of the proper expenses of the operation, maintenance and repair of the water and sewer system and reserves therefor as provided in the Indenture. The Indenture provides for the fixing and charging by the Authority of rates, rents and charges for the water and sewer service furnished by its water and sewer system at least sufficient in the aggregate to provide, together with other revenues derived by the Authority, funds for paying the cost of operating, maintaining and repairing the water and sewer system, paying the principal of and the interest on its Bonds and other obligations as such principal and interest shall become due, and establishing the reserves required by the Indenture.

Neither the credit nor the taxing power of the City of Pittsburgh (the "City") or the Commonwealth or any political subdivision thereof is pledged for the payment of the principal of, the interest on, or the premium (if any) payable upon the redemption of, this Bond; nor shall this Bond be deemed an obligation of the City or the Commonwealth or any political subdivision thereof; nor shall the City, or the Commonwealth or any political subdivision thereof be liable for the payment of the principal of, the interest on, or the premium (if any) payable upon the redemption of this Bond, and neither the Trustee or any receiver appointed to operate and maintain any of the facilities of the Authority and to collect revenues arising therefrom for the benefit of the Bondholders shall be authorized to sell, assign, mortgage or otherwise dispose of any assets of whatever kind or character belonging to the Authority. **The Authority has no taxing power.**

In case an Event of Default, as defined in the Indenture, shall occur, the principal of all the Bonds at any such time Outstanding under the Indenture may be declared to be due and payable by the Trustee or may become due and payable upon the conditions and in the manner and with the effect provided in the Indenture. The Owner of this Bond shall have no right to enforce the provisions of the Indenture or to institute action to enforce the covenants thereof or to take any action with regard to any Event of Default under the Indenture, or to institute, appear in or defend any suit or other proceeding with respect thereto, except as provided in the Indenture or by the Act (as hereinafter defined).

The 2020B Bonds which mature on or after September 1, 2031, are subject to optional redemption, at the option of the Authority, in whole or in part, in the order of maturity selected by the Authority and by lot within a maturity, at any time on or after September 1, 2030. Any such redemption will be made at a redemption price equal to 100% of the principal amount thereof plus accrued interest to the date fixed for redemption.

The 2020B Bonds maturing on September 1, 2045 and September 1, 2050, are subject to mandatory redemption prior to maturity in part, by lot, on September 1 of each of the years, at the redemption price of 100% of the principal amount of the 2020B Bonds to be redeemed, plus accrued interest to the date fixed for redemption, in the principal amounts, as set below:

Bonds Stated to Mature on September 1, 2045:

| <u>Redemption Date</u> | <u>Amounts</u> |
|------------------------|----------------|
| September 1, 2041      | \$3,700,000    |
| September 1, 2042      | \$3,850,000    |
| September 1, 2043      | \$4,005,000    |
| September 1, 2044      | \$4,165,000    |
| September 1, 2045*     | \$4,330,000    |

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\* Final maturity

Bonds Stated to Mature on September 1, 2050:

| <u>Redemption Date</u> | <u>Amounts</u> |
|------------------------|----------------|
| September 1, 2046      | \$4,505,000    |
| September 1, 2047      | \$4,685,000    |
| September 1, 2048      | \$4,870,000    |
| September 1, 2049      | \$5,065,000    |
| September 1, 2050*     | \$5,270,000    |

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\* Final maturity

Extraordinary optional redemption of the 2020 Bonds, if any, shall be made in the manner and upon the terms and conditions set forth in the Indenture. In the event that less than all of the 2020B Bonds are to be redeemed as provided above, they shall be redeemed at random in any reasonable manner determined by the Trustee, unless otherwise directed in writing by the Authority. Any redemption of the 2020B Bonds shall be upon at least thirty (30) days prior written notice by first-class mail to the Owner of the Bonds so called for redemption.

If the Authority shall have duly sent notice of redemption and shall have provided funds for the payment of the principal of the 2020B Bonds so called for redemption and interest thereon to the date of redemption, interest on such 2020B Bonds shall cease to accrue from and after said redemption date.

Certain modifications and alterations of the Indenture not adversely affecting rights of Owners of the Bonds Outstanding thereunder may be made without consent of Owners of said Bonds in the manner and upon the terms and conditions provided in the Indenture. Any other modification or alteration of the Indenture and or rights and obligations of the Authority and of Owners of the Bonds Outstanding thereunder may be made only in the manner and upon the terms and conditions provided in the Indenture. Any consent by the Owner of this Bond, when required by the Indenture (unless revoked as provided in the Indenture), shall be conclusive and binding upon such Owner and all future Owners of this Bond, irrespective of whether any notation of such consent is made upon this Bond.

The Authority and the Trustee may treat the Person in whose name this Bond is registered as the absolute Owner hereof whether or not this Bond or any installment of interest shall be overdue, for the purpose of receiving payment thereof and for all other purposes whatsoever, and shall not be affected by any notice to the contrary.

The Owner of this Bond shall have no right to enforce provisions of this Bond or the Indenture, except as provided in the Indenture.

No recourse shall be had for the payment of the principal of, or the interest or premium, if any, on, this Bond or for any claim based hereon or on the Indenture or on any indenture supplemental thereto, against any member, officer, or employee, past, present or future, of the Authority, or of any successor body, either directly or through the Authority or any such successor body, whether by virtue of any constitutional provision, statute or rule of law, or by the enforcement of any assessment or penalty, or otherwise, all such liability of such members, officers or employees being released as a condition of and as consideration for the execution of the Indenture and the issuance of this Bond.

This Bond will be transferred or exchanged for an equal aggregate principal amount of Bonds of similar term and tenor in any authorized denomination, only by presentation and surrender of this Bond to the designated office of the Trustee, together with an assignment duly executed by the Owner hereof or by this attorney-in-fact or legal representative. As a precondition to the transfer of this Bond, the Authority or the Trustee may charge the Owner hereof for any tax, fee or governmental charge required to be paid with respect to such transfer.

The Trustee shall not be required to register the transfer or exchange of any Bond (i) during a period beginning at the opening of business fifteen (15) days before the day of the mailing of notice of redemption of the 2020B Bonds and ending at the close of business on the date of such mailing, (ii) at any time following the selection of such 2020B Bonds, in whole or in part, for redemption, or (iii) during the period commencing on a Record Date and ending on the corresponding Interest Payment Date.

It is hereby certified, recited and declared that all acts, conditions and things required by the Constitution and laws of the Commonwealth to exist, to have happened or be performed precedent to and in the issuance of this Bond and the execution and delivery of the Indenture exist, have happened and have been performed as so required. This Bond is issued and the Indenture was made and entered unto under and pursuant to the Pennsylvania Municipality Authorities Act, Title 53 of the Pennsylvania Consolidated Statutes Annotated, Section 5601, et seq., as amended (the "Act"), and under and pursuant to resolutions duly adopted by the Authority.

This Bond shall not be valid or become obligatory for any purpose until this Bond shall have been authenticated by the execution by the Trustee of the Certificate of Authentication endorsed hereon. Capitalized terms used in this Bond but not defined herein shall have the meanings ascribed to them in the Indenture.

[Signature Page Follows]

IN WITNESS WHEREOF, The Pittsburgh Water and Sewer Authority has caused this Bond to be executed in its name and on its behalf by the manual or facsimile signature of its Chair or Vice Chair, and its corporate seal or a facsimile thereof to be hereunto affixed, duly attested by the manual or facsimile signature of its Secretary or Assistant Secretary.

ATTEST:

THE PITTSBURGH WATER AND  
SEWER AUTHORITY

\_\_\_\_\_  
Secretary  
[SEAL]

By: \_\_\_\_\_  
Chair

CERTIFICATE OF AUTHENTICATION

This Bond is one of the Water and Sewer System First Lien Revenue Bonds, Series B of 2020 (the "Bonds") described in the within-mentioned Indenture. Attached hereto is the complete text of the opinion of McNees Wallace & Nurick LLC, dated the date of delivery of and payment for the Bonds, a signed original of which is on file with the Trustee.

**THE BANK OF NEW YORK  
MELLON TRUST COMPANY, N.A.,  
as Trustee**

DATED: \_\_\_\_\_

By: \_\_\_\_\_

ASSIGNMENT

FOR VALUE RECEIVED the undersigned hereby sells, assigns and transfers unto

Please insert Social Security or other identifying  
number of assignee

Please print or typewrite name and address  
including postal zip code of transferee

the within Bond and all rights thereunder, and hereby irrevocably constitutes and appoints

\_\_\_\_\_ Agent to transfer the within Bond on the books kept for registration thereof, with  
full power of substitution in the premises.

Dated

Signature(s) Guaranteed:

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NOTICE: Signature(s) must be  
guaranteed by a member firm of an  
approved Signature Guaranteed  
Medallion Program.

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NOTICE: The signature(s) to this  
assignment must correspond with  
the name(s) as written upon the  
face of the Bond, in every  
particular, without alteration or  
enlargement, or any change  
whatever.

## STATEMENT OF INSURANCE

Assured Guaranty Municipal Corp. (“AGM”), New York, New York, has delivered its municipal bond insurance policy (the “Policy”) with respect to the scheduled payments due of principal of and interest on this Bond to The Bank of New York Mellon Trust Company, N.A., or its successor, as paying agent for the Bonds (the "Paying Agent"). Said Policy is on file and available for inspection at the principal office of the Paying Agent and a copy thereof may be obtained from AGM or the Paying Agent. All payments required to be made under the Policy shall be made in accordance with the provisions thereof. The owner of this Bond acknowledges and consents to the subrogation rights of AGM as more fully set forth in the Policy.

**EXHIBIT C**

2020A BONDS DEBT SERVICE SCHEDULE

| Period<br>Ending | Principal | Coupon | Interest  | Debt Service |
|------------------|-----------|--------|-----------|--------------|
| 12/31/2021       |           |        | 4,672.50  | 4,672.50     |
| 12/31/2022       | 890,000   | 0.700% | 6,230.00  | 896,230.00   |
|                  | 890,000   |        | 10,902.50 | 900,902.50   |



**EXHIBIT D**

2020B BONDS DEBT SERVICE SCHEDULE

See attached page.

Draw Date 12/01/2020  
 Delivery Date 12/01/2020

| Period Ending | Principal  | Coupon | Interest      | Debt Service   | Annual Debt Service |
|---------------|------------|--------|---------------|----------------|---------------------|
| 03/01/2021    |            |        | 948,487.50    | 948,487.50     |                     |
| 06/01/2021    |            |        | 1,096,875.00  | 1,096,875.00   |                     |
| 12/31/2021    |            |        |               |                | 2,045,362.50        |
| 03/01/2022    |            |        | 1,096,875.00  | 1,096,875.00   |                     |
| 06/01/2022    | 795,000    | 3.000% | 1,096,875.00  | 2,091,875.00   |                     |
| 12/31/2022    |            |        |               |                | 4,568,230.00        |
| 03/01/2023    |            |        | 1,083,050.00  | 1,083,050.00   |                     |
| 06/01/2023    | 1,710,000  | 4.000% | 1,083,050.00  | 2,999,050.00   |                     |
| 12/31/2023    |            |        |               |                | 3,486,100.00        |
| 03/01/2024    |            |        | 1,050,050.00  | 1,050,050.00   |                     |
| 06/01/2024    | 1,790,000  | 4.000% | 1,050,050.00  | 3,030,050.00   |                     |
| 12/31/2024    |            |        |               |                | 3,461,700.00        |
| 03/01/2025    |            |        | 1,018,250.00  | 1,018,250.00   |                     |
| 06/01/2025    | 1,870,000  | 4.000% | 1,018,250.00  | 3,041,250.00   |                     |
| 12/31/2025    |            |        |               |                | 3,400,500.00        |
| 03/01/2026    |            |        | 1,778,250.00  | 1,778,250.00   |                     |
| 06/01/2026    | 1,820,000  | 3.000% | 1,778,250.00  | 3,696,250.00   |                     |
| 12/31/2026    |            |        |               |                | 3,478,500.00        |
| 03/01/2027    |            |        | 1,730,250.00  | 1,730,250.00   |                     |
| 06/01/2027    | 2,020,000  | 3.000% | 1,730,250.00  | 3,750,250.00   |                     |
| 12/31/2027    |            |        |               |                | 3,460,500.00        |
| 03/01/2028    |            |        | 1,679,750.00  | 1,679,750.00   |                     |
| 06/01/2028    | 2,120,000  | 3.000% | 1,679,750.00  | 3,799,750.00   |                     |
| 12/31/2028    |            |        |               |                | 3,479,500.00        |
| 03/01/2029    |            |        | 1,626,750.00  | 1,626,750.00   |                     |
| 06/01/2029    | 2,225,000  | 3.000% | 1,626,750.00  | 3,851,750.00   |                     |
| 12/31/2029    |            |        |               |                | 3,478,500.00        |
| 03/01/2030    |            |        | 1,571,125.00  | 1,571,125.00   |                     |
| 06/01/2030    | 2,335,000  | 3.000% | 1,571,125.00  | 3,906,125.00   |                     |
| 12/31/2030    |            |        |               |                | 3,477,250.00        |
| 03/01/2031    |            |        | 1,512,750.00  | 1,512,750.00   |                     |
| 06/01/2031    | 2,455,000  | 3.000% | 1,512,750.00  | 3,967,750.00   |                     |
| 12/31/2031    |            |        |               |                | 3,466,500.00        |
| 03/01/2032    |            |        | 1,451,375.00  | 1,451,375.00   |                     |
| 06/01/2032    | 2,575,000  | 3.000% | 1,451,375.00  | 4,026,375.00   |                     |
| 12/31/2032    |            |        |               |                | 3,477,750.00        |
| 03/01/2033    |            |        | 1,387,000.00  | 1,387,000.00   |                     |
| 06/01/2033    | 2,705,000  | 3.000% | 1,387,000.00  | 4,092,000.00   |                     |
| 12/31/2033    |            |        |               |                | 3,479,000.00        |
| 03/01/2034    |            |        | 1,319,375.00  | 1,319,375.00   |                     |
| 06/01/2034    | 2,840,000  | 3.000% | 1,319,375.00  | 4,159,375.00   |                     |
| 12/31/2034    |            |        |               |                | 3,478,750.00        |
| 03/01/2035    |            |        | 1,248,375.00  | 1,248,375.00   |                     |
| 06/01/2035    | 2,980,000  | 4.000% | 1,248,375.00  | 4,226,375.00   |                     |
| 12/31/2035    |            |        |               |                | 3,476,750.00        |
| 03/01/2036    |            |        | 1,188,775.00  | 1,188,775.00   |                     |
| 06/01/2036    | 3,100,000  | 4.000% | 1,188,775.00  | 4,289,775.00   |                     |
| 12/31/2036    |            |        |               |                | 3,477,500.00        |
| 03/01/2037    |            |        | 1,126,775.00  | 1,126,775.00   |                     |
| 06/01/2037    | 3,225,000  | 4.000% | 1,126,775.00  | 4,351,775.00   |                     |
| 12/31/2037    |            |        |               |                | 3,478,500.00        |
| 03/01/2038    |            |        | 1,062,275.00  | 1,062,275.00   |                     |
| 06/01/2038    | 3,355,000  | 4.000% | 1,062,275.00  | 4,417,275.00   |                     |
| 12/31/2038    |            |        |               |                | 3,479,500.00        |
| 03/01/2039    |            |        | 995,175.00    | 995,175.00     |                     |
| 06/01/2039    | 3,490,000  | 3.000% | 995,175.00    | 4,482,175.00   |                     |
| 12/31/2039    |            |        |               |                | 3,480,500.00        |
| 03/01/2040    |            |        | 942,825.00    | 942,825.00     |                     |
| 06/01/2040    | 3,595,000  | 3.000% | 942,825.00    | 4,537,825.00   |                     |
| 12/31/2040    |            |        |               |                | 3,480,500.00        |
| 03/01/2041    |            |        | 888,900.00    | 888,900.00     |                     |
| 06/01/2041    | 3,700,000  | 4.000% | 888,900.00    | 4,596,900.00   |                     |
| 12/31/2041    |            |        |               |                | 3,477,800.00        |
| 03/01/2042    |            |        | 814,900.00    | 814,900.00     |                     |
| 06/01/2042    | 3,850,000  | 4.000% | 814,900.00    | 4,664,900.00   |                     |
| 12/31/2042    |            |        |               |                | 3,479,800.00        |
| 03/01/2043    |            |        | 737,900.00    | 737,900.00     |                     |
| 06/01/2043    | 4,005,000  | 4.000% | 737,900.00    | 4,742,900.00   |                     |
| 12/31/2043    |            |        |               |                | 3,460,800.00        |
| 03/01/2044    |            |        | 657,800.00    | 657,800.00     |                     |
| 06/01/2044    | 4,165,000  | 4.000% | 657,800.00    | 4,822,600.00   |                     |
| 12/31/2044    |            |        |               |                | 3,460,800.00        |
| 03/01/2045    |            |        | 574,500.00    | 574,500.00     |                     |
| 06/01/2045    | 4,330,000  | 4.000% | 574,500.00    | 4,904,500.00   |                     |
| 12/31/2045    |            |        |               |                | 3,479,800.00        |
| 03/01/2046    |            |        | 487,900.00    | 487,900.00     |                     |
| 06/01/2046    | 4,505,000  | 4.000% | 487,900.00    | 4,992,900.00   |                     |
| 12/31/2046    |            |        |               |                | 3,486,800.00        |
| 03/01/2047    |            |        | 397,800.00    | 397,800.00     |                     |
| 06/01/2047    | 4,685,000  | 4.000% | 397,800.00    | 5,082,900.00   |                     |
| 12/31/2047    |            |        |               |                | 3,486,800.00        |
| 03/01/2048    |            |        | 304,100.00    | 304,100.00     |                     |
| 06/01/2048    | 4,870,000  | 4.000% | 304,100.00    | 5,174,100.00   |                     |
| 12/31/2048    |            |        |               |                | 3,478,200.00        |
| 03/01/2049    |            |        | 206,700.00    | 206,700.00     |                     |
| 06/01/2049    | 5,065,000  | 4.000% | 206,700.00    | 5,271,700.00   |                     |
| 12/31/2049    |            |        |               |                | 3,478,400.00        |
| 03/01/2050    |            |        | 105,400.00    | 105,400.00     |                     |
| 06/01/2050    | 5,270,000  | 4.000% | 105,400.00    | 5,372,400.00   |                     |
| 12/31/2050    |            |        |               |                | 3,480,800.00        |
|               | 81,520,000 |        | 68,335,362.50 | 100,855,362.50 | 100,855,362.50      |

**EXHIBIT E**

FORM OF 2017C BOND

**REGISTERED  
NO. C-**

**United States of America  
Commonwealth of Pennsylvania**

**\$**

**THE PITTSBURGH WATER AND SEWER AUTHORITY  
Water and Sewer System  
First Lien Revenue Refunding Bonds  
Series C of 2017**

**ISSUE DATE**

**MATURITY DATE**

**CUSIP**

**December 28, 2017**

**September 1, \_\_\_\_\_**

**\_\_\_\_\_**

**REGISTERED OWNER: CEDE & CO.**

**PRINCIPAL AMOUNT: \_\_\_\_\_ Dollars**

**FIRST DATE IN CURRENT INTEREST PERIOD: December 1, 2020**

**INTEREST RATE IN CURRENT INTEREST PERIOD: SIFMA Index plus \_\_\_%, not to exceed Maximum Rate**

**INDEX RATE BONDS PURCHASE DATE IN CURRENT INTEREST PERIOD:  
December 1, 2023**

**INTEREST PAYMENT DATES IN CURRENT INTEREST PERIOD: First Business Day of each month, commencing January 4, 2021**

The Pittsburgh Water and Sewer Authority (the "Authority"), a body corporate and politic duly organized and existing under the laws of the Commonwealth of Pennsylvania (the "Commonwealth"), for value received, promises to pay, solely from the receipts and revenues and other moneys hereinafter mentioned, to the Registered Owner (named above) or registered assigns, on the Maturity Date (stated above), upon surrender hereof, the Principal Amount (stated above) and to pay interest thereon from the date described herein until maturity or, if this Bond shall have been duly called for earlier redemption and payment of the redemption price shall have been made or provided for, until the date fixed for redemption hereof, at the interest rate applicable to the Rate Period then in effect, computed as provided in the Indenture (hereinafter defined) and payable on the Interest Payment Dates as provided in the Indenture.

Principal and interest will be payable in such coin or currency of the United States of America as, at the respective times of payment, shall be legal tender for the payment of public and private debts. Principal shall be payable at the designated corporate trust agency office of The Bank of New York Mellon Trust Company, N.A., as Trustee and Paying Agent (the "Trustee") in East Syracuse, New York or at the office of any successor trustee or paying agent appointed under the Indenture hereinafter mentioned. Interest is payable to the Registered Owner hereof as shown on the registration books as of the close of business on the Regular Record Date next preceding

the Interest Payment Date. Payment shall be made by check mailed on the applicable Interest Payment Date to such Owner at the address shown on the registration books, by wire transfer to an Owner of \$1,000,000 or more of aggregate principal amount of 2017C Bonds (hereinafter defined) (upon receipt by the Trustee of written notice not less than two Business Days prior to the Regular Record Date for the applicable Interest Payment Date, such notice to contain the wire transfer address within the continental United States to which such Owner desires to have such wire transfer directed), or in any other manner as may be mutually acceptable to the Registered Owner and the Trustee.

This Bond shall initially be dated December 28, 2017, and thereafter will be dated as of the date of its authentication. This Bond shall bear interest from the most recent Interest Payment Date preceding the date of such Bond to which interest has been paid, unless the date of such Bond is after the Regular Record Date and on or before the succeeding Interest Payment Date, in which event it shall bear interest as of such succeeding Interest Payment Date, or, if dated on or prior to February 1, 2018, in which event it shall bear interest from December 28, 2017.

This Bond is one of a duly authorized issue of bonds (the "2017C Bonds") of the Authority, which issue of bonds consists or may consist of several series of varying denominations, dates, maturities and tenors, all issued and to be issued under and pursuant to a Trust Indenture dated as of October 15, 1993, as amended and supplemented (the "Existing Senior Indenture"), including by a 2017-1 Supplemental Trust Indenture dated as of November 1, 2017 (the "2017-1 Supplemental Indenture") and a 2017-2 Supplemental Trust Indenture dated as of December 1, 2017 (the "2017-2 Supplemental Indenture") (the Existing Senior Indenture or the Springing Indenture (hereinafter defined), as then in effect, as amended and supplemented from time to time, including by the 2017-1 Supplemental Indenture and the 2017-2 Supplemental Indenture, is referred to herein as the "Indenture"), duly executed and delivered by the Authority to the Trustee, an executed counterpart of which is on file at the corporate trust office of the Trustee responsible for the administration of the Indenture, all equally and ratably secured by the Indenture, except as hereinafter provided. This Bond is one of a series entitled "The Pittsburgh Water and Sewer Authority, Water and Sewer System First Lien Revenue Refunding Bonds, Series C of 2017", in the aggregate principal amount of \$218,805,000 issued for the purpose of refunding certain outstanding bonds and paying the costs of issuing and insuring the 2017C Bonds. The 2017C Bonds are issued in registered form in Authorized Denominations (as defined in the 2017-2 Supplemental Indenture). The 2017C Bonds are multi-modal bonds subject to the provisions set forth in the 2017-2 Supplemental Indenture.

The Authority has approved proposed amendments to and the restatement of the Existing Senior Indenture substantially in the form of the Springing Indenture (as defined in the 2017-2 Supplemental Indenture). The Springing Indenture will go into effect immediately upon issuance and delivery of the 2017C Bonds, on December 28, 2017 (the "First Effective Date"), because as of the First Effective Date, the Authority shall have received the consent of registered Owners of not less than 66-2/3% of the Bonds (as defined in the Indenture) then Outstanding and certain third parties (such effective date is defined in the Springing Indenture as the "First Effective Date"). On the First Effective Date, the Springing Indenture shall amend, restate and replace the Existing Senior Indenture. **THE PURCHASERS OF THE 2017C BONDS ARE HEREBY DEEMED, BY VIRTUE OF THEIR PURCHASE OF THE 2017C BONDS, TO**

HAVE CONSENTED TO THE SPRINGING INDENTURE ON BEHALF OF THEMSELVES AND ALL FUTURE OWNERS OF THE 2017C BONDS.

It is expressly agreed and understood that the Indenture and the obligations thereby secured, including this Bond, are corporate obligations of the Authority, and that the 2017C Bonds are payable only out of the sources set forth in the Indenture. In addition, the Indenture provides that the 2017C Bonds shall be secured by a pledge of the revenues of the Authority, after deduction of the proper expenses of the operation, maintenance and repair of the water and sewer system and reserves therefor as provided in the Indenture. The Indenture provides for the fixing and charging by the Authority of rates, rents and charges for the water and sewer service furnished by its water and sewer system at least sufficient in the aggregate to provide, together with other revenues derived by the Authority, funds for paying the cost of operating, maintaining and repairing the water and sewer system, paying the principal of and the interest on its Bonds and other obligations as such principal and interest shall become due, and establishing the reserves required by the Indenture.

Neither the credit nor the taxing power of the City of Pittsburgh (the "City") or the Commonwealth or any political subdivision thereof is pledged for the payment of the principal of, the interest on, or the premium (if any) payable upon the redemption of, this Bond; nor shall this Bond be deemed an obligation of the City or the Commonwealth or any political subdivision thereof; nor shall the City, or the Commonwealth or any political subdivision thereof be liable for the payment of the principal of, the interest on, or the premium (if any) payable upon the redemption of this Bond, and neither the Trustee or any receiver appointed to operate and maintain any of the facilities of the Authority and to collect revenues arising therefrom for the benefit of the Bondholders shall be authorized to sell, assign, mortgage or otherwise dispose of any assets of whatever kind or character belonging to the Authority. **The Authority has no taxing power.**

In case an Event of Default, as defined in the Indenture, shall occur, the principal of all the Bonds at any such time Outstanding under the Indenture may be declared to be due and payable by the Trustee or may become due and payable upon the conditions and in the manner and with the effect provided in the Indenture. The Owner of this Bond shall have no right to enforce the provisions of the Indenture or to institute action to enforce the covenants thereof or to take any action with regard to any Event of Default under the Indenture, or to institute, appear in or defend any suit or other proceeding with respect thereto, except as provided in the Indenture or by the Act (as hereinafter defined).

The 2017C Bonds are subject to optional tender and mandatory tender and are subject to optional redemption, mandatory sinking fund redemption, and extraordinary optional redemption prior to maturity all as set forth in the Indenture.

If the Authority shall have duly sent notice of redemption and shall have provided funds for the payment of the principal of the 2017C Bonds so called for redemption and interest thereon to the date of redemption, interest on such 2017C Bonds shall cease to accrue from and after said redemption date.

Certain modifications and alterations of the Indenture not adversely affecting rights of Owners of the Bonds Outstanding thereunder may be made without consent of Owners of said Bonds in the manner and upon the terms and conditions provided in the Indenture. Any other modification or alteration of the Indenture and or rights and obligations of the Authority and of Owners of the Bonds Outstanding thereunder may be made only in the manner and upon the terms and conditions provided in the Indenture. Any consent by the Owner of this Bond, when required by the Indenture (unless revoked as provided in the Indenture), shall be conclusive and binding upon such Owner and all future Owners of this Bond, irrespective of whether any notation of such consent is made upon this Bond.

The Authority and the Trustee may treat the Person in whose name this Bond is registered as the absolute Owner hereof whether or not this Bond or any installment of interest shall be overdue, for the purpose of receiving payment thereof and for all other purposes whatsoever, and shall not be affected by any notice to the contrary.

The Owner of this Bond shall have no right to enforce provisions of this Bond or the Indenture, except as provided in the Indenture.

No recourse shall be had for the payment of the principal of, or the interest or premium, if any, on, this Bond or for any claim based hereon or on the Indenture or on any indenture supplemental thereto, against any member, officer, or employee, past, present or future, of the Authority, or of any successor body, either directly or through the Authority or any such successor body, whether by virtue of any constitutional provision, statute or rule of law, or by the enforcement of any assessment or penalty, or otherwise, all such liability of such members, officers or employees being released as a condition of and as consideration for the execution of the Indenture and the issuance of this Bond.

This Bond will be transferred or exchanged for an equal aggregate principal amount of Bonds of similar term and tenor in any authorized denomination, only by presentation and surrender of this Bond to the designated office of the Trustee, together with an assignment duly executed by the Owner hereof or by this attorney-in-fact or legal representative. As a precondition to the transfer of this Bond, the Authority or the Trustee may charge the Owner hereof for any tax, fee or governmental charge required to be paid with respect to such transfer.

The Trustee shall not be required to register the transfer or exchange of any Bond (i) during a period beginning at the opening of business fifteen (15) days before the day of the mailing of notice of redemption of the 2017C Bonds and ending at the close of business on the date of such mailing, (ii) at any time following the selection of such 2017C Bonds, in whole or in part, for redemption, or (iii) during the period commencing on a Record Date and ending on the corresponding Interest Payment Date.

It is hereby certified, recited and declared that all acts, conditions and things required by the Constitution and laws of the Commonwealth to exist, to have happened or be performed precedent to and in the issuance of this Bond and the execution and delivery of the Indenture exist, have happened and have been performed as so required. This Bond is issued and the Indenture was made and entered unto under and pursuant to the Pennsylvania Municipality Authorities Act, Title 53 of the Pennsylvania Consolidated Statutes Annotated, Section 5601, et

seq., as amended (the "Act"), and under and pursuant to resolutions duly adopted by the Authority.

This Bond shall not be valid or become obligatory for any purpose until this Bond shall have been authenticated by the execution by the Trustee of the Certificate of Authentication endorsed hereon. Capitalized terms used in this Bond but not defined herein shall have the meanings ascribed to them in the Indenture.



IN WITNESS WHEREOF, The Pittsburgh Water and Sewer Authority has caused this Bond to be executed in its name and on its behalf by the manual or facsimile signature of its Chair or Vice Chair, and its corporate seal or a facsimile thereof to be hereunto affixed, duly attested by the manual or facsimile signature of its Secretary or Assistant Secretary.

[SEAL]

THE PITTSBURGH WATER AND SEWER  
AUTHORITY

ATTEST:

\_\_\_\_\_  
Secretary

By: \_\_\_\_\_  
Chair

CERTIFICATE OF AUTHENTICATION

This Bond is one of the Water and Sewer System First Lien Revenue Refunding Bonds, Series C of 2017 (the "Bonds") described in the within-mentioned Indenture. Attached hereto is the complete text of the opinion of McNees Wallace & Nurick LLC, dated the date of delivery of and payment for the Bonds, a signed original of which is on file with the Trustee.

**THE BANK OF NEW YORK MELLON TRUST  
COMPANY, N.A., as Trustee**

DATED: \_\_\_\_\_

By: \_\_\_\_\_

ASSIGNMENT

FOR VALUE RECEIVED the undersigned hereby sells, assigns and transfers unto

Please insert Social Security or other identifying  
number of assignee

Please print or typewrite name and address  
including postal zip code of transferee

the within Bond and all rights thereunder, and hereby irrevocably constitutes and  
appoints

\_\_\_\_\_ Agent to transfer the within Bond on the books kept for registration thereof, with  
full power of substitution in the premises.

Dated

Signature(s) Guaranteed:

\_\_\_\_\_

NOTICE: Signature(s) must be  
guaranteed by a member firm of an  
approved Signature Guaranteed  
Medallion Program.

\_\_\_\_\_

\_\_\_\_\_

NOTICE: The signature(s) to this  
assignment must correspond with  
the name(s) as written upon the  
face of the Bond, in every  
particular, without alteration or  
enlargement, or any change  
whatever.

## **STATEMENT OF INSURANCE**

Assured Guaranty Municipal Corp. (“AGM”), New York, New York, has delivered its municipal bond insurance policy (the “Policy”) with respect to the scheduled payments due of principal of and interest on this Bond to The Bank of New York Mellon Trust Company, N.A., or its successor, as paying agent for the Bonds (the "Paying Agent"). Said Policy is on file and available for inspection at the principal office of the Paying Agent and a copy thereof may be obtained from AGM or the Paying Agent. All payments required to be made under the Policy shall be made in accordance with the provisions thereof. The owner of this Bond acknowledges and consents to the subrogation rights of AGM as more fully set forth in the Policy.

## EXHIBIT F

### 2020B BOND INSURANCE POLICY PROVISIONS

The provisions set forth in this Exhibit F shall, with respect to the 2020B Bonds insured by Assured Guaranty Municipal Corp., or any successor thereto or assignee thereof, apply to such Bonds notwithstanding any other provision of the Indenture to the contrary.

- (a) "Bond Insurance Policy" shall mean the insurance policy issued by the Insurer guaranteeing the scheduled payment of principal of and interest on the Insured Bonds when due. "Insured Bonds" shall mean the 2020B Bonds insured by the Insurer. "Insurer" shall mean, with respect to the Insured Bonds, Assured Guaranty Municipal Corp., a New York stock insurance company, or any successor thereto or assignee thereof; "Related Document" shall have the meaning set forth in paragraph (h) below.
- (b) The prior written consent of the Insurer shall be a condition precedent to the deposit of any credit instrument provided in lieu of a cash deposit into the Debt Service Reserve Fund, if any, except for a credit instrument provided by the Insurer. Amounts on deposit in the Debt Service Reserve Fund shall be applied solely to the payment of debt service due on the Bonds secured by the Debt Service Reserve Fund.
- (c) The Insurer shall be deemed to be the sole holder of the Insured Bonds for the purpose of exercising any voting right or privilege or giving any consent or direction or taking any other action that the holders of the Insured Bonds are entitled to take pursuant to the Indenture pertaining to (i) defaults and remedies and (ii) the duties and obligations of the Trustee. In furtherance thereof and as a term of the Indenture and each Insured Bond, each Insured Bondholder appoints the Insurer as their agent and attorney-in-fact and agrees that the Insurer may at any time during the continuation of any proceeding by or against the Authority under the United States Bankruptcy Code or any other applicable bankruptcy, insolvency, receivership, rehabilitation or similar law (an "Insolvency Proceeding") direct all matters relating to such Insolvency Proceeding (to the extent of their voting rights with respect to the Insured Bonds), including without limitation, (A) all matters relating to any claim or enforcement proceeding in connection with an Insolvency Proceeding (a "Claim"), (B) the direction of any appeal of any order relating to any Claim, (C) the posting of any surety, supersedeas or performance bond pending any such appeal, and (D) the right to vote to accept or reject any plan of adjustment. In addition, each Insured Bondholder delegates and assigns to the Insurer, to the fullest extent permitted by law, the rights of each Insured Bondholder in the conduct of any Insolvency Proceeding, including, without limitation, all rights of any party to an adversary proceeding or action with respect to any court order issued in connection with any such Insolvency Proceeding. The Trustee acknowledges such appointment, delegation and assignment by each Insured Bondholder for the Insurer's benefit, and agrees to cooperate with the Insurer in taking any action reasonably necessary or appropriate in connection with such appointment, delegation and assignment. Remedies granted in Section 8.04 of the Indenture include mandamus.
- (d) Acceleration of the Bonds is permitted under the Indenture. As set forth in paragraph (c) above, the Insurer is deemed to be the sole holder of the Insured Bonds for purposes of

voting on acceleration. In the event the maturity of the Insured Bonds is accelerated, the Insurer shall not be obligated to pay any accelerated amount but may elect, in its sole discretion, to pay accelerated principal and interest accrued, on such principal to the date of acceleration (to the extent unpaid by the Authority) and the Trustee shall be required to accept such amounts. Upon payment of such accelerated principal and interest accrued to the acceleration date as provided above, the Insurer's obligations under the Bond Insurance Policy with respect to such Insured Bonds shall be fully discharged.

- (e) No grace period for a covenant default shall exceed sixty (60) days or be extended for more than sixty (60) days, without the prior written consent of the Insurer. No grace period shall be permitted for payment defaults.
- (f) The Insurer is a third party beneficiary to the Indenture.
- (g) Upon the occurrence of an extraordinary optional, special or extraordinary mandatory redemption in part, the selection of Insured Bonds to be redeemed shall be subject to the approval of the Insurer. The exercise of any provision of the Indenture which permits the purchase of Insured Bonds in lieu of redemption shall require the prior written approval of the Insurer if any Insured Bond so purchased is not cancelled upon purchase.
- (h) Any amendment, supplement, modification to, or waiver of, the Indenture or any other transaction document, including any underlying security agreement (each a "Related Document"), that requires the consent of Bondowners or adversely affects the rights and interests of the Insurer shall be subject to the prior written consent of the Insurer.
- (i) The rights granted to the Insurer under the Indenture or any other Related Document to request, consent to or direct any action are rights granted to the Insurer in consideration of its issuance of the Bond Insurance Policy. Any exercise by the Insurer of such rights is merely an exercise of the Insurer's contractual rights and shall not be construed or deemed to be taken for the benefit, or on behalf, of the holders of the Insured Bonds, and such action does not evidence any position of the Insurer, affirmative or negative, as to whether the consent of the owners of the Insured Bonds or any other person is required in addition to the consent of the Insurer.
- (j) Only (1) cash, (2) non-callable direct obligations of the United States of America ("Treasuries"), (3) evidences of ownership of proportionate interests in future interest and principal payments on Treasuries held by a bank or trust company as custodian, under which the owner of the investment is the real party in interest and has the right to proceed directly and individually against the obligor and the underlying Treasuries are not available to any person claiming through the custodian or to whom the custodian may be obligated, (4) subject to the prior written consent of the Insurer, pre-refunded municipal obligations rated "AAA" and "Aaa" by S&P and Moody's, respectively, or (5) subject to the prior written consent of the Insurer, securities eligible for "AAA" defeasance under then existing criteria of S&P or any combination thereof, shall be used to effect defeasance of the Insured Bonds unless the Insurer otherwise approves.

To accomplish defeasance, the Authority shall cause to be delivered to the Insurer (i) a report of an independent firm of nationally recognized certified public accountants or such other accountant or financial firm as shall be acceptable to the Insurer ("Accountant") verifying the sufficiency of the escrow established to pay the Insured Bonds in full on the maturity or redemption date ("Verification"), (ii) an Escrow Deposit Agreement (which shall be acceptable in form and substance to the Insurer), (iii) an opinion of nationally recognized bond counsel to the effect that the Insured Bonds are no longer "Outstanding" under the Indenture and (iv) a certificate of discharge of the Trustee with respect to the Insured Bonds; each Verification and defeasance opinion shall be acceptable in form and substance, and addressed, to the Authority, Trustee and Insurer. The Insurer shall be provided with final drafts of the above-referenced documentation not less than five business days prior to the funding of the escrow.

Insured Bonds shall be deemed "Outstanding" under the Indenture unless and until they are in fact paid and retired or the above criteria are met.

- (k) Amounts paid by the Insurer under the Bond Insurance Policy shall not be deemed paid for purposes of the Indenture and the Insured Bonds relating to such payments shall remain Outstanding and continue to be due and owing until paid by the Authority in accordance with the Indenture. The Indenture shall not be discharged unless all amounts due or to become due to the Insurer have been paid in full or duly provided for.
- (l) The Authority covenants and agrees to take such action (including, as applicable, filing of UCC financing statements and continuations thereof) as is necessary from time to time to preserve the priority of the pledge of the Trust Estate under applicable law.
- (m) Claims Upon the Bond Insurance Policy and Payments by and to the Insurer.

If, on the third Business Day prior to the related scheduled interest payment date or principal payment date ("Payment Date") there is not on deposit with the Trustee, after making all transfers and deposits required under the Indenture, moneys sufficient to pay the principal of and interest on the Insured Bonds due on such Payment Date, the Trustee shall give notice to the Insurer and to its designated agent (if any) (the "Insurer's Fiscal Agent") by telephone or telecopy of the amount of such deficiency by 12:00 noon, New York City time, on such Business Day. If, on the second Business Day prior to the related Payment Date, there continues to be a deficiency in the amount available to pay the principal of and interest on the Insured Bonds due on such Payment Date, the Trustee shall make a claim under the Bond Insurance Policy and give notice to the Insurer and the Insurer's Fiscal Agent (if any) by telephone of the amount of such deficiency, and the allocation of such deficiency between the amount required to pay interest on the Bonds and the amount required to pay principal of the Insured Bonds, confirmed in writing to the Insurer and the Insurer's Fiscal Agent by 12:00 noon, New York City time, on such second Business Day by filing in the form of Notice of Claim and Certificate delivered with the Bond Insurance Policy.

The Trustee shall designate any portion of payment of principal on Insured Bonds paid by

the Insurer, whether by virtue of mandatory sinking fund redemption, maturity or other advancement of maturity, on its books as a reduction in the principal amount of Insured Bonds registered to the then current Insured Bondholder, whether DTC or its nominee or otherwise, and shall issue a replacement Insured Bond to the Insurer, registered in the name of Assured Guaranty Municipal Corp., as the case may be, in a principal amount equal to the amount of principal so paid (without regard to authorized denominations); provided that the Trustee's failure to so designate any payment or issue any replacement Insured Bond shall have no effect on the amount of principal or interest payable by the Authority on any Insured Bond or the subrogation rights of the Insurer.

The Trustee shall keep a complete and accurate record of all funds deposited by the Insurer into the Policy Payments Account (defined below) and the allocation of such funds to payment of interest on and principal of any Insured Bond. The Insurer shall have the right to inspect such records at reasonable times upon reasonable notice to the Trustee.

Upon payment of a claim under the Bond Insurance Policy, the Trustee shall establish a separate special purpose trust account for the benefit of Insured Bondholders referred to herein as the "Policy Payments Account" and over which the Trustee shall have exclusive control and sole right of withdrawal. The Trustee shall receive any amount paid under the Bond Insurance Policy in trust on behalf of Insured Bondholders and shall deposit any such amount in the Policy Payments Account and distribute such amount only for purposes of making the payments for which a claim was made. Such amounts shall be disbursed by the Trustee to Insured Bondholders in the same manner as principal and interest payments are to be made with respect to the Insured Bonds under the sections hereof regarding payment of Insured Bonds. It shall not be necessary for such payments to be made by checks or wire transfers separate from the check or wire transfer used to pay debt service with other funds available to make such payments. Notwithstanding anything herein to the contrary, the Authority agrees to pay to the Insurer (i) a sum equal to the total of all amounts paid by the Insurer under the Bond Insurance Policy (the "Insurer Advances"); and (ii) interest on such Insurer Advances from the date paid by the Insurer until payment thereof in full, payable to the Insurer at the Late Payment Rate per annum (collectively, the "Insurer Reimbursement Amounts"). "Late Payment Rate" means the lesser of (a) the greater of (i) the per annum rate of interest, publicly announced from time to time by JPMorgan Chase Bank at its principal office in The City of New York, as its prime or base lending rate (any change in such rate of interest to be effective on the date such change is announced by JPMorgan Chase Bank) plus 3%, and (ii) the then applicable highest rate of interest on the Insured Bonds and (b) the maximum rate permissible under applicable usury or similar laws limiting interest rates. The Late Payment Rate shall be computed on the basis of the actual number of days elapsed over a year of 360 days. The Authority hereby covenants and agrees that the Insurer Reimbursement Amounts are secured by a lien on and pledge of the Trust Estate and payable from such Trust Estate on a parity with debt service due on the Insured Bonds.

Funds held in the Policy Payments Account shall not be invested by the Trustee and may not be applied to satisfy any costs, expenses or liabilities of the Trustee. Any funds



remaining in the Policy Payments Account following an Insured Bond payment date shall promptly be remitted to the Insurer.

- (n) The Insurer shall, to the extent it makes any payment of principal of or interest on the Insured Bonds, become subrogated to the rights of the recipients of such payments in accordance with the terms of the Bond Insurance Policy (which subrogation rights shall also include the rights of any such recipients in connection with any Insolvency Proceeding). Each obligation of the Authority to the Insurer under the Related Documents shall survive discharge or termination of such Related Documents.
- (o) The Authority shall pay or reimburse the Insurer any and all charges, fees, costs and expenses that the Insurer may reasonably pay or incur in connection with (i) the administration, enforcement, defense or preservation of any rights or security in any Related Document; (ii) the pursuit of any remedies under the Indenture or any other Related Document or otherwise afforded by law or equity, (iii) any amendment, waiver or other action with respect to, or related to, the Indenture or any other Related Document whether or not executed or completed, or (iv) any litigation or other dispute in connection with the Indenture or any other Related Document or the transactions contemplated thereby, other than costs resulting from the failure of the Insurer to honor its obligations under the Bond Insurance Policy. The Insurer reserves the right to charge a reasonable fee as a condition to executing any amendment, waiver or consent proposed in respect of the Indenture or any other Related Document.
- (p) After payment of reasonable expenses of the Trustee, the application of funds realized upon default shall be applied to the payment of expenses of the Authority only after the payment of past due and current debt service on the Insured Bonds and amounts required to restore the Debt Service Reserve Fund to the Reserve Requirement.
- (q) The Insurer shall be entitled to pay principal or interest on the Insured Bonds that shall become Due for Payment but shall be unpaid by reason of Nonpayment by the Authority (as such terms are defined in the Bond Insurance Policy) and any amounts due on the Insured Bonds as a result of acceleration of the maturity thereof in accordance with the Indenture, whether or not the Insurer has received a Notice of Nonpayment (as such terms are defined in the Bond Insurance Policy) or a claim upon the Bond Insurance Policy.
- (r) The notice address of the Insurer is: Assured Guaranty Municipal Corp., 1633 Broadway, New York, New York 10019, Attention: Managing Director – Surveillance, Re: Policy No. 218606-N, Telephone: (212) 974-0100; Telecopier: (212) 339-3556. In each case in which notice or other communication refers to an Event of Default, then a copy of such notice or other communication shall also be sent to the attention of the Deputy General Counsel – Public Finance and shall be marked to indicate "URGENT MATERIAL ENCLOSED."
- (s) The Insurer shall be provided with the following information by the Authority or Trustee, as the case may be:

- (i) Annual audited financial statements within 180 days after the end of the Authority's fiscal year (together with a certification of the Authority that it is not aware of any default or Event of Default under the Indenture), and the Authority's annual budget within 30 days after the approval thereof together with such other information, data or reports as the Insurer shall reasonably request from time to time;
- (ii) Notice of any draw upon the Debt Service Reserve Fund within two Business Days after knowledge thereof other than (i) withdrawals of amounts in excess of the Debt Service Reserve Requirement and (ii) withdrawals in connection with a refunding of Insured Bonds;
- (iii) Notice of any default under the Indenture known to the Trustee or Authority within five Business Days after knowledge thereof;
- (iv) Prior notice of the advance refunding or redemption of any of the Insured Bonds, including the principal amount, maturities and CUSIP numbers thereof;
- (v) Notice of the resignation or removal of the Trustee and bond registrar and the appointment of, and acceptance of duties by, any successor thereto;
- (vi) Notice of the commencement of any proceeding by or against the Authority commenced under the United States Bankruptcy Code or any other applicable bankruptcy, insolvency, receivership, rehabilitation or similar law (an "Insolvency Proceeding");
- (vii) Notice of the making of any claim in connection with any Insolvency Proceeding seeking the avoidance as a preferential transfer of any payment of principal of, or interest on, the Insured Bonds;
- (viii) A full original transcript of all proceedings relating to the execution of any amendment, supplement, or waiver to the Related Documents;
- (ix) All reports, notices and correspondence to be delivered to holders of Insured Bonds under the terms of the Related Documents; and
- (x) To the extent that the Authority has entered into a continuing disclosure agreement, covenant or undertaking with respect to the Bonds, all information furnished pursuant to such agreements shall also be provided to the Insurer, simultaneously with the furnishing of such information.

- (t) The Insurer shall have the right to receive such additional information as it may reasonably request.
- (u) The Authority will permit the Insurer to discuss the affairs, finances and accounts of the Authority or any information the Insurer may reasonably request regarding the security for the Bonds with appropriate officers of the Authority and will use commercially reasonable efforts to enable the Insurer to have access to the facilities, books and records of the Authority on any business day upon reasonable prior notice.
- (v) The Trustee shall notify the Insurer of any failure of the Authority to provide notices, certificates and other information under the transaction documents.
- (w) Notwithstanding satisfaction of the other conditions to the issuance of Additional Bonds set forth in the Indenture, no such issuance may occur (1) if an Event of Default (or any event which, once all notice or grace periods have passed, would constitute an Event of Default) exists unless such default shall be cured upon such issuance and (2) unless the Debt Service Reserve Fund is fully funded at the Debt Service Reserve Requirement (including the proposed issue) upon the issuance of such Additional Bonds, in either case unless otherwise permitted by the Insurer.
- (x) In determining whether any amendment, consent, waiver or other action to be taken, or any failure to take action, under the Indenture would adversely affect the security for the Insured Bonds or the rights of the holders of Insured Bonds, the Trustee shall consider the effect of any such amendment, consent, waiver, action or inaction as if there were no Bond Insurance Policy.
- (y) No contract shall be entered into or any action taken by which the rights of the Insurer or security for or sources of payment of the Bonds may be impaired or prejudiced in any material respect except upon obtaining the prior written consent of the Insurer.
- (z) If the Bonds are issued for refunding purposes, there shall be delivered an opinion of Bond Counsel addressed to the Insurer (or a reliance letter relating thereto), or a certificate of discharge of the trustee for the Refunded Bonds, to the effect that, upon the making of the required deposit to the escrow, the legal defeasance of the Refunded Bonds shall have occurred. If the Refunded Bonds are insured by Assured Guaranty Municipal Corp., at least three business days prior to the proposed date for delivery of the Policy with respect to the Refunding Bonds, the Insurer shall also receive (i) the verification letter, of which the Insurer shall be an addressee, by an independent firm of certified public accountants or other financial firm which is either nationally recognized or otherwise acceptable to the Insurer, of the adequacy of the escrow established to provide for the payment of the Refunded Bonds in accordance with the terms and provisions of the Escrow Deposit Agreement, and (ii) the form of an opinion of Bond Counsel addressed to the Insurer (or a reliance letter relating thereto) to the effect that the Escrow Deposit Agreement is a valid and binding obligation of the parties thereto, enforceable in accordance with its terms (such Escrow Deposit Agreement shall provide that no amendments are permitted without the prior written consent of the Insurer). An executed

copy of each of such opinion and reliance letter, if applicable, or Trustee's discharge certificate, as the case may be, shall be forwarded to the Insurer prior to delivery of the Bonds.

- (aa) Any interest rate exchange agreement ("Swap Agreement") entered into by the Authority shall meet the following conditions: (i) the Swap Agreement must be entered into to manage interest costs related to, or a hedge against (a) assets then held, or (b) debt then outstanding, or (iii) debt reasonably expected to be issued within the next twelve (12) months, and (ii) the Swap Agreement shall not contain any leverage element or multiplier component greater than 1.0x unless there is a matching hedge arrangement which effectively off-sets the exposure from any such element or component. Unless otherwise consented to in writing by the Insurer, any uninsured net settlement, breakage or other termination amount then in effect shall be subordinate to debt service on the Bonds and on any debt on parity with the Bonds. The Authority shall not terminate a Swap Agreement unless it demonstrates to the satisfaction of the Insurer prior to the payment of any such termination amount that such payment will not cause the Authority to be in default under the Related Documents, including but not limited to, any monetary obligations thereunder.

THE PITTSBURGH WATER AND SEWER AUTHORITY

To

THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A.,  
As Trustee

2022-1 SUPPLEMENTAL TRUST INDENTURE  
DATED AS OF NOVEMBER 1, 2022

Relating to the Issuance of

\$44,550,000

The Pittsburgh Water and Sewer Authority  
Water and Sewer System First Lien Revenue Bonds, Series A of 2022

This 2022-1 SUPPLEMENTAL TRUST INDENTURE (the "2022-1 Supplemental Indenture") is dated as of November 1, 2022 by and between THE PITTSBURGH WATER AND SEWER AUTHORITY (the "Authority") and THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., as trustee (the "Trustee").

**WITNESSETH:**

**WHEREAS**, the Authority is a public body, politic and corporate, exercising public powers of the Commonwealth of Pennsylvania (the "Commonwealth") as an agency thereof, duly organized and validly existing under the provisions of the Pennsylvania Municipality Authorities Act of the Commonwealth, Title 53 of the Pennsylvania Consolidated Statutes Annotated, Section 5601, et seq., as amended (the "Act"); and

**WHEREAS**, the Authority's senior lien debt has been issued under an Amended and Restated Trust Indenture originally dated as of October 15, 1993, amended and restated as of November 1, 2017 and effective as of December 28, 2017 (the "Original Senior Indenture"), as amended and supplemented by the 2017-1 Supplemental Trust Indenture dated as of November 1, 2017 (the "2017-1 Supplemental Indenture"), the 2017-2 Supplemental Trust Indenture dated as of December 1, 2017 (the "2017-2 Supplemental Indenture"), the 2019-1 Supplemental Trust Indenture dated as of July 1, 2019 (the "2019-1 Supplemental Indenture") and the Supplemental Trust Indenture dated as of December 1, 2020 (the "2020-1 Supplemental Indenture") (the Original Senior Indenture as amended and supplemented by the 2017-1 Supplemental Indenture, the 2017-2 Supplemental Indenture, the 2019-1 Supplemental Indenture and the 2020-1 Supplemental Indenture is referred to herein as the "Existing Senior Indenture"), as such Existing Senior Indenture is further amended and supplemented by this 2022-1 Supplemental Indenture (the Existing Senior Indenture as amended and supplemented by this 2022-1 Supplemental Indenture, and as amended and supplemented from time to time, is referred to herein as the "Indenture"); and

**WHEREAS**, Section 3.02 of the Original Senior Indenture empowers the Trustee and the Authority to enter into a Supplemental Indenture in connection with the issuance of additional bonds under the Indenture; and

**WHEREAS**, the Authority currently has senior debt outstanding under the Current Senior Indenture in the outstanding principal amount of \$716,833,864; and

**WHEREAS**, the Authority desires to issue new, fixed rate Water and Sewer System First Lien Revenue Bonds, Series A of 2022 (the "2022 Bonds") in the principal amount of \$44,550,000, the proceeds of which will (i) pay down a portion of the outstanding principal amount under a capital line of credit revenue note Series of 2022 in favor of PNC Bank, N.A. (the "2022 PNC Note") and (ii) pay the costs of issuance of and insuring a portion of the 2022 Bonds (such project is the "PNC Paydown Project"), thereby providing long-term financing for the Authority's capital projects; and the proceeds of the 2022 PNC Note were expended on capital improvements to the Authority's water, sewer and stormwater facilities including the water treatment plant, water pumping and storage facilities, water distribution facilities, and wastewater and stormwater facilities having useful lives in excess of forty years; and

**WHEREAS**, the 2022 Bonds are being issued under and secured by the terms of the

Existing Senior Indenture as supplemented by this 2022-1 Supplemental Indenture; and

**WHEREAS**, the definitive form of the 2022 Bonds, including the certificate of authentication thereon, will be substantially in the form attached hereto and incorporated herein as Exhibit A, with such necessary or appropriate insertions, omissions and variations as may be required or permitted by the Indenture; and

**WHEREAS**, the execution and delivery of this 2022-1 Supplemental Indenture has been duly authorized by a resolution adopted on August 26, 2022 (the “Resolution”) by the Board of the Authority, and all things necessary to make the 2022 Bonds, when executed by the Authority, authenticated by the Trustee and issued by the Authority, the valid, binding and legal obligations of the Authority, and to constitute the Indenture a valid, binding and legal pledge of the security, as therein provided, have been duly done and performed; and

**WHEREAS**, the scheduled payment of principal of and interest on the 2022 Bonds stated to mature on September 1 of the years 2033 to 2038 and 2047 (the “2022 Insured Bonds”), when due, will be guaranteed under an insurance policy to be issued concurrently with the delivery of the 2022 Bonds by Assured Guaranty Municipal Corp.;

**NOW, THEREFORE**, the parties hereto, intending to be legally bound, hereby agree as follows:

## **ARTICLE I DEFINITIONS**

SECTION 1.01 Definitions. The terms previously defined in the recitals hereto and in the Existing Senior Indenture shall, for all purposes of the Indenture, have the meanings therein specified, unless the context clearly otherwise requires. In addition, the following terms shall have the following meanings herein, unless the context clearly otherwise requires:

### Bond Insurer

The term "Bond Insurer" or "Insurer" shall mean, with respect to the 2022 Insured Bonds, Assured Guaranty Municipal Corp., a stock insurance company incorporated under the laws of the State of New York, or any successor thereto.

### DTC Representation Letter

The term "DTC Representation Letter" shall mean the Letter of Representation from the Authority to Depository Trust Company dated July 19, 1995.

### Interest Payment Date

The term "Interest Payment Date" for the 2022 Bonds shall mean each March 1 and September 1, commencing March 1, 2023.

### Official Statement

The term "Official Statement" means the Official Statement for the 2022 Bonds dated October 26, 2022.

### Rating Agency

The term "Rating Agency" shall mean Standard & Poor's when the 2022 Bonds are rated by Standard and Poor's and Moody's when the 2022 Bonds are rated by Moody's.

### Tax Regulatory Certificate

The term "Tax Regulatory Certificate" shall mean the Tax Certificate of the Authority dated November 17, 2022 related to the 2022 Bonds.

### 2022 Bond Insurance Policy

The term "2022 Bond Insurance Policy" shall mean the financial guaranty insurance policy or policies issued by the Bond Insurer insuring the scheduled payment when due of the principal of and interest on the 2022 Insured Bonds as provided therein.



## ARTICLE II CONCERNING 2022 BONDS

SECTION 2.01 The 2022. There is hereby created a new series of Bonds to be issued under and secured by the Indenture, on a parity with the other first lien Bonds of the Authority, issued or to be issued pursuant to Section 3.02 of the Existing Senior Indenture, and Other Senior Parity Indebtedness, to be designated "The Pittsburgh Water and Sewer Authority, Water and Sewer System First Lien Revenue Bonds, Series A of 2022," in the aggregate principal amount of \$44,550,000. The 2022 Bonds shall be issued for the purpose of providing funds for (i) the payment of the costs of the PNC Paydown Project and (ii) paying the costs of issuance of and insuring a portion of the 2022 Bonds. The 2022 Bonds shall be substantially in the form attached hereto as Exhibit A, with such necessary or appropriate insertions, omissions and variations as may be required or permitted by the Indenture. The 2022 Bonds shall be executed in the form and manner herein specified and delivered to the Trustee for authentication and the Trustee shall authenticate and deliver the principal amount of 2022 Bonds, but only upon receipt by the Trustee of the Resolution, this 2022-1 Supplemental Indenture and certificates, opinions and all other materials and documents as provided in Section 3.02 of the Existing Senior Indenture. The 2022 Bonds as issued hereunder will be subject to the provisions of the Existing Senior Indenture and this 2022-1 Supplemental Indenture.

SECTION 2.02 Maturities and Interest Rates. The 2022 Bonds shall be issuable only as fully registered bonds in denominations of \$5,000 or any integral multiple thereof. The 2022 Bonds shall be numbered and shall bear such prefixes as may be satisfactory to the Authority and the Trustee. The 2022 Bonds shall bear interest on the unpaid principal thereof at the annual rates set forth below, computed on the basis of a 360-day year consisting of twelve 30-day months, payable semiannually on March 1 and September 1 of each year, commencing March 1, 2023, until the principal thereof shall have been paid or provided for. The 2022 Bonds shall mature on the following dates and in the following principal amounts and bear interest at the following rates:

| <u>Maturity Date</u><br><u>(September 1)</u> | <u>2022 Bonds</u> |                      |
|--|-------------------|----------------------|
|  | <u>Principal</u>  | <u>Interest Rate</u> |
| 2025   | \$750,000         | 5.00%                |
| 2026   | 790,000           | 5.00                 |
| 2027   | 830,000           | 5.00                 |
| 2028   | 870,000           | 5.00                 |
| 2029   | 915,000           | 5.00                 |
| 2030   | 960,000           | 5.00                 |
| 2031   | 1,005,000         | 5.00                 |
| 2032   | 1,060,000         | 5.00                 |
| 2033   | 1,110,000         | 5.00                 |
| 2034   | 1,165,000         | 5.00                 |
| 2035   | 1,225,000         | 5.00                 |
| 2036   | 1,285,000         | 5.00                 |

|      |            |      |
|------|------------|------|
| 2037 | 1,350,000  | 5.00 |
| 2038 | 1,420,000  | 5.00 |
| 2039 | 1,490,000  | 5.25 |
| 2040 | 1,565,000  | 5.25 |
| 2041 | 1,650,000  | 5.25 |
| 2042 | 1,735,000  | 5.25 |
| 2047 | 10,190,000 | 5.50 |
| 2052 | 13,185,000 | 5.00 |

Each 2022 Bond shall bear interest from the immediately preceding Interest Payment Date to which interest has been paid, (a) unless the date of authentication is after the Record Date and on or before the succeeding Interest Payment Date in which case such 2022 Bond shall bear interest from such succeeding Interest Payment Date or (b) unless the date of authentication is on or prior to March 1, 2023 and if no interest has been paid on such 2022 Bond, such 2022 Bond shall bear interest from November 17, 2022.

The debt service schedule for the 2022 Bonds is set forth in Exhibit B hereto.

SECTION 2.03 Redemption Provisions.

Optional Redemption.

The 2022 Bonds maturing on or after September 1, 2033 are subject to redemption prior to maturity, at the option of the Authority, as a whole or in part, at any time, in the order of maturity selected by the Authority and by lot within a maturity on or after September 1, 2032. Any such redemption will be made at a redemption price equal to 100% of the principal amount thereof plus accrued interest to the redemption date.

Mandatory Sinking Fund Redemption.

The 2022 Bonds are subject to mandatory sinking fund redemption prior to maturity as follows:

2022 Bonds Stated to Mature on September 1, 2047:

| <u>Redemption Date</u> | <u>Amounts</u> |
|------------------------|----------------|
| September 1, 2043      | \$1,825,000    |
| September 1, 2044      | \$1,925,000    |
| September 1, 2045      | \$2,035,000    |
| September 1, 2046      | \$2,145,000    |
| September 1, 2047*     | \$2,260,000    |

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\* Final maturity

2022 Bonds Stated to Mature on September 1, 2052:

| <u>Redemption Date</u> | <u>Amounts</u> |
|------------------------|----------------|
| September 1, 2048      | \$2,385,000    |
| September 1, 2049      | \$2,505,000    |
| September 1, 2050      | \$2,630,000    |
| September 1, 2051      | \$2,765,000    |
| September 1, 2052*     | \$2,900,000    |

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\* Final maturity

Extraordinary Optional Redemption. The 2022 Bonds are subject to extraordinary redemption prior to maturity at the option of the Authority, in whole or in part, at any time, in the event of condemnation, damage or destruction of the Water and Sewer System, from moneys deposited with or held by the Trustee for such purpose, upon payment of 100% of the principal amount thereof being redeemed, plus interest accrued to the date fixed for redemption for the 2022 Bonds.

SECTION 2.04 Notice of Redemption. When required to redeem 2022 Bonds under any provision of this 2022-1 Supplemental Indenture, other than Mandatory Sinking Fund Redemption under Section 2.03, or when directed to do so by the Authority pursuant to the provisions of this 2022-1 Supplemental Indenture, the Trustee shall cause notice of the redemption to be given not less than 30 days prior to the redemption date, by mailing copies of such notice of redemption by first class mail, postage prepaid, to all Holders of 2022 Bonds to be redeemed at their registered addresses, but failure to mail any such notice or defect in the mailing thereof in respect of any 2022 Bond shall not affect the validity of the redemption of any other 2022 Bond with respect to which notice was properly given. Each such notice shall be dated and shall be given in the name of the Authority and shall state the following information:

(a) the identification numbers, as established under this 2022-1 Supplemental Indenture, and the CUSIP numbers, if any, of the 2022 Bonds being redeemed, provided that any such notice shall state that no representation is made as to the correctness of CUSIP numbers either as printed on such 2022 Bonds or as contained in the notice of redemption and that reliance may be placed only on the identification numbers contained in the notice or printed on such 2022 Bonds;

(b) any descriptive information needed to identify accurately the 2022 Bonds being redeemed;

(c) in the case of partial redemption of 2022 Bonds, the respective principal amounts thereof to be redeemed;

(d) the redemption date;

(e) the redemption price;

(f) that on the redemption date the redemption price will become due and payable upon each such 2022 Bond or portion thereof called for redemption, and that interest thereon shall cease to accrue from and after said date; and

(g) the place where such 2022 Bonds are to be surrendered for payment of the redemption price.

In addition, the Trustee shall at all reasonable times upon prior written request and at the expense of the requesting party make available to the Authority complete information as to 2022 Bonds and the Bond Insurer complete information as to 2022 Bonds which have been redeemed or called for redemption.

If at the time of mailing of notice of any optional redemption there shall not have been deposited monies in the Redemption Fund available for payment pursuant to Section 6.09 of the Original Senior Indenture sufficient to redeem all the 2022 Bonds called for redemption, such notice shall state that it is conditional in that it is subject to the deposit of the redemption monies in the Redemption Fund available for payment on the redemption date, in which case such notice shall be of no effect unless monies are so deposited.

**SECTION 2.05 Book-Entry Only Bonds.** The 2022 Bonds shall be initially issued in book-entry only form. In the event that any provision of this Section 2.05 is inconsistent with other provisions of this 2022-1 Supplemental Indenture, so long as the 2022 Bonds shall be in book-entry only form, the provisions of this Section 2.05 shall govern. The Depository Trust Company ("DTC") will act as securities depository for the 2022 Bonds. The ownership of one fully registered Bond for each maturity of the 2022 Bonds set forth in this 2022-1 Supplemental Indenture, each in the aggregate Principal Amount of such maturity, will be registered in the name of CEDE & Co., as nominee for DTC; provided that if DTC shall request that the 2022 Bonds be registered in the name of a different nominee, the Trustee shall exchange all or any portion of the 2022 Bonds for an equal aggregate Principal Amount of 2022 Bonds registered in the name of such nominee or nominees of DTC. No person other than DTC or its nominee shall be entitled to receive from the Authority or the Trustee either a 2022 Bond or any other evidence of ownership of the 2022 Bonds, or any right to receive any payment in respect thereof unless DTC or its nominee shall transfer record ownership of all or any portion of the 2022 Bonds on the registration books maintained by the Trustee, in connection with discontinuing the book entry system or otherwise.

So long as the 2022 Bonds or any portion thereof are registered in the name of DTC or any nominee thereof, all payments of the principal or redemption price of or interest on such 2022 Bonds shall be made to DTC or its nominee in New York Clearing House or equivalent next day funds on the dates provided for such payments under the Indenture. Each such payment to DTC or its nominee shall be valid and effective to fully discharge all liability of the Authority or the Trustee with respect to the principal or redemption price of or interest on the 2022 Bonds to the extent of the sum or sums so paid. In the event of the redemption of less than all of the 2022 Bonds Outstanding, the Trustee shall not require surrender by DTC or its nominee of the 2022 Bonds so redeemed, but DTC or its nominee may retain such 2022 Bonds and make

an appropriate notation on the 2022 Bond certificate as to the amount of such partial redemption; provided that, in each case the Trustee shall request, and DTC shall deliver to the Trustee, a written confirmation of such partial redemption and thereafter the records maintained by the Trustee shall be conclusive as to the amount of the 2022 Bonds which have been redeemed.

The Authority and the Trustee may treat DTC or its nominee as the sole and exclusive Owner of the 2022 Bonds registered in its name for the purposes of payment of the principal or redemption price of or interest on the 2022 Bonds, selecting the 2022 Bonds or portions thereof to be redeemed, giving any notice permitted or required to be given to Bondholders under the Indenture, registering the transfer of 2022 Bonds, obtaining any consent or other action to be taken by Bondholders and for all other purposes whatsoever; and neither the Authority nor the Trustee shall be affected by any notice to the contrary. Neither the Authority nor the Trustee shall have any responsibility or obligation to any participant in DTC, any person claiming a beneficial ownership interest in the 2022 Bonds under or through DTC or any such participant, or any other person which is not shown on the registration books of the Trustee as being a Bondholder, with respect to either: (i) the 2022 Bonds; or (ii) the accuracy of any records maintained by DTC or any such participant; or (iii) the payment by DTC or any such participant of any amount in respect of the principal or redemption price of or interest on the 2022 Bonds; or (iv) any notice which is permitted or required to be given to Bondholders under the Indenture; or (v) the selection by DTC or any such participant of any person to receive payment in the event of a partial redemption of the 2022 Bonds; or (vi) any consent given or other action taken by DTC as Bondholder.

So long as the 2022 Bonds or any portion thereof are registered in the name of DTC or any nominee thereof, all notices required or permitted to be given to the Bondholders under the Indenture shall be given to DTC as provided in the Representation Letter between the Authority and DTC (the "DTC Representation Letter"), in such form as is acceptable to the Trustee, the Authority and DTC.

In connection with any notice or other communication to be provided to Bondholders pursuant to the Indenture by the Authority or the Trustee with respect to any consent or other action to be taken by Bondholders, DTC shall consider the date of receipt of notice requesting such consent or other action as the record date for such consent or other action, provided that the Authority or the Trustee may establish a special record date for such consent or other action. The Authority or the Trustee shall give DTC notice of such special record date not fewer than fifteen (15) calendar days in advance of such special record date to the extent possible.

The Authority and the Trustee approve the DTC Representation Letter. Any successor Trustee shall, in its written acceptance of its duties under the Indenture, agree to take any actions necessary from time to time to comply with the requirements of the DTC Representation Letter.

The book-entry system for registration of the ownership of the 2022 Bonds may be discontinued at any time if either: (i) DTC determines to resign as securities depository for the 2022 Bonds; or (ii) the Authority provides thirty (30) days' notice of such discontinuation to the Trustee and DTC that continuation of the system of book-entry transfers through DTC (or

through a successor securities depository) is not in the best interests of the Authority. Upon occurrence of either such event, the Authority may attempt to establish a securities depository book-entry relationship with another securities depository. If the Authority does not do so, or is unable to do so, and after the Authority has notified DTC and upon surrender to the Trustee of the Bonds held by DTC, the Authority will issue and the Trustee will authenticate and deliver the 2022 Bonds in registered certificate form in denominations of \$5,000 and integral multiples thereof, at the expense of the Authority, to such persons, and in such maturities and Principal Amounts, as may be designated by DTC, but without any liability on the part of the Authority or the Trustee for the accuracy of such designation. Whenever DTC requests the Authority or the Trustee to do so, the Authority or the Trustee shall cooperate with DTC in taking appropriate action after reasonable notice to arrange for another securities depository to maintain custody of certificates evidencing the 2022 Bonds. Prior to any transfer of the Bonds outside the Book-Entry Only system (including, but not limited to, the initial transfer outside the Book-Entry Only system), the transferor shall provide or cause to be provided to the Trustee all information necessary to allow the Trustee to comply with any applicable tax reporting obligations, including without limitation any cost basis reporting obligations under Internal Revenue Code Section 6045, as amended. The Trustee shall conclusively rely on the information provided to it and shall have no responsibility to verify or ensure the accuracy of such information.

SECTION 2.06 Consent to Current Senior Indenture. The Current Senior Indenture contained certain amendments and restatements in 2017 and certain amendments in 2019 and 2020. THE PURCHASERS OF THE 2022 BONDS ARE HEREBY DEEMED, BY VIRTUE OF THEIR PURCHASE OF THE 2022 BONDS, TO HAVE CONSENTED TO THE INDENTURE (INCLUDING ALL AMENDMENTS AND RESTATEMENTS INCLUDED IN THE ORIGINAL SENIOR INDENTURE AND THE SUPPLEMENTS THERETO) ON BEHALF OF THEMSELVES AND ALL FUTURE OWNERS OF THE 2022 BONDS.

**ARTICLE III  
DEPOSITS TO FUNDS AND DISBURSEMENT OF MONEYS**

SECTION 3.01 Deposit of 2022 Bond Proceeds. Upon receipt of the proceeds of the 2022 Bonds, such moneys shall be deposited to a Clearing Fund for the 2022 Bonds, which is hereby created, and shall be disbursed for the purposes and in the amounts set forth in the closing certificate of the Authority executed on the date of issuance of the 2022 Bonds. The closing certificate shall also state the amount of the proceeds of the 2022 Bonds that is to be delivered to the Trustee for application as hereinafter described.

A portion of the proceeds of the 2022 Bonds shall be applied to pay down a portion of the 2022 PNC Note.

A portion of the proceeds of the 2022 Bonds shall be applied to pay the costs of issuance of the 2022 Bonds and the cost of insuring the 2022 Insured Bonds.

Amounts remaining on deposit in the Clearing Fund on February 1, 2023, shall, without further direction from the Authority, be applied by the Trustee to pay interest on the 2022 Bonds on the next applicable Interest Payment Date.

SECTION 3.02 Revenue Fund.

A. The Authority will transfer from the Revenue Fund to the Debt Service Fund from time to time, the amounts required to pay the principal of and interest on the 2022 Bonds.

The foregoing provision relating to the Debt Service Fund is subject to the provision that there shall be credited to the Revenue Fund available moneys deposited to the Debt Service Fund or earned as interest on moneys on deposit to the credit of the Debt Service Fund, and in determining the amount required to be transferred from the Revenue Fund to the Debt Service Fund pursuant to this Section, effect shall be given to the anticipated receipt on or before the appropriate payment date of the available moneys in the Debt Service Fund.

B. On or before each Interest Payment Date and on or before each date on which 2022 Bonds are to be redeemed, the Trustee shall pay from moneys held in the Debt Service Fund (or, the Debt Service Reserve Fund in the event that there are insufficient funds in the Debt Service Fund available for that purpose), the amount of principal, interest or redemption price payable with respect to the 2022 Bonds on such Interest Payment Date or redemption date; provided, however, that the principal or redemption price shall be paid only on presentment of the 2022 Bond which is being paid, subject, however, to Section 2.05 hereof.

The Authority may deposit into the Debt Service Fund such additional funds as the Authority shall determine which shall be applied by the Trustee at the written request of the Authority to the purchase of 2022 Bonds and such moneys shall be withdrawn by the Trustee and deposited in the Redemption Fund and applied to the payment of the purchase price of such 2022 Bonds which the Authority or the Trustee may agree to purchase; provided, however, that the Authority shall not purchase and the Trustee shall not apply moneys in the Debt Service Fund to the purchase of such 2022 Bonds at a price in excess of 100% of the principal amount thereof, plus accrued interest thereon to the date of purchase. At any time that the Trustee shall

be requested to apply such moneys in the Debt Service Fund to purchase such 2022 Bonds, the Authority shall furnish to the Trustee not later than sixty (60) days prior to the next maturity date of any applicable year an Officers' Certificate specifying the 2022 Bonds which it has agreed to purchase, the purchase price thereof, the names of the sellers and the expenses involved in connection with such purchase.

SECTION 3.03 Deposit to Debt Service Reserve Fund. On the date of issuance of the 2022 Bonds there shall be on deposit to the Debt Service Reserve Fund, the existing Debt Service Reserve Insurance Policy No. 210578-R and Policy No. 219493-R (the "Reserve Policies") of Assured Guaranty Municipal Corp., which together with other funds on deposit shall enable the amount on deposit in the Common Debt Service Reserve Fund to be sufficient to meet the Common Debt Service Reserve Requirement on all Bonds Outstanding under the Indenture including the 2022 Bonds. The Authority confirms that the provisions in the Indenture and any insurance or reimbursement agreement entered into with the Bond Insurer shall remain in effect with respect to the Reserve Policies. The 2022 Bonds and all other Outstanding Bonds under the Indenture are Common Debt Service Reserve Secured Bonds (as defined in the Indenture).



**ARTICLE IV**  
**INTERNAL REVENUE CODE AND OTHER COVENANTS**

SECTION 4.01 Internal Revenue Code and Other Covenants. The Authority hereby covenants with the registered owners, from time to time, of the 2022 Bonds that no part of the proceeds of the 2022 Bonds or of any moneys on deposit with the Trustee hereunder will be used, at any time, directly or indirectly, in a manner which, if such use had been reasonably expected on the date of issuance of the 2022 Bonds, would have caused the 2022 Bonds to be arbitrage bonds within the meaning of Section 148 of the Internal Revenue Code of 1986, as amended (the "Code"), and the regulations thereunder proposed or in effect at the time of such use and applicable to the 2022 Bonds, and that it will comply with the requirements of that section and the regulations throughout the term of the 2022 Bonds. In the event the Authority is of the opinion that it is necessary to restrict or limit the yield on the investment of any moneys paid to or held by the Trustee to comply with the covenants herein set forth, the Authority shall issue to the Trustee a written certificate to such effect, with appropriate instructions, and the Trustee shall thereupon take such action in accordance with such certificate and instructions. The Authority's covenants set forth in the Tax Regulatory Certificate are hereby incorporated herein.

## ARTICLE V

### MISCELLANEOUS PROVISIONS

SECTION 5.01 Provisions Related to Bond Insurance. The provisions related to the Bond Insurance Policy are set forth in Exhibit C hereto, and such provisions are incorporated herein by reference as if fully set forth herein.

SECTION 5.02 Benefitted Parties. Nothing in this 2022-1 Supplemental Indenture, expressed or implied, is intended or shall be construed to confer upon or give any Person, other than the parties hereto, the Bond Insurer (to the extent rights are granted to the Bond Insurer in this 2022-1 Supplemental Indenture) and the registered Owners of the 2022 Bonds, any right, remedy or claim under or by reason of this 2022-1 Supplemental Indenture or any covenant, condition or stipulation hereof; and the covenants, stipulations and agreements contained in this 2022-1 Supplemental Indenture are and shall be for the sole and exclusive benefit of the parties hereto, the Bond Insurer and the registered Owners of the 2022 Bonds.

SECTION 5.03 Successors and Assigns. All the covenants and agreements by or on behalf of the Authority, or by or on behalf of the Trustee, contained in this 2022-1 Supplemental Indenture for all purposes shall bind and inure to the benefit of their respective successors and assigns, whether so expressed or not.

SECTION 5.04 Meanings of Terms and Phrases. All terms and phrases used in this 2022-1 Supplemental Indenture for all purposes hereof, shall have the meanings given to such terms and phrases in the Indenture, as supplemented hereby, unless otherwise specifically defined herein or unless the context plainly otherwise requires.

SECTION 5.05 Governing Law. The laws of the Commonwealth of Pennsylvania shall govern the construction of this 2022-1 Supplemental Indenture.

SECTION 5.06 Counterparts. This 2022-1 Supplemental Indenture may be executed in any number of counterparts, each of which when so executed and delivered shall be an original, but such counterparts shall together constitute but one and the same instrument.

SECTION 5.07 In Full Force and Effect. The Indenture, as amended and supplemented hereby, shall be and remain in full force and effect, and is hereby ratified, approved and confirmed.

IN WITNESS WHEREOF, THE PITTSBURGH WATER AND SEWER AUTHORITY has caused this 2022-1 Supplemental Indenture to be executed in its name by its Chair or Vice-Chair and attested by its Secretary or Assistant Secretary and THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., has caused this 2022-1 Supplemental Indenture to be executed in its name by one of its authorized officers, all as of the day and year first above written.

THE PITTSBURGH WATER AND SEWER AUTHORITY

DocuSigned by:  
*Alex Sculli*  
D0B70500842D443...  
By: \_\_\_\_\_  
Chair

Attest:  
DocuSigned by:  
*BJ Leber*  
E801D6F651A0402...

\_\_\_\_\_  
Secretary

THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., as Trustee

DocuSigned by:  
*Rhonda Revels*  
0D40E41048BE459...  
By: \_\_\_\_\_  
Authorized Officer

**EXHIBIT A**

FORM OF 2022 BOND

**REGISTERED  
NO. RA-**

**\$**

**United States of America  
Commonwealth of Pennsylvania**

**THE PITTSBURGH WATER AND SEWER AUTHORITY  
Water and Sewer System  
First Lien Revenue Bonds  
Series A of 2022**

|                   |                      |              |
|-------------------|----------------------|--------------|
| <b>ISSUE DATE</b> | <b>MATURITY DATE</b> | <b>CUSIP</b> |
| November 17, 2022 | September 1, _____   | _____        |

**REGISTERED OWNER:** CEDE & CO.

**PRINCIPAL AMOUNT:** \_\_\_\_\_ Dollars

**INTEREST RATE:** \_\_\_\_\_

The Pittsburgh Water and Sewer Authority (the "Authority"), a body corporate and politic duly organized and existing under the laws of the Commonwealth of Pennsylvania (the "Commonwealth"), for value received, promises to pay, solely from the receipts and revenues and other moneys hereinafter mentioned, to the Registered Owner (named above) or registered assigns, on the Maturity Date (stated above), upon surrender hereof, the Principal Amount (stated above) and to pay interest thereon from the date described herein until maturity or, if this Bond shall have been duly called for earlier redemption and payment of the redemption price shall have been made or provided for, until the date fixed for redemption hereof, at the Interest Rate (stated above) per annum, computed on the basis of a 360-day year of twelve thirty-day months, payable semi-annually on the first day of March and September of each year, commencing March 1, 2023 (each an "Interest Payment Date") or if any Interest Payment Date shall not be a Business Day, then on the next following Business Day. Should this Bond be presented for payment at maturity and payment not be made in accordance with the terms hereof, the principal sum hereof shall thereafter (without prejudice to the rights of the Owner hereof to pursue any other remedy available at law or equity) bear interest until paid at the rate of interest set forth above or at such lesser maximum rate of interest as is permitted by law.

Principal and interest will be payable in such coin or currency of the United States of America as, at the respective times of payment, shall be legal tender for the payment of public and private debts. Principal shall be payable at the designated corporate trust agency office of The Bank of New York Mellon Trust Company, N.A., as Trustee and Paying Agent (the "Trustee") in East Syracuse, New York or at the office of any successor trustee or paying agent appointed under the Indenture hereinafter mentioned. Interest is payable to the Registered Owner hereof as shown on the registration books as of the close of business on the fifteenth day

of the month (whether or not such day is a Business Day) next preceding the Interest Payment Date (the "Record Date"). Payment shall be made by check mailed on the applicable Interest Payment Date to such Owner at the address shown on the registration books, by wire transfer to an Owner of \$1,000,000 or more of aggregate principal amount of 2022 Bonds (hereinafter defined) (upon receipt by the Trustee of written notice not less than two Business Days prior to the Record Date for the applicable Interest Payment Date, such notice to contain the wire transfer address within the continental United States to which such Owner desires to have such wire transfer directed), or in any other manner as may be mutually acceptable to the Registered Owner and the Trustee.

This Bond shall initially be dated November 17, 2022, and thereafter will be dated as of the date of its authentication. This Bond shall bear interest from the most recent Interest Payment Date preceding the date of such Bond to which interest has been paid, unless the date of such Bond is after the Record Date and on or before the succeeding Interest Payment Date, in which event it shall bear interest as of such succeeding Interest Payment Date, or, if dated on or prior to March 1, 2023 in which event it shall bear interest from November 17, 2022.

This Bond is one of a duly authorized issue of bonds (the "2022 Bonds") of the Authority, which issue of bonds consists or may consist of several series of varying denominations, dates, maturities and tenors, all issued and to be issued under and pursuant to an Amended and Restated Trust Indenture originally dated as of October 15, 1993, amended and restated as of November 1, 2017 and effective as of December 28, 2017 (the "Original Senior Indenture"), as amended and supplemented by the 2017-1 Supplemental Trust Indenture dated as of November 1, 2017 (the "2017-1 Supplemental Indenture"), the 2017-2 Supplemental Trust Indenture dated as of December 1, 2017 (the "2017-2 Supplemental Indenture"), the 2019-1 Supplemental Trust Indenture dated as of July 1, 2019 (the "2019-1 Supplemental Indenture") and the 2020-1 Supplemental Trust Indenture dated as of December 1, 2020 (the "2020-1 Supplemental Indenture") (the Original Senior Indenture as amended by the 2017-1 Supplemental Indenture, the 2017-2 Supplemental Indenture, the 2019-1 Supplemental Indenture and the 2020-1 Supplemental Indenture is referred to herein as the "Existing Senior Indenture"), as such Existing Senior Indenture is further amended and supplemented by the 2022-1 Supplemental Trust Indenture dated as of November 1, 2022 (the "2022-1 Supplemental Indenture") (the Existing Senior Indenture as amended by the 2022-1 Supplemental Indenture is referred to herein as the "Indenture"), duly executed and delivered by the Authority to the Trustee, an executed counterpart of which is on file at the corporate trust office of the Trustee responsible for the administration of the Indenture, all equally and ratably secured by the Indenture, except as hereinafter provided. This Bond is one of a series entitled "The Pittsburgh Water and Sewer Authority, Water and Sewer System First Lien Revenue Bonds, Series A of 2022", in the aggregate principal amount of \$44,550,000 issued for the purpose of (a) providing funds for the payment of the costs of the PNC Paydown Project (as defined in the 2022-1 Supplemental Indenture) thereby providing long-term financing for the Authority's capital projects and (b) paying the costs of issuance of and insuring a portion of the 2022 Bonds. The 2022 Bonds are issued in registered form in the denomination of \$5,000 principal amount or any integral multiple thereof.

THE PURCHASERS OF THE 2022 BONDS ARE HEREBY DEEMED, BY VIRTUE OF THEIR PURCHASE OF THE 2022 BONDS, TO HAVE CONSENTED TO THE

INDENTURE (INCLUDING ALL AMENDMENTS AND RESTATEMENTS INCLUDED IN THE ORIGINAL SENIOR INDENTURE AND THE SUPPLEMENTS THERETO) ON BEHALF OF THEMSELVES AND ALL FUTURE OWNERS OF THE 2022 BONDS.

It is expressly agreed and understood that the Indenture and the obligations thereby secured, including this Bond, are corporate obligations of the Authority, and that the 2022 Bonds are payable only out of the sources set forth in the Indenture. In addition, the Indenture provides that the 2022 Bonds shall be secured by a pledge of the revenues of the Authority, after payment of Current Expenses, as defined in the Indenture, as provided in the Indenture. The Indenture provides for the fixing and charging by the Authority of rates, rents and charges for the water and sewer service furnished by its water and sewer system at least sufficient in the aggregate to provide, together with other revenues derived by the Authority, funds for paying the cost of operating, maintaining and repairing the water and sewer system, paying the principal of and the interest on its Bonds and other obligations as such principal and interest shall become due, and establishing the reserves required by the Indenture.

Neither the credit nor the taxing power of the City of Pittsburgh (the "City") or the Commonwealth or any political subdivision thereof is pledged for the payment of the principal of, the interest on, or the premium (if any) payable upon the redemption of, this Bond; nor shall this Bond be deemed an obligation of the City or the Commonwealth or any political subdivision thereof; nor shall the City, or the Commonwealth or any political subdivision thereof be liable for the payment of the principal of, the interest on, or the premium (if any) payable upon the redemption of this Bond, and neither the Trustee or any receiver appointed to operate and maintain any of the facilities of the Authority and to collect revenues arising therefrom for the benefit of the Bondholders shall be authorized to sell, assign, mortgage or otherwise dispose of any assets of whatever kind or character belonging to the Authority. **The Authority has no taxing power.**

In case an Event of Default, as defined in the Indenture, shall occur, the principal of all the Bonds at any such time Outstanding under the Indenture may be declared to be due and payable by the Trustee or may become due and payable upon the conditions and in the manner and with the effect provided in the Indenture. The Owner of this Bond shall have no right to enforce the provisions of the Indenture or to institute action to enforce the covenants thereof or to take any action with regard to any Event of Default under the Indenture, or to institute, appear in or defend any suit or other proceeding with respect thereto, except as provided in the Indenture or by the Act (as hereinafter defined).

The 2022 Bonds which mature on or after September 1, 2033, are subject to optional redemption, at the option of the Authority, in whole or in part, in the order of maturity selected by the Authority and by lot within a maturity, at any time on or after September 1, 2032. Any such redemption will be made at a redemption price equal to 100% of the principal amount thereof plus accrued interest to the date fixed for redemption.

The 2022 Bonds maturing on September 1, 2047 and September 1, 2052, are subject to mandatory redemption prior to maturity in part, by lot, on September 1 of each of the years, at the redemption price of 100% of the principal amount of the 2022 Bonds to be redeemed, plus accrued interest to the date fixed for redemption, in the principal amounts, as set below:

2022 Bonds Stated to Mature on September 1, 2047:

| <u>Redemption Date</u> | <u>Amounts</u> |
|------------------------|----------------|
| September 1, 2043      | \$1,825,000    |
| September 1, 2044      | \$1,925,000    |
| September 1, 2045      | \$2,035,000    |
| September 1, 2046      | \$2,145,000    |
| September 1, 2047*     | \$2,260,000    |

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\* Final maturity

2022 Bonds Stated to Mature on September 1, 2052:

| <u>Redemption Date</u> | <u>Amounts</u> |
|------------------------|----------------|
| September 1, 2048      | \$2,385,000    |
| September 1, 2049      | \$2,505,000    |
| September 1, 2050      | \$2,630,000    |
| September 1, 2051      | \$2,765,000    |
| September 1, 2052*     | \$2,900,000    |

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\* Final maturity

Extraordinary optional redemption of the 2022 Bonds, if any, shall be made in the manner and upon the terms and conditions set forth in the Indenture. In the event that less than all of the 2022 Bonds are to be redeemed as provided above, they shall be redeemed at random in any reasonable manner determined by the Trustee, unless otherwise directed in writing by the Authority. Any redemption of the 2022 Bonds shall be upon at least thirty (30) days prior written notice by first-class mail to the Owner of the Bonds so called for redemption.

If the Authority shall have duly sent notice of redemption and shall have provided funds for the payment of the principal of the 2022 Bonds so called for redemption and interest thereon to the date of redemption, interest on such 2022 Bonds shall cease to accrue from and after said redemption date.

Certain modifications and alterations of the Indenture not adversely affecting rights of Owners of the Bonds Outstanding thereunder may be made without consent of Owners of said Bonds in the manner and upon the terms and conditions provided in the Indenture. Any other modification or alteration of the Indenture and or rights and obligations of the Authority and of Owners of the Bonds Outstanding thereunder may be made only in the manner and upon the terms and conditions provided in the Indenture. Any consent by the Owner of this Bond, when required by the Indenture (unless revoked as provided in the Indenture), shall be conclusive and binding upon such Owner and all future Owners of this Bond, irrespective of whether any



notation of such consent is made upon this Bond.

The Authority and the Trustee may treat the Person in whose name this Bond is registered as the absolute Owner hereof whether or not this Bond or any installment of interest shall be overdue, for the purpose of receiving payment thereof and for all other purposes whatsoever and shall not be affected by any notice to the contrary.

The Owner of this Bond shall have no right to enforce provisions of this Bond or the Indenture, except as provided in the Indenture.

No recourse shall be had for the payment of the principal of, or the interest or premium, if any, on, this Bond or for any claim based hereon or on the Indenture or on any indenture supplemental thereto, against any member, officer, or employee, past, present or future, of the Authority, or of any successor body, either directly or through the Authority or any such successor body, whether by virtue of any constitutional provision, statute or rule of law, or by the enforcement of any assessment or penalty, or otherwise, all such liability of such members, officers or employees being released as a condition of and as consideration for the execution of the Indenture and the issuance of this Bond.

This Bond will be transferred or exchanged for an equal aggregate principal amount of Bonds of similar term and tenor in any authorized denomination, only by presentation and surrender of this Bond to the designated office of the Trustee, together with an assignment duly executed by the Owner hereof or by this attorney-in-fact or legal representative. As a precondition to the transfer of this Bond, the Authority or the Trustee may charge the Owner hereof for any tax, fee or governmental charge required to be paid with respect to such transfer.

The Trustee shall not be required to register the transfer or exchange of any Bond (i) during a period beginning at the opening of business fifteen (15) days before the day of the mailing of notice of redemption of the 2022 Bonds and ending at the close of business on the date of such mailing, (ii) at any time following the selection of such 2022 Bonds, in whole or in part, for redemption, or (iii) during the period commencing on a Record Date and ending on the corresponding Interest Payment Date.

It is hereby certified, recited and declared that all acts, conditions and things required by the Constitution and laws of the Commonwealth to exist, to have happened or be performed precedent to and in the issuance of this Bond and the execution and delivery of the Indenture exist, have happened and have been performed as so required. This Bond is issued and the Indenture was made and entered unto under and pursuant to the Pennsylvania Municipality Authorities Act, Title 53 of the Pennsylvania Consolidated Statutes Annotated, Section 5601, et seq., as amended (the "Act"), and under and pursuant to resolutions duly adopted by the Authority.

This Bond shall not be valid or become obligatory for any purpose until this Bond shall have been authenticated by the execution by the Trustee of the Certificate of Authentication endorsed hereon. Capitalized terms used in this Bond but not defined herein shall have the meanings ascribed to them in the Indenture.

IN WITNESS WHEREOF, The Pittsburgh Water and Sewer Authority has caused this Bond to be executed in its name and on its behalf by the manual or facsimile signature of its Chair or Vice Chair, and its corporate seal or a facsimile thereof to be hereunto affixed, duly attested by the manual or facsimile signature of its Secretary or Assistant Secretary.

[SEAL]

THE PITTSBURGH WATER AND SEWER  
AUTHORITY

ATTEST:

\_\_\_\_\_  
Secretary

By: \_\_\_\_\_  
Chair

CERTIFICATE OF AUTHENTICATION

This Bond is one of the Water and Sewer System First Lien Revenue Bonds, Series A of 2022 (the "Bonds") described in the within-mentioned Indenture. Attached hereto is the complete text of the opinion of McNees Wallace & Nurick LLC, dated the date of delivery of and payment for the Bonds, a signed original of which is on file with the Trustee.

**THE BANK OF NEW YORK  
MELLON TRUST COMPANY,  
N.A., as Trustee**

DATED: \_\_\_\_\_

By: \_\_\_\_\_

ASSIGNMENT

FOR VALUE RECEIVED the undersigned hereby sells, assigns and transfers unto

Please insert Social Security or other identifying number of assignee

Please print or typewrite name and address including postal zip code of transferee

the within Bond and all rights thereunder, and hereby irrevocably constitutes and appoints

\_\_\_\_\_ Agent to transfer the within Bond on the books kept for registration thereof, with full power of substitution in the premises.

Dated

Signature(s) Guaranteed:

\_\_\_\_\_  
NOTICE: Signature(s) must be guaranteed by a member firm of an approved Signature Guaranteed Medallion Program.  
\_\_\_\_\_

\_\_\_\_\_  
NOTICE: The signature(s) to this assignment must correspond with the name(s) as written upon the face of the Bond, in every particular, without alteration or enlargement, or any change whatever.

STATEMENT OF INSURANCE<sup>1</sup>

Assured Guaranty Municipal Corp. (“AGM”), New York, New York, has delivered its municipal bond insurance policy (the “Policy”) with respect to the scheduled payments due of principal of and interest on the Bonds maturing on September 1 in the years 2033 through 2038, inclusive; and Term Bond maturing September 1, 2047 to The Bank of New York Mellon Trust Company, N.A., or its successor, as paying agent for the Bonds (the "Paying Agent"). Said Policy is on file and available for inspection at the principal office of the Paying Agent and a copy thereof may be obtained from AGM or the Paying Agent. All payments required to be made under the Policy shall be made in accordance with the provisions thereof. The owner of this Bond acknowledges and consents to the subrogation rights of AGM as more fully set forth in the Policy.

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<sup>1</sup> This statement of insurance will be set forth only on the 2022 Insured Bonds which consist of the 2022 Bonds stated to mature on September 1 of the years 2033 to 2038 and 2047. The 2022 Bonds stated to mature on September 1 of the years 2025 to 2032, 2039 to 2042, and 2052 are not insured.

**EXHIBIT B****2022 BONDS DEBT SERVICE SCHEDULE**

| Period<br>Ending | Principal  | Coupon | Interest      | Debt Service  |
|------------------|------------|--------|---------------|---------------|
| 12/31/2023       | -          | -      | 1,810,145.00  | 1,810,145.00  |
| 12/31/2024       | -          | -      | 2,294,550.00  | 2,294,550.00  |
| 12/31/2025       | 750,000    | 5.000% | 2,294,550.00  | 3,044,550.00  |
| 12/31/2026       | 790,000    | 5.000% | 2,257,050.00  | 3,047,050.00  |
| 12/31/2027       | 830,000    | 5.000% | 2,217,550.00  | 3,047,550.00  |
| 12/31/2028       | 870,000    | 5.000% | 2,176,050.00  | 3,046,050.00  |
| 12/31/2029       | 915,000    | 5.000% | 2,132,550.00  | 3,047,550.00  |
| 12/31/2030       | 960,000    | 5.000% | 2,086,800.00  | 3,046,800.00  |
| 12/31/2031       | 1,005,000  | 5.000% | 2,038,800.00  | 3,043,800.00  |
| 12/31/2032       | 1,060,000  | 5.000% | 1,988,550.00  | 3,048,550.00  |
| 12/31/2033       | 1,110,000  | 5.000% | 1,935,550.00  | 3,045,550.00  |
| 12/31/2034       | 1,165,000  | 5.000% | 1,880,050.00  | 3,045,050.00  |
| 12/31/2035       | 1,225,000  | 5.000% | 1,821,800.00  | 3,046,800.00  |
| 12/31/2036       | 1,285,000  | 5.000% | 1,760,550.00  | 3,045,550.00  |
| 12/31/2037       | 1,350,000  | 5.000% | 1,696,300.00  | 3,046,300.00  |
| 12/31/2038       | 1,420,000  | 5.000% | 1,628,800.00  | 3,048,800.00  |
| 12/31/2039       | 1,490,000  | 5.250% | 1,557,800.00  | 3,047,800.00  |
| 12/31/2040       | 1,565,000  | 5.250% | 1,479,575.00  | 3,044,575.00  |
| 12/31/2041       | 1,650,000  | 5.250% | 1,397,412.50  | 3,047,412.50  |
| 12/31/2042       | 1,735,000  | 5.250% | 1,310,787.50  | 3,045,787.50  |
| 12/31/2043       | 1,825,000  | 5.500% | 1,219,700.00  | 3,044,700.00  |
| 12/31/2044       | 1,925,000  | 5.500% | 1,119,325.00  | 3,044,325.00  |
| 12/31/2045       | 2,035,000  | 5.500% | 1,013,450.00  | 3,048,450.00  |
| 12/31/2046       | 2,145,000  | 5.500% | 901,525.00    | 3,046,525.00  |
| 12/31/2047       | 2,260,000  | 5.500% | 783,550.00    | 3,043,550.00  |
| 12/31/2048       | 2,385,000  | 5.000% | 659,250.00    | 3,044,250.00  |
| 12/31/2049       | 2,505,000  | 5.000% | 540,000.00    | 3,045,000.00  |
| 12/31/2050       | 2,630,000  | 5.000% | 414,750.00    | 3,044,750.00  |
| 12/31/2051       | 2,765,000  | 5.000% | 283,250.00    | 3,048,250.00  |
| 12/31/2052       | 2,900,000  | 5.000% | 145,000.00    | 3,045,000.00  |
|                  | 44,550,000 |        | 44,845,020.00 | 89,395,020.00 |

## EXHIBIT C

### 2022 BOND INSURANCE POLICY PROVISIONS

[to be updated based on insurance commitment]

The provisions set forth in this Exhibit C shall, with respect to the 2022 Bonds insured by Assured Guaranty Municipal Corp., or any successor thereto or assignee thereof, apply to such Bonds notwithstanding any other provision of the Indenture to the contrary.

- (a) "Bond Insurance Policy" shall mean the insurance policy issued by the Insurer guaranteeing the scheduled payment of principal of and interest on the Insured Bonds when due. "Insured Bonds" shall mean the 2022 Bonds insured by the Insurer (which consist of the 2022 Bonds stated to mature on September 1 of the years 2033 to 2038 and 2047). "Insurer" shall mean, with respect to the Insured Bonds, Assured Guaranty Municipal Corp., a New York stock insurance company, or any successor thereto or assignee thereof; "Related Document" shall have the meaning set forth in paragraph (h) below.
- (b) The prior written consent of the Insurer shall be a condition precedent to the deposit of any credit instrument provided in lieu of a cash deposit into the Debt Service Reserve Fund, if any, except for a credit instrument provided by the Insurer. Amounts on deposit in the Debt Service Reserve Fund shall be applied solely to the payment of debt service due on the Bonds secured by the Debt Service Reserve Fund.
- (c) The Insurer shall be deemed to be the sole holder of the Insured Bonds for the purpose of exercising any voting right or privilege or giving any consent or direction or taking any other action that the holders of the Insured Bonds are entitled to take pursuant to the Indenture pertaining to (i) defaults and remedies and (ii) the duties and obligations of the Trustee. In furtherance thereof and as a term of the Indenture and each Insured Bond, each Insured Bondholder appoints the Insurer as their agent and attorney-in-fact and agrees that the Insurer may at any time during the continuation of any proceeding by or against the Authority under the United States Bankruptcy Code or any other applicable bankruptcy, insolvency, receivership, rehabilitation or similar law (an "Insolvency Proceeding") direct all matters relating to such Insolvency Proceeding (to the extent of their voting rights with respect to the Insured Bonds), including without limitation, (A) all matters relating to any claim or enforcement proceeding in connection with an Insolvency Proceeding (a "Claim"), (B) the direction of any appeal of any order relating to any Claim, (C) the posting of any surety, supersedeas or performance bond pending any such appeal, and (D) the right to vote to accept or reject any plan of adjustment. In addition, each Insured Bondholder delegates and assigns to the Insurer, to the fullest extent permitted by law, the rights of each Insured Bondholder in the conduct of any Insolvency Proceeding, including, without limitation, all rights of any party to an adversary proceeding or action with respect to any court order issued in connection with any such Insolvency Proceeding. The Trustee acknowledges such appointment, delegation and assignment by each Insured Bondholder

for the Insurer's benefit, and agrees to cooperate with the Insurer in taking any action reasonably necessary or appropriate in connection with such appointment, delegation and assignment. Remedies granted in Section 8.04 of the Indenture include mandamus.

- (d) Acceleration of the Bonds is permitted under the Indenture. As set forth in paragraph (c) above, the Insurer is deemed to be the sole holder of the Insured Bonds for purposes of voting on acceleration. In the event the maturity of the Insured Bonds is accelerated, the Insurer shall not be obligated to pay any accelerated amount but may elect, in its sole discretion, to pay accelerated principal and interest accrued, on such principal to the date of acceleration (to the extent unpaid by the Authority) and the Trustee shall be required to accept such amounts. Upon payment of such accelerated principal and interest accrued to the acceleration date as provided above, the Insurer's obligations under the Bond Insurance Policy with respect to such Insured Bonds shall be fully discharged.
- (e) No grace period for a covenant default shall exceed sixty (60) days or be extended for more than sixty (60) days, without the prior written consent of the Insurer. No grace period shall be permitted for payment defaults.
- (f) The Insurer is a third party beneficiary to the Indenture.
- (g) Upon the occurrence of an extraordinary optional, special or extraordinary mandatory redemption in part, the selection of Insured Bonds to be redeemed shall be subject to the approval of the Insurer. The exercise of any provision of the Indenture which permits the purchase of Insured Bonds in lieu of redemption shall require the prior written approval of the Insurer if any Insured Bond so purchased is not cancelled upon purchase.
- (h) Any amendment, supplement, modification to, or waiver of, the Indenture or any other transaction document, including any underlying security agreement (each a "Related Document"), that requires the consent of Bondowners or adversely affects the rights and interests of the Insurer shall be subject to the prior written consent of the Insurer.
- (i) The rights granted to the Insurer under the Indenture or any other Related Document to request, consent to or direct any action are rights granted to the Insurer in consideration of its issuance of the Bond Insurance Policy. Any exercise by the Insurer of such rights is merely an exercise of the Insurer's contractual rights and shall not be construed or deemed to be taken for the benefit, or on behalf, of the holders of the Insured Bonds, and such action does not evidence any position of the Insurer, affirmative or negative, as to whether the consent of the owners of the Insured Bonds or any other person is required in addition to the consent of the Insurer.
- (j) Only (1) cash, (2) non-callable direct obligations of the United States of America ("Treasuries"), (3) evidences of ownership of proportionate interests in future interest and principal payments on Treasuries held by a bank or trust company as custodian, under which the owner of the investment is the real party in interest and has the right to proceed directly and individually against the obligor and the underlying Treasuries are not available to any person claiming through the custodian or to whom the custodian may be



obligated, (4) subject to the prior written consent of the Insurer, pre-refunded municipal obligations rated "AAA" and "Aaa" by S&P and Moody's, respectively, or (5) subject to the prior written consent of the Insurer, securities eligible for "AAA" defeasance under then existing criteria of S&P or any combination thereof, shall be used to effect defeasance of the Insured Bonds unless the Insurer otherwise approves.

To accomplish defeasance, the Authority shall cause to be delivered to the Insurer (i) a report of an independent firm of nationally recognized certified public accountants or such other accountant or financial firm as shall be acceptable to the Insurer ("Accountant") verifying the sufficiency of the escrow established to pay the Insured Bonds in full on the maturity or redemption date ("Verification"), (ii) an Escrow Deposit Agreement (which shall be acceptable in form and substance to the Insurer), (iii) an opinion of nationally recognized bond counsel to the effect that the Insured Bonds are no longer "Outstanding" under the Indenture and (iv) a certificate of discharge of the Trustee with respect to the Insured Bonds; each Verification and defeasance opinion shall be acceptable in form and substance, and addressed, to the Authority, Trustee and Insurer. The Insurer shall be provided with final drafts of the above-referenced documentation not less than five business days prior to the funding of the escrow.

Insured Bonds shall be deemed "Outstanding" under the Indenture unless and until they are in fact paid and retired or the above criteria are met.

- (k) Amounts paid by the Insurer under the Bond Insurance Policy shall not be deemed paid for purposes of the Indenture and the Insured Bonds relating to such payments shall remain Outstanding and continue to be due and owing until paid by the Authority in accordance with the Indenture. The Indenture shall not be discharged unless all amounts due or to become due to the Insurer have been paid in full or duly provided for.
- (l) The Authority covenants and agrees to take such action (including, as applicable, filing of UCC financing statements and continuations thereof) as is necessary from time to time to preserve the priority of the pledge of the Trust Estate under applicable law.
- (m) Claims Upon the Bond Insurance Policy and Payments by and to the Insurer.

If, on the third Business Day prior to the related scheduled interest payment date or principal payment date ("Payment Date") there is not on deposit with the Trustee, after making all transfers and deposits required under the Indenture, moneys sufficient to pay the principal of and interest on the Insured Bonds due on such Payment Date, the Trustee shall give notice to the Insurer and to its designated agent (if any) (the "Insurer's Fiscal Agent") by telephone or teletype of the amount of such deficiency by 12:00 noon, New York City time, on such Business Day. If, on the second Business Day prior to the related Payment Date, there continues to be a deficiency in the amount available to pay the principal of and interest on the Insured Bonds due on such Payment Date, the Trustee shall make a claim under the Bond Insurance Policy and give notice to the Insurer and the Insurer's Fiscal Agent (if any) by telephone of the amount of such deficiency, and the allocation of such deficiency between the amount required to pay interest on the Bonds

and the amount required to pay principal of the Insured Bonds, confirmed in writing to the Insurer and the Insurer's Fiscal Agent by 12:00 noon, New York City time, on such second Business Day by filing in the form of Notice of Claim and Certificate delivered with the Bond Insurance Policy.

The Trustee shall designate any portion of payment of principal on Insured Bonds paid by the Insurer, whether by virtue of mandatory sinking fund redemption, maturity or other advancement of maturity, on its books as a reduction in the principal amount of Insured Bonds registered to the then current Insured Bondholder, whether DTC or its nominee or otherwise, and shall issue a replacement Insured Bond to the Insurer, registered in the name of Assured Guaranty Municipal Corp., as the case may be, in a principal amount equal to the amount of principal so paid (without regard to authorized denominations); provided that the Trustee's failure to so designate any payment or issue any replacement Insured Bond shall have no effect on the amount of principal or interest payable by the Authority on any Insured Bond or the subrogation rights of the Insurer.

The Trustee shall keep a complete and accurate record of all funds deposited by the Insurer into the Policy Payments Account (defined below) and the allocation of such funds to payment of interest on and principal of any Insured Bond. The Insurer shall have the right to inspect such records at reasonable times upon reasonable notice to the Trustee.

Upon payment of a claim under the Bond Insurance Policy, the Trustee shall establish a separate special purpose trust account for the benefit of Insured Bondholders referred to herein as the "Policy Payments Account" and over which the Trustee shall have exclusive control and sole right of withdrawal. The Trustee shall receive any amount paid under the Bond Insurance Policy in trust on behalf of Insured Bondholders and shall deposit any such amount in the Policy Payments Account and distribute such amount only for purposes of making the payments for which a claim was made. Such amounts shall be disbursed by the Trustee to Insured Bondholders in the same manner as principal and interest payments are to be made with respect to the Insured Bonds under the sections hereof regarding payment of Insured Bonds. It shall not be necessary for such payments to be made by checks or wire transfers separate from the check or wire transfer used to pay debt service with other funds available to make such payments. Notwithstanding anything herein to the contrary, the Authority agrees to pay to the Insurer (i) a sum equal to the total of all amounts paid by the Insurer under the Bond Insurance Policy (the "Insurer Advances"); and (ii) interest on such Insurer Advances from the date paid by the Insurer until payment thereof in full, payable to the Insurer at the Late Payment Rate per annum (collectively, the "Insurer Reimbursement Amounts"). "Late Payment Rate" means the lesser of (a) the greater of (i) the per annum rate of interest, publicly announced from time to time by JPMorgan Chase Bank at its principal office in The City of New York, as its prime or base lending rate (any change in such rate of interest to be effective on the date such change is announced by JPMorgan Chase Bank) plus 3%, and (ii) the then applicable highest rate of interest on the Insured Bonds and (b) the maximum rate permissible under applicable usury or similar laws limiting interest rates. The Late Payment Rate shall be computed on the basis of the actual number of days elapsed over a

year of 360 days. The Authority hereby covenants and agrees that the Insurer Reimbursement Amounts are secured by a lien on and pledge of the Trust Estate and payable from such Trust Estate on a parity with debt service due on the Insured Bonds.

Funds held in the Policy Payments Account shall not be invested by the Trustee and may not be applied to satisfy any costs, expenses or liabilities of the Trustee. Any funds remaining in the Policy Payments Account following an Insured Bond payment date shall promptly be remitted to the Insurer.

- (n) The Insurer shall, to the extent it makes any payment of principal of or interest on the Insured Bonds, become subrogated to the rights of the recipients of such payments in accordance with the terms of the Bond Insurance Policy (which subrogation rights shall also include the rights of any such recipients in connection with any Insolvency Proceeding). Each obligation of the Authority to the Insurer under the Related Documents shall survive discharge or termination of such Related Documents.
- (o) The Authority shall pay or reimburse the Insurer any and all charges, fees, costs and expenses that the Insurer may reasonably pay or incur in connection with (i) the administration, enforcement, defense or preservation of any rights or security in any Related Document; (ii) the pursuit of any remedies under the Indenture or any other Related Document or otherwise afforded by law or equity, (iii) any amendment, waiver or other action with respect to, or related to, the Indenture or any other Related Document whether or not executed or completed, or (iv) any litigation or other dispute in connection with the Indenture or any other Related Document or the transactions contemplated thereby, other than costs resulting from the failure of the Insurer to honor its obligations under the Bond Insurance Policy. The Insurer reserves the right to charge a reasonable fee as a condition to executing any amendment, waiver or consent proposed in respect of the Indenture or any other Related Document.
- (p) After payment of reasonable expenses of the Trustee, the application of funds realized upon default shall be applied to the payment of expenses of the Authority only after the payment of past due and current debt service on the Insured Bonds and amounts required to restore the Debt Service Reserve Fund to the Reserve Requirement.
- (q) The Insurer shall be entitled to pay principal or interest on the Insured Bonds that shall become Due for Payment but shall be unpaid by reason of Nonpayment by the Authority (as such terms are defined in the Bond Insurance Policy) and any amounts due on the Insured Bonds as a result of acceleration of the maturity thereof in accordance with the Indenture, whether or not the Insurer has received a Notice of Nonpayment (as such terms are defined in the Bond Insurance Policy) or a claim upon the Bond Insurance Policy.
- (r) The notice address of the Insurer is: Assured Guaranty Municipal Corp., 1633 Broadway, New York, New York 10019, Attention: Managing Director – Surveillance, Re: Policy No. 218606-N, Telephone: (212) 974-0100; Telecopier: (212) 339-3556. In each case in which notice or other communication refers to an Event of Default, then a

copy of such notice or other communication shall also be sent to the attention of the Deputy General Counsel – Public Finance and shall be marked to indicate "URGENT MATERIAL ENCLOSED."

- (s) The Insurer shall be provided with the following information by the Authority or Trustee, as the case may be:
- (i) Annual audited financial statements within 180 days after the end of the Authority's fiscal year (together with a certification of the Authority that it is not aware of any default or Event of Default under the Indenture), and the Authority's annual budget within 30 days after the approval thereof together with such other information, data or reports as the Insurer shall reasonably request from time to time;
  - (ii) Notice of any draw upon the Debt Service Reserve Fund within two Business Days after knowledge thereof other than (i) withdrawals of amounts in excess of the Debt Service Reserve Requirement and (ii) withdrawals in connection with a refunding of Insured Bonds;
  - (iii) Notice of any default under the Indenture known to the Trustee or Authority within five Business Days after knowledge thereof;
  - (iv) Prior notice of the advance refunding or redemption of any of the Insured Bonds, including the principal amount, maturities and CUSIP numbers thereof;
  - (v) Notice of the resignation or removal of the Trustee and bond registrar and the appointment of, and acceptance of duties by, any successor thereto;
  - (vi) Notice of the commencement of any proceeding by or against the Authority commenced under the United States Bankruptcy Code or any other applicable bankruptcy, insolvency, receivership, rehabilitation or similar law (an "Insolvency Proceeding");
  - (vii) Notice of the making of any claim in connection with any Insolvency Proceeding seeking the avoidance as a preferential transfer of any payment of principal of, or interest on, the Insured Bonds;
  - (viii) A full original transcript of all proceedings relating to the execution of any amendment, supplement, or waiver to the Related Documents;
  - (ix) All reports, notices and correspondence to be delivered to holders of Insured Bonds under the terms of the Related Documents; and

- (x) To the extent that the Authority has entered into a continuing disclosure agreement, covenant or undertaking with respect to the Bonds, all information furnished pursuant to such agreements shall also be provided to the Insurer, simultaneously with the furnishing of such information.
- (t) The Insurer shall have the right to receive such additional information as it may reasonably request.
- (u) The Authority will permit the Insurer to discuss the affairs, finances and accounts of the Authority or any information the Insurer may reasonably request regarding the security for the Bonds with appropriate officers of the Authority and will use commercially reasonable efforts to enable the Insurer to have access to the facilities, books and records of the Authority on any business day upon reasonable prior notice.
- (v) The Trustee shall notify the Insurer of any failure of the Authority to provide notices, certificates and other information under the transaction documents.
- (w) Notwithstanding satisfaction of the other conditions to the issuance of Additional Bonds set forth in the Indenture, no such issuance may occur (1) if an Event of Default (or any event which, once all notice or grace periods have passed, would constitute an Event of Default) exists unless such default shall be cured upon such issuance and (2) unless the Debt Service Reserve Fund is fully funded at the Debt Service Reserve Requirement (including the proposed issue) upon the issuance of such Additional Bonds, in either case unless otherwise permitted by the Insurer.
- (x) In determining whether any amendment, consent, waiver or other action to be taken, or any failure to take action, under the Indenture would adversely affect the security for the Insured Bonds or the rights of the holders of Insured Bonds, the Trustee shall consider the effect of any such amendment, consent, waiver, action or inaction as if there were no Bond Insurance Policy.
- (y) No contract shall be entered into or any action taken by which the rights of the Insurer or security for or sources of payment of the Bonds may be impaired or prejudiced in any material respect except upon obtaining the prior written consent of the Insurer.
- (z) If the Bonds are issued for refunding purposes, there shall be delivered an opinion of Bond Counsel addressed to the Insurer (or a reliance letter relating thereto), or a certificate of discharge of the trustee for the Refunded Bonds, to the effect that, upon the making of the required deposit to the escrow, the legal defeasance of the Refunded Bonds shall have occurred. If the Refunded Bonds are insured by Assured Guaranty Municipal Corp., at least three business days prior to the proposed date for delivery of the Policy with respect to the Refunding Bonds, the Insurer shall also receive (i) the verification letter, of which the Insurer shall be an addressee, by an independent firm of certified public accountants or other financial firm which is either nationally recognized or otherwise acceptable to the Insurer, of the adequacy of the escrow established to provide

for the payment of the Refunded Bonds in accordance with the terms and provisions of the Escrow Deposit Agreement, and (ii) the form of an opinion of Bond Counsel addressed to the Insurer (or a reliance letter relating thereto) to the effect that the Escrow Deposit Agreement is a valid and binding obligation of the parties thereto, enforceable in accordance with its terms (such Escrow Deposit Agreement shall provide that no amendments are permitted without the prior written consent of the Insurer). An executed copy of each of such opinion and reliance letter, if applicable, or Trustee's discharge certificate, as the case may be, shall be forwarded to the Insurer prior to delivery of the Bonds.

- (aa) Any interest rate exchange agreement ("Swap Agreement") entered into by the Authority shall meet the following conditions: (i) the Swap Agreement must be entered into to manage interest costs related to, or a hedge against (a) assets then held, or (b) debt then outstanding, or (iii) debt reasonably expected to be issued within the next twelve (12) months, and (ii) the Swap Agreement shall not contain any leverage element or multiplier component greater than 1.0x unless there is a matching hedge arrangement which effectively off-sets the exposure from any such element or component. Unless otherwise consented to in writing by the Insurer, any uninsured net settlement, breakage or other termination amount then in effect shall be subordinate to debt service on the Bonds and on any debt on parity with the Bonds. The Authority shall not terminate a Swap Agreement unless it demonstrates to the satisfaction of the Insurer prior to the payment of any such termination amount that such payment will not cause the Authority to be in default under the Related Documents, including but not limited to, any monetary obligations thereunder.

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AMENDED AND RESTATED TRUST INDENTURE

BETWEEN

THE PITTSBURGH WATER AND SEWER AUTHORITY

and

THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A.  
as Successor Trustee

Originally dated as of October 15, 1993  
Amended and Restated as of November 1, 2017  
And Effective on the First Effective Date  
(December 28, 2017)

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## AMENDED AND RESTATED TRUST INDENTURE

THIS AMENDED AND RESTATED TRUST INDENTURE dated as of the 1<sup>st</sup> day of November, 2017 (as amended and supplemented from time to time, the "Indenture"), is by and between THE PITTSBURGH WATER AND SEWER AUTHORITY, a body corporate and politic organized and existing under the laws of the Commonwealth of Pennsylvania, having its principal office in the City of Pittsburgh, Allegheny County, Pennsylvania (the "Authority"), and THE BANK OF NEW YORK MELLON TRUST COMPANY, N.A., a national banking corporation organized and existing under and by virtue of the laws of the United States of America, having power and authority to accept and execute trusts and having a corporate trust office in the City of Pittsburgh, Allegheny County, Pennsylvania, as successor trustee (the "Trustee").

WHEREAS, the Authority makes the following findings and statements:

1. The Act. The Authority is a public body, corporate and politic, duly organized and validly existing under the provisions of the Pennsylvania Municipality Authorities Act of the Commonwealth of Pennsylvania (the "Commonwealth"), Title 53 of the Pennsylvania Consolidated Statutes, Section 5601, et seq., as amended (the "Act").

2. Relationship with the City. The Authority was organized in February 1984 by the City of Pittsburgh, Allegheny County, Pennsylvania (the "City") for the purpose of assuming the responsibility for the operation of the City's water supply and distribution and wastewater collection systems (as further modified as defined herein, the "System"). Pursuant to a Lease and Management Agreement dated as of March 29, 1984 between the City and the Authority (the "Lease and Management Agreement"), the System was leased by the City to the Authority. The Authority then designated the City as its agent to operate and maintain the System. The City and the Authority entered into a Capital Lease Agreement dated as of July 15, 1995 (the "Capital Lease Agreement") under which the Lease and Management Agreement was terminated and the Authority was granted the option to acquire the portion of the System owned by the City. Pursuant to the Capital Lease Agreement, which has a term of 30 years, the Authority made three payments totaling \$101,416,974.60 during the first three years, and on September 1, 2025, upon the payment of \$1.00, the Authority will acquire title to the System. At the same time the City and the Authority entered into the Capital Lease Agreement, they also entered into a Cooperation Agreement dated as of June 15, 1995, effective January 1, 1995, as amended by a First Amendment to Cooperation Agreement dated March 21, 2011 (the "Cooperation Agreement"). The Cooperation Agreement provides for the following matters: the Authority agreed to assume responsibility for management and operation of the System, with some sewer functions remaining with the City. The City provides certain specified services to the Authority on a fee for services basis and the Authority makes certain payments to the City to reimburse it for costs incurred by the City in regard to the operation and maintenance of the System. The Authority agrees to provide the City with water without charge to be used by the City, its departments, agencies and instrumentalities, and the Authority agrees to reimburse the City for equalization payments made by the City to a private utility which serves customers in a portion of the City. In the 2011 amendment to the Cooperation Agreement, the City agreed to subordinate the payments it is entitled to under the Cooperation Agreement to the Authority's debt obligations.

3. Existing Senior Indenture. The Authority's senior lien debt has been issued under a Trust Indenture dated as of October 15, 1993 (the "Original Indenture") with a bond trustee, now being The Bank of New York Mellon Trust Company, N.A. (the "Trustee"), as amended and supplemented by a First Supplemental Indenture dated as of July 15, 1995 (the "First Supplemental Indenture"), a Second Supplemental Indenture dated as of March 1, 1998 (the "Second Supplemental Indenture"), a Third Supplemental Indenture dated as of March 1, 2002 (the "Third Supplemental Indenture"), a Fourth Supplemental Indenture dated as of September 15, 2003 (the "Fourth Supplemental Indenture"), a Fifth Supplemental Indenture dated as of June 1, 2005 (the "Fifth Supplemental Indenture"), a Sixth Supplemental Indenture dated as of March 1, 2007 (the "Sixth Supplemental Indenture"), a Seventh Supplemental Indenture dated as of June 1, 2008 (the "Seventh Supplemental Indenture"), an Amending Supplement to the Initial First Lien Indenture and the Seventh Supplemental Indenture dated as of October 15, 2009 (the "2009 Supplemental Indenture"), a Second Amendment to the Seventh Supplemental Indenture dated as of August 1, 2010 (the "2010 Supplemental Indenture"), a Second Amending Supplement to the Initial First Lien Indenture and the Third Amending Supplement to the Seventh Supplemental Indenture dated as of October 22, 2013 (the "2013 Supplemental Indenture"), an Eighth Supplemental First Lien Indenture dated as of December 1, 2013 (the "Eighth Supplemental Indenture"), a Third Amending Supplement to the First Lien Indenture and Fourth Amending Supplement to the Seventh Supplemental Indenture dated as of October 19, 2016 (the "2016 Supplemental Indenture"), a 2017-1 Supplemental Trust Indenture dated as of November 1, 2017 (the "2017-1 Supplemental Indenture"), and a 2017-2 Supplemental Trust Indenture dated as of December 1, 2017 (the "2017-2 Supplemental Indenture") (the Original Indenture, as amended and supplemented by the First Supplemental Indenture, the Second Supplemental Indenture, the Third Supplemental Indenture, the Fourth Supplemental Indenture, the Fifth Supplemental Indenture, the Sixth Supplemental Indenture, the Seventh Supplemental Indenture, the 2009 Supplemental Indenture, the 2010 Supplemental Indenture, the 2013 Supplemental Indenture, the Eighth Supplemental Indenture, the 2016 Supplemental Indenture, the 2017-1 Supplemental Indenture and the 2017-2 Supplemental Indenture, collectively, the "Existing Senior Indenture").

4. Existing Subordinate Indenture. The Authority's subordinate lien bond debt has been issued to date under a Subordinate Trust Indenture dated as of July 15, 1995 (the "Original Subordinate Indenture") between the Authority and a bond trustee, now being The Bank of New York Mellon Trust Company, N.A. (the "Subordinate Trustee"), as amended and supplemented by a First Supplemental Subordinate Indenture dated as of March 1, 1998 (the "First Supplemental Subordinate Indenture"), a Second Supplemental Subordinate Indenture dated as of June 1, 2008 (the "Second Supplemental Subordinate Indenture"), an Amending Supplement to the Initial Subordinate Indenture and Second Supplemental Subordinate Indenture dated as of November 1, 2009 (the "2009-1 Supplemental Subordinate Indenture"), an Amendment to the Amending Supplement to the Initial Subordinate Indenture and Second Supplemental Subordinate Indenture dated as of November 15, 2009 (the "2009-2 Supplemental Subordinate Indenture"), a Second Amending Supplement to the Second Supplemental Indenture dated as of September 1, 2012 (the "2012 Supplemental Subordinate Indenture"), a Third Amending Supplement to the Second Supplemental Subordinate Indenture dated as of September 1, 2013 (the "Third Supplemental Subordinate Indenture"), a Fourth Amending Supplement to the Second Supplemental Indenture dated as of November 3, 2014 (the "2014 Supplemental Subordinate Indenture"), and a Fifth Amending Supplement to the Second Supplemental

Indenture dated as of September 1, 2015 (the “2015 Supplemental Subordinate Indenture”) (the Original Subordinate Indenture, as amended and supplemented by the First Supplemental Subordinate Indenture, the Second Supplemental Subordinate Indenture, the 2009-1 Supplemental Subordinate Indenture, the 2009-2 Supplemental Subordinate Indenture, the 2012 Supplemental Subordinate Indenture, the 2013 Supplemental Subordinate Indenture, the 2014 Supplemental Subordinate Indenture and the 2015 Supplemental Subordinate Indenture, as amended and supplemented (the “Existing Subordinate Indenture”).

5. 1998B Bonds. In 1998, the Authority issued its \$36,440,069.70 Water and Sewer System First Lien Revenue Bonds, Series B of 1998 (the “1998B Bonds”) pursuant to the Second Supplemental Indenture. The 1998B Bonds are capital appreciation bonds that funded capital projects. The 1998B Bonds were initially insured by Financial Guaranty Insurance Company (“FGIC”). FGIC also provided a debt service reserve fund policy for the 1998B Bonds; such debt service reserve fund policy for the 1998B Bonds was terminated on November 29, 2017 and the debt service reserve requirement for the 1998B Bonds is now being satisfied by a policy issued by Assured Guaranty Municipal Corp. (“AGM”; formerly known as Financial Security Assurance Inc.). Pursuant to a Novation Agreement dated as of September 14, 2012 entered into between FGIC and National Public Finance Guarantee Corporation (“National”), the bond insurance policy relating to the 1998B Bonds and the debt service reserve fund policy for the 1998B Bonds were transferred by novation to National, with the effect that National is the designated successor in interest to, and substituted in place of, FGIC as if it were the original insurer for each such policy. Pursuant to side letters dated October 22, 2009 and October 13, 2016 between National and the Authority, National has certain approval rights related to the relationship between the Authority and the letter of credit banks securing the 2008B-1 Bonds (hereinafter defined) and the 2008B-2 Bonds (hereinafter defined).

6. 2008 Bonds. In 2008, the Authority issued \$310,355,000 of senior bonds, including the \$68,970,000 (Fixed Rate) Water and Sewer System First Lien Revenue Refunding Bonds, Series A of 2008 Taxable (the “2008A Bonds”), \$145,495,000 (Variable Rate Demand) Water and Sewer System First Lien Revenue Refunding Bonds, Series B of 2008 (the “2008B Bonds”), \$24,665,000 (Fixed Rate) Water and Sewer System First Lien Revenue Bonds, Series D-1 of 2008 (the “2008D-1 Bonds”), and \$71,225,000 (Variable Rate Demand) Water and Sewer System First Lien Revenue Bonds, Series D-2 of 2008 (the “2008D-2 Bonds”) pursuant to the Seventh Supplemental Indenture.

7. 2008A Bonds. The 2008A Bonds are fixed rate bonds and were issued to refund certain prior bonds, fund capital projects, and fund swap termination payments. The 2008A Bonds are insured by AGM. AGM also provides the debt service reserve fund policy for the 2008A Bonds.

8. 2008B-1 Bonds, 2008B-2 Bonds and Swaps. The 2008B Bonds are variable rate bonds that currently refunded certain prior bonds, funded a swap termination payment, and funded capital projects. The 2008B Bonds were initially insured by AGM, but, in 2009, the 2008B Bonds were divided into two subseries, the \$72,750,00 Series B-1 of 2008 (the “2008B-1 Bonds”) and the \$72,745,000 Series B-2 of 2008 (the “2008B-2 Bonds”), the AGM insurance was terminated, and the bonds were secured by direct draw letters of credit, pursuant to the 2009 Supplemental Indenture. AGM provides the debt service reserve fund policy for the

2008B Bonds. There were subsequent adjustments to the letter of credit banks securing the 2008B-1 Bonds and 2008B-2 Bonds as reflected in the 2013 Supplemental Indenture and the 2016 Supplemental Indenture. The current letter of credit providers are Bank of America, N.A. for the 2008B-1 Bonds and PNC Bank, National Association for the 2008B-2 Bonds. Pursuant to side letters dated October 22, 2009 and October 13, 2016 between National and the Authority, National has certain approval rights related to the relationship between the Authority and the letter of credit banks securing the 2008B-1 Bonds and the 2008B-2 Bonds. In 2008, with respect to the 2008B Bonds, the Authority entered into long-term interest rate swap agreements with Merrill Lynch Capital Services, Inc. and J.P. Morgan Chase Bank, National Association. The swap payments are insured by AGM.

9. 2008D-1 Bonds. The 2008D-1 Bonds are fixed rate bonds that funded capital projects. The 2008D-1 Bonds are insured by AGM. AGM also provides the debt service reserve fund policy for the 2008D-1 Bonds.

10. 2008D-2 Bonds and Swap. The 2008D-2 Bonds are variable rate bonds that funded capital projects. The 2008D-2 Bonds are insured by AGM. The liquidity facility for the 2008D-2 Bonds is a standby bond purchase agreement with PNC Bank, National Association. AGM also provides the debt service reserve fund policy for the 2008D-2 Bonds. In 2008, with respect to the 2008D-2 Bonds, the Authority entered into a long-term interest rate swap agreement with J.P. Morgan Chase Bank, National Association. The swap payments are insured by AGM. Pursuant to the 2010 Supplemental Indenture, a minor amendment was made to the redemption provisions related to the 2008D-2 Bonds.

11. 2008C-1 Subordinate Bonds, 2008C-2 Subordinate Bonds and Swaps. In 2008, the Authority issued its \$51,910,000 (Variable Rate Demand) Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1 of 2008 (the “2008C-1 Subordinate Bonds”) and its \$51,885,000 (Variable Rate Demand) Water and Sewer System Subordinate Revenue Refunding Bonds, Series C of 2008 (the “2008C-2 Subordinate Bonds”) pursuant to the Second Supplemental Subordinate Indenture. The 2008C-1 Subordinate Bonds and the 2008C-2 Subordinate Bonds are variable rate bonds issued to refund certain prior debt. With respect to such bonds, the Authority entered into long-term interest rate swap agreements with J.P. Morgan Chase Bank, National Association and Merrill Lynch Capital Services, Inc. These swaps are insured by AGM. AGM provides the debt service reserve fund policy for the 2008C-1 Subordinate Bonds and the 2008C-2 Subordinate Bonds.

12. Subseries of 2008C-1 Subordinate Bonds. The 2008C-1 Subordinate Bonds were initially insured by AGM with a liquidity facility provided by Dexia Credit Local. In 2009, the Authority, pursuant to the 2009-1 Supplemental Subordinate Indenture and an Amendment to the Amending Supplement to the Initial Subordinate Indenture and the 2009-2 Supplemental Subordinate Indenture, divided the 2008C-1 Subordinate Bonds into four subseries: the \$10,000,000 Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1A of 2008 (the “2008C-1A Subordinate Bonds”); the \$10,000,000 Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1B of 2008 (the “2008C-1B Subordinate Bonds”); the \$5,000,000 Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1C of 2008 (the “2008C-1C Subordinate Bonds”); and the \$26,910,000 Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1D of 2008 (the “2008C-1D



Subordinate Bonds”). All of these bonds were converted into a term mode. Dexia Credit Local was removed as the liquidity facility for all of these bonds. New banks were designated as liquidity facility providers for the 2008C-1A Subordinate Bonds, the 2008C-1B Subordinate Bonds and the 2008C-1C Subordinate Bonds. The 2008C-1D Subordinate Bonds were remarketed without a liquidity facility. In 2012, the 2008C-1D Subordinate Bonds were remarketed again without a liquidity facility and the Authority entered into the 2012 Supplemental Subordinate Indenture.

13. 2008C-2 Subordinate Bonds. The 2008C-2 Subordinate Bonds are insured by AGM with a liquidity facility furnished by PNC Bank, National Association.

14. Direct Placement of 2008C-1ABC Subordinate Bonds. In 2013, the Authority began a process in which all of the subordinate bonds would eventually be put into direct placements by 2016. Pursuant to the Third Supplemental Subordinate Indenture, the AGM insurance on the 2008C-1A Subordinate Bonds, the 2008C-1B Subordinate Bonds and the 2008C-1C Subordinate Bonds (collectively, the “2008C-1ABC Subordinate Bonds”) was terminated, and the 2008C-1ABC Subordinate Bonds were directly placed with Banc of America Preferred Funding Corporation. In connection with the direct placement, the Authority and Banc of America Preferred Funding Corporation entered into a Continuing Covenant Agreement dated as of September 1, 2013 (the “2008C-1ABC Continuing Covenant Agreement”).

15. 2013A Bonds and 2013B Bonds. Also in 2013, the Authority issued additional senior bonds, the \$130,215,000 (Fixed Rate) Water and Sewer System First Lien Revenue Refunding Bonds, Series A of 2013 (the “2013A Bonds”) and the \$86,695,000 (Fixed Rate) Water and Sewer System First Lien Revenue Bonds, Series B of 2013 (the “2013B Bonds”), pursuant to the Eighth Supplemental Indenture. The 2013A Bonds are fixed rate bonds that refunded certain prior bonds and paid termination payments in order to terminate interest rate swap agreements. The 2013B Bonds are fixed rate bonds that funded capital projects. The 2013A Bonds and the 2013B Bonds are insured by AGM. AGM also provides the debt service reserve fund policy for the 2013A Bonds and the 2013B Bonds.

16. Direct Placement of 2008C-2 Subordinate Bonds; LIBOR Rates for 2008C-1ABC Subordinate Bonds, 2008C-2 Subordinate Bonds and Swaps. In 2014 and 2015, the rest of the subordinate bonds were put into direct placements. Pursuant to the 2014 Supplemental Indenture, the 2008C-1ABC Subordinate Bonds, which were directly placed with the Banc of America Preferred Funding Corporation in 2013, were converted to a LIBOR-based interest rate mode; and the 2008C-2 Subordinate Bonds were directly placed with DNT Asset Trust (an affiliate of J.P. Morgan Chase Bank, N.A.) in a LIBOR-based interest rate mode. The Authority and Banc of America Preferred Funding Corporation entered into a First Amendment to Continuing Covenant Agreement dated as of November 3, 2014 (the “2008C-1ABC First Amendment to Continuing Covenant Agreement”). The Authority and DNT Asset Trust entered into a Continuing Covenant Agreement dated as of November 3, 2014 (the “2008C-2 Continuing Covenant Agreement”). In connection with these actions, the Authority entered into amendments to the long-term interest rate swap agreements with J.P. Morgan Chase Bank, National Association and Merrill Lynch Capital Services, Inc. to provide for LIBOR-based payments by the counterparties under the swap agreements (with respect to all of the 2008C Subordinate Bonds).

17. Direct Placement of 2008C-1D Subordinate Bonds. In 2015, pursuant to the 2015 Supplemental Indenture, the 2008C-1D Subordinate Bonds were directly placed with Bank of America, N.A. in a LIBOR-based interest rate mode. The Authority and Bank of America, N.A. entered into a Continuing Covenant Agreement dated as of September 1, 2015 (the “2008C-1D Continuing Covenant Agreement”).

18. Agreements with AGM Regarding Swap Insurance. The Authority has two agreements with AGM regarding the interest rate swap agreements that AGM insures related to the 2008C Subordinate Bonds: an Agreement Regarding Insured Swap Transaction dated as of September 1, 2013, as amended by an Amendment dated as of July 11, 2017 (collectively, the “AGM 2008C-1ABC and 2008C-1D Agreement”), and an Agreement Regarding Insured Swap Transaction dated as of November 1, 2014 (the “AGM 2008C-2 Agreement”). These agreements require the swaps or the insurance thereof to be terminated in certain circumstances.

19. Non-Bond Subordinate Debt: PENNVEST Loans and 2016 Revolving Credit Agreement. In addition to the senior and subordinate bonds, the Authority has two other types of debt which are subordinate to both the senior and the subordinate bonds, but are on parity with each other with respect to the Authority’s Revenues (as hereinafter defined). The first type of debt consists of multiple loans (the “PENNVEST Loans”) from the Pennsylvania Infrastructure Investment Authority (“PENNVEST”). The PENNVEST Loans were entered into by the Authority between 2001 and 2014 and have an outstanding principal amount of approximately \$33 million. The second type of debt is an \$80 million maximum principal amount revolving construction loan evidenced by a Revenue Note, Series of 2016 (the “2016 Note”). The 2016 Note was issued pursuant to a Revolving Credit and Security Agreement dated as of July 1, 2016 (the “2016 Revolving Credit Agreement”) between the Authority and the lender, JPMorgan Chase Bank, National Association. In connection with the execution of the 2016 Revolving Credit Agreement, the Authority, PENNVEST, JPMorgan Chase Bank, National Association and The Bank of New York Mellon Trust Company, N.A., as collateral trustee, entered into an Intercreditor Agreement dated as of July 1, 2016 (the “2016 Intercreditor Agreement”) setting forth their respective rights with respect to the Revenues.

20. Bondholder Consent for this Indenture. The Authority is determined to improve both its operations and its capital assets. As part of these improvements, the Authority intends to improve and modernize its financing documents and to refund and restructure much of its outstanding debt. The Authority has obtained the consent of 66 2/3% of the bondholders under the Existing Senior Indenture and other required consents in order to have this Indenture become effective as of the First Effective Date (defined herein). The Authority, upon consultation with its counsel, has determined that the consents referenced in the previous sentence are sufficient to permit the actions contemplated herein. If and when 100% bondholder approval is obtained, one additional provision of this Indenture will become effective (see Section 11.02).

21. 2017A Bonds and 2017B Bonds. The Authority has issued its \$159,795,000 Water and Sewer System First Lien Revenue Refunding Bonds, Series A of 2017 (the “2017A Bonds”) and its \$5,595,000 Water and Sewer System First Lien Revenue Refunding Bond, Series B of 2017 (Federally Taxable) (the “2017B Bonds”) to finance the refunding of a portion of the 1998B Bonds and the 2013B Bonds and all of the 2008A Bonds and the 2008D-1

Bonds pursuant to the 2017-1 Supplemental Indenture. \$53,887,917 principal amount (accrued value) of the 1998B Bonds remain outstanding, and \$38,760,000 principal amount of the 2013B Bonds remain outstanding.

22. 2017C Bonds. The Authority has issued its \$218,805,000 Water and Sewer System First Lien Revenue Refunding Bonds, Series C of 2017 (the “2017C Bonds”) to finance the refunding of the 2008B-1 Bonds, the 2008B-2 Bonds and the 2008D-2 Bonds pursuant to the 2017-2 Supplemental Indenture.

23. Need for Amended and Restated Trust Indenture. The Authority has determined that this Amended and Restated Trust Indenture is necessary to update and modernize provisions and covenants, including those related to financing structures and bondholder security.

24. First Effective Date. This Indenture as amended by the 2017-1 Supplemental Indenture and the 2017-2 Supplemental Indenture is effective as of the First Effective Date; and

WHEREAS, the Authority determined that substantial changes were needed in the Existing Senior Indenture to provide the Authority, among other things, greater flexibility in conducting its operations and in financing its capital needs; as a result, the Authority is amending and restating the provisions of the Existing Senior Indenture by entering into this Indenture, which is now effective as described in Section 1.03 hereof, and the Authority has requested the Trustee to participate in this Indenture; and

WHEREAS, the execution and delivery of this Indenture have been duly authorized by a resolution of the Authority; and

WHEREAS, all acts, conditions and things required by the Constitution and laws of the Commonwealth, including the Act, to happen, exist and be performed precedent to and in the execution and delivery of this Indenture have happened, exist and have been performed as so required, in order to make this Indenture a valid and binding trust indenture for the security of the Bonds, subject to the lien on Revenues created under this Indenture, in accordance with its terms;

NOW, THEREFORE, THIS AMENDED AND RESTATED TRUST INDENTURE WITNESSETH: that in consideration of the premises and of the acceptance by the Trustee of the trusts hereby created, and of the purchase and acceptance of the Bonds by the registered Owners thereof, and for the purpose of fixing and declaring the terms and conditions upon which the Bonds are or may be issued, authenticated, delivered, secured and accepted by all persons who shall from time to time be or become Owners thereof, and to declare the terms and conditions upon which the Bonds are secured, and to secure equally and on parity the payment of (i) the principal of, and interest and premium (if any) on all Bonds at any time issued and outstanding hereunder, according to their tenor, purport and effect, and (ii) Other Senior Parity Indebtedness and to secure the performance and observance of all of the covenants, agreements and conditions therein and herein contained, the Authority, intending to be legally bound, has executed and delivered this Indenture and by these presents does hereby sell, assign, transfer, set

over, grant a security interest in and pledge unto The Bank of New York Mellon Trust Company, N.A., as Trustee, its successors in the trust and its assigns forever, to the extent provided in this Indenture, the Revenues (as defined in this Indenture), after payment of the Current Expenses (as defined in this Indenture), together with all cash and investments from time to time held in any fund (other than the Rebate Fund) by the Trustee hereunder or held by the Authority in the Revenue Fund, the Operating Reserve Fund or the Rate Stabilization Fund (collectively, the “Trust Estate”).

TO HAVE AND TO HOLD the same unto the Trustee, its successors and assigns in trust forever, IN TRUST, NEVERTHELESS, upon the terms and trusts herein set forth, to secure the payment of all Bonds issued hereunder and the interest thereon and the observance and performance of all the terms, provisions and conditions of this Indenture, and for the equal and ratable benefit and security of all and singular the present and future holders of the Bonds and Other Senior Parity Indebtedness Parties, without preference, priority or distinction as to lien or otherwise, except as otherwise hereinafter provided, of any one Bond or Other Senior Parity Indebtedness over any other Bond or Other Senior Parity Indebtedness by the reason of priority in the issue, sale or authentication thereof or otherwise and to secure the performance and observance of all of the covenants, agreements and conditions therein and herein contained, including the payment of Other Senior Parity Indebtedness, and it is hereby covenanted and agreed by and between the parties hereto that the terms and conditions upon which the Bonds are to be issued, authenticated, delivered, secured and accepted by all persons who shall from time to time be or become registered Owners thereof, and the trusts and conditions upon which the pledged Revenues are to be held and disposed of, are as follows:

## ARTICLE I

### DEFINITIONS AND GENERAL INDENTURE MATTERS

#### Section 1.01 Definitions.

(a) The following terms defined in the Recitals of this Indenture shall have the meanings as defined therein for all purposes of this Indenture (including any Supplemental Indentures), unless the context clearly otherwise requires:

Act  
AGM  
AGM 2008C-1ABC and 2008C-1D Agreement  
AGM 2008C-2 Agreement  
Capital Lease Agreement  
City  
Commonwealth  
Cooperation Agreement  
Eighth Supplemental Indenture  
Existing Senior Indenture  
Existing Subordinate Indenture  
FGIC  
Fifth Supplemental Indenture

First Supplemental Indenture  
First Supplemental Subordinate Indenture  
Fourth Supplemental Indenture  
Lease and Management Agreement  
National  
Original Indenture  
Original Subordinate Indenture  
PENNVEST  
PENNVEST Loans  
Second Supplemental Indenture  
Second Supplemental Subordinate Indenture  
Seventh Supplemental Indenture  
Sixth Supplemental Indenture  
Third Supplemental Indenture  
Third Supplemental Subordinate Indenture  
1998B Bonds  
2008A Bonds  
2008B-1 Bonds  
2008B-2 Bonds  
2008C-1 Subordinate Bonds  
2008C-1A Subordinate Bonds  
2008C-1ABC Subordinate Bonds  
2008C-1ABC Continuing Covenant Agreement  
2008C-1ABC First Amendment to Continuing Covenant Agreement  
2008C-1B Subordinate Bonds  
2008C-1C Subordinate Bonds  
2008C-1D Subordinate Bonds  
2008C-1D Continuing Covenant Agreement  
2008C-2 Subordinate Bonds  
2008C-2 Continuing Covenant Agreement  
2009 Supplemental Indenture  
2009-1 Supplemental Subordinate Indenture  
2009-2 Supplemental Subordinate Indenture  
2010 Supplemental Indenture  
2012 Supplemental Subordinate Indenture  
2013 Supplemental Indenture  
2013A Bonds  
2013B Bonds  
2014 Supplemental Subordinate Indenture  
2015 Supplemental Subordinate Indenture  
2016 Intercreditor Agreement  
2016 Note  
2016 Revolving Credit Agreement  
2016 Supplemental Indenture  
2017A Bonds  
2017B Bonds

2017C Bonds  
2017-1 Supplemental Indenture  
2017-2 Supplemental Indenture

(b) Terms defined below in this Article I shall have the meanings set forth below for all purposes of this Indenture (including any Supplemental Indentures), unless the context clearly otherwise requires:

Account

The term “Account” shall mean any of the various accounts, sometimes created within a Fund, under this Indenture including in a Supplemental Indenture.

Accreted Values

The term "Accreted Values" with respect to any Capital Appreciation Bonds, Capital Appreciation and Income Bonds, and Current Interest Capital Appreciation Bonds shall mean an amount equal to the Principal Amount of such Bonds (determined on the basis of the Principal Amount per \$5,000 at maturity thereof) plus the amount assuming semiannual compounding of earnings which would be produced on the investment of such Principal Amount, beginning on the dated date of such Bonds and ending at the maturity date thereof, at a yield which if produced until maturity will produce \$5,000 at maturity. As of any Valuation Date, the Accreted Value of any such Bonds shall mean the amount set forth for such date in the Supplemental Indenture and as of any date other than a Valuation Date, the sum of (a) the Accreted Value on the preceding Valuation Date and (b) the product of (i) a fraction, the numerator of which is the number of days having elapsed from the preceding Valuation Date and denominator of which is the number of days from such preceding Valuation Date to the next succeeding Valuation Date, and (ii) the difference between the Accreted Values for such Valuation Dates. For purposes of consents, voting rights, Bondowner rights, or any other matter herein determined by a percentage of the aggregate Principal Amount of Bonds Outstanding, Capital Appreciation Bonds, Capital Appreciation and Income Bonds, and Current Interest Capital Appreciation Bonds shall be valued at their Accreted Values.

Additional Bonds

The term “Additional Bonds” shall mean Bonds authenticated and delivered hereunder of any Series other than the First Effective Date Outstanding Bonds.

Additional Indebtedness Test

The term “Additional Indebtedness Test” shall mean the certification requirement set forth in Section 3.02(g)(ii) or 3.02(h)(ii) for the issuance of Additional Bonds, in Section 3.03(a) for the issuance of Other Senior Parity Indebtedness.

Additional Indebtedness Test Net Revenues

The term "Additional Indebtedness Test Net Revenues" shall mean Net Revenues adjusted for the purpose of determining fulfillment of the Additional Indebtedness Test to exclude for the relevant Test Period any Revenues consisting of Grants, proceeds of any business interruption insurance, and investment income earned on the Construction Fund and Rate Stabilization Fund.

#### Annual Budget

The term "Annual Budget" shall mean the budget required by Section 7.12 herein.

#### Annual Debt Service

The term "Annual Debt Service" shall mean the amount of payments scheduled to come due within a specified Fiscal Year for principal of and interest on any specified Indebtedness. For purposes of calculating Annual Debt Service, the following assumptions are to be used to calculate the principal and interest due in such specified Fiscal Year:

(a) In determining the Principal Amount due in the Fiscal Year, except to the extent that another subparagraph of this definition applies, payment shall be assumed to be made in accordance with any amortization schedule established for such Indebtedness, including any scheduled redemption of such specified Indebtedness and, for such purpose, the redemption payment shall be deemed a principal payment. In determining the amount of interest due in each Fiscal Year, except to the extent subparagraphs (b) through (h) of this definition apply, (i) interest payable at a fixed rate shall be assumed to be made at such fixed rate and on the required payment dates and (ii) the interest rate to be used for Variable Rate Indebtedness that has been Outstanding for at least twelve (12) months shall be the average rate over the twelve (12) months immediately preceding the date of calculation, or for Variable Rate Indebtedness that has been Outstanding less than twelve (12) months the interest rate to be used shall be the actual rate on the date of calculation, or, for Variable Rate Indebtedness proposed to be issued the interest rate to be used for such computation shall be determined by (1) a Qualified Independent Consultant to be a reasonable market rate for fixed-rate bonds of a corresponding term issued under this Indenture on the date of such calculation, with no credit enhancement and taking into consideration whether such Indebtedness bears interest that is or is not excluded from gross income for federal income tax purposes and that is or is not subject to any alternative minimum tax or (2) an Authorized Representative of the Authority by applying the Municipal Market Data (MMD) Index of the same rating category as the Authority for fixed-rate bonds of the most closely corresponding final term and parameters in (1) above.

For the purpose of verifying compliance with the rate covenant contained in Section 7.01 hereof, Variable Rate Indebtedness shall be deemed to bear interest at the actual rate or rates borne during any applicable Fiscal Year.

The amount of Capitalized Interest on deposit in the Debt Service Fund shall be subtracted from the amount of interest due for any related Fiscal Year, but only to the

extent that such Capitalized Interest is dedicated to a particular interest payment coming due during such Fiscal Year.

(b) Each maturity of Indebtedness that constitutes Balloon Indebtedness shall be treated as if it were to be amortized over a term of not more than forty (40) years and with substantially level annual debt service payments commencing not later than the year following the year in which such Balloon Indebtedness was issued, and extending not later than forty (40) years from the date such Balloon Indebtedness was originally issued. For fixed rate obligations, the interest rate used for such computation shall be determined by (1) a Qualified Independent Consultant to be a reasonable market rate for fixed-rate bonds of a corresponding term issued under this Indenture on the date of such calculation, with no credit enhancement and taking into consideration whether such Indebtedness bears interest that is or is not excluded from gross income for federal income tax purposes and that is or is not subject to any alternative minimum tax or (2) an Authorized Representative of the Authority by applying the Municipal Market Data (MMD) Index of the same rating category as the Authority for fixed-rate bonds of the most closely corresponding final term and parameters in (1) above in this sentence. For Balloon Indebtedness that also constitutes Variable Rate Indebtedness, the interest rate used for such computation shall be determined by (1) a Qualified Independent Consultant to be a reasonable market rate for fixed-rate Bonds of a corresponding term issued under this Master Bond Resolution on the date of such calculation, with no credit enhancement and taking into consideration whether such Bonds bear interest that is or is not excluded from gross income for federal income tax purposes and that is or is not subject to any alternative minimum tax or (2) an Authorized Representative of the Authority by applying the Municipal Market Data (MMD) Index of the same rating category as the Authority for fixed-rate bonds of the most closely corresponding final term and parameters in (1) above.

(c) Notwithstanding subparagraph (b) above, if any stated maturity date of Indebtedness that constitutes Balloon Indebtedness occurs within twelve (12) months from the date of the calculation of Annual Debt Service, the principal amount maturing shall be assumed to become due and payable on the stated maturity date unless there is delivered a certificate of an Authorized Representative of the Authority stating that (i) the Authority intends to refinance such maturity and (ii) the probable terms of such refinancing. Upon delivery of such certificate, such Balloon Indebtedness shall be assumed to be refinanced, and Annual Debt Service shall be calculated, in accordance with the probable terms set out in such certificate, except that such assumption shall not result in an interest rate lower than that which would be assumed under subparagraph (b) above and such Balloon Indebtedness shall be amortized over a term of not more than forty (40) years from the date of refinancing.

(d) If any Indebtedness that is then proposed to be issued constitutes Tender Indebtedness, then Tender Indebtedness shall be treated as if the principal amount of such Bonds were to be amortized over a term of not more than 40 years from the date such Tender Indebtedness was originally issued, except that if any principal maturity or amortization schedule is set forth in a Supplemental Indenture or other applicable agreement, such schedule shall be used to determine the principal maturity or



amortization of such Indebtedness. The interest rate used for such computation shall be determined by (1) a Qualified Independent Consultant to be a reasonable market rate for fixed-rate Bonds of a corresponding term issued under this Indenture on the date of such calculation, with no credit enhancement and taking into consideration whether such Indebtedness bears interest that is or is not excluded from gross income for federal income tax purposes and that is or is not subject to any alternative minimum tax or (2) an Authorized Representative of the Authority by applying the Municipal Market Data (MMD) Index of the same rating category as the Authority for fixed-rate bonds of the most closely corresponding final term and parameters in (1) above. For all principal and interest payments becoming due prior to the year in which such Tender Indebtedness is first subject to tender, such payments shall be treated as described in the other applicable subparagraphs of this definition.

(e) With respect to any Interim Indebtedness, it shall be assumed that the principal amount of the Interim Indebtedness will be continuously refinanced and will remain Outstanding until the first Fiscal Year for which interest on the Interim Indebtedness has not been capitalized or otherwise funded or provided for. For such first Fiscal Year, it shall be assumed that (i) the Outstanding principal amount of the Interim Indebtedness will be refinanced with a Series of Additional Bonds that will be amortized over a period not to exceed forty (40) years in such manner as will cause the maximum annual debt service payments applicable to such Series in any twelve (12) month period not to exceed 110% of the minimum annual debt service payments applicable to such Series for any other twelve (12) month period, and (ii) the Series of Additional Bonds will bear interest at a fixed interest rate estimated by (1) a Qualified Independent Consultant to be the interest rate such Series of Additional Bonds would bear if issued on such terms on the date of such estimate to be a reasonable market rate for fixed-rate bonds of a corresponding term issued under this Indenture on the date of such calculation, with no credit enhancement and taking into consideration whether such Indebtedness bears interest that is or is not excluded from gross income for federal income tax purposes and that is or is not subject to any alternative minimum tax or (2) an Authorized Representative of the Authority by applying the Municipal Market Data (MMD) Index of the same rating category as the Authority for fixed-rate bonds of the most closely corresponding final term and parameters in (1) above. Indebtedness which is Interim Indebtedness shall not be treated as Balloon Indebtedness.

(f) Except for Hedge Agreements, Qualified Interest Rate Swap Agreements are to be disregarded in calculating the Series Debt Service Reserve Requirement. Upon incurrence of a Hedge Agreement, all calculations, including for the annual amount on account of principal and interest on Indebtedness subject to the Hedge Agreement, shall be made using the Hedge Fixed Rate for the applicable period and such Indebtedness shall not be considered as Variable Rate Indebtedness for such period.

(g) If money that is not included in the definition of "Revenues" has been used to pay or has been irrevocably deposited with and is held by the Authority to pay principal and/or interest on Indebtedness, then the principal and/or interest paid from such money shall be excluded from the computation of Annual Debt Service.

(h) For any Indebtedness for which a binding commitment, letter of credit or other credit arrangement providing for the extension of such Indebtedness beyond its original maturity date exists, the computation of the annual amount payable on account of principal and interest on such Indebtedness shall, at the option of the Authority, be made on the assumption that such Indebtedness will be amortized in accordance with such credit arrangement.

#### Approval Amount

The term "Approval Amount" shall mean (a) prior to the Second Effective Date, sixty-six and two-thirds per centum (66-2/3 %) in aggregate Principal Amount of the applicable Bonds then Outstanding, and (b) on and after the Second Effective Date, a majority in aggregate Principal Amount of the applicable Bonds then Outstanding.

#### Authority

The term "Authority" shall mean The Pittsburgh Water and Sewer Authority, a body corporate and politic existing and operating under the Act.

#### Authorized Depository

The term "Authorized Depository" shall mean any incorporated bank or trust company doing business in the Commonwealth, which is insured by the Federal Deposit Insurance Corporation or by any other agency of the United States of America performing functions similar to the Federal Deposit Insurance Corporation (provided such an agency shall be in existence), which has a combined capital and surplus of not less than Fifty Million Dollars (\$50,000,000), and which is not unsatisfactory to the Trustee, and shall include the Trustee; provided that the Authority may deposit funds in any bank or trust company doing business in the Commonwealth to the extent that such funds are insured, by the Federal Deposit Insurance Corporation or by any other agency of the United States of America performing similar functions to the Federal Deposit Insurance Corporation.

#### Authorized Representative of the Authority

The term "Authorized Representative of the Authority" shall mean the Chairperson, the Vice Chairperson, the Secretary, the Assistant Secretary, the Executive Director, the Chief Financial Officer, the Director of Finance or any such other person or persons as may be designated to act on behalf of the Authority by a certificate executed by the Chairperson of the Authority and on file with the Trustee.

#### Balloon Indebtedness

The term "Balloon Indebtedness" shall mean all or any portion of any Indebtedness 25% or more of the initial principal of which matures on the same date or within such Fiscal Year. For purposes of this definition, the principal amount maturing on any date shall be reduced by the amount of such Indebtedness scheduled to be amortized by prepayment or redemption prior to its stated maturity date. If any indebtedness consists partially of Variable Rate Indebtedness and partially of indebtedness bearing interest at a fixed rate, the portion

constituting Variable Rate Indebtedness and the portion bearing interest at a fixed rate shall be treated as separate issues for purposes of determining whether any such indebtedness constitutes Balloon Indebtedness.

#### Board

The term "Board" shall mean the governing body of the Authority.

#### Bond or Bonds

The term "Bond" or "Bonds" shall mean any bond or all the bonds, as the case may be, authenticated and delivered under this Indenture, but not including Subordinate Debt.

#### Bond Counsel

The term "Bond Counsel" shall mean an attorney or firm of attorneys selected by the Authority which is a nationally recognized and experienced bond counsel relating to the financing of facilities through the issuance of tax-exempt or taxable bonds.

#### Bond Insurance Policy

The term "Bond Insurance Policy" shall mean a municipal bond insurance policy or policies, including any endorsements thereto, issued by a Bond Insurer guaranteeing the scheduled payment of the principal of and interest on Bonds.

#### Bond Insurer or Insurer

The term "Bond Insurer" or "Insurer" shall mean an insurance company guaranteeing the payment of principal and interest on Bonds when due.

#### Bond Year

The term "Bond Year" shall mean, each year, the twelve (12) month period commencing on the date of issuance of a Series of Bonds or the anniversary date thereof, or as otherwise provided in the Supplemental Indenture or the Tax Regulatory Certificate for a Series of Bonds.

#### Business Day

Except as otherwise defined in a Supplemental Indenture related to a Series of Bonds, the term "Business Day" shall mean a day on which banking business is transacted, but not including a Saturday, Sunday or legal holiday, or any day on which banks located in each of the cities in which the offices of the Trustee and the Paying Agent responsible for the administration of this Indenture are located are authorized by law to close, or any day on which the New York Stock Exchange is closed.

### Capital Additions

The term "Capital Additions" shall mean all new or additional property, which the Authority has authority to, or is required to, construct or acquire with respect to the System, and any and all permanent improvements, replacements, additions, extensions and betterments to real or fixed property of the Authority with respect to the System.

### Capital Appreciation Bonds

The term "Capital Appreciation Bonds" shall mean Bonds as to which the Accreted Value is payable only at the maturity or prior redemption of the Bonds. For purposes of consents, voting rights, Bondowner rights, or any other matter herein determined by a percentage of the aggregate Principal Amount of Bonds Outstanding, Capital Appreciation Bonds shall be valued at their Accreted Values.

### Capital Appreciation and Income Bonds

The term "Capital Appreciation and Income Bonds" shall mean Bonds as to which interest is deferred and compounded prior to the date after which interest ceases to be deferred and compounded and the interest becomes currently payable. For purposes of consents, voting rights, Bondowner rights, or any other matter in herein determined by a percentage of the aggregate Principal Amount of Bonds Outstanding, Capital Appreciation and Income Bonds shall be valued at their Accreted Values.

### Capitalized Interest

The term "Capitalized Interest" shall mean the amount of interest on Bonds, if any, funded from the proceeds of the Bonds or other money that are deposited with the Trustee in the Debt Service Fund as shall be described in a Supplemental Indenture upon issuance of Bonds to be used to pay interest on the Bonds.

### Code

The term "Code" shall mean the Internal Revenue Code of 1986, as amended, including applicable regulations, rulings and revenue procedures promulgated or applicable thereunder.

### Common Debt Service Reserve Requirement

The term "Common Debt Service Reserve Requirement" shall mean, for all Common Debt Service Reserve Secured Bonds, the least of (i) 10% of the aggregate original stated Principal Amount of all Common Debt Service Reserve Secured Bonds (provided that if any Common Debt Service Reserve Secured Bonds have more than a *de minimis* (2%) amount of original issue discount or premium, the issue price of such Common Debt Service Reserve Secured Bonds (net of pre-issuance accrued interest) is used to measure the 10% limitation in lieu of its stated Principal Amount), (ii) the maximum amount of aggregate Annual Debt Service

on all Common Debt Service Reserve Secured Bonds in any Fiscal Year, or (iii) 125% of average aggregate Annual Debt Service on all Common Debt Service Reserve Secured Bonds.

#### Common Debt Service Reserve Secured Bonds

The term "Common Debt Service Reserve Secured Bonds" shall mean any Series of Bonds for which the Supplemental Indenture authorizes said Bonds to be secured by the Common Debt Service Reserve Requirement.

#### Construction Fund

The term "Construction Fund" shall mean the Construction Fund designated and established pursuant to Section 5.01 hereof.

#### Construction Project

The term "Construction Project" shall mean the acquisition or construction of Capital Additions or other improvements to the System, as the same may be amended from time to time.

#### Consulting Engineer

The term "Consulting Engineer" shall mean a person who is a registered professional engineer under the laws of the Commonwealth qualified to pass on engineering questions relating to the operation and maintenance of water, stormwater and sewer systems, who is appointed by the Board, who is in fact independent (although such person may be regularly retained by the Authority) and who is not unsatisfactory to the Trustee. If such person be an individual, such person shall not be a member of the Board or an officer or employee of the Authority or the City. If such person be a partnership or corporation, such person shall not have a partner, director, officer or substantial stockholder who is a member of the Board or an officer or employee of the Authority or the City. The Consulting Engineer may perform similar services for the City.

#### Continuing Disclosure Undertaking

The term "Continuing Disclosure Undertaking" shall mean the continuing disclosure undertaking or continuing disclosure agreement, if any, relating to a Series of Bonds.

#### Cost

The term "Cost", when used with reference to a Construction Project or with reference to Capital Additions, shall mean the amounts required to be paid to construct and complete the Construction Project or to construct or otherwise acquire such Capital Additions, and shall include, in addition to such other items as are included within any proper definition of cost, allowances or charges for interest during construction and for a reasonable period thereafter, which is not otherwise provided for, taxes, engineering, legal, fiscal and superintendence expenses and premiums for casualty and other insurance and all expenses

incurred by the Authority in connection with the preparation, issue and sale of the Bonds or other Indebtedness including discounts (if any) incurred on the sale of the Bonds or other Indebtedness.

#### Counsel

The term "Counsel" shall mean legal counsel admitted to practice before the Supreme Court of the Commonwealth, who may but need not be counsel regularly retained by the Authority, and not unsatisfactory to the Trustee.

#### Counsel's Opinion

The term "Counsel's Opinion" shall mean an opinion signed by an attorney or firm of attorneys selected by the Authority or the Trustee, respectively.

#### Counterparty

The term "Counterparty" shall mean any counterparty (the party other than the Authority) on a Qualified Interest Rate Swap Agreement.

#### Credit Facility

The term "Credit Facility" shall mean a letter of credit, liquidity facility, a bond insurance policy, surety bond or similar arrangement securing any obligation of the Authority with respect to any Indebtedness.

#### Current Expenses

The term "Current Expenses" shall mean all current expenses directly or indirectly attributable to the ownership or operation of the System, including reasonable and necessary usual expenses of administration, operation, maintenance and repair; costs for billing and collecting the rates; insurance premiums; costs and expenses of any Credit Facility; and legal, engineering, auditing and financial advisory expenses; all as determined (except as otherwise specified in this Indenture) in accordance with GAAP for entities such as the Authority consistently applied, excluding (a) any payments payable by the Authority to the City under the Cooperation Agreement, (b) any payments in lieu of taxes or allowance for depreciation or amortization, and (c) expenses which constitute extraordinary, nonrecurring and non-continuing expenses of the System in the written opinion of the Qualified Independent Consultant.

#### Current Interest Capital Appreciation Bonds

The term "Current Interest Capital Appreciation Bonds" shall mean Bonds as to which a portion of interest is currently payable and a portion of the interest is deferred and compounded until the Accreted Value is payable only at the maturity or prior redemption of the Bonds. For purposes of consents, voting rights, Bondowner rights, or any other matter herein determined by a percentage of the aggregate Principal Amount of Bonds Outstanding, Current Interest Capital Appreciation Bonds shall be valued at their Accreted Values.

### Debt Service Fund

The term “Debt Service Fund” shall mean the fund so designated and created by Section 6.01(3).

### Debt Service Reserve Fund

The term “Debt Service Reserve Fund” shall mean the fund so designated and created by Section 6.01(4).

### Debt Service Reserve Fund Policy

The term “Debt Service Reserve Fund Policy” shall mean a Municipal Bond Debt Service Reserve Fund Policy or Policies issued by a Bond Insurer and deposited into the Debt Service Reserve Fund.

### Debt Service Reserve Requirement

The term “Debt Service Reserve Requirement” shall mean the applicable Common Debt Service Reserve Requirement or the Series Debt Service Reserve Requirement.

### Default Rate

The term “Default Rate” shall mean the “Default Rate” as defined in a Credit Facility.

### Disbursement Date

The term “Disbursement Date” shall have the meaning set forth in Section 6.02 hereof.

### DTC

The term “DTC” shall have the meaning set forth in Section 2.10 hereof.

### DTC Representation Letter

The term “DTC Representation Letter” shall have the meaning set forth in Section 2.10 hereof.

### EMMA

The term “EMMA” shall mean the Electronic Municipal Market Access system operated by the MSRB, or any successor system.

### First Effective Date

The term “First Effective Date” shall mean the date on which at least sixty-six and two-thirds per centum (66-2/3 %) in aggregate Principal Amount of the applicable Bonds Outstanding shall have approved this Amended and Restated Trust Indenture, as described in Section 1.03 hereof. The First Effective Date is December 28, 2017.

#### First Effective Date Outstanding Bonds

The term “First Effective Date Outstanding Bonds” shall mean the Bonds Outstanding on the First Effective Date (being the then Outstanding 1998B Bonds, 2013A Bonds, 2013 B Bonds, 2017A Bonds, 2017B Bonds and 2017C Bonds).

#### Fiscal Year

The term "Fiscal Year" shall mean the period of twelve months beginning on January 1 of each year or such other twelve month period as may be designated by the Authority.

#### Fund

The term “Fund” shall mean any of the various funds created under this Indenture including in a Supplemental Indenture.

#### GAAP

The term “GAAP” shall mean generally accepted accounting principles.

#### Grant

The term “Grant” shall mean a grant provided by any entity to or for the Authority for the payment of Current Expenses.

#### Hedge Agreement

The term “Hedge Agreement” shall mean an Interest Rate Swap, cap, collar, floor, forward or other hedging agreement, arrangement or security however denominated, expressly identified pursuant to its terms as being entered into in connection with and in order to hedge interest rate fluctuations on all or a portion of any Indebtedness where (a) interest on such Indebtedness or such portion of such Indebtedness is payable at a variable rate of interest for any future period of time or is calculated at a varying rate per annum, and (b) a fixed rate is specified by the Authority in such agreement, or such Indebtedness, taken together with such agreement results in a net fixed rate payable by the Authority for such period of time (the “Hedge Fixed Rate”), assuming the Authority and the party(ies) with whom the Authority has entered into the agreement make all payments required to be made by the terms of the agreement, provided that no such agreement may be entered into by the Authority unless any termination or similar payment which may be payable by the Authority thereunder is expressly subordinate to the obligation of the Authority on the Indebtedness.

#### Hedge Fixed Rate



The term “Hedge Fixed Rate” shall have the meaning set forth in the definition of Hedge Agreement above.

#### Holder of Bonds

The term “Holder of Bonds” or “Bondholder” or “Holder” or “Owner of Bonds” or “Owner” or “Bondowner” or any similar term shall mean any registered owner of any Bond.

#### Indebtedness

The term “Indebtedness” shall mean (a) Senior Debt, (b) Subordinate Debt, and (c) other debt of the Authority not secured by the Revenues. The term shall include all debt of the Authority outstanding as of the First Effective Date.

#### Indenture

The term “Indenture” or “this Indenture” shall mean this amended and restated trust indenture and all indentures supplemental hereto.

#### Independent Auditor

The term "Independent Auditor" shall mean a person who is engaged in the accounting profession, who is a nationally recognized certified public accountant under the laws of the Commonwealth, who is in fact independent (although such person may be regularly retained by the Authority) who is appointed by the Board and who is not unsatisfactory to the Trustee. If such person be an individual, such person shall not be a member of the Board, or an officer or employee of the Authority. If such person be a partnership or corporation, such person shall not have a partner, director, officer or substantial stockholder who is a member of the Board or an officer or employee of the Authority.

#### Interest Account

The term “Interest Account” shall mean the Interest Account in the Debt Service Fund so designated and created by Section 6.01(3) hereof.

#### Interest Payment Date

The term “Interest Payment Date” shall mean the interest payment dates specified in any Supplemental Indenture with respect to Bonds issued thereunder, or the applicable interest payment dates for any other Indebtedness.

#### Interim Indebtedness

The term “Interim Indebtedness” shall mean any Indebtedness (i) for or with respect to which no principal payments are required to be made other than on the maturity date thereof, which date shall be no later than five (5) years from the date of its delivery to the initial purchasers, and (ii) which are authorized by an agreement that declares the Authority’s intent, at

the time of issuance, to refund or refinance all or a part of the same prior to or on such maturity date, including commercial paper, notes, and similar obligations

Letter of Credit

The term “Letter of Credit” shall mean an irrevocable transferable direct-pay letter of credit or standby letter of credit issued for a Series of Bonds by a Letter of Credit Bank for the account of the Authority in favor of the Trustee supporting a Series of Bonds as set forth in a Reimbursement Agreement.

Letter of Credit Bank

The term “Letter of Credit Bank” shall mean the issuer of a Letter of Credit pursuant to a Reimbursement Agreement.

Liquidity Facility

The term “Liquidity Facility” shall mean a standby bond purchase agreement or other liquidity facility pursuant to which the provider or providers agree to purchase Bonds issued pursuant to this Indenture tendered for purchase in accordance with a Supplemental Indenture, (ii) the provider of which has short-term ratings of at least “A-1” from S&P and “P-1” from Moody’s (unless such requirement is waived by the applicable Bond Insurer or Letter of Credit Bank) and (iii) which is acceptable to the applicable Bond Insurer or Letter of Credit Bank and each Rating Service and otherwise satisfying the requirements of a Supplemental Indenture pursuant to which Bonds supported by such Liquidity Facility were issued.

Liquidity Facility Issuer

The term “Liquidity Facility Issuer” shall mean the issuer of a Liquidity Facility pursuant to a Reimbursement Agreement.

Moody's

The term "Moody's" shall mean Moody's Investors Service, its successors and assigns, and, if such corporation shall be dissolved or liquidated or shall no longer perform the functions of a securities rating agency, "Moody's" shall be deemed to refer to any other nationally recognized securities rating agency designated by the Authority, by notice to the Trustee.

MSRB

The term “MSRB” shall mean the Municipal Securities Rulemaking Board, or any successor agency.

### Net Revenues

The term "Net Revenues", when used with reference to any period, shall mean the Revenues of the Authority for such period, less all Current Expenses for such period.

### Operating Fund

The term "Operating Fund" shall mean the Operating Fund designated and created by Section 6.01(2) hereof.

### Operating Reserve Fund

The term "Operating Reserve Fund" shall mean the Operating Reserve Fund designated and created by Section 6.01(5) hereof.

### Operating Reserve Requirement

The term "Operating Reserve Requirement" shall mean an amount equal to one-sixth (1/6<sup>th</sup>) of the Current Expenses reflected in the most recent annual audited financial statements of the Authority.

### Other Senior Parity Indebtedness

The term "Other Senior Parity Indebtedness" shall mean any other Indebtedness incurred by the Authority under this Indenture or secured by this Indenture that the Authority is required, or has elected, to treat as payable on a parity with the Bonds with respect to the pledge of Revenues, including Reimbursement Obligations under Reimbursement Agreements and Periodic Payments under Qualified Interest Rate Swap Agreements.

### Other Senior Parity Indebtedness Party

The term "Other Senior Parity Indebtedness Party" shall mean the other party (not the Authority) on Other Senior Parity Indebtedness, including, without limitation, any Letter of Credit Bank, Liquidity Facility Issuer, or Counterparty (but only with respect to Periodic Payments).

### Outstanding

The term "Outstanding under this Indenture" or "Outstanding hereunder" or "Outstanding", when used with reference to Bonds, shall mean, at any date as of which the amount of Outstanding Bonds is to be determined, the aggregate of all Bonds authenticated and delivered under this Indenture, except

- (i) Bonds cancelled at or prior to such date;

- (ii) Bonds for the payment of which funds shall have been theretofore deposited in trust with the Trustee and which shall have matured by their terms but shall not have been surrendered for payment;
- (iii) Bonds for the redemption or payment of which funds in the full amount required, either alone or together with the interest to be earned thereon, but without the need to reinvest interest or principal, shall then be irrevocably held in trust by the Trustee, provided that notice of such redemption shall have been provided as set forth in Article IV or provisions satisfactory to the Trustee shall have been made for providing such notice;
- (iv) Bonds deemed to be paid pursuant to the provisions of Article XII hereof.

With respect to Indebtedness other than Bonds, "Outstanding" shall mean Indebtedness which has not been paid and with respect to which payment has not been provided for.

#### Paying Agent

The term "Paying Agent" shall initially mean The Bank of New York Mellon Trust Company, N.A., its successors and assigns, and any successor paying agent or co-paying agent appointed by the Authority.

#### Periodic Payments

The term "Periodic Payments" shall mean any regularly scheduled fixed payment payable by the Authority to the Counterparty pursuant to the terms of any Qualified Interest Rate Swap Agreement(s); however, Periodic Payments shall not include any termination payments or any other sums payable under the Qualified Interest Rate Swap Agreement that are not regularly scheduled payments payable by the Authority.

#### Policy Costs

The term "Policy Costs" shall mean, collectively, the repayment of any draws under a Debt Service Reserve Fund Policy and related reasonable expenses incurred by a Bond Insurer (together with interest thereon).

#### Prime Rate

The term "Prime Rate" means the rate of interest announced, from time to time, by the Trustee as its prime rate.

#### Principal Account

The term "Principal Account" shall mean the Principal Account in the Debt Service Fund so designated and created by Section 6.01(3) hereof.

#### Principal Amount

The term “Principal Amount” with respect to any Indebtedness, shall mean the stated principal thereon, the Accreted Value thereof, as applicable, or such other amount payable on any Indebtedness that is designated as principal pursuant to a Supplemental Indenture.

#### Principal Office of the Trustee

The term “Principal Office” shall mean the designated corporate trust office of the Trustee responsible for the administration of this Indenture or at the office of any successor trustee or paying agent appointed under this Indenture.

#### Qualified Independent Consultant

The term “Qualified Independent Consultant” shall mean an independent professional consultant having the skill and experience necessary to provide the particular certificate, report or approval required by the provision of this Indenture or any Supplemental Indenture in which such requirement appears, including without limitation a Consulting Engineer and an Independent Auditor.

#### Qualified Interest Rate Swap Agreement

The term “Qualified Interest Rate Swap Agreement” shall mean any agreement relating to any Bonds issued or to be issued under this Indenture with a Counterparty whereby the Authority will pay to the Counterparty periodic fixed amounts based upon a fixed percentage of a notional amount specified in such agreement and such Counterparty will pay to the Authority certain periodic floating amounts based upon a variable percent of the same notional amount; provided, that the underwriter for the applicable Bonds or the Authority's financial advisor has certified to the Authority and the Trustee that (based upon then current market conditions) such Qualified Interest Rate Swap Agreement creates an overall lower Debt Service Requirement than would be attained through the issuance of Additional Bonds in an amount equal to such notional amounts at a fixed rate without such Qualified Interest Rate Swap Agreement. Periodic Payments under a Qualified Interest Rate Swap Agreement may be on parity with the Bonds to which the Qualified Interest Rate Swap Agreement relates.

#### Rate Covenant

The term “Rate Covenant” shall mean the obligation of the Authority to fix, charge, collect and revise rates, fees and other charges for the use of, and the services furnished by, the System sufficient to meet the requirements of this Indenture, including without limitation Section 7.01.

#### Rate Covenant Net Revenues

The term “Rate Covenant Net Revenues” shall mean Net Revenues, provided that Net Revenues shall be adjusted for the purpose of determining compliance with the Rate Covenant as follows: (i) to include transfers from the Rate Stabilization Fund to the Revenue Fund (as provided in Section 6.08 hereof), and (ii) to exclude transfers to the Rate Stabilization Fund from the Revenue Fund (as provided in Section 6.08 hereof).

### Rate Stabilization Fund

The term “Rate Stabilization Fund” shall mean the fund so designated and created pursuant to Section 6.01(8) hereof.

### Rating Agency

The term “Rating Agency” shall mean Moody’s or S&P, or either of them, and their successors, or any other nationally recognized statistical rating organization selected by the Authority.

### Rebate Fund

The term “Rebate Fund” shall mean the Rebate Fund designated and created pursuant to Section 6.01(10) hereof.

### Record Date

The term "Record Date" shall mean the fifteenth day of (whether or not such day is a Business Day) immediately preceding any Interest Payment Date or such other date set forth in a Supplemental Indenture.

### Redemption Fund

The term “Redemption Fund” shall mean the fund so designated and created pursuant to Section 6.01(9) hereof.

### Reimbursement Agreement

The term “Reimbursement Agreement” shall mean an agreement between the Authority and a Letter of Credit Bank or between the Authority and a Liquidity Facility Issuer, which agreements may be amended from time to time in accordance with the terms hereof and thereof.

### Reimbursement Obligations

The term “Reimbursement Obligations” shall mean the obligations to reimburse the Letter of Credit Bank for draws on such Letter of Credit Bank’s Letter of Credit, or to reimburse a Liquidity Facility Issuer making liquidity payments pursuant to a Liquidity Facility and to pay all other amounts due or to become due under the applicable Reimbursement Agreement.

### Reserve Determination Date

The term “Reserve Determination Date” shall mean any date established in writing by an Authorized Representative of the Authority for the valuation of investments,

including any Debt Service Reserve Fund Policy and other applicable credit facilities, in the Debt Service Reserve Fund, which valuation shall be at least annually.

#### Resolution of the Board or Resolution of the Authority

The term "Resolution of the Board" or "Resolution of the Authority" shall mean a resolution certified by the Secretary or Assistant Secretary of the Authority to have been duly adopted by the Board and to be in full force and effect on the date of such certification.

#### Revenue Fund

The term "Revenue Fund" shall mean the fund so designated and created by Section 6.01(1) hereof.

#### Revenues

The term "Revenues" shall mean any and all rates, fees, rents and charges established or to be established, levied and collected in connection with, and all other payments, revenues of whatever kind or character arising from, the operation or ownership of any property of the Authority or any part thereof (except tap or connection fees and charges to the extent such fees or charges are pledged in accordance with the Act as a refund to such person who has paid for the construction of any extension of the System), any income earned on the moneys or investments on deposit in the Debt Service Fund, Debt Service Reserve Fund, Construction Fund, Revenue Fund, Operating Fund, Operating Reserve Fund, Rate Stabilization Fund and any sinking, purchase or analogous fund created hereunder and any Periodic Payments received by the Authority from the Counterparty pursuant to any Qualified Interest Rate Swap Agreement which, upon receipt, shall be transferred to and deposited in the Revenue Fund, all as determined (except as otherwise specified in this Indenture) in accordance with GAAP for entities such as the Authority consistently applied. Revenues shall not include refundable customer deposits or other payments solely in aid of construction, any Grants, payments from PENNVEST or similar payments, or the proceeds resulting from the sale of all or a portion of the System.

#### Second Effective Date

The term "Second Effective Date" shall mean the date on which one hundred per centum (100%) in aggregate Principal Amount of the applicable Bonds Outstanding shall have approved this Amended and Restated Trust Indenture, as described in Section 1.04 hereof.

#### Senior Debt

The term "Senior Debt" shall mean Bonds and Other Senior Parity Indebtedness. The term shall include all bonds of the Authority outstanding under the Existing Senior Indenture as of the First Effective Date.

### Separate Series Debt Service Reserve Requirement

The term “Separate Series Debt Service Reserve Requirement” shall mean, for any Series of Additional Bonds for which the Supplemental Indenture authorizes a Separate Series Debt Service Reserve Requirement, the amount, if any, specified in such Supplemental Indenture as the Separate Series Debt Service Reserve Requirement; provided, however, that such amount shall not exceed the maximum amount permitted by the Code. Such amount may be zero.

### Separate Series Debt Service Reserve Secured Bonds

The term “Separate Series Debt Service Reserve Secured Bonds” shall mean any Series of Bonds for which the Supplemental Indenture authorizes said Bonds to be secured by funds constituting a Separate Series Debt Service Reserve Requirement.

### Series or Series of Bonds

The term “Series” or “Series of Bonds” shall mean a separate series or subseries of Bonds issued under a Supplemental Indenture.

### Series Debt Service Reserve Account

The term “Series Debt Service Reserve Account” shall mean each account in the Debt Service Reserve Fund related to a particular Series of Bonds that is required to be funded as required in a Supplemental Indenture.

### Series Debt Service Reserve Requirement

The term “Series Debt Service Reserve Requirement” shall mean for any Series of the Bonds, the Common Debt Service Reserve Requirement or the Separate Series Debt Service Reserve Requirement set forth in the Supplemental Indenture authorizing such Series of Bonds.

### Sinking Fund Account

The term “Sinking Fund Account” shall mean the Sinking Fund Account in the Debt Service Fund created in Section 6.01(3) hereof.

### S&P

The term “S&P” shall mean Standard & Poor's Corporation, its successors and assigns, and, if such corporation shall be dissolved or liquidated or shall no longer perform the functions of a securities rating agency, "S&P" shall be deemed to refer to any other nationally recognized securities rating agency designated by the Authority, by notice to the Trustee.

### Subordinate Debt



The term "Subordinate Debt" shall mean any bonds, notes or other obligations issued in connection with the System (a) which are designated by the Authority as Subordinate Debt, and (b) which may have pledged to their payment Net Revenues, alone or in conjunction with other sources, as a subordinate lien pledge after the pledge of Net Revenues to Senior Debt. Subordinate Debt shall include amounts owed to letter of credit banks or liquidity facility providers securing Subordinate Debt or periodic payments due on interest rate swap agreements related to Subordinate Debt, which shall be payable in accordance with Section 6.02(3) hereof, or termination or other payments (other than periodic payments) due under interest rate swap agreements related to Subordinate Debt, which shall be payable in accordance with Section 6.02(5) hereof.

#### Subordinate Debt Service Fund

The term "Subordinate Debt Service Fund" is the fund so designated and created by Section 6.01(6) hereof.

#### Subordinate Debt Service Reserve Fund

The term "Subordinate Debt Service Reserve Fund" is the fund so designated and created by Section 6.01(7) hereof.

#### Supplemental Indenture

The term "Supplemental Indenture" or "Indenture supplemental hereto" shall mean any indenture now or hereafter duly authorized and entered into in accordance with the provisions of this Indenture.

#### System

The term "System" shall mean and include, as of any particular time, (i) all tangible property, fixed or moveable, then owned or operated by the Authority and used in the rendering of water service, stormwater service, and sewer service by the Authority, (ii) all Capital Additions then constructed or otherwise acquired relating to water service, stormwater service, and sewer service, and (iii) all franchises used or useful to the Authority at such particular time in the rendering of water service, stormwater service, and sewer service by the Authority.

#### Tax Regulatory Certificate

The term "Tax Regulatory Certificate" shall mean a Tax Regulatory Certificate, Tax Regulatory Agreement, Non-Arbitrage Certificate or similar tax certificate of the Authority executed and delivered by the Authority in respect of a Series of Bonds issued under this Indenture.

#### Tender Indebtedness

The term “Tender Indebtedness” shall mean any Indebtedness a feature of which is an option or obligation on the part of the holders of such Indebtedness to tender all or a portion of such Indebtedness to a fiduciary for payment or purchase and requiring that such Indebtedness or a portion of such Indebtedness be purchased if properly tendered.

#### Term Bonds

The term “Term Bonds” shall mean any Bonds stated to mature on a specified date and required to be redeemed in part prior to maturity according to a sinking fund schedule.

#### Test Period

The term “Test Period” shall mean any 12 consecutive months of the last 24 months prior to the testing date.

#### Tested Fiscal Year

The term “Tested Fiscal Year” shall have the meaning set forth in Section 7.01 hereof.

#### Trust Estate

The term “Trust Estate” shall have the meaning set forth in the Granting Clause hereto.

#### Trustee

The term "Trustee" shall mean The Bank of New York Mellon Trust Company, N.A., its successors in the trust hereunder.

#### Valuation Date

The term “Valuation Date” with respect to any Capital Appreciation Bonds, Capital Appreciation and Income Bonds, or Current Interest Capital Appreciation Bonds, shall mean the date or dates set forth in the Supplemental Indenture on which specific Accreted Values are assigned to such Capital Appreciation Bonds, Capital Appreciation and Income Bonds, or Current Interest Capital Appreciation Bonds.

#### Variable Rate Indebtedness

The term “Variable Rate Indebtedness” shall mean any Indebtedness the interest rate on which is not fixed to maturity at the time of calculation, or other relevant time.

Section 1.02 Rules of Interpretation. Except where the context otherwise requires, (i) words importing one gender shall include all genders and words importing the singular number shall include the plural and vice versa, (ii) references to any entities shall

include their successors and assigns, and (iii) references to any documents shall include any subsequent amendments and supplements thereto.

Section 1.03 Certification and Effect of First Effective Date. The Authority hereby certifies to the Trustee that the Holders of in excess of 66 2/3% principal amount of the Bonds Outstanding under the Existing Senior Indenture have consented to this Amended and Restated Trust Indenture and therefore the First Effective Date is December 28, 2017, and this Amended and Restated Trust Indenture, as supplemented by the 2017-1 Supplemental Indenture and the 2017-2 Supplemental Indenture, is now effective. The Authority has provided the Trustee with a separate certificate setting forth the relevant calculations. This Amended and Restated Trust Indenture is now in full force and effect, and it supersedes the Existing Senior Indenture, except for the provisions incorporated by reference in Section 1.05 below and, through December 31, 2018, the Rate Covenant as described in Section 7.01 hereof.

Section 1.04 Second Effective Date. When 100% of Bondholders have consented to this Amended and Restated Indenture, the Authority will certify that fact to the Trustee. Thereupon, the amendment reflected in the definition of Approval Amount will become effective.

Section 1.05 First Effective Date Outstanding Bonds. The following First Effective Date Outstanding Bonds were issued under the Existing Senior Indenture, prior to the First Effective Date:

(a) The portion of the 1998B Bonds not refunded by the 2017A Bonds. These bonds are capital appreciation bonds. The following provisions of the Second Supplemental Indenture remain in full force and effect and are incorporated by reference in this Section 1.05(a) as if fully set forth herein: the provisions related to the accreted valuation of the 1998B Bonds, the maturities, redemption provisions, payment dates and interest rates on the 1998B Bonds, the form of the 1998B Bonds set forth in Exhibit A, the debt service schedule on the 1998B Bonds set forth in Exhibit B, and the compound accreted value table set forth in in Exhibit C.

(b) The portion of the 2008A Bonds not refunded by the 2017A Bonds and the 2017B Bonds. These are fixed rate bonds. The following provisions of the Seventh Supplemental Indenture remain in full force and effect and are incorporated by reference in this Section 1.05(b) as if fully set forth herein: the provision related to the maturities, redemption provisions, payment dates and interest rates on the 2008A Bonds, the form of the 2008A Bonds set forth in Exhibit B, and the debt service schedule for the 2008A Bonds set forth in Exhibit D.

(c) The 2013A Bonds. These bonds are fixed rate bonds. The following provisions of the Eighth Supplemental Indenture remain in full force and effect and are incorporated by reference in this Section 1.05(c) as if fully set forth herein: the provisions related to the maturities, redemption provisions, payment dates and interest rates on the 2013A Bonds, the form of the 2013A Bonds in Exhibit A, and the debt service schedule for the 2013A Bonds set forth in Exhibit B.

(d) The portion of the 2013B Bonds not refunded by the 2017A Bonds. These bonds are fixed rate bonds. The following provisions of the Eighth Supplemental Indenture remain in

full force and effect and are incorporated by reference in this Section 1.05(d) as if fully set forth herein: the provisions related to the maturities, redemption provisions, payment dates and interest rates on the 2013B Bonds, the form of the 2013A Bonds in Exhibit A, and the debt service schedule for the 2013B Bonds set forth in Exhibit B.

(e) The 2017A Bonds and the 2017B Bonds. The 2017-1 Supplemental Indenture remains in full force and effect as a Supplemental Indenture with respect to this Indenture.

(f) The 2017C Bonds. The 2017-2 Supplemental Indenture remains in full force and effect as a Supplemental Indenture with respect to this Indenture.

## ARTICLE II

### DESCRIPTION, EXECUTION AND REGISTRATION OF BONDS

Section 2.01 Issuance of Bonds; Form and Terms thereof. The Bonds may, at the election of the Authority, be issued in one or more Series and shall be designated generally as the “Water and Sewer System First Lien Revenue Bonds” of the Authority or similar designation. Subject to applicable provisions hereof, all Bonds shall be issued and shall contain such maturities, payment terms, interest rate provisions, redemption or prepayment features and other provisions as shall be set forth in the Supplemental Indenture providing for the issuance of such Bonds.

The Bonds shall be limited obligations of the Authority, payable solely from the Trust Estate. The Bonds shall constitute a valid claim of the respective Owners thereof against the Trust Estate, which is pledged to secure the payment of the principal of, redemption premium, if any, and interest on the Bonds, and which shall be utilized for no other purpose, except as expressly authorized in this Indenture. The Bonds shall not constitute general obligations of the Authority and under no circumstances shall the Bonds be payable from, nor shall the registered Owners thereof have any rightful claim to, any income, revenues, funds or assets of the Authority other than those pledged hereunder as security for the payment of the Bonds.

Section 2.02 Registration of Bonds. The Authority shall keep or cause to be kept at the Principal Office of the Trustee books for the registration and transfer of Bonds; and the Authority will register or transfer or cause to be registered or transferred therein, as hereinafter provided and under such reasonable regulations as it may prescribe, any Bond entitled to be so registered or transferred, upon presentation for such purpose. The Trustee is hereby appointed as registrar of the Authority for the purpose of registering, transferring and exchanging the Bonds. A Bond Insurer shall, upon the occurrence of an event of default triggering an obligation to make payments under the Insurance Policy, have the right to inspect the registration books maintained pursuant to this Section 2.02.

Section 2.03 Uniform Commercial Code. The Bonds shall be securities under the Pennsylvania Uniform Commercial Code Investment Securities and shall be negotiable instruments to the extent provided therein.

Section 2.04 Transfers and Exchanges of Bonds. Upon surrender for transfer of any fully registered Bond at the Principal Office of the Trustee, the Trustee shall authenticate and deliver in the name of the transferee or transferees one or more new fully registered Bonds of authorized denominations for the aggregate Principal Amount which the Bondholder is entitled to receive.

Any Bond shall be exchangeable for Bonds of any authorized denomination, in an aggregate Principal Amount equal to the Principal Amount of the Bond presented for exchange.

All Bonds presented for transfer or exchange shall be accompanied by a written instrument or instruments of transfer or authorization for exchange, in form satisfactory to the Trustee, duly executed by the Bondholder or by his duly authorized attorney. No transfer of any Bond shall be valid unless made on the registration books by the registered Owner in person, or by his duly authorized attorney. Such registrations, exchanges and transfers shall be without expense to the Holders of the Bonds, but any taxes, fees or other governmental charges required to be paid with respect to the same shall be paid by the Holder requesting any such registration, exchange or transfer as a condition precedent to the exercise of such privilege. Bonds may be presented for exchange or transfer only at the Principal Office of the Trustee or at the office of any Paying Agent as the Authority may hereafter appoint.

The Trustee shall not be required to register the transfer or exchange of any Bond (i) during a period beginning at the opening of business fifteen (15) days before the day of the mailing of notice of redemption of the Bonds and ending at the close of business on the date of such mailing, (ii) at any time following the selection of such Bonds, in whole or in part, for redemption, or (iii) during the period commencing on a Record Date and ending on the corresponding Interest Payment Date.

Section 2.05 Form of Bonds; Temporary Bonds. Bonds in definitive form shall be printed or typewritten. Until Bonds in definitive form of any Series are ready for delivery, the Authority may execute and upon its request in writing the Trustee shall initially authenticate and deliver in lieu of any thereof, and subject to the same provisions, limitations and conditions, one or more printed, or typewritten Bonds in temporary form, substantially of the tenor of the Bonds hereinbefore described, and with appropriate omissions, variations and insertions, with regard to the Bonds. Such Bonds or Bonds in temporary form may be for the amount of \$5,000 or any multiple or multiples thereof, as the Authority may determine. Until exchanged for Bonds in definitive form such Bonds in temporary form shall be entitled to the lien and benefit of this Indenture. The Authority shall, without unreasonable delay, prepare, execute and deliver to the Trustee, and thereupon, upon the presentation and surrender of any Bond or Bonds in temporary form, the Trustee shall authenticate and deliver, in exchange therefor, a Bond or Bonds in definitive form of the same Series and same maturity for the same aggregate Principal Amount as the Bond or Bonds in temporary form surrendered. Such exchange shall be made by the Authority at its own expense and without making any charge therefor. Until such Bonds in definitive form are ready for delivery, the Holder of one or more Bonds in temporary form may, with the consent of the Authority, exchange the same, upon the surrender thereof to the Trustee for cancellation, for Bonds in temporary form of like aggregate Principal Amount, of the same Series and maturity, in authorized denominations.

Section 2.06 Numbering of Bonds. Any Bond may bear such numbers, letters, or other marks of identification or designation, and may be endorsed with or have incorporated in the text thereof such legends or recitals with respect to transferability or in respect of the Bond or Bonds for which it is exchangeable and may contain such provisions, specifications and descriptive words, not inconsistent with the provisions of this Indenture, as may be determined by the Authority and approved by the Trustee.

Section 2.07 Execution of Bonds. All the Bonds shall, from time to time, be executed on behalf of the Authority by the manual or facsimile signature of its Chairperson or its Vice Chairperson and its corporate seal (which may be in facsimile) shall be thereunto affixed or thereon imprinted and attested by the manual or facsimile signature of its Secretary or its Assistant Secretary. If any of the officers whose signature shall be upon the Bonds shall cease to be such officers of the Authority before the Bonds so signed and sealed shall have been actually authenticated by the Trustee or delivered by the Authority, such Bonds nevertheless may be authenticated, issued, and delivered with the same force and effect as though the person or persons whose signature shall be upon such Bonds had not ceased to be such officer or officers of the Authority; and also any such Bond may be signed and sealed on behalf of the Authority by the signature of such persons as at the actual date of the execution of such Bond shall be the proper officers of the Authority, although at the nominal date of such Bond any such person shall not have been such officer of the Authority.

Section 2.08 Mutilated, Lost, Stolen or Destroyed Bonds. Upon receipt by the Authority and the Trustee of evidence satisfactory to all of them that any Outstanding Bond has been mutilated, destroyed, lost or stolen, and of indemnity satisfactory to all of them, the Authority, in its discretion, may execute and thereupon the Trustee shall authenticate and deliver, a new Bond of the same Series and same maturity and of like tenor in exchange and substitution for, and upon surrender and cancellation of, the mutilated Bond or in lieu of and in substitution for the Bond so destroyed, lost or stolen. The Authority may, for each new Bond authenticated and delivered under the provisions of this Section, require the payment of the expenses, including counsel fees, which may be incurred by the Trustee in the premises. Any Bond issued under the provisions of this Section in lieu of any Bond alleged to be destroyed, lost or stolen, shall constitute an original additional contractual obligation on the part of the Authority whether or not the Bond so alleged to be destroyed, lost or stolen be at any time enforceable by anyone; and shall be equally and proportionately entitled to the benefits of this Indenture with all other Bonds issued under this Indenture.

Section 2.09 Certificate of Authentication. Subject to the qualifications hereinbefore set forth, the Bonds to be secured hereby shall be substantially of the tenor and effect hereinbefore recited, and no Bonds shall be secured hereby or entitled to the benefit hereof, or shall be or become valid or obligatory for any purpose, unless there shall be endorsed thereon a certificate of authentication, substantially set forth in the form of the Bond as shall be set forth in the Supplemental Indenture providing for the issuance of such Bonds, executed by the Trustee; and such certificate on any Bond issued by the Authority shall be conclusive evidence and the only competent evidence that it has been duly authenticated and delivered hereunder. The Bonds shall be authenticated by the Trustee.

Section 2.10 Book-Entry Only Bonds. Unless a Supplemental Indenture shall provide otherwise with respect to a Series of Bonds, the Bonds of a Series shall be initially issued in book-entry only form. Unless a Supplemental Indenture shall provide otherwise with respect to a Series, in the event that any provision of this Section 2.10 is inconsistent with other provisions of this Indenture, so long as the Bonds shall be in book-entry only form, the provisions of this Section 2.10 shall govern. The Depository Trust Company ("DTC") will act as securities depository for the Bonds. The ownership of one fully registered Bond for each maturity set forth in this Indenture, each in the aggregate Principal Amount of such maturity, will be registered in the name of CEDE & Co., as nominee for DTC; provided that if DTC shall request that the Bonds be registered in the name of a different nominee, the Trustee shall exchange all or any portion of the Bonds for an equal aggregate Principal Amount of Bonds registered in the name of such nominee or nominees of DTC. No person other than DTC or its nominee shall be entitled to receive from the Authority or the Trustee either a Bond or any other evidence of ownership of the Bonds, or any right to receive any payment in respect thereof unless DTC or its nominee shall transfer record ownership of all or any portion of the Bonds on the registration books maintained by the Trustee, in connection with discontinuing the book entry system or otherwise.

So long as the Bonds or any portion thereof are registered in the name of DTC or any nominee thereof, all payments of the principal or redemption price of or interest on such Bonds shall be made to DTC or its nominee in New York Clearing House or equivalent next day funds on the dates provided for such payments under this Indenture. Each such payment to DTC or its nominee shall be valid and effective to fully discharge all liability of the Authority or the Trustee with respect to the principal or redemption price of or interest on the Bonds to the extent of the sum or sums so paid. In the event of the redemption of less than all of the Bonds Outstanding, the Trustee shall not require surrender by DTC or its nominee of the Bonds so redeemed, but DTC or its nominee may retain such Bonds and make an appropriate notation on the Bond certificate as to the amount of such partial redemption; provided that, in each case the Trustee shall request, and DTC shall deliver to the Trustee, a written confirmation of such partial redemption and thereafter the records maintained by the Trustee shall be conclusive as to the amount of the Bonds which have been redeemed.

The Authority and the Trustee may treat DTC or its nominee as the sole and exclusive Owner of the Bonds registered in its name for the purposes of payment of the principal or redemption price of or interest on the Bonds, selecting the Bonds or portions thereof to be redeemed, giving any notice permitted or required to be given to Bondholders under this Indenture, registering the transfer of Bonds, obtaining any consent or other action to be taken by Bondholders and for all other purposes whatsoever; and neither the Authority nor the Trustee shall be affected by any notice to the contrary. Neither the Authority nor the Trustee shall have any responsibility or obligation to any participant in DTC, any person claiming a beneficial ownership interest in the Bonds under or through DTC or any such participant, or any other person which is not shown on the registration books of the Trustee as being a Bondholder, with respect to either: (i) the Bonds; or (ii) the accuracy of any records maintained by DTC or any such participant; or (iii) the payment by DTC or any such participant of any amount in respect of the principal or redemption price of or interest on the Bonds; or (iv) any notice which is permitted or required to be given to Bondholders under this Indenture; or (v) the selection by

DTC or any such participant of any person to receive payment in the event of a partial redemption of the Bonds; or (vi) any consent given or other action taken by DTC as Bondholder.

So long as the Bonds or any portion thereof are registered in the name of DTC or any nominee thereof, all notices required or permitted to be given to the Bondholders under this Indenture shall be given to DTC as provided in the Representation Letter between the Authority and DTC (the "DTC Representation Letter"), in such form as is acceptable to the Trustee, the Authority and DTC.

In connection with any notice or other communication to be provided to Bondholders pursuant to this Indenture by the Authority or the Trustee with respect to any consent or other action to be taken by Bondholders, DTC shall consider the date of receipt of notice requesting such consent or other action as the record date for such consent or other action, provided that the Authority or the Trustee may establish a special record date for such consent or other action. The Authority or the Trustee shall give DTC notice of such special record date not fewer than fifteen (15) calendar days in advance of such special record date to the extent possible.

At or prior to the issuance of the Bonds, the Authority and the Trustee shall execute or signify their approval of the DTC Representation Letter. Any successor Trustee shall, in its written acceptance of its duties under this Indenture, agree to take any actions necessary from time to time to comply with the requirements of the DTC Representation Letter.

The book-entry system for registration of the ownership of the Bonds may be discontinued at any time if either: (i) DTC determines to resign as securities depository for the Bonds; or (ii) the Authority provides thirty (30) days' notice of such discontinuation to the Trustee and DTC that continuation of the system of book-entry transfers through DTC (or through a successor securities depository) is not in the best interests of the Authority. Upon occurrence of either such event, the Authority may attempt to establish a securities depository book-entry relationship with another securities depository. If the Authority does not do so, or is unable to do so, and after the Authority has notified DTC and upon surrender to the Trustee of the Bonds held by DTC, the Authority will issue and the Trustee will authenticate and deliver the Bonds in registered certificate form in denominations of \$5,000 and integral multiples thereof (or such other denominations as are applicable to a Series as set forth in a Supplemental Indenture), at the expense of the Authority, to such persons, and in such maturities and Principal Amounts, as may be designated by DTC, but without any liability on the part of the Authority or the Trustee for the accuracy of such designation. Whenever DTC requests the Authority or the Trustee to do so, the Authority or the Trustee shall cooperate with DTC in taking appropriate action after reasonable notice to arrange for another securities depository to maintain custody of certificates evidencing the Bonds.

### ARTICLE III

#### AUTHENTICATION AND DELIVERY OF BONDS

Section 3.01 Purposes of Bonds. The Authority may issue Additional Bonds from time to time under this Indenture. Bonds may be issued (a) to pay Costs, (b) to refund



Bonds or any other Indebtedness (including Senior Debt or Subordinate Debt or other debt not secured by the Revenues), (c) to pay costs of issuance, (d) to fund reserves and/or pay costs associated with Capitalized Interest or terminating Qualified Interest Rate Swap Agreements, or (e) for a combination of such purposes. The provisions in this Article III relating to the issuance of Bonds do not apply to the issuance of the 2017A Bonds, the 2017B Bonds or the 2017C Bonds, which bonds were issued in compliance with the requirements of the Existing Senior Indenture.

In the event that any Policy Costs are due and owing at the time of issuance of the Additional Bonds, for the purpose of the debt tests required by Section 3.02 hereof, Revenues of the Authority shall be reduced by the amount of any Policy Costs then due and owing.

No Additional Bonds may be issued without the prior written consent of a Bond Insurer if any Policy Costs are past due and owing to the Bond Insurer.

Section 3.02 Conditions for Issuing Bonds. Before the issuance and authentication of any Series of Bonds by the Trustee, there shall be filed with the Trustee:

(a) In connection with the initial execution of this Indenture:

(i) A certified copy of this Indenture;

(ii) A Counsel's Opinion, subject to customary exceptions and qualifications, substantially to the effect that this Indenture has been duly authorized, executed and delivered to the Trustee and is a valid, binding and enforceable obligation of the Authority.

(b) A certified copy of a Supplemental Indenture which (1) shall include: (A) provisions authorizing the issuance, fixing the Principal Amount and setting forth the details of such Bonds, including their date, the interest rate or rates and the manner in which the Bonds are to bear and pay interest (including whether such Bonds constitute Capital Appreciation Bonds, Capital Appreciation and Income Bonds or Current Interest Capital Appreciation Bonds), the principal and Interest Payment Dates of the Bonds; the purposes for which such Bonds are being issued, the manner of numbering of such Bonds, the Series designation, the denominations, the maturity dates and principal maturities, the Principal Amounts required to be redeemed pursuant to any mandatory redemption provisions or the manner for determining such Principal Amounts, any provisions for optional or extraordinary redemption before maturity, and any provisions regarding the Common Debt Service Reserve Requirement or Separate Series Debt Service Reserve Requirement; and (B) provisions for the application of the proceeds of such Bonds; and (2) may include: (A) provisions for Credit Facilities and for other Funds and Accounts to be established with respect to such Bonds; (B) provisions necessary or expedient for the issuance and administration of Bonds bearing interest at a variable rate or other manner of bearing interest, including remarketing provisions, liquidity facility provisions and provisions for establishing the variable rate and converting to a fixed rate; (C) provisions for entering into credit enhancement devices permitted by Commonwealth law; and (D) such other provisions as the Authority may deem appropriate.

(c) A certified copy of applicable Resolution of the Board authorizing, as required by law, the issuance, sale, award, execution and delivery of such Bonds and, in the case of a Series of Bonds issued to refund Indebtedness, calling for redemption or payment of the Indebtedness to be refunded, fixing any redemption date and authorizing any required notice of redemption in accordance with the provisions of this Indenture.

(d) A certificate signed by an Authorized Representative of the Authority and dated the date of such issuance, to the effect that:

(i) Either (A) upon and immediately following such issuance, no Event of Default has occurred which has not been cured or waived, and no event or condition exists which, with the giving of notice or lapse of time or both, would become an Event of Default or (B) if any such event or condition is happening or existing, specifying such event or condition, stating that the Authority will act with due diligence to correct such event or condition after the issuance of such Bonds, and describing in reasonable detail the actions to be taken by the Authority toward such correction; and

(ii) All required approvals, limitations, conditions and provisions precedent to the issuance of such Series of Bonds have been obtained, observed, met and satisfied.

(e) A Counsel's Opinion, subject to customary exceptions and qualifications, substantially to the effect that the Supplemental Indenture for such Series of Bonds has been duly authorized, executed and delivered, is binding on the Authority and complies in all respects with the requirements of this Indenture.

(f) An opinion of Bond Counsel, subject to customary exceptions and qualifications, substantially to the effect that the issuance of such Bonds has been duly authorized, that such Bonds are valid and binding limited obligations of the Authority, and with respect to Bonds to be issued on a tax-exempt basis that the interest on such Bonds is excludable from gross income for purposes of Federal income taxation.

(g) If a Series of Bonds are issued to pay Costs, the following:

(i) (A) if the Bonds are Common Debt Service Reserve Secured Bonds, evidence that upon issuance of such Bonds, the Common Debt Service Reserve Requirement will be fully funded, or (B) if the Bonds are Separate Series Debt Service Reserve Secured Bonds, evidence that, upon issuance of such Bonds, the Separate Series Debt Service Reserve Requirement for such Bonds will be fully funded or will be funded in accordance with the requirements of the applicable Supplemental Indenture; and

(ii) A certificate of (A) a Qualified Independent Consultant, stating that based on the Authority's financial records for a Test Period, the Authority would have been able to meet the Rate Covenant in Section 7.01, taking into account (i) the maximum Annual Debt Service on the proposed Series of Additional Bonds in the current or any future Fiscal Year, (ii) the additional Net Revenues from the rates, fees and other charges adjusted to reflect any rate increases that had not been in effect throughout the Test Period but that have been approved by and can be implemented by the Authority at the time of the delivery of the proposed Series of Additional Bonds to go into effect within

the following five years; and (iii) additional Net Revenues that the Authority may realize from the addition to the System of the assets it proposes to finance through the issuance of the proposed Series of Additional Bonds or other funding sources within the following five years or (B) the Authorized Representative of the Authority stating that based on the Authority's financial records for a Test Period, the Authority has met the Rate Covenant in Section 7.01, taking into account the maximum Annual Debt Service on the proposed Series of Additional Bonds. In making the certifications required under this paragraph, the Authorized Representative of the Authority or the Qualified Independent Consultant, as applicable, shall determine and utilize the Additional Indebtedness Test Net Revenues in place of the Rate Covenant Net Revenues in determining whether the Authority would have been able to meet the Rate Covenant in Section 7.01.

(h) Except in the case of the 2017A Bonds, the 2017 B Bonds and the 2017C Bonds, if any Bonds are issued to refund any Indebtedness, the following:

(i) Evidence that the Authority has made provision as required by this Indenture for the payment or redemption of all Indebtedness to be refunded;

(ii) A certificate of an Authorized Representative of the Authority demonstrating that the proposed refunding will not result in an increase in the Annual Debt Service payable on all Indebtedness in any Fiscal Year. If the proposed refunding will result in an increase in the Annual Debt Service payable on all Indebtedness in any Fiscal Year, then the issuance of that Series of Additional Bonds shall be subject to the same requirements as the issuance of a Series of Additional Bonds to pay Costs under Section 3.02(g)(ii).

(i) A request and authorization of the Authority, signed by an Authorized Representative of the Authority, to the Trustee to authenticate and deliver such Bonds to the purchaser upon payment to the Trustee of a specified sum plus accrued interest to the date of delivery.

Except for the requirements of subsection (d) of this Section (which may be waived by the purchasers of such Bonds by an instrument or concurrent instruments in writing signed by such purchasers), none of the requirements in this Section may be waived without the consent of the holders of not less than a majority in aggregate Principal Amount of the Outstanding Bonds.

### Section 3.03 Other Senior Parity Indebtedness.

(a) The Authority may incur or refinance Other Senior Parity Indebtedness provided that:

(1) the documents relating to the Other Senior Parity Indebtedness acknowledge that such debt constitutes Other Senior Parity Indebtedness under this Indenture and is subject to the applicable terms and conditions hereof as if it were Bonds, and specify the amounts and due dates of Annual Debt Service with respect to the Other Senior Parity Indebtedness;

(2) the requirements of Sections 3.02(g) or 3.02(h), as appropriate, have been met as if the Other Senior Parity Indebtedness was an additional Series of Bonds;

(3) the Trustee receives written notice of the issuance of the Other Senior Parity Indebtedness and the material terms and conditions thereof and the Trustee shall register the holder as owner thereof as such on its books and records, and

(4) the Trustee receives a Counsel's Opinion that the documents creating the Other Senior Parity Indebtedness have been duly authorized, executed and delivered on behalf of the Authority and constitute valid, binding and enforceable obligations.

(b) The Authority shall fulfill its obligations under all contracts or agreements creating Other Senior Parity Indebtedness as they may exist from time to time.

Section 3.04 Subordinate Debt of Authority. In addition to the foregoing and in addition to any subordinate pledge granted by the Authority to a Bond Insurer in connection with a Debt Service Reserve Fund Policy, the Authority may incur or assume Subordinate Debt provided that:

(1) the security for such debt is subordinate to the lien of and security interests granted by this Indenture; and

(2) any agreement for the repayment of such subordinate debt and any instrument evidencing or securing such subordinate debt shall provide: (i) that an event of default thereunder may be an event of default under this Indenture, and (ii) that, notwithstanding the occurrence of any event of default in respect of any subordinate debt, the lender shall not be entitled to exercise any rights or remedies with respect to the Revenues until and unless the Trustee shall have instituted proceedings to exercise its rights pursuant to Article VIII hereof.

Section 3.05 Covenant as to Prior Lien Debt. The Authority will not incur or assume any debt which will be secured by a lien on the Revenues which will be prior to the lien granted by the terms of this Indenture.

Section 3.06 Deposit of Bond Proceeds. Upon receipt of the proceeds of any Series of Bonds issued under this Indenture, such moneys shall be deposited to a Clearing Fund for such Bonds and shall be disbursed for the purposes and in the amounts set forth in the closing certificate of the Authority executed on the date of issuance of such Bonds. To the extent it is determined on or before the first day of the month after the date of issuance of such Bonds that any remaining moneys in such fund will not be necessary to pay costs of issuance, such moneys shall be transferred to the Debt Service Fund and applied to pay interest on such Bonds on the next Interest Payment Date for such Bonds.

## ARTICLE IV

### REDEMPTION OF BONDS

#### Section 4.01 Redemption of Bonds.

The Bonds of any Series issued under the provisions of this Indenture shall be subject to redemption, in whole or in part, and at such times and prices as may be provided in the Supplemental Indenture pursuant to which such Bonds are issued, which Supplemental Indenture shall include provisions for extraordinary redemption in accordance with Section 7.10 hereof. The Bonds of any Series to be called for redemption shall be selected as provided in the applicable Supplemental Indenture. The Trustee shall treat each Bond of a denomination greater than the minimum denomination authorized in the applicable Supplement Indenture as can be obtained by dividing the Bond's actual Principal Amount by such minimum denomination.

Section 4.02 Notice of Redemption. Whenever the Authority shall redeem all or part of the Bonds, it shall cause a written notice of intention to redeem, signed in the name of the Authority by an Authorized Representative of the Authority to be sent, by the Trustee by first class mail to each registered Owner of the Bonds to be redeemed at the last address of said registered Owner appearing upon the registration books not less than twenty (20) days or more than sixty (60) days before the redemption date (unless the applicable Supplemental Indenture provides for other timing for the notice). Failure to mail any such notice shall not affect the validity of the proceeding for redemption. Such notice shall specify the information set forth in the next following paragraph. The notice shall further state that, from and after such redemption date, interest thereon will cease to accrue. Simultaneously with the mailing of notice to Bondholders, the Trustee shall notify a Bond Insurer of any redemption, other than mandatory sinking fund redemption, of Bonds being insured by a Bond Insurer. In the case of an optional redemption, the notice may, at the Authority's discretion, state (1) that it is conditioned upon the deposit of moneys, in an amount equal to the amount necessary to effect the redemption, with the Trustee no later than the redemption date or (2) that the Authority retains the right to rescind such notice at any time prior to the scheduled redemption date if the Authority delivers a certificate of an Authorized Representative of the Authority to the Trustee instructing the Trustee to rescind the redemption notice (in either case, a "Conditional Redemption"), and such notice and optional redemption shall be of no effect if such monies are not so deposited or if the notice is rescinded as described below.

In addition to the foregoing, the redemption notice shall contain with respect to each Bond being redeemed, (1) the CUSIP number as provided in Section 4.04 hereof, (2) the date of issue; (3) the interest rate, (4) the maturity date, and (5) any other descriptive information determined by the Trustee to be needed to identify the Bonds. If a redemption is a Conditional Redemption, the notice shall so state. The Trustee also shall send each notice of redemption to (i) any Rating Service then rating the Bonds to be redeemed; (ii) all of the registered clearing agencies known to the Trustee to be in the business of holding substantial amounts of bonds of a type similar to the Bonds; and (iii) one or more national information services that disseminate notices of redemption of bonds such as the Bonds, such services to be identified by the Trustee.

Any Conditional Redemption may be rescinded in whole or in part at any time prior to the redemption date if the Authority delivers a certificate of an Authorized Representative of the Authority to the Trustee instructing the Trustee to rescind the redemption notice. The Trustee shall give prompt notice of such rescission to the affected Bondholders. Any Bonds subject to Conditional Redemption where redemption has been rescinded shall remain Outstanding, and the rescission shall not constitute an Event of Default. Further, in the case of a Conditional Redemption, the failure of the Authority to make funds available in part or in whole on or before the redemption date shall not constitute an Event of Default.

Section 4.03 Nonpresentment of Bonds. Notice having been given in the manner hereinbefore provided in this Article and irrevocable instructions having been given to the Trustee to pay said Bonds or portions thereof and cash equal to the redemption price of said Bonds and the interest accrued thereon to the date of redemption having been deposited in trust with the Trustee on or prior to the date set for redemption, the Bonds so called for redemption shall become due and payable on the redemption date so designated, and interest on such Bonds shall cease to accrue from such redemption date, whether such Bonds are presented for redemption or not. The Principal Amount of all Bonds so called for redemption, together with the premium, if any, and accrued interest thereon, shall be paid by the Trustee, upon presentation and surrender thereof.

Section 4.04 CUSIP Numbers. The Trustee shall use the "CUSIP" numbers assigned to the Bonds, if then generally in use, in notices of redemption of Bonds as a convenience to Bondholders; provided that any such notice shall state that no representation is made as to the correctness of such numbers either as printed on the Bonds or as contained in any notice of redemption and that reliance may only be placed on the identification numbers established under the Indenture.

## ARTICLE V

### CONSTRUCTION FUND

Section 5.01 Construction Fund. There is hereby created a special fund known as the "Construction Fund", which shall be held in trust by the Trustee. Money shall be deposited to the Construction Fund pursuant to the provisions of Article II and from any other sources identified by the Authority. To the extent Costs of a Construction Project are paid for from Bonds, the Authority must deposit the construction proceeds of the Bonds in the Construction Fund and must follow the provisions of this Article V. To the extent the Authority is self-funding Costs from other than proceeds of Bonds, the Authority may use moneys in the Revenue Fund and the Operating Fund to pay such Costs, and the Authority need not use the Construction Fund or follow the provisions of this Article V.

Payment of the Costs of a Construction Project shall be made from the Construction Fund. A special account shall be created and identified for each such Construction Project, although funds, at the written direction of the Authority, may be transferred from one such account in the Construction Fund to another account in such Fund. On the date of issuance of Bonds to finance in whole or in part a Construction Project, the moneys directed, in writing, by the Authority to be transferred from the Clearing Fund shall be deposited into the

Construction Fund or an account therein. All moneys on deposit in the Construction Fund shall be held in Trust by the Trustee as security under this Indenture and disbursed by the Trustee pursuant to this Section 5.01 in payment of the Costs of the Construction Project. Before each such withdrawal and payment of the Costs of the Construction Project from the Construction Fund by the Trustee, the Authority shall deliver to the Trustee the following:

(a) A requisition, signed by any two of the Chairperson or Vice Chairperson or Secretary or Assistant Secretary or the Executive Director or the Chief Financial Officer or the Director of Finance of the Authority, or signed by such other person or persons who is or are authorized to do so pursuant to a Resolution of the Board, stating in respect of each payment to be made:

- (1) the item number of the payment;
- (2) the name and address of the person to whom payment is due;
- (3) the amount to be paid and the Construction Fund from which payment is to be made;
- (4) the purpose for which the obligation was incurred;
- (5) that obligations in the stated amount have been incurred by the Authority and that each item thereof is a proper part of the Cost of the Construction Project and has not been paid;
- (6) that there has not been filed with or served upon the Authority notice of any lien, right to lien or attachment upon, or claim affecting the right to receive payment of any of the moneys payable to any persons named in such requisition;
- (7) that such requisition contains no items representing payment on account of any retained percentage which the Authority is on the date of such certificate entitled to retain;
- (8) that neither the Authority nor any of its officers or members has received any discount, rebate, commission, fee, proceeds from insurance or other abatement which is not reflected on the requisition in connection with any such expenditures or indebtedness; and
- (9) that no part of any such item has been included in any previous requisition for the withdrawal of moneys from the Construction Fund; and

(b) Except to the extent to which a requisition relates to financing costs, a certificate signed by the Consulting Engineer approving such requisition and certifying that each item to be paid as set forth in such requisition constitutes an obligation which has been properly incurred as part of the Cost of the Construction Project and is then due and unpaid.

Upon the receipt of each such requisition and the accompanying certificate, the Trustee shall pay to the persons named in such requisition, the respective amounts stated therein to be due to such persons.

Investment earnings on the amounts on deposit in the Construction Fund shall be retained in the Construction Fund unless the Authority directs the Trustee, in writing, to transfer such earnings to the Debt Service Fund.

Any moneys remaining in the Construction Fund after all amounts due in respect of the Construction Project shall have been paid (including any Costs of any amendment or revision of the Construction Project pursuant to Section 5.02 below), which fact shall be evidenced to the Trustee by delivery of a certificate of an Authorized Representative of the Authority to that effect, shall be transferred by the Trustee to the Revenue Fund and applied as directed in writing by the Authority; with respect to such application, the Authority will obtain an opinion of Bond Counsel that such application in and of itself will not adversely affect the exclusion from gross income of interest on the Series of Bonds issued to fund such Construction Project. If an Event of Default pursuant to Section 8.01(a) or (b) occurs, and only to the extent that no other available moneys are held under this Indenture, the Trustee shall transfer moneys from the Construction Fund to the Debt Service Fund to pay principal and interest on the Bonds.

All requisitions received by the Trustee pursuant to Section 5.01(a) may be relied upon without investigation or inquiry by and shall be retained in the possession of the Trustee for a period of five (5) years, subject at all times to the inspection of the Authority, its agents and representatives, and any other person authorized by a certificate of an Authorized Representative of the Authority.

Section 5.02 Amendment of Construction Project. The Authority may from time to time amend or revise a Construction Project with the approval of the Consulting Engineer, but only if the Authority shall have first delivered to the Trustee (i) a written statement describing the proposed amendments and revisions, (ii) a Resolution of the Board approving the proposed amendments and revisions, (iii) a certificate signed by the Consulting Engineer setting forth the general effect of such proposed amendments and revisions and certifying in his opinion that such proposed amendments and revisions are in the best interests of the Authority, and (iv) an opinion of Bond Counsel that such amendment or revision in and of itself will not adversely affect the exclusion from gross income of interest on the Series of Bonds issued to fund such Construction Project.

Section 5.03 Contract Security. All contracts which provide for the furnishing of material or the doing of work with regard to a Construction Project shall be in compliance with all federal and state statutes, rules and regulations and shall be subject to the approval of the Consulting Engineer. The Authority will require each person with whom it may contract for construction to furnish a performance security and a labor and materialmen's security each for not less than 100% of the full amount of the contract entered into with such person or such greater or lesser amount as may be required by applicable law, and to carry such insurance as may be required by law and as may be recommended by the Consulting Engineer. The proceeds of any such performance security shall forthwith, upon the receipt thereof by the Authority, be deposited to the credit of the applicable Construction Fund or account therein and applied toward



the completion of the construction covered by the contract in connection with which such performance security shall have been furnished except that any such proceeds as shall constitute liquidated damages for delay shall be deposited to the credit of the Revenue Fund.

## ARTICLE VI

### REVENUES, FUNDS AND INVESTMENTS

Section 6.01 Funds and Accounts. In addition to the Construction Fund established in Section 5.01 hereof, there are hereby established the following Funds and Accounts to be held by the Authority or the Trustee, as applicable:

(1) Revenue Fund to be held by the Authority in one or more Authorized Depositories, subject to the lien of this Indenture;

(2) Operating Fund to be held by the Authority in one or more Authorized Depositories, not subject to the lien of this Indenture;

(3) Debt Service Fund, in which there shall be established an Interest Account, a Principal Account and a Sinking Fund Account, and a separate subaccount in each such Account with respect to (i) all Series of Common Debt Service Reserve Secured Bonds and (ii) each Series of Separately Secured Debt Service Reserve Fund Bonds; and (iii) Other Senior Parity Indebtedness, to be held by the Trustee, subject to the lien of this Indenture;

(4) Debt Service Reserve Fund to be held by the Trustee, subject to the lien of this Indenture, in which there shall be established (1) a Series Debt Service Reserve Account for all Series of Common Debt Service Reserve Secured Bonds, and (2) as applicable, a Series Debt Service Reserve Account for each Series of Bonds that has a Separate Series Debt Service Reserve Requirement;

(5) Operating Reserve Fund to be held by the Authority in one or more Authorized Depositories, subject to the lien of this Indenture;

(6) Subordinate Debt Service Fund to be held by the Trustee, subject to the lien of this Indenture;

(7) Subordinate Debt Service Reserve Fund to be held by the Trustee, subject to the lien of this Indenture;

(8) Rate Stabilization Fund to be held by the Authority in one or more Authorized Depositories, subject to the lien of this Indenture;

(9) Redemption Fund to be held by the Trustee, subject to the lien of this Indenture; and

(10) Rebate Fund to be held by the Trustee, but is not subject to the lien of this Indenture.

Section 6.02 Disposition of Revenues. All Revenues and all other amounts received by the Authority from any source (except as otherwise provided herein) shall be deposited in the Revenue Fund to be held by the Authority in one or more Authorized Depositories; provided, however, that upon an Event of Default, the Authority will transfer all amounts in all Authority held funds (other than the Operating Fund) to the Trustee, and the Trustee shall hold such moneys in trust for the beneficiaries hereunder. If and when the Event of Default is cured, such moneys shall be returned by the Trustee to the Authority.

The Authority shall transfer from the Revenue Fund to the Operating Fund from time to time the amounts needed to pay Current Expenses.

On the 20<sup>th</sup> day of each month (or, if such day is not a Business Day, then on the last Business Day prior to the 20<sup>th</sup> day of each month) (the “Disbursement Date”), Net Revenues shall be disbursed by the Authority in the following order (except that the payments into the Interest Account, the Principal Account and the Sinking Fund Account of the Debt Service Fund shall be on a parity with each other):

(1) To the Debt Service Fund:

(a) To the subaccounts established for each Series of Bonds or Other Senior Parity Indebtedness in the Interest Account, monthly, on the Disbursement Date, an amount equal to the amount of interest falling due on or before the 20<sup>th</sup> day of the following month, as set forth in the applicable Supplemental Indentures with respect to each Series of Bonds or Other Senior Parity Indebtedness (including Periodic Payments with respect to Qualified Interest Rate Swap Agreements); provided, however, that if such Other Senior Parity Indebtedness is evidenced by documents other than a Supplemental Indenture, to the related interest accounts set forth therein, as applicable; and such deposits shall be adjusted to give credit for any other available money then in such interest account or subaccount or otherwise available and designated to be used for such purpose. Moneys in the Interest Account shall be used to pay interest due on any Interest Payment Date (including any redemption date other than a mandatory sinking fund redemption date) related to such Series of Bonds or Other Senior Parity Indebtedness, as applicable.

(b) To the subaccounts established for each Series of Bonds or Other Senior Parity Indebtedness in the Principal Account and Sinking Fund Account, monthly, on the Disbursement Date, an amount equal to the principal and sinking fund redemption amounts payable on or before the 20<sup>th</sup> day of the following month, or if principal is payable once per year on the Series of Bonds or Other Senior Parity Indebtedness, then an amount equal to one half (½) of the principal or sinking fund payments due within the next seven months, and the other one half (½) when due by the 20<sup>th</sup> day of the following month, all as shall be necessary to ensure deposits for the payment in full of principal on the next principal payment date or sinking fund redemption date, as set forth in the applicable Supplemental Indentures with respect to each Series of Bonds or Other

Senior Parity Indebtedness; provided, however, that if such Other Senior Parity Indebtedness is evidenced by documents other than a Supplemental Indenture, to the related principal and sinking fund accounts set forth therein, as applicable; and such deposits shall be adjusted to give credit for any other available money then in the principal or sinking fund account or subaccount or otherwise available and designated to be used for such purpose. Moneys in the Principal Account shall be used to pay principal required to be paid on any principal payment date related to such Series of Bonds or Other Senior Parity Indebtedness, as applicable. Moneys in the Sinking Fund Account shall be used to pay the amount required for mandatory sinking fund redemption on the applicable redemption date (including any redemption date other than a mandatory sinking fund redemption date) related to such Series of Bonds or Other Senior Parity Indebtedness, as applicable.

(2) To the Debt Service Reserve Fund the amounts, if any, required to be deposited pursuant to (i) Section 6.07(b) hereof, to restore the amount on deposit in each Series Debt Service Reserve Account to the related Series Debt Service Reserve Requirement or to reimburse the provider of any Credit Facility deposited in the Debt Service Reserve Fund, and (ii) a Supplemental Indenture, to fund a Series Debt Service Reserve Account to the applicable Separate Series Debt Service Reserve Requirement or Common Debt Service Reserve Requirement, and such amounts shall be transferred to the appropriate Series Debt Service Reserve Account.

(3) To the Subordinate Debt Service Fund, the amount equal to the deposits to such funds and accounts required by the related indenture or other documents evidencing such debt, which amounts shall be used to pay principal and interest or other amounts owing on Subordinate Debt. To the extent that the Subordinate Debt is issued pursuant to Subordinate Debt documents, applicable amounts shall be transferred to the respective Subordinate Debt fiduciary. In addition, to the extent that moneys on deposit in the Debt Service Fund are insufficient to make the required interest and principal payments on Senior Debt, moneys in the Subordinate Debt Service Fund shall be used, prior to any withdrawal from the Debt Service Reserve Fund, to cure any such deficiencies, but only after withdrawals from the Revenue Fund, the Operating Reserve Fund and any Subordinate Debt Service Reserve Fund, in that order, for that purpose.

(4) To Subordinate Debt Service Reserve Fund with respect to each Subordinate Debt issue the amounts, if any, necessary to restore the amount on deposit therein to the related Subordinate Debt Service Reserve Requirement. To the extent that the Subordinate Debt is issued pursuant to Subordinate Debt documents, applicable amounts shall be transferred to the respective Subordinate Debt fiduciary.

(5) To any Counterparty, any and all payments owed by the Authority on or before the 20<sup>th</sup> day of the following month under its Qualified Interest Rate Swap Agreement, other than Periodic Payments.

(6) To the Operating Reserve Fund the amounts, if any, necessary to restore the amounts on deposit therein to the Operating Reserve Requirement. Such amounts shall be funded within 24 months of withdrawal by depositing in such fund 1/24 of the Operating Reserve Requirement on each Disbursement Date after such withdrawal, if necessary. Moneys in the Operating Reserve Fund shall be used to pay, to the extent necessary, Current Expenses of the Authority.

(7) To the City, any amounts owed to the City on or before the 20<sup>th</sup> day of the following month under the Cooperation Agreement.

(8) Any moneys remaining in the Revenue Fund after all deposits and transfers required by subsections (1) through (7) of this Section have been made on the Disbursement Date shall be applied as follows: to the extent that moneys on deposit in the Debt Service Fund are insufficient to make the required interest and principal payments on Senior Debt, (i) moneys in the Revenue Fund shall be transferred to the Debt Service Fund, and then (ii) there shall be withdrawals from the Operating Reserve Fund, the Subordinate Debt Service Fund, any Subordinate Debt Service Reserve Fund, and the Debt Service Reserve Fund, in that order, to cure any such deficiencies. If not needed for that purpose, moneys in the Revenue Fund may be used for any authorized purpose, including but not limited to transfers in an amount that an Authorized Representative of the Authority may determine, in his discretion, to transfer to the Rate Stabilization Fund for rate stabilization purposes, or to the Debt Service Fund to be used to redeem Bonds as herein provided for deposit in any Account therein, or to the Operating Fund to pay Costs of Construction Projects or Capital Additions. Additionally, moneys remaining in the Revenue Fund to the extent all transfers required by subsections (1) through (7) of this Section have been made, shall be applied for any lawful purpose of the Authority.

Notwithstanding anything in this Indenture to the contrary, at any time that the Authority is required to make transfers pursuant to subsections (1) through (7) of this Section, and there are insufficient Net Revenues to make all required transfers pursuant to such subsections, the Authority, after paying Current Expenses, shall make the transfers in the order set forth above first from Net Revenues, then from any other legally available monies.

In the event this Section requires transfers to the Debt Service Fund or the Debt Service Reserve Fund from any Fund held by the Authority, the Authority shall effect that transfer to the Trustee in accordance with this Section.

The Authority's obligation to repay any Policy Costs to a Bond Insurer related to the Debt Service Reserve Fund shall have the same priority and be paid in the same manner from the Revenue Fund as the obligation to maintain and refill the Debt Service Reserve Fund. Repayment of Policy Costs shall commence in the first month following each draw on the Debt Service Reserve Fund Policy, and each such monthly payment shall be in an amount at least equal to one-twelfth of the aggregate of the Policy Costs related to such draw.

The Authority's obligation to repay any Policy Costs to a Bond Insurer related to the Subordinate Debt Service Reserve Fund shall have the same priority and be paid in the same

manner from the Revenue Fund as the obligation to maintain and refill the Subordinate Debt Service Reserve Fund. Repayment of Policy Costs shall commence in the first month following each draw on the Subordinate Debt Service Reserve Fund Policy, and each such monthly payment shall be in an amount at least equal to one-twelfth of the aggregate of the Policy Costs related to such draw.

The Trustee shall provide for a mandatory sinking fund redemption of any Term Bonds in accordance with the schedules set forth in the Supplemental Indenture for such Bonds; provided, however, that on or before the 45th day next preceding any such sinking fund payment date, the Authority may:

- (i) deliver to the Trustee for cancellation Term Bonds of the maturity required to be redeemed on such sinking fund payment date in any aggregate Principal Amount desired; or
- (ii) instruct the Trustee, in writing, to apply a credit against the Authority's next sinking fund redemption obligation for any such Term Bonds that previously have been redeemed (other than through the operation of the sinking fund) and canceled but not theretofore applied as a credit against any sinking fund redemption obligation.

Upon the occurrence of any of the events described in the subsections (i) or (ii) above, the Trustee shall credit against the Authority's sinking fund redemption obligation on the next sinking fund payment date the amount of such Term Bonds so delivered or previously redeemed. Any Principal Amount of such Term Bonds in excess of the Principal Amount required to be redeemed on such sinking fund payment date shall be similarly credited in such order as may be determined by the Authority against future payments to the Sinking Fund Account and shall similarly reduce the Principal Amount of the Term Bonds of the applicable Series to be redeemed on the next sinking fund payment date. Within seven days of receipt of such Term Bonds or instructions to apply as a credit, any amounts remaining in the Sinking Fund Account in excess of the amount required to fulfill the remaining required sinking fund redemption obligation on the next sinking fund payment date shall be used in such manner as determined at the direction of the Authority.

In the event the amount on deposit in the Interest Account on any Interest Payment Date exceeds the amount required to pay interest on the Senior Debt on the next Interest Payment Date, the Authority shall, if the amount on deposit in any Series Debt Service Reserve Account is less than the applicable Series Debt Service Reserve Requirement, transfer such excess to any Series Debt Service Reserve Account to the extent of such deficiency (on a *pro rata* basis if funds are not sufficient to cause the Series Debt Service Reserve Requirement to be fully funded at the Common Debt Service Reserve Requirement or Separate Series Debt Service Reserve Requirement), and otherwise retain any remaining excess in the Interest Account or transfer any remaining excess to the related Principal Account to be credited against subsequent required deposits thereto, as determined by the Authority.

In the event the amount on deposit in the Principal Account or Sinking Fund Account on any principal or mandatory redemption payment date exceeds the amount required on such date to pay Bonds at maturity or to redeem Term Bonds pursuant to mandatory sinking fund requirements, the Authority shall, if the amount on deposit in any Series Debt Service Reserve

Account is less than the applicable Series Debt Service Reserve Requirement, transfer such excess to the Series Debt Service Reserve Account to the extent of such deficiency (on a *pro rata* basis if funds are not sufficient to cause the Series Debt Service Reserve Requirement to be fully funded at the Common Debt Service Reserve Requirement or Separate Series Debt Service Reserve Requirement), and otherwise retain such excess in the Principal Account or transfer such excess to the Interest Account to be credited against subsequent required deposits thereto, as determined by the Authority.

Section 6.03 Operating Fund. The Authority shall promptly pay out of the Operating Fund its Current Expenses as the same shall become due. All withdrawals or payments from the Operating Fund shall be made in accordance with the procedures of the Authority. If all transfers required under subsections (1) through (7) of Section 6.02 have been made, the Authority may pay from the Operating Fund the Costs of Construction Projects or Capital Additions.

Section 6.04 Debt Service Fund. The Authority shall deposit and the Trustee shall apply the amounts required to be deposited in the Debt Service Fund on the applicable dates pursuant to the provisions of this Indenture including in any Supplemental Indenture for the purpose of paying the interest on and principal of Bonds and Other Senior Parity Indebtedness.

Section 6.05 Subordinate Debt Service Fund. The Authority shall deposit and the Trustee shall apply the amounts required to be deposited on the applicable dates pursuant to the provisions of this Indenture and any documents related to the Subordinate Debt for the purpose of paying the interest on and principal of Subordinate Debt.

Section 6.06 Operating Reserve Fund. Moneys in the Operating Reserve Fund shall be used by the Authority to pay, to the extent necessary, Current Expenses of the Authority. Such moneys shall also be used to make up for deficiencies in certain other funds as described in Section 6.02(6) hereof. To the extent that moneys on deposit in the Debt Service Fund are insufficient to make the required interest and principal payments on Senior Debt, moneys in the Operating Reserve Fund shall be used, prior to any withdrawal from any Subordinate Debt Service Reserve Fund, the Subordinate Debt Service Fund, and then the Debt Service Reserve Fund, in that order, to cure any such deficiencies, but only after withdrawals from the Revenue for that purpose.

Section 6.07 Debt Service Reserve Fund.

The Series Debt Service Reserve Account maintained for all Common Debt Service Reserve Secured Bonds shall be funded at all times to the Common Debt Service Reserve Requirement, and all other Series Debt Service Reserve Accounts shall be funded at all times to the applicable Separate Series Debt Service Reserve Requirement as set forth in a Supplemental Indenture. Amounts in each Series Debt Service Reserve Account shall be used to pay debt service on the related Series of Bonds and related Other Senior Parity Indebtedness on the date such debt service is due if insufficient funds for that purpose are available in the related Series subaccount in the Interest Account and the related Series subaccount in the Principal Account (but only to the extent amounts in such subaccounts are less than the amounts required). Amounts in each Series Debt Service Reserve Account shall be pledged to Holders of the Bonds

and Other Related Parity Indebtedness Parties secured by such Series Debt Service Reserve Account.

The Authority shall withdraw from the Revenue Fund and deposit into the Debt Service Reserve Fund:

(a) on the dates specified in this Indenture or any Supplemental Indenture, the amounts required to be deposited on such dates to the credit of the applicable accounts of the Debt Service Reserve Fund; and

(b) if a deficiency exists in any account of the Debt Service Reserve Fund, on the dates specified in this Indenture or a Supplemental Indenture, such amounts as will be sufficient to repair any deficiencies in such account of the Debt Service Reserve Fund in not more than twenty-four equal monthly payments.

In lieu of or in addition to cash or investments, at any time the Authority may cause to be deposited to the credit of the Debt Service Reserve Fund any form of Credit Facility, including a Debt Service Reserve Fund Policy, in the amount of all or a portion of the Debt Service Reserve Fund, irrevocably payable to the Trustee as beneficiary for the Holders of the respective Series of Bonds, provided that the Trustee has received evidence satisfactory to it that the provider of the Credit Facility has a credit rating in one of the three highest credit rating categories by two Rating Agencies.

If a disbursement is made pursuant to any Credit Facility, the Authority shall either (a) reinstate the maximum limits of such Credit Facility, or (b) deposit to the credit of the Debt Service Reserve Fund moneys in the amount of the disbursement made under such Credit Facility from available Net Revenues. To the extent such moneys are still insufficient, then the Authority shall transfer to the Trustee from any legally available moneys the amount of such deficiency as soon as practicable and in any event within 24 months by depositing one-twenty-fourth of the required amount each month.

Amounts, if any, released from any Debt Service Reserve Fund upon deposit to the credit of such Debt Service Reserve Fund of a Credit Facility shall, upon designation by an Authorized Representative of the Authority, accompanied by an opinion of Bond Counsel that such use in and of itself will not adversely affect the exclusion from gross income of interest on the respective Series of Bonds, be transferred (a) to the Debt Service Fund and used to pay interest on, principal of or to redeem such Bonds, or (b) to the Authority to be used to pay all or any portion of the Costs designated by the Authority and approved by Bond Counsel.

On or within five days after each Reserve Determination Date, the Trustee shall determine if the balance on deposit in each applicable account of the Debt Service Reserve Fund was, as of the Reserve Determination Date, at least equal to the applicable Debt Service Reserve Requirement. In making such determination, any obligations in the Debt Service Reserve Fund shall be valued in accordance with Section 6.12.

In the event the amount on deposit in the Debt Service Reserve Fund exceeds the applicable Debt Service Reserve Fund Requirement, the Trustee shall (a) transfer such excess to the Debt Service Fund to be used to pay interest and principal on Bonds on the next Interest

Payment Date, and (b) transfer such excess to the Authority to be used to pay all or any portion of Costs designated by the Authority and approved by Bond Counsel; provided, however, that if an Authorized Representative of the Authority calls for a Reserve Determination Date in connection with the refunding and/or defeasance of a Series of Bonds, then the Trustee is authorized to take such refunding and/or defeasance into account in valuing the Debt Service Reserve Fund securing such Series of Bonds and is further authorized to apply the amount of any surplus arising from such valuation to reduce the amount of the refunding bonds and/or to provide for the defeasance of the Bonds in such manner as the Authorized Representative of the Authority may direct.

The Trustee shall ascertain the necessity for a claim upon a Debt Service Reserve Fund Policy and provide notice to the Bond Insurer of any such claim in accordance with the Debt Service Reserve Fund Policy at least two Business Days prior to each Interest Payment Date. The Trustee shall without any direction from the Authority, transfer moneys from the Debt Service Reserve Fund to the Debt Service Fund or to any sinking, purchase or analogous fund to the extent that the moneys in the Debt Service Fund or any sinking, purchase or analogous fund may on any Interest Payment Date be insufficient to make the payments for which the Debt Service Fund or any sinking, purchase or analogous fund was established as the same shall become due. If and to the extent that cash has been deposited into the Debt Service Reserve Fund in addition to a Debt Service Reserve Fund Policy, all such cash shall be used (or investments purchased with such cash shall be liquidated and the proceeds applied as required) prior to any drawing under the Debt Service Reserve Fund Policy, and repayment of any Policy Costs shall be made prior to replenishment of any such cash amounts.

If, in addition to the Debt Service Reserve Fund Policy, any other reserve fund substitute instrument ("Additional Reserve Fund Policy") is provided, drawings on the Debt Service Reserve Fund Policy and any such Additional Reserve Fund Policy, and of repayment of Policy Costs and reimbursement of amounts due under the Additional Reserve Policy, shall be made on a pro rata basis (calculated by reference to maximum amounts available thereunder) after applying all cash available in the Debt Service Reserve Fund and prior to replenishment of any such cash draws, respectively.

If the Authority shall fail to pay any Policy Costs in accordance with the provisions of this Indenture, the Bond Insurer shall be entitled to exercise any and all remedies under this Indenture other than (i) acceleration of the maturity of the Bonds, or (ii) remedies which would adversely affect Bondholders.

The Trustee shall notify the Bond Insurer of any withdrawal from the Debt Service Reserve Fund due to a deficiency in any other fund or of any deficiency in the Debt Service Reserve Fund due to market fluctuation of the investments held therein.

Section 6.08 Rate Stabilization Fund. The Rate Stabilization Fund authorized by Section 6.01(8) shall be held by the Authority at one or more Authorized Depositories in a Fund separate and apart from all other Funds and Accounts of the Authority and payments therefrom shall be made as hereinafter provided. Moneys may be transferred by an Authorized Representative of the Authority to the Rate Stabilization Fund from the Revenue Fund as provided in Section 6.02 as determined by the Authorized Representative of the Authority. At



any time the Authority shall transfer from the Rate Stabilization Fund to the Revenue Fund an amount determined by an Authorized Representative of the Authority.

Section 6.09 Redemption Fund. The Authority may transfer to the Trustee for deposit to the credit of the Redemption Fund such amounts as it may elect for the purchase of Bonds or redemption of Bonds at the option of the Authority and the Trustee shall apply such moneys to the redemption of Bonds in the amounts directed, in writing, by the Authority. Upon any such purchase or redemption, the Trustee shall transfer from the Debt Service Fund to the Redemption Fund any amount deposited in the Debt Service Fund with respect to interest on the Bonds being redeemed and shall pay the interest due on the redemption date out of such moneys.

Section 6.10 Rebate Fund. The Rebate Fund is established with the Trustee separate and apart from the pledge of this Indenture. The Trustee shall make deposits to and disbursements from the Rebate Fund upon directions furnished by the Authority. The Authority will retain a Qualified Independent Consultant, experienced in preparing rebate reports, to assist the Authority with respect to rebate requirements related to the Bonds. The Trustee has undertaken no duty, and is under no obligation to calculate any amount due with respect to such rebate, to verify amounts contained in any written request or direction, or to make such payments.

Section 6.11 Other Funds and Accounts. The Authority may establish in each Supplemental Indenture such other Funds and Accounts as the Authority determines to be desirable.

Section 6.12 Authorized Investments. At the written direction of the Authority, signed by any two of its Chairperson or Vice Chairperson or Secretary or Assistant Secretary or Executive Director or Chief Financial Officer or Director of Finance, or signed by such other person or persons who is or are authorized to do so pursuant to a Resolution of the Board, a certified copy of which shall be on file with the Trustee, moneys to the credit of the following Funds shall be invested by the Trustee in the following securities:

(a) Obligations of the United States of America or any of its agencies or instrumentalities backed by the full faith and credit of the United States of America; and short term obligations of the United States Government or its agencies or instrumentalities.

(b) Deposits in savings accounts or time deposits or share accounts of institutions insured by the Federal Deposit Insurance Corporation or the National Credit Union Share Investment Fund to the extent such accounts are so insured and for any amounts above the insured maximum if the approved collateral as provided by law shall be pledged by the depository (including pursuant to Pennsylvania Act 72 of 1971, as amended).

(c) Obligations, participations or other instruments of any Federal agency, instrumentality or United States government-sponsored enterprise, including those issued or fully guaranteed as the principal and interest by Federal agencies, instrumentalities or United States government-sponsored enterprises, if the debt obligations are rated at least "A" or its equivalent by at least two Rating Agencies.

(d) Repurchase agreements with respect to United States Treasury bills or obligations, participations or other instruments of or guaranteed by the United States or any Federal agency, instrumentality or United States government-sponsored enterprise.

(e) Negotiable certificates of deposit or other evidences of deposit, with a remaining maturity of three years or less, issued by a nationally or State-chartered bank, a Federal or State savings and loan association or a State-licensed branch of a foreign bank. For obligations with a maturity of one year or less, the debt obligations of the issuing institution or its parent must be rated in the top short-term rating category by at least two Rating Agencies. For obligations with a maturity in excess of one year, the senior debt obligations of the issuing institution or its parent must be rated at least "A" or its equivalent by at least two Rating Agencies.

(f) Bills of exchange or time drafts drawn on and accepted by a commercial bank, otherwise known as bankers' acceptances, if the bankers' acceptances do not exceed 180 days' maturity and the accepting bank is rated in the top short-term category by at least two Rating Agencies.

(g) Commercial paper issued by corporations or other business entities organized in accordance with Federal or State law, with a maturity not to exceed 270 days, if the issuing corporation or business entity is rated in the top short-term category by at least two Rating Agencies.

(h) Shares of an investment company registered under the Investment Company Act of 1940 (54 Stat. 789, 15 U.S.C. § 80a-1 et seq.) whose shares are registered under the Securities Act of 1933 (48 Stat. 74, 15 U.S.C. § 77a et seq.), if all of the following conditions are met: (1) the investments of the company are the authorized investments under this definition; (2) the investment company is managed in accordance with 17 CFR 270-2a7 (relating to money market funds); and (3) the investment company is rated in the highest category by a Rating Agency.

(i) Savings or demand deposits placed in accordance with the following conditions: (1) the money is initially deposited and invested through a federally insured institution having a place of business in the Commonwealth which is selected by the Authority; (2) the selected institution arranges for the redeposit of the money in savings or demand deposits in one or more financial institutions insured by the Federal Deposit Insurance Corporation for the account of the Authority; the full amount of principal and any accrued interest of each such deposit is insured by the Federal Deposit Insurance Corporation; and (4) on the same date that the money is redeposited pursuant to paragraph (2), the selected institution receives an amount of deposits from customers of other financial institutions equal to or greater than the amount of money initially invested through the selected institution by the Authority.

All investments shall mature or shall be subject to withdrawal, as the case may be, not later than the date required for the operation of such Fund and in no event later than the date or the number of months or years after the date of such investment or deposit as specified in the following columns:

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| <u>Fund</u>                           | <u>Period of Investment</u>  |
|---------------------------------------|--|
| Revenue Fund                          | Such dates as may be specified by the Authority to permit it to meet its obligations to be paid therefrom. |
| Operating Fund                        | Such dates as may be specified by the Authority to permit it to meet its obligations to be paid therefrom. |
| Construction Fund                     | Such dates as may be specified by the Authority to permit it to meet its obligations to be paid therefrom. |
| Debt Service Fund                     | Not later than one day prior to the next interest or principal payment date.                               |
| Debt Service Reserve Fund             | Not later than 5 years from the date of investment.  |
| Operating Reserve Fund                | Not later than 1 year from the date of investment.   |
| Subordinate Debt Service Fund         | Not later than one day prior to the next interest or principal payment date.                               |
| Subordinate Debt Service Reserve Fund | Not later than 5 years from the date of investment.  |
| Rate Stabilization Fund               | Not later than 1 year from the date of investment.   |
| Redemption Fund                       | Not later than the day prior to the redemption date with respect to which such deposit has been made.      |
| Rebate Fund                           | Such dates as may be specified by the Authority to permit it to meet its obligations to be paid therefrom. |

In any such case, the full purchase price (including accrued interest and premiums, if any) of obligations, shall be paid out of the Fund for which the investment was made. Upon a like direction by the Authority, or whenever the moneys in said Funds are to be applied and paid out pursuant to any provisions of this Indenture, or, whenever the Trustee shall deem such action to be advisable, the Trustee shall sell all or any part of the obligations in which the moneys in one or more such Funds shall be invested or withdraw moneys from such accounts or certificates of deposit, and the proceeds of such sale or the amount of such withdrawal shall be deposited to the credit of the respective Fund or Funds. Interest and income derived from any such investments or deposits shall be held and transferred as follows, unless otherwise directed by the Authority:

- (a) Revenue Fund – remain in that fund;

- (b) Operating Fund – remain in that fund;
- (c) Construction Fund – remain in that fund;
- (d) Debt Service Fund - remain in that fund;
- (e) Debt Service Reserve Fund - remain in that fund to make up any deficiency therein; otherwise, transferred to Revenue Fund;
- (f) Operating Reserve Fund - remain in that account to make up any deficiency therein; otherwise, transferred to Revenue Fund;
- (g) Subordinate Debt Service Fund - remain in that fund;
- (h) Subordinate Debt Service Reserve Fund - remain in that fund to make up any deficiency therein; otherwise, transferred to Revenue Fund;
- (i) Rate Stabilization Fund – remain in that fund;
- (j) Redemption Fund - transferred to Revenue Fund; and
- (k) Rebate Fund - remain in that fund.

Any loss resulting from any such investment shall be charged to the respective Fund or Funds, for which such investment was made. Obligations purchased as an investment of any of said Funds shall be deemed at all times to be a part of such Fund. The Trustee shall not be liable or responsible for any loss resulting from any investment made in accordance with the provisions of this Section or resulting from any sale by the Trustee of such investment made in accordance with instructions from the Authority.

Cash in each of the Funds and accounts therein and all certificates of deposit, repurchase agreements and investment agreements all as referred to in this Article, to the extent that the same is not insured or guaranteed by the Federal Deposit Insurance Corporation or other Federal agency, shall be continuously secured by a pledge of securities described in (a) and/or (b) of Section 6.12 hereof having an aggregate market value, exclusive of accrued interest in the case of certificates of deposit and including accrued interest in the case of repurchase agreements or other investment agreements, at all times at least equal to 100% (or 102 % in the case of repurchase agreements or investment agreements) of the balance on deposit (including interest earned in the case of repurchase agreements or investment agreements) in such Fund or account. Such securities shall be held by a Trustee or agent satisfactory to the Authority and to the Trustee. In the event the Authority determines that the market value of such security is determined by the Trustee to be less than the required amount, the Authority shall provide written instructions to Trustee to obtain additional security.

All Authorized Investments (except investment agreements) shall be valued by the Trustee as frequently as deemed necessary by a Bond Insurer, but not less often than annually, at the market value thereof, exclusive of accrued interest.

No later than 20 days before each Interest Payment Date, the Trustee shall advise the Authority of the amount of interest credited and to be credited to the Debt Service Fund prior to the next Interest Payment Date to enable the Authority to determine the amount to be transferred from the Revenue Fund on such Interest Payment Date.

Ratings of authorized investments shall be determined at the time of purchase of such authorized investments and the Trustee shall have no responsibility to monitor the ratings thereof. The Trustee may make any and all such investments through its own investment department or that of its affiliates or subsidiaries, and may charge its ordinary and customary fees for such trades, including cash sweep account fees. In the absence of investment instructions from the Authority, the Trustee shall not be responsible or liable for keeping the moneys held by it hereunder fully invested in authorized investments. The Trustee is not required to provide brokerage confirmations so long as the Trustee provides periodic statements that include investment activity to the Authority; provided that such statement is not required if (i) the Trustee is willing to provide broker confirmations or (ii) the investments permitted in the transaction are limited solely to investments for which brokerage confirmations are never issued or issued only at closing (i.e., state and local government obligations).

Section 6.13 Transfer of Funds and Accounts. On the First Effective Date, moneys in any Funds and Accounts in the Existing Senior Indenture maintaining the same name in this Indenture shall remain in such Funds and Accounts. The moneys in the Operation and Maintenance Account shall be transferred to the Operation Account hereunder. The moneys in the Renewal and Replacement Fund and the Depreciation Reserve Account shall be transferred to the Revenue Fund.

## ARTICLE VII

### RATE COVENANT AND PARTICULAR COVENANTS

#### Section 7.01 Authority Rate Covenant.

(a) From the First Effective Date through the Tested Fiscal Year (as hereinafter defined) ending December 31, 2018, the Rate Covenant set forth in Section 7.01 of the Existing Senior Indenture shall remain in effect. This means that in 2018, the Authority will calculate whether the Rate Covenant in Section 7.01 of the Existing Senior Indenture was complied with in the 2017 Fiscal Year, and in 2019, the Authority will calculate whether the Rate Covenant in Section 7.01 of the Existing Senior Indenture was complied with in the 2018 Fiscal Year.

(b) Beginning on January 1, 2019 and thereafter, the Rate Covenant set forth in 7.01(c) below shall be in effect. This means that in 2020, the Authority will calculate whether the Rate Covenant in Section 7.01(c) below was complied with in the 2019 Fiscal Year.

(c) The Authority shall fix, charge and collect such rates, fees and other charges for the use of and the services furnished by the System and shall, from time to time and as often as shall appear necessary, revise such rates, fees and other charges so as to satisfy all of the following three independent requirements:

(i) Rate Covenant Net Revenues shall be sufficient in each Fiscal Year (the "Tested Fiscal Year") to pay (A) Annual Debt Service on Senior Debt in such Fiscal Year, (B) any amount necessary to be deposited in any Series Debt Service Reserve Account to restore the amount on deposit therein to the applicable Series Debt Service Reserve Requirement, (C) Annual Debt Service on Subordinate Debt in such Fiscal Year (including reserves in connection therewith and the required restoration thereof), (D) any amount required to be deposited in the Operating Reserve Fund to cause the required balance therein to equal the Operating Reserve Requirement, and (E) all other amounts which the Authority may by law or contract be obligated to pay; and

(ii) Rate Covenant Net Revenues in each Fiscal Year shall equal not less than: (A) 125% of the Annual Debt Service with respect to Senior Debt for such Fiscal Year; plus (B) 110% of the aggregate Annual Debt Service with respect to Subordinate Debt for such Fiscal Year; and

(iii) Rate Covenant Net Revenues, excluding transfers from the Rate Stabilization Fund to the Revenue Fund (as provided in Section 6.08 hereof) and the proceeds of Grants, shall equal not less than 100% of Annual Debt Service on Senior Debt and Subordinate Debt for such Fiscal Year.

The Authority shall test for compliance with this Section 7.01(c) within 120 days after the end of each Fiscal Year.

(d) If, subject to the provisions of subsection (e) below, the Rate Covenant Net Revenues are less than the amounts specified in (c) above, the Authority must take appropriate action under the law and subsection (f) below within its powers to revise the Authority's rates, fees and other charges or the method of operation of the System in order to satisfy the foregoing requirements in the next Fiscal Year following the Tested Fiscal Year.

(e) For purposes of this Section, the Authority shall not be deemed to have failed to comply with the Rate Covenant and shall not be required to implement the procedures set forth in subsection (d) hereof, if an Authorized Representative of the Authority certifies in writing that the Rate Covenant Net Revenues the Authority would have received in the Tested Fiscal Year would have been sufficient to meet the requirements of subsection (c) hereof if the Revenues for the Tested Fiscal Year were determined by giving effect for the entire Tested Fiscal Year to any increase or decrease in rates, fees, rentals or other charges already authorized by the Authority to be implemented on a date that is within 120 days after the end of the Tested Fiscal Year.

(f) If the Authority fails to comply with the Rate Covenant, the Authority shall promptly request a Qualified Independent Consultant to submit a written report and recommendations with respect to increases in the Authority's rates, fees and other charges and improvements in the operations of and the services rendered by the System and the Authority's accounting and billing procedures necessary to bring the Authority into compliance with the Rate Covenant. Any failure to meet the Rate Covenant will not constitute an Event of Default under this Indenture if within 180 days after the end of the Tested Fiscal Year, (1) the report and recommendations of the Qualified Independent Consultant shall be filed with the Authority, and (2) the Authority shall revise its rates, fees and charges, and alter its operations and services to

conform with the report and recommendations of the Qualified Independent Consultant to the extent permitted by law. Notwithstanding clause (2) in the prior sentence, to the extent that the Authority's rates are governed by an external regulatory body, an Event of Default will not be deemed to have occurred if the Authority files with said regulatory body within 180 days after the end of the Tested Fiscal Year a petition to revise its rates, fees and charges to a level sufficient to achieve compliance with the Rate Covenant in future years. If, in response to such petition, the regulatory body establishes rates, fees and charges, within 180 days of the date the petition is filed, that are expected by the Authority to achieve future compliance with the Rate Covenant, then an Event of Default will not have occurred. If, in response to such petition, the regulatory body (a) does not establish rates fees and charges within 180 days of the petition being filed or (b) establishes rates, fees and charges that are not expected by the Authority to achieve future compliance with the Rate Covenant, then an Event of Default will have occurred.

(g) If the Authority fails to make a deposit required by Section 6.02 to the Interest Account or the Principal Account (or the Sinking Fund Account, as applicable), or if there is a deficiency in the Debt Service Reserve Fund for which the Authority has not made required restoration payments for three consecutive months, the Authority shall promptly request a Qualified Independent Consultant to submit a written report and recommendations with respect to increases in the Authority's rates, fees and other charges and improvements in the operations of and the services rendered by the System and the Authority's accounting and billing procedures necessary to bring the Authority into compliance with the Rate Covenant. The report and recommendations shall be filed with the Authority within 60 days from the date of discovery of failure to make the required deposits, and within 90 days from the receipt of such report, the Authority shall revise its rates, fees and charges, and alter its operations and services to conform with the report and recommendations of the Qualified Independent Consultant to the extent permitted by law.

Section 7.02 Principal and Interest; Cancellation. The Authority will punctually pay the principal of (and premium, if any) and interest on each of the Bonds issued hereunder and secured hereby on the dates, at the places and in the manner specified herein and in said Bonds. All Bonds paid, redeemed or purchased, shall be cancelled by the Trustee. All such Bonds so cancelled may at any time be destroyed by the Trustee.

Section 7.03 No Extension of Payment. The Authority will not directly or indirectly extend or assent to the extension of the time of payment of any claim for interest upon any of the Bonds by purchasing or funding such claim or by any other arrangement, and, in case the time for payment of any such claim for interest shall be extended, such claim shall not be entitled, in case of any default hereunder, to the benefits of this Indenture, or to any payment out of the assets of the Authority, except subject to the prior payment of the principal of all Bonds issued and Outstanding hereunder, and of such portion of the accrued interest thereon as shall not be represented by such extended claims.

Section 7.04 Appointment of Trustee. The Authority hereby irrevocably appoints the Trustee as its agent to maintain an office or agency at its corporate trust office in the City, where Bonds may be presented for registration and transfer and where notices, presentations and demands in respect to the Bonds, or of this Indenture, may be served. The Trustee shall not be under any liability to the Authority or to any other corporation or person in

respect of any such presentation, demand or notice. The Authority shall have the right to appoint a Paying Agent to perform any of the Trustee's duties hereunder with respect to the authentication, transfer, exchange or payment of the Bonds hereunder.

Section 7.05 Corporate Existence. The Authority is duly authorized under its certificate of incorporation and all applicable laws to issue the Bonds and execute and deliver this Indenture and to pledge the Revenues pledged hereby, and all corporate action on its part to that end has been duly and validly taken; this Indenture is and will be a legal, binding and enforceable instrument in accordance with its terms except to the extent that the enforcement of the remedies provided for herein may be limited by bankruptcy laws or the Act; and the Bonds are and will be valid and binding obligations of the Authority entitled to the benefits and security of this Indenture. The Authority will at all times preserve and protect the security of the Bonds and the rights of the Trustee and the Bondholders hereunder.

Section 7.06 Compliance with Act; Maintenance of Existence. The Authority will at all times comply with the laws of the Commonwealth applicable to the Authority, particularly the Act and its amendments and supplements, and it will take such actions and proceedings as may be required, from time to time, to preserve its corporate existence, rights and franchises.

Section 7.07 Liens; Sale of Assets. So long as any of the Bonds secured hereby are Outstanding, none of the Revenues shall be used for any purpose other than as provided in this Indenture, and no contract or contracts will be entered into or any action taken by which the rights of the Trustee or of the Bondholders might be impaired or diminished.

The Authority will not voluntarily create or permit to be created any debt, lien or charge on a parity with (except pursuant to Section 3.03 hereof) or having priority over the lien of this Indenture upon any of the Revenues pledged hereby or any other revenues or other amounts at any time pledged for the payment of the Bonds. The Authority will not sell or otherwise dispose of or encumber the System or any part thereof except as herein otherwise having provided. No sale or other disposition of fixed properties having a fair market value in excess of One Million Dollars (\$1,000,000) shall be made unless the Consulting Engineer shall first have filed his certificate with the Authority and the Trustee recommending such sale or other disposition of said fixed properties and shall have stated in such certificate that the sale or other disposition of said properties is in the best interests of the Authority and will not impair the security of the Bonds and the retention of said properties is not necessary for the efficient operation of the System. If, after receiving the certificate of the Consulting Engineer, the Authority determines to sell or otherwise dispose of said fixed properties, it shall by Resolution of the Authority adopted by a majority vote of a quorum of the Board, authorize such sale or other disposition and shall file a certified copy of such Resolution of the Authority with the Trustee.

The proceeds from such sale or other disposition of any such fixed properties shall be deposited in the Revenue Fund.

The Authority may from time to time sell or otherwise dispose of property other than fixed property included in the System if the Authority shall determine that the sale or other



disposition of such property is in the best interests of the Authority and will not impair the security of the Bonds and the retention of said properties is not necessary for the efficient operation of the System. The proceeds from the sale or other disposition of such property shall be deposited in the Revenue Fund.

In case the Authority shall have acquired any property constituting part of the System within or after the period for which any calculation of Net Revenues is made there shall be included in ascertaining the Net Revenues for such period, the net earnings or net losses, as the case may be, of such property for the whole of such period to the extent the same may not have been otherwise included. The net earnings or net losses, as the case may be, of such property for the period preceding its acquisition by the Authority shall be computed as if such property had been operated by the Authority during such period. If within or after the period for which any such calculation is made, the Authority shall have disposed of any property constituting part of the System, then the net earnings or net losses, as the case may be, of such property for the whole of such period shall be excluded, to the extent the same may not have been otherwise excluded, in ascertaining the Net Revenues for such period. If the rates, rents and charges during all or any part of the period for which any such calculation is made shall be different from the rates, rents and charges which are in effect at the time such calculation is made, there shall be added to or deducted from the Net Revenues so calculated, any increase or decrease of the Revenues for such period which would result from the computation of such Revenues on the basis of the rates, rents and charges in effect at the date of said calculation, rather than the rates, rents and charges which were actually in effect during that period.

Section 7.08 Payment of Taxes and other Governmental Charges. The Authority will pay all taxes, assessments and other governmental charges lawfully imposed upon its properties or the Revenues when the same shall become due as well as all lawful claims for labor, material and supplies, which, if unpaid, might by law become a lien or charge on the System or the Revenues or any part thereof prior to or on a parity with the lien hereof, or which might impair the security of this Indenture, so that the priority and security of this Indenture shall be preserved, provided that nothing in this Section contained shall require the Authority to pay and discharge any such tax, assessment, charge or claim so long as the validity thereof shall be contested in good faith by appropriate proceedings diligently conducted (unless and until foreclosure, distraint, sale or other similar proceedings shall have been commenced) and if such reserves or other appropriate provisions, if any, as shall be required by generally accepted accounting principles shall have been made therefor.

Section 7.09 Insurance of System. The Authority will at all times cause all the property of the System which is of a character usually insured by persons operating properties of a similar nature to be properly insured and kept insured by a reputable insurance company or companies against loss or damage by fire or other hazards to the extent that such properties are usually insured by persons operating properties of a similar nature in the same or similar localities. All policies shall be so written that the Trustee will be notified of cancellation or amendment at least fifteen (15) days prior to the effective date of such cancellation or amendment. In case the Trustee shall at any time notify the Authority in writing that it disapproves of any insurance company issuing a policy of insurance covering any one or more such risks, the Authority will forthwith affect other insurance with companies satisfactory to the Trustee.

All such policies shall be for the benefit of the Trustee and the Authority as their interests may appear. All policies shall provide that claims in excess of \$5,000,000 shall be made payable to the Trustee and shall be deposited with the Trustee and the Trustee shall have the sole right to receive the proceeds of such policies and to collect and receipt for claims in excess of \$5,000,000 thereunder. The Trustee may accept as conclusive the adjustment of any loss or losses by the Authority and any insurance company. The proceeds of all such policies paid to the Trustee shall be held by it as additional security hereunder until paid out by it as herein provided. All claims of \$5,000,000 or less shall be paid to the Authority.

Section 7.10 Damage, Destruction or Condemnation of System; Application of Proceeds. In the event of any damage to the System covered by insurance or condemnation or taking by eminent domain of any part of the System for which the cost of repair or replacement shall exceed \$5,000,000, the proceeds shall be deposited in the Revenue Fund and the Authority shall promptly notify the Trustee and file with the Trustee a Consulting Engineer's certificate stating whether, in the signer's opinion, it is practicable and advantageous to repair or replace the damaged or condemned property. If the certificate states that repair or replacement is practicable and advantageous, the Consulting Engineer shall, if appropriate, prepare and file with the Trustee plans and specifications therefor with an estimate of the cost thereof, and the insurance or condemnation proceeds, if any, shall be transferred to the Operating Fund and applied thereto. If the certificate states that the repair or replacement is not practical and advantageous, the proceeds shall be remain deposited in the Revenue Fund or, at the option of the Authority, be transferred to the Redemption Fund for the extraordinary redemption of Bonds as hereinafter provided.

The Bonds are subject to redemption without premium at any time, in whole or in part, within a maturity by lot, by the Authority upon the occurrence of any condemnation or taking or damage or injury of the nature set forth in this Article, from the proceeds collected as a result of such damage, injury or taking. In all cases of redemption under this Section, including redemptions resulting from the damage, destruction or condemnation of equipment, the Authority shall cause to be filed with the Trustee the certificate of the Consulting Engineer referred to above, determining that repair, reconstruction or replacement is not practicable, desirable or financially feasible. In the event that less than all of the Bonds outstanding are to be redeemed, the Authority shall furnish to the Trustee a Consulting Engineer's Certificate stating (i) that the property forming a part of the System that was damaged or injured or taken by such condemnation proceedings is not essential to the operation of the System and that the continued operation of the remaining System will not, in the signer's opinion, adversely affect the security of the Bonds remaining outstanding after such redemption, or (ii) that the System has been restored to a condition substantially equivalent to its condition prior to the occurrence of such damage, injury or condemnation, and that continued operation of the System will not, in the signer's opinion, adversely affect the security of the Bonds remaining outstanding after such redemption. For purposes of this Section 7.10, the term Consulting Engineer shall also include an employee of the City or the Authority who is otherwise qualified to act as Consulting Engineer under this Indenture.

Section 7.11 Employment of Consulting Engineer; Reports. The Authority will employ a Consulting Engineer to perform such duties as are imposed on the Consulting Engineer by the provisions of this Indenture.

It shall be the duty of the Consulting Engineer, in addition to the other duties prescribed elsewhere in this Indenture, to prepare and file with the Authority and with the Trustee on or before thirty days prior to the beginning of each Fiscal Year thereafter, a report setting forth the following:

(a) Advice and recommendations as to the proper maintenance, repair and operation of the System during the next Fiscal Year and an estimate of the amounts of money that should be expended for such purposes;

(b) Advice and recommendations as to the Capital Additions that should be made during the next Fiscal Year, and an estimate of the amount of money that is recommended for such purposes; and

(c) Whether the properties of the System have been maintained in good repair and sound operating condition and the Consulting Engineer's estimate of the amount, if any, required to place such properties in such condition and the details of such expenditures and the approximate time required therefor.

Section 7.12 Adoption of Annual Budget. The Authority covenants that it will on or before each December 31, prior to the beginning of each Fiscal Year thereafter, prepare and adopt a budget of Current Expenses for the next Fiscal Year, which budget shall contain an estimate of the Revenues to be derived for the period covered by such budget, and a copy of such budget shall be promptly filed with the Trustee and each Bond Insurer. Any budget may be amended from time to time by the Authority and such amended budget shall be promptly filed with the Trustee and each Bond Insurer. The annual budget shall also be filed, if and when required under a Continuing Disclosure Undertaking, with the EMMA system of the MSRB. Filing of the annual budget with EMMA and placement of the annual budget on the Authority's website with notice provided to the Trustee and Bond Insurer will constitute compliance with this section.

Until the adoption of the annual budget of Current Expenses for a particular Fiscal Year, the budget for the preceding Fiscal Year shall be deemed to be in force for such particular Fiscal Year.

Section 7.13 Maintenance of System. The Authority will at all times maintain or cause to be maintained the System and every part thereof in good repair, working order and condition, will continuously operate the same and will, from time to time, make or cause to be made all needful and proper repairs, renewals and replacements so that the aggregate efficiency and capacity of the System shall at no time be unreasonably impaired or reduced.

Section 7.14 Employment of Independent Auditor; Annual Financial Report. Authority covenants that it has employed and will continue to employ an Independent Auditor to perform such duties as are imposed on the Independent Auditor by this Indenture.

The Authority has caused an accurate system of accounts to be installed as recommended by its Independent Auditor. The Authority will keep proper books of record and accounts in which complete and correct entries shall be made of all its dealings and transactions in accordance with generally accepted accounting principles, consistently applied. On or before

May 1 of each year, the Authority will furnish to the Trustee and each Bond Insurer, and to any Holder of any of the Bonds, at the written request of such Holder, a copy of its audit report for the preceding Fiscal Year. The Authority shall also file said audit report, if and when required under a Continuing Disclosure Undertaking, with the EMMA system of the MSRB. Filing of said audit with EMMA and placement of said audit on the Authority's website with notice provided to the Trustee and Bond Insurer will constitute compliance with this section. Said audit report shall, in each instance, have been prepared by an Independent Auditor after having made an audit of the Authority's books and accounts pertaining to the System for such year and shall include therein for the year in question a statement as to whether the schedule of rates then in effect complies with the covenants contained in Section 7.01.

Section 7.15 Advances by Trustee. If the Authority shall fail to perform any of the covenants contained in this Article, the Trustee or any Bondholder through the Trustee may, but has no duty to, make advances to perform the same on behalf of the Authority, but shall be under no duty so to do; and all sums so advanced shall be at once repayable by the Authority and shall bear interest at the Prime Rate until paid, and shall be secured hereby, having the benefit of a lien hereby created on a parity with the Bonds, but no such advances shall be deemed to relieve the Authority from any default hereunder.

Section 7.16 Further Assurances. The Authority shall execute and deliver such further instruments and do such further acts as may be necessary or proper to carry out more effectually the purposes of this Indenture and the transfer to any new trustee of the estate, powers, instruments or funds held in trust hereunder. The Authority shall, on an ongoing basis, execute and deliver all documents and make or cause to be made all filings and recordings necessary or desirable in order to perfect, preserve and protect the interest of the Trustee in the Trust Estate to the extent possible under applicable law. The Trustee shall not be responsible for and makes no representation as to the legality, effectiveness or sufficiency of any security document or for the creation, perfection, priority or protection of any lien securing the Bonds. The Trustee shall not be responsible for filing any financing or continuation statement or recording any documents or instruments in any public office at any time or otherwise for perfecting or maintaining the perfection of any lien or security interest in the trust estate it being understood that the Authority shall be obligated to make such filings on behalf of the Trustee and provide a copy of the filed initial financing statement to the Trustee.

Section 7.17 Construction of Construction Projects; Operation of System. The Authority covenants that upon the completion of any Construction Project it will operate and maintain the same as a part of the System. The Authority further covenants that it will operate the System in an efficient and economical manner.

Section 7.18 Covenant Against Encumbrances. The Authority further covenants that it will duly observe and comply with all valid requirements of any governmental authority relative to the System, that it will not create or suffer to be created any lien or charge upon the System or any part thereof, other than as provided in this Indenture, and that it will pay or cause to be discharged, or will make adequate provision to satisfy and discharge all lawful claims and demands for labor, materials, supplies or other objects which, if unpaid, might by law become a lien upon the System or any part thereof or the Revenues; provided, however, that nothing contained in this Section shall require the Authority to pay or cause to be discharged, or make

provisions for, any such lien or charge so long as the validity thereof shall be contested in good faith and by appropriate legal proceedings.

Section 7.19 Use of Revenues. The Authority covenants and agrees that, so long as any of the Bonds secured hereby shall be Outstanding, none of the Revenues will be used for any purpose other than as provided in this Indenture, and that no contract or contracts will be entered into or any action taken to impair or diminish the rights of Holders of the Bonds.

Section 7.20 No Free Service. Except as provided in Section 7.01 hereof, the Authority will not render or cause to be rendered any free services of any nature by the facilities of the System nor will any preferential rates be established for users of the same class, excluding (a) as provided in the Cooperation Agreement, the rates, fees or charges for services rendered to the City including its departments, agencies and instrumentalities and the Authority's reimbursement of the City for equalization payments made by the City to a private utility which serves customers in a portion of the City, and (b) the provision to several municipalities of conveyance without charge of storm water and sanitary sewer flows through Authority trunk lines to the Allegheny County Sanitary Authority.

Section 7.21 Failure of Customers to Pay; Enforcement of Collections. The Authority will diligently enforce and collect the rates, fees and other charges from customers for the services of the System; will take all steps, actions and proceedings for the enforcement and collections of such rates, fees and charges as shall become delinquent to the full extent permitted or authorized by law; and will maintain accurate records with respect thereto. All such rates, fees, charges and revenues herein pledged shall, as collected, be held in trust to be applied as provided in this Indenture and not otherwise.

Section 7.22 Covenants with Bond Insurers, Letter Credit Banks, Liquidity Facility Issuer, etc. The Authority may make such covenants and agreements in a Supplemental Indenture and related documents as it may determine to be appropriate with any Bond Insurer, Letter of Credit Bank, Liquidity Facility Issuer, or other financial institution that agrees to insure or to provide credit or liquidity support to enhance the security or the value of any Bonds.

Section 7.23 Internal Revenue Code and Other Covenants. The Authority hereby covenants with the registered Owners, from time to time, of the Bonds that no part of the proceeds of the Bonds or of any moneys on deposit with the Trustee hereunder will be used, at any time, directly or indirectly, in a manner which, if such use had been reasonably expected on the date of issuance of the Bonds, would have caused the Bonds to be arbitrage bonds within the meaning of Section 148 of the Code, and that it will comply with the requirements of that section and the regulations throughout the term of the Bonds. In the event the Authority is of the opinion that it is necessary to restrict or limit the yield on the investment of any moneys paid to or held by the Trustee to comply with the covenants herein set forth, the Authority shall issue to the Trustee a written certificate to such effect, with appropriate instructions, and the Trustee shall thereupon take such action in accordance with such certificate and instructions. The Authority's covenants set forth in any Tax Regulatory Certificate are incorporated herein.

## ARTICLE VIII

### EVENTS OF DEFAULT AND REMEDIES

Section 8.01 Events of Default. Each of the following events is hereby declared an "Event of Default" for any Bond issued hereunder:

(a) failure by the Authority to pay the principal of, or the premium (if any) payable upon the redemption of, any Bond when due and payable either at maturity, declaration, or by proceedings for redemption, or otherwise (no effect being given to payments made under a Bond Insurance Policy); or

(b) failure by the Authority to pay any installment of interest on any Bond when due and payable (no effect being given to payments made under a Bond Insurance Policy); or

(c) the entry of an order or decree appointing a receiver or receivers of the System or of the Revenues with the consent or acquiescence of the Authority, or, if such order or decree shall have been entered without the acquiescence or consent of the Authority, the failure of the Authority to cause such order or decree to be vacated or discharged or stayed on appeal within ninety (90) days after entry; or

(d) the institution of any proceeding with the consent or acquiescence of the Authority for the purpose of effecting a composition between the Authority and its creditors, or for the purpose of adjusting the claims of such creditors pursuant to any Federal or Commonwealth statute now or hereafter enacted, if the claims of such creditors are under any circumstances payable out of the Revenues, or if such proceeding shall have been instituted without the consent or acquiescence of the Authority, the failure of the Authority to have such proceeding withdrawn, or any order entered therein vacated or discharged, within ninety (90) days after the institution of such proceeding or the entry of such order; or

(e) the entry of a final judgment against the Authority, which judgment constitutes or could result in a lien or charge upon the System or the Revenues, or which materially and adversely affects the ownership, control or operation of the System, if such judgment shall not be discharged within ninety (90) days from the entry thereof, or if an appeal shall not be taken therefrom, or from the order, decree or process upon which or pursuant to which such judgment was granted or entered, in such manner as to conclusively set aside the execution or levy under such judgment, order, decree or process, or the enforcement thereof; or

(f) the failure or refusal of the Authority to comply with any provisions of the Act applicable to the Authority, or the rendering of the Authority, for any reason, incapable of fulfilling its obligations hereunder or thereunder; or

(g) the failure of the Authority to observe any other covenant, condition or agreement of the Authority contained in the Bonds or in this Indenture and the continuation of such failure for a period of sixty (60) days after written notice of such failure from the Trustee, which may give such notice in its discretion and shall give such notice at the written request of the Holders of not less than twenty-five per centum (25%) in aggregate Principal Amount of the Bonds then outstanding, provided that, the failure of the Authority to meet the rate covenant set forth in

Section 7.01 hereof shall not constitute an Event of Default hereunder, and provided further that if such failure is not capable of being remedied within sixty (60) days after such notice, no Event of Default shall exist if the Authority commences the actions necessary for the cure of such failure within such sixty (60) day period and diligently pursues such actions thereafter; or

(h) failure by the Authority to pay principal of, or the premium (if any) payable upon the redemption of any Subordinate Debt when due and payable either at maturity, or otherwise or to pay any installment of interest on any Subordinate Debt when due and payable (no effect being given to payments made under a Bond Insurance Policy); or

(i) the Trustee shall have received written notice from a Letter of Credit Bank that an Event of Default shall have occurred under the Reimbursement Agreement, with a direction from the Letter of Credit Bank to the Trustee to accelerate the principal and interest on the respective Series of Bonds secured by such Letter of Credit Bank's Letter of Credit; or

(j) any acceleration of the payment of principal of any Series of Bonds or the payment of Reimbursement Obligations pursuant to Section 8.02 shall have occurred; or

(k) failure by the Authority to pay the principal of any Reimbursement Obligation when due or within any applicable grace period, if any, set forth in the applicable Reimbursement Agreement; or

(l) failure by the Authority to pay any installment of interest on any Reimbursement Obligation when due or within any applicable grace period, if any, set forth in the applicable Reimbursement Agreement.

The Trustee shall (i) provide immediate notice to each Bond Insurer of the occurrence of an Event of Default under clause (a), (b), (i) or (j) above and (ii) provide notice to each Bond Insurer of any other Event of Default known to the Trustee within thirty (30) days of the Trustee's knowledge thereof.

Section 8.02 Acceleration of Principal. Upon the occurrence and continuance of any Event of Default described in Section 8.01, the Trustee may, and at the written request of Bondholders of not less than 25% in Principal Amount of the Bonds then Outstanding, shall by written notice to the Authority, declare the Bonds to be immediately due and payable, whereupon they shall, without further action, become and be immediately due and payable, anything in this Indenture or in the Bonds to the contrary notwithstanding, and the Trustee shall give notice thereof to the Authority and shall give notice thereof by certified mail to all Holders of Outstanding Bonds.

A Bond Insurer or a Letter of Credit Bank securing a Series of Bonds, provided the Bond Insurer or Letter of Credit Bank is not in default under its Bond Insurance Policy or Letter of Credit, may exercise all rights of the Bondholders of such Series under this Article VIII, including without limitation giving notice, making a request, giving a direction or giving a waiver under Section 8.01(g), Section 8.02, Section 8.03, Section 8.04 and Section 8.08. That is, the Bond Insurer or Letter of Credit Bank may, in such cases, vote the Bonds of the Bondholders of the Series secured by such Bond Insurer or Letter of Credit Bank, as the case may be. If a Series of Bonds is both insured by a Bond Insurance Policy and secured by a Letter of Credit, the

Bond Insurer shall exercise such rights not the Letter of Credit Bank. In any such cases, the Trustee shall not take direction by the Owners of the Bonds of such Series.

In addition, the Trustee shall be entitled to exercise any or all of the remedies granted to a trustee or under a Bond Insurance Policy, a Credit Facility or the Act.

The above provision, however, is subject to the condition that if, after the principal of said Bonds shall have been so declared to be due and payable, all arrears of interest, if any, upon the Bonds and interest on overdue installments of interest at the rate of interest specified therein, and the principal of all Bonds which have matured other than by reason of such declaration, shall have been paid by the Authority, and the Authority shall also have performed all other things in respect to which it may have been in default hereunder, and shall have paid the reasonable charges of the Trustee and its counsel and of the Holders of said Bonds, including reasonable attorneys' fees paid or incurred, then, and in every such case, the Holders of not less than a majority in aggregate Principal Amount of the Bonds then outstanding, by written notice to the Authority and to the Trustee, may waive such default and its consequences and such waiver shall be binding upon the Trustee and upon all Holders of Bonds issued hereunder; but no such waiver shall extend to or affect any subsequent default or impair any rights or remedy consequent thereon.

Section 8.03 Remedies of Trustee and Bondholders; Rights of Entry. Subject to Sections 8.02 and 9.06, upon the happening and during the continuance of any event of default specified in Section 8.01, then and in every such case, the Trustee may and, upon written request of the Holders of not less than twenty-five per centum (25%) in aggregate Principal Amount of the Bonds then Outstanding, shall enter into and upon and take possession of the System and each and every part thereof as for a condition broken and may exclude the Authority, its agents and employees and all persons claiming under them wholly therefrom and have, hold, use, operate, manage and control the same and each and every part thereof, and in the name of the Authority or otherwise as the Trustee shall deem best, conduct the business thereof and exercise all the rights and powers of the Authority with respect to the System and use all its then existing property, assets and franchises for that purpose and out of the Revenues, maintain, restore, insure and keep insured, the System against such hazards as are ordinarily insured against by a person operating a water, stormwater and sewer system similar to the System and from time to time may make all such necessary or proper repairs as to it may seem expedient, and establish, levy, maintain and collect such rates, rents and charges in connection with the System as it may deem necessary, proper, desirable and reasonable, and collect and receive all Revenues, and after deducting therefrom the expenses of operation, maintenance and repair and all expenses incurred hereunder and all other proper outlays herein authorized and all such payments which may be made for insurance and other proper charges, including just and reasonable compensation for its own services, and for the services of such attorneys, agents and employees as it may, in the exercise of its discretion, employ for any of the purposes aforesaid, the Trustee shall apply the rest and residue of the moneys received by it, as well as all cash and investments held by the Trustee in any fund hereunder, subject to the provisions hereof with respect to claims for principal and interest, to the payment of the principal of and interest on the Bonds. Whenever all that is due upon such Bonds and installments of interest and under any of the terms of this Indenture shall have been paid or deposited with the Trustee and all defaults made good, the



Trustee in possession shall surrender possession to the Authority, its successors or assigns. However, the same right of entry shall exist upon any subsequent default or defaults.

Section 8.04 Judicial Action. In case of the breach of any of the covenants or conditions of this Indenture, the Trustee shall have the right and power to take appropriate judicial proceedings for the enforcement of its rights and the rights of the Bondholders hereunder, including, as appropriate, an action in mandamus. Upon the happening of an event of default hereunder, the Trustee may either after entry, or without entry, proceed by suit or suits, actions or special proceedings at law or in equity to enforce its rights and the rights of the Bondholders hereunder, and it shall be obligatory upon the Trustee to take action to that end, either by such proceedings or by the exercise of its powers with respect to entry or otherwise, as it may determine, upon being requested to do so by the Holders of twenty-five per centum (25%) in aggregate Principal Amount of the Bonds then Outstanding hereunder and upon being indemnified as hereinafter provided.

No remedy by the terms of this Indenture conferred upon or reserved to the Trustee or to the Bondholders is intended to be exclusive of any other remedy, but each and every such remedy shall be cumulative and shall be in addition to any other remedy given hereunder or now or hereafter existing at law or in equity or by statute.

The Holders of a majority in aggregate Principal Amount of the Bonds then Outstanding hereunder, at any time, by an instrument in writing executed and delivered to the Trustee, may reasonably direct the method and place of conducting all proceedings to be taken for the enforcement of any of the rights of the Bondholders; provided that such direction shall not be otherwise than in accordance with the provisions of law or of this Indenture.

Section 8.05 Payments by Authority. The Authority covenants that if any default shall be made in the payment of the principal of or interest on any Bond hereby secured when the same shall become payable, the Authority will pay to the Trustee, upon demand, for the benefit of the Holders of the Bonds so in default, the whole amount then due and payable for principal and interest, with interest upon the overdue principal and upon the overdue installments of interest at the rate of interest specified in the Bonds from the date of default to the date of payment; and in case the Authority shall fail to pay the same forthwith upon such demand, the Trustee in its own name and as trustee of an express trust shall be entitled to sue for and to recover judgment for the whole amount so due and unpaid.

Section 8.06 Application of Moneys. Any moneys received by the Trustee or by any receiver from the operation of the System, shall, after payment of the costs and expenses of the operation thereof, be applied,

First: to the payment of the fees, counsel fees and expenses of the Trustee and of the receivers, if any, and all costs and disbursements allowed by the court, if there be any court action.

Second: to the payment of the whole amount of principal and interest which shall then be owing or unpaid upon the Bonds, or to the payment of the whole amount of any Reimbursement Obligations which shall then be owing or unpaid, then to the payment of such

principal and interest or Reimbursement Obligations ratably, without preference or priority of principal over interest or Reimbursement Obligations, Reimbursement Obligations over principal or interest or of interest over principal or Reimbursement Obligations or of any installment of interest over any other installment of interest and without preference or priority of any such payments over Periodic Payments (such principal and interest on Bonds, amounts owing under Reimbursement Obligations and Periodic Payments to be paid ratably).

Third: to the payment of the surplus, if any, to the Authority, or to whoever is lawfully entitled to receive the same or as a court of competent jurisdiction may direct.

Section 8.07 Trustee's Rights. Any right of action under this Indenture, or under any of the Bonds, may be enforced by the Trustee without the possession of any of the Bonds or the production thereof on any trial or other proceedings relative thereto and any such suit or proceeding instituted by the Trustee shall be brought in its name as Trustee and any recovery of judgment shall be for the equal benefit of the registered Owners of the Bonds in respect of which such judgment shall have been recovered, subject to the provisions hereof with respect to extended claims for interest.

Section 8.08 Limitations on Bondholders. No Holder of any Bonds shall have any right to institute any suit, action, or proceeding in equity or at law for the enforcement of this Indenture or for the execution of any trust hereof or for the appointment of a receiver or to exercise any other remedy hereunder, unless such Holder shall have previously given to the Trustee written notice of an event of default and of the continuance thereof as hereinbefore provided nor unless also the Holders of at least twenty-five per centum (25%) in aggregate Principal Amount of the Bonds then Outstanding hereunder shall have made written request of the Trustee and shall have offered it reasonable opportunity either to proceed to exercise the powers hereinbefore granted or to institute such action, suit or proceeding in its own name nor unless also they shall have offered to the Trustee adequate security and indemnity against the costs, expenses and liability to be incurred therein or thereby; and such notification, request and offer of indemnity are hereby declared in every such case at the option of the Trustee to be conditions precedent to the execution of the powers and trusts of this Indenture or for the appointment of a receiver or for any other remedy hereunder; it being understood and intended that no one or more holders or registered Owners of the Bonds shall have any right in any manner whatsoever to affect, disturb or prejudice the lien of this Indenture by his own or their action or to enforce any right hereunder except in the manner herein provided, and that all such proceedings at law or in equity shall be instituted, had and maintained in the manner herein provided and for the benefit of all Holders of outstanding Bonds, subject to the provisions hereof with respect to claims for interest.

Subject to the following paragraph, nothing in this Article shall, however, affect or impair the right of any Bondholder which is absolute and unconditional, to enforce the payment of the principal and interest of such Bondholder's Bonds, or the obligation of the Authority which is also absolute and unconditional, to pay the principal of and interest on each of the Bonds issued hereunder to the respective holders or registered Owners thereof at the time and place in said Bonds expressed.

Section 8.09 Waiver by Authority. The Authority may waive any period of grace provided for in this Article.

Section 8.10 Waiver of Default; Delay or Omission of Trustee. No waiver of any default hereunder, whether by the Trustee, a Bond Insurer or the Bondholders shall extend to or shall affect any subsequent default or shall impair any rights or remedies consequent thereon. No delay or omission of the Trustee, a Bond Insurer or of any Holders of Bonds hereby secured to exercise any right or power accruing upon any default shall impair any such right or power or shall be construed to be a waiver of any such default, or acquiescence therein; and every right, power and remedy given by this Indenture to the Trustee, a Bond Insurer or to the Bondholders may be exercised from time to time and as often as may be deemed expedient by the Trustee, the Bond Insurer or in an appropriate case, by the Bondholders.

In case the Trustee shall have proceeded to enforce any right under this Indenture by entry or otherwise, and such proceedings shall have been discontinued or abandoned for any reason, or shall have been determined adversely to the Trustee, then and in every such case the Authority and the Trustee shall be restored to their former positions and rights hereunder with respect to the pledged revenues, and all rights, remedies and powers of the Trustee shall continue as if no such proceedings had been taken.

Section 8.11 Appointment of Receiver. Subject to Section 8.02, as provided by the Act, as amended, the Trustee shall be entitled as a matter of right to the appointment of a receiver, and the Trustee, the Bondholders, the Bond Insurer of any Bonds, any receiver so appointed and any Letter of Credit Bank then supporting any Series of Bonds with a Letter of Credit shall have all such rights and powers and shall be subject to such limitations and restrictions as are contained in the Act.

Section 8.12 Limitation on Rights to Transfer. It is expressly understood and agreed that nothing in the provisions of the Bonds or in this Indenture shall be taken to authorize the Trustee, or any receiver appointed hereunder to operate and maintain the System, or to sell, assign, mortgage or otherwise dispose of any of the assets of whatever kind and character belonging to the Authority.

Section 8.13 Issuer of Bond Insurance Policy as Subrogee of Holders of Bonds. Any Bond delivered to the Bond Insurer pursuant to the Bond Insurance Policy shall be deemed to continue to be Outstanding under and secured by this Indenture.

## ARTICLE IX

### CONCERNING THE TRUSTEE

Section 9.01 Acceptance of Trust. The Trustee shall, prior to an Event of Default, and after the curing of all Events of Default which shall have occurred, perform such duties and only such duties as are specifically set forth in this Indenture and shall not be liable except for the performance of such duties and obligations as are specifically set forth in this Indenture, and no implied covenants or obligations shall be read into this Indenture against the Trustee, as the case may be. The Trustee shall, during the existence of any Event of Default

(which has not been cured), exercise such of the rights and powers vested in it by this Indenture, and use the same degree of care and skill in their exercise, as prudent persons would exercise or use under the circumstances in the conduct of their own affairs. The Trustee shall not be liable to the parties hereto or deemed in breach or default hereunder if and to the extent its performance hereunder is prevented by reason of force majeure. The term “force majeure” means an occurrence that is beyond the control of the Trustee and could not have been avoided by exercising due care. Force majeure shall include acts of God, terrorism, war, riots, strikes, floods, earthquakes, epidemics or other similar occurrences.

Section 9.02 Responsibility for Statements in Indenture or Bonds. The recitals of fact herein and in the Bonds contained, except only the Trustee's certificate of authentication upon the Bonds, shall be taken as the statements of the Authority and the Trustee assumes no responsibility for the correctness of the same. The Trustee makes no representations as to the validity or sufficiency of this Indenture or the due execution or acknowledgment thereof on the part of the Authority or in respect of the Bonds issued hereunder, and the Trustee shall incur no responsibility in respect of such matter.

Section 9.03 Maintenance of Insurance. The Trustee shall be under no obligation to effect or maintain insurance or to renew any policies of insurance or to inquire as to the adequacy of any insurance or for responsibility of insurers, or to report, make or file claims or proofs of loss for any loss or damage insured against or which may occur or to keep itself advised or informed as to the payment of any insurance premiums, taxes or assessments or to see to or require such payment to be made nor shall the Trustee be under any liability for the failure of the Authority to effect or renew any insurance; but the Trustee may, in its discretion, do any or all of the matters and things in this Section set forth, or require the same to be done.

Section 9.04 Disposition of Bonds and Proceeds. The Trustee shall be under no responsibility or duty with respect to the disposition of the Bonds authenticated and delivered hereunder or the application of the proceeds of any of the Bonds or of any other moneys deposited with it and withdrawn in the manner provided in this Indenture.

Section 9.05 Agents of Trustee; Responsibility for Default of Agents. The Trustee may execute any of the trusts or powers hereof and perform any duty hereunder by or through its attorneys or agents, and it shall not be answerable or accountable for any act, default, neglect or misconduct of any such attorney or agent, if reasonable care has been exercised in his appointment and retention, nor shall the Trustee be otherwise answerable or accountable under any circumstances whatever in connection with the Trust, except for its own gross negligence or willful misconduct.

Section 9.06 Indemnity; No Duty to Notice Default. The Trustee shall be under no obligation or duty to perform any act which would involve it in expense or liability or to institute or defend any suit in respect hereof unless properly indemnified against such expense or liability to its satisfaction. The Trustee shall not be required to take notice, or be deemed to have knowledge, of any default of the Authority hereunder, except a default pursuant to Section 8.01(a) or (b), and may conclusively assume that there has been no such default unless and until it shall have been specifically notified in writing of such default by the Authority or the Holders of not less than twenty-five per centum (25%) in aggregate Principal Amount of the

Bonds then Outstanding hereunder. The Trustee shall provide each Bond Insurer with immediate notice of a default pursuant to Section 8.01(a) or (b) and, within thirty (30) days of the Trustee's knowledge thereof, any other default known to the Trustee. The Trustee shall not be under any obligation to take any action in respect of any default or otherwise, or to institute, appear in or defend any suit or other proceeding in connection therewith or to ascertain or inquire as to the performance of any of the covenants or agreements herein contained on the part of the Authority, unless requested in writing so to do by the Holders of not less than twenty-five per centum (25%) in aggregate Principal Amount of the Bonds then Outstanding hereunder and indemnified to its satisfaction but this provision shall not affect any discretionary power herein given to the Trustee. The Trustee shall, however, take actions pursuant to Section 13.02 hereof, as required therein.

The foregoing provisions are intended only for the protection of the Trustee, and shall not affect any discretion or power given by any provision of this Indenture to the Trustee to take action in respect to any default without such notice or request from the Bondholders or without such security or indemnity. The Trustee may, at any time in its discretion, require of the Authority full information and advice as to the performance of any of the covenants, conditions and agreements, and may further make or cause to be made independent investigations at the expense of the Authority, concerning the affairs of the Authority insofar as such affairs are related to the System.

Section 9.07 Right to Rely Upon Documents. The Trustee shall be protected and shall incur no liability in relying, acting or proceeding in good faith upon any notice, resolution, request, consent, order, certificate, report, opinion, bond, telephonic notice, facsimile transmission, waiver, statement, affidavit, voucher, appraisal, application or other paper or document believed by it to be genuine and to have been signed, passed or presented by the proper person or authority, or to have been prepared and furnished pursuant to the provisions of this Indenture, and before acting upon any of the same the Trustee shall not be bound to make any investigation into the matters stated therein.

The Trustee may consult with legal counsel to be selected and employed by it and the opinion of such counsel shall be full and complete authorization and protection in respect of any action taken or suffered by it hereunder in good faith and in accordance with the opinion of such counsel.

The Trustee shall not be bound to recognize any person as the Holder of a Bond Outstanding hereunder unless and until his Bond is submitted to the Trustee for inspection, if required, and his title thereto satisfactorily established, if disputed.

Whenever in the administration of the trusts imposed upon it by this Indenture the Trustee shall deem it necessary or desirable that a matter be proved or established prior to taking or suffering any action hereunder, such matter (unless other evidence in respect thereof be herein specifically prescribed) may be deemed to be conclusively proved and established by a certificate of the Authority, and such certificate shall be full warrant to the Trustee for any action taken or suffered in good faith under the provisions of this Indenture in reliance upon such Certificate, but in its discretion the Trustee may, in lieu thereof, accept other evidence of such matter or may require such additional evidence as it may deem reasonable.

Any action taken, or omitted to be taken, by the Trustee in good faith pursuant to this Indenture upon the request or authority or consent of any person who, at the time of making such request or giving such authority or consent, is a Bondholder, shall be conclusive and binding upon all future Bondholders and upon Bonds executed and delivered in exchange therefore or in place thereof. The permissive right of the Trustee to do things enumerated in this Indenture shall not be construed as a duty.

The Trustee shall have no responsibility, opinion or liability with respect to any information statement or recital found in any official statement or other disclosure material, prepared or distributed with respect to the issuance of the Bonds, except for information provided by the Trustee.

Section 9.08 Trustee Compensation; Indemnification of Trustee. The Authority shall, out of the Revenues, pay to the Trustee, from time to time, reasonable compensation for all services rendered hereunder, and shall also reimburse the Trustee for all of its reasonable expenses, charges and other disbursements and those of its attorneys, agents and employees, incurred in and about the administration and execution of the trusts hereby created, and the performance of its powers and duties hereunder, and the Trustee shall have a lien on the Revenues therefor, prior and superior to the lien of the Bonds issued hereunder. The Authority further covenants and agrees to protect, exonerate, defend, indemnify and save the Trustee and its officers, directors, employees and agents (collectively, the "Indemnitees") harmless from and against any and all liabilities, losses, damages, fines, suits, actions, demands, penalties, costs and expenses, including out-of-pocket, incidental expenses, legal fees and expenses, the allocated costs and expenses of in-house counsel and legal staff and the costs and expenses of defending or preparing to defend against any claim ("Losses") that may be imposed on, incurred by, or assessed against, the Indemnitees or any of them for following any instruction or other direction upon which the Trustee is authorized to rely pursuant to the terms of this Indenture. In addition to and not in limitation of the immediately preceding sentence, the Authority also covenants and agrees to indemnify and hold the Indemnitees and each of them harmless from and against any and all Losses that may be imposed on, incurred by, or asserted against the Indemnitees or any of them in connection with or arising out of the Trustee's performance, as applicable, under the Indenture provided that such party has not acted with negligence or engaged in willful misconduct. The provisions of this Section shall survive the termination of this Indenture and the resignation or removal of the Trustee.

Section 9.09 Trustee's Right to Make Advances. If the Authority shall fail to perform any of the covenants or agreements contained in this Indenture, the Trustee may, in its discretion and without notice to the Bondholders, at any time and from time to time, make advances to effect performance of the same on behalf of the Authority, but the Trustee shall be under no obligation so to do; and any and all moneys paid or advanced by the Trustee for any such purpose, together with interest thereon at the rate equal to 102% of the Prime Rate in effect at the time of such advance, shall be a lien in favor of the Trustee upon the Revenues prior and superior to the lien of the Bonds issued hereunder; but no such advance shall operate to relieve the Authority from any default hereunder. Nothing herein shall be construed to require the Trustee to expend its own funds.

Section 9.10 Right to Own and Deal in Bonds. The Trustee may become the Owner of Bonds issued hereunder and secured hereby, with the same rights it would have if it were not Trustee. The Trustee may also engage in, or be interested in any financial or other transaction with the Authority and may act as depositary for and permit any of its officers or directors to act as a member of, or in any other capacity with respect to, any committee formed to protect the rights of Bondholders or to effect or aid any reorganization growing out of the enforcement of the Bonds or this Indenture, whether or not any such committee shall represent the Holders of a majority in Principal Amount of the Bonds Outstanding hereunder.

Section 9.11 Construction of Provisions of Indenture. The Trustee may construe any of the provisions of this Indenture insofar as the same may appear to be ambiguous or inconsistent with any other provisions hereof; and any construction of any such provisions hereof by the Trustee in good faith shall be binding upon the Bondholders.

Section 9.12 Resignation or Replacement of Trustee. The Trustee may resign on its motion or may be removed at any time by an instrument or instruments in writing signed by (1) the Authority, provided no Event of Default has occurred and is continuing or (2) the Holders of not less than fifty percent (50%) of the Principal Amount of Bonds then Outstanding, if an Event of Default has occurred and is continuing. No such resignation or removal shall become effective unless and until a successor Trustee (or temporary successor trustee as provided below) has been appointed and has assumed the trusts created hereby. Written notice of such resignation or removal shall be given to each Holder of a Bond then Outstanding to the address then reflected on the books of the Trustee and such resignation or removal shall take effect upon the appointment, qualification and acceptance of a successor Trustee. A successor Trustee may be appointed at the direction of the Authority, or if the Authority shall fail to appoint a successor Trustee, a successor Trustee may be appointed at the direction of the Holders of not less than fifty percent (50%) in aggregate Principal Amount of Bonds Outstanding. In the event a successor Trustee has not been appointed and qualified within sixty (60) days of the date notice of resignation or removal is given, the Trustee or any Bondholders may apply to any court of competent jurisdiction for the appointment of a temporary successor Trustee to act until such time as a successor is appointed as above provided. No resignation or removal of the Trustee shall be effective until a successor has been appointed and has accepted the duties of the Trustee hereunder.

Every successor shall always be a bank or trust company in good standing, qualified to act hereunder, and having a combined capital, surplus and undivided profits of not less than Fifty Million Dollars (\$50,000,000). Any successor appointed hereunder shall execute, acknowledge and deliver to the Authority an instrument accepting such appointment hereunder, and thereupon such successor shall, without any further act, deed or conveyance, become vested with all the estates, properties, rights, powers and trusts of its predecessor in the trust hereunder with like effect as if originally named as Trustee herein; but the Trustee retiring shall, nevertheless, on the written demand of its successor, execute and deliver an instrument conveying and transferring to such successor, upon the trusts herein expressed, all the estates, properties, rights, powers and trusts of the predecessor, who shall duly assign, transfer and deliver to the successor all properties and moneys held by it under this Indenture. Should any instrument in writing from the Authority be required by any successor for more fully and certainly vesting in and confirming to it all of such estates, properties, rights, powers and trusts,

the Authority shall, on request of such successor, make, execute, acknowledge and deliver the deeds, conveyances and necessary instruments in writing.

The notices herein provided for shall be given by mailing a copy thereof to the registered Owners at their addresses as the same shall last appear on the Bond register. A copy shall be provided to each Bond Insurer.

The instruments evidencing the resignation or removal of the Trustee and the appointment of a successor hereunder together with all instruments provided for in this Section shall be filed and/or recorded by the successor Trustee in each recording office, if any, where this Indenture shall have been filed and/or recorded.

Section 9.13 Successor Trustee by Merger. Any bank or trust company having power to execute the trusts of this Indenture and otherwise qualified to act as Trustee hereunder, with or into which the Trustee may be merged or consolidated or any such bank or trust company resulting from any merger or consolidation to which the Trustee shall be a party, shall be the successor trustee under this Indenture, without the execution or filing of any paper or the performance of any further act on the part of any other parties hereto, anything herein to the contrary notwithstanding.

Section 9.14 Appointment of Paying Agent. The Authority may appoint a successor Paying Agent or a co-paying agent at any time upon written notice to each Bond Insurer and the Trustee.

Section 9.15 Trustee to Notify S&P and Moody's. The Trustee hereby agrees to notify S&P and Moody's of (i) any change of the Trustee, (ii) any change in the Bond Insurance Policy, and (iii) any mandatory redemption of Bonds other than mandatory sinking fund redemption. Notices shall be sent to Moody's Investors Service, 7 World Trade Center, 250 Greenwich Street, New York, New York 10007, Attention: Municipal Department/Structured Finance Group.

## ARTICLE X

### CONCERNING THE HOLDERS OF THE BONDS

Section 10.01 Execution of Instruments. Whenever in this Indenture it is provided that the Holders of a specified percentage or a majority of the Bonds Outstanding hereunder may take any action (including the making of any demand or request, the giving of any notice, consent or waiver or the taking of any other action) the fact that at the time of taking any such action the Holders of such specified percentage or majority have joined therein may be evidenced by any instrument or any number of instruments of similar tenor executed by Bondholders in person or by agent or proxy appointed in writing.

Section 10.02 Proof of Ownership. Subject to the provisions of Article IX, proof of the execution of any instrument by a Bondholder or his agent or proxy and proof of the holding by any persons of any of the Bonds shall be sufficient if made in the following manner:



(1) The fact and date of the execution by any such persons of any instrument may be proved by the certificate of any notary public or other officer authorized to take acknowledgments of deeds to be recorded in any State within the United States, that the person executing such instrument acknowledged to him the execution thereof, or by an affidavit of a witness to such execution sworn to before any such notary or other such officer; and

(2) The ownership of Bonds may be proved by the registration books for such Bonds maintained by the Authority at the Principal Office of the Trustee.

The Trustee and any Paying Agent may require such additional proof of any matter referred to in this Section as it shall deem necessary or may accept such other proof as it may deem appropriate.

## ARTICLE XI

### AMENDMENTS AND MODIFICATIONS

Section 11.01 Waivers and Supplemental Indentures Not Requiring Consent of Bondholders. In addition to any Supplemental Indenture otherwise authorized by this Indenture, the Authority, and the Trustee may, from time to time and at any time, enter into such indentures or agreements supplemental hereto as shall not be inconsistent with the terms and provisions hereof and which shall not adversely affect the rights of the Holders of the Bonds Outstanding hereunder (which supplemental indentures or agreements shall thereafter form a part thereof) for the following purposes:

(a) to cure any ambiguity, formal defect or omission in this Indenture or any Supplemental Indenture; or

(b) to grant or confer upon the Trustee for the benefit of the Bondholders any additional rights, remedies, powers, authority or security that may lawfully be granted to or conferred upon the Bondholders, or the Trustee; or

(c) to add to the covenants and agreements of the Authority in this Indenture contained, other covenants and agreements thereafter to be observed, or to surrender any right or power herein reserved to or conferred upon the Authority; or

(d) to modify any of the provisions of this Indenture or to relieve the Authority of any of the obligations, conditions or restrictions contained in this Indenture, provided that such modification or relief shall not, by the express terms of the particular Supplemental Indenture, become effective until all Bonds Outstanding on the date of the execution and delivery of such Supplemental Indenture shall no longer be Outstanding; or

(e) to make such provision in regard to matters or questions arising under the Indenture as may be necessary or desirable and not inconsistent with the Indenture; or

(f) to close this Indenture against, or to restrict, in addition to the limitations and restrictions herein contained, the issue of Additional Bonds hereunder, by imposing additional conditions and restrictions to be thereafter observed, whether applicable in respect to all Bonds issued and to be issued hereunder or in respect of one or more Series of Bonds, or otherwise; or

(g) to modify, amend or supplement this Indenture in such manner as required to permit the Authority to comply with the provisions of the Code relating to the rebate to the United States of America of earnings derived from the investment of the proceeds of Bonds, provided that such modification, amendment or supplement does not materially adversely affect the Holders of all Outstanding Bonds; or

(h) to modify, amend or supplement this Indenture in such manner as may be required by a Rating Agency to maintain or enhance its rating on the Bonds, provided that such modification, amendment or supplement does not materially adversely affect the Holders of all Outstanding Bonds; or

(i) to modify, amend or supplement this Indenture to implement any covenants or agreements contemplated by Section 7.22; or

(j) to authorize the issuance of, to describe the terms of, and to secure one or more Series of Additional Bonds pursuant to Article III; or

(k) to amend any agreement with a securities depository relating to a book-entry system to be maintained with respect to any Bonds; or

(l) to modify, amend or supplement this Indenture in any manner that the Trustee concludes is not materially adverse to the Holders of all Outstanding Bonds; or

(m) to modify, amend or supplement the exhibits to this Indenture containing Bond Insurer provisions, provided the Authority and the Bond Insurers consent to such modifications, amendments or supplements.

Section 11.02 Supplemental Indentures Requiring Consent of Bondholders. With the consent, evidenced as provided in Section 10.01, of the Holders of not less than the Approval Amount or, in the case one or more but less than all of the Series of the Bonds then Outstanding are affected, then, in addition, with the consent of the Holders of the Approval Amount of each Series so affected, and with the consent of any guarantor of principal and interest of any Series of Bonds issued under a supplemental Indenture, the Authority and the Trustee may from time to time and at any time enter into an Indenture or Indentures Supplemental hereto for the purpose of eliminating any of the provisions of this Indenture or of any Supplemental Indenture or of modifying in any manner the rights of the Holders of the Bonds so affected; provided, however, that no such supplemental Indenture shall (i) extend the fixed maturity date of any Bond, or reduce the Principal Amount thereof, or reduce the rate or extend the time of payment of interest thereon, or reduce any premium payable upon the redemption thereof, without the consent of the Holder of each Bond so affected, or (ii) permit the creation by the Authority of any lien prior to the lien of this Indenture upon any part of the Revenues, or reduce the Approval Amount, without the consent of the Holders of all Bonds then Outstanding. It shall not be necessary for

the consent of the Bondholders under this Section to approve the particular form of any proposed Supplemental Indenture, but it shall be sufficient if such consent shall approve the substance thereof. Nothing herein contained, however, shall be construed as making necessary the approval by the Bondholders of the execution of any Supplemental Indenture or agreement as authorized in Section 11.01.

Section 11.03 Authorization to Trustee; Opinion of Counsel. The Trustee shall join with the Authority in the execution of any Supplemental Indenture which the Authority is authorized to execute under the provisions of Section 11.01 or Section 11.02 upon the delivery by the Authority to the Trustee of the following:

(a) (i) A certified copy of a Resolution of the Board authorizing such Supplemental Indenture and requesting the execution thereof by the Trustee and (ii) evidence of consent to such amendment by any party whose consent is required hereunder;

(b) An opinion of counsel (i) to the effect that the Authority and the Trustee are authorized to enter into such Supplemental Indenture by the provisions of Section 11.01 and that all other conditions precedent have been satisfied, or (ii) to the effect that the Authority and the Trustee are authorized to enter into such Supplemental Indenture by the provisions of Section 11.02, that the consent of the Bondholders required has been secured and is evidenced by specified documents meeting the requirements of Section 10.01, and that all other conditions precedent have been satisfied; and

(c) If the opinion of counsel shall state that the Authority and the Trustee are authorized to enter into such Supplemental Indenture by the provisions of Section 11.02, the documents evidencing the consent of the Bondholders as specified in said opinion;

provided, however, that the Trustee shall not be obligated to join in any such Supplemental Indenture which, in its opinion, adversely affects its own duties, rights or immunities under the Indenture.

Section 11.04 Effectiveness of Amendments, Modifications. Upon the execution of any Supplemental Indenture pursuant to the provisions of this Article, the Indenture shall be and be deemed to be modified and amended in accordance therewith and the respective rights, limitations of rights, obligations, duties and immunities under this Indenture of the Trustee, the Authority and the Holders of Bonds shall thereafter be determined, exercised and enforced hereunder subject in all respect to such modifications and amendments, and all the terms and conditions of any such Supplemental Indenture shall be and be deemed to be part of the terms and conditions of this Indenture for any and all purposes. The Authority shall provide each Bond Insurer with a full transcript of all proceedings relating to the execution of any supplement or amendment to this Indenture. The Authority shall provide Moody's and S&P with a notice of each amendment to this Indenture and a copy thereof at least fifteen (15) days in advance of its execution.

## ARTICLE XII

### DISCHARGE OF INDENTURE

Section 12.01 Release of Indenture. If the Authority, its successors or assigns, shall pay or cause to be paid unto the Holders of all Bonds Outstanding hereunder the principal and interest to become due thereon and the premium thereon, if any, at the times and in the manner stipulated therein, then this Indenture and the estate and rights hereby granted shall cease, determine and be void, and thereupon the Trustee shall, upon the request of the Authority, deliver to the Authority such instruments as shall be requisite to satisfy the lien hereof, and reconvey to the Authority the estate and title hereby conveyed, and assign and deliver to the Authority any property at the time subject to the lien of this Indenture which may then be in the possession of the Trustee; but the Trustee shall take any such action only upon the receipt of an officer's certificate and an opinion of counsel, each stating in substance that in the opinion of the respective signers all conditions precedent provided for in this Indenture relating to such release, cancellation and discharge have been complied with. In addition, this Indenture shall not be discharged until all Policy Costs owing to any Bond Insurer shall have been paid in full.

Bonds for the payment or redemption of which there shall have been deposited with the Trustee cash or Defeasance Obligations (which shall mean direct non-callable obligations of the United States of America and securities fully and unconditionally guaranteed as to the timely payment of principal and interest by the United States of America, to which direct obligation or guarantee the full faith and credit of the United States of America has been pledged, Refcorp interest strips, CATS, TIGRS, STRPS, or defeased municipal bonds rated "AAA" by S&P or "Aaa" by Moody's, any combination thereof or any other security approved by the applicable Bond Insurer), the principal of and interest on which when due, will, without reinvestment of principal or interest, provide sufficient moneys to pay the Bonds in full at maturity or the date fixed for redemption, shall be deemed to be paid within the meaning of this Article. In the event of an advance refunding, the Authority shall cause to be delivered a verification report of a Qualified Independent Consultant experienced in delivering verification reports. For purposes of determining whether any Outstanding Variable Rate Indebtedness is deemed paid and discharged pursuant to this Article XII, such Variable Rate Indebtedness shall be deemed to bear interest at the maximum rate of interest such Variable Rate Indebtedness may bear pursuant to the applicable Supplemental Indenture.

The release, cancellation and discharge of this Indenture, however, shall be without prejudice to the right of the Trustee to be paid any compensation then due to it hereunder and to be protected and saved harmless by the Authority from any and all losses, liabilities, costs and expenses, including counsel fees, at any time incurred by the Trustee hereunder or connected with any Bond issued hereunder, of and from which, if this Indenture had not been released, cancelled and discharged, the Authority would have been obligated by the terms of this Indenture to protect and save the Trustee harmless, and the Authority hereby covenants to protect and save the Trustee harmless of and from such losses, liabilities, costs and expenses.

If any Bond shall not be presented for payment when the principal thereof shall become due, either at maturity or otherwise, or at the date fixed for the redemption thereof, and if the Authority shall have deposited with the Trustee, for the purpose, or left with it in trust if

previously so deposited, funds sufficient to pay the principal of such Bond (and the premium, if any payable upon the redemption thereof), together with all interest due thereon, to the date of maturity thereof or to the date fixed for redemption thereof, for the benefit of the Holder or Holders thereof, respectively, all liability of the Authority to the Holder of such Bond for the payment of the principal thereof, the interest thereon, and the premium, if any, shall forthwith cease, determine and be completely discharged, and thereupon it shall be the duty of the Trustee, to hold said fund or funds, without liability for interest thereon, for the benefit of the Holder of such Bond who shall thereafter be restricted exclusively to said fund or funds for any claim of whatsoever nature on his part under this Indenture or on, or with respect to, said Bond.

Any moneys deposited with the Trustee, by the Authority, pursuant to the terms of this Indenture, for the payment or redemption of Bonds which remain unclaimed by the Holders of the Bonds for five (5) years after the date of maturity or the date fixed for redemption, as the case may be, shall upon the written request of the Authority if the Authority is not at that time, to the knowledge of the Trustee, in default hereunder be paid to the Authority. Thereafter, such Holders of the Bonds shall thereafter look only to the Authority for payment and then only to the extent of the amounts so received without interest thereon.

### ARTICLE XIII

#### MISCELLANEOUS

Section 13.01 Limitation of Rights, Remedy or Claim. With the exception of rights herein expressly conferred, nothing in this Indenture, expressed or implied, is intended or shall be construed to confer upon, or to give to, any person or corporation, other than the parties hereto and the Holders of the Bonds outstanding hereunder, any rights, remedy or claim under or by reason of this Indenture or any covenant, condition or stipulation hereof; and all the covenants, stipulations, promises and agreements in this Indenture contained by and on behalf of the Authority shall be for the sole and exclusive benefit of the parties hereto, and of the Holders of the Bonds Outstanding hereunder.

Section 13.02 Notices to Rating Agencies. The Authority shall instruct the Trustee to give notice to the Rating Agencies upon an occurrence of any of the following that relates to the Bonds:

- (i) expiration of any credit enhancement;
- (ii) termination of any credit enhancement;
- (iii) extension of any credit enhancement;
- (iv) substitution of any credit enhancement;
- (v) redemption;
- (vi) acceleration;
- (vii) conversion;

- (viii) changes in bond documents;
- (ix) changes in any credit facility;
- (x) changes in Trustee and/or any remarketing agent; or
- (xi) defeasance.

Section 13.03 Invalidity of Provisions. If any one or more of the covenants or agreements provided in this Indenture on the part of the Authority or the Trustee to be performed should be finally determined by a court of competent jurisdiction to be contrary to law, then such covenant or covenants or agreement or agreements shall be null and void and shall be deemed separable from the remaining covenants and agreements, and shall in no way affect the validity of the Indenture.

Section 13.04 Governing Law. This Indenture shall be deemed to be and shall be construed as a Pennsylvania contract and wherever enforced shall be construed in accordance with the laws of the Commonwealth.

Section 13.05 Limitation of Liability. No covenant, agreement or obligation contained in the Bonds or in this Indenture shall be deemed to be the covenant, agreement or obligation of any member, agent or employee of the Authority in his individual capacity and neither the members of the Board of the Authority nor any official executing the Bonds shall be liable personally on the Bonds or be subject to any personal liability or accountability by reason of the issuance thereof.

Section 13.06 Execution in Counterparts. This Indenture may be executed in multiple counterparts, each of which shall be regarded for all purposes as an original; but such counterparts shall constitute but one and the same instrument.

Section 13.07 Payment on Saturday, Sunday or Legal Holiday. If any case where the date of maturity of interest on or principal of any Bond or the date fixed for redemption or tender of any Bond shall be a Saturday, Sunday or a legal holiday or a day on which banking institutions in the Commonwealth are authorized by law to close, then payment of such interest or principal and premium, if any, need not be made on such date but may be made on the next succeeding Business Day not a Saturday, Sunday nor a legal holiday nor a day upon which banking institutions are authorized by law to close, with the same force and effect as if made on the date of maturity or the date fixed for redemption, and no interest shall accrue for the period after such date.

Section 13.08 Notices. Except as otherwise expressly provided in this Indenture, or in any Indenture supplemental hereto, any request, opinion, consent, demand, notice, order, appointment, or other direction required or permitted to be made or given by the Authority, shall be deemed to have been sufficiently made or given if executed on behalf of the Authority by its Chairperson or Vice Chairperson or Secretary or Assistant Secretary or Executive Director or Chief Financial Officer or Director of Finance, or signed by such other person or persons who is or are authorized to do so pursuant to a Resolution of the Board.

Any notice to or demand upon the Trustee may be served, presented, or made at the Principal Office of the Trustee at The Bank of New York Mellon Trust Company, N.A., 500 Ross Street, 12<sup>th</sup> Floor, Pittsburgh, PA 15262, Attention: Corporate Trust Administration. Any notice to or demand upon the Authority shall be deemed to have been sufficiently given or served by the Trustee for all purposes, by being sent by certified or registered United States mail, postage prepaid, to the Authority at The Pittsburgh Water and Sewer Authority, 1200 Penn Avenue, Pittsburgh, Pennsylvania 15222, Attention: Executive Director or at such other address as may be filed in writing by the Authority with the Trustee.

The Trustee shall have the right to accept and act upon instructions, including funds transfer instructions ("Instructions") given pursuant to this Indenture and delivered using Electronic Means; provided, however, that the Authority shall provide to the Trustee an incumbency certificate listing Authorized Representatives of the Authority to provide such Instructions and containing specimen signatures of such Authorized Representatives of the Authority, which incumbency certificate shall be amended by the Authority whenever a person is to be added or deleted from the listing. If the Authority elects to give the Trustee Instructions using Electronic Means and the Trustee in its discretion elects to act upon such Instructions, the Trustee's understanding of such Instructions shall be deemed controlling. The Authority understands and agrees that the Trustee cannot determine the identity of the actual sender of such Instructions and that the Trustee shall conclusively presume that directions that purport to have been sent by an Authorized Representative of the Authority listed on the incumbency certificate provided to the Trustee have been sent by such Authorized Representative of the Authority. The Authority shall be responsible for ensuring that only Authorized Representatives of the Authority transmit such Instructions to the Trustee and that the Authority and all Authorized Representatives of the Authority are solely responsible to safeguard the use and confidentiality of applicable user and authorization codes, passwords and/or authentication keys upon receipt by the Authority. The Trustee shall not be liable for any losses, costs or expenses arising directly or indirectly from the Trustee's reliance upon and compliance with such Instructions notwithstanding such directions conflict or are inconsistent with a subsequent written instruction. The Authority agrees: (i) to assume all risks arising out of the use of Electronic Means to submit Instructions to the Trustee, including without limitation the risk of the Trustee acting on unauthorized Instructions, and the risk of interception and misuse by third parties; (ii) that it is fully informed of the protections and risks associated with the various methods of transmitting Instructions to the Trustee and that there may be more secure methods of transmitting Instructions than the method(s) selected by the Authority; (iii) that the security procedures (if any) to be followed in connection with its transmission of Instructions provide to it a commercially reasonable degree of protection in light of its particular needs and circumstances; and (iv) to notify the Trustee immediately upon learning of any compromise or unauthorized use of the security procedures.

"Electronic Means" shall mean the following communications methods: S.W.I.F.T., e-mail, facsimile transmission, secure electronic transmission containing applicable authorization codes, passwords and/or authentication keys issued by the Trustee, or another method or system specified by the Trustee as available for use in connection with its services hereunder.

Section 13.09 Binding Effect of Covenants. All the covenants, promises and agreements in this Indenture contained by or on behalf of the Authority, or by or on behalf of the

Trustee shall bind and inure to the benefit of their respective successors and assigns, whether so expressed or not.

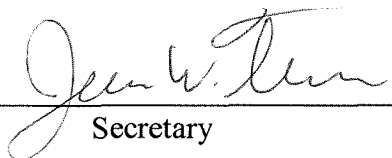
Section 13.10 Provisions Related to Bond Insurance and Reserve Policies. The provisions related to bond insurance set forth in Exhibit A hereto are incorporated herein by reference as if fully set forth herein. The provisions related to reserve policies set forth in Exhibit B hereto are incorporated herein by reference as if fully set forth herein.

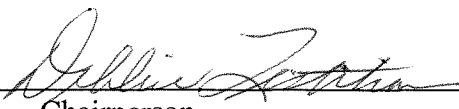


IN WITNESS WHEREOF, The Pittsburgh Water and Sewer Authority, party of the first part, has caused this Amended and Restated Trust Indenture to be executed by its Chairperson or its Vice Chairperson and its corporate seal to be hereunto impressed and attested by its Secretary or its Assistant Secretary, and The Bank of New York Mellon Trust Company, N.A., party of the second part, in evidence of its acceptance of the trusts hereby created, has caused this Indenture to be executed by one of its authorized officers.

ATTEST:

THE PITTSBURGH WATER AND  
SEWER AUTHORITY

  
\_\_\_\_\_  
Secretary

By   
\_\_\_\_\_  
Chairperson

[SEAL]

THE BANK OF NEW YORK MELLON  
TRUST COMPANY, N.A., as Trustee

By \_\_\_\_\_  
Authorized Officer  
Title: \_\_\_\_\_

IN WITNESS WHEREOF, The Pittsburgh Water and Sewer Authority, party of the first part, has caused this Amended and Restated Trust Indenture to be executed by its Chairperson or its Vice Chairperson and its corporate seal to be hereunto impressed and attested by its Secretary or its Assistant Secretary, and The Bank of New York Mellon Trust Company, N.A., party of the second part, in evidence of its acceptance of the trusts hereby created, has caused this Indenture to be executed by one of its authorized officers.

ATTEST:

THE PITTSBURGH WATER AND  
SEWER AUTHORITY

\_\_\_\_\_  
Secretary

By \_\_\_\_\_  
Chairperson

[SEAL]

THE BANK OF NEW YORK MELLON  
TRUST COMPANY, N.A., as Trustee

By Rhonda J. Branna  
Authorized Officer  
Title: Vice President

## EXHIBIT A

### PROVISIONS RELATED TO BOND INSURANCE

The provisions set forth in this Exhibit A shall, with respect to Bonds insured by Assured Guaranty Municipal Corp., or any successor thereto or assignee thereof, apply to such Bonds notwithstanding any other provision of this Indenture to the contrary. The provisions set forth in this Exhibit A shall, with respect to Bonds insured by National Public Finance Guarantee Corporation ("National"), or any successor thereto or assignee thereof, apply to such Bonds notwithstanding any other provision of this Indenture to the contrary.

- (a) "Bond Insurance Policy" shall mean the insurance policy issued by the Insurer guaranteeing the scheduled payment of principal of and interest on the Insured Bonds when due. "Insured Bonds" shall mean the Bonds insured by the Insurer". "Insurer" shall mean, with respect to Bonds insured by Assured Guaranty Municipal Corp.: Assured Guaranty Municipal Corp., a New York stock insurance company, or any successor thereto or assignee thereof; "Insurer" shall mean, with respect to Bonds insured by National: National Public Finance Guarantee Corporation, or any successor thereto or assignee thereof. "Related Document" shall have the meaning set forth in paragraph (h) below.
- (b) The prior written consent of the Insurer shall be a condition precedent to the deposit of any credit instrument provided in lieu of a cash deposit into the Debt Service Reserve Fund, if any, except for a credit instrument provided by the Insurer. Amounts on deposit in the Debt Service Reserve Fund shall be applied solely to the payment of debt service due on the Bonds secured by the Debt Service Reserve Fund.
- (c) The Insurer shall be deemed to be the sole holder of the Insured Bonds for the purpose of exercising any voting right or privilege or giving any consent or direction or taking any other action that the holders of the Insured Bonds are entitled to take pursuant to the Indenture pertaining to (i) defaults and remedies and (ii) the duties and obligations of the Trustee. In furtherance thereof and as a term of the Indenture and each Insured Bond, the Trustee (solely with respect to the Insured Bonds) and each Insured Bondholder appoint the Insurer as their agent and attorney-in-fact and agree that the Insurer may at any time during the continuation of any proceeding by or against the Authority under the United States Bankruptcy Code or any other applicable bankruptcy, insolvency, receivership, rehabilitation or similar law (an "Insolvency Proceeding") direct all matters relating to such Insolvency Proceeding (to the extent of their voting rights with respect to the Insured Bonds), including without limitation, (A) all matters relating to any claim or enforcement proceeding in connection with an Insolvency Proceeding (a "Claim"), (B) the direction of any appeal of any order relating to any Claim, (C) the posting of any surety, supersedeas or performance bond pending any such appeal, and (D) the right to vote to accept or reject any plan of adjustment. In addition, the Trustee (solely with respect to the Insured Bonds) and each Insured Bondholder delegate and assign to the Insurer, to the fullest extent permitted by law, the rights of the Trustee and each Insured Bondholder in the conduct of any Insolvency Proceeding, including, without limitation, all rights of any party to an adversary proceeding or action with respect to any court order issued in connection with

any such Insolvency Proceeding. Remedies granted in Section 8.04 of the Indenture include mandamus.

- (d) Acceleration of the Bonds is permitted under the Indenture. As set forth in paragraph (c) above, the Insurer is deemed to be the sole holder of the Insured Bonds for purposes of voting on acceleration. In the event the maturity of the Insured Bonds is accelerated, the Insurer shall not be obligated to pay any accelerated amount but may elect, in its sole discretion, to pay accelerated principal and interest accrued, on such principal to the date of acceleration (to the extent unpaid by the Authority) and the Trustee shall be required to accept such amounts. Upon payment of such accelerated principal and interest accrued to the acceleration date as provided above, the Insurer's obligations under the Bond Insurance Policy with respect to such Insured Bonds shall be fully discharged.
- (e) No grace period for a covenant default shall exceed sixty (60) days or be extended for more than sixty (60) days, without the prior written consent of the Insurer. No grace period shall be permitted for payment defaults.
- (f) The Insurer is a third party beneficiary to the Indenture.
- (g) Upon the occurrence of an extraordinary optional, special or extraordinary mandatory redemption in part, the selection of Insured Bonds to be redeemed shall be subject to the approval of the Insurer. The exercise of any provision of the Indenture which permits the purchase of Insured Bonds in lieu of redemption shall require the prior written approval of the Insurer if any Insured Bond so purchased is not cancelled upon purchase.
- (h) Any amendment, supplement, modification to, or waiver of, the Indenture or any other transaction document, including any underlying security agreement (each a "Related Document"), that requires the consent of Bondowners or adversely affects the rights and interests of the Insurer shall be subject to the prior written consent of the Insurer.
- (i) The rights granted to the Insurer under the Indenture or any other Related Document to request, consent to or direct any action are rights granted to the Insurer in consideration of its issuance of the Bond Insurance Policy. Any exercise by the Insurer of such rights is merely an exercise of the Insurer's contractual rights and shall not be construed or deemed to be taken for the benefit, or on behalf, of the holders of the Insured Bonds, and such action does not evidence any position of the Insurer, affirmative or negative, as to whether the consent of the owners of the Insured Bonds or any other person is required in addition to the consent of the Insurer.
- (j) Only (1) cash, (2) non-callable direct obligations of the United States of America ("Treasuries"), (3) evidences of ownership of proportionate interests in future interest and principal payments on Treasuries held by a bank or trust company as custodian, under which the owner of the investment is the real party in interest and has the right to proceed directly and individually against the obligor and the underlying Treasuries are not available to any person claiming through the custodian or to whom the custodian may be obligated, (4) subject to the prior written consent of the Insurer, pre-refunded municipal

obligations rated "AAA" and "Aaa" by S&P and Moody's, respectively, or (5) subject to the prior written consent of the Insurer, securities eligible for "AAA" defeasance under then existing criteria of S&P or any combination thereof, shall be used to effect defeasance of the Insured Bonds unless the Insurer otherwise approves.

To accomplish defeasance, the Authority shall cause to be delivered to the Insurer (i) a report of an independent firm of nationally recognized certified public accountants or such other accountant or financial firm as shall be acceptable to the Insurer ("Accountant") verifying the sufficiency of the escrow established to pay the Insured Bonds in full on the maturity or redemption date ("Verification"), (ii) an Escrow Deposit Agreement (which shall be acceptable in form and substance to the Insurer), (iii) an opinion of nationally recognized bond counsel to the effect that the Insured Bonds are no longer "Outstanding" under the Indenture and (iv) a certificate of discharge of the Trustee with respect to the Insured Bonds; each Verification and defeasance opinion shall be acceptable in form and substance, and addressed, to the Authority, Trustee and Insurer. The Insurer shall be provided with final drafts of the above-referenced documentation not less than five business days prior to the funding of the escrow.

Insured Bonds shall be deemed "Outstanding" under the Indenture unless and until they are in fact paid and retired or the above criteria are met.

- (k) Amounts paid by the Insurer under the Bond Insurance Policy shall not be deemed paid for purposes of the Indenture and the Insured Bonds relating to such payments shall remain Outstanding and continue to be due and owing until paid by the Authority in accordance with the Indenture. The Indenture shall not be discharged unless all amounts due or to become due to the Insurer have been paid in full or duly provided for.
- (l) Each of the Authority and Trustee covenant and agree to take such action (including, as applicable, filing of UCC financing statements and continuations thereof) as is necessary from time to time to preserve the priority of the pledge of the Trust Estate under applicable law.
- (m) Claims Upon the Bond Insurance Policy and Payments by and to the Insurer.

If, on the third Business Day prior to the related scheduled interest payment date or principal payment date ("Payment Date") there is not on deposit with the Trustee, after making all transfers and deposits required under the Indenture, moneys sufficient to pay the principal of and interest on the Insured Bonds due on such Payment Date, the Trustee shall give notice to the Insurer and to its designated agent (if any) (the "Insurer's Fiscal Agent") by telephone or teletype of the amount of such deficiency by 12:00 noon, New York City time, on such Business Day. If, on the second Business Day prior to the related Payment Date, there continues to be a deficiency in the amount available to pay the principal of and interest on the Insured Bonds due on such Payment Date, the Trustee shall make a claim under the Bond Insurance Policy and give notice to the Insurer and the Insurer's Fiscal Agent (if any) by telephone of the amount of such deficiency, and the allocation of such deficiency between the amount required to pay interest on the Bonds

and the amount required to pay principal of the Insured Bonds, confirmed in writing to the Insurer and the Insurer's Fiscal Agent by 12:00 noon, New York City time, on such second Business Day by filing in the form of Notice of Claim and Certificate delivered with the Bond Insurance Policy.

The Trustee shall designate any portion of payment of principal on Insured Bonds paid by the Insurer, whether by virtue of mandatory sinking fund redemption, maturity or other advancement of maturity, on its books as a reduction in the principal amount of Insured Bonds registered to the then current Insured Bondholder, whether DTC or its nominee or otherwise, and shall issue a replacement Insured Bond to the Insurer, registered in the name of Assured Guaranty Municipal Corp. or National, as the case may be, in a principal amount equal to the amount of principal so paid (without regard to authorized denominations); provided that the Trustee's failure to so designate any payment or issue any replacement Insured Bond shall have no effect on the amount of principal or interest payable by the Authority on any Insured Bond or the subrogation rights of the Insurer.

The Trustee shall keep a complete and accurate record of all funds deposited by the Insurer into the Policy Payments Account (defined below) and the allocation of such funds to payment of interest on and principal of any Insured Bond. The Insurer shall have the right to inspect such records at reasonable times upon reasonable notice to the Trustee.

Upon payment of a claim under the Bond Insurance Policy, the Trustee shall establish a separate special purpose trust account for the benefit of Insured Bondholders referred to herein as the "Policy Payments Account" and over which the Trustee shall have exclusive control and sole right of withdrawal. The Trustee shall receive any amount paid under the Bond Insurance Policy in trust on behalf of Insured Bondholders and shall deposit any such amount in the Policy Payments Account and distribute such amount only for purposes of making the payments for which a claim was made. Such amounts shall be disbursed by the Trustee to Insured Bondholders in the same manner as principal and interest payments are to be made with respect to the Insured Bonds under the sections hereof regarding payment of Insured Bonds. It shall not be necessary for such payments to be made by checks or wire transfers separate from the check or wire transfer used to pay debt service with other funds available to make such payments. Notwithstanding anything herein to the contrary, the Authority agrees to pay to the Insurer (i) a sum equal to the total of all amounts paid by the Insurer under the Bond Insurance Policy (the "Insurer Advances"); and (ii) interest on such Insurer Advances from the date paid by the Insurer until payment thereof in full, payable to the Insurer at the Late Payment Rate per annum (collectively, the "Insurer Reimbursement Amounts"). "Late Payment Rate" means the lesser of (a) the greater of (i) the per annum rate of interest, publicly announced from time to time by JPMorgan Chase Bank at its principal office in The City of New York, as its prime or base lending rate (any change in such rate of interest to be effective on the date such change is announced by JPMorgan Chase Bank) plus 3%, and (ii) the then applicable highest rate of interest on the Insured Bonds and (b) the maximum rate permissible under applicable usury or similar laws limiting interest rates. The Late Payment Rate shall be computed on the basis of the actual number of days elapsed over a

year of 360 days. The Authority hereby covenants and agrees that the Insurer Reimbursement Amounts are secured by a lien on and pledge of the Trust Estate and payable from such Trust Estate on a parity with debt service due on the Insured Bonds.

Funds held in the Policy Payments Account shall not be invested by the Trustee and may not be applied to satisfy any costs, expenses or liabilities of the Trustee. Any funds remaining in the Policy Payments Account following an Insured Bond payment date shall promptly be remitted to the Insurer.

- (n) The Insurer shall, to the extent it makes any payment of principal of or interest on the Insured Bonds, become subrogated to the rights of the recipients of such payments in accordance with the terms of the Bond Insurance Policy (which subrogation rights shall also include the rights of any such recipients in connection with any Insolvency Proceeding). Each obligation of the Authority to the Insurer under the Related Documents shall survive discharge or termination of such Related Documents.
- (o) The Authority shall pay or reimburse the Insurer any and all charges, fees, costs and expenses that the Insurer may reasonably pay or incur in connection with (i) the administration, enforcement, defense or preservation of any rights or security in any Related Document; (ii) the pursuit of any remedies under the Indenture or any other Related Document or otherwise afforded by law or equity, (iii) any amendment, waiver or other action with respect to, or related to, the Indenture or any other Related Document whether or not executed or completed, or (iv) any litigation or other dispute in connection with the Indenture or any other Related Document or the transactions contemplated thereby, other than costs resulting from the failure of the Insurer to honor its obligations under the Bond Insurance Policy. The Insurer reserves the right to charge a reasonable fee as a condition to executing any amendment, waiver or consent proposed in respect of the Indenture or any other Related Document.
- (p) After payment of reasonable expenses of the Trustee, the application of funds realized upon default shall be applied to the payment of expenses of the Authority only after the payment of past due and current debt service on the Insured Bonds and amounts required to restore the Debt Service Reserve Fund to the Reserve Requirement.
- (q) The Insurer shall be entitled to pay principal or interest on the Insured Bonds that shall become Due for Payment but shall be unpaid by reason of Nonpayment by the Authority (as such terms are defined in the Bond Insurance Policy) and any amounts due on the Insured Bonds as a result of acceleration of the maturity thereof in accordance with the Indenture, whether or not the Insurer has received a Notice of Nonpayment (as such terms are defined in the Bond Insurance Policy) or a claim upon the Bond Insurance Policy.
- (r) The notice address of the Insurer Assured Guaranty Municipal Corp. is: Assured Guaranty Municipal Corp., 1633 Broadway, New York, New York 10019, Attention: Managing Director – Surveillance, Re: Policy No. \_\_, Telephone: (212) 974-0100; Telecopier: (212) 339-3556. In each case in which notice or other communication refers

to an Event of Default, then a copy of such notice or other communication shall also be sent to the attention of the Deputy General Counsel – Public Finance and shall be marked to indicate "URGENT MATERIAL ENCLOSED." The notice address of the Insurer National: National Public Finance Guarantee Corporation, 1 Manhattanville Road, Suite 301, Purchase, NY 10577, Attention: Insured Portfolio Management, Telephone: 914-273-4545, Facsimile: 914-765-3164.

- (s) The Insurer shall be provided with the following information by the Authority or Trustee, as the case may be:
  - (i) Annual audited financial statements within 180 days after the end of the Authority's fiscal year (together with a certification of the Authority that it is not aware of any default or Event of Default under the Indenture), and the Authority's annual budget within 30 days after the approval thereof together with such other information, data or reports as the Insurer shall reasonably request from time to time;
  - (ii) Notice of any draw upon the Debt Service Reserve Fund within two Business Days after knowledge thereof other than (i) withdrawals of amounts in excess of the Debt Service Reserve Requirement and (ii) withdrawals in connection with a refunding of Insured Bonds;
  - (iii) Notice of any default under the Indenture known to the Trustee or Authority within five Business Days after knowledge thereof;
  - (iv) Prior notice of the advance refunding or redemption of any of the Insured Bonds, including the principal amount, maturities and CUSIP numbers thereof;
  - (v) Notice of the resignation or removal of the Trustee and bond registrar and the appointment of, and acceptance of duties by, any successor thereto;
  - (vi) Notice of the commencement of any proceeding by or against the Authority commenced under the United States Bankruptcy Code or any other applicable bankruptcy, insolvency, receivership, rehabilitation or similar law (an "Insolvency Proceeding");
  - (vii) Notice of the making of any claim in connection with any Insolvency Proceeding seeking the avoidance as a preferential transfer of any payment of principal of, or interest on, the Insured Bonds;
  - (viii) A full original transcript of all proceedings relating to the execution of any amendment, supplement, or waiver to the Related Documents;



- (ix) All reports, notices and correspondence to be delivered to holders of Insured Bonds under the terms of the Related Documents; and
- (x) To the extent that the Authority has entered into a continuing disclosure agreement, covenant or undertaking with respect to the Bonds, all information furnished pursuant to such agreements shall also be provided to the Insurer, simultaneously with the furnishing of such information. The Authority shall also provide the Insurer with copies of all amendments, modifications, supplements and restatements relating to such documents.
- (xi) So long as the 1998B Bonds remain Outstanding, the Authority shall provide National with written notice of its intent to issue any type of variable rate security (including, without limitation, variable rate obligations, floating rate notes and auction rate securities) no later than 15 days prior to execution of the documentation relating to the proposed variable rate securities (the "Proposed Securities"). The Authority shall also provide National with drafts of the documentation relating to the Proposed Securities promptly upon the written request of National.
- (t) The Insurer shall have the right to receive such additional information as it may reasonably request.
- (u) The Authority will permit the Insurer to discuss the affairs, finances and accounts of the Authority or any information the Insurer may reasonably request regarding the security for the Bonds with appropriate officers of the Authority and will use commercially reasonable efforts to enable the Insurer to have access to the facilities, books and records of the Authority on any business day upon reasonable prior notice.
- (v) The Trustee shall notify the Insurer of any failure of the Authority to provide notices, certificates and other information under the transaction documents.
- (w) Notwithstanding satisfaction of the other conditions to the issuance of Additional Bonds set forth in the Indenture, no such issuance may occur (1) if an Event of Default (or any event which, once all notice or grace periods have passed, would constitute an Event of Default) exists unless such default shall be cured upon such issuance and (2) unless the Debt Service Reserve Fund is fully funded at the Debt Service Reserve Requirement (including the proposed issue) upon the issuance of such Additional Bonds, in either case unless otherwise permitted by the Insurer. In addition, so long as the 1998B Bonds are Outstanding, without the prior written consent of the National, no issuance of Balloon Indebtedness or Tender Indebtedness may occur unless the maturity date of such indebtedness is 2031 or later. In addition, so long as the 1998B Bonds are Outstanding, without the prior written consent of National, no issuance of Interim Indebtedness may occur unless (1) the principal amount of the Interim Indebtedness does not exceed \$100,000,000; or (2) the Interim Indebtedness is Subordinate Debt.

- (x) In determining whether any amendment, consent, waiver or other action to be taken, or any failure to take action, under the Indenture would adversely affect the security for the Insured Bonds or the rights of the holders of Insured Bonds, the Trustee shall consider the effect of any such amendment, consent, waiver, action or inaction as if there were no Bond Insurance Policy.
- (y) No contract shall be entered into or any action taken by which the rights of the Insurer or security for or sources of payment of the Bonds may be impaired or prejudiced in any material respect except upon obtaining the prior written consent of the Insurer.
- (z) If the Bonds are issued for refunding purposes, there shall be delivered an opinion of Bond Counsel addressed to the Insurer (or a reliance letter relating thereto), or a certificate of discharge of the trustee for the Refunded Bonds, to the effect that, upon the making of the required deposit to the escrow, the legal defeasance of the Refunded Bonds shall have occurred. If the Refunded Bonds are insured by Assured Guaranty Municipal Corp., at least three business days prior to the proposed date for delivery of the Policy with respect to the Refunding Bonds, the Insurer shall also receive (i) the verification letter, of which the Insurer shall be an addressee, by an independent firm of certified public accountants or other financial firm which is either nationally recognized or otherwise acceptable to the Insurer, of the adequacy of the escrow established to provide for the payment of the Refunded Bonds in accordance with the terms and provisions of the Escrow Deposit Agreement, and (ii) the form of an opinion of Bond Counsel addressed to the Insurer (or a reliance letter relating thereto) to the effect that the Escrow Deposit Agreement is a valid and binding obligation of the parties thereto, enforceable in accordance with its terms (such Escrow Deposit Agreement shall provide that no amendments are permitted without the prior written consent of the Insurer). An executed copy of each of such opinion and reliance letter, if applicable, or Trustee's discharge certificate, as the case may be, shall be forwarded to the Insurer prior to delivery of the Bonds.
- (aa) Any interest rate exchange agreement ("Swap Agreement") entered into by the Authority shall meet the following conditions: (i) the Swap Agreement must be entered into to manage interest costs related to, or a hedge against (a) assets then held, or (b) debt then outstanding, or (iii) debt reasonably expected to be issued within the next twelve (12) months, and (ii) the Swap Agreement shall not contain any leverage element or multiplier component greater than 1.0x unless there is a matching hedge arrangement which effectively off-sets the exposure from any such element or component. Unless otherwise consented to in writing by the Insurer, any uninsured net settlement, breakage or other termination amount then in effect shall be subordinate to debt service on the Bonds and on any debt on parity with the Bonds. The Authority shall not terminate a Swap Agreement unless it demonstrates to the satisfaction of the Insurer prior to the payment of any such termination amount that such payment will not cause the Authority to be in default under the Related Documents, including but not limited to, any monetary obligations thereunder.

## **EXHIBIT B**

### **PROVISIONS RELATED TO RESERVE POLICIES**

The provisions set forth in this Exhibit B shall, with respect to Reserve Policies issued by Assured Guaranty Municipal Corp., or any successor thereto or assignee thereof ("AGM") related to Bonds issued under this Indenture, apply to such Reserve Policies notwithstanding any other provision of this Indenture to the contrary.

(a) The prior written consent of AGM shall be a condition precedent to the deposit of any credit facility (other than a credit facility provided by AGM) (a "Credit Facility") credited to the Debt Service Reserve Fund established for the Bonds (the "Reserve Fund") in lieu of a cash deposit into the Reserve Fund. Amounts drawn under the Reserve Policy shall be available only for the payment of scheduled principal and interest on the Bonds when due.

(b) The Authority shall repay any draws under the Reserve Policy and pay all related reasonable expenses incurred by AGM and shall pay interest thereon from the date of payment by AGM at the Late Payment Rate. "Late Payment Rate" means the lesser of (x) the greater of (i) the per annum rate of interest, publicly announced from time to time by JPMorgan Chase Bank at its principal office in the City of New York, as its prime or base lending rate ("Prime Rate") (any change in such Prime Rate to be effective on the date such change is announced by JPMorgan Chase Bank) plus 5% (3% to the extent AGM is the bond insurer of the related Bonds), and (ii) the then applicable highest rate of interest on the Bonds and (y) the maximum rate permissible under applicable usury or similar laws limiting interest rates. The Late Payment Rate shall be computed on the basis of the actual number of days elapsed over a year of 360 days. In the event JPMorgan Chase Bank ceases to announce its Prime Rate publicly, Prime Rate shall be the publicly announced prime or base lending rate of such national bank as AGM shall specify. If the interest provisions of this subparagraph (b) shall result in an effective rate of interest which, for any period, exceeds the limit of the usury or any other laws applicable to the indebtedness created herein, then all sums in excess of those lawfully collectible as interest for the period in question shall, without further agreement or notice between or by any party hereto, be applied as additional interest for any later periods of time when amounts are outstanding hereunder to the extent that interest otherwise due hereunder for such periods plus such additional interest would not exceed the limit of the usury or such other laws, and any excess shall be applied upon principal immediately upon receipt of such moneys by AGM, with the same force and effect as if the Authority had specifically designated such extra sums to be so applied and AGM had agreed to accept such extra payment(s) as additional interest for such later periods. In no event shall any agreed-to or actual exaction as consideration for the indebtedness created herein exceed the limits imposed or provided by the law applicable to this transaction for the use or detention of money or for forbearance in seeking its collection.

Repayment of draws and payment of expenses and accrued interest thereon at the Late Payment Rate (collectively, "Policy Costs") shall be made from all available funds and shall commence in the first month following each draw, and each such monthly payment shall be in an amount at least equal to 1/12 of the aggregate of Policy Costs related to such draw.

Amounts in respect of Policy Costs paid to AGM shall be credited first to interest due, then to the expenses due and then to principal due. As and to the extent that payments are made to AGM on account of principal due, the coverage under the Reserve Policy will be increased by a like amount, subject to the terms of the Reserve Policy. The obligation to pay Policy Costs shall be secured by a valid lien on all revenues and other collateral pledged as security for the Bonds (subject only to the priority of payment provisions set forth under the Indenture).

All cash and investments in the Reserve Fund shall be transferred to the Debt Service Fund for payment of debt service on Bonds before any drawing may be made on the Reserve Policy or any other Credit Facility credited to the Reserve Fund in lieu of cash. Payment of any Policy Costs shall be made prior to replenishment of any such cash amounts. Draws on all Credit Facilities (including the Reserve Policy) on which there is available coverage shall be made on a pro-rata basis (calculated by reference to the coverage then available thereunder) after applying all available cash and investments in the Reserve Fund. Payment of Policy Costs and reimbursement of amounts with respect to other Credit Facilities shall be made on a pro-rata basis prior to replenishment of any cash drawn from the Reserve Fund. For the avoidance of doubt, "available coverage" means the coverage then available for disbursement pursuant to the terms of the applicable alternative credit instrument without regard to the legal or financial ability or willingness of the provider of such instrument to honor a claim or draw thereon or the failure of such provider to honor any such claim or draw.

(c) Upon a failure to pay Policy Costs when due or any other breach of the terms of this Exhibit B, AGM shall be entitled to exercise any and all legal and equitable remedies available to it, including those provided under the Indenture, other than (i) acceleration of the maturity of the Bonds or (ii) remedies which would adversely affect owners of the Bonds.

(d) The Indenture shall not be discharged until all Policy Costs owing to AGM shall have been paid in full. The Authority's obligation to pay such amounts shall expressly survive payment in full of the Bonds.

(e) The Authority shall include any Policy Costs then due and owing AGM in the calculation of the additional bonds test and the rate covenant in the Indenture.

(f) The Indenture shall require the Trustee to ascertain the necessity for a claim upon the Reserve Policy in accordance with the provisions of subparagraph (b) hereof and to provide notice to AGM in accordance with the terms of the Reserve Policy at least two business days prior to each date upon which interest or principal is due on the Bonds. Where deposits are required to be made by the Authority with the Trustee to the debt service fund for the Bonds more often than semi-annually, the Trustee shall be instructed to give notice to AGM of any failure of the Authority to make timely payment in full of such deposits within two business days of the date due.

(g) The Authority will pay or reimburse AGM any and all reasonable charges, fees, costs, losses, liabilities and expenses which AGM may pay or incur, including, but not limited to, reasonable fees and expenses of attorneys, accountants, consultants and auditors and reasonable costs of investigations, in connection with (i) any accounts established to facilitate payments

under the Reserve Policy, (ii) the administration, enforcement, defense or preservation of any rights in respect of the Indenture or any document executed in connection with the Bonds (the "Related Documents"), including defending, monitoring or participating in any litigation or proceeding (including any bankruptcy proceeding in respect of the Authority) relating to the Indenture or any other Related Document, any party to the Indenture or any other Related Document or the transactions contemplated by the Related Documents, (iii) the foreclosure against, sale or other disposition of any collateral securing any obligations under the Indenture or any other Related Document, if any, or the pursuit of any remedies under the Indenture or any other Related Document, to the extent such costs and expenses are not recovered from such foreclosure, sale or other disposition, (iv) any amendment, waiver or other action with respect to, or related to the Indenture, the Reserve Policy or any other Related Document whether or not executed or completed, or (v) any action taken by AGM to cure a default or termination or similar event (or to mitigate the effect thereof) under the Indenture or any other Related Document; costs and expenses shall include a reasonable allocation of compensation and overhead attributable to time of employees of AGM spent in connection with the actions described in clauses (ii) through (v) above. AGM reserves the right to charge a reasonable fee as a condition to executing any amendment, waiver or consent proposed in respect of the Indenture or any other Related Document. Amounts payable by the Authority hereunder shall bear interest at the Late Payment Rate from the date such amount is paid or incurred by AGM until the date AGM is paid in full.

(h) The obligation of the Authority to pay all amounts due to AGM shall be an absolute and unconditional obligation of the Authority and will be paid or performed strictly in accordance with the provisions of this Exhibit B, irrespective of (i) any lack of validity or enforceability of or any amendment or other modifications of, or waiver with respect to the Bonds, the Indenture or any other Related Document, or (ii) any amendment or other modification of, or waiver with respect to the Reserve Policy; (iii) any exchange, release or non-perfection of any security interest in property securing the Bonds, the Indenture or any other Related Documents; (iv) whether or not such Bonds are contingent or matured, disputed or undisputed, liquidated or unliquidated; (v) any amendment, modification or waiver of or any consent to departure from the Reserve Policy, the Indenture or all or any of the other Related Documents; (vi) the existence of any claim, setoff, defense (other than the defense of payment in full), reduction, abatement or other right which the Authority may have at any time against the Trustee or any other person or entity other than the Insurer, whether in connection with the transactions contemplated herein or in any other Related Documents or any unrelated transactions; (vii) any statement or any other document presented under or in connection with the Reserve Policy proving in any and all respects invalid, inaccurate, insufficient, fraudulent or forged or any statement therein being untrue or inaccurate in any respect; or (viii) any payment by the Insurer under the Reserve Policy against presentation of a certificate or other document which does not strictly comply with the terms of the Reserve Policy.

(i) The Authority shall fully observe, perform, and fulfill each of the provisions (as each of those provisions may be amended, supplemented, modified or waived with the prior written consent of the Insurer) of the Indenture applicable to it, each of the provisions thereof being expressly incorporated into this Exhibit B by reference solely for the benefit of AGM as if set forth directly herein. No provision of the Indenture or any other Related Document shall be

amended, supplemented, modified or waived, without the prior written consent of AGM, in any material respect or otherwise in a manner that could adversely affect the payment obligations of the Authority hereunder or the priority accorded to the reimbursement of Policy Costs under the Indenture. The Insurer is hereby expressly made a third party beneficiary of the Indenture and each other Related Document

(j) The Authority covenants to provide to AGM, promptly upon written request, any information regarding the Bonds or the financial condition and operations of the Authority as reasonably requested by AGM. The Authority will permit AGM to discuss the affairs, finances and accounts of the Authority or any information AGM may reasonably request regarding the security for the Bonds with appropriate officers of the Authority and will use commercially reasonable efforts to enable AGM to have access to the facilities, books and records of the Authority on any business day upon reasonable prior notice.

Notices and other information to AGM shall be sent to the following address (or such other address as AGM may designate in writing): Assured Guaranty Municipal Corp., 1633 Broadway, New York, New York 10019, Attention: Managing Director – Surveillance, Re: Policy No. \_\_\_\_\_

**VII. RATE OF RETURN**

VII.8. Attach copies of the summaries of the company's projected revenues, expenses and capital budgets for the next 2 years.

**RESPONSE:**

Please see below for a summary of the total PWSA's projected revenues, expenses and capital budget for FTY, FPFTY, and 2024.

|   | <b>FTY</b>         | <b>FPFTY</b>       | <b>Projected</b>   |
|---|--------------------|--------------------|--------------------|
|   | <b>12 Months</b>   | <b>12 Months</b>   | <b>12 Months</b>   |
|   | <b>Ending</b>      | <b>Ending</b>      | <b>Ending</b>      |
|   | <b>12/31/2023</b>  | <b>12/31/2024</b>  | <b>12/31/2025</b>  |
| <b>Projected Revenues &amp; Expenses</b>        |                    |                    |                    |
| Total System Revenues                           | \$208,482,665      | \$255,319,046      | \$300,701,741      |
| Direct Operating Expenses                       | (115,737,550)      | (133,581,242)      | (143,240,823)      |
| Indirect Operating Expenses                     | (1,766,508)        | (2,066,814)        | (2,400,861)        |
| COVID Related Expenses                          | -                  | (263,215)          | -                  |
| Debt Service (Principal & Interest)             | (79,523,035)       | (96,932,626)       | (120,177,071)      |
| PAYGO   | -                  | -                  | (2,000,000)        |
| Distribution System Improvement Charge Expenses | (8,411,120)        | (15,038,462)       | (17,699,369)       |
| Bad Debt  | (4,099,730)        | (5,971,536)        | (7,190,864)        |
| DWSL  | -                  | -                  | (250,000)          |
| Hardship Grant Funding                          | -                  | -                  | (216,320)          |
| Rate Stabilization Fund                         | 4,500,000          | (1,000,000)        | (7,000,000)        |
| Arrearage Funding Funding                       | -                  | (240,000)          | (240,000)          |
| Stormwater Credit Program Cost                  | (75,843)           | (180,489)          | (212,102)          |
| <i>Rate Surplus / (Deficit)</i>                 | <i>3,368,879</i>   | <i>44,662</i>      | <i>74,331</i>      |
| <br>  |                    |                    |                    |
| <b>Projected Capital Budget</b>                 |                    |                    |                    |
| Water Treatment Plant                           | \$16,030,211       | \$26,885,665       | \$24,038,988       |
| Water Pumping & Storage                         | 55,304,597         | 115,127,475        | 121,491,637        |
| Water Distribution                              | 143,302,527        | 125,439,446        | 155,468,790        |
| Wastewater System                               | 50,634,240         | 31,442,487         | 27,579,779         |
| Stormwater                                      | 29,822,932         | 34,827,423         | 36,884,821         |
| Other   | 11,439,316         | 15,500,000         | 33,000,000         |
| <i>Total Capital Requirements</i>               | <i>306,533,823</i> | <i>349,222,496</i> | <i>398,464,015</i> |

**VII. RATE OF RETURN**

VII.9. Describe long-term debt reacquisitions by company and parent as follows:

- a. Reacquisitions by issue by year.
- b. Total gain on reacquisitions by issue by year.
- c. Accounting of gain for income tax and book purposes.

**RESPONSE:**

PWSA does not have any long-term debt reacquisitions.



**VII. RATE OF RETURN**

VII.10. Provide the following information concerning compensating bank balance requirements for actual per book test year:

- a. Name of each bank.
- b. Address of each bank.
- c. Type of accounts with each bank (checking, savings, escrow, other services, etc.).
- d. Average daily balance in each account.
- e. Amount and percentage requirements for compensating bank balances at each bank.
- f. Average daily compensating bank balance at each bank.
- g. Documents from each bank explaining compensating bank balance requirements.
- h. Interest earned on each type of account.

**RESPONSE:**

PWSA does not have compensating bank balances.

## VII. RATE OF RETURN

VII.11. Provide the following information concerning bank notes payable for actual per book test year:

- a. Line of credit at each bank.
- b. Average daily balances of notes payable to each bank, by name of bank.
- c. Interest rate charged on each bank note (prime rate, formula).
- d. Purpose of each bank note, (for example, construction, fuel storage, working capital, debt retirement).
- e. Prospective future need for this type of financing.

### **RESPONSE:**

- a. PWSA has a drawdown revolving line of credit facility with PNC Bank which was amended in 2022 to lower the interest rate payable by the Authority, change the index used for the interest rate calculation from LIBOR to SIFMA, and to extend the maturity date with a term not to exceed three years. At this time, the maximum amount that can be drawn and outstanding at any one time is \$150 million. The principal will be paid at the maturity date of June 30, 2025.
- b. The average daily amount outstanding in 2022 was approximately \$100.0 million.
- c. Each revolving advance bears a variable interest rate based on the Securities Industry and Financial Markets Association (SIFMA).
- d. PWSA uses this credit facility for financing certain capital costs. Once PWSA reaches the maximum, the intent is to refund the outstanding principal into long-term revenue bonds.
- e. PWSA will continue to rely on this type of borrowing instrument in the foreseeable future.

## VII. RATE OF RETURN

VII.12. Submit details on company or parent common stock offerings for the past 5 years to present, as follows:

- a. Date of prospectus.
- b. Date of offering.
- c. Record date.
- d. Offering period including dates and number of days.
- e. Amount and number of shares of offering.
- f. Offering ratio, if rights offering.
- g. Percent subscribed.
- h. Offering price.
- i. Gross proceeds per share.
- j. Expenses per share.
- k. Net proceeds per share in (12.) i and j.
- l. Market price per share.
  - (1) At record date.
  - (2) At offering date.
  - (3) One month after close of offering.
- m. Average market price during offering.
  - (1) Price per share.
  - (2) Rights per share-average value of rights.
- n. Latest reported earnings per share at time of offering.
- o. Latest reported dividends at time of offering.

**VII. RATE OF RETURN**

**RESPONSE:**

Not applicable.

**VII. RATE OF RETURN**

VII.13. Attach a chart explaining company's corporate relationship to its affiliates showing system structure.

**RESPONSE:**

Not applicable.

**VII. RATE OF RETURN**

VII.14. If the utility plans to make a formal claim for a specified allowable rate of return, provide the following data in statement or exhibit form:

- a. Claimed capitalization and capitalization ratios with supporting data.
- b. Claimed cost of long-term debt with supporting data.
- c. Claimed cost of short-term debt with supporting data.
- d. Claimed cost of total debt with supporting data.
- e. Claimed cost of preferred stock with supporting data.
- f. Claimed cost of common equity with supporting data.

**RESPONSE:**

Not applicable.

**VII. RATE OF RETURN**

VII.15. Supply copies of the following documents for the company and, if applicable, its parent:

- a. Most recent annual report to shareholders including any statistical supplements.
- b. Most recent SEC form 10K.
- c. All SEC form 10Q reports issued within the preceding 12 months of the date of submittal of the rate increase request.

**RESPONSE:**

The following document is attached:

- Independent Auditor's Report - Years Ended December 31, 2021.

# **Pittsburgh Water and Sewer Authority**

Single Audit

2021

**MaherDuessel**

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# PITTSBURGH WATER AND SEWER AUTHORITY

YEARS ENDED DECEMBER 31, 2021 AND 2020

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# PITTSBURGH WATER AND SEWER AUTHORITY

YEARS ENDED DECEMBER 31, 2021 AND 2020

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## Independent Auditor's Report

**Board of Directors  
Pittsburgh Water and Sewer Authority**

### Report on the Audit of the Financial Statements

#### **Opinion**

We have audited the accompanying financial statements of the business-type activities of the Pittsburgh Water and Sewer Authority (Authority), a component unit of the City of Pittsburgh (City), Pennsylvania, as of and for the years ended December 31, 2021 and 2020, and the related notes to the financial statements, which collectively comprise the Authority's basic financial statements as listed in the table of contents.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the business-type activities of the Authority, as of December 31, 2021 and 2020, and the changes in financial position and cash flows thereof for the years then ended in accordance with accounting principles generally accepted in the United States of America.

#### **Basis for Opinion**

We conducted our audits in accordance with auditing standards generally accepted in the United States of America (GAAS) and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Our responsibilities under those standards are further described in the Auditor's Responsibilities for the Audit of the Financial Statements section of our report. We are required to be independent of the Authority and to meet our other ethical responsibilities in accordance with the relevant ethical requirements relating to our audits. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

#### **Responsibilities of Management for the Financial Statements**

Management is responsible for the preparation and fair presentation of the financial statements in accordance with accounting principles generally accepted in the United States of America, and for the design, implementation, and maintenance of internal control relevant to the preparation and fair presentation of financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, management is required to evaluate whether there are conditions or events, considered in the aggregate, that raise substantial doubt about the Authority's

ability to continue as a going concern for twelve months beyond the financial statement date, including any currently known information that may raise substantial doubt shortly thereafter.

### **Auditor's Responsibilities for the Audit of the Financial Statements**

Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with generally accepted auditing standards and *Government Auditing Standards* will always detect a material misstatement when it exists. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Misstatements are considered material if there is a substantial likelihood that, individually or in the aggregate, they would influence the judgment made by a reasonable user based on the financial statements.

In performing an audit in accordance with GAAS and *Government Auditing Standards*, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material misstatement of the financial statements, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the amounts and disclosures in the financial statements.
- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Authority's internal control. Accordingly, no such opinion is expressed.
- Evaluate the appropriateness of accounting policies used and the reasonableness of significant accounting estimates made by management, as well as evaluate the overall presentation of the financial statements.
- Conclude whether, in our judgment, there are conditions or events, considered in the aggregate, that raise substantial doubt about the Authority's ability to continue as a going concern for a reasonable period of time.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit, significant audit findings, and certain internal control related matters that we identified during the audit.

### Required Supplementary Information

Accounting principles generally accepted in the United States of America require that the required supplementary information listed in the table of contents be presented to supplement the basic financial statements. Such information is the responsibility of management and, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audits of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

### Supplementary Information

Our audits were conducted for the purpose of forming opinions on the financial statements that collectively comprise the Authority's basic financial statements. The supplementary information listed in the table of contents and the schedule of expenditures of federal awards, as required by Title 2 U.S. *Code of Federal Regulations* (CFR) Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* are presented for purposes of additional analysis and are not a required part of the basic financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. The information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the supplementary information is fairly stated, in all material respects, in relation to the basic financial statements as a whole.

### Other Reporting Required by *Government Auditing Standards*

In accordance with *Government Auditing Standards*, we have also issued our report dated April 20, 2022 on our consideration of the Authority's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is solely to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the Authority's internal control over financial reporting or on

compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Authority's internal control over financial reporting and compliance.

*Mahe Duessel*

Pittsburgh, Pennsylvania  
April 20, 2022

# PITTSBURGH WATER AND SEWER AUTHORITY

## 2021 Financial Statements Management's Discussion and Analysis

The Pittsburgh Water and Sewer Authority's (Authority) comparative 2021 and 2020 fiscal year financial statements enclosed have been conformed to meet the requirements of Governmental Accounting Standards Board (GASB) Statement No. 34, "Basic Financial Statements – and Management's Discussion and Analysis – for State and Local Governments." The financial statements incorporate three basic statements: The Statements of Net Position, the Statements of Revenues, Expenses, and Changes in Net Position, and the Statements of Cash Flows.

This Management's Discussion and Analysis (MD&A) is based upon facts, decisions, and conditions known as of the date of the audit report. Please note that the historical information provided in the financial statements and MD&A reflects the results of past operations and is not necessarily indicative of results of future operations. Future operations will be affected by various factors, including, but not limited to, regulatory mandates, rate changes, weather, labor contracts, population changes, business environment and other matters, the nature and effect of which cannot now be determined.

### Using This Financial Report – Overview of Reporting Changes

The Statements of Net Position present information about the resources which are available to the Authority and claims against these resources. Both assets and liabilities are classified in a format which segregates current from noncurrent. In addition, assets available for special purposes – labeled "restricted assets" - are segregated from those assets available for operations. The Authority's restricted assets represent money on deposit with the bond trustee to meet indenture, debt service, and construction program requirements. Liabilities have a similar classification segregating claims on restricted assets from claims on assets available for operations. The net position section of the Statements of Net Position classifies the total net position as net investment in capital assets, restricted, and unrestricted.

The Statements of Revenues, Expenses, and Changes in Net Position summarize operating and non-operating activity for the fiscal year and the resulting impact on the Authority's net position.

The Statements of Revenues, Expenses, and Changes in Net Position include wastewater treatment revenues and expenses for services provided by the Allegheny County Sanitary Authority (ALCOSAN). There are no outstanding bond issues associated directly or indirectly with wastewater treatment revenue streams.

The Statements of Cash Flows have been prepared using the direct method. The statements provide an analysis of the Authority's cash by operating, investing, and capital and related financing activities over the respective fiscal year.

### Financial Highlights 2021 and 2020

In 2021, operating income increased by 27.6% or \$14.0 million to \$64.8 million. The Authority realized an overall net gain of \$24.3 million, a result of greater increases in operating revenues than increases in expenses. 2021 financial growth showed recovery from 2020, when revenues were down, and operating expenses were minimized with non-essential work reduced for different periods because of the pandemic.

Below are the 2021 financial highlights:

Total operating revenues in 2021 were up \$27.1 million or 11.2% to \$269.1 million when compared to 2020. Wastewater treatment revenues increased by \$4.9 million, attributable to ALCOSAN's rate increase. Water and wastewater conveyance revenues increased \$19.2 million from 2020, a result of PWSA's rate increase. Other operating income increased by \$3.1 million from 2020, attributable to the sum of various miscellaneous payments.

Total net non-operating revenues (expenses) changed by \$5.7 million from 2020 to a net expense of \$38.1 million in 2021 compared to a net expense of \$32.3 million in 2020. This increase in expenses is attributable to higher

interest and amortization, \$1.3 million in grant revenue in 2021 compared to \$7.0 million 2020, somewhat offset by no bond issuance costs in 2021 compared to \$2.1 million in bond issuance costs in 2020.

Total operating expenses increased in 2021 to \$204.3 million compared to \$191.2 million in 2020. Significant operating expenses included the following factors:

- Salary and employee benefit expenses were up \$1.9 million or 5.9%. The increase is attributed to salary rate increases of 2-3% and increased employee headcount in 2021.

A portion of Authority employees are represented by one of three labor unions. The Pittsburgh Joint Collective Bargaining Committee (PJCBC) represents blue-collar employees. The PJCBC Agreement is effective June 16, 2021 and shall remain in full force and effect until 12:00 midnight, December 31, 2024 and from year to year thereafter unless either party shall notify the other in writing on or before June 1, 2024, or June 1 of any succeeding year that it desires to modify the Agreement. The American Federation of State, County, and Municipal Employees (AFSCME) represents Local 2719 employees and Local 2037. The AFSCME 2037 Memorandum of Understanding is effective November 22, 2021, and shall remain in full force and effect until 12:00 midnight, December 31, 2024, and from year to year thereafter unless either party shall notify the other in writing on or before June 1 of 2024 or June 1 of any succeeding year that it desires to modify the Memorandum. The AFSCME 2719 is in negotiations with the Authority and is operating under the one-year extension of their previous contract.

- Wastewater Treatment expense (paid to ALCOSAN) increased by \$4.1 million to \$76.8 million in 2021 from \$72.7 million in 2020. This is attributable to ALCOSAN'S rate increase.
- Overall, non-salary and benefit direct operating costs increased from 2020 to 2021, in most cases resulting from a return to normal work levels, compared to a minimization of non-essential work during certain periods of 2020. A breakdown by category is as follows:
  - Chemical expenses decreased 9.1% or \$0.4 million from 2020 to \$3.7 million in 2021, attributable to decreases in usage of some chemical types and decreased purchasing in 2021 due to supplies already in stock.
  - Equipment expenses increased 16.9% or \$0.1 million from 2020 to \$0.9 million in 2021, attributable to greater computer, furniture, machinery, lab equipment, and vehicle related purchases under capitalization thresholds than in the prior year.
  - Material expenses increased 8.4% or \$0.04 million from 2020 to \$0.5 million in 2021.
  - Operating Contract expenses increased by 5.6% or \$1.0 million from 2020 to \$18.5 million in 2021, attributable to overall increased work compared to 2020, and increased sewer repairs and inspections.
  - Repair and Maintenance expenses increased by 25.1% or \$2.4 million from 2020 to \$11.9 million in 2021, attributable to increased surface restoration, software support, and overall maintenance at the Water Treatment Plant.
  - Miscellaneous Direct Operating expenses increased by 66.1% or \$0.3 million from 2020 to \$0.6 million in 2021, attributable to increased testing.
  - Inventory expense increased by 50.3% or \$0.7 million from 2020 to \$2.2 million in 2021, a function of overall increased activity compared to 2020, when for periods of time non-essential work was minimized due to the pandemic.
  - Administrative Fee expenses increased by 122.3% or \$2.0 million from 2020 to \$3.6 million in 2021, mainly attributable to permit fees, which are now being paid to the City of Pittsburgh as a result of the new Cooperation Agreement.
  - Freight and Postage expenses decreased by 10.9% or \$0.06 million from 2020 to \$0.46 million in 2021.
  - Lease and Rent expenses decreased by 13.6%, or \$0.2 million to \$1.1 million in 2021, attributable to a decrease in equipment rental compared to 2020, as well as a decrease in office rent, due to a lease operating expense true-up payment that occurred in 2020.



- Professional Service expenses increased by 9.9% or \$1.5 million from 2020 to \$16.9 million in 2021, attributable to increased spending for legal services, lien filing fees, miscellaneous engineering services, and various other miscellaneous professional services.
  - Supply expenses increased by 6.7% or \$0.07 million from 2020 to \$1.1 million in 2021, mainly attributable to the increased fuel, and lab supply purchasing.
  - Travel and Training expenses increased by 71.3% or \$0.05 million from 2020 to \$0.13 million in 2021, attributable to increased employee training.
  - Utility expenses increased by 15.2% or \$0.7 million from 2020 to \$5.5 million in 2021, mostly driven by increased electricity costs.
  - Miscellaneous Administrative expenses decreased by 156.7% or \$3.0 million from 2020 to \$(1.1) million in 2021, mainly attributable to a credit to bad debt expense. Various aged Accounts Receivable balances were adjusted in 2021, resulting in a lower reserve for uncollectible accounts.
- Reimbursements for City of Pittsburgh services decreased 11.0% or \$0.5 million from \$4.3 million in 2020 to \$3.8 million in 2021, the decrease attributable to transactional calculations stabilizing after catchup costs incurred in 2020. The expense of water provided by other entities, mainly comprised of subsidy payments to Pennsylvania American Water Company (PAWC) prior to 2020, decreased by 68.9% or \$0.3 million to \$0.1 million in 2021 compared to \$.4 million in 2020, a result of the Authority no longer covering public fire hydrant charges for the City.

Interest expense increased 5.3% or \$1.9 million to \$39.4 million in 2021 compared to \$37.5 million in 2020. This change is attributable to increased bond interest, ultimately a result of increased borrowing to fund increased capital improvements.

In 2021, the Authority expended \$3.1 million replacing private lead lines.

In 2021, cash collections increased by \$24.7 million, with \$258.1 million collected from billings compared to \$233.4 million in 2020, due to PWSA and ALCOSAN rate increases, in conjunction with improved collection activity as pandemic recovery continues.

Other 2021 highlights include:

- Accounts Receivable for Billed Wastewater Treatment increased by \$1.2 million from \$3.7 million in 2020 to \$4.9 million in 2021. Contributing factors to this change include ALCOSAN's rate increase, and an overall Accounts Receivable growth due to moratoriums in place during the pandemic. The Authority did start to see pandemic recovery during 2021, which is expected to continue in 2022.
- Total debt service coverage was 1.44 in 2021 and 1.23 in 2020. These coverage factors exceed the required coverages ratios required under the bond indenture.
- The Authority expended \$130.7 million on capital projects and purchases in 2021, an increase of \$3.4 million, or approximately 2.7% over the \$127.3 million expended in 2020. \$9.0 million of the capital expenditures spent in 2021 were funded by operating funds, \$75.8 million by the revolving line of credit, and \$38.8 million were funded by PENNVEST as part of the 2020 Small Diameter Water Main Replacement award and the 2020 Small Diameter Sewer Rehabilitation award. The \$38.8 million funded by PENNVEST was in the form of a low interest loan. It is anticipated that the Authority will spend the remaining amount of the PENNVEST funding award in 2022.
- The Authority utilizes a drawdown, revolving line of credit provided by PNC Bank, National Association to finance capital projects. The facility expires in June 2023 and the maximum

amount that can be drawn and outstanding at any one time is \$150.0 million. As of December 31, 2021, the Authority has drawn \$95.8 million on this facility.

- In May 2021, the Authority closed on a funding award from PENNVEST for the purpose of financing the 2020 Small Diameter Sewer Rehabilitation Project. The funding offered to the Authority consists of a \$5.3 million loan with an interest rate of 1.443% in years 1-5 and 2.029% in years 6-20. The award will fund 7.4 miles of sewer rehabilitation work.
- The City of Pittsburgh is the largest of the 83 municipalities that convey sanitary and combined sewage to ALCOSAN for treatment. On January 29, 2004, the Pittsburgh Water and Sewer Authority and the City of Pittsburgh executed a Consent Order and Agreement (Order) regarding sanitary and combined sewer overflows within the City of Pittsburgh. The other signatories to the Order are the Pennsylvania Department of Environmental Protection (DEP) and the Allegheny County Health Department, which executed the Order on April 21, 2004. The Wet Weather Feasibility Study required by the Order was submitted on July 31, 2013. On January 21, 2016, the U.S. Environmental Protection Agency (EPA) issued a Clean Water Act Section 308 Information Request (308 Request) to the Authority. The Authority responded to the first portion of the 308 Request, the assessment and modeling of the sewer system, by the due date of March 31, 2016. The Authority responded to the second phase of the 308 Request by submitting a source reduction study to EPA on December 1, 2016, and by submitting project performance evaluations for certain green infrastructure (GI) demonstration projects on December 1, 2017. The Authority continues to implement neighborhood GI-based based stormwater abatement projects to mitigate Combined Sewer Overflows. The 308 Request does not contain fines or penalties for past non-compliance but does require the Authority to submit information on an ongoing, rolling basis.

The Authority has begun negotiations with EPA, the U.S. Department of Justice (DOJ), and DEP over the terms of a consent decree that will address the control of sanitary and combined sewer overflows within the City of Pittsburgh. Such a decree will likely set out an enforceable framework for bringing the Authority's sanitary and combined sewer systems into compliance with applicable requirements of the federal Clean Water Act and Pennsylvania Clean Streams Law. See Note 14 – Consent Agreement for additional details.

### **Financial Highlights 2020 and 2019**

In 2020, operating income decreased by 22.8% or \$14.9 million to \$50.8 million. The Authority realized an overall net loss of \$0.3 million, a result of decreases in operating revenues driven by lower consumption due to the pandemic. These decreases in revenue were offset by decreases in non-operating expenses. Management worked to minimize operating expenses compared to budgeted expenses during 2020, knowing that consumption was down. There were also periods during 2020 where all non-essential work was on hold, which contributed to direct operating expenses only increasing by 2.9% from 2019.

Below are the 2020 financial highlights:

Total operating revenues in 2020 were down \$7.0 million or 2.8% to \$242.0 million when compared to 2019. Wastewater treatment revenues increased by \$0.9 million, attributable to ALCOSAN's rate increase being offset by decreased consumption. Water and sewer conveyance revenues decreased \$9.0 million from 2019, a result of decreased consumption. There was no rate increase in 2020 for water or sewer conveyance. Other operating income increased by \$1.0 million from 2019, attributable to the sum of various miscellaneous payments.

Total net non-operating revenues (expenses) changed by \$5.4 million from 2019 to a net expense of \$32.3 million in 2020 compared to a net expense of \$37.7 million in 2019. This decrease in expenses is attributable to lower interest and amortization, \$2.1 million in bond issuance costs in 2020 compared to \$2.4 million in bond issuance

cost in 2019, and no investment loss in 2020 compared to an investment loss of \$4.2 million in 2019 from the change in swap fair market value.

Total operating expenses increased in 2020 to \$191.2 million compared to \$183.2 million in 2019. Significant operating expenses included the following factors:

- Salary and employee benefit expenses were up \$3.3 million or 11.5%. The increase is attributed to an average salary rate increase of 3% and increased employee headcount in 2020.

The majority of Authority employees are represented by one of three labor unions. The Pittsburgh Joint Collective Bargaining Committee (PJCBC) represents blue-collar employees. The American Federation of State, County and Municipal Employees (AFSCME) represents Local 2719 employees and Local 2037. A four-year agreement with AFSCME 2719 became effective January 1, 2017 and was set to expire December 31, 2020. A one-year extension of the existing agreement with AFSCME shall remain in full force and effect until December 31, 2021. AFSCME 2037 is in negotiations with the Authority and is operating under their old contract. A four-year agreement with the PJCBC became effective January 1, 2017 and was set to expire December 31, 2020. PJCBC is in negotiations with the Authority and is operating under their old contract.

- Sewage Treatment expense (paid to ALCOSAN) increased by \$0.3 million to \$72.7 million in 2020 from \$72.4 million in 2019. This is attributable to ALCOSAN'S rate increase offset by decreased consumption.

- Most non-salary and benefit direct operating cost categories decreased from 2019 to 2020, in most cases as a result of management working to minimize non-essential work during certain periods of 2020. A breakdown by category is as follows:

- Chemical expenses decreased 9.3% or \$0.4 million from 2019 to \$4.1 million in 2020, attributable to decreases in usage of some chemical types and decreased purchasing in 2020 due to supplies already in stock.
- Equipment expenses decreased 51.3% or \$0.8 million from 2019 to \$0.8 million in 2020, attributable to fewer computer, furniture, and lab equipment purchases under capitalization thresholds than in the prior year.
- Material expenses decreased 13.5% or \$0.07 million from 2019 to \$0.4 million in 2020.
- Operating Contract expenses increased by 48.6% or \$5.7 million from 2019 to \$17.5 million in 2020, attributable to increased sewer repairs, inspection, manhole and point repairs, CSO flow monitoring, line locating, and security.
- Repair and Maintenance expenses decreased by 2.5% or \$0.2 million from 2019 to \$9.5 million in 2020.
- Miscellaneous Direct Operating expenses decreased by 63.3% or \$0.7 million from 2019 to \$0.4 million in 2020, attributable to less required testing, as a result of meeting lead service line replacement criteria.
- Inventory expense decreased by 29.3% or \$0.6 million from 2019 to \$1.4 million in 2020, a function of overall decreased activity resulting from the pandemic.
- Administrative Fee expenses increased by 69.8% or \$0.7 million from 2019 to \$1.6 million in 2020, mainly attributable to permit fees, which are now being paid to the City of Pittsburgh as a result of the new Cooperation Agreement.
- Freight and Postage expenses decreased by 23.1% or \$0.2 million from 2019 to \$0.5 million in 2020, attributable to a lower number of certified mailings than the prior year.
- Lease and Rent expenses decreased by 0.3%, staying consistent with 2019 costs.
- Professional Service expenses decreased by 12.7% or \$2.2 million from 2019 to \$15.4 million in 2020, attributable mainly to decreased non-capital engineering spending.
- Supply expenses increased by 82.6% or \$0.5 million from 2019 to \$1.0 million in 2020, mainly attributable to the increased fuel, ground, and maintenance supply purchasing.

- Travel and Training expenses decreased by 62.6% or \$0.1 million from 2019 to \$0.1 million in 2020, attributable to decreased travel due to the pandemic.
  - Utility expenses decreased by 2.9% or \$0.1 million from 2019 to \$4.8 million in 2020.
  - Miscellaneous Administrative expenses decreased by 55% or \$2.3 million from 2019 to \$1.9 million in 2020, mainly attributable to a decrease in bad debt expense from the prior year. Various aged Accounts Receivable balances were adjusted in 2020, resulting in a lower reserve for uncollectible accounts. The decrease in bad debt expense was partially offset by an increase in legal claims.
- Reimbursements for City of Pittsburgh services increased 115.5% or \$2.3 million from \$2.0 million in 2019 to \$4.3 million in 2020, the increase attributable to catch-up credits related to the City receiving State Pension Aid for all enrolled Authority employees which occurred in 2019, as well as permit and street sweeping reimbursements to the City paid in 2020. The expense of water provided to other entities, mainly comprised of subsidy payments to Pennsylvania American Water Company (PAWC) prior to 2020, decreased by 71.2% or \$0.9 million to \$0.4 million in 2020 compared to \$1.3 million in 2019, a result of the Authority no longer subsidizing PAWC customers.

Interest expense decreased 3.3% or \$1.2 million to \$37.5 million in 2020 compared to \$38.7 million in 2019. This change is attributable to lower cost of capital as a result of financing activities.

In 2020, the Authority expended \$18.8 million replacing private lead lines.

In 2020, cash collections decreased by \$11.3 million, with \$233.4 million collected from billings compared to \$244.7 million in 2019 due to decreased consumption as a result of the pandemic.

Other 2020 highlights include:

- Accounts Receivable for Billed Wastewater Treatment increased by \$1.5 million from \$2.1 million in 2019 to \$3.6 million in 2020. Contributing factors to this change include ALCOSAN's rate increase, and an overall Accounts Receivable growth due to moratoriums in place during the pandemic.
- Total debt service coverage was 1.23 in 2020 and 1.58 in 2019. These coverage factors exceed the 1.00 coverage ratio required under the bond indenture.
- The Authority expended \$127.3 million on capital projects in 2020, an increase of \$19.4 million, or approximately 18.0% over the \$107.9 million expended in 2019. \$9.2 million of the capital expenditures spent in 2020 were funded by PAYGO, \$72.1 million by the revolving line of credit, and \$45.9 million were funded by PENNVEST as part of the 2019 Lead Service Line Replacement funding award and the 2020 Small Diameter Water Main Replacement award. Of the \$45.9 million funded by PENNVEST, \$39.1 million was a loan, and \$6.8 million was a grant. It is anticipated that the Authority will spend the remaining amount of the PENNVEST funding award in 2021.
- In June 2020, the Authority replaced its drawdown, revolving line of credit with JPMorgan Chase Bank N.A. with a new drawdown, revolving line of credit provided by PNC Bank, National Association. It has a term of three years and the maximum amount that can be drawn and outstanding at any one time is \$150.0 million. The Authority utilizes funds borrowed under this vehicle to finance capital projects. As of December 31, 2020, the Authority has drawn \$26.7 million on this facility.
- In May 2020, the Authority closed on a funding award from PENNVEST for the purpose of financing the 2020 Small Diameter Water Main Replacement Program. The funding offered to the Authority consists of a \$65.2 million loan with an interest rate of 1.00%. The award will fund

the replacement of approximately 80,000 feet of water mains and associated connections, including the replacement of public and private lead service lines.

- In December 2020, the Authority remarketed the \$218,805,000 2017C First Lien Water and Sewer Revenue Bonds (“2017C Remarketing”) that were in a LIBOR Index Rate. In addition, the Authority issued \$890,000 (fixed-rate) Federally Taxable Series A First Lien Water and Sewer Revenue Bonds (“2020A Bonds”) and \$91,520,000 (fixed-rate) Series B First Lien Water and Sewer Revenue Bonds (“2020B Bonds”).

The 2017C Remarketing was sold with a SIFMA Index Rate prior to the mandatory tender on December 1, 2023 at SIFMA plus 65 basis points. The 2017C Remarketing can be called at par at June 1, 2023. In addition, the Authority entered into a basis swap with Merrill Lynch Capital Services, Inc. where the Authority receives SIFMA and pays 70% of 1-month LIBOR to manage variable rate interest payments associated with the 2017C Remarketing. The proceeds from the 2020A Bonds were used to pay for issuance costs related to the 2017C Remarketing. The proceeds from the 2020B Bonds were used to pay down the drawdown, revolving line of credit used to finance capital projects.

- The City of Pittsburgh is the largest of the 83 municipalities that convey sanitary and combined sewage to ALCOSAN for treatment. On January 29, 2004, the Authority and the City of Pittsburgh executed a Consent Order and Agreement (Order) regarding sanitary and combined sewer overflows within the City of Pittsburgh. The other signatories to the Order are the Pennsylvania Department of Environmental Protection (DEP) and the Allegheny County Health Department, which executed the Order on April 21, 2004. The Wet Weather Feasibility Study required by the Order was submitted on July 31, 2013. On January 21, 2016, the U.S. Environmental Protection Agency (EPA) issued a Clean Water Act Section 308 Information Request (308 Request) to the Authority. The Authority responded to the first portion of the 308 Request, the assessment and modeling of the sewer system, by the due date of March 31, 2016. The Authority responded to the second phase of the 308 Request by submitting a source reduction study to EPA on December 1, 2016, and by submitting project performance evaluations for certain green infrastructure (GI) demonstration projects on December 1, 2017. The Authority continues to implement neighborhood GI-based stormwater abatement projects to mitigate Combined Sewer Overflows. The 308 Request does not contain fines or penalties for past non-compliance but does require the Authority to submit information on an ongoing, rolling basis.

The Authority has begun negotiations with EPA, the U.S. Department of Justice (DOJ), and DEP over the terms of a consent decree that will address the control of sanitary and combined sewer overflows within the City of Pittsburgh. Such a decree will likely set out an enforceable framework for bringing the Authority’s sanitary and combined sewer systems into compliance with applicable requirements of the federal Clean Water Act and Pennsylvania Clean Streams Law. See Note 14 – Consent Agreement for additional details.

**CONDENSED FINANCIAL STATEMENTS**

**CONDENSED STATEMENTS OF NET POSITION**

(Dollars expressed in thousands)

|                                       | December 31,     |                  | Variance         |                 |
|---------------------------------------|------------------|------------------|------------------|-----------------|
|                                       | 2021             | 2020             | Dollars          | %               |
| Capital assets:                       |                  |                  |                  |                 |
| Producing assets                      | \$ 857,243       | \$ 766,600       | \$ 90,643        | 11.82%          |
| Construction in progress              | 158,128          | 155,050          | 3,078            | 1.99%           |
| Restricted assets                     | 25,884           | 25,906           | (22)             | -0.08%          |
| Current assets                        | 106,765          | 88,434           | 18,331           | 20.73%          |
| <b>Total Assets</b>                   | <b>1,148,020</b> | <b>1,035,990</b> | <b>112,030</b>   | <b>10.81%</b>   |
| <b>Deferred Outflows of Resources</b> | 106,109          | 125,690          | (19,581)         | -15.58%         |
| Liabilities:                          |                  |                  |                  |                 |
| Current liabilities                   | 94,447           | 87,507           | 6,940            | 7.93%           |
| Long-term liabilities                 | 1,134,154        | 1,072,899        | 61,255           | 5.71%           |
| <b>Total Liabilities</b>              | <b>1,228,601</b> | <b>1,160,406</b> | <b>68,195</b>    | <b>5.88%</b>    |
| <b>Deferred Inflows of Resources</b>  | -                | -                | -                | 0.00%           |
| Net Position:                         |                  |                  |                  |                 |
| Net investment in capital assets      | (5,776)          | (15,188)         | 9,412            | -61.97%         |
| Restricted                            | 19,466           | 19,461           | 5                | 0.03%           |
| Unrestricted                          | 11,838           | (2,999)          | 14,837           | -494.73%        |
| <b>Total Net Position</b>             | <b>\$ 25,528</b> | <b>\$ 1,274</b>  | <b>\$ 24,254</b> | <b>1903.77%</b> |

**CONDENSED STATEMENTS OF REVENUES, EXPENSES, AND CHANGES IN NET POSITION**

(Dollars expressed in thousands)

|  | Year Ended December 31, |                 | Variance            |                  |
|--|-------------------------|-----------------|---------------------|------------------|
|  | 2021                    | 2020            | Dollars             | %                |
|  |                         |                 | Increase (Decrease) |                  |
| Operating revenues                             | \$ 269,121              | \$ 241,997      | \$ 27,124           | 11.21%           |
| Operating expenses:                            |                         |                 |                     |                  |
| Direct operating                               | 99,160                  | 92,134          | 7,026               | 7.63%            |
| Wastewater treatment                           | 76,802                  | 72,698          | 4,104               | 5.65%            |
| Reimbursement for City of Pittsburgh services  | 3,818                   | 4,289           | (471)               | -10.98%          |
| Expense of water provided by other entities    | 120                     | 386             | (266)               | -68.91%          |
| Depreciation                                   | 24,386                  | 21,659          | 2,727               | 12.59%           |
| <b>Total Operating Expenses</b>                | <b>204,286</b>          | <b>191,166</b>  | <b>13,120</b>       | <b>6.86%</b>     |
| Operating income                               | 64,835                  | 50,831          | 14,004              | 27.55%           |
| Non-operating revenues (expenses):             |                         |                 |                     |                  |
| Federal and private grants                     | 1,347                   | 7,001           | (5,654)             | 80.76%           |
| Interest revenue                               | 24                      | 201             | (177)               | -88.06%          |
| Interest expense and other                     | (39,431)                | (39,538)        | 107                 | -0.27%           |
| <b>Total Non-operating Revenues (Expenses)</b> | <b>(38,060)</b>         | <b>(32,336)</b> | <b>(5,724)</b>      | <b>17.70%</b>    |
| Special item: private lead line replacement    | (3,088)                 | (18,832)        | 15,744              | -83.60%          |
| Donated property                               | 567                     | 76              | 491                 | 646.05%          |
| <b>Net Income/(Loss)</b>                       | <b>\$ 24,254</b>        | <b>\$ (261)</b> | <b>\$ 24,515</b>    | <b>-9392.72%</b> |

**Financial Condition 2021 and 2020**

The Authority's financial condition in 2021 remained stable for a nineteenth consecutive year. Utility revenues increased to \$181.9 million from \$162.7 million. Total cash and cash equivalents stood at \$76.4 million at year-end 2021. Investment interest rates remain near historic lows, impacting the return on reserves invested.

**CONDENSED FINANCIAL STATEMENTS**

**CONDENSED STATEMENTS OF NET POSITION**

(Dollars expressed in thousands)

|   | December 31,     |                  | Variance        |                |
|---|------------------|------------------|-----------------|----------------|
|   | 2020             | 2019             | Dollars         | %              |
| Capital assets:                         |                  |                  |                 |                |
| Producing assets                        | \$ 766,600       | \$ 695,291       | \$ 71,309       | 10.26%         |
| Construction in progress                | 155,050          | 135,287          | 19,763          | 14.61%         |
| Hedging derivative - interest rate swap | -                | -                | -               | 0.00%          |
| Restricted assets                       | 25,906           | 25,964           | (58)            | -0.22%         |
| Current assets                          | 88,434           | 91,392           | (2,958)         | -3.24%         |
| <b>Total Assets</b>                     | <b>1,035,990</b> | <b>947,934</b>   | <b>88,056</b>   | <b>9.29%</b>   |
| <b>Deferred Outflows of Resources</b>   | <b>125,690</b>   | <b>112,363</b>   | <b>13,327</b>   | <b>11.86%</b>  |
| Liabilities:                            |                  |                  |                 |                |
| Current liabilities                     | 87,507           | 79,366           | 8,141           | 10.26%         |
| Long-term liabilities                   | 1,072,899        | 979,396          | 93,503          | 9.55%          |
| <b>Total Liabilities</b>                | <b>1,160,406</b> | <b>1,058,762</b> | <b>101,644</b>  | <b>9.60%</b>   |
| <b>Deferred Inflows of Resources</b>    | <b>-</b>         | <b>-</b>         | <b>-</b>        | <b>0.00%</b>   |
| Net Position:                           |                  |                  |                 |                |
| Net investment in capital assets        | (15,188)         | (26,979) *       | 11,791          | -43.70%        |
| Restricted                              | 19,461           | 19,320           | 141             | 0.73%          |
| Unrestricted                            | (2,999)          | 9,194 *          | (12,193)        | -132.62%       |
| <b>Total Net Position</b>               | <b>\$ 1,274</b>  | <b>\$ 1,535</b>  | <b>\$ (261)</b> | <b>-17.00%</b> |

\* - reclassified from prior year audit



**CONDENSED STATEMENTS OF REVENUES, EXPENSES, AND CHANGES IN NET POSITION**

(Dollars expressed in thousands)

|  | Year Ended December 31, |                 | Variance          |                 |
|--|-------------------------|-----------------|-------------------|-----------------|
|  | 2020                    | 2019            | Dollars           | %               |
| Operating revenues                             | \$ 241,997              | \$ 249,049      | \$ (7,052)        | -2.83%          |
| Operating expenses:                            |                         |                 |                   |                 |
| Direct operating                               | 92,134                  | 89,512          | 2,622             | 2.93%           |
| Wastewater treatment                           | 72,698                  | 72,389          | 309               | 0.43%           |
| Reimbursement for City of Pittsburgh services  | 4,289                   | 1,991           | 2,298             | 115.42%         |
| Expense of water provided by other entities    | 386                     | 1,338           | (952)             | -71.15%         |
| Depreciation                                   | 21,659                  | 18,011          | 3,648             | 20.25%          |
| <b>Total Operating Expenses</b>                | <b>191,166</b>          | <b>183,241</b>  | <b>7,925</b>      | <b>4.32%</b>    |
| Operating income                               | 50,831                  | 65,808          | (14,977)          | -22.76%         |
| Non-operating revenues (expenses):             |                         |                 |                   |                 |
| Federal and private grants                     | 7,001                   | 6,922           | 79                | -1.14%          |
| Interest revenue                               | 201                     | 719             | (518)             | -72.04%         |
| Interest expense and other                     | (39,538)                | (45,382)        | 5,844             | -12.88%         |
| <b>Total Non-operating Revenues (Expenses)</b> | <b>(32,336)</b>         | <b>(37,741)</b> | <b>5,405</b>      | <b>-14.32%</b>  |
| Special item: private lead line replacement    | (18,832)                | (22,283)        | 3,451             | -15.49%         |
| Donated property                               | 76                      | 110             | (34)              | -30.91%         |
| <b>Net Income/(Loss)</b>                       | <b>\$ (261)</b>         | <b>\$ 5,894</b> | <b>\$ (6,155)</b> | <b>-104.43%</b> |

**Financial Condition 2020 and 2019**

The Authority's financial condition in 2020 remained stable for an eighteenth consecutive year, even with water utility revenues decreasing to \$162.7 million from \$171.7 million. Total cash and cash equivalents stood at \$60.2 million at year-end 2020. Investment interest rates remain near historic lows, impacting the return on reserves invested.

**Requests for Information**

This financial report is designed to provide a general overview of the Authority's finances for all those with an interest in its finances. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to the Chief Executive Officer, Penn Liberty Plaza I, 1200 Penn Ave., Pittsburgh, PA 15222.

# PITTSBURGH WATER AND SEWER AUTHORITY

## STATEMENTS OF NET POSITION

*(Dollars expressed in thousands)*

DECEMBER 31, 2021 AND 2020

| <b>Assets</b>   | 2021             | 2020             |
|---|------------------|------------------|
| Current assets:   |                  |                  |
| Cash and cash equivalents                                 | \$ 76,422        | \$ 60,210        |
| Accounts receivable, net:                                 |                  |                  |
| Water:  |                  |                  |
| Billed  | 8,332            | 7,400            |
| Unbilled  | 8,576            | 7,955            |
| Total water   | 16,908           | 15,355           |
| Wastewater treatment:                                     |                  |                  |
| Billed  | 4,886            | 3,676            |
| Unbilled  | 4,219            | 3,457            |
| Total wastewater treatment                                | 9,105            | 7,133            |
| Other receivables   | 555              | 1,924            |
| Total accounts receivable, net                            | 26,568           | 24,412           |
| Prepaid expenses  | 1,747            | 1,737            |
| Inventory   | 2,028            | 2,075            |
| Total current assets                                      | 106,765          | 88,434           |
| Noncurrent assets:  |                  |                  |
| Restricted assets:  |                  |                  |
| Cash and cash equivalents                                 | 16,785           | 16,201           |
| Investments   | 9,099            | 9,705            |
| Total restricted assets                                   | 25,884           | 25,906           |
| Capital assets, not being depreciated                     | 158,128          | 155,050          |
| Capital assets, net of accumulated depreciation           | 857,243          | 766,600          |
| Total noncurrent assets                                   | 1,041,255        | 947,556          |
| <b>Total Assets</b>                                       | <b>1,148,020</b> | <b>1,035,990</b> |
| <b>Deferred Outflows of Resources</b>                     |                  |                  |
| Deferred charge on refunding                              | 84,644           | 91,827           |
| Accumulated decrease in fair value of hedging derivatives | 21,465           | 33,863           |
| <b>Total Deferred Outflows of Resources</b>               | <b>106,109</b>   | <b>125,690</b>   |

(Continued)

The notes to financial statements are an integral part of this statement.

# PITTSBURGH WATER AND SEWER AUTHORITY

## STATEMENTS OF NET POSITION

*(Dollars expressed in thousands)*

DECEMBER 31, 2021 AND 2020

(Continued)

|   | 2021             | 2020             |
|---|------------------|------------------|
| <b>Liabilities</b>                              |                  |                  |
| Current liabilities:                            |                  |                  |
| Bonds and loans payable                         | 34,442           | 28,376           |
| Accrued payroll and related obligations         | 911              | 1,093            |
| Accounts payable wastewater treatment           | 21,459           | 18,705           |
| Accounts payable and other accrued expenses     | 26,744           | 29,535           |
| Accrued interest payable from restricted assets | 10,891           | 9,798            |
| Total current liabilities                       | 94,447           | 87,507           |
| Noncurrent liabilities:                         |                  |                  |
| Unearned revenue                                | 121              | 121              |
| Accrued payroll and related obligations         | 739              | 1,065            |
| Swap liability                                  | 21,465           | 33,863           |
| Bonds and loans payable, net                    | 1,111,829        | 1,037,850        |
| Total noncurrent liabilities                    | 1,134,154        | 1,072,899        |
| <b>Total Liabilities</b>                        | <b>1,228,601</b> | <b>1,160,406</b> |
| <b>Net Position</b>                             |                  |                  |
| Net investment in capital assets                | (5,776)          | (15,188)         |
| Restricted                                      | 19,466           | 19,461           |
| Unrestricted                                    | 11,838           | (2,999)          |
| <b>Total Net Position</b>                       | <b>\$ 25,528</b> | <b>\$ 1,274</b>  |

(Concluded)

The notes to financial statements are an integral part of this statement.

# PITTSBURGH WATER AND SEWER AUTHORITY

## STATEMENTS OF REVENUES, EXPENSES, AND CHANGES IN NET POSITION

*(Dollars expressed in thousands)*

YEARS ENDED DECEMBER 31, 2021 AND 2020

|  | 2021       | 2020       |
|--|------------|------------|
| <b>Operating Revenues:</b>                                     |            |            |
| Residential, commercial, and industrial water sales            | \$ 181,870 | \$ 162,676 |
| Wastewater treatment   | 76,774     | 71,899     |
| Other  | 10,477     | 7,422      |
| Total operating revenues                                       | 269,121    | 241,997    |
| <b>Operating Expenses:</b>                                     |            |            |
| Direct operating expenses                                      | 99,160     | 92,134     |
| Wastewater treatment   | 76,802     | 72,698     |
| Reimbursement for City of Pittsburgh indirect services         | 3,818      | 4,289      |
| Expense of water provided by other entities                    | 120        | 386        |
| Depreciation   | 24,386     | 21,659     |
| Total operating expenses                                       | 204,286    | 191,166    |
| <b>Operating Income</b>  | 64,835     | 50,831     |
| <b>Non-operating Revenues (Expenses):</b>                      |            |            |
| Federal and private grants                                     | 1,347      | 7,001      |
| Interest revenue   | 24         | 201        |
| Interest and amortization                                      | (39,431)   | (37,463)   |
| Bond issuance costs  | -          | (2,075)    |
| Total non-operating revenues (expenses)                        | (38,060)   | (32,336)   |
| <b>Net Income before Capital Contribution and Special Item</b> | 26,775     | 18,495     |
| <b>Capital Contribution:</b>                                   |            |            |
| Donated property   | 567        | 76         |
| <b>Special Item:</b>   |            |            |
| Private lead line replacement                                  | (3,088)    | (18,832)   |
| <b>Net Income (Loss)</b>                                       | 24,254     | (261)      |
| <b>Net Position:</b>   |            |            |
| Beginning of year  | 1,274      | 1,535      |
| End of year  | \$ 25,528  | \$ 1,274   |

The notes to financial statements are an integral part of this statement.

# PITTSBURGH WATER AND SEWER AUTHORITY

## STATEMENTS OF CASH FLOWS

(Dollars expressed in thousands)

YEARS ENDED DECEMBER 31, 2021 AND 2020

|   | 2021       | 2020       |
|---|------------|------------|
| <b>Cash Flows From Operating Activities:</b>  |            |            |
| Cash received from customers  | \$ 268,071 | \$ 241,545 |
| Cash paid to suppliers and employees and customer refunds   | (104,037)  | (86,314)   |
| Cash paid to City of Pittsburgh for reimbursement of services                                     | (3,818)    | (4,289)    |
| Cash paid to other water companies for subsidy of customers located in the City of Pittsburgh     | (120)      | (386)      |
| Cash paid to ALCOSAN for wastewater treatment   | (74,048)   | (73,010)   |
| Net cash provided by (used in) operating activities   | 86,048     | 77,546     |
| <b>Cash Flows From Investing Activities:</b>  |            |            |
| Purchase of investment securities   | (48,813)   | (97,625)   |
| Proceeds from sale and maturities of investment securities  | 49,395     | 97,323     |
| Interest income   | 24         | 201        |
| Net cash provided by (used in) investing activities   | 606        | (101)      |
| <b>Cash Flows From Capital and Related Financing Activities:</b>                                  |            |            |
| Purchase/construction of property, plant, and equipment   | (117,540)  | (112,655)  |
| Grant proceeds  | 1,856      | 7,484      |
| Private lead line replacements  | (3,088)    | (18,832)   |
| Proceeds from issuance of bonds   | -          | 109,075    |
| Proceeds from revolving line of credit  | 69,127     | 133,665    |
| Proceeds from Pennvest Loans  | 44,695     | 32,973     |
| Payment made for bond issuance costs  | -          | (2,075)    |
| Principal payments on debt  | (27,879)   | (26,842)   |
| Principal payments on revolving line of credit  | -          | (169,500)  |
| Principal payments on capital lease   | (486)      | (469)      |
| SWAP receipts   | 155        | 1,134      |
| SWAP payments   | (6,907)    | (6,808)    |
| Interest paid on borrowings   | (29,791)   | (29,224)   |
| Net cash provided by (used in) capital and related financing activities                           | (69,858)   | (82,074)   |
| <b>Increase (Decrease) in Cash and Cash Equivalents</b>   | 16,796     | (4,629)    |
| <b>Cash and Cash Equivalents:</b>   |            |            |
| Beginning of year   | 76,411     | 81,040     |
| End of year   | \$ 93,207  | \$ 76,411  |
| Consists of:  |            |            |
| Restricted cash and cash equivalents  | \$ 16,785  | \$ 16,201  |
| Unrestricted cash and cash equivalents  | 76,422     | 60,210     |
|   | \$ 93,207  | \$ 76,411  |
| <b>Reconciliation of Operating Income to Net Cash Provided by (Used in) Operating Activities:</b> |            |            |
| Operating income  | \$ 64,835  | \$ 50,831  |
| Adjustments to reconcile operating income to net cash provided by (used in) operating activities: |            |            |
| Depreciation  | 24,386     | 21,659     |
| Reserve for uncollectible amounts   | (1,615)    | (35)       |
| Change in:  |            |            |
| Accounts receivable - water and wastewater  | (1,910)    | (495)      |
| Other accounts receivable   | 860        | 43         |
| Prepaid expenses  | (10)       | (1,030)    |
| Inventory   | 47         | (478)      |
| Accounts payable wastewater treatment   | 2,754      | (312)      |
| Accounts payable and other accrued expenses   | (2,791)    | 6,815      |
| Accrued payroll and related obligations   | (508)      | 548        |
| Unearned revenue  | -          | -          |
| Net cash provided by (used in) operating activities   | \$ 86,048  | \$ 77,546  |
| <b>Schedule of Non-Cash Capital and Related Financing Activities:</b>                             |            |            |
| Donated property  | \$ 567     | \$ 76      |

The notes to financial statements are an integral part of this statement.

# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

(DOLLARS EXPRESSED IN THOUSANDS UNLESS OTHERWISE INDICATED)

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### 1. Organization

The Pittsburgh Water and Sewer Authority (Authority) provides water to approximately 80,000 residential, commercial, and industrial customers located in the City of Pittsburgh (City), Pennsylvania, and collects wastewater throughout the City.

A Board of Directors (Board) recommended by a nominating committee, appointed by the Mayor of the City, and approved by City Council, governs the Authority.

The Authority is a body politic and corporate, organized and existing under the Pennsylvania Municipalities Authorities Act. The Authority was established by the City in 1984 to assume responsibility from the City for management, operation, maintenance, and improvement of virtually the entire City water supply, distribution, and wastewater collection systems (the "Water and Wastewater System" or "System"). The Authority's articles of incorporation were amended during 2020 to include stormwater systems and to extend the Authority's term of existence to 2070. The Authority is authorized to issue bonds and notes payable solely from the Authority's revenues.

Prior to April 1, 2018, the Authority had the right to establish user fees and charges without being subject to the approval of any department, board, or agency of Pennsylvania or the City. Effective April 1, 2018, the Public Utility Commission (PUC) began oversight of the Authority. PUC oversight requires compliance and conformity with their established regulations regarding administration, finances, operations, reporting, capital expenditures, and customer service for water and wastewater utilities. The PUC now approves all Authority rates and fees through tariff filings.

### 2. Summary of Significant Accounting Policies

#### Reporting Entity

These financial statements present the financial position, changes in net position, and cash flows of the Authority. The Authority is a component unit of the City in accordance with applicable guidance. The Authority's financial statements are not intended to present the financial position or results of operations of the City taken as a whole.

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# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

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### Basis of Accounting and Measurement Focus

The accompanying financial statements have been prepared using the economic resources measurement focus and the accrual basis of accounting in accordance with accounting principles generally accepted in the United States of America, as prescribed by the Governmental Accounting Standards Board (GASB). Revenues are recorded when earned and expenses are recorded when a liability is incurred, regardless of the timing of related cash flows.

The Authority functions as a Business-Type Activity, as defined by GASB.

### Classification of Net Position

The Authority's net position is classified into three components – net investment in capital assets; restricted; and unrestricted. These classifications are defined as follows:

- Net investment in capital assets – This component of net position consists of capital assets, net of accumulated depreciation, reduced by the outstanding balances of bonds, mortgages, notes, or other borrowings that are attributable to the acquisition, construction, or improvement of those assets. Deferred outflows of resources and deferred inflows of resources that are attributable to the acquisition, construction, or improvement of those assets or related debt are also included in this component of net position. If there are significant unspent related debt proceeds or deferred inflows of resources at the end of the reporting period, the portion of the debt or deferred inflows of resources attributable to the unspent amount is not included in the calculation of net investment in capital assets. Instead, that portion of the debt or deferred inflow of resources is included in the same net position component (restricted or unrestricted) as the unspent amount.
- Restricted – This component of net position consists of restricted assets reduced by liabilities and deferred inflows of resources related to those assets. Generally, a liability relates to restricted assets if the asset results from a resource flow that also results in the recognition of a liability or if the liability will be liquidated with the restricted assets reported.

# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

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- Unrestricted – This component of net position is the net amount of the assets, deferred outflows of resources, liabilities, and deferred inflows of resources that are not included in the determination of net investment in capital assets or the restricted components of net position.

When an expense is incurred that can be paid using either restricted or unrestricted resources, the Authority's policy is to first apply the expense towards restricted resources and then towards unrestricted resources.

### Deposits and Investments

The Authority's cash and cash equivalents are considered to be cash on hand, demand deposits, and all highly liquid investments, both restricted and unrestricted, with maturity of three months or less at date of purchase.

Investments are recorded at fair value. Accordingly, the change in fair value of investments is recognized as an increase or decrease to investment assets and investment income.

### Fair Value Measurements

The Authority categorizes its fair value measurements within the fair value hierarchy established by accounting principles generally accepted in the United States of America. The hierarchy is based on the valuation inputs used to measure the fair value of the asset. Level 1 inputs are quoted prices in active markets for identical assets; Level 2 inputs are significant other observable inputs; Level 3 inputs are significant unobservable inputs.

### Premiums and Discounts

Original issue bond premiums and discounts are amortized over the life of the related bonds using the straight-line method of amortization, which is materially comparable to the effective interest method. The unamortized balance of premiums and discounts is presented net on the statements of net position as a decrease or increase to bonds payable.

### Deferred Charge on Refunding

In accordance with applicable guidance, the excess of the reacquisition price over the net carrying amount of refunded debt is recorded as a deferred outflow of resources on the

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# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

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statements of net position and amortized as a component of interest expense over the shorter of the term of the refunding issue or refunded bonds.

### Capital Assets

Capital assets owned by the Authority are recorded at cost. Depreciation of capital assets owned by the Authority is provided on the straight-line method based on the estimated useful lives of the various classes of assets. Utility assets have estimated useful lives ranging from 30 to 70 years. Non-utility assets have estimated useful lives ranging from five to 10 years.

The Authority also receives donated property relating mostly to dedicated water and sewer lines. These assets are capitalized at acquisition value at the date of the donation and depreciated in accordance with the estimated useful lives noted above.

The water and sewer system represents assets leased from the City. Amortization of capital lease assets is provided on the straight-line basis applying an estimated average remaining useful life from the inception of the lease.

Maintenance and repairs are charged to expense as incurred.

### Deferred Outflows/Inflows of Resources

In addition to assets, the statement of financial position reports a separate section for deferred outflows of resources. This separate financial statement element, deferred outflows of resources, represents a consumption of net position that applies to a future period(s) and so will not be recognized as an outflow of resources (expense) until then.

In addition to liabilities, the statement of financial position will sometimes report a separate section for deferred inflows of resources. This separate financial statement element, deferred inflow of resources, represents an acquisition of net position that applies to a future period(s) and so will not be recognized as an inflow of resources (revenue) until that time. The Authority has no deferred inflows of resources at December 31, 2021 or 2020.

# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

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### Classification of Revenues

The Authority has classified its revenues as either operating or non-operating revenues according to the following criteria:

- Operating revenues – Operating revenues include activities that have the characteristics of exchange transactions, such as residential, commercial, and industrial water sales and wastewater treatment.
- Non-operating revenues – Non-operating revenues include activities that have the characteristics of non-exchange transactions, such as grants, interest income and other revenue sources.

### Compensated Absences

A liability for vacation, personal, and sick days is accrued when related benefits are attributable to services rendered and to the extent it is probable that the Authority will ultimately compensate employees.

### Inventory

Inventory is stated at cost, on a moving average price basis.

### Accounts Payable Wastewater Treatment

The Authority has adopted a methodology for recording estimated wastewater treatment accounts payable that assumes a uniform meter reading date for all customers in each cycle. The estimate is based on the portion of wastewater treatment invoices paid after year-end with usage estimated to have occurred during the previous fiscal year.

### Special Item

The Authority has recorded a special item for private line lead replacements. In accordance with GASB Statement No. 34, a special item is defined as an expenditure within control of management and either unusual or infrequent in occurrence. The Authority has determined that private lead line replacements qualify as a special item.

# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

(DOLLARS EXPRESSED IN THOUSANDS UNLESS OTHERWISE INDICATED)

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### Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets, deferred outflows of resources, liabilities, deferred inflows of resources, and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results may differ from those estimates.

### Adoption of Accounting Standards

The following GASB statements were adopted for the year ended December 31, 2021: Statement Nos. 89 (Accounting for Interest Cost) and 93 (Interbank Offered Rates). These statements had no significant impact on the Authority's financial statements for the year ended December 31, 2021.

### Pending Standards

GASB has issued statements that will become effective in future years, including Statement Nos. 87 (Leases), 91 (Conduit Debt Obligations), 92 (Omnibus 2020), 94 (Public-Private and Public-Public Partnerships), 96 (Information Technology Arrangements), and 97 (Deferred Compensation Plans). Management has not yet determined the impact of these statements on the financial statements.

## **3. Transactions with the City of Pittsburgh**

During July 1995, the City and the Authority entered into a Capital Lease Agreement and a Cooperation Agreement (collectively referred to as the "Agreements"). The Cooperation Agreement was subsequently renegotiated by the Authority's Board of Directors and the City Mayor's Office as described below.

### Cooperation Agreement

Under the terms of the original Cooperation Agreement, City Water Department employees became employees of the Authority. As a result, the Authority assumed various obligations from the City. The City and the Authority provided various services to each other in

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# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

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accordance with the Cooperation Agreement, and the Authority reimbursed the City for direct and indirect costs attributed by the City to the operation and maintenance of the System.

Under the original Cooperation Agreement, the Authority provided up to 600 million gallons of water annually for the City's use without charge. Also, the Authority assumed the City's obligation for the cost of subsidizing water service to residents of the City situated beyond the Authority's service area so that those water users pay charges that mirror the rates of the Authority.

On February 4, 2019, the Authority's Board issued a resolution that the existing Cooperation Agreement shall be terminated in accordance with the terms of the agreement, 90 days after the approval of the resolution. City and Authority officials have collaborated on a New Cooperation Agreement to further implement efficiencies and improvements, including: requiring the Authority to reimburse the City for pension costs for Authority employees covered by the City's pension plans, allowing the City to charge the Authority the usual rates that other utilities pay for permit fees, and charging the City for water, wastewater, and ALCOSAN usage, with a five-year phase-in starting in 2020 for water and wastewater charges only. The Board implemented the new Cooperation Agreement as of October 3, 2019. This agreement has been filed with the Pennsylvania Public Utility Commission (Commission) according to Title 66, § 507 of the Public Utility Code, and can be modified by order of the Commission. On July 23, 2020, Pennsylvania Act 70 (Act 70) was signed into law. Act 70 provides that the Cooperation Agreement shall have the force and effect of law until January 1, 2025, or an earlier termination date to which the City and the Authority mutually agree.

### System Leases

The Capital Lease Agreement stipulates minimum lease payments of approximately \$101 million, all of which were satisfied during the initial three years of the capital lease.

The Capital Lease Agreement has a term of thirty years and provides the Authority with the option to purchase the System for one dollar in 2025.

# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

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### Pension

Most Authority employees participate in the City's Municipal Pension Fund Plan (Plan). Employees who became members of the Plan prior to January 1, 1988 are required to contribute 5% of pre-tax pay. Those joining thereafter are required to contribute 4%. Participation in the Plan is closed to non-union employees hired after March 1, 2019. The Authority's 2021 and 2020 payroll covered by the Plan was approximately \$16,151 and \$19,478, respectively. Employee contributions for approximately 300 active employees for the years 2021 and 2020 amounted to \$759 and \$769, respectively.

The City is responsible for the funding of the retirement benefits for the Plan. The extent of the Authority's participation in funding the Plan with respect to those former City employees whose membership continued upon becoming employees of the Authority, as well as new members, is determined by the Cooperation Agreement.

For the years ended December 31, 2021 and 2020, the City and the Authority determined upon a payment of approximately \$4,639 and \$5,632, respectively, for the Authority's share of the City's pension costs, prior to adjustment for the Authority's portion of the state aid received by the City for pension costs. The Authority's payment was calculated based on a percentage of its covered payroll to the total covered payroll, which approximates 17.1% and 20.9% for 2021 and 2020, respectively.

Normal retirement benefits are available upon attainment of age sixty and completion of twenty service years. Early retirement benefits are available upon attainment of age fifty and completion of eight service years. Early retirement benefits may be deferred until age sixty or may be obtained upon retirement at a reduced level. A member who terminates employment after attaining age forty and completing eight service years can sustain eligibility for benefits by continuing contributions through age fifty.

Retirement benefits for employees who were members of the Plan are based upon a percentage of either three-year or four-year average pay, depending on date of hire, subject to certain specified minimum monthly benefit amounts. Special membership and benefit rules apply to those experiencing disability.

The "net pension liability" is an actuarial present value of credited projected benefits (a standardized measure for financial statement disclosure of the present value of pension benefits, adjusted for the effects of projected salary increases, estimated to be payable in

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# PITTSBURGH WATER AND SEWER AUTHORITY

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the future by the Plan as a result of members' service to date) less the pension plan's net position available for paying such benefits. The measure is intended to help users assess the Plan's funding status on a going concern basis, assess progress made in accumulating sufficient assets to pay benefits when due, and make comparisons among public employee retirement systems. The Plan has not reported or attributed measurements of assets or the net pension liability on the basis of the group of members who are Authority employees. The City's net pension liability at December 31, 2020 (the date of the most recent available information) is \$195,489. As of December 31, 2021, the Authority and the City have not determined the ultimate amount to be paid (the Authority's proportion of the City's net position liability) by the Authority pending completion of an actuarial study and therefore, has not been recorded on the statement of net position. The Authority is estimating their proportion of the net pension liability to be between \$20 and \$30 million.

Additional information about the Plan and required supplementary information showing the Plan's progress in accumulating sufficient assets to pay benefits when due is presented in the City's Annual Comprehensive Financial Report.

#### **4. Revenue and Accounts Receivable**

##### Water

Water sales revenue is recognized as earned during the period when water is supplied to customers. Customers are billed on a monthly billing cycle by the Authority based on actual or estimated meter readings. The Authority recognizes unbilled accounts receivable for water service provided prior to year-end that is billed during the following year.

Water accounts receivable are presented net of a reserve for uncollectible amounts. This reserve, based on an analytical review of outstanding accounts and historical collection data, is recognized coincident with recognition of revenue. At December 31, 2021 and 2020, the reserve for uncollectible water accounts was approximately \$20.03 million and \$21.09 million, respectively. The Authority has rights to utilize collection agencies, service terminations, liens, and real property sales to protect its interests, limit further losses, and motivate payments from delinquent customers.

# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

(DOLLARS EXPRESSED IN THOUSANDS UNLESS OTHERWISE INDICATED)

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### Wastewater Treatment

Although the Authority does not provide wastewater treatment, it assumed responsibility for certain wastewater treatment revenue and expenses beginning in 1996. Effective May 2004, the Authority began direct billing City residents for current and delinquent wastewater treatment charges and remitting to ALCOSAN the aggregate amount of service charges billed. Wastewater treatment activity and the related assets and liabilities appear on the statements of revenue, expenses and changes in net position and the statements of net position, respectively. The related estimated amount of unbilled accounts receivable at year-end has been recorded on the statement of net position. At December 31, 2021 and 2020, the reserve for uncollectible wastewater accounts was approximately \$10.78 million and \$11.33 million, respectively.

### Bad Debt Recovery/Expense

For the years ended December 31, 2021 and 2020, bad debt recoveries of \$1,615 and \$35, respectively, are netted with direct operating expenses on the statement of revenues, expenses, and changes in net position. Bad debt recoveries primarily relate to resolution of large outstanding balances from other local government entities.

# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

(DOLLARS EXPRESSED IN THOUSANDS UNLESS OTHERWISE INDICATED)

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### 5. Capital Assets

Capital assets consisted of the following at December 31, 2021 and 2020:

|  | Balance at<br>January 1,<br>2021 | Additions         | Deletions/<br>Reclassification | Balance at<br>December 31,<br>2021 |
|--|----------------------------------|-------------------|--------------------------------|------------------------------------|
| Capital assets, not being depreciated:       |                                  |                   |                                |                                    |
| Construction in progress                     | \$ 155,050                       | \$ 118,107        | \$ (115,029)                   | \$ 158,128                         |
| Capital assets, being depreciated:           |                                  |                   |                                |                                    |
| Utility assets                               | 1,089,954                        | 114,784           | (4,202)                        | 1,200,536                          |
| Non-utility assets                           | 11,978                           | 245               | (1,164)                        | 11,059                             |
| Total capital assets, being depreciated      | 1,101,932                        | 115,029           | (5,366)                        | 1,211,595                          |
| Less accumulated depreciation                | (335,332)                        | (24,386)          | 5,366                          | (354,352)                          |
| Total capital assets, being depreciated, net | 766,600                          | 90,643            | -                              | 857,243                            |
| Total capital assets                         | <u>\$ 921,650</u>                | <u>\$ 208,750</u> | <u>\$ (115,029)</u>            | <u>\$ 1,015,371</u>                |
|  |                                  |                   |                                |                                    |
|  | Balance at<br>January 1,<br>2020 | Additions         | Deletions/<br>Reclassification | Balance at<br>December 31,<br>2020 |
| Capital assets, not being depreciated:       |                                  |                   |                                |                                    |
| Construction in progress                     | \$ 135,287                       | \$ 112,731        | \$ (92,968)                    | \$ 155,050                         |
| Capital assets, being depreciated:           |                                  |                   |                                |                                    |
| Utility assets                               | 998,895                          | 92,968            | (1,909)                        | 1,089,954                          |
| Non-utility assets                           | 12,181                           | -                 | (203)                          | 11,978                             |
| Total capital assets, being depreciated      | 1,011,076                        | 92,968            | (2,112)                        | 1,101,932                          |
| Less accumulated depreciation                | (315,785)                        | (21,659)          | 2,112                          | (335,332)                          |
| Total capital assets, being depreciated, net | 695,291                          | 71,309            | -                              | 766,600                            |
| Total capital assets                         | <u>\$ 830,578</u>                | <u>\$ 184,040</u> | <u>\$ (92,968)</u>             | <u>\$ 921,650</u>                  |

During 2021 and 2020, the Authority received donated utility assets of \$567 and \$76, respectively, related to various development projects.



# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

(DOLLARS EXPRESSED IN THOUSANDS UNLESS OTHERWISE INDICATED)

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### 6. Payroll and Related Obligations

Payroll and related obligations presented on the statements of net position are comprised of:

|                                     | Balance at<br>December 31,<br>2020 | Change          | Balance at<br>December 31,<br>2021 | Current<br>Portion |
|-------------------------------------|------------------------------------|-----------------|------------------------------------|--------------------|
| Compensated absences                | \$ 1,045                           | \$ (432)        | \$ 613                             | \$ 2               |
| Workers' compensation               | 168                                | (40)            | 128                                | -                  |
| Payroll, withholdings,<br>and taxes | 945                                | (36)            | 909                                | 909                |
|                                     | <u>\$ 2,158</u>                    | <u>\$ (508)</u> | <u>\$ 1,650</u>                    | <u>\$ 911</u>      |
|                                     | Balance at<br>December 31,<br>2019 | Change          | Balance at<br>December 31,<br>2020 | Current<br>Portion |
| Compensated absences                | \$ 579                             | \$ 466          | \$ 1,045                           | \$ 148             |
| Workers' compensation               | 123                                | 45              | 168                                | -                  |
| Payroll, withholdings,<br>and taxes | 908                                | 37              | 945                                | 945                |
|                                     | <u>\$ 1,610</u>                    | <u>\$ 548</u>   | <u>\$ 2,158</u>                    | <u>\$ 1,093</u>    |

### 7. Defined Contribution Plan

During 2019, the Authority established a 401(a) profit-sharing plan available to all full-time employees and part-time employees with over 1,000 hours of service who do not participate in the City's Plan. As part of its fiduciary role, the Authority has an obligation of due care in selecting the third-party administrator. The Authority does not control the assets of the 401(a) profit-sharing plan, and thus the plan is not considered a fiduciary fund of the Authority.

Benefit terms are established and amended by the Authority. Employee contributions are made after-tax and the Authority offers a single match rate up to 5%. Employees become vested after three years. For the years ended December 31, 2021 and 2020, the Authority

# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

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contributed \$170 and \$95, respectively, to the 401(a) profit-sharing plan. The 401(a) profit-sharing plan had 63 members at December 31, 2021 and 33 members at December 31, 2020.

### 8. Bonds and Loans Payable

#### Series 1998

In March 1998, the Authority issued \$36,440 Series B First Lien Revenue Bonds ("1998 Series B Bonds"), the proceeds of which are dedicated to a capital improvements program.

The 1998 Series B Bonds are capital appreciation bonds with an original issuance amount of \$36,440. During 2017, \$12,406 (par) of the 1998 Series B Bonds with an accreted value of \$34,625 were refunded with the Series 2017 A bonds. The remaining 1998 Series B Bonds have maturity values ranging from \$26,930 to \$14,660 from 2027 to 2030. The bonds were issued to yield rates from 5.18% to 5.3%. The 1998 Series B Bonds accrue and compound interest on a semi-annual basis and are carried at cost plus accrued interest. Total maturity value of the 1998 Series B Bonds is \$95,450.

#### Series 2013

During December 2013, the Authority issued \$130,215 Series A First Lien Revenue Refunding Bonds ("2013 Series A Bonds"), the proceeds of which were used to defease through current refunding the entire balance of the Series 2003, Series 2007 B-1, and Series 2007 B-2 Bonds and pay certain amounts in respect of termination of certain interest rate swap agreement related to the Series 2007 B-1 and B-2 bonds; and the \$86,695 Series B First Lien Revenue Bonds ("2013 Series B Bonds"), the proceeds of which were used to fund certain water and sewer system capital improvement projects.

The 2013 Bonds were issued at a bond premium of \$14,828, which is being amortized as an adjustment to interest expense over the life of the bonds.

During 2017, \$42,340 of Series 2013 B bonds outstanding were currently refunded with Series 2017 A bonds.

# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

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### Series 2017

During December 2017, the Authority issued \$165,390 First Lien Revenue Refunding Bonds composed of Series A (159,795) and Series B (taxable) (\$5,595). The proceeds of the bonds were used to fund the costs of the refunding of all or a portion of the Authority's outstanding Series of 1998B, 2008A, 2008D-1, and 2013B water and sewer system revenue bonds.

The 2017 A and B Bonds were issued at a bond premium of \$23,374, which is being amortized as an adjustment to interest expense over the life of the bonds. The 2017 B Bonds were paid off during 2018.

During December 2017, the Authority issued \$218,805 Series C First Lien Revenue Refunding Bonds, the proceeds of which were used to fund the costs of refunding the Authority's outstanding Series 2008 B-1, B-2, and D-2 water and sewer system revenue bonds. The Bonds bear interest at the LIBOR index rate. As noted below, the 2017 C Bonds were remarketed with the issuance of the 2020 A Bonds to convert the cash flows of the Authority's outstanding fixed payer swap portfolio from 70% 1-month LIBOR to the Weekly SIFMA Index (plus a third payment leg that includes a fixed rate component of the Authority paying 0.118%) between the Overlay Swap's effective date of December 1, 2020 and termination date of December 1, 2023. When LIBOR is no longer published, the interest rate will be replaced by the Federal Funds Rate if not renegotiated.

### Series 2019

During June 2019, the Authority issued \$109,855 Series A First Lien Revenue Bonds, the proceeds of which were used to refund interim debt incurred by the Authority to fund costs of capital projects; and \$104,290 Series B Subordinate Revenue Refunding Bonds, the proceeds of which were used to currently refund all of the Authority's outstanding Series of 2008 C-1 and C-2 bonds, including swap termination payments on interest rate swaps associated with the refunded bonds.

The 2019 A and B Bonds were issued at a bond premium of \$45,090, which is being amortized as an adjustment to interest expense over the life of the bonds.

# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

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### Series 2020

During December 2020, the Authority issued \$890 Series A First Lien Revenue Bonds (Federally Taxable), the proceeds of which were used to remarket the 2017 C Bonds; and \$91,520 Series B First Lien Revenue Bonds, the proceeds of which were used to refinance the capital revolving line of credit described below.

The 2020 B Bonds were issued at a bond premium of \$16,665, which is being amortized as an adjustment to interest expense over the life of the bonds.

### Deferred Charge on Refunding

In conjunction with the debt refundings described above, the Authority has recorded a deferred charge on refunding, which is shown as a deferred outflow of resources on the statements of net position. The deferred charge on refunding at December 31, 2021 and 2020 is as follows:

|                              | Balance at<br>December 31, 2020 | Additions | Amortization | Balance at<br>December 31, 2021 |
|------------------------------|---------------------------------|-----------|--------------|---------------------------------|
| Deferred charge on refunding | \$ 91,827                       | \$ -      | \$ 7,183     | \$ 84,644                       |

|                              | Balance at<br>December 31, 2019 | Additions | Amortization | Balance at<br>December 31, 2020 |
|------------------------------|---------------------------------|-----------|--------------|---------------------------------|
| Deferred charge on refunding | \$ 99,012                       | \$ -      | \$ 7,185     | \$ 91,827                       |

### Capital Revolving Line of Credit – Direct Borrowing

In July 2016, the Authority obtained an \$80,000 revolving line of credit to finance certain capital projects. In October 2018, the capital revolving line of credit was amended to increase the maximum amount that can be drawn and outstanding at any one time to \$150,000. The capital revolving line of credit is secured by the revenues of the Authority. The Authority had until July 1, 2020 to request revolving advances on the line of credit. The capital revolving line of credit contains a provision that in the event of a default, the outstanding amounts under this line of credit become immediately due; and the commitment amount be reduced to \$0; Each revolving advance bears interest at the LIBOR

# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

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Index Rate, which ranged from 0.45% to 2.85% for the year ended December 31, 2020. The balance was paid off during 2020 and the line of credit was closed.

In June 2020, the Authority obtained a \$150,000 revolving line of credit to finance certain capital projects. The capital revolving line of credit is secured by the receipts and revenues of the Authority's water and sewer system on a subordinate basis. The Authority has until June 23, 2023 to request revolving advances on the line of credit, at which time the Authority has the option to convert the unpaid principal balance to a term loan. The capital revolving line of credit contains a provision that in the event of default, the lender shall be under no further obligation to make loans to the Authority and the outstanding amount under this line of credit becomes immediately due. Each revolving advance bears interest per annum equal to the sum of 79% of the daily LIBOR rate plus the applicable margin (1.61% to 1.78%). The agreement includes a LIBOR replacement rider for determining an alternative rate of interest in the event LIBOR is no longer available. At December 31, 2021 and 2020, the interest rate was 2% and 2.005%, respectively. At December 31, 2021 and 2020, the Authority had \$95,792 and \$26,665, respectively, in outstanding revolving advances.

### State Loans – Direct Borrowing

The Authority has several loans outstanding from PENNVEST for various capital projects and water and sewer improvement projects, with carrying amounts of \$110,450 and \$69,379 at December 31, 2021 and 2020, respectively. Interest rates vary from 1.00% to 3.25%. The State Loans are secured by the project collateral related to each loan. In an event of default on the State Loans, the entire unpaid principal, plus accrued interest, plus all other amounts due and payable to PENNVEST shall at the option of PENNVEST become due and payable immediately upon request.

### Capital Lease

During 2015, the Authority entered into a lease agreement as lessee for financing the acquisition of a utility asset valued at \$7,445. The utility asset has a ten-year estimated useful life. Depreciation on the utility asset began in 2016, with accumulated depreciation totaling \$4,469 and \$3,724 for the years ended December 31, 2021 and 2020, respectively. This lease agreement qualifies as a capital lease for accounting purposes and, therefore, has been recorded at the value of future minimum lease payments as of the inception date. At

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December 31, 2021 and 2020, the outstanding balance of the capital lease was \$4,484 and \$4,970, respectively.

### Swap Borrowing – Direct Borrowing

During December 2017, the Authority terminated the original 2008 Series B-1, B-2, and D swaps and reissued and restructured the swaps to bear interest based upon 70% of one-month LIBOR. Upon the phase out of LIBOR, the interest rate will be replaced by the Federal Funds Rate if not renegotiated prior to the phase out. At termination, those derivative instruments had an aggregate fair value of (\$70,869), which is considered a swap borrowing from the counterparty. The swap borrowing is being amortized over the remaining life of the bonds. At December 31, 2021 and 2020, the unamortized balance is \$59,002 and \$61,955, respectively.

Bonds, state loans payable, revolving line of credit, capital lease, and swap borrowing consisted of the following at December 31, 2021 and 2020:

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|  | Balance at<br>December 31, 2020 | Additions         | Accretion       | Reductions         | Balance at<br>December 31, 2021 | Due Within<br>One Year |
|--|---------------------------------|-------------------|-----------------|--------------------|---------------------------------|------------------------|
| Bonds and loans payable:               |                                 |                   |                 |                    |                                 |                        |
| Revenue bonds:                         |                                 |                   |                 |                    |                                 |                        |
| 1998 Series B                          | \$ 63,078                       | \$ -              | \$ 3,376        | \$ -               | \$ 66,454                       | \$ -                   |
| 2013 Series A                          | 67,420                          | -                 | -               | (8,190)            | 59,230                          | 8,530                  |
| 2013 Series B                          | 38,760                          | -                 | -               | -                  | 38,760                          | -                      |
| 2017 Series A                          | 129,610                         | -                 | -               | (13,650)           | 115,960                         | 14,360                 |
| 2017 Series C                          | 218,805                         | -                 | -               | -                  | 218,805                         | -                      |
| 2019 Series A                          | 107,560                         | -                 | -               | (2,415)            | 105,145                         | 2,540                  |
| 2019 Series B                          | 104,290                         | -                 | -               | -                  | 104,290                         | -                      |
| 2020 Series A                          | 890                             | -                 | -               | -                  | 890                             | 890                    |
| 2020 Series B                          | 91,520                          | -                 | -               | -                  | 91,520                          | 795                    |
|  | <u>821,933</u>                  | <u>-</u>          | <u>3,376</u>    | <u>(24,255)</u>    | <u>801,054</u>                  | <u>27,115</u>          |
| Direct borrowings:                     |                                 |                   |                 |                    |                                 |                        |
| State loans (PENNVEST)                 | 69,379                          | 44,695            | -               | (3,624)            | 110,450                         | 6,825                  |
| Revolving lines of credit              | 26,665                          | 69,127            | -               | -                  | 95,792                          | -                      |
| Swap borrowing                         | 61,955                          | -                 | -               | (2,953)            | 59,002                          | -                      |
| Capital lease                          | 4,970                           | -                 | -               | (486)              | 4,484                           | 502                    |
|  | <u>984,902</u>                  | <u>113,822</u>    | <u>3,376</u>    | <u>(31,318)</u>    | <u>1,070,782</u>                | <u>34,442</u>          |
| Unamortized bond<br>(discount) premium | <u>81,324</u>                   | <u>12</u>         | <u>-</u>        | <u>(5,847)</u>     | <u>75,489</u>                   | <u>-</u>               |
| Total bonds and loans, net             | <u>\$ 1,066,226</u>             | <u>\$ 113,834</u> | <u>\$ 3,376</u> | <u>\$ (37,165)</u> | <u>\$ 1,146,271</u>             | <u>\$ 34,442</u>       |

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|  | Balance at<br>December 31, 2019 | Additions         | Accretion       | Reductions          | Balance at<br>December 31, 2020 | Due Within<br>One Year |
|--|---------------------------------|-------------------|-----------------|---------------------|---------------------------------|------------------------|
| Bonds and loans payable:               |                                 |                   |                 |                     |                                 |                        |
| Revenue bonds:                         |                                 |                   |                 |                     |                                 |                        |
| 1998 Series B                          | \$ 59,870                       | \$ -              | \$ 3,208        | \$ -                | \$ 63,078                       | \$ -                   |
| 2013 Series A                          | 75,430                          | -                 | -               | (8,010)             | 67,420                          | 8,190                  |
| 2013 Series B                          | 38,760                          | -                 | -               | -                   | 38,760                          | -                      |
| 2017 Series A                          | 142,605                         | -                 | -               | (12,995)            | 129,610                         | 13,650                 |
| 2017 Series C                          | 218,805                         | -                 | -               | -                   | 218,805                         | -                      |
| 2019 Series A                          | 109,855                         | -                 | -               | (2,295)             | 107,560                         | 2,415                  |
| 2019 Series B                          | 104,290                         | -                 | -               | -                   | 104,290                         | -                      |
| 2020 Series A                          | -                               | 890               | -               | -                   | 890                             | -                      |
| 2020 Series B                          | -                               | 91,520            | -               | -                   | 91,520                          | -                      |
|  | <u>749,615</u>                  | <u>92,410</u>     | <u>3,208</u>    | <u>(23,300)</u>     | <u>821,933</u>                  | <u>24,255</u>          |
| Direct borrowings:                     |                                 |                   |                 |                     |                                 |                        |
| State loans (PENNVEST)                 | 39,948                          | 32,973            | -               | (3,542)             | 69,379                          | 3,635                  |
| Revolving lines of credit              | 62,500                          | 133,665           | -               | (169,500)           | 26,665                          | -                      |
| Swap borrowing                         | 64,837                          | -                 | -               | (2,882)             | 61,955                          | -                      |
| Capital lease                          | 5,439                           | -                 | -               | (469)               | 4,970                           | 486                    |
|  | <u>922,339</u>                  | <u>259,048</u>    | <u>3,208</u>    | <u>(199,693)</u>    | <u>984,902</u>                  | <u>28,376</u>          |
| Unamortized bond<br>(discount) premium | <u>69,986</u>                   | <u>16,665</u>     | <u>-</u>        | <u>(5,327)</u>      | <u>81,324</u>                   | <u>-</u>               |
| Total bonds and loans, net             | <u>\$ 992,325</u>               | <u>\$ 275,713</u> | <u>\$ 3,208</u> | <u>\$ (205,020)</u> | <u>\$ 1,066,226</u>             | <u>\$ 28,376</u>       |



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Debt service payments on the Revenue Bonds at December 31, 2021 are as follows:

|           | Revenue Bonds     |                   |                     |
|-----------|-------------------|-------------------|---------------------|
|           | Principal         | Interest          | Total               |
| 2022      | \$ 27,115         | \$ 32,674         | \$ 59,789           |
| 2023      | 28,485            | 31,368            | 59,853              |
| 2024      | 29,150            | 29,979            | 59,129              |
| 2025      | 31,170            | 28,534            | 59,704              |
| 2026      | 33,890            | 27,088            | 60,978              |
| 2027-2031 | 105,305           | 197,923           | 303,228             |
| 2032-2036 | 217,070           | 86,708            | 303,778             |
| 2037-2041 | 219,585           | 37,479            | 257,064             |
| 2042-2046 | 42,085            | 8,704             | 50,789              |
| 2047-2050 | 19,890            | 2,028             | 21,918              |
|           | 753,745           | 482,485           | 1,236,230           |
| Accretion | 47,309            | (47,309)          | -                   |
| Total     | <u>\$ 801,054</u> | <u>\$ 435,176</u> | <u>\$ 1,236,230</u> |

Debt service payments of the State Loans at December 31, 2021 are as follows:

|           | State Loans       |                  |                   |
|-----------|-------------------|------------------|-------------------|
|           | Principal         | Interest         | Total             |
| 2022      | \$ 6,825          | \$ 1,271         | \$ 8,096          |
| 2023      | 6,716             | 1,182            | 7,898             |
| 2024      | 6,625             | 1,095            | 7,720             |
| 2025      | 6,286             | 1,010            | 7,296             |
| 2026      | 6,276             | 928              | 7,204             |
| 2027-2031 | 31,910            | 3,353            | 35,263            |
| 2032-2036 | 26,456            | 1,655            | 28,111            |
| 2037-2041 | 14,010            | 535              | 14,545            |
| 2042-2045 | 5,346             | 91               | 5,437             |
|           | <u>\$ 110,450</u> | <u>\$ 11,120</u> | <u>\$ 121,570</u> |

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Repayment of the revolving line of credit will begin once the Authority has drawn all available advances from the line, but no later than June 2023.

Minimum lease payments of the capital lease at December 31, 2021 are as follows:

|           | Capital Lease   |               | Total           |
|-----------|-----------------|---------------|-----------------|
|           | Principal       | Interest      |                 |
| 2022      | \$ 502          | \$ 145        | \$ 647          |
| 2023      | 519             | 127           | 646             |
| 2024      | 538             | 109           | 647             |
| 2025      | 556             | 91            | 647             |
| 2026      | 575             | 72            | 647             |
| 2027-2029 | 1,794           | 93            | 1,887           |
|           | <u>\$ 4,484</u> | <u>\$ 637</u> | <u>\$ 5,121</u> |

Amortization on the swap borrowing is as follows:

| Year Ending<br>December 31, | Principal        | Interest         |
|-----------------------------|------------------|------------------|
| 2022                        | \$ 3,027         | \$ 1,437         |
| 2023                        | 3,102            | 1,362            |
| 2024                        | 3,179            | 1,285            |
| 2025                        | 3,258            | 1,206            |
| 2026                        | 3,339            | 1,125            |
| 2037-2031                   | 17,977           | 4,342            |
| 2032-2036                   | 18,899           | 2,015            |
| 2037-2040                   | 6,221            | 246              |
|                             | <u>\$ 59,002</u> | <u>\$ 13,018</u> |

Interest payments were calculated for the Variable Rate Bonds using the synthetic fixed rate interest rates as described in Note 9.

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Interest and amortization expense for the years ended December 31 is as follows:

|  | <u>2021</u>      | <u>2020</u>      |
|--|------------------|------------------|
| Bond, loan and swap interest                                       | \$ 33,080        | \$ 30,933        |
| Accretion  | 3,376            | 3,208            |
| Amortization of deferred refunding loss,<br>discounts and premiums | 1,348            | 1,858            |
| Other  | <u>1,627</u>     | <u>1,464</u>     |
|  | <u>\$ 39,431</u> | <u>\$ 37,463</u> |

In accordance with the provisions of the trust indentures for the 1998, 2013, 2017, 2019, and 2020 Bonds, the Authority has created a number of funds that are restricted for specific purposes. The complement of these restricted funds, collectively referred to on the statements of net position as "Restricted Assets," at December 31, 2021 and 2020 was:

|                                | <u>2021</u>      | <u>2020</u>      |
|--------------------------------|------------------|------------------|
| Capital project funds          | \$ 1             | \$ 1             |
| Debt service and reserve funds | 6,417            | 6,444            |
| Operating reserve account      | 18,856           | 18,851           |
| Other funds                    | <u>610</u>       | <u>610</u>       |
|                                | <u>\$ 25,884</u> | <u>\$ 25,906</u> |

Among the Authority's debt covenants is one which requires that rates charged by the Authority will be sufficient to satisfy a formula which is intended to ensure that the Authority will be able to satisfy debt service requirements. If the Authority fails to comply with the rate covenant, the Authority shall request a Qualified Independent Consultant (QPI) to submit a written report and recommendations with respect to increases in the Authority's rates, fees and other charges and improvements in the operations and the services rendered and the Authority's accounting and billing procedures necessary to bring the Authority into compliance. Any failure to meet the rate covenant will not result in an event of default if within 180 days after the tested year end, the Authority files the report of the QPI and the Authority revises its rates, fees and charges and alter its operations and services to conform to the report of the QPI to the extent permitted by law.

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The trust indenture also requires that revenue collections be deposited into a Revenue Fund and disbursed therefrom as provided for in the trust indenture. This Revenue Fund constitutes the vast majority of unrestricted funds cash and cash equivalents. At December 31, 2021 and 2020, the Authority was in compliance with these covenants.

### 9. Interest Rate Swaps

Interest rate swaps disclosures (not in thousands) as of December 31, 2021 and 2020 are presented below.

Interest rate swaps at December 31, 2021:

| Current<br>Notional<br>Amount | Effective<br>Date | Maturity<br>Date | Interest<br>Rate<br>Paid | Interest<br>Rate<br>Received | Counterparty<br>Credit<br>Rating | Underlying<br>Bonds |
|-------------------------------|-------------------|------------------|--------------------------|------------------------------|----------------------------------|---------------------|
|-------------------------------|-------------------|------------------|--------------------------|------------------------------|----------------------------------|---------------------|

#### Hedging Derivatives, Cash Flow Hedges, Receive Variable - Pay Fixed, Interest Rate Swaps:

|               |            |          |        |               |    |                 |
|---------------|------------|----------|--------|---------------|----|-----------------|
| \$ 72,747,500 | 12/28/2017 | 9/1/2039 | 1.732% | 70% 1mo LIBOR | A- | Series 2017 C * |
| 72,747,500    | 12/28/2017 | 9/1/2039 | 1.732% | 70% 1mo LIBOR | A+ | Series 2017 C * |
| 71,225,000    | 12/28/2017 | 9/1/2040 | 1.735% | 70% 1mo LIBOR | A+ | Series 2017 C * |

#### Hedging Derivative, Cash Flow Hedge, Receive Variable - Pay Variable, Interest Rate Swap (Overlay Swap):

|             |           |           |               |       |    |               |
|-------------|-----------|-----------|---------------|-------|----|---------------|
|             |           |           | 70% 1mo LIBOR |       |    |               |
| 216,720,000 | 12/1/2020 | 12/1/2023 | & 0.118%      | SIFMA | A- | Series 2017 C |

\* - Represents a hybrid instrument comprised of an on-market swap and a borrowing. The information above reflects the on-market rate as of the date on which the swap was associated with the underlying bonds.

When LIBOR is no longer published, the interest rate will be replaced by the Federal Funds Rate if not renegotiated. One-week and two-month LIBOR ceased being published at the end of 2021, while overnight, 1-month, 3-month, 6-month, and 12-month maturities will continue to be published through June 2023.

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### Interest Rate Swap – Fair Value Information:

| Notional Amount   | 12/31/2019 Fair Value * | Change in Fair Value   | 12/31/2020 Fair Value * | Change in Fair Value | 12/31/2021 Fair Value * | Underlying Bonds |
|---|-------------------------|------------------------|-------------------------|----------------------|-------------------------|------------------|
| <b>Hedging Derivatives, Cash Flow Hedges, Receive Variable - Pay Fixed, Interest Rate Swaps:</b>                  |                         |                        |                         |                      |                         |                  |
| \$ 72,747,500   | \$ (4,375,365)          | \$ (6,552,580)         | \$ (10,927,945) **      | \$ 4,123,769         | \$ (6,804,176) **       | Series 2017 C    |
| 72,747,500  | (4,375,365)             | (6,552,580)            | (10,927,945) **         | 4,123,769            | (6,804,176) **          | Series 2017 C    |
| 71,225,000  | (4,600,631)             | (6,949,298)            | (11,549,929) **         | 4,242,030            | (7,307,899) **          | Series 2017 C    |
| <b>Hedging Derivatives, Cash Flow Hedges, Receive Variable - Pay Variable, Interest Rate Swap (Overlay Swap):</b> |                         |                        |                         |                      |                         |                  |
| 216,720,000   | -                       | (457,111)              | (457,111)               | (91,503)             | (548,614) **            | Series 2017 C    |
| <b>Total</b>  | <b>\$ (13,351,361)</b>  | <b>\$ (20,511,569)</b> | <b>\$ (33,862,930)</b>  | <b>\$ 12,398,065</b> | <b>\$ (21,464,865)</b>  |                  |

\* The fair value is an estimated net present value of the expected cash flows calculated using relevant mid-market data inputs and based on the assumption of no unusual market conditions or forced liquidation.

\*\* Reported as hedging derivative - interest rate swap and swap liability on the Statement of Net Position.

### Description of 2017 C Swaps

During fiscal year 2017, the Authority restructured three pay-fixed, receive-variable interest rate swap contracts. The original interest rate swaps were effective June 12, 2008. Beginning December 28, 2017, the Authority will make semi-annual interest payments on the 1<sup>st</sup> of each March and September through September 1, 2039 (two swaps); and, September 1, 2040 (for one swap), respectively. The Counterparties make monthly interest payments on the 1<sup>st</sup> of each calendar month, which begin February 2018 through September 1, 2039 for two of the swaps; and, September 1, 2040 for one swap.

The intention of the 2017 swaps restructuring is to effectively change the Authority's variable interest rate on the \$216,720,000, Water and Sewer System First Lien Revenue Refunding Bonds Series C of 2017 with notional amounts of \$71,225,000, \$72,747,500, and \$72,747,500 to fixed rates of 3.8255%, 3.770%, and 3.7835%, respectively.

The bonds will accrue interest at a weekly rate that is determined by a remarketing agent on each effective rate date. The interest rate on the bonds may not exceed 12%. Per the interest rate swap agreements, the Authority will receive 70% of one-month LIBOR.

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The interest payments on the interest rate swaps are calculated based on notional amounts, all of which reduce beginning on September 2032, so that the notional amounts approximate the principal outstanding on the respective bonds. The interest rate swaps expire consistent with the final maturity of the respective bonds.

On November 12, 2020, the Authority entered into a new swap transaction (the "Overlay Swap") associated with the 2017 Series C variable rate bonds (the "Bonds" or the "2017C Bonds"). The Overlay Swap's purpose was to convert the cash flows of the Authority's outstanding fixed payer swap portfolio from 70% one-month LIBOR to the Weekly SIFMA Index (plus a third payment leg that includes a fixed rate component of the Authority paying 0.118%) between the Overlay Swap's effective date of December 1, 2020 and termination date of December 1, 2023. The notional amount of the Overlay Swap is \$216,720,000 matching 100% of the aggregate notional amount of the Authority's outstanding fixed payer swap portfolio. The Overlay Swap was entered into in alignment with the Authority's successful remarketing of the Bonds on December 1, 2020 from a 70% one-month LIBOR mode into a Weekly SIFMA Index mode.

### Accounting and Risk Disclosures

During the years ended December 31, 2021 and 2020, the Authority paid \$6,907 and \$6,808, respectively, fixed and received \$155 and \$1,134, respectively, variable related to their outstanding swap agreements.

As noted in the tables above, current period changes in fair value for the interest rate swaps that are accounted for as hedges are recorded on the statements of net position as an adjustment to hedging derivative – interest rate swap, deferred outflows or deferred inflows. Additionally, current period changes in fair value for the interest rate swap accounted for as an investment is recorded on the statements of revenues, expenses, and changes in net position as a component of investment income. The fair value of the outstanding interest rate swaps as of December 31, 2021 and 2020 is reported on the statements of net position as a swap liability. The swaps are valued using significant other observable inputs (Level 2 inputs).

The Authority has the ability to early terminate the interest rate swaps and to cash settle the transaction on any business day by providing at least two business days' written notice to the counterparty. Evidence that the Authority has sufficient funds available to pay any amount payable to the counterparty must be provided at the time notice is given. At early

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termination, the Authority will be required to pay or receive a settlement amount which is comprised of the fair value of the terminated transaction(s) based on market quotations and any amounts accrued under the contract(s).

Through the use of derivative instruments such as interest rate swaps, the Authority is exposed to a variety of risks, including credit risk, interest rate risk, termination risk, basis risk, and rollover risk.

- Credit risk is the risk that a counterparty will not fulfill its obligations. The credit ratings by S&P Global Ratings, a nationally recognized statistical rating organization for the respective counterparties are listed in the table above. If a counterparty failed to perform according to the terms of the interest rate swap agreement, there is some risk of loss to the Authority, up to the fair value of the swaps.

The Authority currently does not enter into master netting arrangements with its counterparties. As such, each derivative instrument should be evaluated on an individual basis for credit risk. As of December 31, 2021, the Series 2017 C derivative instruments currently have a negative fair value position to the Authority; therefore, the Authority is not exposed to credit risk.

Concentration of credit risk: The Authority's outstanding market value as of December 31, 2021 and 2020, respectively, is (\$14,112) and (\$22,478) with one counterparty and (\$7,353) and (\$11,385) with the second counterparty. Both counterparties operate in the same markets and could be similarly impacted by changes in economic or other conditions.

It is the Authority's policy to require counterparty collateral posting provisions in its non-exchange traded derivative instruments. Their terms require collateral to be posted if the respective counterparty's credit rating falls below BBB- by S&P Global Ratings and the swap insurer becomes bankrupt. The amount of collateral to be posted is calculated based on derivatives in asset positions to the Authority. As of year-end, the counterparties had not and were not required to post collateral for these transactions.

- Termination risk is the risk that a derivative's unscheduled end will affect the Authority's asset/liability strategy or will present the Authority with potentially significant unscheduled termination payments to the counterparty. The

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counterparties to the interest rate swaps do not have the ability to voluntarily terminate the interest rate swap; however, the Authority is exposed to termination risk in the event that one or more of the counterparties default. The Authority has the ability to voluntarily terminate the swaps with prior written consent of the insurer by providing between 2 and 20 business days' notice to the counterparty. The Authority must demonstrate the ability to pay all amounts due to the counterparty on the termination date.

- Interest rate risk is the risk that changes in interest rates will adversely affect the fair values of a government's financial instruments or cash flows. The interest rate swaps are highly sensitive to changes in interest rates; changes in the variable rate will have a material effect on the swap's fair value.
- Basis risk is the risk that arises when variable interest rates on a derivative and an associated bond or other interest-paying financial instrument are based on different indexes. The Authority is subject to basis risk on the overlay swap to the extent SIFMA differs from 70% of 1mo. LIBOR or the federal funds rate. Although expected to correlate, the relationships between different indexes vary and that variance could adversely affect the Authority's calculated payments, and as a result cost savings or synthetic interest rates may not be realized.

The Authority is further subject to basis risk in the event that the underlying bonds become fixed rate Bank Bonds or that the maturity of the underlying bonds is accelerated.

- Rollover risk is the risk that a derivative associated with the Authority's debt does not extend to the maturity of that debt. When the derivative terminates, the associated debt will no longer have the benefit of the derivative. The Authority is not exposed to rollover risk as the swap agreements terminate on the same day the last payment is due on the respective bonds.

### Contingencies

All of the Authority's derivative instruments include provisions that require the Authority to post collateral in the event that the credit ratings of its credit support provider's senior long term, unsecured debt credit rating falls below BBB- by S&P Global Ratings and FSA, the swap insurer, becomes bankrupt. The collateral is to be posted in the form of cash, U.S.

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Treasuries, or other approved securities. As of year-end, the Authority was not required to post collateral for these transactions.

### 10. Deposits and Investments with Financial Institutions

The Authority is authorized to invest in: obligations of the U.S. Government and government-sponsored agencies and instrumentalities; fully insured or collateralized certificates of deposits; commercial paper of the highest rating; repurchase agreements collateralized by government obligations or securities; highly rated bank promissory notes or investment funds or trusts; and, as to trustee assets, as otherwise permitted by the trust indenture as supplemented and amended in 2020. Throughout the years ended December 31, 2021 and 2020, the Authority invested its funds in such authorized investments. The Authority has a formal investment policy which addresses custodial credit risk, interest rate risk, credit risk, and concentration of credit risk.

GASB Statement No. 40, *“Deposit and Investment Risk Disclosures,”* requires disclosures related to the following deposit and investment risks: credit risk (including custodial credit risk and concentration of credit risk), interest rate risk, and foreign currency risk. The following is a description of the Authority’s deposit and investment risks:

**Custodial Credit Risk** – Custodial credit risk is the risk that in the event of a bank failure, the Authority’s deposits may not be returned to it. As of December 31, 2021 and 2020, \$81,979 and \$67,512, respectively, of the Authority’s bank balance of \$82,229 and \$67,762, respectively, was exposed to custodial credit risk; the amounts exposed to custodial credit risk are collateralized in accordance with Act 72 of the Pennsylvania state legislature, which requires the institution to pool collateral for all governmental deposits and have the collateral held by an approved custodian in the institution’s name. These deposits have carrying amounts of \$76,422 and \$60,210 as of December 31, 2021 and 2020, respectively, all of which is reported as current assets in the statements of net position.

# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

(DOLLARS EXPRESSED IN THOUSANDS UNLESS OTHERWISE INDICATED)

YEARS ENDED DECEMBER 31, 2021 AND 2020

At December 31, 2021, the Authority held the following restricted asset investment balances:

|                     | <u>Carrying value</u> | <u>Maturity in years<br/>Less<br/>than 1 year</u> |
|---------------------|-----------------------|---|
| PA INVEST           | \$ 9,099              | \$ 9,099  |
| Money market        | 16,785                | 16,785  |
| U.S. Treasury bills | -                     | -   |
| Total Investments   | <u>\$ 25,884</u>      | <u>\$ 25,884</u>                                  |

At December 31, 2020, the Authority held the following restricted asset investment balances:

|                     | <u>Carrying value</u> | <u>Maturity in years<br/>Less<br/>than 1 year</u> |
|---------------------|-----------------------|---|
| PA INVEST           | \$ 9,096              | \$ 9,096  |
| Money market        | 16,201                | 16,201  |
| U.S. Treasury bills | 609                   | 609   |
| Total Investments   | <u>\$ 25,906</u>      | <u>\$ 25,906</u>                                  |

Money market funds are included in cash and cash equivalents as non-current restricted assets on the statements of net position.

The carrying value of the Authority's investments is the same as their fair value amount. U.S. Treasury bills are valued using quoted market prices (Level 1 inputs).

The Authority's investments in money markets and PA INVEST (external investment pool) are the same as the value of the pool shares and are reported at amortized cost, which approximates market. All investments in an external investment pool that are not SEC-registered are subject to oversight by the Commonwealth. The Authority can withdraw funds from INVEST without limitations or fees.

# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

(DOLLARS EXPRESSED IN THOUSANDS UNLESS OTHERWISE INDICATED)

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**Interest Rate Risk** – Interest rate risk is the risk that changes in the interest rates will adversely affect the fair value of the Authority’s investments. The Authority is not subject to interest rate risk, as all of its investments at December 31, 2021 and 2020 had maturities of less than one year.

**Credit Risk** – Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligation. As of December 31, 2021, the Authority’s investments in PA INVEST were rated AAAM by S&P Global Ratings.

**Concentration of Credit Risk** – Concentration of credit risk is the risk of loss attributed to the magnitude of a government’s investments in a single issuer. The Authority has the following limits, applicable at the time of purchase:

| <u>Security Type</u>   | <u>Maximum Allocation</u> | <u>Maximum Issuer</u> |
|--|---------------------------|-----------------------|
| U.S. Government Securities                                       | 100%                      | N/A                   |
| U.S. Government Agencies & Instruments:                          |                           |                       |
| Guaranteed by the full faith and credit of the United States     | 100%                      | N/A                   |
| Not guaranteed by the full faith and credit of the United States | 60%                       | 40%                   |
| Bank Certificates of Deposit                                     | 30%                       | 20%                   |
| Negotiable Certificates of Deposit                               | 30%                       | 10%                   |
| Bank Acceptances   | 15%                       | 3%                    |
| Commercial Paper   | 20%                       | 3%                    |
| Money Market Funds   | 100%                      | N/A                   |
| Local Government Investment Pools                                | 100%                      | N/A                   |
| Savings or demand deposits                                       | 100%                      | N/A                   |
| Repurchase Agreements  | 25%                       | 10%                   |

The Authority was in compliance with the established limits at December 31, 2021 and 2020.

# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

(DOLLARS EXPRESSED IN THOUSANDS UNLESS OTHERWISE INDICATED)

YEARS ENDED DECEMBER 31, 2021 AND 2020

### 11. Net Position

Net position represents the difference between assets, deferred outflows of resources, and liabilities. An analysis of net position amounts is as follows:

|   | December 31,     |                 |
|---|------------------|-----------------|
|   | 2021             | 2020            |
| Net investment in capital assets:                 |                  |                 |
| Net property, plant, and equipment                | \$ 1,015,371     | \$ 921,650      |
| Debt subject to capital improvements              | (1,039,959)      | (960,337)       |
| Swap borrowing                                    | (59,002)         | (61,955)        |
| Deferred charge on refunding                      | 84,644           | 91,827          |
| Accounts payable for capital items                | (13,248)         | (12,818)        |
| Restricted for capital activity and debt service: |                  |                 |
| Capital projects                                  | 1                | 1               |
| Debt service and reserve funds                    | 6,417            | 6,444           |
|   | <u>(5,776)</u>   | <u>(15,188)</u> |
| Restricted assets:                                |                  |                 |
| Operating reserve account                         | 18,856           | 18,851          |
| Other funds                                       | 610              | 610             |
|   | <u>19,466</u>    | <u>19,461</u>   |
| Unrestricted                                      | <u>11,838</u>    | <u>(2,999)</u>  |
| Total net position                                | <u>\$ 25,528</u> | <u>\$ 1,274</u> |

### 12. Operating Lease

#### Operating Lease

The Authority leases office space. The term of the lease is for twenty years commencing on August 1, 2007 and ending on July 31, 2027. The lease is subject to an automatic roll-over for five years, if the Authority does not communicate in writing one year prior to expiration that it desires not to extend the lease. The general terms of the lease require the lessor to provide for utilities, building repairs, maintenance, and real estate taxes.

# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

(DOLLARS EXPRESSED IN THOUSANDS UNLESS OTHERWISE INDICATED)

YEARS ENDED DECEMBER 31, 2021 AND 2020

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The total minimum future commitments under the lease as of December 31, 2021 are as follows:

|      |    |              |
|------|----|--------------|
| 2022 | \$ | 823          |
| 2023 |    | 844          |
| 2024 |    | 844          |
| 2025 |    | 844          |
| 2026 |    | 844          |
| 2027 |    | 633          |
|      | \$ | <u>4,832</u> |

The total annual rental for office space was approximately \$901 and \$971 for 2021 and 2020, respectively.

### 13. Commitments and Contingencies

The Authority is proceeding with a capital improvement program which the Authority's independent engineer has estimated will entail expenditure of the existing construction funds and potential future bond issues.

The Authority was insured for general liability coverage through 2001; however, effective January 1, 2002, it became self-insured. In previous years, the Authority established a fund to pay for deductibles, small claims, and other litigation costs. At year-end, the balance in this fund was approximately \$610. This fund is grouped with "Restricted Assets" on the statements of net position. During 2021 and 2020, the Authority paid \$0 from this fund for claims.

In addition to the matters discussed below and in Note 14, Consent Agreement, various other claims and lawsuits are pending against the Authority.

#### Attorney General Criminal Complaint

In June 2016 the Authority exceeded the drinking water lead action level established under the Pennsylvania Safe Drinking Water Act. As the Authority attempted to meet federal Environmental Protection Agency (EPA) and Pennsylvania Department of Environmental Protection (DEP) service line replacement requirements, the Authority violated the Safe

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# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

(DOLLARS EXPRESSED IN THOUSANDS UNLESS OTHERWISE INDICATED)

YEARS ENDED DECEMBER 31, 2021 AND 2020

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Water Drinking Act in 2016 and 2017 by failing to provide 45-day advanced notice of partial service lead line replacement to customers at some homes, and failing to provide post-construction test kits. In November 2017, the Authority entered into a consent order agreement with DEP related to these violations that included a civil penalty of \$2.4 million. The portion of the Attorney General misdemeanor counts described in the subsequent paragraph that relate to partial lead line replacements and lack of customer notices are duplicative to the violations that resulted in the aforementioned consent order agreement with the DEP.

On April 17, 2019 the Pennsylvania Office of the Attorney General completed a filing in the Allegheny County Court of Common Pleas, Docket CP-02-CR-0002636-2019, alleging 161 third-degree misdemeanor counts under the Pennsylvania Safe Drinking Water Act, which were later reduced to 152 counts. The misdemeanors addressed the Authority's violations relating to the Authority's unauthorized changes to its corrosion control treatment and its public water system by substituting corrosion control treatment chemicals without first obtaining the appropriate permit from the Pennsylvania Department of Environmental Protection. Also, the Authority performed partial lead service line replacements, which can result in an increase in lead contamination for the residence, without providing its customers with the advance notice and follow-up sampling required under the state and federal safe drinking water regulations.

The Authority entered into a form of probation agreement, a Pre-Disposition Remediation Agreement ("PDR") with the Office of the Attorney General, which was approved by the Court on July 16, 2020. The PDR provides a 24-month probationary period, and further requires: (1) appointment of a Compliance Monitor during the probationary period with comprehensive compliance oversight and reporting responsibilities, (2) a donation of \$500 to organizations and programs that protect Pittsburgh residents from lead contamination, and (3) public apology from the Authority.

### Lead Mitigation

The Authority continued its critical initiatives to comply with the Consent Order and Agreement, and other requirements mandated by the Pennsylvania Department of Environmental Protection (PADEP) and the Pennsylvania Public Utilities Commission (PUC). These initiatives include: (1) a water treatment program to mitigate lead corrosion so as to comply with current water quality standards, (2) a lead service line replacement program, and (3) a lead service line identification program to be completed by 2020 for residential

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# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

(DOLLARS EXPRESSED IN THOUSANDS UNLESS OTHERWISE INDICATED)

YEARS ENDED DECEMBER 31, 2021 AND 2020

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service line connections and a 2022 update to include all service line connections. These requirements are stipulated in the PADEP Consent Order and Agreement with the Authority dated November 2017.

*Water Treatment:* Chemical treatment testing of orthophosphate application to the Authority's finished water demonstrated rapid mitigation of lead and copper corrosion to levels well below any current federal drinking water standard. The Authority fully implemented the introduction of orthophosphate to the drinking water system in April 2019, and since then has had two consecutive 6-month rounds of lead monitoring results below Federal action level of 15.0 parts per billion (ppb), along with a recently completed third round of lead monitoring. [Action levels are the EPA's established standard for water system compliance with the Federal Lead and Copper Rule.] The results were 10.0 ppb in the monitoring that ended in December 2019, 5.1 ppb for the monitoring that ended in June 2020, and 7.1 ppb for the round that ended in December 2021. These levels put the Authority's lead program in compliance with the Lead and Copper Rule for the first time since 2016. The second round of results below the action level removed the mandated requirement to replace lead service lines.

*Lead Service Line Replacement:* The Authority was ordered by PADEP to replace 1,341 public owned lead service lines by June 30, 2018 and an additional 7 percent of the public owned lead service lines by December 31, 2018 (a total of about 2,200). By the end of 2018 a total of 2,765 public lead service lines had been replaced. In addition, the Authority was required to continue to replace 7 percent of the initial number of lead service lines in the system (revised to 855 based upon PWSA data) until two consecutive 6-month monitoring period sampling events were below the lead action level (where this replacement requirement ended in June 2020 as described above). As of the date of this report, over 8,850 public, along with over 5,380 private lead service lines have been replaced.

In October 2020, the Authority completed work on the 2019 Neighborhood LSLR project with \$49.1 million in funding through PENNVEST, of which \$35.4 million was a loan and \$13.7 million was a grant. This program replaced over 4,738 public and 3,008 private lead service lines (as of March 18, 2022), well above the anticipated amounts of 3,400 public and 2,800 private replacements. In June 2020, the Authority transitioned into the next phase of the LSLR program by replacing lead service lines in concert with a water main replacement program. In this manner, the Authority minimizes the overall cost for water main and service line replacements. Most of the remaining lead service lines are connected to the oldest water mains in the system, most subject to breakage and failure. The Authority will

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# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

(DOLLARS EXPRESSED IN THOUSANDS UNLESS OTHERWISE INDICATED)

YEARS ENDED DECEMBER 31, 2021 AND 2020

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strive to implement this program at the lowest possible cost to the Authority, while addressing those water mains that have the highest likelihood of failure. The Authority's investment in water main replacement will continue unabated to ensure that the Authority can mitigate the amount of annual pipe breaks and minimize the risk of service disruption to its customers. The Authority's program intends to achieve an average water main life more in line with national standards. In summary, as of March 18, 2022, the Authority has replaced a total of 8,850 public and 5,830 private lead service lines under all programs involving the removal of lead service lines, including the Lead Service Line Replacement Program (2016 through 2019 Contracts) and Small Diameter Water Main Replacement Program.

*Small Diameter Water Main Replacement Program:* The ongoing Small Diameter Water Main Replacement (SDWMR) Program consists of a series of annual projects designed to replace aging and undersized water mains in neighborhoods with a high likelihood of having lead service lines.

The 2020 SDWMR projects consisted of three individual construction contracts totaling nearly 15 miles of new water main. These projects were completed in December 2021 and, inclusive of design and construction, cost approximately \$56 million.

Construction for the next phase of SDWMR projects, awarded as two individual construction contracts under the 2021 SDWMR Program, is expected to begin in late March 2022 and be completed by April 2023. This work consists of the construction of over 6 miles (33,500 LF) of new water mains and associated work. Contracts for both projects were awarded to a single contractor at a cost of just under \$25 Million.

The third phase of SDWMR projects (2022 SDWMR) are currently in the design phase with anticipation of bidding in July 2022 and an expected construction start date in late 2022 (September). These projects are expected to replace nearly 9 miles (46,700 LF) of water main at an estimated cost of \$50 Million.

The 2023, 2024, 2025, and 2026 contracts are currently in the 2022 CIP with a total cumulative value of \$231 Million, which equates to approximately 64 miles of small diameter water main to be replaced.



# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

(DOLLARS EXPRESSED IN THOUSANDS UNLESS OTHERWISE INDICATED)

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*Lead Service Line Identification Program:* The lead service line identification program determines the materials of manufacture for each existing water service line in the Authority's system. The first phase of that program was completed with the digitization of existing records. The second phase, which has evolved since the signing of the consent order, consists of a combination of verification inspections and replacement records of ongoing infrastructure programs, video inspection of accessible residential service lines to evaluate the materials of manufacture, identification of private service lines while replacing meters, the development of a machine-learning predictive model in conjunction with the University of Pittsburgh and further records-mining with the Authority, City of Pittsburgh and Allegheny County Plumbing Department. This phase was completed in December 2020 and submitted to the PADEP, in compliance with the Consent Order and Agreement. The third phase includes identifying service line materials for non-residential customers and providing an update for all locations. This effort is due to PADEP in December 2022.

The Identification Program will culminate in a complete digital file and mapping of all service lines within the Authority's service territory. All updated records are made publicly available on the Authority's website within one month of the data being collected.

### Environmental Protection Agency

The Authority has been cooperating with the Environmental Protection Agency's ("EPA") investigation of the Authority's Aspinwall Water Treatment Plant ("Water Treatment Plant") for nearly three years. The Authority and EPA have negotiated a resolution that addresses the violations alleged by EPA. On January 15, 2021, pursuant to a plea agreement, the Court entered the Authority's plea of guilty to two counts of violations of the Clean Water Act. The terms of the settlement are contained in a plea letter dated December 30, 2020 and executed by the Authority on January 12, 2021. The terms of the Plea Agreement included:

- Three Year Probation Period
- \$500,000 Compliance Fund
- Environmental Compliance Program
- Environmental Compliance Manual for Water Production
- Reporting of Allegations
- Training (New Hire and Refresher)
- Independent Environmental Audit
- Establishing Position of Environmental Compliance Manager reporting to CEO

# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

(DOLLARS EXPRESSED IN THOUSANDS UNLESS OTHERWISE INDICATED)

YEARS ENDED DECEMBER 31, 2021 AND 2020

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- Ethics & Deterrence of Criminal Conduct
- Annual Audits & Reports on the Compliance Program

Sentencing occurred on September 14, 2021 and included seven standard conditions of supervision and reference to the requirements established in the Plea Agreement. A U.S. Probation Officer has been assigned to the Authority and the Authority is required to provide monthly updates to the probation officer.

EPA's Suspension and Debarment Division placed the Authority on its Suspension and Debarment list upon the Authority's guilty plea on September 14, 2021. EPA and the Authority entered into an Administrative Agreement, which allowed the Authority to be promptly removed from the list on the same day. The Administrative Agreement includes the following provisions:

- Four Year Term
- Compliance with current State and Federal Plea Agreements
- Completion of Current Projects
- Establish a Chief Ethics and Compliance Officer ("CCECO")
- Establish Ethics and Compliance Program, including:
  - Code of Ethics
  - Code of Conduct
  - Non-Retaliation Policy
  - Whistleblower System
  - Development of a Training Policy and Training Tracking
  - Expansion of Environmental Compliance Program to all of PWSA
  - Retain an Independent Monitor to oversee the Administrative Agreement
  - Submittal of Regular Reports and Certifications

### **14. Consent Agreement**

The Pittsburgh Water and Sewer Authority (Authority) is subject to federal regulation under the Clean Water Act (1977) and regulations adopted under that Act. Among the specific requirements applicable to the Authority's system are those imposed by the United States Environmental Protection Agency's Combined Sewer Overflow (CSO) Policy (1994). On January 29, 2004, the Authority and the City of Pittsburgh executed a Consent Order and

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# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

(DOLLARS EXPRESSED IN THOUSANDS UNLESS OTHERWISE INDICATED)

YEARS ENDED DECEMBER 31, 2021 AND 2020

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Agreement (COA) regarding wet weather sewer overflows within the City. The other signatories to the COA are the Pennsylvania Department of Environmental Protection (DEP) and the Allegheny County Health Department (ACHD).

Generally, the COA required the Authority and the City to assess the City sewers to develop a plan with ALCOSAN to address wet weather sewer overflows within the City. The COA is part of a sewer assessment program for all municipalities served by ALCOSAN. To date, assessment activities have been completed for all accessible critical sewers and separate sanitary sewers with the exception of any additional sewers discovered through continued research and investigation. Critical sewers were defined in the COA as: trunk sewers that are a final conveyance to the ALCOSAN Sewer System, sewers associated with areas of chronic basement flooding, sewers associated with areas of chronic maintenance, sewers associated with areas of chronic surcharge, sewers downstream of diversion structures, sewers where additional information is necessary for model development, and sewers deemed a priority for inspection by a professional engineer. Ongoing pipe and manhole repairs are being completed to provide CCTV access to remaining inaccessible critical/sanitary sewer pipes. Assessment activities for non-critical sewers are to be completed on a longer schedule. The majority of accessible non-critical manholes have been inspected with ongoing efforts to complete any remaining or newly identified accessible non-critical manholes. The required Wet Weather Feasibility Study (WWFS) was submitted to the DEP and ACHD on time in July of 2013. This long-term control plan outlined system-wide improvements, including Green Infrastructure (GI) that the Authority would implement over the next 20 years.

As this COA with the DEP expired in March 2015, the U.S. Environmental Protection Agency (USEPA) became the main regulatory body to which the Authority is responsible. On January 21, 2016 the USEPA issued a Clean Water Act Section 308 Information Request to the Authority. The USEPA 308 request required the Authority to submit detailed information on past CSO performance and activities. It also required the Authority to conduct a source reduction analysis for the entire service area, followed by GI demonstration projects.

The Authority hired two engineering firms to assess and model the sewer system, responding to the first phase of the USEPA 308 request by the due of March 31, 2016. The second phase of the request was responded to by the submission of a source reduction study by the due date of December 1, 2016, and the submission of project performance evaluations for certain construction GI demonstration projects by the due date of December

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# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO FINANCIAL STATEMENTS

(DOLLARS EXPRESSED IN THOUSANDS UNLESS OTHERWISE INDICATED)

YEARS ENDED DECEMBER 31, 2021 AND 2020

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1, 2017. An additional 308 request from the USEPA was received in October 2016 seeking more detailed information and further actions regarding the assessment of the Authority's sewer system. The response to the October 2016 request from the USEPA was delivered in January 2017.

In addition to the assessment, the USEPA 308 request also required the Authority and the City to continue implementing the Nine Minimum Controls to reduce combined sewer overflows, and to perform repairs and maintenance of deficiencies revealed by the assessment. The Authority maintains an expedited response to significant structural failures of the sewer system where imminent structural failures are determined by a professional engineer and prioritized for repair. Ongoing sewer line replacement, point repair, and trenchless rehabilitation projects have been implemented to address structural deficiencies. The USEPA 308 request also required the submission of information on an ongoing, rolling basis, updating the progress of the evaluations and improvements, as well as water quality impacts. These reports are submitted monthly.

The Authority has begun negotiations with EPA, the U.S. Department of Justice (DOJ), and DEP over the terms of a consent decree (CD) that will address the control of sanitary and combined sewer overflows within the City of Pittsburgh. Such a decree will likely set out an enforceable framework for bringing the Authority's sanitary and combined sewer systems into compliance with applicable requirements of the federal Clean Water Act and Pennsylvania Clean Streams Law.

Given the broad scope of a potential CD, the size of the sewer system in the City, and the various conditions and/or deficiencies that may be discovered by the assessment, it is difficult to predict the total cost of compliance with the CD. Moreover, it is difficult to predict what, if any, largescale and/or regional capital improvements may be required after the completion of the assessment to address wet weather sewer overflows in the City and in the ALCOSAN service area. Costs associated with CD and COA compliance will be reflected in the capital improvement program and funded by proceeds of potential future bond issuances.

## **SUPPLEMENTARY INFORMATION**

# PITTSBURGH WATER AND SEWER AUTHORITY

## COMBINING STATEMENT OF NET POSITION

(Dollars expressed in thousands)

DECEMBER 31, 2021

|   | Water              | Sewer            | Sewer<br>Treatment | Total            |
|---|--------------------|------------------|--------------------|------------------|
| <b>Assets</b>   |                    |                  |                    |                  |
| Current assets  | \$ 71,533          | \$ 35,232        | \$ -               | \$ 106,765       |
| Noncurrent assets   | 697,641            | 343,614          | -                  | 1,041,255        |
| <b>Total Assets</b>                                       | <b>769,174</b>     | <b>378,846</b>   | <b>-</b>           | <b>1,148,020</b> |
| <b>Deferred Outflows of Resources</b>                     |                    |                  |                    |                  |
| Deferred charge on refunding                              | 56,711             | 27,933           | -                  | 84,644           |
| Accumulated decrease in fair value of hedging derivatives | 14,382             | 7,083            | -                  | 21,465           |
| <b>Total Deferred Outflows of Resources</b>               | <b>71,093</b>      | <b>35,016</b>    | <b>-</b>           | <b>106,109</b>   |
| <b>Liabilities</b>  |                    |                  |                    |                  |
| Current liabilities                                       | 63,279             | 31,168           | -                  | 94,447           |
| Noncurrent liabilities                                    | 810,534            | 310,641          | 12,979             | 1,134,154        |
| <b>Total Liabilities</b>                                  | <b>873,813</b>     | <b>341,809</b>   | <b>12,979</b>      | <b>1,228,601</b> |
| <b>Net Position</b>                                       |                    |                  |                    |                  |
| Net investment in capital assets                          | (3,870)            | (1,906)          | -                  | (5,776)          |
| Restricted  | 13,042             | 6,424            | -                  | 19,466           |
| Unrestricted  | (42,718)           | 67,535           | (12,979)           | 11,838           |
| <b>Total Net Position</b>                                 | <b>\$ (33,546)</b> | <b>\$ 72,053</b> | <b>\$ (12,979)</b> | <b>\$ 25,528</b> |

# PITTSBURGH WATER AND SEWER AUTHORITY

## COMBINING STATEMENT OF REVENUES, EXPENSES, AND CHANGES IN NET POSITION

(Dollars expressed in thousands)

YEAR ENDED DECEMBER 31, 2021

|   | Water       | Sewer     | Sewer<br>Treatment | Total      |
|---|-------------|-----------|--------------------|------------|
| <b>Operating Revenues</b>   | \$ 123,178  | \$ 69,169 | \$ 76,774          | \$ 269,121 |
| <b>Operating Expenses:</b>  |             |           |                    |            |
| Direct operating expenses   | 66,437      | 32,723    | -                  | 99,160     |
| Wastewater treatment  | -           | -         | 76,802             | 76,802     |
| Reimbursement for City of Pittsburgh indirect services                | 3,818       | -         | -                  | 3,818      |
| Expense of water provided by other entities                           | 120         | -         | -                  | 120        |
| Depreciation  | 16,339      | 8,047     | -                  | 24,386     |
| Total operating expenses  | 86,714      | 40,770    | 76,802             | 204,286    |
| <b>Operating Income (Loss)</b>  | 36,464      | 28,399    | (28)               | 64,835     |
| <b>Non-operating Revenues (Expenses):</b>                             |             |           |                    |            |
| Federal and private grants  | 902         | 445       | -                  | 1,347      |
| Interest revenue  | 16          | 8         | -                  | 24         |
| Interest and amortization   | (26,419)    | (13,012)  | -                  | (39,431)   |
| Total non-operating revenues (expenses)                               | (25,501)    | (12,559)  | -                  | (38,060)   |
| <b>Net Income (Loss) before Capital Contribution and Special Item</b> | 10,963      | 15,840    | (28)               | 26,775     |
| <b>Capital Contribution:</b>  |             |           |                    |            |
| Donated property  | 380         | 187       | -                  | 567        |
| <b>Special Item:</b>  |             |           |                    |            |
| Private lead line replacement   | (3,088)     | -         | -                  | (3,088)    |
| <b>Net Income (Loss)</b>  | 8,255       | 16,027    | (28)               | 24,254     |
| <b>Net Position:</b>  |             |           |                    |            |
| Beginning of year   | (41,801)    | 56,026    | (12,951)           | 1,274      |
| End of year   | \$ (33,546) | \$ 72,053 | \$ (12,979)        | \$ 25,528  |

**PITTSBURGH WATER AND SEWER AUTHORITY**

SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS

YEAR ENDED DECEMBER 31, 2021

| <u>Federal Grantor/Pass-Through Grantor/Program Title</u>  | <u>Federal<br/>ALN</u> | <u>Pass through<br/>Grantor's<br/>Number</u> | <u>Cash Receipts</u> | <u>Expenditures</u> | <u>Amounts<br/>Provided to<br/>Subrecipients</u> |
|--|------------------------|--|----------------------|---------------------|--|
| United States Environmental Protection Agency:<br>Passed through the Pennsylvania Department of Environmental<br>Protection: |                        |  |                      |                     |  |
| Clean Water State Revolving Fund Cluster:  |                        |  |                      |                     |  |
| Capitalization Grants for Clean Water State Revolving Funds  | 66.458                 | 75373  | \$ 2,162,289         | \$ 2,694,877        | \$ -   |
| Drinking Water State Revolving Fund Cluster:   |                        |  |                      |                     |  |
| Capitalization Grants for Drinking Water State Revolving Funds   | 66.468                 | 85175  | 41,231,206           | 34,666,191          | -  |
| Total Expenditures of Federal Awards   |                        |  | \$ 43,393,495        | \$ 37,361,068       | \$ -   |

See accompanying notes to schedule of expenditures of federal awards.



# PITTSBURGH WATER AND SEWER AUTHORITY

## NOTES TO SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS

YEAR ENDED DECEMBER 31, 2021

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### **1. Basis of Presentation**

The accompanying schedule of expenditures of federal awards (schedule) of the Pittsburgh Water and Sewer Authority (Authority) is presented on the accrual basis of accounting. The information in this schedule is presented in accordance with the requirements of Title 2 U.S. *Code of Federal Regulations* Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Because the schedule presents only a selected portion of the operations of the Authority, it is not intended to and does not present the net position, changes in net position, or cash flows of the Authority.

### **2. Summary of Significant Accounting Policies**

Expenditures reported on the schedule are reported on the accrual basis of accounting. Such expenditures are recognized following the cost principles contained in the Uniform Guidance, wherein certain types of expenditures are not allowable or are limited as to reimbursement. The Authority has elected to not use the 10-percent de minimis indirect cost rate allowed under the Uniform Guidance.

### **3. Determination of Federal Expenditures**

The amount of federal expenditures for the United States Environmental Protection Agency programs listed on the schedule represent the expenditures incurred under certain loans during the year ended December 31, 2021. The United States Environmental Protection Agency requires that the current year expenditures incurred under the loans be reported on the schedule rather than the beginning balance of the loans.

# **Pittsburgh Water and Sewer Authority**

Independent Auditor's Reports  
Required by the Uniform Guidance

Year Ended December 31, 2021

**Independent Auditor’s Report on Internal Control over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with Government Auditing Standards**

**Board of Directors  
Pittsburgh Water and Sewer Authority**

We have audited, in accordance with the auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards* issued by the Comptroller General of the United States, the financial statements of the business-type activities of Pittsburgh Water and Sewer Authority (Authority), a component unit of the City of Pittsburgh (City), Pennsylvania, as of and for the year ended December 31, 2021, and the related notes to the financial statements, which collectively comprise the Authority’s basic financial statements, and have issued our report thereon dated April 20, 2022.

**Report on Internal Control over Financial Reporting**

In planning and performing our audit of the financial statements, we considered the Authority’s internal control over financial reporting (internal control) as a basis for designing audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the Authority’s internal control. Accordingly, we do not express an opinion on the effectiveness of the Authority’s internal control.

*A deficiency in internal control* exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the entity’s financial statements will not be prevented, or detected and corrected on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control that we consider to be material weaknesses. However, material weaknesses or significant deficiencies may exist that have not been identified.

## Report on Compliance and Other Matters

As part of obtaining reasonable assurance about whether the Authority's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the financial statements. However, providing an opinion on compliance with those provisions was not an objective of our audit and, accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

### Purpose of this Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the entity's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the entity's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

*Mahe Duessel*

Pittsburgh, Pennsylvania  
April 20, 2022

## Independent Auditor's Report on Compliance for Each Major Program and on Internal Control over Compliance Required by the Uniform Guidance

**Board of Directors  
Pittsburgh Water and Sewer Authority**

### Report on Compliance for Each Major Federal Program

#### **Opinion on Each Major Federal Program**

We have audited the Pittsburgh Water and Sewer Authority's (Authority), a component unit of the City of Pittsburgh (City), Pennsylvania, compliance with the types of compliance requirements identified as subject to audit in the OMB Compliance Supplement that could have a direct and material effect on each of the Authority's major federal programs for the year ended December 31, 2021. The Authority's major federal programs are identified in the summary of auditor's results section of the accompanying schedule of findings and questioned costs.

In our opinion, the Authority complied, in all material respects, with the types of compliance requirements referred to above that could have a direct and material effect on each of its major federal programs for the year ended December 31, 2021.

#### **Basis for Opinion on Each Major Federal Program**

We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and the audit requirements of Title 2 U.S. Code of Federal Regulations Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Our responsibilities under those standards and the Uniform Guidance are further described in the Auditor's Responsibilities for the Audit of Compliance section of our report.

We are required to be independent of the Authority and to meet our other ethical responsibilities, in accordance with relevant ethical requirements relating to our audit. We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion on compliance for each major federal program. Our audit does not provide a legal determination of the Authority's compliance with the compliance requirements referred to above.

#### **Responsibilities of Management for Compliance**

Management is responsible for compliance with the requirements referred to above and for the design, implementation, and maintenance of effective internal control over compliance with the

Board of Directors  
Pittsburgh Water and Sewer Authority  
Independent Auditor's Report on Compliance for Each Major  
Program and on Internal Control over Compliance

requirements of laws, statutes, regulations, rules, and provisions of contracts or grant agreements applicable to the Authority's federal programs.

### **Auditor's Responsibilities for the Audit of Compliance**

Our objectives are to obtain reasonable assurance about whether material noncompliance with the compliance requirements referred to above occurred, whether due to fraud or error, and express an opinion on the Authority's compliance based on our audit. Reasonable assurance is a high level of assurance but is not absolute assurance and therefore is not a guarantee that an audit conducted in accordance with generally accepted auditing standards, *Government Auditing Standards*, and the Uniform Guidance will always detect material noncompliance when it exists. The risk of not detecting material noncompliance resulting from fraud is higher than for that resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control. Noncompliance with the compliance requirements referred to above is considered material if there is a substantial likelihood that, individually or in the aggregate, it would influence the judgment made by a reasonable user of the report on compliance about the Authority's compliance with the requirements of each major federal program as a whole.

In performing an audit in accordance with generally accepted auditing standards, *Government Auditing Standards*, and the Uniform Guidance, we:

- Exercise professional judgment and maintain professional skepticism throughout the audit.
- Identify and assess the risks of material noncompliance, whether due to fraud or error, and design and perform audit procedures responsive to those risks. Such procedures include examining, on a test basis, evidence regarding the Authority's compliance with the compliance requirements referred to above and performing such other procedures as we considered necessary in the circumstances.
- Obtain an understanding of the Authority's internal control over compliance relevant to the audit in order to design audit procedures that are appropriate in the circumstances and to test and report on internal control over compliance in accordance with the Uniform Guidance, but not for the purpose of expressing an opinion on the effectiveness of the Authority's internal control over compliance. Accordingly, no such opinion is expressed.

We are required to communicate with those charged with governance regarding, among other matters, the planned scope and timing of the audit and any significant deficiencies and material weaknesses in internal control over compliance that we identified during the audit.

## Report on Internal Control over Compliance

*A deficiency in internal control over compliance* exists when the design or operation of a control over compliance does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, noncompliance with a type of compliance requirement of a federal program on a timely basis. *A material weakness in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance, such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis. *A significant deficiency in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance with a type of compliance requirement of a federal program that is less severe than a material weakness in internal control over compliance, yet important enough to merit attention by those charged with governance.

Our consideration of internal control over compliance was for the limited purpose described in the Auditor's Responsibilities for the Audit of Compliance section above and was not designed to identify all deficiencies in internal control over compliance that might be material weaknesses or significant deficiencies in internal control over compliance. Given these limitations, during our audit we did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses, as defined above. However, material weaknesses or significant deficiencies in internal control over compliance may exist that were not identified.

Our audit was not designed for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, no such opinion is expressed.

The purpose of this report on internal control over compliance is solely to describe the scope of our testing of internal control over compliance and the results of that testing based on the requirements of the Uniform Guidance. Accordingly, this report is not suitable for any other purpose.

*Maher Duessel*

Pittsburgh, Pennsylvania  
April 20, 2022

# PITTSBURGH WATER AND SEWER AUTHORITY

## SCHEDULE OF FINDINGS AND QUESTIONED COSTS

YEAR ENDED DECEMBER 31, 2021

### I. Summary of Audit Results

1. Type of auditor's report issued: Unmodified, prepared in accordance with Generally Accepted Accounting Principles

2. Internal control over financial reporting:

Material weakness(es) identified?  yes  no

Significant deficiencies identified that are not considered to be material weakness(es)?  
 yes  none reported

3. Noncompliance material to financial statements noted?  yes  no

4. Internal control over major programs:

Material weakness(es) identified?  yes  no

Significant deficiencies identified that are not considered to be material weakness(es)?  
 yes  none reported

5. Type of auditor's report issued on compliance for major programs: Unmodified

6. Any audit findings disclosed that are required to be reported in accordance with 2 CFR Section 200.516(a)?  yes  no

7. Major Programs:

Assistance Listing Number(s)

66.458

Name of Federal Program or Cluster

CWSRF Cluster: Capitalization Grants for Clean Water State Revolving Funds

66.468

DWSRF Cluster: Capitalization Grants for Drinking Water State Revolving Funds

8. Dollar threshold used to distinguish between type A and type B programs: \$1,120,832

9. Auditee qualified as low-risk auditee?  yes  no

II. Findings related to the financial statements which are required to be reported in accordance with GAGAS.

**No matters were reported.**

III. Findings and questioned costs for federal awards

**No matters were reported.**



# **PITTSBURGH WATER AND SEWER AUTHORITY**

## **SUMMARY SCHEDULE OF PRIOR AUDIT FINDINGS**

**YEAR ENDED DECEMBER 31, 2021**

**NO FINDINGS NOTED**

**VII. RATE OF RETURN**

VII.16. Supply copies of the company's balance sheets for each month for the last 2 years.

**RESPONSE:**

Please see the response to FR XI.1.

**VII. RATE OF RETURN**

VII.17. Provide the bond rating history for the company and, if applicable, its parent from the major credit rating agencies for the last five years.

**RESPONSE:**

The long-term debt issuer ratings, and their effective dates, for PWSA for the last five years are as follows:

| <i>Moody's Underlying Rating</i> |             | <i>S&amp;P Underlying Rating</i> |             |
|----------------------------------|-------------|----------------------------------|-------------|
| <b>Rate</b>                      | <b>Date</b> | <b>Rate</b>                      | <b>Date</b> |
| A3                               | 10/05/2020  | A+                               | 10/12/2022  |
| A3                               | 06/04/2019  | A                                | 10/10/2020  |
| A3                               | 10/15/2018  | A                                | 06/06/2019  |
| A2                               | 1/17/2018   | A                                | 11/20/2017  |
| A2                               | 9/18/2017   | A                                | 12/12/2013  |
| A2                               | 11/20/2013  |                                  |             |
| A2                               | 9/10/2013   |                                  |             |
| A2                               | 2/1/2012    |                                  |             |

**VII. RATE OF RETURN**

VII.18. Provide copies of all bond rating reports relating to the company and, if applicable, its parent for the past 2 years.

**RESPONSE:**

Please see attached.

## CREDIT OPINION

20 October 2022



### Contacts

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### CLIENT SERVICES

|              |                 |
|--------------|-----------------|
| Americas     | 1-212-553-1653  |
| Asia Pacific | 852-3551-3077   |
| Japan        | 81-3-5408-4100  |
| EMEA         | 44-20-7772-5454 |

# Pittsburgh Water & Sewer Authority, PA

## Update to credit opinion

### Summary

[The Pittsburgh Water and Sewer Authority](#) (“PWSA” or “the Authority”) (A3 stable) benefits from a large and diverse service area, primarily serving the city of [Pittsburgh](#) (A1 stable), which, favorably, provided relatively stable customer revenues through the pandemic, a credit strength compared to regional peers. The Authority has also benefitted from proactive steps to strengthen two key credit areas - its management and governance, and its financial position. PWSA's governance structure has been materially improved by oversight from the Pennsylvania Public Utility Commission (PUC), initiated in 2018. Though the PUC's rate approval process is a lengthy 270 days, the commission has committed to allowing for rate increases that will both satisfy bond covenants and allow for needed capital improvements. Further, the PUC has helped to ensure timely system maintenance and routine capital investment, in line with broad industry standards. At the same time, PWSA has taken steps to strengthen its internal management structure and build its workforce; also a credit positive.

The Authority's financial position has also improved considerably over the past several years, with liquidity reaching a satisfactory 137 days cash on hand as of fiscal 2021 year end, up from just 23 days cash in 2017. Debt service coverage has likewise strengthened, to 1.44 times when all liens of debt are considered. These metrics compare well to similarly-rated peers, and also to the Authority's own past performance.

Yet certain credit challenges persist, and high leverage will be a continued headwind for the Authority going forward. The Authority's current debt burden is significant, and material additional debt is expected as the Authority progresses on its capital improvement plan. The Authority's current five year plan assumes an additional \$1 billion in debt, before consideration of a yet-to-be-determined consent order for combined sewer overflow remediation. The Authority's ability to maintain a healthy financial position while increasing leverage will be key to future credit reviews. Future reviews will also consider the potential challenges associated with the expected consent order and its impact on overall leverage and customer affordability.

### Credit strengths

- » Diverse, urban Pittsburgh service area, supported by strong “eds & meds” presence
- » Considerable size; system assets include water conveyance and treatment, and sewer conveyance that ties to ALCOSAN
- » Significant, recently implemented rate increases boost revenues; PUC oversight brings improvements and controls

## Credit challenges

- » Substantial debt burden; debt ratio is 99% and will continue to grow
- » Narrow, though improved, liquidity versus similarly sized peers
- » Projected \$1.4 billion in capital needs over the next five years, to be primarily funded with debt
- » Consent decree to remediate combined sewer overflows not yet finalized

## Rating outlook

The stable outlook reflects an expectation of satisfactory liquidity and coverage as leverage continues to increase. The outlook also speaks to an expectation of continued progress on the authority's capital plan.

## Factors that could lead to an upgrade

- » Substantial improvement in liquidity that is maintained over several reporting periods
- » Meaningful reduction of debt
- » Sustained improvements in debt service coverage

## Factors that could lead to a downgrade

- » Material narrowing of debt service coverage and liquidity position
- » Inability to raise rates sufficiently to meet debt service coverage covenants while also funding significant deferred capital improvements
- » Failure to effectively deploy new revenues to address near term infrastructure and operating needs
- » Substantial new or worsening long-term environmental concerns

This publication does not announce a credit rating action. For any credit ratings referenced in this publication, please see the issuer/deal page on <https://ratings.moody.com> for the most updated credit rating action information and rating history.

## Key indicators

Exhibit 1

Pittsburgh Water &amp; Sewer Authority, PA

### System Characteristics

|  |           |
|--|-----------|
| Asset Condition (Net Fixed Assets / Annual Depreciation) | 42 years  |
| System Size - O&M (in \$000s)                            | \$179,900 |
| Service Area Wealth: MFI % of US median                  | 89.23%    |

### Legal Provisions

|                                  |   |
|----------------------------------|---|
| Rate Covenant (x)                | 1.10  |
| Debt Service Reserve Requirement | DSRF funded at lesser of standard 3-prong test (Aa) |

### Management

|  |   |
|--|---|
| Rate Management                            | A |
| Regulatory Compliance and Capital Planning | A |

### Financial Strength

|                                  | 2017      | 2018      | 2019      | 2020      | 2021        |
|----------------------------------|-----------|-----------|-----------|-----------|-------------|
| Operating Revenue (\$000)        | \$202,996 | \$231,734 | \$249,049 | \$241,997 | \$269,121   |
| System Size - O&M (\$000)        | \$157,220 | \$153,180 | \$165,230 | \$169,507 | \$179,900   |
| Net Revenues (\$000)             | \$47,071  | \$81,565  | \$87,280  | \$79,692  | \$90,592    |
| Net Funded Debt (\$000)          | \$817,394 | \$871,040 | \$915,696 | \$978,458 | \$1,064,365 |
| Annual Debt Service (\$000)      | \$57,818  | \$59,406  | \$52,010  | \$64,774  | \$67,796    |
| Annual Debt Service Coverage (x) | 0.8x      | 1.4x      | 1.7x      | 1.2x      | 1.3x        |
| Cash on Hand                     | 26 days   | 112 days  | 143 days  | 130 days  | 155 days    |
| Debt to Operating Revenues (x)   | 4.0x      | 3.8x      | 3.7x      | 4.0x      | 4.0x        |

Coverage reflects total annual debt service and the city payment included in operating expenditures.

Source: Moody's Investors Service, audited financial statements

## Profile

PWSA is an authority of the city of Pittsburgh, providing water treatment and conveyance to 84% of the city's population of roughly 305,000 residents and sewer conveyance for the entire city.

## Detailed credit considerations

### Service area and system characteristics: large, stable customer base in Pittsburgh

The Authority provides water distribution and wastewater collection and conveyance for the city of Pittsburgh and neighboring municipalities. The city's diverse economy is a credit positive for the Authority. Favorably, PWSA reported strong revenue collections throughout the coronavirus pandemic and did not experience large scale delinquencies that effected some regional peers, signaling resiliency in the customer base. The Authority's 10 largest customers (3.7% of revenues) include major Pittsburgh institutions, such as the Fox Chapel Water Authority, Allegheny County (Aa3 stable), University of Pittsburgh (Aa1 stable), and Allegheny Health Network. All of the Authority's five largest customers have been in the system for at least 75 years. Notably, given a newly renegotiated cooperation agreement with the city of Pittsburgh in 2019, most city buildings are now metered for water going, with the city paying for water usage - something it had not done previously.

The Authority continues to maintain an ample water supply, providing water to a population of approximately 305,000. The system is permitted to draw up to 100 million gallons per day (MGD) from the Allegheny River, its sole water source, though average demand for water is well below that level, at 70 MGD. The Authority treats drinking water at one plant located on the river, as well as a microfiltration plant at one of its reservoirs. The Authority has capacity to store approximately 3 days' worth of finished water for uninterrupted supply to its customers.

The Authority does not treat wastewater. It transmits all of its sewage to the Allegheny County Sanitary Authority. There is no contractual limit to the amount of sewage that can be conveyed, however, during wet weather events, the existing system frequently overflows and continues to experience unusually large water loss. ALCOSAN is projecting annual rate increases over the next twenty years that will pass through to PWSA customers.

PWSA has made significant strides in improving its governance and management of its organization as well as its physical assets. Ordinary system updates and routine infrastructure improvements had been sorely lacking at PWSA, and years of deferred maintenance have led to cost inefficiencies and exacerbated the natural wear and tear on an already aged system. PUC oversight since 2018 has already served to remediate some of this by establishing guidelines for system improvements based on industry-wide standards. The Authority has also hired more than 155 employees over the last five years - a 63% increase, and has filled key management roles with qualified personnel. This is a significant improvement over Authority operations of just a few years ago where management was mostly outsourced and employment was insufficient to provide for the day to day operations.

The additional operational oversight by the PUC is expected to be a credit positive going forward. Whereas the Authority had used capital deferment as a tool to maintain satisfactory finances and rate increases were heavily influenced by local politics in the past, the PUC has ensured that rate increases are less politicized. Further, while certain capital projects may be slowed to accommodate softening revenue if necessary, a complete sidelining of the capital plan and required maintenance is unlikely.

#### **Debt service coverage and liquidity: recent history of satisfactory financial performance**

The Authority's net revenues have been fairly stable since 2018, averaging a net take-down (net revenue / gross revenue) of about 34% over the past three years, as increased revenues have been matched by increased spending for maintenance and capital improvements. PWSA's operating margins are well in line with similarly rated peers and are expected to remain stable as rate increases and further revenue growth is used to fund needed capital spending and a growing workforce payroll.

At fiscal 2021 year end, the Authority reported senior debt service coverage of 1.74 times and total coverage of 1.44 times, well within covenant requirements and solid coverage ratios versus similarly-rated peers. Moody's reports a slightly lower 1.58 times senior lien debt service coverage and 1.34 times all-in coverage, based on a net income figure that includes payments to the city of Pittsburgh as an operating expense. Favorably, coverage has been fairly stable since 2018, when PUC rate oversight went into effect, signaling that rate increases have been effective to maintain sufficient coverage while providing for more normalized operations and investment in system infrastructure.

Rates have been approved through 2023, with the Authority's next rate case planned for 2024. Assuming continued rate increases are approved, management projects senior lien coverage to average 1.7 times over the next five years, with coverage of 1.18 times when all liens of debt are considered. Future reviews will consider whether the Authority is able to maintain satisfactory coverage and adhere to projected financial performance while supporting increased leverage to execute the Authority's sizeable capital plan.

#### **Liquidity**

The Authority's liquidity is satisfactory, at 137 days unrestricted cash on hand as of fiscal year end 2021, equating to about \$76 million. PWSA's cash position is considerably weaker than [national water and sewer system median days cash](#) of 450 days as of 2021.

#### **Debt and pensions: elevated debt burden continued credit challenge**

The Authority continues to face material pressure to improve its infrastructure given years of disinvestment. Coupled with its own consent decree pertaining to combined sewer overflows during wet weather events, which will be negotiated starting 2021, the Authority will necessarily add to its already elevated debt burden in the near term. PWSA anticipates roughly \$1.4 billion in capital spending over the next five years, largely funded by debt. This will add to leverage substantially, and future credit reviews will focus on the Authority's ability to manage additional debt while maintaining satisfactory cash and coverage metrics; largely dependent on PWSA's ability to increase rates as needed.

The Authority's total debt is equal to 99% of fixed assets as of 2021 year end, well above similarly sized peers. The outstanding debt amortizes slowly, with only 36% of principal scheduled to be repaid in the next 10 years.



**Legal security**

PWSA's first lien revenue debt benefits from a limited obligation revenue pledge backed by a first lien security interest in and to the revenues of the authority after payment of current expenses.

**Debt structure**

The majority - 68% - of Authority debt benefits from a first lien pledge on net revenues. Another 11% is subordinate debt, and the remainder is backed by a third lien, which is shared on a parity basis between PennVest and [PNC Bank, NA \(A2\)](#) which provides a revolving credit facility to PWSA. Roughly 22% of the Authority's current \$982 million of debt outstanding (as of September 2022) is variable rate.

The Authority introduced a new indenture in 2017, which strengthened the rate covenant. The requirement is now 125% of senior debt service coverage plus 110% of subordinate debt service coverage. Free cash is no longer used in the coverage calculation. The debt service reserve is funded at the lesser of the three-pronged test.

The Authority materially reduced its variable rate debt outstanding with its Series 2019 A&B issuance. Variable rate debt has been reduced to 22% of the total debt portfolio today, down from 44% prior to 2019. There is one variable rate issuance outstanding currently - the Authority's senior lien Series 2017C bonds, which were last remarketed in December 2020 and are subject to mandatory tender in December 2023. The bonds were remarketed with a rate indexed to SIFMA. Since the fixed-to-floating rate swaps associated with the 2017C bonds were LIBOR-based, the Authority layered on a basis swap alongside the remarketing in order to convert the variable rate received on the swaps to SIFMA from LIBOR, creating an effective hedge for the bonds.

[Assured Guaranty Municipal Corp. \(A1 stable insurance financial strength\)](#) insures the Authority's variable rate bonds and all of the Authority's swaps, except the 2020 basis swap, and provides the surety policy for all debt service reserve funds, except the reserve associated with PWSA's 2013 bonds, which is cash funded. This counterparty concentration may adversely impact the Authority should AGM's credit quality deteriorate.

The Authority maintains \$206 million in outstanding PennVest loans as of September 2022 and an \$150 million revolving credit facility, of which \$102 million is currently drawn. The Authority will apply proceeds from its Series 2022 issuance to pay down the credit line. Given an intercreditor agreement, PennVest and PNC Bank, NA share a third lien priority on system revenues.

**Debt-related derivatives**

The Authority maintains floating-to-fixed rate swaps in support of its Series 2017C issuance under ISDA Master Agreements with [JP Morgan Chase Bank N.A. \(Aa2 Sr. Unsecured\)](#) (64%) and Merrill Lynch Capital Services (36%), whereby the authority pays a fixed interest rate semiannually (3.79% weighted average) and receives 70% of LIBOR. The Authority layered on a basis swap in 2020 to convert the LIBOR received rate to SIFMA.

AGM provides swap insurance for all swaps. The aggregate swap mark to market is a negative (\$42 million) as of fiscal year end 2021.

The floating-to-fixed rate swaps are included in the parameters of a credit support annex (CSA), though there is no collateral posting requirement unless an Insurer Event occurs. The basis swap is excluded from the CSA. The amortization schedule for each swap mirrors that of the corresponding bonds and the swaps terminate at bond maturity. The basis swap terminates in December 2023 with the next mandatory tender of the Series 2017 C bonds. For all of the swaps, per the 2017 indenture, regularly scheduled swap payments are subordinate to subordinate bond debt service. Early termination is optional for the Authority only, and termination by the counterparty depends upon specified termination events, including the downgrade of PWSA's underlying rating below investment grade. An Authority termination payment would be subordinate to first and second lien debt service payments.

**Pensions and OPEB**

Most of the Authority's employees participate in the city's pension program. The Authority's share of its pension contribution is now accurately provided for through its renegotiated cooperation agreement with the city. Beginning in 2019, all new full time non-union PWSA employees are eligible to participate in a 401(a) retirement plan and do not have the option of enrolling in the city's municipal pension fund plan.

## ESG considerations

### Environmental

The Pittsburgh metropolitan area faces a high risk of elevated rainfall levels. Demonstrated elevated rainfall levels in the region have directly impacted PWSA, as wet weather events overwhelm the system's current combined sewer infrastructure. This is the reason for the Authority's consent decree related to combined sewer overflows.

### Social

Pittsburgh's population is relatively stable at roughly 301,000 and the five year average annual growth rate of the city's full value is a strong 4.5% as of fiscal 2021, well above the US median of -0.5%. Nevertheless, the city's wealth indicators remain below average with median family income at just 89% of the nation. Poverty is also elevated at 20%. As PWSA has increased rates, it has also implemented a rate relief program for qualifying residents, acknowledging this weakness in its rate base.

### Governance

The Authority's current management team has developed a comprehensive plan to bring operations to good working order and to proceed with much needed capital improvements. Strong governance controls at the Authority are evidenced by several years of improved financial performance.

Management views its relationship with the PUC as well as the DEP and EPA as an opportunity for partnership and has proactively sought to engage these agencies as PWSA moves forward with its substantial CIP. This is a definitive, positive change from the Authority's prior actions, and informs our stable outlook on PWSA's current credit profile.

The Authority's Board consists of nine members recommended by a nominating committee, appointed by the Mayor, and approved by City Council. Currently, eight of the nine Board seats are filled. Starting in 2020, city water charges were phased in pursuant to a cooperation agreement; the Authority had provided water to the city at no cost prior to 2020. Among other things, the cooperation agreement also provides for payments between the city and the PWSA to be based upon actual, verifiable, direct expenses, and in accordance with customary utility practices under the PUC Code, and importantly, confirms that payments by the PWSA to the city will continue to be subordinate to all debt obligations of the PWSA.

Pennsylvania's Public Utility Commission began oversight of the authority in April 2018. The PUC is responsible for regulating the Authority's rate making, operating effectiveness, and debt issuance. We expect that the PUC will bring standardization and effective governance to the Authority's future operations. The PUC is required to approve rate increases that will ensure PWSA complies with its bondholder covenants, though we note that the approval process for increases can be lengthy.

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## Summary:

# Pittsburgh Water & Sewer Authority; Water/Sewer

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## Summary:

# Pittsburgh Water & Sewer Authority; Water/Sewer

### Credit Profile

|   |                |          |
|---|----------------|----------|
| US\$41.865 mil wtr and swr sys first lien rev bnds ser 2022A due 09/01/2052 |                |          |
| <i>Long Term Rating</i>   | A+/Stable      | New      |
| Pittsburgh Wtr & Swr Auth WS (AGM)  |                |          |
| <i>Unenhanced Rating</i>  | A(SPUR)/Stable | Upgraded |
| Pittsburgh Wtr & Swr Auth WTRSWR  |                |          |
| <i>Long Term Rating</i>   | A+/Stable      | Upgraded |

### Credit Highlights

- S&P Global Ratings raised its rating on the Pittsburgh Water and Sewer Authority's (PWSA) first-lien revenue bonds to 'A+' from 'A'.
- At the same time, S&P Global Ratings also raised its rating on PWSA's subordinate-lien revenue bonds to 'A' from 'A-'.
- Additionally, we assigned our 'A+' rating to PWSA's series 2022A \$41.8 million water and sewer system first-lien revenue bonds.
- The upgrade reflects the management team's continued maturation and conservative budgeting practices as it works through a \$1.4 billion capital improvement plan (CIP) from 2022-2026, along with seeing continued successful rate cases with the Pennsylvania Public Utility Commission (PaPUC).
- Total debt outstanding will be approximately \$1.08 billion.
- The outlook is stable.

### Security

The first-lien bonds are secured by a senior-lien pledge on the net revenues of the authority's waterworks and sanitary sewer system. A fully funded common reserve in the amount of the lesser of maximum annual debt service (MADS), 125% of average annual debt service, or 10% of proceeds provides additional liquidity on the senior-lien bonds; an amendment in 2017 to the master trust indenture permits a surety to be used to satisfy any future series-by-series reserve fund requirement. The 2017 amendments additionally strengthened the covenants by eliminating consideration of the use of certain cash reserves toward compliance with the rate covenant and limiting the frequency with which transfers in from the rate stabilization fund can be used toward meeting the rate covenant.

We have applied our primary utility revenue bond criteria to determine the authority's general creditworthiness and have applied this rating to its senior-lien issues. We rate PWSA's subordinate lien one notch lower based on the application of our criteria "Assigning Issue Credit Ratings Of Operating Entities" (published May 20, 2015, on RatingsDirect) given the open status of the senior lien and the likelihood that PWSA will continue to use the senior lien from time to time.

Proceeds of the series 2022A bonds will be used to pay down \$45 million of the \$101.8 million that PWSA has outstanding on its PNC capital line of credit.

Of the series 2017C bonds, the subseries 1, 2, and 3 will each be associated with a basis swap to the Securities Industry and Financial Markets Association (SIFMA) index rate. The counterpart for this overlay swap is Merrill Lynch Capital Services Inc. with a notional amount of \$216.72 million. In addition, subseries 1 is already synthetically fixed by way of an interest rate swap with JPMorgan Chase Bank N.A.; subseries 2 is synthetically fixed by way of an interest rate swap with Bank of America Merrill Lynch N.A.; and subseries 3 is synthetically fixed using an interest rate swap also with JPMorgan Chase Bank N.A. Although only a point-in-time snapshot and--barring a termination event such as the rating on PWSA falling below 'BBB-'--not an actual liability, those swaps are currently substantially out of the money. Subseries 4 (\$2 million) and the balance on the PNC line (\$101 million) is not hedged.

### **Credit overview**

A very conservative approach to long-term planning has enabled management to successfully get three rate increases from PaPUC, with the last being for two years (fiscal years 2022 and 2023). These rate increases have enabled management to continue funding the CIP while dealing with rising costs from its suppliers. Additionally, management was successful in getting a new stormwater fee approved to assist in funding those projects.

Other factors that support the rating include:

- Pittsburgh's role as the anchor and economic engine for western Pennsylvania, based on an employment base that has reinvented itself from one that once relied heavily on manufacturing and industrial jobs;
- Rates for service that have been pressured over the past decade by the unfunded mandates, and will need to be reviewed by the state's rate regulator, but remain affordable;
- Operational management assessment (OMA) that we view as good even despite the above-mentioned challenges;
- Strong coverage levels of all-in debt service historically and projected;
- Strong on-balance-sheet liquidity, supported further by the available credit line; and
- Financial management practices and policies we consider good.

The rating is limited by extremely high leverage, with \$1.4 billion in capital commitments identified through fiscal 2026 likely to continue to pressure the financial profile.

### **Environmental, social, and governance**

In our view, PWSA has outsize risks related to each of environmental, social, and governance (ESG) factors, although each of these are generally trending favorably. The authority in previous years faced scrutiny from local and state elected officials who voiced concerns over its operations. An auditor general's opinion released in November 2017 cited "aging and deteriorating infrastructure issues and financial and operational long-term viability issues" and was an important factor in legislation that ultimately placed PWSA under PaPUC oversight as of April 1, 2018. PaPUC regulates the authority's rates and fees, and must approve additional debt. PWSA's management team has worked closely with regulators and other stakeholders and has already achieved several measures that are likely to improve operations and financial capacity. This includes recent approval of a distribution system improvement charge that will

be dedicated to underground infrastructure rehabilitation. PWSA has also implemented various socially directed programs such as lead service line replacements and customer bill-pay assistance programs. We view the latter as a credit quality stabilizer that could allay affordability concerns. PWSA's own environmental compliance mandates, as well as drinking water efficiency are two key programs in PWSA's capital budget and have been the major generators for the need to consider additional rate adjustments; the authority has the ability to administratively pass through and recover costs from its wholesale wastewater treatment provider. PWSA, under its Green First plan, is also piloting approximately a dozen projects to experiment with different approaches to green infrastructure and overflow reduction that could also present capital budget cost savings.

## Outlook

The stable outlook reflects our expectation that when PWSA does need to propose a rate case to PaPUC, there will generally be a credit-supportive relationship, observed by both the timing and magnitude of rate adjustments that PWSA is likely to request, versus what the PUC ultimately grants. We are assuming that the financial profile will be further stabilized by the sufficiency test in the rate covenant--which does not allow for the use of cash transfers. We will also likely keep in place the one-notch distinction between the first- and subordinate-lien debt.

### Downside scenario

Should inflationary and supply-chain issues significantly drive up the cost of the CIP, which is expected to be mostly debt funded, and thereby causing additional debt which pressures financial metrics, the rating could be lowered.

### Upside scenario

Management has represented that total debt service coverage (DSC) will generally move toward about 1.25x and on-balance-sheet available reserves equivalent to four-to-five months of operating expenses. Consistently outperforming financial projections while meeting the long-term challenges presented by an aging system, compounded by regulatory pressures, would be the key to achieving a higher rating.

## Credit Opinion

### Enterprise risk

PWSA provides drinking water and sewer collection to more than 83,641 metered accounts in most, but not all, of the city, as well as five neighboring municipalities and three wholesale customers for needs ranging from emergency interconnections and peaking to full requirements. It also provides sewer collection to the entire city. Although median household effective buying income (MHHEBI) is only 78% that of the U.S., the local economy has long since transitioned from its historical manufacturing base. Those sectors are still part of the employment base. Financial services, health care, and a booming technology sector are all increasingly important contributors to the metropolitan area. We do not view there to be any dependence on the authority's principal customers, given that they include another water authority and the University of Pittsburgh. Regional water authority wholesale customers do have some minimum contractual payments to PWSA, lending further stability to cash from operations.

Based on our OMA, we view PWSA to be good. An assessment of good, in our opinion, implies that overall alignment



between the system's operational characteristics and its management is sufficient, although there are areas of opportunity. Management's plans to rehabilitate and build reliability into the operations improved our view of this assessment. The CIP contains projects that are both based on PWSA's prioritization as well as those reflecting consent decrees.

Much of the existing infrastructure was also built to serve a much larger population and a workforce much different from that of today. While we note, for example, that the city has an essentially unlimited raw-water supply from the Allegheny River and overall system capacity that could support a population several times the size of the current one, it is also the case that the authority's focus remains the renewal and replacement of its aging underground infrastructure. The water distribution system is also an identified area of opportunity given the high nonrevenue water percentage, attributable to line losses. However, under a 2019 cooperation agreement, the city will no longer receive free service, which alone should help improve nonrevenue water. The renegotiated agreement will not affect the capital lease agreement, and PWSA still intends to purchase the system from the city for \$1 in 2025 under the terms of the current agreement.

PWSA is able to administratively fully pass through and recover ALCOSAN billings and the surcharge for distribution system improvements. Management instituted stormwater charges in fiscal 2022. For fiscal 2021, the average customer--using 3,000 gallons of both water and sewer service plus ALCOSAN's treatment surcharge--pays about \$121 per month, or 3.3% of MHHEBI. As costs increase over time to support the CIP, headroom for affordability, especially to lower-income customers, could diminish.

### **Financial risk**

All-in DSC by our calculation was below 1.4x in 2021, up from 1.2x in 2020. Based on our review of management's projections, all-in DSC is likely to trend toward 1.16x assuming additional debt and a supportive relationship with PaPUC. All-in DSC is S&P Global Ratings' adjusted DSC metric that includes all obligations of the system regardless of lien or accounting treatment.

The system's liquidity remains an area of consistency and credit strength. Total available reserves also include the line of credit, designated as an interim funding mechanism for capital projects that will be somewhat repaid following the 2022 transactions. All told, cash and equivalents held by PWSA remains sound, usually equivalent to four-to-six months of operating expenses. At the end of fiscal 2021, the authority had \$76.4 million in available reserves or 281 days' cash.

Approximately 30% of PWSA's debt is variable rate, most of which is synthetically fixed by way of interest rate swaps. We view the contingent liquidity risk as remote, as the most prominent termination event would be if the ratings on PWSA were to be lowered to below investment grade. Although the current positions of the interest-rate swaps remain materially unfavorable, PWSA has not had to post collateral to its counterparts.

An FMA of good indicates that we consider practices currently good, but not comprehensive. The authority maintains many best practices we believe are critical to supporting credit quality, particularly in the finance department. These practices, however, may not be institutionalized or formalized in policy, or may not be as robust as those of comparable utilities with an FMA of strong. The FMA of good includes a long-term financial plan that management intends to implement in partnership with PaPUC to support its identified capital commitments. The authority also has

implemented new, more comprehensive and conservative budgeting assumptions that better capture annual revenue requirements. We understand that the authority's management team regularly tracks budget-to-actual performance and that the new management team is instituting a number of additional best practices to target consistently higher levels of financial performance.

## Related Research

- Through The ESG Lens 3.0: The Intersection Of ESG Credit Factors And U.S. Public Finance Credit Factors, March 2, 2022

| Ratings Detail (As Of October 12, 2022)                            |                 |          |
|--|-----------------|----------|
| Pittsburgh Wtr & Swr Auth WS (AGM)<br><i>Unenhanced Rating</i>     | A+(SPUR)/Stable | Upgraded |
| Pittsburgh Wtr & Swr Auth WS (AGM)<br><i>Unenhanced Rating</i>     | A+(SPUR)/Stable | Upgraded |
| Pittsburgh Wtr & Swr Auth WTRSWR<br><i>Long Term Rating</i>        | A+/Stable       | Upgraded |
| Pittsburgh Wtr & Swr Auth WTRSWR (AGM)<br><i>Unenhanced Rating</i> | A+(SPUR)/Stable | Upgraded |
| Pittsburgh Wtr & Swr Auth WTRSWR (AGM)<br><i>Unenhanced Rating</i> | A(SPUR)/Stable  | Upgraded |
| Pittsburgh Wtr & Swr Auth WTRSWR (AGM)<br><i>Unenhanced Rating</i> | A+(SPUR)/Stable | Upgraded |
| Pittsburgh Wtr & Swr Auth WTRSWR (AGM)<br><i>Unenhanced Rating</i> | A+(SPUR)/Stable | Upgraded |
| Pittsburgh Wtr & Swr Auth WTRSWR (AGM)<br><i>Unenhanced Rating</i> | A+(SPUR)/Stable | Upgraded |

Many issues are enhanced by bond insurance.

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**RESPONSE:**

Please see attached.

# The Pittsburgh Water and Sewer Authority

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2022 Rating Agency Presentation

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## The Pittsburgh Water and Sewer Authority



William J. Pickering,  
Chief Executive Officer

Edward Barca,  
Director of Finance

Jennifer Presutti,  
Chief Operating Officer/Chief Financial Officer

Kevin Pawlos,  
Deputy Director of Finance

## Financial Advisor: Public Resources Advisory Group



## Senior Manager: Bank of America Securities / Co-Senior Manager: Ramirez & Co.



# The PWSA: Delivering Real Results

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- Effective Team
- PWSA Services a Large and Diverse Area Including the City and Surrounding Boroughs
- Capital Improvement Plan Addresses Key System Risks While Maintaining Metrics and Maximizing Outside Funding
- Solid Financial Condition With Market Service Rates
- Productive Working Relationships with Regulator Has Resulted in Necessary Rate Increases
- PWSA: An Industry Leader



# The PWSA: Delivering Real Results (Cont'd)

## Entering a New Era – Renewed Emphasis on Public Health

### Mission Statement –

To support our region by protecting public health and the environment through the delivery of safe and reliable water services with a commitment to future generations.

### Core Values –

- Accountability
- Stewardship
- Ethics & Integrity
- Safety
- Equity

## Large System with Stable Customer Base

### System Characteristics

- Largest combined water, wastewater, and stormwater authority in Pennsylvania
- Produces over 64 million gallons of water daily

### Customer Base

- **8 out of the top 10 customers are government entities**, with the other 2 being medical facilities
- City of Pittsburgh is now paying the PWSA for water per the Cooperation Agreement

## Demonstrated Productive Relationship with the PA PUC

### PA PUC Regulation

- PWSA has been under PA PUC jurisdiction for **over 4 years**
- Positive impact on PWSA's operations, maintenance, capital planning, and regulatory compliance
- First municipal water authority to be regulated by the PUC

### Rate Increases

- PWSA has successfully completed **three rate increase filings** under the PA PUC
- PA PUC is **required to approve rates that permit PWSA to comply with its debt covenants**

## Commitment to Funding Essential Infrastructure

### Lead Service Line Replacement Program

- **9,500+ or 52.4 miles** of lead service lines replaced since 2016
- **Four consecutive** lead testing samples under the EPA action level of 15 ppb
- PWSA's lead service line replacement program has received **national recognition**

### Capital Planning

- Large \$1.4+ billion capital improvement plan
- PWSA expects to have **over \$875 million** of below market external funding in place by Q2 of 2023
- PWSA will continue to seek external funding to obtain the lowest cost of capital for its ratepayers



# The PWSA: Delivering Real Results (Cont'd)

## Improved Financial Condition

- Days cash on hand grew from a low of 23 days in 2017 to 137 days in 2021
- Debt ratio improved from 122% in 2014 to 107% 2021 despite large capital investments
- PWSA is committed to strong financial management practices

## Debt Service Coverage Ratios <sup>(1)</sup>

| Fiscal Year                  | 2013  | 2014  | 2015  | 2016  | 2017  | 2018  | 2019  | 2020  | 2021  |
|------------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Senior Debt Service Coverage | -     | -     | -     | -     | -     | -     | 2.16x | 1.51x | 1.74x |
| Total Debt Service Coverage  | 1.99x | 1.83x | 1.73x | 1.45x | 1.30x | 1.72x | 1.58x | 1.23x | 1.44x |

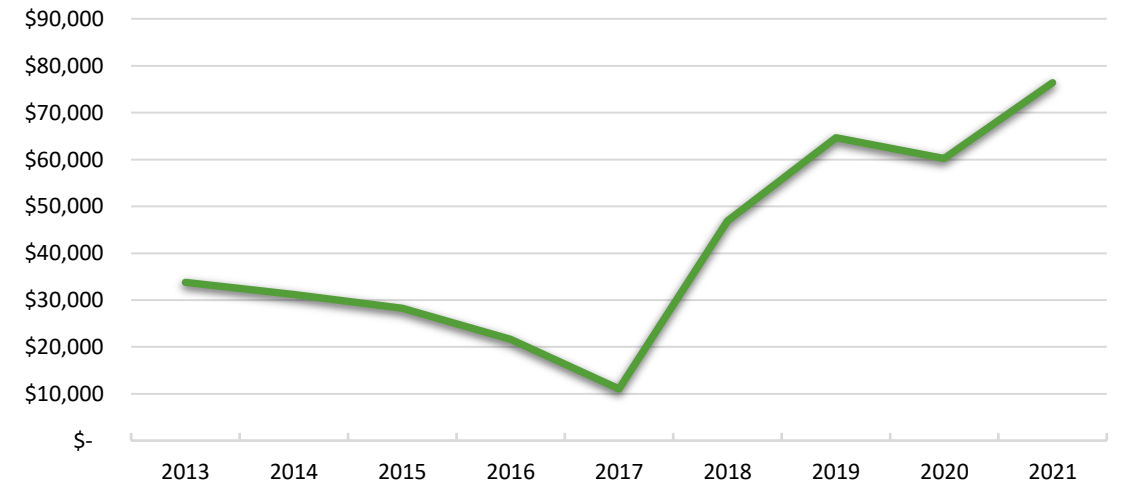
## Debt Ratio

| Fiscal Year | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 |
|-------------|------|------|------|------|------|------|------|------|------|
| Debt Ratio  | 116% | 122% | 119% | 118% | 121% | 119% | 117% | 112% | 107% |

## Cash Balance (Unrestricted Cash)

| Fiscal Year | Cash Balance (\$000's) | Days Cash on Hand |
|-------------|------------------------|-------------------|
| 2013        | \$33,759               | 113               |
| 2014        | 31,219                 | 91                |
| 2015        | 28,269                 | 78                |
| 2016        | 21,620                 | 53                |
| 2017        | 11,076                 | 23                |
| 2018        | 46,920                 | 101               |
| 2019        | 64,680                 | 129               |
| 2020        | 60,210                 | 115               |
| 2021        | 76,422                 | 137               |

Cash Balance Fiscal Year 2013-2021 (\$000's)



1) Fiscal year 2019 is the first year that the new rate covenant calculation is effective. Unrestricted cash is no longer included in the calculation.



# Section 1: Governance and Management Highlights

# Governance

| Board Member                    | Board Title                       | Experience  | Term Expiration |
|---------------------------------|-----------------------------------|---|-----------------|
| Alex Sciulli, PE                | Chair                             | President and CEO of ALEM Consulting  | April, 2025     |
| Erika Strassburger              | Vice Chairperson                  | Councilperson, City of Pittsburgh   | February, 2024  |
| BJ Leber                        | Secretary and Treasurer           | President and CEO of Adagio Health  | September, 2024 |
| Michael Domach                  | Assistant Secretary and Treasurer | Professor, Carnegie Mellon University   | April, 2023     |
| Dr. Audrey Murrell              | Member                            | Professor, University of Pittsburgh, College of Business Administration           | September, 2024 |
| Mark Thomas                     | Member                            | President of Pittsburgh Regional Alliance   | April, 2025     |
| Rosamaria Cristello             | Member                            | Executive Director and Founder of Latino Community Center                         | September, 2024 |
| Margaret (Peg) McCormick Barron | Member                            | Retired, Former Executive Vice President of the West Penn Allegheny Health System | April, 2025     |
| Vacant                          | -                                 | -   | -               |

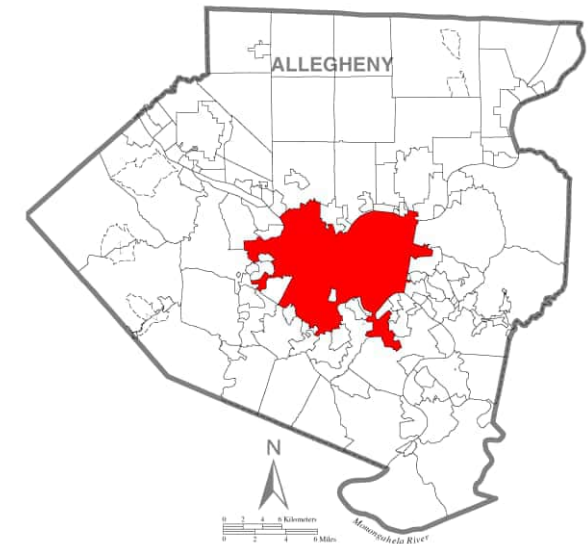
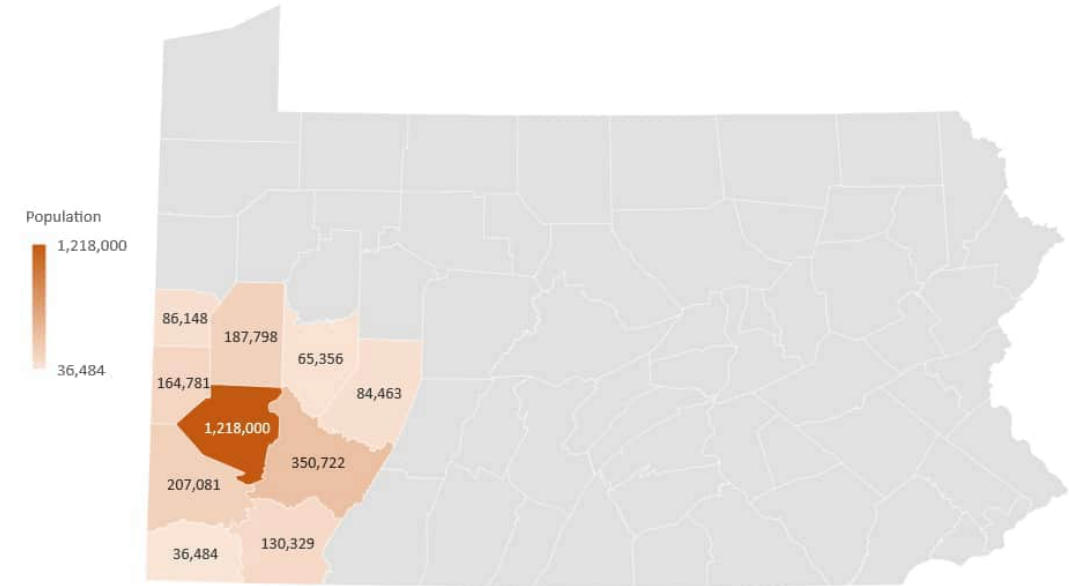
# Executive Management

| Board Member           | Board Title                                       | Experience  |
|------------------------|---|---|
| William J. Pickering   | Chief Executive Officer                           | Appointed in June 2020. Previously the Deputy Executive Director and Director of Public Affairs of the PWSA. Prior experience as the Manager of Communications and Government Relations at DC Water.                |
| Jennifer Presutti      | Chief Operating Officer & Chief Financial Officer | Appointed in June 2020. Previously the Deputy Executive Director and Director of Finance of the PWSA. Prior experience as the Director of the Office of Management and Budget at the City of Pittsburgh.            |
| Frank Sidari, PE, BCEE | Chief Environmental Compliance & Ethics Officer   | Appointed in March 2021. Has over 20 years of experience in consulting roles supporting water and wastewater systems.   |
| Logan Carmichael       | Chief People & Culture Officer                    | Appointed in February 2021. Has experience in organizational development, talent acquisition, training & development, change management, and workforce planning working for the Allegheny County Airport Authority. |
| Lee Haller             | Chief Information & Performance Officer           | Appointed in December 2019. Prior experience as the Director of Innovation & Performance for the City of Pittsburgh and has held technology leadership roles in both public and private sector organizations.       |
| Monica Walaan, Esquire | Chief Legal Officer                               | Appointed in March 2022. Prior experience as the Vice President of Legal Affairs and Assistant General Counsel for the Allegheny County Airport Authority.  |

# PWSA Organizational Structure

## Workforce Expansion Highlights:

- Employee Count (155 new employees, 63% increase)
  - 2016 – 247 Employees
  - August 2022 – 402 Employees
- Residency Requirement Expanded
  - Chief’s, Directors, and Senior Managers can live in Allegheny County or the surrounding 9 counties (Population of 2,531,162)
  - All other employees except for one union group can live within Allegheny County (Population of 1,218,000)
- Workforce expansion to support the execution of the expanded CIP as well as operating, maintenance, and environmental compliance functions.





# PWSA System Acquisition - 2025

- Per the Capital Lease Agreement with the City of Pittsburgh, **PWSA intends to exercise the option to purchase the asset for \$1 in 2025**
- PWSA is taking the following to prepare for the purchase:
  - Identifying all real estate transfer functions that need to occur
  - Performing a valuation study for all assets
  - Working collaboratively with City of Pittsburgh leadership to ensure a smooth transition
- Change of ownership will not have an impact on leadership or ratesetting





## Section 2: Authority Service Areas and Customer Base



# City of Pittsburgh Economy

## 2020 & 2021 Pittsburgh Fortune 500 Companies<sup>(3)</sup>

| Company                        | Fiscal Year |           |
|--------------------------------|-------------|-----------|
| PNC Financial Services Inc.    | 2020        | 2021      |
| PPG Industries Inc.            | 2020        | 2021      |
| Howmet Aerospace Inc.          | 2020        | -         |
| United States Steel Corp.      | 2020        | 2021      |
| Alcoa Corp.                    | 2020        | 2021      |
| WESCO International Corp.      | 2020        | 2021      |
| Wabtec Corp.                   | 2020        | 2021      |
| Viartis Inc.                   | -           | 2021      |
| Dick's Sporting Goods          | -           | 2021      |
| Arconic Corp.                  | -           | 2021      |
| Kraft Heinz Co. <sup>(5)</sup> | -           | 2021      |
| <b>Total Companies</b>         | <b>7</b>    | <b>10</b> |

- With a population of 300,281 Pittsburgh is the second largest city in the Commonwealth of Pennsylvania and situated at the center of a 2.3 million person metropolitan area - the nation's 27th largest <sup>(1)</sup>
- Access to 50%+ of US buying power within 500 miles
- 1.1 million employed regionally in a diverse set of industries, including higher education, health care, financial and professional services, and energy <sup>(2)</sup>
- Home to ten Fortune 500 Companies <sup>(3)</sup>, the nation's second-largest inland port, and seventh largest bank, PNC Financial Services <sup>(4)</sup>



Sources:

- 1) United States Census Bureau
- 2) United States Bureau of Labor Statistics
- 3) Pittsburgh Business Times
- 4) United States Federal Reserve
- 5) Dual Headquarters in Chicago and Pittsburgh



# City of Pittsburgh Economy (Cont'd)

## 2021 Top 10 Regional Employers<sup>(1)</sup>

| Company                                 | Industry           | Employment     |
|---|--------------------|----------------|
| University of Pittsburgh Medical Center | Healthcare         | 53,375         |
| Highmark Health                         | Healthcare         | 20,295         |
| U.S. Government                         | Government         | 18,564         |
| Commonwealth of Pennsylvania            | Government         | 12,055         |
| University of Pittsburgh                | Education          | 13,451         |
| PNC Financial Services Group, Inc.      | Financial Services | 12,000         |
| Giant Eagle                             | Retail             | 10,569         |
| Wal-Mart Stores, Inc.                   | Retail             | 9,000          |
| Allegheny County                        | Government         | 6,880          |
| BNY Mellon                              | Financial Services | 7,000          |
|   |                    | <b>163,189</b> |

## Low Cost of Living and Educated Workforce<sup>(2)</sup>

- Median family income of \$50,536
- Median gross rent: \$984
- 93% of residents aged 25 and over have attained a high school diploma
- 45% of residents aged 25 and over have attained a bachelor's degree or higher
- Stable employment base – government, “eds and med’s”, and technology

## Companies with Significant Presence in Pittsburgh

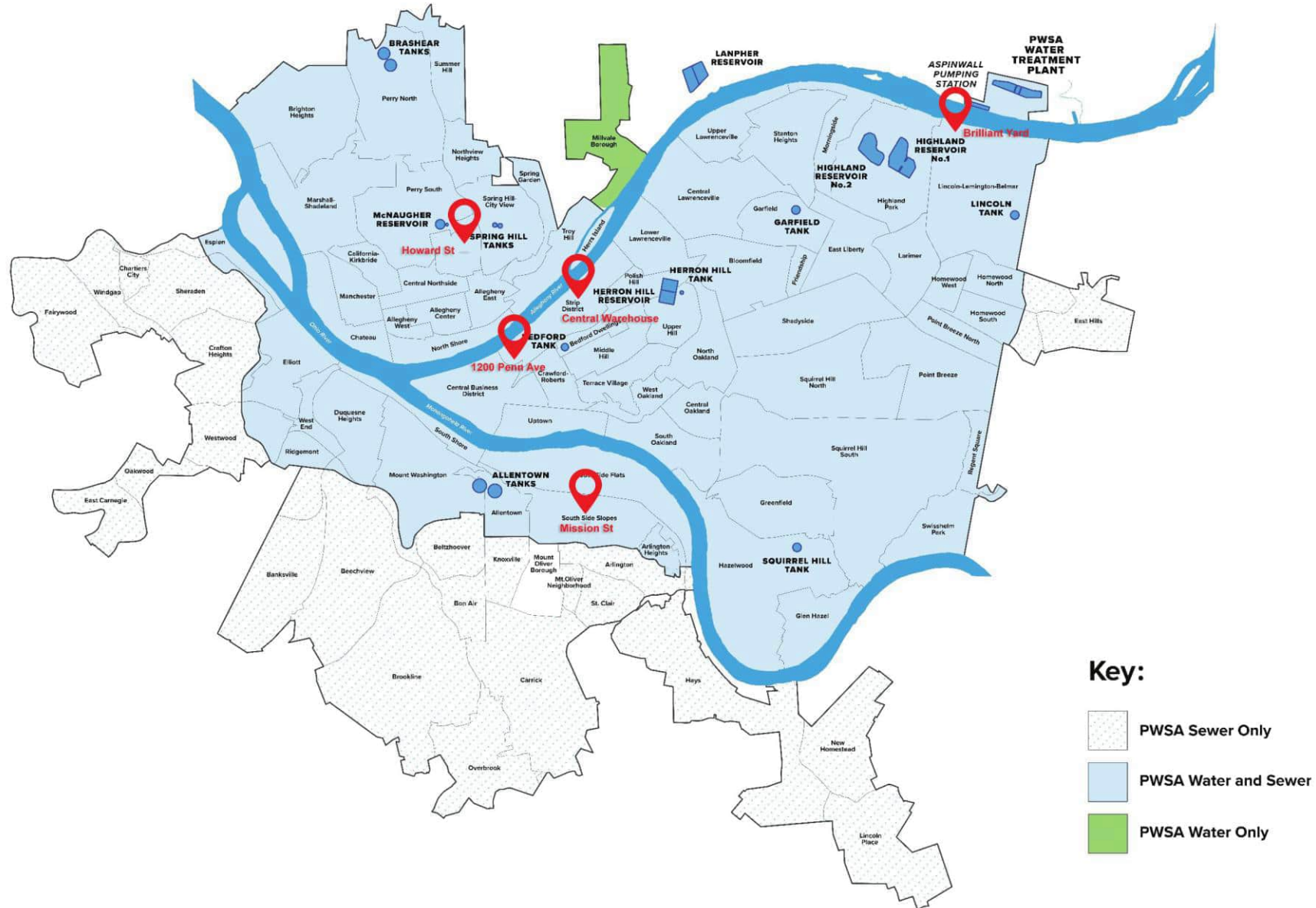


Source:

1) 2021 City of Pittsburgh Annual Comprehensive Financial Report

2) United States Census Bureau

# PWSA Service Area



# PWSA Customer Base

## 2021 Top Ten Largest Customers by Consumption

| Rank         | User  | % of Total Consumption |
|--------------|---|------------------------|
| 1            | Fox Chapel Water Authority                  | 8.04                   |
| 2            | University of Pittsburgh                    | 1.56                   |
| 3            | Borough of Aspinwall                        | 1.37                   |
| 4            | Reserve Water Department                    | 1.19                   |
| 5            | Pittsburgh Zoo and Aquarium                 | 1.02                   |
| 6            | Allegheny County                            | 1.01                   |
| 7            | City of Pittsburgh                          | 1.00                   |
| 8            | Housing Authority of the City of Pittsburgh | 0.93                   |
| 9            | Veterans Affairs                            | 0.69                   |
| 10           | West Penn Hospital                          | 0.62                   |
| <b>Total</b> |   | <b>17.43%</b>          |

## 2021 Water Consumption by Customer Class

| User         | # of Customers | % of Usage  |
|--------------|----------------|-------------|
| Residential  | 65,739         | 35          |
| Commercial   | 7,140          | 38          |
| Industrial   | 33             | 3           |
| Wholesale    | 10             | 11          |
| Other        | 1,840          | 14          |
| <b>Total</b> | <b>74,762</b>  | <b>100%</b> |

- Provides ample water supply to a population of over 300,000
- Top ten customers have been in the System for at least 75 years with two users (Pittsburgh Zoo and Aquarium and City of Pittsburgh) now paying for water as part of the recent PWSA and City of Pittsburgh Cooperation Agreement
- In addition to its sales to residential, commercial, and industrial customers, the PWSA has agreements with the five adjacent municipalities or authorities listed below with three of those being wholesale water customers:
  - Fox Chapel Water Authority (Wholesale Customer)
  - Reserve Township (Wholesale Customer)
  - Borough of Aspinwall (Wholesale Customer)
  - Hampton-Shaler Water Authority
  - West View Water Authority
- The PWSA purchased the neighboring Borough of Millvale's water system in 2010, adding nearly two thousand customers to its customer base





## Section 3: Water and Sewer System Facilities and Operations

# Water System Overview

## System Supply

- Source water for PWSA is the Allegheny River
- Authority and its predecessors have held withdrawal permits since 1943

## Treatment, Pumping, and Distribution System

- 117 MGD rapid sand water treatment plant near the Borough of Aspinwall
- 21 MGD secondary membrane micro filtration plant in the Highland Park section of the City to re-treat water from the Highland #1 Reservoir (enabling the reservoir to remain uncovered) before it goes into the water distribution system
- 964 miles of water mains plus 83,641 individual service connections
- 24,900 valves
- 7,450 fire hydrants
- 11 pumping stations (one raw water, two finished water, and eight distribution)
- Four reservoirs (one uncovered source water and three covered finished water) and 10 distribution storage tank reservoirs with 455 million gallons of total capacity (two to three days of uninterrupted supply)

## Production and Demand

- In 2020, the water treatment plant treated over 23 billion gallons of water
- Average withdrawal is approximately 64 MGD





# Wastewater and Stormwater System Overview

## Overview

- Conveys wastewater collected from 24 neighboring suburban municipalities as well as generated within City boundaries to ALCOSAN interceptors along the rivers of the City for conveyance to ALCOSAN's Wastewater Treatment Plant on the Ohio River

## PWSA Wastewater Collection and Stormwater System

- 1,227 miles of sanitary, storm, and combined sewers
- 29,502 manholes (which includes flow dividers and diversion chambers)
- 24,463 inlets (which includes catch basins and storm inlets)
- 98 combined sewer overflow (CSO) outfalls
- 195 storm sewer outfalls (SSO)
- Four wastewater pump stations
- Approximately 26% of the PWSA Wastewater System consists of separate sewers that consist of dedicated separate sanitary and storm sewer pipelines



# Environmental Regulation

## Consent Order and Agreement with DEP Replaced with Consent Decree with the USEPA

### Clean Water Act Section 308 Information Request

- PWSA's Consent and Order Agreement ("COA") with the DEP expired in March 2015. The City and PWSA as joint permit holders requested that the USEPA become the primary regulatory body to which the Authority is responsible
- On January 21, 2016, the USEPA issued a Clean Water Act Section 308 Information Request to the Authority
- The nature of the request is to provide a jurisdictional basis for USEPA to engage the Authority/City in an enforcement action by consent, or a Consent Decree ("CD"), which requires the PWSA to do the following. The responses were delivered on time in January 2017 with monthly reporting ongoing.
  - Submit detailed information on past CSO performance and activities
  - Conduct a green infrastructure ("GI") and source reduction study for the service area, followed by GI demonstration projects
  - Continue implementing Nine Minimum Controls to reduce combined sewer overflows and perform repairs and maintenance of deficiencies
  - Ongoing sewer line replacement, point repair, lining, and point lining projects have been implemented to address structural deficiencies
  - Submission of monthly reports updating the progress of evaluations and improvements as well as water quality impacts

### New Consent Order

- The negotiation of a new Consent Decree with the agencies began in 2021
- Given the broad scope of a potential Consent Decree, the size of PWSA's Wastewater System, and the various conditions and/or deficiencies that may be discovered within the system, is difficult to predict the total cost of compliance or a time period for when the Consent Decree will be finalized
- Costs associated with Consent Order compliance will be but not currently reflected in the capital improvement program
  - PWSA's goal is to phase-in these obligations
  - External grant funding and low-interest loans will be requested to fund these obligations

# Environmental Compliance



- Annual Environmental Compliance and Ethics training for all **PWSA employees** and **contractors**.
- Recent Policy & Manual Updates:
  - Environmental Compliance Manual
  - Code of Ethics
  - Code of Conduct
  - No Discrimination, Harassment, Retaliation Policy
  - Whistleblower Policy
- Anonymous third-party whistleblower system operated by Lighthouse Services.





# Cybersecurity and Resiliency

## Cybersecurity

- PWSA implemented a co-managed Security Information and Event Management system (SIEM) along with a third party 24/7 Security Operation Center (SOC) to monitor it.
- PWSA continues to partner with the U.S. Department of Homeland Security to assist with running tabletop exercises based around cyber threats.
- The PWSA has a current cyber risk insurance policy that covers computer fraud, funds transfer fraud, and E-commerce extortion. In addition, the policy covers expenses related to crisis management, security breach remediation, computer program and electronic data restoration, and business interruption expenses. The policy coverage was increased in 2022 due to increased threats experienced by other governmental agencies.
- Multifactor authentication was installed on all PWSA computers and related devices in 2022.
- All PWSA employees are required to complete periodic cybersecurity exercises and trainings.

## Data and Asset Security

- PWSA upgraded its anti-virus software to include an Endpoint Detection and Response platform.
- Firewall hardware is in place that also includes Intrusion Protection Services that monitors all inbound traffic for threats. A third party managed services contractor identifies and recommends server and device patching/updates.

## Phishing

- PWSA upgraded its spam and malware protection to an artificial intelligence driven protection platform that provides multi-levels of defense and guards against phishing.

## Disaster Recovery Plan

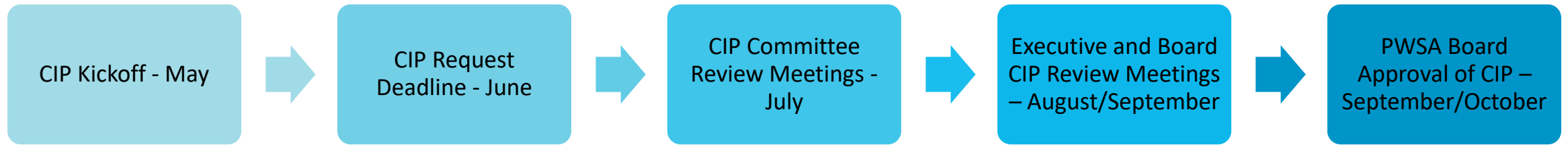
- The PWSA has partnered with a third party to provide disaster recovery and business continuity services.





## Section 4: Capital Planning and CIP

# Capital Planning Process



## Overview

- The PWSA Capital Improvement Program (“CIP”) focuses on sustaining cost-effective operations, while optimizing the system's asset performance and life expectancy

## Development and Approval Process

- The Annual CIP process begins each year around May when project nominations are solicited from the entire organization
- Following the nomination period, the CIP Committee evaluates nominated projects and makes recommendations for what should be considered for immediate priorities
- This process lasts several months and culminates with the presentation of the updated CIP to PWSA’s Board of Directors

## Capital Project Prioritization:

- The following criteria are used to evaluate and prioritize capital projects:
  - Regulatory Compliance
  - Safety
  - Operating Efficiency
  - Quality of Service
  - Organizational Goals
  - Social Impact

## 2023-2027 Capital Improvement Plan Approval:

- October 28, 2022



## The Pittsburgh Water and Sewer Authority

2022 – 2026 Capital Improvement Plan

Approved on September 24, 2021





# 2022-2026 Capital Improvement Plan

|                         | FY 2022              | FY 2023            | FY 2024            | FY 2025            | FY 2026            | Total                  |
|-------------------------|----------------------|--------------------|--------------------|--------------------|--------------------|------------------------|
| Water Distribution      | \$56,341,652         | 38,235,780         | 101,841,026        | 159,347,537        | 192,324,062        | \$548,090,057          |
| Water Pumping & Storage | 55,208,438           | 116,218,583        | 97,821,934         | 31,065,026         | 34,807,862         | 335,121,843            |
| Wastewater System       | 41,130,789           | 39,817,206         | 31,616,345         | 36,661,046         | 41,222,673         | 190,448,059            |
| Water Treatment Plant   | 6,253,411            | 40,203,269         | 23,635,598         | 63,090,666         | 60,553,378         | 193,736,322            |
| Stormwater              | 21,424,273           | 31,199,088         | 21,833,007         | 29,166,709         | 30,825,000         | 134,448,077            |
| Miscellaneous           | 500,000              | 500,000            | 500,000            | 500,000            | 500,000            | 2,500,000              |
| <b>Total</b>            | <b>\$180,858,563</b> | <b>266,173,926</b> | <b>277,247,910</b> | <b>319,830,984</b> | <b>360,232,975</b> | <b>\$1,404,344,358</b> |

## Mandated Projects – PA DEP Consent Order

- Water Reliability Plan: \$470 million

## Major CIP Projects

- Small Water Main Replacements: \$254 million
- Lead Service Line Replacements: \$116 million
- Small Sewer Rehabilitation: \$111 million
- Large Water Main Replacements: \$84 million

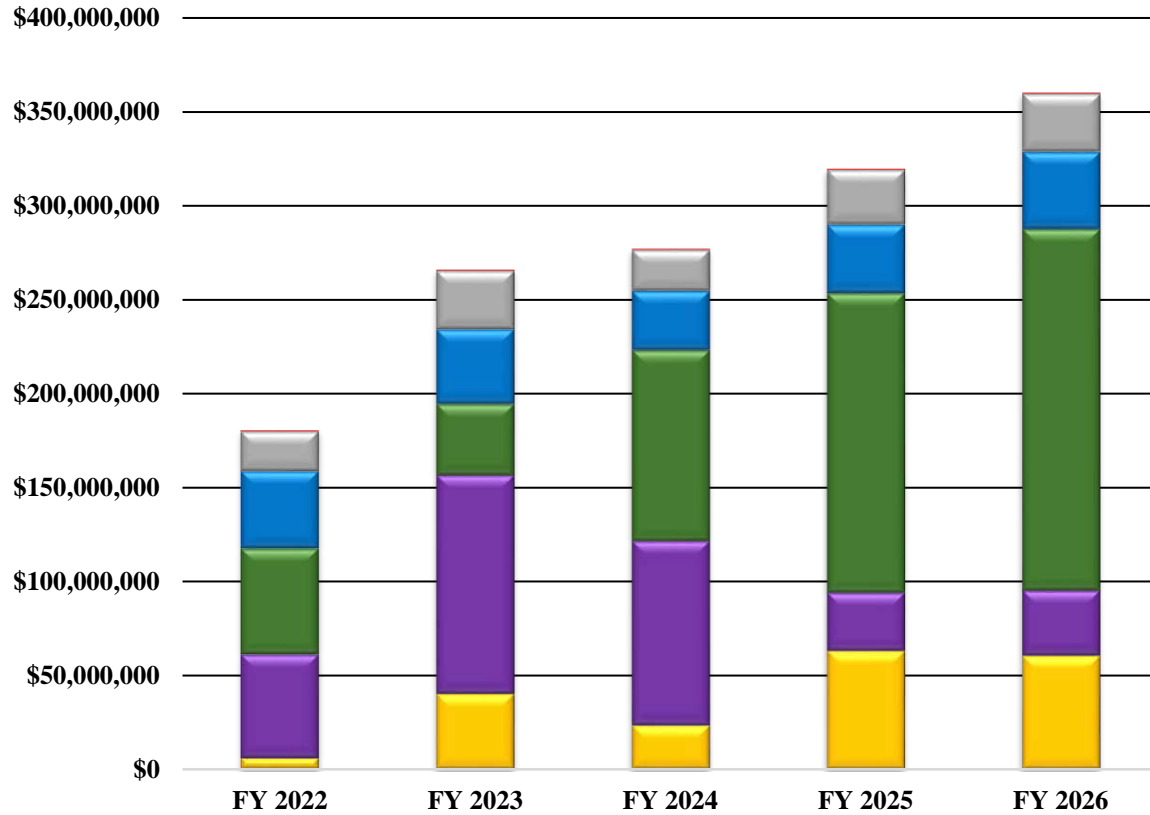
|                      | FY 2022              | FY 2023            | FY 2024            | FY 2025            | FY 2026            | Total                  |
|----------------------|----------------------|--------------------|--------------------|--------------------|--------------------|------------------------|
| Debt (Revenue Bonds) | \$119,603,457        | 119,915,563        | 189,081,514        | 271,641,162        | 334,482,321        | \$1,034,724,017        |
| WIFIA                | -                    | 116,323,796        | 74,148,832         | 39,369,193         | 16,671,306         | 246,513,127            |
| PENNVEST             | 52,638,246           | 21,323,928         | 5,287,162          | -                  | -                  | 79,249,336             |
| DSIC – Water         | 5,986,230            | 5,953,703          | 6,063,439          | 6,153,666          | 6,412,385          | 30,569,423             |
| DSIC – Wastewater    | 2,630,630            | 2,656,936          | 2,666,963          | 2,666,963          | 2,666,963          | 13,288,455             |
| <b>Total</b>         | <b>\$180,858,563</b> | <b>266,173,926</b> | <b>277,247,910</b> | <b>319,830,984</b> | <b>360,232,975</b> | <b>\$1,404,344,358</b> |

## Wet Weather Consent Decree

- Not currently included in CIP
- Amount and projects to be determined

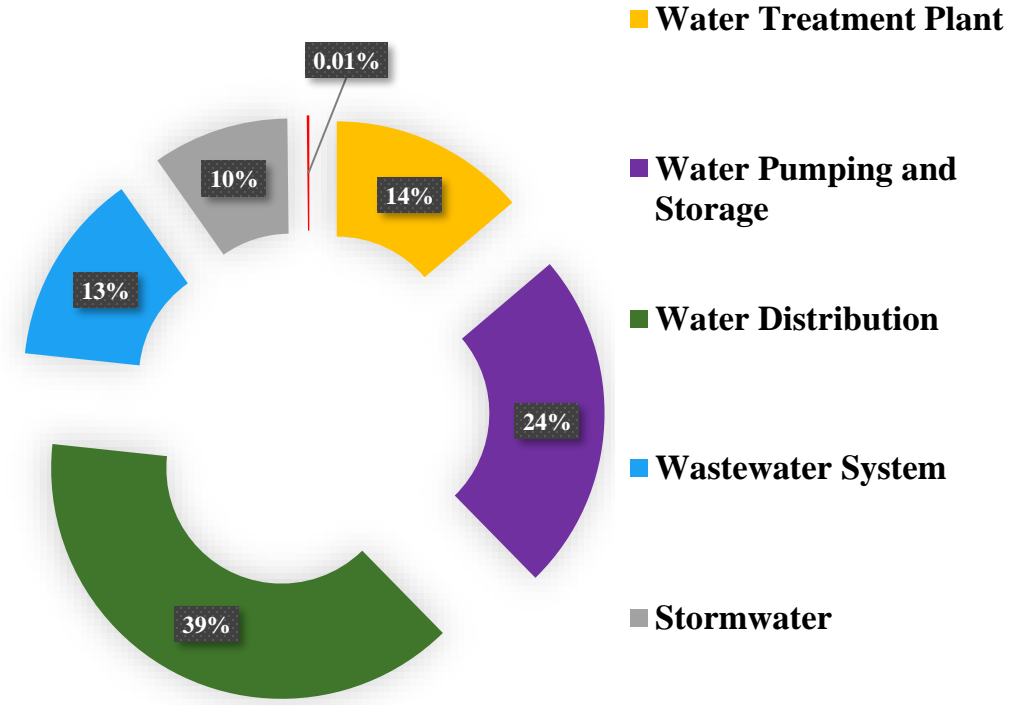
# 2022-2026 Capital Improvement Plan (Cont'd)

Allocation by Project Type



- Water Treatment Plant
- Water Pumping and Storage
- Water Distribution
- Wastewater System
- Stormwater
- Miscellaneous

Allocation by Project Type (Percentage)



- Water Treatment Plant
- Water Pumping and Storage
- Water Distribution
- Wastewater System
- Stormwater
- Miscellaneous

# Water Reliability Plan



# Water Reliability Plan (Cont'd)

| Project Name  | Total Budget         | PENNVEST           | WIFIA              | PWSA              |
|---|----------------------|--------------------|--------------------|-------------------|
| Aspinwall Pump Station to Lanpher Reservoir Rising Main | \$137,217,266        | 69,980,806         | 67,236,460         | -                 |
| Bruecken Pump Station Improvements Project              | 107,378,853          | 54,763,215         | 52,615,638         | -                 |
| Clearwell Improvements                                  | 65,756,579           | 33,535,855         | 32,220,724         | -                 |
| Aspinwall Pump Station Improvements Project             | 54,178,997           | 27,631,288         | 26,547,709         | -                 |
| Clearwell Emergency Response Project                    | 28,576,910           | 14,574,224         | 14,002,686         | -                 |
| Highland No. 2 Reservoir Improvements                   | 27,427,500           | -                  | 13,439,475         | 13,988,025        |
| Water Main Improvements - Rising Mains 3                | 31,365,821           | -                  | 15,369,252         | 15,996,569        |
| Water Main Improvements - Rising Mains 4                | 16,705,767           | 8,519,941          | 8,185,826          | -                 |
| <b>Total</b>  | <b>\$468,607,693</b> | <b>209,005,330</b> | <b>229,617,770</b> | <b>29,994,594</b> |
| <b>Percentage of Total Budget</b>                       |                      | <b>45%</b>         | <b>49%</b>         | <b>6%</b>         |

- PWSA's Water Reliability Plan involves the rehabilitation or replacement of large diameter transmission pipes, reservoirs, pump stations, and electrical stations that help to deliver water.
- Funding Sources:
  - WIFIA – 49%
  - PENNVEST – 45%
    - 1% loan awarded July, 2022
  - PWSA – 6%

# WIFIA Loan

- Estimated WIFIA loan Size: \$230 million
- Interest rate structure: SLGS Rate + 0.01%
- Estimated amortization term: 30 years
- Issued lien: Subordinate
- PWSA anticipates taking advantage of capitalized interest period
- Matching funds: PENNVEST (45%) and PWSA (6%)
- Anticipated closing: Q2 of 2023





# Consulting Engineer's 2021 Annual Report

## Overview

All critical recommendations and a majority of the recommended system upgrades are included in the current CIP

***“Based upon our review of the operation and maintenance expenditures during 2021 and the planned expenditures during 2022 (draft only); financial summaries of the CIP expenditures during 2021; review of progress made on the CIP; review of the Board approved CIP for 2022-2026; recommendations from the PUC, the PADEP, the third party corporate monitor, and the USEPA; facility reviews Mott MacDonald has conducted during 2021; and, through interviews with key staff; it is the Consulting Engineer’s opinion that the PWSA is managing their systems, organization, and finances to move the utility forward toward their goal of providing improved water and sewer service to their customers.”***<sup>(1)</sup>





# Section 5: Financial Condition

# Rate Setting History

**Demonstrated ability to raise rates to meet financial obligations under the PaPUC**

- The PUC rate-setting process can last a maximum of 270 days (or about 9 months) unless all parties agree on a joint settlement sooner
- The PUC has been supportive in helping the PWSA achieve its operations and financial objectives

**2019 Rate Increase** - \$21 million revenue in 2019

**2021 Rate Increase** - \$19 million revenue in 2021

**2022 Rate Increase** - \$17 million revenue in 2022

**2023 Rate Increase** - \$4 million revenue in 2023

**Future Rate Increases** - PWSA is planning to begin the process with the PUC for further rate increases in 2024 with the expectation that the rate adjustment will be in place by 2025. The amount of the rate increase request is to be determined.

| Year | Residential |            | Commercial |            | Industrial |            | Health and Education |            | DSIC     | Stormwater Fee |             |             |                 |
|------|-------------|------------|------------|------------|------------|------------|----------------------|------------|----------|----------------|-------------|-------------|-----------------|
|      | Rate (\$)   | Change (%) | Rate (\$)  | Change (%) | Rate (\$)  | Change (%) | Rate (\$)            | Change (%) | Rate (%) | Tier 1 (\$)    | Tier 2 (\$) | Tier 3 (\$) | Commercial (\$) |
| 2014 | 8.48        | 9.60       | 9.15       | 11.00      | 8.37       | 9.00       | 13.55                | 17.90      | 7.00     | 0.00           | 0.00        | 0.00        | 0.00            |
| 2015 | 9.38        | 2.10       | 9.34       | 2.00       | 8.55       | 2.10       | 13.84                | 2.10       | 7.00     | 0.00           | 0.00        | 0.00        | 0.00            |
| 2016 | 9.58        | 0.70       | 9.41       | 0.70       | 8.61       | 0.70       | 13.94                | 0.70       | 7.00     | 0.00           | 0.00        | 0.00        | 0.00            |
| 2017 | 11.80       | 22.30      | 11.42      | 21.30      | 10.40      | 20.80      | 17.04                | 22.20      | 0.00     | 0.00           | 0.00        | 0.00        | 0.00            |
| 2018 | 16.33       | 38.40      | 15.04      | 31.70      | 13.08      | 25.80      | 19.85                | 16.50      | 0.00     | 0.00           | 0.00        | 0.00        | 0.00            |
| 2019 | 18.47       | 13.10      | 17.04      | 13.30      | 14.79      | 13.10      | 22.53                | 13.50      | 0.00     | 0.00           | 0.00        | 0.00        | 0.00            |
| 2020 | 18.47       | 0.00       | 17.04      | 0.00       | 14.79      | 0.00       | 22.53                | 0.00       | 0.00     | 0.00           | 0.00        | 0.00        | 0.00            |
| 2021 | 19.89       | 7.69       | 18.69      | 9.68       | 16.46      | 11.29      | 23.73                | 5.33       | 5.00     | 0.00           | 0.00        | 0.00        | 0.00            |
| 2022 | 20.09       | 1.01       | 18.83      | 0.75       | 16.72      | 1.58       | 23.36                | -1.56      | 5.00     | 2.98           | 5.96        | 11.92       | 5.96            |
| 2023 | 20.45       | 1.79       | 19.08      | 1.33       | 17.18      | 2.75       | 22.67                | -2.95      | 5.00     | 3.98           | 7.95        | 15.90       | 7.95            |



# Stormwater Fee



## Single Family Residential

- Townhouses
- Rowhouses
- Single Families
- 2, 3 & 4 Family
- Mobile Homes



## Non-Single Family Residential

- Apartments
- Commercial
- Industrial
- Health and Education
- City

| Stormwater Monthly Fees | ERUs    | 2022    | 2023    |
|-------------------------|---------|---------|---------|
| Residential - Tier 1    | 0.5     | \$2.99  | \$3.98  |
| Residential - Tier 2    | 1.0     | \$5.96  | \$7.95  |
| Residential - Tier 3    | 2.0     | \$11.93 | \$15.90 |
| Non-Residential         | per ERU | \$5.96  | \$7.95  |

ERU = Equivalent Residential Unit  
 1 ERU = 1,650 square feet



# Customer Assistance Programs

**The PWSA is proud to offer a customer assistance program that helps customers who need it most**

## **Bill Discount Program**

Customers earning an annual income that is at or below 150% of the federal poverty level are eligible for the Bill Discount Program

The Bill Discount Program applies to renters when the tenant is the responsible billing party

- Provides eligible customers with a 100% discount on PWSA's fixed water and wastewater conveyance charges
- An additional 50% discount on the volumetric charges for customers earning an annual income that is at or below 50% of the FPL
- 85% reduction on the stormwater fee
- A monthly \$30 credit to reduce past due balances for customers that make on-time payments on an active payment plans.

## **Winter Shut Off Moratorium**

The Winter Shut Off Moratorium provides qualifying customers with the assurance that their water service will not be shutoff from December 1<sup>st</sup> through March 31<sup>st</sup>

The Winter Moratorium is available to single-family residential customers earning an annual income that is at or below 300% of the federal poverty level

## **Hardship Grant**

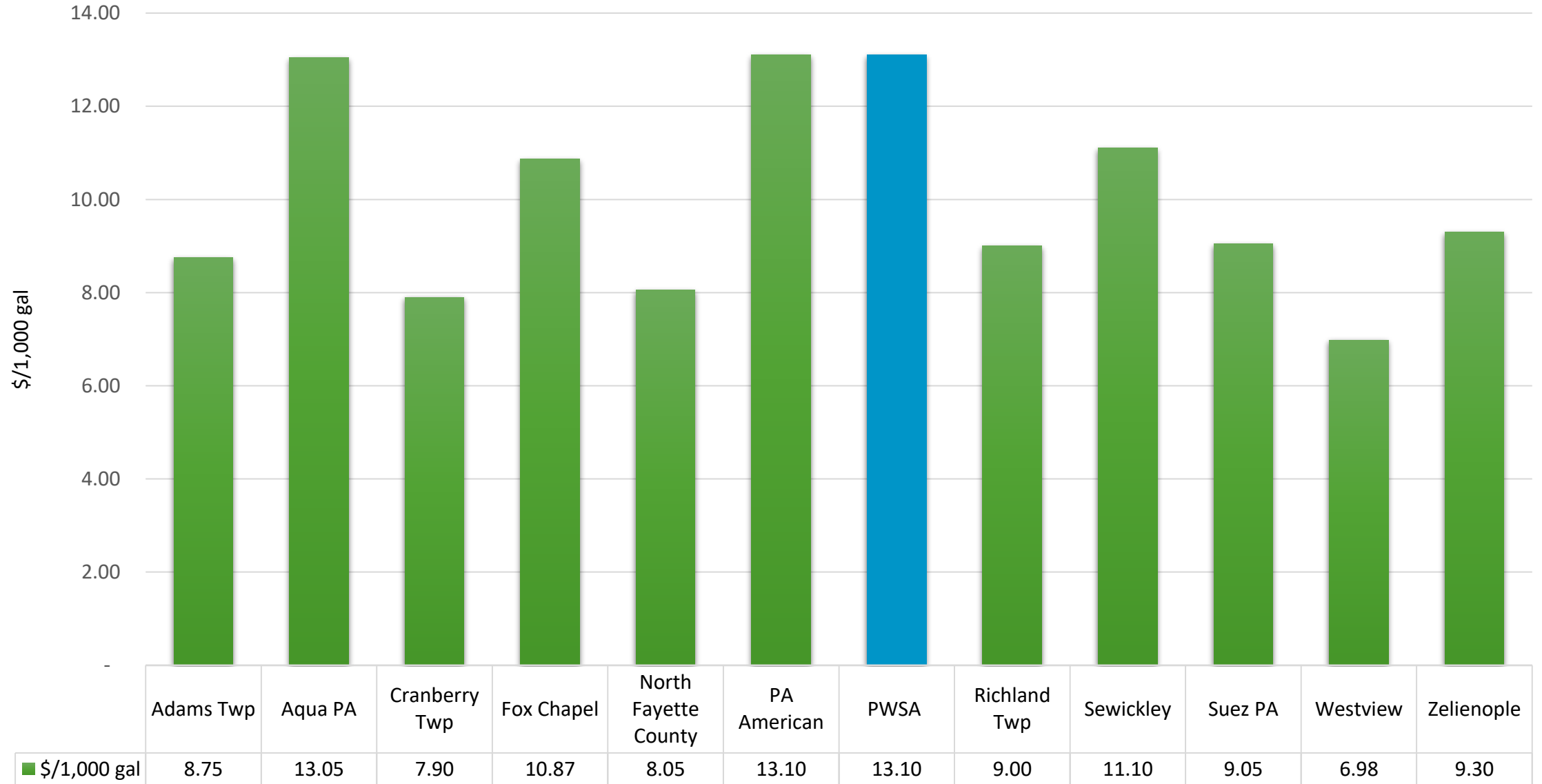
This program provides cash grants up to \$300 per year for customers at or below 150% of the federal poverty level

## **Private Lead Line Replacement Program**

This program provides funds to pay for all or a portion of private side lead line replacements for homeowners or tenants based upon their annual income

Additional information on the customer assistance programs can be found at: <https://lead.pgh2o.com/leadreimbursement/>

# Comparable 2022 System Water Use Charges



# Financial History

| (000's)                                  | FY 2017            | FY 2018            | FY 2019            | FY 2020            | FY 2021            |
|--|--------------------|--------------------|--------------------|--------------------|--------------------|
| <b>Operating Revenues</b>                |                    |                    |                    |                    |                    |
| Residential Water and Conveyance Sales   | \$ 128,488         | \$ 159,506         | \$ 171,681         | \$ 162,676         | \$ 181,870         |
| Wastewater Treatment (ALCOSAN)           | 68,935             | 67,261             | 70,970             | 71,899             | 76,774             |
| Other                                    | 5,573              | 4,967              | 6,398              | 7,422              | 10,477             |
| <b>Total Operating Revenues</b>          | <b>\$ 202,996</b>  | <b>\$ 231,734</b>  | <b>\$ 249,049</b>  | <b>\$ 241,997</b>  | <b>\$ 269,121</b>  |
| <b>Operating Expenses</b>                |                    |                    |                    |                    |                    |
| Direct Operating Expenses                | \$ 71,156          | \$ 72,633          | \$ 89,512          | \$ 92,134          | \$ 99,160          |
| Wastewater Direct Expenses               | 75,107             | 71,822             | 72,389             | 72,698             | 76,802             |
| Cooperation Agreement Costs              | 5,363              | 4,911              | 1,991              | 4,289              | 3,818              |
| Subsidy of Customers Located in the City | 5,594              | 3,814              | 1,338              | 386                | 120                |
| Depreciation                             | 16,172             | 16,894             | 18,011             | 21,659             | 24,386             |
| <b>Total Operating Expenses</b>          | <b>\$ 173,392</b>  | <b>\$ 170,074</b>  | <b>\$ 183,241</b>  | <b>\$ 191,166</b>  | <b>\$ 204,286</b>  |
| <b>Net Operating Income</b>              | <b>\$ 29,604</b>   | <b>\$ 61,660</b>   | <b>\$ 65,808</b>   | <b>\$ 50,831</b>   | <b>\$ 64,835</b>   |
| <b>Other Revenues (Expenses)</b>         |                    |                    |                    |                    |                    |
| Federal Grants                           | \$ -               | \$ -               | \$ 6,992           | \$ 7,001           | \$ 1,347           |
| Donated Property                         | 1,595              | 13,649             | 110                | 76                 | 567                |
| Interest Revenue                         | 460                | 469                | 719                | 201                | 24                 |
| Inv. Inc. Change From Market Swap Value  | 835                | 2,542              | (4,180)            | -                  | -                  |
| Interest & Amortization                  | (34,913)           | (34,365)           | (38,740)           | (37,463)           | (39,431)           |
| Bond Issuance Costs                      | (3,894)            | -                  | (2,462)            | (2,075)            | -                  |
| <b>Total Other Revenue (Expenses)</b>    | <b>\$ (35,917)</b> | <b>\$ (17,705)</b> | <b>\$ (37,631)</b> | <b>\$ (32,336)</b> | <b>\$ (38,060)</b> |
| <b>Special Item</b>                      |                    |                    |                    |                    |                    |
| Private Lead Line Replacement            | \$ -               | \$ (4,478)         | \$ (22,283)        | \$ (18,832)        | \$ (3,088)         |
| <b>Net Income / (Loss)</b>               | <b>\$ (6,313)</b>  | <b>\$ 39,477</b>   | <b>\$ 5,894</b>    | <b>\$ (261)</b>    | <b>\$ 24,254</b>   |

# Summary of Year-To-Date FY 2022 Financials

|                            | FY 2021 <sup>1</sup>   |                      | FY 2022 <sup>2</sup> |                     | FY 2022          |                                     |  |
|----------------------------|------------------------|----------------------|----------------------|---------------------|------------------|-------------------------------------|--|
|                            | Pror Year-to-Date      | Current Year-to-Date | <i>Difference</i>    |                     | Forecast         | Budget                              |  |
| <b>Receipts</b>            |                        |                      |                      |                     |                  |                                     |  |
| Water                      | \$ 67,327,600          | 70,016,238           | 2,688,638            | \$ 108,968,894      | 113,424,315      | (4,455,421)                         |  |
| ALCOSAN                    | 50,610,416             | 52,845,563           | 2,235,147            | 79,605,237          | 77,920,171       | 1,685,066                           |  |
| Wastewater                 | 40,348,880             | 37,190,028           | (3,158,852)          | 56,603,179          | 56,528,196       | 74,983                              |  |
| Stormwater                 | -                      | 7,627,339            | 7,627,339            | 13,873,057          | 17,127,744       | (3,254,687)                         |  |
| DSIC - Water               | 2,569,111              | 3,445,681            | 876,570              | 5,393,314           | 5,671,216        | (277,902)                           |  |
| DSIC - Wastewater          | 1,518,036              | 1,882,997            | 364,961              | 2,853,654           | 2,826,410        | 27,244                              |  |
| Miscellaneous              | 5,387,958              | 4,976,443            | (411,515)            | 5,761,848           | 2,683,488        | 3,078,360                           |  |
|                            | \$ 167,762,001         | 177,984,289          | 10,222,288           | \$273,059,184       | 276,181,540      | (3,122,356)                         |  |
| <b>Expenditures</b>        |                        |                      |                      |                     |                  |                                     |  |
| Operating Expenses         | \$ 71,428,831          | 75,004,525           | 3,575,694            | \$ 102,813,447      | 109,577,926      | (6,764,479)                         |  |
| ALCOSAN                    | 48,265,374             | 55,907,059           | 7,641,685            | 82,567,745          | 79,918,125       | 2,649,620                           |  |
| Debt Service               | 61,883,858             | 67,183,166           | 5,299,308            | 71,188,893          | 73,002,260       | (1,813,367)                         |  |
| DSIC - Water               | 2,569,111              | 3,445,681            | 876,570              | 5,393,314           | 5,671,216        | (277,902)                           |  |
| DSIC - Wastewater          | 1,518,036              | 1,882,997            | 364,960              | 2,853,654           | 2,826,410        | 27,244                              |  |
| Transfer to Reserves       | -                      | -                    | -                    | 3,000,000           | 3,000,000        | -                                   |  |
|                            | \$ 185,665,211         | 203,423,428          | 17,758,217           | \$ 267,817,054      | 273,995,937      | (6,178,883)                         |  |
| <b>Surplus / (Deficit)</b> | <b>\$ (17,903,210)</b> | <b>(25,439,139)</b>  | <b>(7,535,929)</b>   | <b>\$ 5,242,130</b> | <b>2,185,603</b> | <b>3,056,527</b>                    |  |
|                            |                        |                      |                      | <b>1.58x</b>        | <b>1.55x</b>     | <b>Senior Debt Service Coverage</b> |  |
|                            |                        |                      |                      | 1.25x               | 1.25x            | <i>Minimum Requirement</i>          |  |
|                            |                        |                      |                      | <b>1.25x</b>        | <b>1.21x</b>     | <b>Total Debt Service Coverage</b>  |  |
|                            |                        |                      |                      | 1.10x               | 1.10x            | <i>Minimum Requirement</i>          |  |

1) As of 08/31/2021

2) As of 08/31/2022



# Pension and Retirement Benefits

## **Pension Overview**

Employees of the PWSA have historically participated in the City's Municipal Pension Fund Plan (“Plan”) and the City’s obligations relative to the Plan were determined in accordance with various Pennsylvania statutes

- Employees who became members prior to January 1, 1998 are required to contribute 5%
- Those who became members after January 1, 1998 are required to contribute 4%

## **457 Plan**

Employees of the PWSA have the ability to participate in a voluntary 457 plan

All contributions are made up of 100% pre-tax and/or after-tax employee salary deferrals

## **401(a) Plan**

All new full-time employees except AFSCME 2719 employees will be eligible to participate in a 401(a) retirement plan instead of being enrolled in the City’s Municipal Pension Fund Plan

- AFSCME 2719 contract is currently being negotiated



## Section 6: Pro Forma Projections

# 5-Year Financial Projections

## Assumptions

- Revenues reflect PUC approved rate in 2023. All future anticipated rate increase in 2025 (11%), 2026 (6%), and 2027 (6%) are subject to PUC approval.
- Expense increases are attributable to costs of expected staffing increases and increased use of contractors as necessary to improve service levels and implement the CIP, and are dependent upon related revenue increases.
- Includes projected future bonded debt necessary to implement the CIP outlined in slide 24.
- Total Debt Service includes debt service on the Senior Debt, Subordinated Debt, PENNVEST Loans and interest on the Construction Loan Facility.

## Projected Revenues, Expenses, and Debt Service

(\$000)

|   | 2023            | 2024            | 2025             | 2026             | 2027             |
|---|-----------------|-----------------|------------------|------------------|------------------|
| Revenues  | \$283,423       | \$290,418       | \$323,288        | \$341,855        | \$363,852        |
| Operating Expenses                                | (189,270)       | (194,573)       | (207,977)        | (218,331)        | (229,664)        |
| <b>Net Revenue Available for Debt Service</b>     | <b>\$94,153</b> | <b>\$95,845</b> | <b>\$115,310</b> | <b>\$123,525</b> | <b>\$134,189</b> |
| Senior Lien Debt Service                          | \$58,413        | \$59,745        | \$66,169         | \$67,354         | \$77,489         |
| Senior Lien Debt Service Coverage                 | 1.61x           | 1.60x           | 1.74x            | 1.83x            | 1.73x            |
| <b>Net Revenue After Senior Lien Debt Service</b> | <b>\$35,740</b> | <b>\$36,100</b> | <b>\$49,141</b>  | <b>\$56,171</b>  | <b>\$56,700</b>  |
| Combined Debt Service                             | \$76,863        | \$82,806        | \$99,148         | \$104,421        | \$113,074        |
| Combined Debt Service Coverage                    | 1.22x           | 1.16x           | 1.16x            | 1.18x            | 1.19x            |
| <b>Net Revenue After Total Debt Service</b>       | <b>\$17,290</b> | <b>\$13,039</b> | <b>\$16,163</b>  | <b>\$19,104</b>  | <b>\$21,115</b>  |



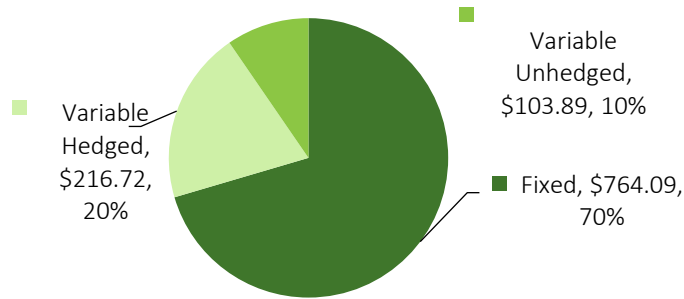
## Section 7: Plan of Finance



# PWSA's Current Debt Portfolio

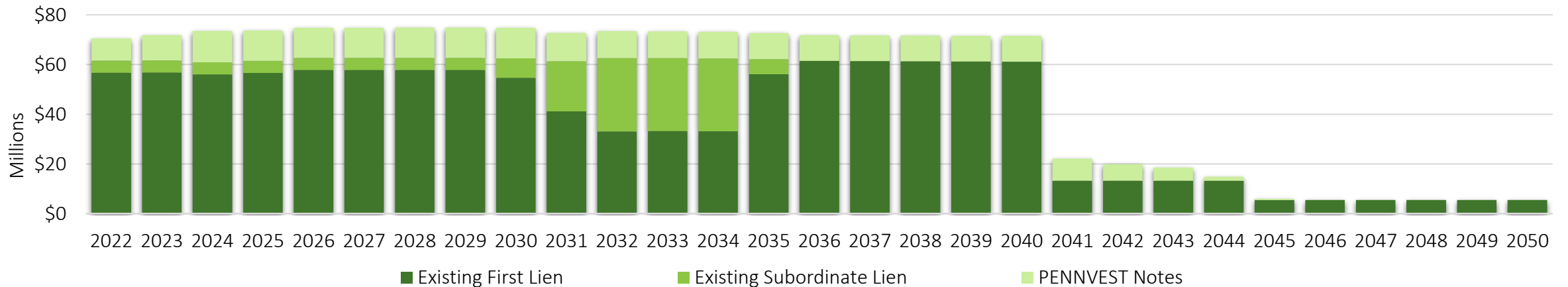
As of September 30, 2022

## Existing Debt Composition (\$s in millions)<sup>1</sup>



- \$1.084 billion of debt outstanding with a final maturity in 2050.
  - \$672.29 million of First Lien Bonds
    - \$216.72 million of interest rate swaps related to the Series C1-3 of 2017 Bonds
  - \$104.29 million of Subordinate Bonds
    - \$206.32 million borrowed under the PENNVEST loan program
    - \$101.80 million drawn from the revolving \$150 million Capital Line of Credit with PNC
  - \$308.12 million of Secondary Subordinate debt

## Existing Debt Service Profile<sup>2,3,4,5,6</sup>



(1) Series B of 1998 Capital Appreciation Bonds, includes accreted value as of September 30, 2022

(2) Interest on Series 2017C-1 Senior Lien Bonds is calculated at a rate of 4.5515% representing the associated swap rate of 3.7835% with the JPMorgan Chase Bank, N.A. plus Public Market FRN pricing of 0.65% and a SIFMA basis overlay swap of 0.1180%.

(3) Interest on Series 2017C-2 Senior Lien Bonds is calculated at a rate of 4.5380% representing the associated swap rate of 3.7700% with the Bank of America, N.A. plus Public Market FRN pricing of 0.65% and a SIFMA basis overlay swap of 0.1180%.

(4) Interest on Series 2017C-3 Senior Lien Bonds is calculated at a rate of 4.5935% representing the associated swap rate of 3.8255% with the JPMorgan Chase Bank, N.A. plus Public Market FRN pricing of 0.65% and a SIFMA basis overlay swap of 0.1180%.

(5) Interest on the unhedged Series 2017C-4 Senior Lien Bonds is calculated at an assumed rate of 2.50%.

(6) Includes PENNVEST loans as of September 30, 2022 assuming future drawdown amounts. Does not include capital line of credit interest.

# Plan of Finance

| Sources:      |                        |
|---------------|------------------------|
| Par Amount:   | \$41,865,000.00        |
| Premium:      | 4,038,330.20           |
| <b>Total:</b> | <b>\$45,903,330.20</b> |

| Uses:                             |                        |
|-----------------------------------|------------------------|
| Capital Line of Credit Repayment: | \$45,000,000.00        |
| Issuance Costs:                   | 903,330.20             |
| <b>Total:</b>                     | <b>\$45,903,330.20</b> |

- The proceeds of the 2022 new money bonds will i.) pay down \$45 million of the approximately \$101.8 million outstanding on the PNC capital line of credit and ii.) pay related issuance costs.
- The 2022 new money bonds will be structured as 30-year level debt service with principal starting in 2025 and the final maturity in 2052.
- The 2022 First Lien new money bonds maximum annual debt service is approximately \$2.81 million.

| Preliminary Debt Service* |                     |                     |                     |
|---------------------------|---------------------|---------------------|---------------------|
| September 1               | Principal           | Interest            | Debt Service        |
| 2023                      | -                   | 1,662,971           | 1,662,971           |
| 2024                      | -                   | 2,093,250           | 2,093,250           |
| 2025                      | 715,000             | 2,093,250           | 2,808,250           |
| 2026                      | 755,000             | 2,057,500           | 2,812,500           |
| 2027                      | 790,000             | 2,019,750           | 2,809,750           |
| 2028                      | 830,000             | 1,980,250           | 2,810,250           |
| 2029                      | 870,000             | 1,938,750           | 2,808,750           |
| 2030                      | 915,000             | 1,895,250           | 2,810,250           |
| 2031                      | 960,000             | 1,849,500           | 2,809,500           |
| 2032                      | 1,010,000           | 1,801,500           | 2,811,500           |
| 2033                      | 1,060,000           | 1,751,000           | 2,811,000           |
| 2034                      | 1,110,000           | 1,698,000           | 2,808,000           |
| 2035                      | 1,170,000           | 1,642,500           | 2,812,500           |
| 2036                      | 1,225,000           | 1,584,000           | 2,809,000           |
| 2037                      | 1,290,000           | 1,522,750           | 2,812,750           |
| 2038                      | 1,350,000           | 1,458,250           | 2,808,250           |
| 2039                      | 1,420,000           | 1,390,750           | 2,810,750           |
| 2040                      | 1,490,000           | 1,319,750           | 2,809,750           |
| 2041                      | 1,565,000           | 1,245,250           | 2,810,250           |
| 2042                      | 1,645,000           | 1,167,000           | 2,812,000           |
| 2043                      | 1,725,000           | 1,084,750           | 2,809,750           |
| 2044                      | 1,810,000           | 998,500             | 2,808,500           |
| 2045                      | 1,905,000           | 908,000             | 2,813,000           |
| 2046                      | 1,995,000           | 812,750             | 2,807,750           |
| 2047                      | 2,095,000           | 713,000             | 2,808,000           |
| 2048                      | 2,200,000           | 608,250             | 2,808,250           |
| 2049                      | 2,310,000           | 498,250             | 2,808,250           |
| 2050                      | 2,430,000           | 382,750             | 2,812,750           |
| 2051                      | 2,550,000           | 261,250             | 2,811,250           |
| 2052                      | 2,675,000           | 133,750             | 2,808,750           |
| <b>Total</b>              | <b>\$41,865,000</b> | <b>\$40,572,471</b> | <b>\$82,437,471</b> |

\*Preliminary, Subject to change

# PWSA's Pro Forma Debt Service\*

| Fiscal Year  | First Lien Debt Service <sup>1,2,3,4</sup> |                                  |                        | Subordinate Lien Debt Service |                                | Aggregate Debt Service |
|--------------|--|----------------------------------|------------------------|-------------------------------|--------------------------------|------------------------|
|              | Existing First Lien                        | 2022 New Money First Lien Bonds* | Total First Lien       | Total Subordinate Bonds       | Other Subordinate <sup>5</sup> | Pro Forma Debt Service |
| 2023         | \$56,750,079                               | \$1,662,971                      | \$58,413,050           | \$4,877,900                   | \$10,447,433                   | \$73,738,383           |
| 2024         | 56,012,541                                 | 2,093,250                        | 58,105,791             | 4,877,900                     | 12,875,251                     | 75,858,942             |
| 2025         | 56,583,618                                 | 2,808,250                        | 59,391,868             | 4,877,900                     | 12,444,024                     | 76,713,792             |
| 2026         | 57,768,229                                 | 2,812,500                        | 60,580,729             | 4,877,900                     | 12,377,579                     | 77,836,208             |
| 2027         | 57,812,667                                 | 2,809,750                        | 60,622,417             | 4,877,900                     | 12,377,579                     | 77,877,896             |
| 2028         | 57,781,278                                 | 2,810,250                        | 60,591,528             | 4,877,900                     | 12,479,529                     | 77,948,957             |
| 2029         | 57,785,705                                 | 2,808,750                        | 60,594,455             | 4,877,900                     | 12,488,798                     | 77,961,153             |
| 2030         | 54,655,454                                 | 2,810,250                        | 57,465,704             | 7,867,900                     | 12,488,798                     | 77,822,402             |
| 2031         | 41,132,204                                 | 2,809,500                        | 43,941,704             | 20,133,400                    | 11,728,058                     | 75,803,163             |
| 2032         | 33,055,005                                 | 2,811,500                        | 35,866,505             | 29,558,150                    | 11,050,214                     | 76,474,869             |
| 2033         | 33,236,215                                 | 2,811,000                        | 36,047,215             | 29,313,150                    | 11,050,214                     | 76,410,579             |
| 2034         | 33,172,829                                 | 2,808,000                        | 35,980,829             | 29,226,400                    | 11,050,214                     | 76,257,443             |
| 2035         | 56,128,051                                 | 2,812,500                        | 58,940,551             | 6,011,200                     | 10,797,968                     | 75,749,719             |
| 2036         | 61,443,564                                 | 2,809,000                        | 64,252,564             |                               | 10,598,404                     | 74,850,968             |
| 2037         | 61,370,767                                 | 2,812,750                        | 64,183,517             |                               | 10,598,404                     | 74,781,921             |
| 2038         | 61,310,117                                 | 2,808,250                        | 64,118,367             |                               | 10,598,404                     | 74,716,771             |
| 2039         | 61,194,501                                 | 2,810,750                        | 64,005,251             |                               | 10,598,404                     | 74,603,655             |
| 2040         | 61,166,646                                 | 2,809,750                        | 63,976,396             |                               | 10,598,404                     | 74,574,800             |
| 2041         | 13,269,800                                 | 2,810,250                        | 16,080,050             |                               | 9,014,746                      | 25,094,796             |
| 2042         | 13,276,300                                 | 2,812,000                        | 16,088,300             |                               | 6,680,324                      | 22,768,624             |
| 2043         | 13,275,550                                 | 2,809,750                        | 16,085,300             |                               | 5,298,602                      | 21,383,902             |
| 2044         | 13,276,850                                 | 2,808,500                        | 16,085,350             |                               | 1,594,913                      | 17,680,263             |
| 2045         | 5,479,000                                  | 2,813,000                        | 8,292,000              |                               | 531,635                        | 8,823,635              |
| 2046         | 5,480,800                                  | 2,807,750                        | 8,288,550              |                               |                                | 8,288,550              |
| 2047         | 5,480,600                                  | 2,808,000                        | 8,288,600              |                               |                                | 8,288,600              |
| 2048         | 5,478,200                                  | 2,808,250                        | 8,286,450              |                               |                                | 8,286,450              |
| 2049         | 5,478,400                                  | 2,808,250                        | 8,286,650              |                               |                                | 8,286,650              |
| 2050         | 5,480,800                                  | 2,812,750                        | 8,293,550              |                               |                                | 8,293,550              |
| 2051         |  | 2,811,250                        | 2,811,250              |                               |                                | 2,811,250              |
| 2052         |  | 2,808,750                        | 2,808,750              |                               |                                | 2,808,750              |
| <b>TOTAL</b> | <b>\$1,044,335,771</b>                     | <b>\$82,437,471</b>              | <b>\$1,126,773,242</b> | <b>\$156,255,500</b>          | <b>\$229,767,895</b>           | <b>\$1,512,796,637</b> |

(1) Interest on Series 2017C-1 Senior Lien Bonds is calculated at a rate of 4.5515% representing the associated swap rate of 3.7835% with the JPMorgan Chase Bank, N.A. plus Public Market FRN pricing of 0.65% and a SIFMA basis overlay swap of 0.1180%.

(2) Interest on Series 2017C-2 Senior Lien Bonds is calculated at a rate of 4.5380% representing the associated swap rate of 3.7700% with the Bank of America, N.A. plus Public Market FRN pricing of 0.65% and a SIFMA basis overlay swap of 0.1180%.

(3) Interest on Series 2017C-3 Senior Lien Bonds is calculated at a rate of 4.5935% representing the associated swap rate of 3.8255% with the JPMorgan Chase Bank, N.A. plus Public Market FRN pricing of 0.65% and a SIFMA basis overlay swap of 0.1180%.

(4) Interest on the unhedged Series 2017C-4 Senior Lien Bonds is calculated at an assumed rate of 2.50%.

(5) Includes PENNVEST loans as of September 30, 2022 assuming future drawdown amounts. Does not include capital line of credit interest.

(6) Columns may not foot due to rounding.

\*Preliminary, subject to change



## Section 8: Conclusion



# Key Factors in Support of Rating Upgrade

## Committed Management Team

- Current management team is experienced and committed to delivering quality, reliable service to PWSA ratepayers
- Renewed mission statement and core values prioritize public health and being good stewards to current and future rate payers

## Solid Financial Management

- Days cash on hand grew from a low of 23 days in 2017 to 137 days in 2021
- Debt ratio improved from 122% in 2014 to 107% 2021 despite large capital investments
- Far exceed Senior and Total Debt Service Coverage Ratio minimum requirements since 2017

## Strong and Diversified Customer Base and Service Area

- Robust and diverse service area economy of Pittsburgh with strong higher education and healthcare presence
- Healthy economic area that has a demonstrated a unique ability to reinvent itself
- Well established customer base with the top five customers located in the System for at least 75 years

## Water and Sewer Systems Operations and Capital Planning

- Ample water supply, providing water to approximately 300,000 people
- Water demand of 64 million gallons per day (MGD) while supply allows for up to 100 MGD
- Demonstrated improvement in lead monitoring levels and progress in lead service line replacement
- Continue to pursue low-cost external funding for CIP

# Financing Schedule\*

| September 2022 |    |    |    |    |    |    | October 2022 |    |    |    |    |    |    | November 2022 |    |    |    |    |    |    |
|----------------|----|----|----|----|----|----|--------------|----|----|----|----|----|----|---------------|----|----|----|----|----|----|
| S              | M  | T  | W  | T  | F  | S  | S            | M  | T  | W  | T  | F  | S  | S             | M  | T  | W  | T  | F  | S  |
|                |    |    |    | 1  | 2  | 3  |              |    |    |    |    |    | 1  |               |    | 1  | 2  | 3  | 4  | 5  |
| 4              | 5  | 6  | 7  | 8  | 9  | 10 | 2            | 3  | 4  | 5  | 6  | 7  | 8  | 6             | 7  | 8  | 9  | 10 | 11 | 12 |
| 11             | 12 | 13 | 14 | 15 | 16 | 17 | 9            | 10 | 11 | 12 | 13 | 14 | 15 | 13            | 14 | 15 | 16 | 17 | 18 | 19 |
| 18             | 19 | 20 | 21 | 22 | 23 | 24 | 16           | 17 | 18 | 19 | 20 | 21 | 22 | 20            | 21 | 22 | 23 | 24 | 25 | 26 |
| 25             | 26 | 27 | 28 | 29 | 30 |    | 23           | 24 | 25 | 26 | 27 | 28 | 29 | 27            | 28 | 29 | 30 |    |    |    |
|                |    |    |    |    |    |    | 30           | 31 |    |    |    |    |    |               |    |    |    |    |    |    |

Key transaction dates
  Market holiday

| Anticipated Financing Schedule* |               |
|---------------------------------|---------------|
| Receive Ratings:                | October 11th  |
| Post POS:                       | October 13th  |
| Pricing:                        | October 25th  |
| Closing:                        | November 15th |

\*Preliminary, subject to change.

**VII. RATE OF RETURN**

VII.20. Provide a listing of all securities issuances for the company and, if applicable, its parent projected for the next 2 years. The response shall identify for each projected issuance the date, dollar amount, type of security, and effective cost rate.

**RESPONSE:**

PWSA expects to utilize a combination of long-term debt and available cash to meet financing needs during the next two years. Based on the current financial plan and CIP, PWSA expects to issue the debt shown below during 2023 and 2024.

**2023 Projected**

|                |                           |       |              |
|----------------|---------------------------|-------|--------------|
| Revenue Bonds: | \$55,500,000              | 5.00% | 30 Year Term |
| PENNVEST:      | \$71,619,279              | 1.00% | 30 Year Term |
| WIFIA:         | \$52,475,722 <sup>1</sup> |       |              |

**2024 Projected**

|                |                            |       |              |
|----------------|----------------------------|-------|--------------|
| Revenue Bonds: | \$70,000,000               | 5.00% | 30 Year Term |
| PENNVEST:      | \$50,000,000               | 1.00% | for 30 Years |
| WIFIA:         | \$104,698,101 <sup>1</sup> |       |              |

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<sup>1</sup> Interest rate will be State and Local Government Series (SLGS) rate + 1 basis point (0.01%) at time of closing with a term between 20 and 30 years.

**VII. RATE OF RETURN**

VII.21. Identify any plan by the company to refinance high cost long-term debt or preferred stock.

**RESPONSE:**

There is a potential cost savings in the taxable refunding of the Series 2013 A and B bonds. The PWSA is moving forward with a refunding due to favorable market conditions in 2023.

**VII. RATE OF RETURN**

VII.22. Provide copies of all securities analysts' reports relating to the company and its parent, or both, issued within the past 2 years.

**RESPONSE:**

Please see PWSA's response to FR VII.18.

**VII. RATE OF RETURN**

VII.23. If applicable, supply a listing of all common equity infusions from the parent to the company over the past 5 years. In each case, identify date and dollar amount.

**RESPONSE:**

Not applicable.

**VII. RATE OF RETURN**

VII.24. If applicable, identify the company's common dividend payments to its parent for each of the last 5 years.

**RESPONSE:**

Not applicable.

## **VII. RATE OF RETURN**

VII.25. Provide the latest year-by-year financial projections for the company for the next 5 years. Also, please indicate the date these projections were prepared; whether approved by management; and whether the projections have been submitted to bond rating agencies. The information will be treated in a confidential manner, if requested by the company in writing, as set forth in 52 Pa. Code § 5.423.

### **RESPONSE:**

Please refer to the direct testimony of Edward Barca. These projections were developed for the purpose of this rate case filing and Cost of Service analysis. These projections, developed in conjunction with PWSA by Raftelis Financial Consultants, Inc., have been approved by PWSA management but they have not been submitted to bond rating agencies.



**VII. RATE OF RETURN**

VII.26. Provide the company's 5-year construction budget.

**RESPONSE:**

Please see below.

| <b>Year</b>  | <b>Construction Budget</b> |
|--------------|----------------------------|
| 2023         | \$ 204,082,376             |
| 2024         | 236,024,366                |
| 2025         | 236,281,951                |
| 2026         | 292,669,757                |
| 2027         | 276,483,457                |
| <b>Total</b> | <b>\$ 1,245,541,907</b>    |

**VII. RATE OF RETURN**

VII.27. Identify the company's and, if applicable, its parent's capital structure targets (percentages of capital types). Provide the complete basis for the capital structure targets.

**RESPONSE:**

Not applicable.

**VII. RATE OF RETURN**

VII.28. For each month, of the most recent 24 months, supply the company's:

- a. Short-term debt balance.
- b. Short-term debt interest rate.
- c. Balance of construction work in progress.
- d. Balance of construction work in progress which is eligible for AFUDC accrual:

**RESPONSE:**

- a. PWSA does not have any short-term debt. The only debt-related current liabilities on PWSA's balance sheet is the current portion of long term debt.
- b. Please see the response to VII.28a
- c. Please see the table below.

| <b>CWIP</b> | <b>2022</b>    | <b>2021</b>    |
|-------------|----------------|----------------|
| January     | \$ 151,576,605 | \$ 146,608,687 |
| February    | 156,627,969    | 155,188,005    |
| March       | 165,446,966    | 162,349,122    |
| April       | 170,510,988    | 168,649,675    |
| May         | 176,820,241    | 177,145,165    |
| June        | 185,190,428    | 189,978,361    |
| July        | 193,468,547    | 199,791,371    |
| August      | 207,885,290    | 207,785,296    |
| September   | 218,907,556    | 215,388,448    |
| October     | 227,271,004    | 225,496,081    |
| November    | 238,383,270    | 236,925,418    |
| December    | 266,830,209    | 146,581,146    |

- d. Not applicable.

**VII. RATE OF RETURN**

**VII. RATE OF RETURN**

VII.29. Fully identify all debt, other than instruments traded in public markets, owed to all shareholders, corporate officers, or members of the board of directors, its affiliates, parent company, or subsidiaries.

**RESPONSE:**

Not applicable.

**VII. RATE OF RETURN**

VII.30. Provide a summary statement of all stock dividends, splits, or par value changes during the 2-year calendar period preceding the rate case filing.

**RESPONSE:**

Not applicable.

**VII. RATE OF RETURN**

VII.31. If a claim of the filing utility is based on utilization of the capital structure or capital costs of the parent company and consolidated system, the reasons for this claim must be fully stated and supported.

**RESPONSE:**

Not applicable.

**VII. RATE OF RETURN**

VII.32. To the extent not provided elsewhere, supply financial data of the company, and its parent, if applicable, for the last 5 years.

- a. Times interest earned ratio—pre- and post tax basis.
- b. Preferred stock dividend coverage ratio—post tax basis.
- c. Times fixed charges earned ratio—pre tax basis.
- d. Dividend payout ratio.
- e. AFUDC as a percent of earnings available for common equity.
- f. Construction work in progress as a percent of net utility plant.
- g. Effective income tax rate.
- h. Internal cash generations as a percent of total capital requirements.

**RESPONSE:**

- a. Please see the table below.

| <b>Times Fixed Charges Earned</b> | <b>FY 2018</b> | <b>FY 2019</b> | <b>FY 2020</b> | <b>FY 2021</b> | <b>FY 2022</b> |
|-----------------------------------|----------------|----------------|----------------|----------------|----------------|
| Pre-Tax                           | 2.62           | 2.21           | 2.26           | 2.34           | 2.42           |
| Post-Tax                          | N/A            | N/A            | N/A            | N/A            | N/A            |

- b. Not applicable.

- c. Please see the table below.

| <b>Times Fixed Charges Earned</b> | <b>FY 2018</b> | <b>FY 2019</b> | <b>FY 2020</b> | <b>FY 2021</b> | <b>FY 2022</b> |
|-----------------------------------|----------------|----------------|----------------|----------------|----------------|
| Pre-Tax                           | 2.62           | 2.21           | 2.26           | 2.34           | 2.42           |
| Post-Tax                          | N/A            | N/A            | N/A            | N/A            | N/A            |

- d. Not applicable

- e. Not applicable

- f. Please see the table below.



**VII. RATE OF RETURN**

|                                      | <b>2016</b> | <b>2017</b> | <b>2018</b> | <b>2019</b> | <b>2020</b> |
|--------------------------------------|-------------|-------------|-------------|-------------|-------------|
| CWIP as Percent of Net Utility Plant | 13.13%      | 14.53%      | 18.39%      | 16.29%      | 11.29%      |

g. Not applicable

h. Since 2013, PWSA has financed capital assets almost entirely with funds from bond issuances, Pennvest loans, and, more recently, utilizing their revolving line of credit. However, starting in FY 2020, the PWSA has a goal of funding at least 10% of capital expenditures with internally generated funds (PAYGO), as measured on a five-year basis. Please refer to the direct testimony of Edward Barca and Christine Fay for more information.



## **VIII. RATE STRUCTURE AND COST OF SERVICE**

VIII.1. Provide a complete, fully allocated, cost of service study if an interval of 3 years has passed between a previous cost of service study and the historic test year date of the current filing. The cost of service study shall provide the necessary data to determine if the water or wastewater rate structure is fair and equitable to all classifications of water or wastewater customers (including public and private fire protection customers) and reflects, as nearly as possible, the cost of providing the service. The study shall correspond to the test year proposed revenue requirements (future test year only, if used). Summaries of conclusions and all back-up calculations shall be made part of the submission of the cost of service study, and shall include the following:

- a. A description of the allocation methods used. A comparison of the allocated cost of service by class with the present and proposed revenues. A cost of service schedule showing the rate of return produced by present and proposed rates by class of service.
- b. Indicate if the method used for establishing the allocation factors in the cost of service study deviates from the previous study submitted in the last rate case. If yes, indicate which allocation factors were changed and discuss the reason for the changes.
- c. Supply the average day, the maximum day and the maximum hour deliveries to the system adjusted for storage for the historic test year and 2 prior years. Also provide workpapers, analyses, comparative data or other documentation supporting the estimated maximum day and peak hour demands by customer class reflected in the company's cost of service study.
- d. Explain thoroughly the methodology employed if the company distinguishes between transmission and distribution or collection mains in its allocation of costs.
- e. Provide a detailed explanation of how storage is utilized to meet base, maximum day and maximum hour demands.
- f. Provide workpapers, calculations and supporting documentation which develop the equivalent meters and equivalent service line weights reflected in the company's cost of service study.
- g. Provide all workpapers and supporting documentation for the fire flow requirement and duration utilized in the cost of service study.

**VIII. RATE STRUCTURE AND COST OF SERVICE**

- h. Provide a breakdown of the number and size of private fire services according to the general water service class of customer.
- i. Provide a calculation of the company's base cost of water or wastewater per unit of consumption or usage.
- j. Provide a detailed cost analysis that supports the company's customer charges, by meter size, showing all direct and indirect costs included.

**RESPONSE:**

Please refer to the direct testimony and accompanying exhibits of Harold J. Smith for the above filing requirement.

**VIII. RATE STRUCTURE AND COST OF SERVICE**

VIII.2. Provide a listing of negotiated special rate contracts which includes a comparison of revenues under special rate contracts and under tariff rates. Provide the cost of service treatment of any deficiency in revenues resulting from the negotiated special rate contracts. Special rates are defined as rates not contained in the currently effective tariff.

**RESPONSE:**

Please see attached.

PWSA provides service under negotiated special rate contracts for eight wholesale customers. In the cost of service, wholesale revenues are treated as an offset to the retail water revenue requirement. For additional information please refer to the direct testimony and accompanying exhibits of Harold J. Smith.

**Pittsburgh Water & Sewer Authority**  
**Wholesale & Contract Customers - Current Contract vs. Proposed Tariff Rates**

| (A)                          | (B)   | (C)                                     | (D)            | (E)  | (F)                           | (G)                            | (H)   | (I)         |
|------------------------------|---|---|----------------|--|-------------------------------|--------------------------------|---|-------------|
| Wholesale/Contract Customers | Description   | Meters                                  | Fixed Charges  | Volume Charges   | 2023 Charges at Current Rates | 2024 Charges at Contract Rates | 2024 Charges at Proposed Tariff Wholesale Rates | Difference  |
| <b>Aspinwall</b>             | Wholesale services to Allegheny;<br>No minimum charge;<br>Escalated by Inflation                                      | 2 - 6" Meter<br>1 - 8" Meter            | \$ 0.00/mo     | \$ 3.83/kgal   | 425,882                       | 430,329                        | 1,673,500                                       | (1,243,171) |
| <b>Fox Chapel</b>            | Wholesale water services to Fox Chapel;<br>6-tier decreasing block rate;<br>Escalated by Overall User Charge Increase | 1 - 8" Meter<br>1 - 10" or Larger Meter | \$ 6,983.88/mo | 0-15,000k: \$4.51<br>15,000k-30,000k: \$3.59<br>30,000k-75,000k: \$3.26<br>75,000k-120,000k: \$3.17<br>120,000k-180,000k: \$3.11<br>> 180,000k: \$3.04 | 2,457,179                     | 3,067,270                      | 9,645,530                                       | (6,578,259) |
| <b>Hampton (1)</b>           | Wholesale water services to Hampton;<br>3-tier decreasing block rate;<br>Escalated by Overall User Charge Increase    | 2 - 4" Meters<br>1 - 10" Meter          | \$ 0.00/mo     | 0-5,000k: \$8.90<br>5,000k-25,000k: \$5.49<br>25,000k-50,000k: \$ 3.15   | -                             | -                              | 150,836   | (150,836)   |
| <b>PAWC (1)</b>              | Wholesale services to PAWC;<br>548kgal Allowance;<br>Escalated by Inflation   | 1 - 10" or Larger Meter                 | \$ 7,802.27/mo | \$ 8.08/kgal   | 103,727                       | 103,727                        | 117,037   | (13,310)    |
| <b>RSRV - 10"</b>            | Wholesale services to Reserve (10" meter);<br>No Allowance;<br>Escalated by agreed-upon amount                        | 1 - 10" or Larger Meter                 | \$ 3,872.28/mo | \$ 4.47/kgal   | 451,017                       | 473,240                        | 1,362,040                                       | (888,800)   |
| <b>RSRV - 6"</b>             | Wholesale services to Reserve (6" meter);<br>175kgal Allowance;<br>Escalated by agreed-upon amount                    | 2 - 6" Meters                           | \$ 1,377.61/mo | \$ 4.47/kgal   | 75,763                        | 79,519                         | 206,983   | (127,463)   |
| <b>Westview (1)</b>          | Wholesale services to Westview (4 meters);<br>175kgal Allowance;<br>Escalated by Overall User Charge Increase         | 4 - 6" Meters                           | \$ 3,089.30/mo | \$ 10.33/kgal  | 148,286                       | 185,165                        | 159,490   | 25,676      |
| <b>NRG</b>                   | Wholesale sewer services to NRG Energy; No Allowance; Escalated by PWSA Rate Increase                                 | No Water Meters                         | N/A            | \$ 4.10/kgal   | 64,755                        | 65,079                         | 90,973  | (25,894)    |

(1) Denotes customer that exhibits "Emergency" usage characteristics. No usage is forecasted for these customers. If PWSA renegotiates these contracts, a fixed charge would be proposed by PWSA to capture "Readiness-to-Serve" costs. As such, charges in Column H for these customers include a retail minimum charge based on each customer's meter(s). Actual charges would be contingent upon negotiation.

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## **IX. QUALITY OF SERVICE**

IX.1. Indicate whether the company is in violation of any provision of the Pennsylvania Safe Drinking Water Act (SDWA) or any rule, regulation or order, or any condition of any permit, variance or exemption granted by the Pennsylvania Department of Environmental Protection (PA-DEP), or its predecessor.

a. Provide information indicating whether the company is in compliance with SDWA provisions at 25 Pa. Code § 109.407 regarding general public notification requirements:

(i) Provide a copy of each public notification given in accordance with this section, since the last rate proceeding.

(ii) Provide a detailed explanation of all actions taken to remedy an acute violation, and to comply with the requirements prescribed by a variance or exemption.

(iii) State whether any fines or penalties were assessed by PA-DEP, and indicate the amounts paid by the company.

b. Provide the most recent copies of all annual consumer confidence reports Issued pursuant to SDWA Amendments of 1996 since the last rate proceeding.

(i) Provide any annual consumer confidence reports which reflect violations of State and Federal safe drinking water requirements.

(ii) Explain how these violations were resolved.

### **RESPONSE:**

PWSA is currently under the following Consent Orders and Agreements (COAs):

- November 17, 2017 – Corrosion Control and Lead Service Lines
- September 6, 2019 – Clearwell and Related Projects and Cross-Connections
- May 7, 2021 – First Amendment to September 6, 2019 COA
- January 20, 2021 – NPDES MS4 Compliance (USEPA)
- May 7, 2021 – Construction Prior to Authorization, Valve Pits, and Ferric Chloride
- August 3, 2022 – Aboveground Storage Tanks at Three Chlorine Booster Stations
- August 4, 2022 – Second Amendment to September 6, 2019 COA

**November 17, 2017 COA – Corrosion Control and Lead Service Lines**



## **IX. QUALITY OF SERVICE**

PWSA received a COA for Violations of the Safe Drinking Water Act on November 17, 2017 relating to Lead Action Level Exceedances and Failure to Treat as Permitted. PWSA has introduced orthophosphate, a corrosion control treatment, for the system as well as implemented a successful lead service line replacement program.

Quarterly Status reports are being prepared and submitted to PA-DEP as required under the COA, with the most recent report submitted February 15, 2023.

PWSA has one remaining obligation under this COA: Within 30 days of the end of the second period of follow-up tap monitoring, PWSA shall submit a request for designation of optimal corrosion control treatment Water Quality Parameters. PWSA intends for the 2023a sampling event to be the second period of follow-up tap sampling after corrosion control treatment adjustments were made in June 2022. PWSA anticipates submitting the request for designation of optimal corrosion control Water Quality Parameters by July 30, 2023.

### **September 6, 2019 COA – Clearwell and Related Projects and Cross-Connections**

#### **May 7, 2021 – First Amendment to September 6, 2019 COA**

#### **August 4, 2022 – Second Amendment to September 6, 2019 COA**

PWSA entered into the COA with the PA-DEP related to “Violations of the Pennsylvania Safe Drinking Water Act and the Rules and Regulations Promulgated Pursuant Thereto” for the Clearwell Response Projects on September 6, 2019 (hereto referenced as the 2019 COA). Under the 2019 COA, PWSA is required to construct a bypass system to enable the Authority to remove the existing single-cell clearwell from service and replace it with a new multi-celled clearwell. PWSA is obligated to submit a construction permit to PA-DEP on or before January 1, 2023 and to complete construction of a clearwell bypass system within two years of PA-DEP's issuance of a construction permit. As a result of the existing single-cell clearwell basin condition and design, a clearwell bypass system is essential to ensure uninterrupted water supply service should the existing clearwell should prematurely fail.

PWSA is also required by the 2019 COA to: (i) rehabilitate or replace Rising Main #3 (from the Breucken Pump Station) to PWSA's Highland 2 Reservoir; (ii) rehabilitate or replace Rising Main #4 (from the Breucken Pump Station) to PWSA's Highland 2 Reservoir; (iii) construct a new redundant rising main from the Aspinwall Pump Station to the Lanpher Reservoir to replace the existing 100 year old transmission main which has suffered 3 major failures in the past 5 years; (iv) replace the cover and liner of the Highland 2 Reservoir to comply with existing regulatory standards, and facilitate the clearwell bypass system construction; and (v) replace or rehabilitate the existing Aspinwall and Bruecken pump stations.

With respect to the completion of the clearwell bypass, acknowledging that PWSA submitted the construction permit application on September 30, 2021, and should the PA-DEP approve the construction permit on April 21, 2023 (an arbitrary date selected for schedule projection purposes

## **IX. QUALITY OF SERVICE**

only), the resultant required construction completion deadline will be April 2026. Under this timing scenario, the clearwell bypass would be the last project to be completed prior to taking the existing clearwell offline for replacement.

On May 7, 2021 PWSA entered into the First Amendment to September 6, 2019 COA with PA-DEP, granting PWSA a 90-day extensions of the deadlines for submitting the requisite Construction Permit Applications for: Rising Main #3 Rehabilitation Project (which was due "on or before September 1, 2020", but with the 90 day extension, the revised date was "11/30/20" (which PWSA achieved, submitting on 11/30/2020)); for Aspinwall Pump Station to Lanpher Reservoir Rising Main Project (which as due "on or before December 30, 2020", but currently with the 90 day extension, the revised date is "3/31/21" (which PWSA achieved, submitting on 3/30/21); for the Aspinwall and Bruecken Pump Station Improvements Projects (which was due "on or before January 1, 2021", but with the 90 day extension, the revised date was "4/1/21", and with a second approved extension, are due on or before 9/31/21)); and for the Washout Disconnection (which was due "on or before June 1, 2020", but with the 90 day extension, the revised date was "8/31/20" (achieved, we submitted on 8/31/20).

On August 4, 2022 PWSA entered into the Second Amendment to September 6, 2019 COA with PA-DEP granting an extension to the completion of work associated with the reconstruction and rehabilitation of Rising Main 3 and installation of a new liner and cover for the Highland 2 Reservoir until December 31, 2022.

The Certificates of Construction completion were submitted for the reconstruction and rehabilitation of Rising Main 3 on November 7, 2022, and for the installation of a new liner and cover for the Highland 2 Reservoir on December 30, 2022. The PA-DEP Public Water Supply Operating Permits were received for Rising Main 3 on December 13, 2022 and for Highland 2 Reservoir on January 9, 2023.

PWSA is currently on schedule for all projects, having achieved all milestone deliverable dates thus far for the COA and COA amendment stated deadlines for the above referenced projects.

### **January 20, 2021 Administrative Order – NPDES MS4 Compliance (USEPA)**

On January 26, 2021, PWSA and the City of Pittsburgh entered into a two-year Administrative Order on Consent with the United States Environmental Protection Agency (USEPA) to resolve violations related to the Municipal Separate Storm Sewer System (MS4) NPDES Permit #PAI136133. The Order required PWSA and the City to develop and implement a program for conducting inspections and enforcement of constructed erosion and sediment controls, and post-construction Best Management Practices (BMPs), including submission of an amended unified Stormwater Code to the City of Pittsburgh by July 1, 2021; in addition, the inspection and enforcement program must be fully implemented by March 31, 2022.

## **IX. QUALITY OF SERVICE**

On January 7, 2022 an agreement between PWSA and the City of Pittsburgh was executed establishing roles and responsibilities as they relate to MS4 compliance within the City. The agreement specifies that the primary roles and responsibilities of PWSA's Stormwater Division include the planning, design, implementation, and maintenance of stormwater related Capital Projects that may reduce localized flooding and Combined Sewer System overflows at the rivers while improving the water quality health of streams and waterways.

PWSA and the City submitted quarterly reports to USEPA and PA-DEP on the status of compliance under the Administrative Order and have addressed the required items.

### **May 7, 2021 COA – Construction Prior to Authorization, Valve Pits, and Ferric Chloride**

On May 7, 2021, the PWSA entered into a COA with the PA-DEP in the matter of “violations of the Pennsylvania Safe Drinking Water Act and the Rules and Regulations Promulgated Pursuant Thereto” and describes five violations related to the water system. After negotiation of these matters, the COA mandates, as ordered by the PA-DEP and agreed to by the PWSA, corrective actions as follows:

1. Submit a Corrective Action Plan (CAP), also called Permit CAP, by 7/7/2021, and implement the CAP after receiving approval of it from the PA-DEP.
2. Submit a plan and schedule, called a Meter and Valve Pit Inspection Plan, by 6/7/2021 and implement the Plan after receiving approval of it from the PA-DEP.
3. Conduct weekly monitoring of seven identified meter and valve pits and semi-annual monitoring of all other interconnect meter and valve pits.
4. Install barriers or other methods by 7/7/2021 to prevent future spills from entering meter or pump station valve pits.
5. Annual training about the Chemical Delivery Procedure Standard Operating Procedure.
6. Civil penalty settlement by 6/7/2021.
7. Submit a proposal for a Community Environmental Project by 7/7/2021.

The status of the above corrective actions are as follows. The PWSA has submitted the requirements of No.'s 1, 2, 6, and 7 to the PA-DEP by the due dates listed above. The PWSA is continuing the work for No. 3 and 5 as on-going activities. Work for No. 4 was completed and the civil penalty under No. 6 was satisfied. PWSA was unable to complete the Community Environmental Project under No. 7. PWSA notified PA-DEP of delays and cost increases beyond the Authority's control related to completion of the project by others. The completion of the project was going to be beyond the stipulated deadline in the COA and PA-DEP requested PWSA pay the stipulated penalty by May 31, 2022. PWSA paid the penalty and submitted documentation to PA-DEP on May 24, 2022.

## IX. QUALITY OF SERVICE

### August 3, 2022 COA – Aboveground Storage Tanks at Three Chlorine Booster Stations

As part of implementing PWSA's Environmental Compliance Program, the Authority self-identified to PA-DEP several above ground storage tanks which required registration under PA DEP regulations. Three of these storage tanks locations associated with chlorine booster systems did not have sufficient secondary or emergency containment. After negotiation of these matters, the COA mandates, as ordered by the PA-DEP and agreed to by the PWSA, corrective actions as follows:

1. Remote SCADA monitoring and loss of level alarms for the three tank systems (complete)
2. Daily visual inspection and submittal of documentation of the three tank systems (on-going)
3. Herron Hill Reservoir:
  - a. Completion of capital project to replace the tank system (in-progress)
4. Lanpher Reservoir:
  - a. Installation of a flood panel across the door to help use the room for emergency containment (complete)
  - b. Submit the permit for construction of a new tank system by July 30th (complete)
  - c. Construction of a new tank system (waiting on PA-DEP permitting)
5. Highland No. 2 Reservoir:
  - a. While the Highland No. 2 Reservoir is out of service, to pull the tanks from that room, install a liner in the room and a flood panel across the door and then reinstall the tanks (complete)
  - b. Submit a schedule for construction of a new tank system, associated with the construction of the Highland Pump Station. PWSA has received the construction permit for this work. (complete)

All three of these sites within the next three years will have capital projects that are in progress and then the existing tank systems will be replaced with new booster stations.

- a. Provide information indicating whether the company is in compliance with SDWA provisions at 25 Pa. Code § 109.407 regarding general public notification requirements:

PWSA had the following Public Notifications: Loss of Positive Pressure (Tier 1 Boil Water Advisory) on, June 2, 2021, July 9, 2021, May 11, 2022, July 6, 2022, July 20, 2022, July 30, 2022, September 22, 2022, October 18, 2022, and February 12, 2023. See copies of Public Notifications attached.

- (i) Provide a copy of each public notification given in accordance with this section, since the last rate proceeding. - Attached

## IX. QUALITY OF SERVICE

(ii) Provide a detailed explanation of all actions taken to remedy an acute violation, and to comply with the requirements prescribed by a variance or exemption.

PWSA resolved all loss of positive pressure conditions by performing necessary repairs (in the case of water main breaks) and returning pumping operations to normal (in the case of power outages). Bacteriological sampling was conducted in accordance with PA-DEP requirements prior to lifting the boil water advisories. All documentation was submitted to PA-DEP at the conclusion of each event.

(iii) State whether any fines or penalties were assessed by PA-DEP, and indicate the amounts paid by the company.

PWSA has not been assessed any fines or penalties by PA-DEP for Loss of Positive Pressure events.

b. Provide the most recent copies of all annual consumer confidence reports Issued pursuant to SDWA Amendments of 1996 since the last rate proceeding.

1. Provide any annual consumer confidence reports which reflect violations of State and Federal safe drinking water requirements.
2. Explain how these violations were resolved.

Consumer Confidence Reports for FY 2021 is attached. The report includes a public notification of a monitoring requirement violation. PWSA routinely collects more samples than are required by regulation to assure the quality of the drinking water. In December 2021 PWSA collected 59 more chlorine samples than were required for the month. On December 28, 2021 a PWSA sampler failed to collect the required free and total chlorine measurement while collecting a coliform sample at one sample site. A coliform sample was analyzed and reported by our contract lab for the sample site and was negative. Chlorine measurements were completed at the site on January 3, 2022. In addition, PWSA and our contract laboratory reviewed chain of custody and sample acceptance procedure to ensure that all required analyses are collected at each sample site.

**DRINKING WATER WARNING**  
**BOIL YOUR WATER BEFORE USING**

**HIERVAN EL AGUA ANTES DE USARLA.**  
**ESTE INFORME CONTIENE INFORMACION MUY IMPORTANTE SOBRE SU AGUA DE BEBER.**  
**TRADUZCALO O HABLE CON ALGUIEN QUE LO ENTIENDA BIEN.**

**The Pittsburgh Water and Sewer Authority May Be At Increased Risk From Microbial Contamination.**

We routinely monitor the conditions in the distribution system. On June 2, 2021, at approximately 3:30 p.m., PWSA experienced a loss of positive water pressure due to an 8-inch water main break at McCartney Street, causing low and no water pressure for localized customers in portions of the Elliott, Westwood, and Ridgmont neighborhoods with PWSA water service in the City of Pittsburgh. The break was isolated, and work to return the main to service began at approximately 4:30 p.m. on June 2, 2021.

A loss of positive water pressure is a signal of the existence of conditions that could allow contamination to enter the distribution system through back-flow by back-pressure or back-siphonage. As a result, there is an increased chance that the water may contain disease-causing organisms.

**What should I do?**

**Until further notice**, customers who live in the impacted areas should take the following steps before using tap water for drinking, making ice, brushing teeth, washing dishes, and food preparation:

- 1. Flush your water tap by running water for 1 minute or longer, then**
- 2. Boil water for 1 minute, and let it cool before consumption.**

Flushing water brings in fresh water from the main and boiling fresh water kills any bacteria and other organisms that can enter the water.

*Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.*

These symptoms, however, are not caused only by organisms in drinking water, but also by other factors. If you experience any of these symptoms and they persist, you may want to seek medical advice.

People with severely compromised immune systems, infants, and some elderly may be at increased risk. These people should seek advice about drinking water from their health care providers. General guidelines on ways to lessen the risk of infection by microbes are available from EPA's Safe Drinking Water Hotline at 1 (800) 426-4791.

**What happened? What is being done?**

**PWSA began to restore pressure at approximately 4:30 p.m. on June 2, 2021. PWSA will also begin to conduct testing to confirm adequate disinfectant levels and verify that the water is safe to consume.**

For more information, please contact: PWSA Customer Service/Dispatch at 412-255-2423

*Please share this information with all the other people who drink this water, especially those who may not have received this notice directly (for example, people in apartments, nursing homes, schools, and businesses). You can do this by posting this notice in a public place or distributing copies by hand or mail.*

This notice is being sent to you by The Pittsburgh Water and Sewer Authority

**DRINKING WATER WARNING**  
**BOIL YOUR WATER BEFORE USING**

**HIERVAN EL AGUA ANTES DE USARLA.**  
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**The Pittsburgh Water and Sewer Authority May Be At Increased Risk From Microbial Contamination.**

We routinely monitor the conditions in the distribution system. On July 9, 2021, at approximately 6:30 a.m., PWSA experienced a loss of positive water pressure due to a 16-inch water main break at Grace Street, causing low and no water pressure for localized customers in portions of the Elliott, West End, Duquesne Heights, Mount Washington Westwood, Ridgemont, and Crafton Heights neighborhoods in the City of Pittsburgh. The break was isolated, and work to return the main to service began at approximately 7:45 a.m. on July 9, 2021.

A loss of positive water pressure is a signal of the existence of conditions that could allow contamination to enter the distribution system through back-flow by back-pressure or back-siphonage. As a result, there is an increased chance that the water may contain disease-causing organisms.

**What should I do?**

**Until further notice**, customers who live in the impacted areas should take the following steps before using tap water for drinking, making ice, brushing teeth, washing dishes, and food preparation:

- 1. Flush your water tap by running water for 1 minute or longer, then**
- 2. Boil water for 1 minute, and let it cool before consumption.**

Flushing water brings in fresh water from the main and boiling fresh water kills any bacteria and other organisms that can enter the water.

*Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.*

These symptoms, however, are not caused only by organisms in drinking water, but also by other factors. If you experience any of these symptoms and they persist, you may want to seek medical advice.

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**What happened? What is being done?**

**PWSA began to restore pressure at approximately 7:45 p.m. on July 9, 2021. PWSA will also begin to conduct testing to confirm adequate disinfectant levels and verify that the water is safe to consume.**

For more information, please contact: PWSA Customer Service/Dispatch at 412-255-2423

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**The Pittsburgh Water and Sewer Authority May Be At Increased Risk From Microbial Contamination.**

We routinely monitor the conditions in the distribution system. On May 11, 2022, at approximately 2:45 p.m., PWSA experienced a loss of positive water pressure due to a 6-inch water main break on Murray Hill Avenue, causing low and no water pressure for localized customers in the Squirrel Hill neighborhood in the City of Pittsburgh. The break was isolated, and work to return the main to service began at approximately 2:45 p.m. on May 11, 2022.

A loss of positive water pressure is a signal of the existence of conditions that could allow contamination to enter the distribution system through back-flow by backpressure or back-siphonage. As a result, there is an increased chance that the water may contain disease-causing organisms.

**What should I do?**

**Until further notice**, customers who live in the impacted areas should take the following steps before using tap water for drinking, making ice, brushing teeth, washing dishes, and food preparation:

- 1. Flush your water tap by running water for 1 minute or longer, then**
- 2. Boil water for 1 minute, and let it cool before consumption.**

Flushing water brings in fresh water from the main and boiling fresh water kills any bacteria and other organisms that can enter the water.

*Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.*

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**What happened? What is being done?**

**PWSA began to restore pressure at approximately 2:45 p.m. on May 11, 2022. PWSA will also begin to conduct testing to confirm adequate disinfectant levels and verify that the water is safe to consume.**

For more information, please contact: PWSA Customer Service/Dispatch at 412-255-2423.

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**The Pittsburgh Water and Sewer Authority May Be At Increased Risk From Microbial Contamination.**

We routinely monitor the conditions in the distribution system. On July 6, 2022, at approximately 6:45 a.m., PWSA experienced a loss of positive water pressure due to an 8-inch water main break on Steuben Street, causing low and no water pressure for localized customers in the Crafton Heights, Westwood, and Elliott neighborhoods in the City of Pittsburgh. The break was isolated, and work to return the main to service began at approximately 7:45 a.m. on July 6, 2022.

A loss of positive water pressure is a signal of the existence of conditions that could allow contamination to enter the distribution system through back-flow by backpressure or back-siphonage. As a result, there is an increased chance that the water may contain disease-causing organisms.

**What should I do?**

**Until further notice**, customers who live in the impacted areas should take the following steps before using tap water for drinking, making ice, brushing teeth, washing dishes, and food preparation:

- 1. Flush your water tap by running water for 1 minute or longer, then**
- 2. Boil water for 1 minute, and let it cool before consumption.**

Flushing water brings in fresh water from the main and boiling fresh water kills any bacteria and other organisms that can enter the water.

*Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.*

These symptoms, however, are not caused only by organisms in drinking water, but also by other factors. If you experience any of these symptoms and they persist, you may want to seek medical advice.

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**What happened? What is being done?**

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For more information, please contact: PWSA Customer Service/Dispatch at 412-255-2423.

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#### **The Pittsburgh Water and Sewer Authority May Be At Increased Risk From Microbial Contamination.**

We routinely monitor the conditions in the distribution system. On July 20, 2022, at approximately 6:50 a.m., PWSA experienced a loss of positive water pressure due to an 8-inch water main break on Lorenz Avenue, causing low and no water pressure for localized customers in the Crafton Heights, Westwood, Ridgemont, and Elliott neighborhoods in the City of Pittsburgh. The break was isolated, and work to return the main to service began at approximately 8:30 a.m. on July 20, 2022.

A loss of positive water pressure is a signal of the existence of conditions that could allow contamination to enter the distribution system through back-flow by backpressure or back-siphonage. As a result, there is an increased chance that the water may contain disease-causing organisms.

#### **What should I do?**

**Until further notice**, customers who live in the impacted areas should take the following steps before using tap water for drinking, making ice, brushing teeth, washing dishes, and food preparation:

- 1. Flush your water tap by running water for 1 minute or longer, then**
- 2. Boil water for 1 minute, and let it cool before consumption.**

Flushing water brings in fresh water from the main and boiling fresh water kills any bacteria and other organisms that can enter the water.

*Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.*

These symptoms, however, are not caused only by organisms in drinking water, but also by other factors. If you experience any of these symptoms and they persist, you may want to seek medical advice.

People with severely compromised immune systems, infants, and some elderly may be at increased risk. These people should seek advice about drinking water from their health care providers. General guidelines on ways to lessen the risk of infection by microbes are available from EPA's Safe Drinking Water Hotline at 1 (800) 426-4791.

#### **What happened? What is being done?**

**PWSA began to restore pressure at approximately 7:30 a.m. on July 20, 2022. PWSA will also begin to conduct testing to confirm adequate disinfectant levels and verify that the water is safe to consume.**

For more information, please contact: PWSA Customer Service/Dispatch at 412-255-2423.

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**The Pittsburgh Water and Sewer Authority May Be At Increased Risk From Microbial Contamination.**

We routinely monitor the conditions in the distribution system. On July 30, 2022, at approximately 5:15 p.m., PWSA experienced a loss of positive water pressure due to an 8-inch water main break on Perrysville Avenue, causing low and no water pressure for localized customers in the Central Northside and Perry South, and Fineview neighborhoods in the City of Pittsburgh. The break was isolated, and work to return the main to service began at approximately 6:10 p.m. on July 30, 2022.

A loss of positive water pressure is a signal of the existence of conditions that could allow contamination to enter the distribution system through back-flow by backpressure or back-siphonage. As a result, there is an increased chance that the water may contain disease-causing organisms.

**What should I do?**

**Until further notice**, customers who live in the impacted areas should take the following steps before using tap water for drinking, making ice, brushing teeth, washing dishes, and food preparation:

**Boil water for 1 minute, and let it cool before consumption.**

Boiling fresh water kills any bacteria and other organisms that can enter the water.

*Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.*

These symptoms, however, are not caused only by organisms in drinking water, but also by other factors. If you experience any of these symptoms and they persist, you may want to seek medical advice.

People with severely compromised immune systems, infants, and some elderly may be at increased risk. These people should seek advice about drinking water from their health care providers. General guidelines on ways to lessen the risk of infection by microbes are available from EPA's Safe Drinking Water Hotline at 1 (800) 426-4791.

**What happened? What is being done?**

**PWSA began to restore pressure at approximately 6:10 p.m. on July 30, 2022. PWSA will also begin to conduct testing to confirm adequate disinfectant levels and verify that the water is safe to consume.**

For more information, please contact: PWSA Customer Service/Dispatch at 412-255-2423.

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**The Pittsburgh Water and Sewer Authority May Be At Increased Risk From Microbial Contamination.**

We routinely monitor the conditions in the distribution system. On September 22, 2022, at approximately 8:30 p.m., PWSA experienced a loss of positive water pressure due to an 8-inch water main break on Steuben Street, causing low and no water pressure for localized customers in the Crafton Heights, Ridgemont, Westwood, and Elliott neighborhoods in the City of Pittsburgh. The break was isolated, and work to return the main to service began at approximately 8:30 p.m. on September 22, 2022.

A loss of positive water pressure is a signal of the existence of conditions that could allow contamination to enter the distribution system through back-flow by backpressure or back-siphonage. As a result, there is an increased chance that the water may contain disease-causing organisms.

**What should I do?**

**Until further notice**, customers who live in the impacted areas should take the following steps before using tap water for drinking, making ice, brushing teeth, washing dishes, and food preparation:

- 1. Flush your water tap by running water for 1 minute or longer, then**
- 2. Boil water for 1 minute, and let it cool before consumption.**

Flushing water brings in fresh water from the main and boiling fresh water kills any bacteria and other organisms that can enter the water.

*Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.*

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People with severely compromised immune systems, infants, and some elderly may be at increased risk. These people should seek advice about drinking water from their health care providers. General guidelines on ways to lessen the risk of infection by microbes are available from EPA's Safe Drinking Water Hotline at 1 (800) 426-4791.

**What happened? What is being done?**

**PWSA began to restore pressure at approximately 8:30 p.m. on September 22, 2022. PWSA will also begin to conduct testing to confirm adequate disinfectant levels and verify that the water is safe to consume.**

For more information, please contact: PWSA Customer Service/Dispatch at 412-255-2423.

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**The Pittsburgh Water and Sewer Authority May Be At Increased Risk From Microbial Contamination.**

We routinely monitor the conditions in the distribution system. On October 18, 2022 at approximately 1:42 p.m., PWSA experienced a loss of positive water pressure due to a 6-inch water main break on Zero Way, causing low and no water pressure for localized customers in the Terrace Hill neighborhood in the City of Pittsburgh. The break was isolated, and work to return the main to service began at approximately 5:30 p.m. on October 18, 2022.

A loss of positive water pressure is a signal of the existence of conditions that could allow contamination to enter the distribution system through back-flow by backpressure or back-siphonage. As a result, there is an increased chance that the water may contain disease-causing organisms.

**What should I do?**

**Until further notice**, customers who live in the impacted areas should take the following steps before using tap water for drinking, making ice, brushing teeth, washing dishes, and food preparation:

**Boil water for 1 minute, and let it cool before consumption.**

Flushing water brings in fresh water from the main and boiling fresh water kills any bacteria and other organisms that can enter the water.

*Inadequately treated water may contain disease-causing organisms. These organisms include bacteria, viruses, and parasites, which can cause symptoms such as nausea, cramps, diarrhea, and associated headaches.*

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**What happened? What is being done?**

**PWSA will also begin to conduct testing to confirm adequate disinfectant levels and verify that the water is safe to consume.**

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#### **The Pittsburgh Water and Sewer Authority May Be At Increased Risk From Microbial Contamination.**

We routinely monitor the conditions in the distribution system. On February 12, 2023, at approximately 2:00 a.m., PWSA experienced a Duquesne Light Company power outage impacting the Bruecken Pump Station. This resulted in a loss of positive water pressure beginning at approximately 3:00 a.m. for localized customers in the Highland Park, Morningside, East Liberty, Garfield, Bloomfield, Friendship, Shadyside, Homewood North, Point Breeze, North Point Breeze, Swisshelm Park, and South Oakland neighborhoods in the City of Pittsburgh. Water pressure to these areas was restored using emergency power and backup pumps at approximately 5:00 a.m. on February 12, 2023.

A loss of positive water pressure is a signal of the existence of conditions that could allow contamination to enter the distribution system through back-flow by back-pressure or back-siphonage. As a result, there is an increased chance that the water may contain disease-causing organisms.

#### **What should I do?**

**Until further notice**, customers who live in the impacted areas should take the following steps before using tap water for drinking, making ice, brushing teeth, washing dishes, and food preparation:

- 1. Flush your water tap by running water for 1 minute or longer, then**
- 2. Boil water for 1 minute, and let it cool before consumption.**

Flushing water brings in fresh water from the main and boiling fresh water kills any bacteria and other organisms that can enter the water.

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#### **What happened? What is being done?**

**PWSA began to restore pressure at approximately 5:00 a.m. on February 12, 2023 through the use of emergency power and backup pumps. PWSA will continue to work with Duquesne Light Company until permanent power is restored and pumping systems can return to normal. PWSA will also begin to conduct testing to confirm adequate disinfectant levels and verify that the water is safe to consume.**

For more information, please contact: PWSA Customer Service/Dispatch at 412-255-2423

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PITTSBURGH WATER AND SEWER AUTHORITY

ANNUAL DRINKING WATER  
**QUALITY REPORT 2021**



## PWSA DELIVERS SAFE, HIGH QUALITY DRINKING WATER

We are proud to announce that our 2021 Water Quality Report shows a clean bill of health for the quality and safety of our drinking water. Our drinking water customers can have confidence in the safety and security of their water and rest assured that we are providing Pittsburgh residents and businesses with the highest quality water.

This annual report outlines our treatment process, the effectiveness of our water quality testing, and the sample results of the various contaminants found in our source drinking water – the Allegheny River. Each day, we test for approximately 100 different chemical and microbial constituents before, during, and after the treatment process and work tirelessly to maximize their reduction and removal from your drinking water.

We proactively test for both unregulated and regulated contaminants required by the Environmental Protection Agency and Pennsylvania Department of Environmental Protection. Our latest report shows that we are meeting or exceeding state and federal regulations.

Effective water quality testing is only one aspect of our work that determines the safety and reliability of our drinking water. The quality of your drinking water is also determined by our water treatment process and the infrastructure that distributes water to your tap.

Our **lead levels** remain firmly in compliance with federal regulatory standards following the addition of orthophosphate to our treatment process. We are now in the process of restoring the 125-million-gallon capacity **Highland II Reservoir**, originally constructed between 1897 and 1903, to meet water safety and regulatory requirements and create greater reliability within our distribution system.

Over the next several years, PWSA will implement its **Water Reliability Plan**, a series of once-in-a-generation projects that will modernize our water distribution system and provide customers with more secure and reliable water services. These projects, which

culminate with the complete restoration of the Clearwell, a large, century-old storage and disinfection facility, will happen sequentially and work together to fortify our water system, add needed redundancy, and ensure an uninterrupted supply of quality water to our drinking water customers.

PWSA's 2021 Water Quality Report, also referred to as the Consumer Confidence Report, is a requirement of all water systems by the Environmental Protection Agency. It can be accessed online at [pgh2o.com/2021WaterQuality](https://pgh2o.com/2021WaterQuality).

We encourage you to read the 2021 Water Quality Report. If you have questions or prefer to have a hard copy sent by mail, please call Customer Service at (412) 255-2423 (Press 1).





# WATER TREATMENT

## WHERE DOES YOUR WATER COME FROM AND HOW IS IT TREATED?

PWSA draws its water from the Allegheny River. We do not use ground or well water. On average, 66 million gallons of water are treated each day at our drinking water treatment plant. The plant is capable of producing over 100 million gallons of water per day. The treatment process takes three full days and consists of three separate stages:

### STAGE

# 1

### CLARIFICATION

River water passes through a process called clarification, in which small solids are removed. This stage involves the addition of treatment chemicals (coagulants), which form clumped particles called floc that are then physically removed by gravity sedimentation.



### STAGE

# 2

### FILTRATION

The clarified water next passes slowly through anthracite and sand filters in order to remove the fine particles and microorganisms.



### STAGE

# 3

### DISINFECTION

The filtered water is treated with chlorine to ensure inactivation of any harmful microorganisms. During this process, several additional chemicals are added to complete treatment. These include sodium carbonate to adjust the pH of the water and fluoride to prevent cavities in teeth.



# WATER TREATMENT

## SECONDARY TREATMENT OF RESERVOIR WATER

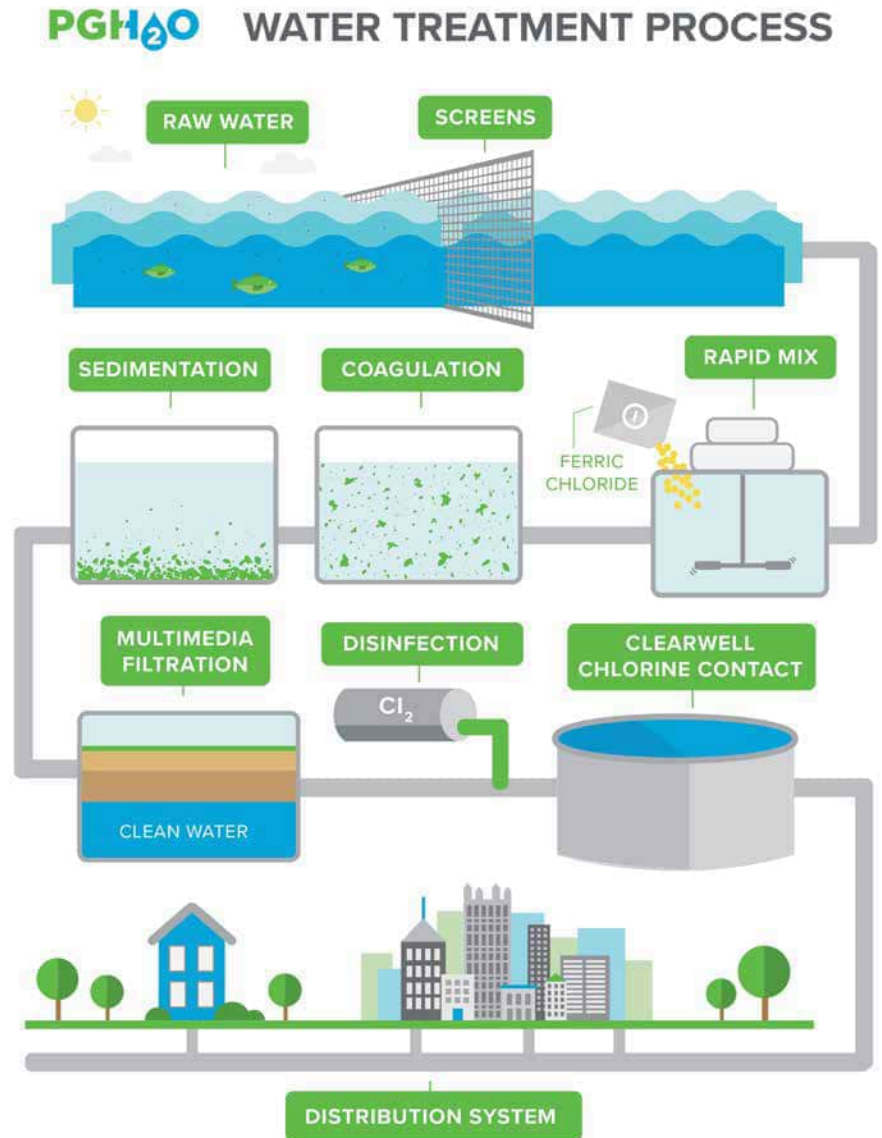
In addition to our primary water treatment plant located near Aspinwall, PWSA operates a secondary treatment plant known as the Microfiltration Plant in Highland Park.

All of the water stored in the open-air Highland Reservoir #1 is originally treated in our primary plant. Then, before the Highland Reservoir #1 water is distributed to the public, it is retreated in our secondary plant.

This membrane filtration plant utilizes microfiltration, UV light treatment, and chlorination to remove any impurities that may have entered the water during storage in the reservoir.



## WATER TREATMENT PROCESS



## STORMWATER

Stormwater pollution affects water quality. PWSA draws water from the Allegheny River. Anything that enters a storm sewer is ultimately released, untreated, into the rivers and streams. In addition to the Allegheny River being used as the source of our drinking water, it is also used for swimming, boating, and fishing.

The PWSA system is made up of sanitary, dedicated stormwater, and combined sewers. All new development is required to have separate storm sewers. As an older city, only about 25 percent of the system has separate storm sewers.

### RESIDENTS CAN HELP PREVENT STORMWATER POLLUTION BY:

**Disposing of trash properly.**



*Do not litter. You can help reduce cost and keep our rivers clean by properly disposing of waste.*

**Using fertilizer sparingly.**



*During rain events, fertilizer runs down the street and may enter the storm sewers and eventually end up in the river. Do not fertilize before a rain storm.*

**Considering where you wash your car.**



*If you are washing your car in the driveway, all the soap is running into the street and may enter the storm sewers and eventually end up in the river.*

**Stopping oil leaks immediately.**



*Leaking oil runs down the street and may enter the storm sewers and eventually end up in the river. Check for oil leaks regularly and dispose of oil properly.*

**Properly disposing of pet waste.**



*If pet waste is not properly disposed of during rain events, the bacteria may enter the storm sewers and eventually end up in the river.*

## WATER QUALITY

PWSA continuously monitors your drinking water in accordance with Federal and State regulations. On the following pages, the tables show our monitoring results for the period of January 1, 2021, to December 31, 2021. While we conducted more than 100,000 analyses for approximately 100 different chemical and microbial constituents last year, we only found detectable levels of the contaminants listed in the water quality tables. It should be noted that none of the test results exceeded federal or state maximum contaminant levels (MCLs).

## SOURCE WATER PROTECTION

PWSA's source water protection plan is approved by the Pennsylvania Department of Environmental Protection (PADEP). This report identifies the most likely sources of pollution affecting the Allegheny River.

These include accidental release of contaminants from industrial processes; cumulative impact of discharge from power plants; cumulative release of petroleum products from pipeline ruptures; stormwater runoff from lands adjacent to the river and Combined Sewer Overflows (CSOs). A summary of the Source Water Assessment is available on the PADEP website at [dep.state.pa.us](http://dep.state.pa.us).

PWSA realizes the importance of protecting our source water and is actively involved with organizations that aid the Authority in accomplishing this goal. PWSA is a member of River Alert Information Network (RAIN), which is an early-warning spill detection monitoring network along the Allegheny, Monongahela, and their tributaries. For more information please visit their site at [rainmatters.org](http://rainmatters.org). PWSA is also a member of the Ohio River Valley Water Sanitation Commission (ORSANCO) and is enrolled in their organic detection program. For more information please visit their site at [orsanco.org](http://orsanco.org).

A Source Water Assessment of PWSA's intake water (located on the Allegheny River) was completed in 2010 by the PADEP. The Assessment has found that our source water is potentially most susceptible to road deicing materials, accidental spills along railroad tracks, and leaks from submerged pipelines and storage tanks. Overall, the Allegheny River Watershed has a moderate risk of significant contamination. Summary reports are available on the PADEP website at: [depgreenport.state.pa.us/elibrary/GetFolder?FolderID=4492](http://depgreenport.state.pa.us/elibrary/GetFolder?FolderID=4492) and then selecting "Pittsburgh Water and Sewer Authority.pdf" file in the list or by writing to the PADEP at 400 Waterfront Dr., Pittsburgh, PA 15222.

Complete reports were distributed to municipalities, water supplier, local planning agencies and PADEP regional Office, Records management Unit at 412.442.4217.

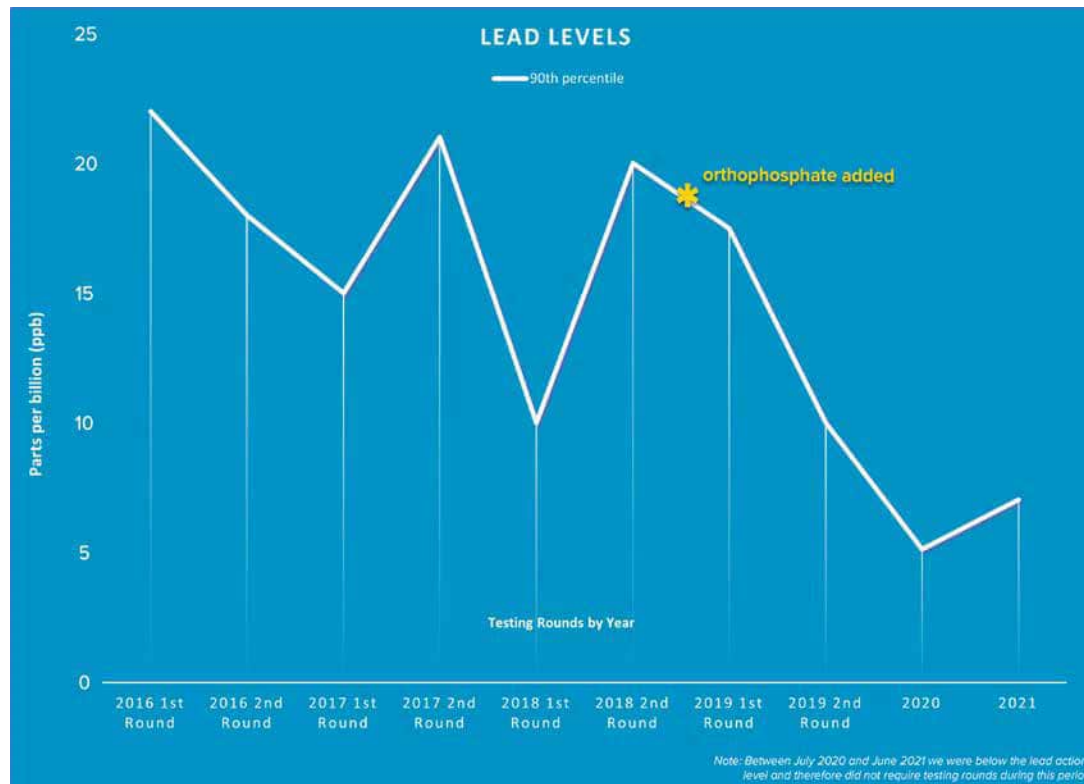
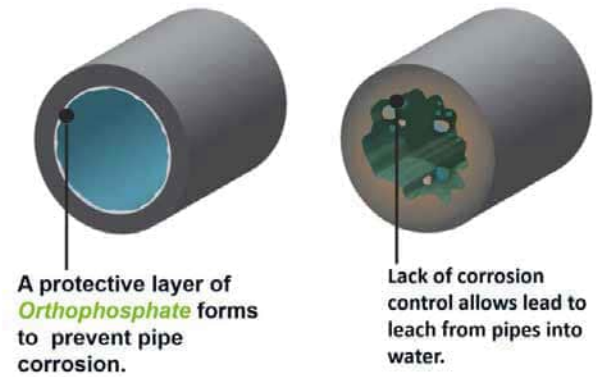
# LEAD IN DRINKING WATER

## LEAD LEVELS REMAIN BELOW EPA ACTION LEVEL

PWSA's most recent round of testing shows lead levels below the state and federal action level of 15 parts per billion (ppb), making this the third consecutive round of testing in which lead levels are in compliance. These results indicate the continued effectiveness of adding orthophosphate to our water treatment process. PWSA will continue to replace lead lines throughout the water system, but this will take time. Implementing an effective corrosion control reduces lead levels for all customers while this important work can be completed.

## ORTHOPHOSPHATE EFFECTIVENESS IMPROVES OVER TIME

In April 2019, we began adding orthophosphate to reduce lead levels in drinking water while continuing to replace thousands of lead service lines. Orthophosphate is a food-grade additive that forms a protective layer inside of lead service lines, creating a barrier between the lead pipes and the water flowing through them. It is approved by the Environmental Protection Agency (EPA) and successfully used in water systems across the country. Orthophosphate was selected by PWSA and approved by DEP after a comprehensive, year-long study of treatment alternatives. To read more about orthophosphate, visit [www.lead.pgh2o.com/understanding-lead-and-water/orthophosphate](http://www.lead.pgh2o.com/understanding-lead-and-water/orthophosphate).



◀ The graph shows the consecutive rounds of regulatory lead compliance testing from 2016 to 2021. With the addition of orthophosphate in April 2019, we continue to see lead levels below the state and federal action level of 15ppb.

# LEAD IN DRINKING WATER

## LEAD SERVICE LINE REPLACEMENTS

PWSA's Community Lead Response is our dedicated program for lead line replacement, corrosion control optimization, and public education around lead in drinking water. Since its inception in 2016, the program has replaced more than 9,012 public lead service lines and 5,950 private lead service lines, exceeding state requirements. Even with shut-downs in the first half of 2020 due to the COVID-19 pandemic, PWSA project managers, Lead Help Desk Staff, and construction crews worked diligently to resume work and meet our goals.

PWSA completed lead service line replacements through multiple methods in 2021, including neighborhood-based lead line replacements, water main replacement projects throughout our service area, and the lead service line reimbursement program. PWSA has adjusted its lead line removal strategy to a more holistic approach that replaces both lead service lines and the water main in the street. Through water main replacements, we can replace lead service lines as well as the aging water mains that serve them. For all these programs, PWSA used historical service line data, demographic information, and blood-lead levels from the Allegheny County Health Department to target sections of neighborhoods that indicated high concentrations of lead. With the passage of the Bipartisan Infrastructure Law, which includes increased funding for water infrastructure, we hope to continue these efforts – and more – and transform Pittsburgh's water system to protect public health and the environment.

## PRIORITY LEAD SERVICE LINE REPLACEMENT PROJECT

PWSA unveiled a new lead line replacement program in April of 2022. The Priority Lead Line Replacement Project will replace lead service lines at daycare facilities that are found to have lead service lines. This program will also address lead line replacements at any locations with elevated lead samples taken via our sampling program.

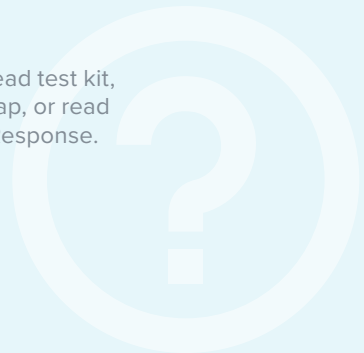
For more information on this program, visit [www.pgh2o.com/PriorityLSLR](http://www.pgh2o.com/PriorityLSLR).



## WHAT'S NEXT?

PWSA will continue to replace lead lines throughout the water service area via the water main replacement program and will continue to provide free water testing, pitchers and filters at homes with elevated lead, reimbursement for private lead line replacement, and a dedicated Lead Help Desk staff to answer questions and concerns.

Visit [www.lead.pgh2o.com](http://www.lead.pgh2o.com) to request a free lead test kit, check for lead at your property on our lead map, or read past press releases on the Community Lead Response.





## WHAT DOES PWSA TEST FOR?

In general, the sources of all drinking water (both tap water and bottled water) include rivers, lakes, streams, ponds, reservoirs, springs, and wells. As water travels over the surface of the land or through the ground, it dissolves naturally occurring minerals and, in some cases, radioactive material, and can pick up substances resulting from the presence of animals or from human activity.

Contaminants that may be present in source or raw water include:

- **Microbial contaminants** such as viruses and bacteria, which may come from sewage treatment plants, septic systems, agricultural livestock operations, and wildlife.
- **Inorganic contaminants** such as salts and metals, which can be naturally occurring or result from urban stormwater runoff, industrial or domestic wastewater discharges, oil and gas production, mining, or farming.
- **Pesticides and herbicides** which may come from a variety of sources, such as agriculture, urban stormwater runoff, and residential uses.
- **Organic chemical contaminants** including synthetic and volatile organic chemicals, which are by-products of industrial processes and petroleum production, can come from gas stations, urban stormwater runoff, and septic systems.
- **Radioactive contaminants** which can be naturally-occurring or the result of oil and gas production and mining activities.

In order to assure that tap water is safe to drink, the EPA and PADEP regulate the amount of certain contaminants in water provided by public water systems. The Food and Drug Administration (FDA) and PADEP regulations establish limits for contaminants in bottled water, which must provide the same protection for public health.

PWSA tests for contaminants that may be present in the source water prior to treatment. Results of the tests enables PWSA to adjust the treatment process in order to maximize the reduction and removal of contaminants. Tests are also conducted during the treatment process and on the finished water. Additional samples for testing are collected on a regular basis from our storage facilities, various points in the distribution network, and customers' taps.

Drinking water, including bottled water, may reasonably be expected to contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants and potential health effects can be obtained by calling the EPA's Safe Drinking Water Hotline at 1.800.426.4791.



## LONG TERM SURFACE WATER ENHANCEMENT TREATMENT RULE ROUND 2 (LT2)

Cryptosporidium is a microbial pathogen found in surface water throughout the U.S. Although filtration removes Cryptosporidium, the most commonly used filtration methods cannot guarantee 100 percent removal. Our monitoring indicates the presence of these organisms in our source water. Current test methods do not allow us to determine if the organisms are dead or if they are capable of causing disease.

Ingestion of Cryptosporidium may cause cryptosporidiosis, an abdominal infection. Symptoms of infection include nausea, diarrhea and abdominal cramps. Most healthy individuals can overcome the disease within a few weeks. However, immuno-compromised people are at greater risk of developing life-threatening illness.

We encourage immuno-compromised individuals to consult their doctor regarding appropriate precautions to take to avoid infection. *Cryptosporidium must be ingested to cause disease, and it may be spread through means other than drinking water.*



### SPECIAL INFORMATION FOR IMMUNO-COMPROMISED INDIVIDUALS

Some people may be more vulnerable to contaminants in drinking water than others.

Immuno-compromised persons, such as persons with cancer undergoing chemotherapy, persons who have undergone organ transplants, people with HIV/AIDS or other immune system disorders, some elderly, and infants may be particularly at risk from infections.

These people should seek advice about drinking water from their health care providers. Environmental Protection Agency (EPA) and Centers for Disease Control (CDC) guidelines on appropriate means to lessen the risk of infection by Cryptosporidium and other microbial contaminants are available from the Safe Drinking Water Hotline at 1.800.426.4791.



## ABBREVIATIONS & DEFINITIONS

When reviewing the tables and information on the following pages, reference this abbreviations and definitions list to understand the terms being used.

### **(ND) Non-Detect**

Laboratory analysis indicates that the contaminant is not present at a detectable level.

### **(Mrem/year) Millirems Per Year**

A measure of radiation absorbed by the body.

### **(pCi/L) Picocuries Per Liter**

A measure of radioactivity.

### **(NTU) Nephelometric Turbidity Unit**

Measurement of the clarity of water. Turbidity in excess of 5 NTU becomes just barely noticeable to the average person.

### **(AL) Action Level**

The concentration of a contaminant which, if exceeded, triggers treatment or other requirements which a water system must follow.

### **(TT) Treatment Technique**

A required process intended to reduce the level of a contaminant in drinking water.

### **(N/A) Non-Applicable**

Does not apply.

### **(MCLG) Maximum Contaminant Level Goal**

The level of a contaminant in drinking water below which there is no known or expected risk to health. MCLGs allow for a margin of safety.

### **(MCL) Maximum Contaminant Level**

The highest level of a contaminant allowed in drinking water. MCLs are set as close to the MCLGs as feasible, using the best available treatment technology.

### **(MRDLG) Maximum Residual Disinfectant Level Goal**

The level of drinking water disinfectant below which there is no known or expected risk to health. MRDLGs do not reflect the benefits of the use of disinfectants to control microbial contaminants.

### **(MRDL) Maximum Residual Disinfectant Level**

The highest level of a disinfectant allowed in drinking water. There is convincing evidence that addition of a disinfectant is necessary for control of microbial contaminants.

### **(MinRDL) Minimum Residual Disinfectant Level**

The minimum level of residual disinfectant required at the entry point to the distribution system.

### **Level 1 Assessment**

A Level 1 assessment is a study of the water system to identify potential problems and determine (if possible) why total coliform bacteria have been found in our water system.

### **Level 2 Assessment**

A Level 2 assessment is a very detailed study of the water system to identify potential problems and determine (if possible) why an E. coli MCL violation has occurred and/or why total coliform bacteria have been found in our water system on multiple occasions.

### **Entry Point**

The entry points (101, 102 and 104) refer to the Water Treatment Plant (WTP - 101) and Microfiltration Plant (MFP - 102 (Zone 5 Police Station) and 104 (New Highland Pump Station)) where water is monitored.

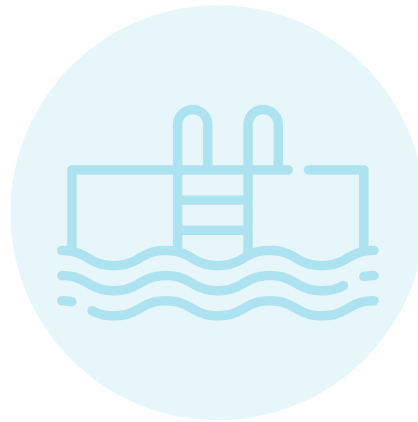
## ABBREVIATIONS & DEFINITIONS

When reviewing the tables and information on the following pages, reference this abbreviations and definitions list to understand the terms being used.



### Part Per Million (ppm)

One part per million corresponds to one minute in two years or **one drop of water in a hot tub.**



### Part Per Billion (ppb)

One part per billion corresponds to one minute in 2,000 years or **one drop of water in an Olympic size swimming pool.**



### Part Per Trillion (ppt)

One part per trillion corresponds to 30 seconds in one million years or **one drop of water in a six acre lake.**

### WHAT ARE DRINKING WATER CONTAMINANTS?

In reference to drinking water, a contaminant is any physical, chemical, biological, or radiological substance or matter in water – *essentially anything other than water molecules*. Some contaminants may be harmful at certain levels while others are harmless. **The presence of contaminants in drinking water does not necessarily indicate a problem or health risk.**

## DETECTED SAMPLE RESULTS

### Chemical Contaminants: Entry Point into Drinking Water Distribution System

| CONTAMINANT    | ENTRY POINT         | HIGHEST LEVEL ALLOWED (MCL) | IDEAL GOAL (MCLG) | LEVEL DETECTED       | RANGE OF DETECTIONS                 | UNITS | SAMPLE DATE              | VIOLATION Y/N | SOURCE OR PURPOSE OF CONTAMINANT   |
|----------------|---------------------|-----------------------------|-------------------|----------------------|-------------------------------------|-------|--------------------------|---------------|--|
| Calcium        | 101<br>102<br>104   | -                           | -                 | 28<br>29<br>30       | 23-34<br>26-34<br>27-35             | ppm   | 2021                     | -             | -  |
| Fluoride       | 101<br>102          | 2*                          | 4                 | 0.80<br>0.77         | -                                   | ppm   | 05.25.21<br>05.25.21     | N             | Water additive that promotes strong teeth  |
| Nitrate        | 101<br>102<br>104   | 10                          | 10                | 0.49<br>0.42<br>0.48 | 0.37-0.71<br>0.33-0.47<br>-         | ppm   | 2021<br>2021<br>11.02.21 | N             | Runoff from fertilizer use; leaching septic tank sewage; natural deposit erosion |
| Barium         | 101<br>102          | 2                           | 2                 | 0.027<br>0.028       | -                                   | ppm   | 05.25.21<br>05.25.21     | N             | -  |
| Orthophosphate | 101**<br>102<br>104 | -                           | -                 | 0.06<br>1.61<br>1.54 | 0.01-0.13<br>1.35-1.77<br>1.35-1.94 | ppm   | 2021<br>2021<br>2021     | N             | Corrosion control additive   |
| Nickel         | 102                 | -                           | -                 | 0.0022               | -                                   | ppm   | 10.19.20                 | N             | -  |
| Copper         | 102                 | 1.3                         | 1.3               | 0.0053               | -                                   | ppm   | 12.20.16                 | N             | -  |

\* EPA's MCL for fluoride is 4 ppm. However, Pennsylvania has set a lower MCL to better protect human health.

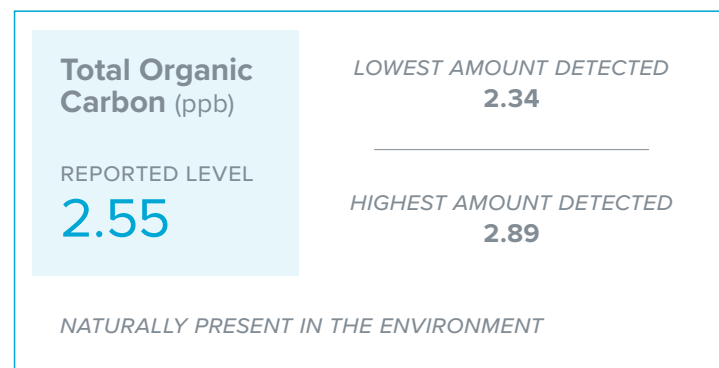
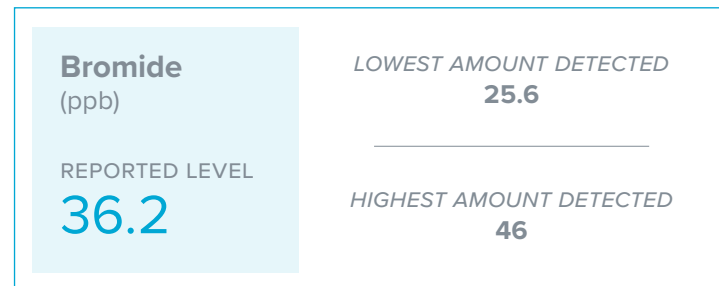
\*\* No corrosion control additive is dosed at this location (Entry Point 101).

## UNREGULATED CONTAMINANT MONITORING RULE 4 (UCMR4)

**Unregulated contaminants are contaminants that EPA has not established drinking water standards for.** The purpose of unregulated contaminant monitoring is to assist EPA in determining the occurrence of unregulated contaminants in drinking water and whether future regulation is warranted. Any unregulated contaminants detected are reported on this page.

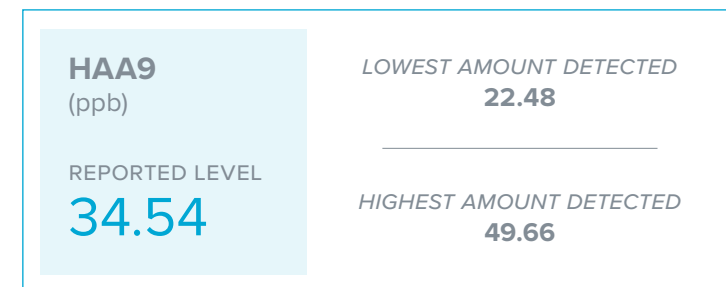
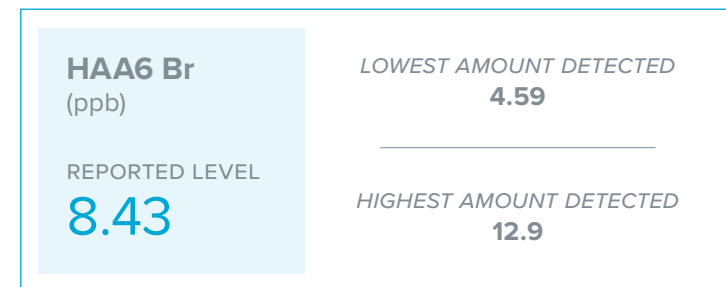
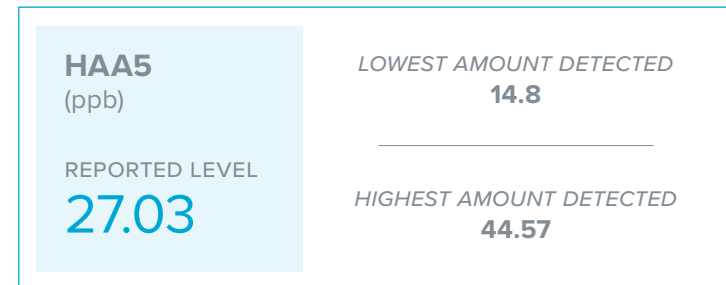
### CHEMICAL CONTAMINANTS: UCMR4 ALLEGHENY RIVER

Sample Date: 2019



### CHEMICAL CONTAMINANTS: UCMR4 DISTRIBUTION

Sample Date: 2019



For additional information and data visit [epa.gov/dwucmr/fourth-unregulated-contaminant-monitoring-rule](https://epa.gov/dwucmr/fourth-unregulated-contaminant-monitoring-rule) or call the Safe Drinking Water Hotline at (800) 426-4791.

## CHEMICAL CONTAMINANTS

### Chemical Contaminants: Distribution System

| CONTAMINANT    | HIGHEST LEVEL ALLOWED (MCL) | IDEAL GOAL (MCLG) | LEVEL DETECTED | RANGE OF DETECTIONS | UNITS | SAMPLE DATE | VIOLATION Y/N | SOURCE OR PURPOSE OF CONTAMINANT        |
|----------------|-----------------------------|-------------------|----------------|---------------------|-------|-------------|---------------|---|
| Free Chlorine  | 4                           | MRDLG-4           | 1.17           | 0.57-1.17           | ppm   | 2021        | N             | Water additive used to control microbes |
| Calcium        | -                           | -                 | 27             | 0-36                | ppm   | 2021        | N             | -                                       |
| HAA5           | 60                          | N/A               | 23             | 8.7-41              | ppb   | 2021        | N             | By-product of water disinfection        |
| TTHM           | 80                          | N/A               | 62             | 12-138              | ppb   | 2021        | N             | By-product of water disinfection        |
| Orthophosphate | -                           | -                 | 1.60           | 0.99-2.70           | ppm   | 2021        | N             | Corrosion control additive              |

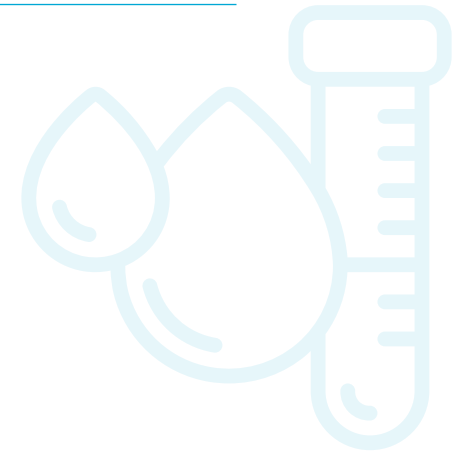
### Entry Point Disinfectant Residual

| CONTAMINANT | ENTRY POINT | MINIMUM DISINFECTANT RESIDUAL | LOWEST LEVEL DETECTED | RANGE OF DETECTIONS | UNITS | SAMPLE DATE | VIOLATION Y/N | SOURCE OR PURPOSE OF CONTAMINANT        |
|-------------|-------------|-------------------------------|-----------------------|---------------------|-------|-------------|---------------|---|
| Chlorine    | 101         | 0.20                          | 0.49                  | 0.49-1.24           | ppm   | 2021        | N             | Water additive used to control microbes |
|             | 102         | 0.20                          | 0.60                  | 0.60-1.19           |       |             |               |   |
|             | 104         | 0.20                          | 0.42                  | 0.42-1.21           |       |             |               |   |

## CHEMICAL CONTAMINANTS

### Lead and Copper

| CONTAMINANT    | ACTION LEVEL (AL) | IDEAL GOAL (MCLG) | 90 <sup>TH</sup> PERCENTILE VALUE | UNITS | # OF SITES ABOVE AL OF TOTAL SITES | VIOLATION Y/N | SOURCE OR PURPOSE OF CONTAMINANT  |
|----------------|-------------------|-------------------|-----------------------------------|-------|------------------------------------|---------------|---|
| Lead<br>2021   | 15                | 0                 | 7.05                              | ppb   | 7 of 136                           | N             | Household plumbing corrosion; natural deposit erosion                                   |
| Copper<br>2021 | 1.3               | 1.3               | 0.108                             | ppm   | 0 of 136                           | N             | Household plumbing corrosion; natural deposit erosion; leaching from wood preservatives |



## MICROBIAL CONTAMINANTS

### Microbial: LT2 Allegheny River

| CONTAMINANT     | HIGHEST LEVEL ALLOWED (MCL) | IDEAL GOAL (MCLG) | LEVEL DETECTED | RANGE OF DETECTIONS | UNITS     | SAMPLE DATE | VIOLATION Y/N | SOURCE OR PURPOSE OF CONTAMINANT     |
|-----------------|-----------------------------|-------------------|----------------|---------------------|-----------|-------------|---------------|--------------------------------------|
| Cryptosporidium | -                           | -                 | 0.190          | -                   | Oocysts/L | 2017        | -             | Naturally present in the environment |



## CONTAMINANTS

### Turbidity

| CONTAMINANT | HIGHEST LEVEL ALLOWED (MCL)                    | IDEAL GOAL (MCLG) | LEVEL DETECTED | SAMPLE DATE | VIOLATION Y/N | SOURCE OR PURPOSE OF CONTAMINANT |
|-------------|--|-------------------|----------------|-------------|---------------|----------------------------------|
| Turbidity   | TT = 1 NTU for a single measurement            | 0                 | 0.135          | 07.20.21    | N             | Soil runoff                      |
|             | TT = at least 95% of monthly samples ≤ 0.3 NTU |                   | 100%           | N/A         | N             |                                  |
| MFP         | TT = 1 NTU for a single measurement            | 0                 | 0.080          | 03.05.21    | N             | Soil runoff                      |
|             | TT = at least 95% of monthly samples ≤ 0.3 NTU |                   | 100%           | N/A         | N             |                                  |

### Total Organic Carbon (TOC)

| CONTAMINANT | % REMOVAL REQUIRED (MCL) | IDEAL GOAL (MCLG) | RANGE OF % REMOVAL ACHIEVED | # OF QUARTERS OUT OF COMPLIANCE | VIOLATION Y/N | SOURCE OF CONTAMINANT                |
|-------------|--------------------------|-------------------|-----------------------------|---------------------------------|---------------|--------------------------------------|
| TOC         | TT = 35%                 | N/A               | 37%-41%                     | 0                               | N             | Naturally present in the environment |

Note: Compliance was achieved through the Treatment Technique (TT) criteria.



## VIOLATIONS

Monitoring Requirements Not Met for the Pittsburgh Water and Sewer Authority. During December 28, 2021 we failed to monitor the following contaminants and therefore cannot be sure of the quality of our drinking water at that time.

|   |  |
|---|--|
| CONTAMINANT                             | Free chlorine  |
| REQUIRED SAMPLING FREQUENCY             | 210  |
| NUMBER OF SAMPLES TAKEN                 | 269  |
| WHEN ALL SAMPLES SHOULD HAVE BEEN TAKEN | Free Chlorine sample required with each of the 270 coliform samples collected in December 2021 |
| WHEN SAMPLES WERE OR WILL BE TAKEN      | Free Chlorine was next measured at that site on 1/3/2022 and was 0.63 mg/L                     |

|   |   |
|---|---|
| CONTAMINANT                             | Total Chlorine  |
| REQUIRED SAMPLING FREQUENCY             | 210   |
| NUMBER OF SAMPLES TAKEN                 | 269   |
| WHEN ALL SAMPLES SHOULD HAVE BEEN TAKEN | Total Chlorine sample required with each of the 270 coliform samples collected in December 2021 |
| WHEN SAMPLES WERE OR WILL BE TAKEN      | Total Chlorine was next measured at that site on 1/3/2022 and was 0.68 mg/L                     |

### What happened? What was done? When will it be resolved?

PWSA routinely collects more samples than are required by regulation to assure the quality of the drinking water. In December 2021 PWSA collected 59 more chlorine samples than were required for the month. On December 28, 2021 a PWSA sampler failed to collect the required free and total chlorine measurement while collecting a coliform sample at one sample site. A coliform sample was analyzed and reported by our contract lab for the sample site and was negative. Chlorine measurements were completed at the site on January 3, 2022. In addition, PWSA and our contract laboratory have reviewed chain of custody and sample acceptance procedure to ensure that all required analyses are collected at each sample site.

**For more information regarding this notice, please contact:** Pittsburgh Water and Sewer Authority at 412-255-2423 x5

## WHAT DO THE RESULTS MEAN?





We are proud that your drinking water meets or surpasses all Federal and State requirements. We have learned through our monitoring and testing that some constituents have been detected but are below the recommended minimum contaminant level (MCL) and therefore meet the regulatory requirements.

## STAY INFORMED

Update your contact information and stay informed. It's important that your contact information is up to date so that we can notify you about planned construction, water emergencies, extended water outages, and provide other safety information. PWSA encourages all customers to provide updated contact information by going to our website at [pgh2o.com/update-contact-info](https://pgh2o.com/update-contact-info) or by calling PWSA Customer Service at 412.255.2423 (press 5). This information ensures that we are able to make direct contact in the event of an emergency.



# PGH<sub>2</sub>O

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## IX. QUALITY OF SERVICE

IX.2. Indicate whether the company is in compliance with 52 Pa. Code, § 65.6(a) regarding normal operating pressure standards, and with 52 Pa. Code, § 65.6(d) regarding pressure surveys at regular intervals.

a. Provide details on any water pressure problems, lasting longer than 5 days, which had occurred since the last rate proceeding in any part of the water transmission and distribution system.

b. Describe any action taken on a temporary basis, and the long term solutions developed to address any water pressure problems.

### RESPONSE:

PWSA provides water service in compliance with 52 Pa. Code, § 65.6(a) over more than 95% of its service territory, during normal operating periods. The design of PWSA's system is such that some areas (less than 5%) experience higher or lower pressures routinely, outside of those provided in 52 Pa. Code, § 65.6(a). During non-normal operating periods, such as when there is a main break or a facility is out of service, PWSA may not be able to meet 52 Pa. Code, § 65.6(a) in larger portions of the system. PWSA has developed a pressure and flow monitoring program to address these issues.

- a. PWSA installed a total of 61 continuous recording pressure monitors throughout the system. The first 24 continuous recording pressure monitors were operational by July 8, 2018, and the remaining 37 pressure monitors were operational by January 21, 2021. This monitoring network ensures that there is at least one or more continuous recording pressure monitors in each separate pressure zone throughout the PWSA distribution system
- b. PWSA continues to work with the PA-DEP to review data from the pressure sensors in the distribution system. Analysis of the data being gathered will assist PWSA with developing the long-term plan to address the local pressure problems systematically and individually.

**IX. QUALITY OF SERVICE**

IX.3. Provide support to demonstrate that water or wastewater service is being furnished on a continuous basis by supplying a summary of the company's records of each service interruption greater than 24 hours since the last rate proceeding.

**RESPONSE:**

PWSA records the time of interruption and restoration for service. All of this information is being compiled within an Access Database. A copy of this data has been attached for reference.

| IOS Date/Time          | Street Address         | Ward | Neighborhood              | Streets Between                                   | Type of Work                  | Number of Customers Affected | Main Size | Hydrant IDs  | Water Buffalo | Buffalo Location    | Est Shut Time       | Est Restore Time    | Actual Shut Time    | Actual Restore Time | Total Restoration Time     |
|------------------------|------------------------|------|---------------------------|---|-------------------------------|------------------------------|-----------|--|---------------|---------------------|---------------------|---------------------|---------------------|---------------------|----------------------------|
| 5/18/2021 6:58:42 PM   | BELLEFONTE ST          | 7    | Shadyside                 | WALNUT ST ELMER ST                                | Water Main Break              | 26                           | 8         | B742   | None          | N/A                 | 05/18/2021 07:04 PM | 05/19/2021 07:00 AM | 05/18/2021 07:04 PM | 05/19/2021 08:28 PM | 1 Days 1 Hours 24 Minutes  |
| 6/2/2021 7:11:57 PM    | 1201 MCCARTNEY ST      | 20   | Westwood                  | 1201 TO 1051 MCCARTNEY ST KEARNS AVE GREENTREE RD | Water Main Break              | 20                           | 8         | D804 D803 D813 D814  | None          | N/A                 | 06/02/2021 07:18 PM | 06/03/2021 11:00 PM | 06/02/2021 07:18 PM | 06/03/2021 08:53 PM | 1 Days 1 Hours 35 Minutes  |
| 6/8/2021 6:22:25 PM    | PATTERSON ST           | 16   | Southside Slopes          | ELEANOR ST CLOVER ST                              | Service Line Repair/Repl-PWSA | 23                           | 6         | N/A  | None          | N/A                 | 06/08/2021 06:24 PM | 06/09/2021 09:30 PM | 06/08/2021 06:24 PM | 06/09/2021 07:09 PM | 1 Days 0 Hours 45 Minutes  |
| 6/15/2021 6:14:55 PM   | GIST ST                | 1    | Bluff                     | FORBES AVE & 5TH AVE                              | Water Relay/Tie In            | 4                            | 6         | A-675  | None          | N/A                 | 06/15/2021 06:16 PM | 06/16/2021 08:16 PM | 06/15/2021 06:16 PM | 06/16/2021 08:01 PM | 1 Days 1 Hours 45 Minutes  |
| 6/16/2021 7:14:23 PM   | SOLWAY ST              | 14   | Squirrel Hill North       | WIGHTMAN ST TO MURRAY AVE                         | Valve Repair/Repl-Contr       | 30                           | 6         | C139 C967  | None          | N/A                 | 06/16/2021 07:17 PM | 06/17/2021 10:00 PM | 06/16/2021 07:17 PM | 06/17/2021 08:46 PM | 1 Days 1 Hours 29 Minutes  |
| 6/26/2021 6:23:07 PM   | LAKR DR                | 11   | Highland Park             | CONNECTING DR TO RESERVOIR DR                     | Water Relay/Tie In            | 1                            | 6         | B1364  | None          | N/A                 | 06/26/2021 06:25 PM | 06/27/2021 11:25 PM | 06/26/2021 06:25 PM | 06/27/2021 08:48 PM | 1 Days 2 Hours 23 Minutes  |
| 6/28/2021 8:47:46 AM   | WESTWOOD ST            | 19   | Mount Washington          | WALDEN ST TO ALBERT ST TO WESTWOOD ST             | Water Relay/Tie In            | 20                           | 8         | D618   | None          | N/A                 | 06/28/2021 08:43 AM | 06/28/2021 05:43 PM | 06/28/2021 08:43 AM | 06/29/2021 02:09 PM | 1 Days 5 Hours 26 Minutes  |
| 7/9/2021 5:59:46 PM    | EVA ST                 | 8    | East Liberty              | S BEATTY ST TO S EUCLID AVE                       | Water Main Break              | 1                            | 6         | B1511  | None          | N/A                 | 07/09/2021 06:03 PM | 07/10/2021 09:00 PM | 07/09/2021 06:03 PM | 07/10/2021 09:20 PM | 1 Days 3 Hours 17 Minutes  |
| 9/21/2021 10:04:24 AM  | 642 FORT DUQUESNE BLVD | 2    | Central Business District | BARKERS PL TO PENN AVE                            | Water Main Break              | 4                            | 12        | A1132  | None          | N/A                 | 09/21/2021 10:06 AM | 09/21/2021 03:00 PM | 09/21/2021 10:06 AM | 09/23/2021 01:00 AM | 1 Days 14 Hours 54 Minutes |
| 10/11/2021 9:48:07 AM  | 6701 STANTON AVE       | 11   | Highland Park             | LAKE DR TO DE 6639 STANTON AVE LONG CONNECTING RD | Water Main Break              | 24                           | 8         | B404 B1360 B1361 B1263 B1381   | Yes           | 6733 STANTON AVE    | 10/11/2021 09:50 AM | 10/12/2021 03:00 PM | 10/11/2021 09:50 AM | 10/12/2021 08:10 PM | 1 Days 10 Hours 20 Minutes |
| 11/6/2021 3:53:41 PM   | 3500 PENN AVE          | 6    | Lower Lawrenceville       | 34TH ST TO 39TH ST /LIGONIER ST TO LIBERTY AVE    | Water Main Break              | 400                          | 20        | 179 185 1288 1293 208 1292 1247 1248 223 227 207 226 1300 221 196 197 1291 | Yes           | 36TH ST TO PENN AVE | 11/06/2021 03:57 PM | 11/07/2021 12:00 AM | 11/06/2021 03:57 PM | 11/07/2021 07:45 PM | 1 Days 3 Hours 48 Minutes  |
| 12/9/2021 10:37:30 AM  | METROPOLITAN ST        | 21   | Chateau                   | PENNSYLVANIA AVE TO LIVERPOOL ST                  | Service Line Repair/Replace   | 2                            | 16        | N/A  | None          | N/A                 | 12/09/2021 10:40 AM | 12/09/2021 04:00 PM | 12/09/2021 10:40 AM | 12/10/2021 01:56 PM | 1 Days 3 Hours 16 Minutes  |
| 12/14/2021 6:32:59 PM  | CHATSWORTH AVE         | 15   | Hazelwood                 | TULLYMET ST & MOBILE ST                           | Water Main Break              | 3                            | 6         | N/A  | None          | N/A                 | 12/14/2021 06:44 PM | 12/15/2021 03:00 PM | 12/14/2021 06:44 PM | 12/15/2021 09:30 PM | 1 Days 2 Hours 46 Minutes  |
| 1/5/2022 7:34:43 PM    | 1004 BRADDISHT ST      | 17   | Southside Flats           | 10TH ST & 11TH ST                                 | Water Main Break              | 13                           | 6         | N/A  | None          | N/A                 | 01/05/2022 07:37 PM | 01/06/2022 11:00 PM | 01/05/2022 07:37 PM | 01/06/2022 07:37 PM | 1 Days 0 Hours 0 Minutes   |
| 1/6/2022 6:23:24 PM    | MARION ST              | 1    | Bluff                     | FORBES AVE TO LOCUST ST                           | Service Line Repair/Replace   | 6                            | 6         | A771   | None          | N/A                 | 01/06/2022 06:27 PM | 01/07/2022 08:00 PM | 01/06/2022 06:27 PM | 01/07/2022 08:32 PM | 1 Days 2 Hours 5 Minutes   |
| 1/16/2022 10:07:40 PM  | MCCANDLESS AVE         | 10   | Upper Lawrenceville       | POE WAY TO WICKLIFF ST                            | Water Main Break              | 7                            | 6         | B844   | None          | N/A                 | 01/16/2022 10:05 PM | 01/17/2022 03:00 PM | 01/16/2022 10:05 PM | 01/18/2022 12:45 PM | 1 Days 14 Hours 40 Minutes |
| 1/21/2022 9:20:23 PM   | S FAIRMOUNT ST         | 8    | Friendship                | FRIENDSHIP AVE TO ROUP AVE                        | Water Main Break              | 25                           | 6         | N/A  | None          | N/A                 | 01/21/2022 09:23 PM | 01/22/2022 02:30 AM | 01/21/2022 09:23 PM | 01/22/2022 10:36 PM | 1 Days 1 Hours 13 Minutes  |
| 1/26/2022 7:20:04 PM   | GRIFFITHS ST           | 4    | South Oakland             | FRAZIER ST  | Water Main Break              | 3                            | 6         | C584   | None          | N/A                 | 01/26/2022 07:24 PM | 01/27/2022 11:00 PM | 01/26/2022 07:24 PM | 01/28/2022 12:00 AM | 1 Days 4 Hours 36 Minutes  |
| 2/8/2022 12:57:45 PM   | VAN BRAAM ST           | 1    | Bluff                     | FORBES AVE AND 5TH AVE                            | Water Main Break              | 3                            | 8         | A-762, A-763   | None          | N/A                 | 02/08/2022 01:00 PM | 02/09/2022 03:00 PM | 02/08/2022 01:00 PM | 02/09/2022 03:05 PM | 1 Days 2 Hours 5 Minutes   |
| 2/11/2022 11:42:11 AM  | GRANT ST               | 1    | Bluff                     | 5TH AVE TO 6TH AVE                                | Valve Repair/Replace          | 1                            | 6         | A043   | None          | N/A                 | 02/11/2022 11:45 AM | 02/13/2022 05:00 PM | 02/11/2022 11:45 AM | 02/12/2022 06:35 PM | 1 Days 6 Hours 50 Minutes  |
| 3/1/2022 1:39:11 PM    | E CARSON ST            | 17   | South Shore               | COMMERCE DR TO S 5TH ST                           | Valve Repair/Replace          | 10                           | 24        | D686, D179, D118   | None          | N/A                 | 03/01/2022 01:44 PM | 03/02/2022 01:44 AM | 03/01/2022 01:44 PM | 03/02/2022 02:40 PM | 1 Days 0 Hours 56 Minutes  |
| 3/5/2022 2:40:01 AM    | 3056 TERRACE ST        | 4    | Terrace Village           | ALLEQUIPPA ST AND OAK HILL DR                     | Water Main Break              | 21                           | 8         | C2390, C698  | None          | N/A                 | 03/05/2022 02:43 AM | 03/05/2022 09:00 PM | 03/05/2022 02:43 AM | 03/06/2022 05:30 AM | 1 Days 2 Hours 47 Minutes  |
| 4/22/2022 8:48:37 PM   | ANDOVER TER            | 5    | Upper Hill                | BRYN MAWR RD TO 4301 ANDOVER TER                  | Valve Repair/Replace          | 7                            | 6         | A1383  | None          | N/A                 | 04/22/2022 08:53 PM | 04/23/2022 12:00 AM | 04/22/2022 08:53 PM | 04/23/2022 10:34 PM | 1 Days 1 Hours 41 Minutes  |
| 7/7/2022 8:44:26 PM    | CENTRE AVE             | 7    | Shadyside                 | S.MILLVALE AVE TO 5115 CENTRE AVE & MOREWOOD AVE  | Water Relay/Tie In            | 40                           | 20        | B-994,995,1139,1569  | None          | N/A                 | 07/07/2022 08:47 PM | 07/08/2022 07:00 AM | 07/07/2022 08:47 PM | 07/08/2022 10:20 PM | 1 Days 1 Hours 33 Minutes  |
| 7/20/2022 2:01:24 AM   | 538 ARLINGTON AV       | 18   | Arlington                 | TO 318 ARLINGTON AV                               | Water Main Break              | 17                           | 8         | D-243 D-244 D-2034   | None          | N/A                 | 07/20/2022 02:00 AM | 07/20/2022 08:00 PM | 07/20/2022 02:00 AM | 07/21/2022 02:09 AM | 1 Days 0 Hours 9 Minutes   |
| 7/20/2022 10:18:31 AM  | AMABELL ST             | 19   | Mount Washington          | W SYCAMORE AND GRANDVIEW                          | Water Main Break              | 31                           | 6         | D14, D619  | None          | N/A                 | 07/20/2022 10:20 AM | 07/20/2022 06:00 PM | 07/20/2022 10:20 AM | 07/21/2022 03:41 PM | 1 Days 5 Hours 21 Minutes  |
| 7/21/2022 4:51:05 AM   | 210 MEYRAN AVE         | 4    | Central Oakland           | SENNOTT ST TO FORBES AVE                          | Water Main Break              | 25                           | 12        | C711   | None          | N/A                 | 07/21/2022 04:54 AM | 07/21/2022 03:54 PM | 07/21/2022 04:54 AM | 07/22/2022 09:02 AM | 1 Days 4 Hours 8 Minutes   |
| 9/15/2022 6:33:11 PM   | MOREWOOD AVE           | 8    | Bloomfield                | BAUM BLVD TO MOREWOOD AVE                         | Service Line Repair/Replace   | 45                           | 8         | B1033,B1034,B1035,B1059  | None          | N/A                 | 09/15/2022 06:44 PM | 09/16/2022 08:30 PM | 09/15/2022 06:44 PM | 09/16/2022 08:30 PM | 1 Days 1 Hours 46 Minutes  |
| 9/21/2022 7:57:07 AM   | BRIGHTON ROAD          | 27   | Brighton Heights          | SCHIMMER AND 3534 BRIGHTON ROAD                   | Water Main Break              | 100                          | 16        | F441 F467 F465 F606 F648 F649 F611 F612 F613                               | None          | N/A                 | 09/21/2022 08:00 AM | 09/22/2022 02:00 AM | 09/21/2022 08:00 AM | 09/22/2022 10:16 PM | 1 Days 14 Hours 16 Minutes |
| 11/4/2022 8:41:41 AM   | 32ND ST                | 6    | Strip District            | LIBERTY AVE TO SASSAFRAS WAY                      | Valve Repair/Replace          | 1                            | 6         | A247   | None          | N/A                 | 11/04/2022 08:45 AM | 11/14/2022 02:45 PM | 11/04/2022 08:45 AM | 11/21/2022 02:21 PM | 17 Days 5 Hours 36 Minutes |
| 12/5/2022 8:00:38 AM   | BIGELOW BLVD           | 6    | Polish Hill               | HARDING WAY TO FINLAND ST                         | Water Main Break              | 1                            | 6         | A429, A468   | None          | N/A                 | 12/05/2022 07:56 AM | 12/05/2022 03:00 PM | 12/05/2022 07:56 AM | 12/07/2022 02:03 PM | 2 Days 6 Hours 7 Minutes   |
| 12/24/2022 11:59:23 PM | 6493 JACKSON ST        | 11   | Highland Park             | HEBERTON ST TO DE OF JACKSON ST                   | Water Main Break              | 16                           | 6         | B408, B410, B1351, B1350   | None          | N/A                 | 12/24/2022 11:56 AM | 12/25/2022 03:30 PM | 12/24/2022 11:56 AM | 12/25/2022 03:12 PM | 1 Days 3 Hours 16 Minutes  |
| 12/28/2022 12:32:15 PM | MOALE ST               | 27   | Brighton Heights          | MOALE ST TO BRIGHTON HEIGHTS BLVD                 | Water Main Break              | 2                            | 6         | F823 818   | None          | N/A                 | 12/28/2022 12:35 PM | 12/28/2022 12:00 AM | 12/28/2022 12:35 PM | 12/29/2022 01:38 PM | 1 Days 1 Hours 3 Minutes   |
| 2/2/2023 10:01:44 AM   | 22ND ST                | 2    | Strip District            | PENN AVE TO SMALLMAN ST                           | Valve Repair/Replace          | 2                            | 6         | A327, A329, A326   | None          | N/A                 | 02/02/2023 10:00 AM | 02/02/2023 04:00 PM | 02/02/2023 10:00 AM | 02/03/2023 11:23 AM | 1 Days 1 Hours 23 Minutes  |

## **IX. QUALITY OF SERVICE**

IX.4. Provide a discussion of the company's policy, or provide a copy of the policy if in written form, on tracking and responding to customer complaints.

- a. Provide a summary report demonstrating the company's compliance with 52 Pa. Code, § 65.3 regarding the full and prompt investigation of service or facility complaints and the recordkeeping requirements of such complaints.

### **RESPONSE:**

- a. Please see the Standard Operating Procedure attached that summarizes the roles and steps PWSA takes when handling a dispute.
- b. Please see attached the Compliance metrics spreadsheet for 2022. This summary is used for tracking compliance metrics. Reporting and monitoring customer complaints in compliance with Pa. Code, § 65.3 have been addressed in the PWSA Compliance Plan.

## PWSA Standard Operating Procedure

**Division:** Customer Service

**Scope:** How to Investigate a Dispute and Produce a Utility Report

**Job Title:** Compliance Analyst, Paralegal Supervisor, Compliance Coordinator, Compliance Manager

**Subject:** Dispute Investigation

Once a Representative from the Customer Service Department has identified a Dispute, the account is locked by creating a Dispute Clarification Case. On the following day, any accounts with an active “Dispute Lock” are captured and reported on the “DFKKLOCKS” MS Excel spreadsheet that is generated in the SAP Data Browser. A Representative from the Compliance Department reviews this daily report and adds each account to the Dispute Lock Report for tracking and monitoring purposes. This report is saved in the shared drive via this link:

<https://pghwater.sharepoint.com/sites/PUCCompliance2/Shared%20Documents/Forms/AllItems.aspx?viewid=aba84fdb%2D4373%2D4599%2D8e8e%2D15d8b18bd118>

Analysts from the Compliance Department will self-assign Disputes for which they will be responsible on a weekly basis.

1. Assigning Disputes: On a weekly basis, Analysts from the Compliance Department will review the Dispute Lock Report and place their name, in Column L “Completed By”, next to each Dispute that they will be responsible for processing. Analysts will self-assign a set number of Disputes each week based on current caseloads.

Once a dispute has been self-assigned, the investigation will begin, using methods reasonable under the circumstances.

1. The reason for the Dispute must be determined. If the reason is unclear, the customer will be contacted to confirm the Dispute and ensure that all issues are being investigated and addressed.
2. The Dispute is investigated using “reasonable” methods, which may include but not be limited to: SAP, Cogsdale, MUPS, Allegheny County Real Estate Portal, SAP Archiver, PAWC Online Information Request (OIR), KUBRA, SpryMobile, GeoDecisions, GIS, Meter Sense, Sensus Analytics, PWSA Tariffs, Call

Monitoring, PWSA Email Inboxes, PUC Regulations, Field Records, Lead Service Line Replacement files, etc.

At the conclusion of the investigation, a Utility Report must be completed and issued to the customer/complainant. This report must be issued within 30 days of the initiation of the Dispute. The Utility Report must include:

1. A statement of the claim or Dispute of the customer and a copy thereof, if the claim or notice of Dispute was made in writing.
2. The position of the public utility regarding the claim.
3. A statement that service will not be terminated pending completion of the Dispute process, including both Informal and Formal Complaints, so long as there is compliance with all requirements of the Commission.
4. A statement that, if the complaining party does not agree with the public utility company report, an Informal Complaint shall be filed with the Commission to ensure the preservation of all of the complaining party's rights.
5. The office where payment may be made or information obtained listing the appropriate telephone number and address of the public utility.
6. A full and complete explanation of procedures for filing an Informal Complaint with the Commission [see § 56.162 (relating to Informal Complaint filing procedures)]. If a written report is not requested by the complaining party or is not deemed necessary by the public utility, the public utility shall provide the information in § 56.162(1), (2) and (5). In addition, the public utility shall always provide the telephone number and address of the office of the Commission where an informal complaint may be filed.
7. If the matter in dispute involves a billing Dispute, the public utility company report must include the following:
  - a. An itemized statement of the account of the complaining customer, specifying the amount of credit, if any, and the proper amount due.
  - b. The date on or after which the account will become delinquent unless a the customer enters into a payment arrangement or an Informal Complaint is filed with the Commission. This date may not be earlier than the due date of the bill or 15 days after the issuance of a public utility company report, whichever is later.
8. If the matter involves a Dispute other than a billing Dispute, the public utility company report must also state the following:
  - a. The action required to be taken to avoid the termination of service.
  - b. The date on or after which service will be terminated in accordance with the applicable requirements, unless the report is complied with, or the customer enters into a payment arrangement, or an Informal Complaint is



filed. This date may not be earlier than the original date for compliance with the matter which gave rise to the dispute or 10 days from the date of issuance of the public utility company report, whichever is later. If the public utility company report is in writing, the information in this paragraph must be prominently displayed.

After the investigation has been completed and the Utility Report has been issued, the following steps should be taken to close the dispute:

1. Remove any interest associated with the disputed amounts.
2. Contact the customer/complainant to communicate the facts and outcome of the investigation. The customer/complainant should also be advised of their rights to appeal PWSA's decision to the Public Utility Commission (PUC) by filing an Informal Complaint.
3. If necessary, establish a payment arrangement.
4. Note the account to document the interaction and details of the Utility Report that were communicated to the customer/complainant.
5. Update the account Dispute Lock to reflect the terms of the payment arrangement or to expire 15 days after the Utility Report is issued.

Update the Dispute Lock Report, Column J "Response/Report Date", with the date that the Utility Report was issued. If the response time is outside of the 30-day regulated timeframe, the "Response/Report Date" cell will automatically turn red. At that time, you must email the Compliance Coordinator/Compliance Manager detailing your reasoning for exceeding the maximum response requirement.



## **IX. QUALITY OF SERVICE**

IX.5. Indicate whether the company is in compliance with 52 Pa. Code, § 65.4(b) regarding complete and current mapping of the entire distribution or collection system.

### **RESPONSE:**

PWSA has GIS layers available for the active, PWSA-owned water distribution and collection system infrastructure throughout the organization's service area. The location of and attributes populated within the GIS features continue to be updated based on field assessments (including asset inspections and the collection of GPS coordinates) and the review of associated record documents. A system-wide review and update of attributes within the water and sewer main GIS features, including the population of installation date, material, pipe diameter, and record source hyperlinks, is expected to be completed by the end of 2023. PWSA has completed the process of electronically scanning and referencing all of the available historical paper maps and plans for existing facilities, which are stored in the document management system, DocuWare, and can be linked directly to associated GIS features.

**IX. QUALITY OF SERVICE**

IX.6. Provide a summary report demonstrating the company's efforts in water conservation, since the last rate proceeding, pursuant to 52 Pa. Code, § 65.20.

**RESPONSE:**

Plans for conservation activities are included in the Compliance Plan submission.

## **IX. QUALITY OF SERVICE**

IX.7. Provide a discussion of the company's policy regarding meter requirements, replacements and testing. State if the company's procedures are in compliance with 52 Pa. Code, § 65.8(b).

a. Provide meter test records as required in 52 Pa. Code, § 65.8(c) for the 50 meters most recently removed from service.

b. Provide a discussion of the company's policy and history of compliance with 52 Pa. Code, § 65.9 regarding adjustment of bills for meter error within the last year.

### **RESPONSE:**

In Section 509.6 of PWSA's prior tariff, currently The Pittsburgh Water and Sewer Authority Rules and Regulations, PWSA does provide meter tests at a customer's request. However, the Authority will only perform a meter test at no charge if the meter passes testing.

PWSA implemented a meter replacement program to comply with these provisions, which was included in its Compliance Plan filing.

a. PWSA maintains records containing meter testing information.

b. With respect to 52 Pa. Code § 65.9(a), PWSA's recent 12 months practice has been to credit disputed usage for meters with test results in excess of 104% accuracy by refunding the customer for all disputed usage exceeding the customer's average usage throughout the prior 12 months. With respect to 52 Pa. Code § 65.9(b), PWSA does not assess any charges outside of the cost of the meter test for slow meters. With respect to 52 Pa. Code § 65.9(c), PWSA's recent 12 months practice has been to assess charges for usage during the period in which a meter was found to be not registering by computing the usage by taking the average of the nearest meter reading period immediately preceding and the meter reading period immediately following the date when the meter was found to be not registering or interfered with, which is the amount of water assumed to have been used by the customer during the billing periods in which the water meter was found not to have registered.

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**X. BALANCE SHEET**

X.1. Provide a comparative balance sheet for the historic test year-end and the preceding year-end.

**RESPONSE:**

Please see 53.52.c.2.

**X. BALANCE SHEET**

X.2. Provide a detail of other physical property, investments in affiliated companies and other investments.

**RESPONSE:**

PWSA is currently in compliance with 52 Pa. Code, § 65.16 System of Accounts. PWSA has mapped the current Chart of Accounts to provide reports and other required financial information in conformity with the most recent Uniform System of Accounts for Class A Water Utilities.



**X. BALANCE SHEET**

X.3. Provide the amounts and purpose of special cash accounts as of the historic test year-end.

**RESPONSE:**

PWSA does not have any special cash accounts.

**X. BALANCE SHEET**

X.4. Describe the nature and amounts of notes receivable, accounts receivable from associated companies, and any other receivables, other than customers' accounts, greater than 15% of the total. Limit the explanation to variances greater than \$10,000.

**RESPONSE:**

PWSA does not have any notes receivable or accounts receivable from associated companies. Other receivables account for 2.09% of total receivables balance with the rest attributable to billed and unbilled water, wastewater, and wastewater treatment charges from customers.

**X. BALANCE SHEET**

X.5. Provide the amount of accumulated reserve for uncollectible accounts, method and rate of accrual, amounts accrued and amounts written-off in each of the last 3 years.

**RESPONSE:**

PWSA maintains a reserve for uncollectible accounts. This reserve, based on an analytical review of outstanding accounts and historical collection data, is recognized coincident with recognition of revenue. PWSA has rights to utilize collection agencies, service terminations, liens, and real property sales to protect its interests, limit further losses, and motivate payments from delinquent customers. Due to this leverage, PWSA's current policy is not to write off bad debts. The table below shows the amounts accrued over the last three years.

|                          | <b>Per Books<br/>12/31/2020</b> | <b>Per Books<br/>12/31/2021</b> | <b>Unaudited<br/>12/31/2022</b> |
|--------------------------|---------------------------------|---------------------------------|---------------------------------|
| Water & Sewer Conveyance | \$ 21,087,438                   | \$ 20,602,194                   | \$ 18,355,614                   |
| Sewet Treatment          | \$ 11,333,582                   | \$ 11,083,235                   | \$ 9,862,556                    |
| <b>Total</b>             | <b>\$ 32,421,020</b>            | <b>\$ 31,685,429</b>            | <b>\$ 28,218,169</b>            |

Pittsburgh Water and Sewer Authority's Base Rate Filing

**X. BALANCE SHEET**

X.6. Provide a list of prepayments and give an explanation of special prepayments.

**RESPONSE:**

Please see the table below.

| <b>Prepaid Expense</b>                        | <b>Amount</b> | <b>Paid</b> | <b>Cost Period</b>   |
|---|---------------|-------------|----------------------|
| PDF XChange Licensing                         | \$ 4,852.00   | Apr 2022    | Jan 2023 - Apr 2024  |
| Alegheny Conference                           | 10,000.00     | Mar 2022    | 2023                 |
| American Water Works Association              | 14,979.00     | Apr 2022    | 5 months of 2023     |
| Association of Metropolitan Water Agencies    | 9,000.00      | Nov 2022    | 2023                 |
| Bentley Systems Flow Monitoring               | 25,344.00     | Dec 2022    | 2023                 |
| Bonfire Procurement Platform Licenses         | 35,660.00     | Dec 2022    | 2023                 |
| CDW Government Inc. - Cybersecurity           | 65,826.08     | Apr 2022    | Jan 2023 - June 2025 |
| Microsoft Licensing                           | 176,758.79    | Dec 2022    | 2023                 |
| CityGrows Inc.                                | 9,999.00      | Apr 2022    | 4 months of 2023     |
| Cogsdale Licensing                            | 172,201.94    | Dec 2022    | 2023                 |
| Commonwealth of Pennsylvania - PA PUC         | 1,264,374.00  | Oct 2022    | 6 months of 2023     |
| Computational Hydraulics                      | 4,800.00      | June 2022   | 6 months of 2023     |
| Connectwise LLC                               | 17,600.40     | Aug 2022    | 1 month of 2023      |
| Document Management Licensing                 | 99,664.00     | June 2022   | 6 months of 2023     |
| ARCGIS Licensing                              | 72,431.55     | July 2023   | 6 months of 2023     |
| ePlus Technology - Two Step Authentication    | 29,769.63     | Sept 2023   | 2023 and 2024        |
| Exclaimer Cloud Services                      | 5,454.00      | June 2022   | 4 months of 2023     |
| Gartner Advisory Services                     | 73,666.66     | Feb 2022    | 1 month of 2023      |
| Local Phone Service                           | 9,992.88      | Dec 2022    | 1 month of 2023      |
| Technology Approval Group (TAG) Membership    | 20,900.00     | May 2022    | 6 months of 2023     |
| Keeper Security Password Manager              | 13,209.00     | Oct 2022    | 4 months of 2023     |
| KUBRA Prepaid Postage                         | 86,360.00     | Dec 2022    | 2023                 |
| MARS Company Water Meter Testing              | 60,970.00     | Apr 2022    | 3 months of 2023     |
| NACWA Membership                              | 7,620.00      | Oct 2022    | 9 months of 2023     |
| VMWare Licensing                              | 44,550.00     | Dec 2022    | 11 months of 2023    |
| Water Quality Data Services                   | 75,000.00     | July 2023   | 5 months of 2023     |
| Pitney Bowes Prepaid Postage                  | 40,001.09     | Dec 2022    | 2023                 |
| SAP Enterprise Resource Planning Subscription | 114,492.35    | Dec 2022    | 3 months of 2023     |
| Laboratory Information Management Software    | 5,050.00      | Feb 2022    | 3 months of 2023     |
| Sensus USA                                    | 103,809.08    | Feb 2022    | 3 months of 2023     |
| Solarwinds IT Security and Services License   | 6,373.00      | May 2022    | 7 months of 2023     |
| Sprybackflow Licensing                        | 19,448.10     | Nov 2022    | 11 months of 2023    |
| Vibrant Pittsburgh Membership                 | 5,000.00      | Apr 2022    | 4 months of 2023     |
| USWater Alliance Membership                   | 16,000.00     | Dec 2022    | 2023                 |
| Watersuite                                    | 11,200.00     | June 2022   | 6 months of 2023     |

**X. BALANCE SHEET**

X.7. Break down and explain in detail any significant items, greater than 15% of the total, in the current assets account listed on the balance sheet. Limit the explanation to variances greater than \$10,000.

**RESPONSE:**

**Cash and Cash Equivalents**

**2021: \$76,422,000**

The Authority's cash and cash equivalents are considered to be cash on hand, demand deposits, and all highly liquid investments, both restricted and unrestricted, with maturity of three months or less at date of purchase.

**Accounts Receivable: Water and Wastewater Treatment**

**2021: \$26,568,000**

Accounts receivables consist of monies owed to PWSA for services provided. Customers are billed on a monthly billing cycle by the Authority based on actual or estimated meter readings. The Authority recognizes unbilled accounts receivable for water service provided prior to year-end that is billed during the following year. Accounts receivable, both billed and unbilled, are divided by water (which includes wastewater conveyance) and wastewater treatment. Accounts receivable are presented net of a reserve for uncollectible amounts.

## **X. BALANCE SHEET**

X.8. Explain in detail, including the amount and purpose, the deferred asset accounts that currently operate to affect or will at a later date affect the operating account supplying:

- a. Origin of these accounts.
- b. Probable changes to this account in the near future.
- c. Amortization of these accounts currently charged to operations or to be charged in the near future.

### **RESPONSE:**

As explained below, PWSA maintains various swap agreements that represent deferred outflows and/or inflows.

- a. During December 2017, the Authority issued \$165,390 First Lien Revenue Refunding Bonds composed of Series A (159,795) and Series B (taxable) (\$5,595). The proceeds of the bonds were used to fund the costs of the refunding of all or a portion of the Authority's outstanding Series of 1998B, 2008A, 2008D-1, and 2013B water and sewer system revenue bonds.

The 2017 A and B Bonds were issued at a bond premium of \$23,374, which is being amortized as an adjustment to interest expense over the life of the bonds. The 2017 B Bonds were paid off during 2018.

During December 2017, the Authority issued \$218,805 Series C First Lien Revenue Refunding Bonds, the proceeds of which were used to fund the costs of refunding the Authority's outstanding Series 2008 B-1, B-2, and D-2 water and sewer system revenue bonds. The Bonds bear interest at the LIBOR index rate. As noted below, the 2017 C Bonds were remarketed with the issuance of the 2020 A Bonds to convert the cash flows of the Authority's outstanding fixed payer swap portfolio from 70% 1-month LIBOR to the Weekly SIFMA Index (plus a third payment leg that includes a fixed rate component of the Authority paying 0.118%) between the Overlay Swap's effective date of December 1, 2020 and termination date of December 1, 2023. When LIBOR is no longer published, the interest rate will be replaced by the Federal Funds Rate if not renegotiated.

During June 2019, the Authority issued \$109,855 Series A First Lien Revenue Bonds, the proceeds of which were used to refund interim debt incurred by the Authority to fund costs of capital projects; and \$104,290 Series B Subordinate Revenue Refunding Bonds, the proceeds of which were used to currently refund all of the Authority's outstanding Series of 2008 C-1 and C-2 bonds, including swap termination payments on interest rate

## **X. BALANCE SHEET**

swaps associated with the refunded bonds. The 2019 A and B Bonds were issued at a bond premium of \$45,090, which is being amortized as an adjustment to interest expense over the life of the bonds.

During December 2020, the Authority issued \$890 Series A First Lien Revenue Bonds (Federally Taxable), the proceeds of which were used to remarket the 2017 C Bonds; and \$91,520 Series B First Lien Revenue Bonds, the proceeds of which were used to refinance the capital revolving line of credit described below. The 2020 B Bonds were issued at a bond premium of \$16,665, which is being amortized as an adjustment to interest expense over the life of the bonds.

- b. The Water and Sewer System First Lien Revenue Refunding Bonds Series C of 2017 were issued with a mandatory tender date of December 1, 2023. A mandatory tender requires that the Authority purchase the bonds on the tender date with proceeds from a remarketing, which could be from another public offering or a private bank loan. The outcome of this transaction could impact this account in the near future. However, there is no way to determine what the impact will be until after the transaction is completed.
- c. During the years ended December 31, 2021 and 2020, the Authority paid \$6,907,000 and \$6,808,000 respectively, fixed and received \$155,000 and \$1,134,000 respectively, variable related to their outstanding swap agreements.

Current period changes in fair value for the interest rate swaps that are accounted for as hedges are recorded on the statements of net position as an adjustment to deferred outflows. Additionally, current period changes in fair value for the interest rate swap accounted for as an investment is recorded on the statements of revenues, expenses, and changes in net position as a component of investment income.

Through the use of derivative instruments such as interest rate swaps, the Authority is exposed to a variety of risks, including credit risk, interest rate risk, termination risk, basis risk, and rollover risk. A detailed description, valuation, and amortization, and associated risks can be found in PWSA's 2021 Audit report (FR VII.15).

**X. BALANCE SHEET**

X.9. Explain the nature of accounts payable to associated companies. Provide a breakdown by category.

**RESPONSE:**

PWSA has no associated companies.



**X. BALANCE SHEET**

X.10. Provide breakdown and explanation of other deferred credits as to their origin and disposition policy, for example, amortization.

**RESPONSE:**

**Deferred Charge on Refunding**

The Authority has recorded a deferred charge on refunding, which is shown as a deferred outflow of resources on the statements of net position.

| <b>Balance at<br/>12/31/2020</b> | <b>Additions</b> | <b>Amortization</b> | <b>Balance at<br/>12/31/2021</b> |
|----------------------------------|------------------|---------------------|----------------------------------|
| \$ 91,827,000                    | \$ -             | \$ 7,183            | \$ 84,644,000                    |

**Interest Rate Swaps**

The aggregate change in fair value during the year for hedging derivatives is reported on the statement of net position as a deferred outflow and swap borrowing and the investment derivative is considered an ineffective hedging derivative, whereby the change in fair value will be reported as a change in fair value of swap on the statement of revenues, expenses and changes in net position. A detailed description, valuation, and amortization, and associated risks can be found in PWSA's 2021 Audit report (FR VII.15).

**X. BALANCE SHEET**

X.11. Provide an explanation and method of funding of any reserves, other than depreciation and bad debt appearing on historic balance sheet.

**RESPONSE:**

**Operating Reserve Fund**

**2021 Audit: \$18,856,000**

PWSA is required by the 2017 Trust Indenture to maintain and fully fund an operating reserve. Per the indenture, monies in the Operating Reserve Fund can be used by PWSA to pay for the Current Expenses of the Authority. To the extent the Debt Service Fund is insufficient to make the required interest in principals on Senior Debt, monies in the operating reserve fund can be used. PWSA is required to maintain one sixth (1/6<sup>th</sup>) of the Current Expenses reflected in the most recent annual audited financial statements of the Authority. PWSA funds this reserve using cash generated from operations and has included a deposit in the FPPTY revenue requirement

**X. BALANCE SHEET**

X.12. Provide an analysis of unappropriated retained earnings for the historic test year and 2 preceding years.

**RESPONSE:**

PWSA does not have unappropriated retained earnings. Any revenues collected in excess of system costs are deposited into cash account for payment of future operating and non-operating costs.

**X. BALANCE SHEET**

X.13. Describe the purpose of any advances made by the company to its parent corporation and describe all terms and conditions associated with such advances, including an estimate of future advances or repayments that are expected to occur.

**RESPONSE:**

Not applicable.

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**XI. OTHER DATA**

XI.1. Provide the company's monthly balance sheets and income statements for each month of the historic and future test year.

**RESPONSE:**

Please see schedules attached.

**Pittsburgh Water & Sewer Authority  
Monthly Income Statements - HTY (2022)**

|                                     | Per Books<br>1/31/2022 | Per Books<br>2/28/2022 | Per Books<br>3/31/2022 | Per Books<br>4/30/2022 | Per Books<br>5/31/2022 | Per Books<br>6/30/2022 | Per Books<br>7/31/2022 | Per Books<br>8/31/2022 | Per Books<br>9/30/2022 | Per Books<br>10/31/2022 | Per Books<br>11/30/2022 | Per Books<br>12/31/2022 |
|-------------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|-------------------------|-------------------------|
| <b>Monthly Profit / Loss</b>        |                        |                        |                        |                        |                        |                        |                        |                        |                        |                         |                         |                         |
| <b>REVENUES</b>                     |                        |                        |                        |                        |                        |                        |                        |                        |                        |                         |                         |                         |
| Utility Revenue                     | \$ (21,568,971)        | \$ (21,064,594)        | \$ (21,603,673)        | \$ (23,512,078)        | \$ (22,152,848)        | \$ (22,822,510)        | \$ (26,330,419)        | \$ (26,905,974)        | \$ (25,534,342)        | \$ (25,426,245)         | \$ (21,752,499)         | \$ (21,954,330)         |
| Fee Revenue                         | (1,335,368)            | (1,457,015)            | (286,737)              | (80,259)               | (67,137)               | (81,730)               | (77,530)               | (60,772)               | (61,236)               | (55,540)                | (61,861)                | (1,242,410)             |
| Misc Revenue                        | (47,922)               | (485,987)              | (23,079)               | (342,682)              | (92,463)               | (22,575)               | (194,606)              | (228,537)              | 82,701                 | (23,098)                | (56,572)                | (235,170)               |
| Interest Income (NonTrust)          | -                      | -                      | -                      | -                      | -                      | -                      | -                      | -                      | -                      | -                       | -                       | -                       |
| Interest Income (Trust)             | (420)                  | (431)                  | (565)                  | (3,125)                | (7,258)                | (17,178)               | (28,038)               | (41,898)               | (71,833)               | (47,292)                | (58,198)                | (70,985)                |
| Other Income                        | -                      | -                      | -                      | (141,887)              | (4,330)                | (135,658)              | (376,015)              | (1,929,606)            | -                      | (1,194,983)             | (1,226,133)             | (5,130,885)             |
| Gain/Loss on Asset Disposal         | -                      | -                      | -                      | -                      | -                      | -                      | -                      | -                      | -                      | -                       | -                       | -                       |
| Revenues Total                      | <u>\$ (22,952,680)</u> | <u>\$ (23,008,027)</u> | <u>\$ (21,914,054)</u> | <u>\$ (24,080,031)</u> | <u>\$ (22,324,036)</u> | <u>\$ (23,079,651)</u> | <u>\$ (27,006,607)</u> | <u>\$ (29,166,786)</u> | <u>\$ (25,584,709)</u> | <u>\$ (26,747,157)</u>  | <u>\$ (23,155,264)</u>  | <u>\$ (28,633,779)</u>  |
| <b>EXPENSES</b>                     |                        |                        |                        |                        |                        |                        |                        |                        |                        |                         |                         |                         |
| <b>Salaries &amp; Benefits</b>      |                        |                        |                        |                        |                        |                        |                        |                        |                        |                         |                         |                         |
| Salaries Expense                    | \$ 2,230,422           | \$ 2,253,708           | \$ 2,255,579           | \$ 2,239,857           | \$ 2,200,171           | \$ 3,286,040           | \$ 2,261,470           | \$ 2,234,101           | \$ 2,241,757           | \$ 2,234,248            | \$ 3,482,911            | \$ 2,651,160            |
| Other Employee Expenses             | 662,990                | 653,212                | 657,013                | 662,094                | 671,875                | 758,618                | 657,049                | 653,116                | 674,511                | 694,384                 | 785,425                 | 725,376                 |
| Salaries & Benefits Total           | 2,893,412              | 2,906,920              | 2,912,592              | 2,901,951              | 2,872,045              | 4,044,658              | 2,918,519              | 2,887,217              | 2,916,268              | 2,928,632               | 4,268,335               | 3,376,535               |
| <b>Direct Operating Expenses</b>    |                        |                        |                        |                        |                        |                        |                        |                        |                        |                         |                         |                         |
| Chemical Costs                      | 300,979                | 419,696                | 513,582                | 354,184                | 301,668                | 451,453                | 573,491                | 298,201                | 759,871                | 413,146                 | 688,831                 | 436,497                 |
| Equipment Costs                     | 1,736,727              | 304,346                | 340,070                | 161,946                | 329,535                | 2,032,440              | 155,782                | 602,193                | 588,391                | 269,074                 | 428,791                 | (633,592)               |
| Material Costs                      | 42,299                 | 69,702                 | 57,343                 | 39,532                 | 54,392                 | 73,579                 | 52,531                 | 39,829                 | 63,873                 | 19,825                  | 74,925                  | 86,535                  |
| Operating Contracts                 | 8,127,675              | 6,358,780              | 7,603,520              | 8,435,888              | 9,607,616              | 9,630,911              | 9,318,525              | 9,365,035              | 9,016,332              | 8,975,717               | 8,197,273               | 12,131,676              |
| Repairs and Maintenance             | 555,479                | 1,063,592              | 285,336                | 411,478                | 514,032                | 2,383,790              | 423,710                | 1,592,293              | 1,339,195              | 1,573,098               | 1,590,020               | 1,411,715               |
| Misc Direct Operating Costs         | 11,222                 | 35,144                 | 31,258                 | 35,187                 | 34,790                 | 30,047                 | 23,660                 | 29,785                 | 44,137                 | 27,564                  | 14,655                  | 42,687                  |
| Inventory Exp - Castings            | 33,222                 | (20,787)               | 19,427                 | 30,619                 | 28,228                 | 11,715                 | 16,072                 | -                      | -                      | -                       | -                       | -                       |
| Inventory Exp - Clarifier           | -                      | -                      | -                      | -                      | -                      | -                      | -                      | -                      | -                      | -                       | -                       | -                       |
| Inventory Exp - Equipment           | 2,580                  | 1,400                  | 13,968                 | 5,401                  | 59                     | (890)                  | 10,361                 | 5,057                  | 2,431                  | 26,416                  | 9,906                   | 1,642                   |
| Inventory Exp - Hardware            | 11,496                 | 25,425                 | 54,382                 | 33,967                 | 11,256                 | 15,509                 | 97,696                 | 34,279                 | 186,288                | 136,455                 | 52,175                  | 37,527                  |
| Inventory Exp - Heavy Equip         | -                      | -                      | -                      | -                      | -                      | -                      | -                      | -                      | -                      | -                       | -                       | -                       |
| Inventory Exp - Misc                | 901                    | 2,291                  | 6,322                  | 3,202                  | 381                    | 7,311                  | 6,365                  | 1,344                  | (384)                  | 10,702                  | 127                     | 328                     |
| Inventory Exp - Parts               | 2,430                  | 3,607                  | 40,127                 | 36,352                 | 6,394                  | 4,905                  | 36,164                 | 35                     | 4,459                  | 5,063                   | 2,034                   | (1,230)                 |
| Inventory Exp - Pipe                | 72,748                 | 9,591                  | 160,616                | 50,379                 | 33,835                 | 57,681                 | 70,241                 | 4,641                  | 81,121                 | 146,074                 | 15,200                  | 7,361                   |
| Inventory Exp - Valves              | 12,403                 | 6,328                  | 48,692                 | 11,919                 | 13,331                 | 14,507                 | 45,240                 | 29,562                 | 65,526                 | 29,844                  | 15,902                  | 15,258                  |
| Direct Operating Expenses Total     | 10,910,161             | 8,279,117              | 9,174,641              | 9,610,053              | 10,935,518             | 14,712,957             | 10,829,840             | 12,002,253             | 12,151,241             | 11,632,976              | 11,089,839              | 13,536,402              |
| <b>General &amp; Administrative</b> |                        |                        |                        |                        |                        |                        |                        |                        |                        |                         |                         |                         |
| Admin Fees                          | 77,167                 | 95,037                 | 100,328                | 93,824                 | 178,660                | 245,737                | 66,394                 | 65,665                 | 74,716                 | 182,965                 | 114,974                 | 1,187,856               |
| Freight and Postage                 | 30,401                 | 36,420                 | 81,674                 | 2,486                  | 32,163                 | 32,481                 | 51,453                 | 33,781                 | 58,129                 | 519                     | 65,948                  | 62,795                  |
| Leases and Rent                     | 173,724                | 107,034                | 86,401                 | 92,627                 | 71,393                 | 102,004                | 90,605                 | 6,441                  | 162,263                | 87,828                  | 89,821                  | 53,829                  |
| Professional Services               | 1,900,626              | 1,072,538              | 1,321,079              | 1,315,686              | 1,083,217              | 1,418,725              | 1,200,266              | 668,906                | 1,527,649              | 2,153,302               | 2,034,517               | 1,276,060               |
| Supplies                            | 50,195                 | 41,451                 | 92,240                 | 48,939                 | 167,074                | 178,207                | 113,815                | 49,824                 | 292,774                | 81,489                  | 113,476                 | 279,046                 |
| Travel and Training                 | 5,173                  | 3,645                  | 12,574                 | 33,519                 | 25,227                 | 27,448                 | 23,804                 | 26,625                 | 23,436                 | 31,868                  | 30,901                  | 44,461                  |
| Utility Expense                     | 524,484                | 602,686                | 435,820                | 637,405                | 549,182                | 484,108                | 461,798                | 497,404                | 95,760                 | 1,062,319               | 231,981                 | 1,202,460               |
| Admin Misc                          | (22,892)               | 258,004                | 78,454                 | 241,392                | 29,687                 | 94,172                 | 591,167                | 4,196                  | 90,606                 | 142,836                 | 144,542                 | (14,785,700)            |
| General & Administrative Total      | 2,738,879              | 2,216,814              | 2,208,570              | 2,465,877              | 2,136,602              | 2,582,881              | 2,599,303              | 1,352,841              | 2,325,333              | 3,743,127               | 2,826,161               | (10,679,192)            |
| <b>Other Expenses</b>               |                        |                        |                        |                        |                        |                        |                        |                        |                        |                         |                         |                         |
| Other Expenses - City               | -                      | -                      | 61,393                 | -                      | -                      | -                      | -                      | -                      | -                      | -                       | -                       | 3,743,427               |
| Other Expenses - Non-City           | 11,905                 | 11,363                 | 12,178                 | 17,727                 | 11,747                 | 17,531                 | 13,922                 | -                      | 28,396                 | 3,777                   | 21,909                  | 21,704                  |
| Depreciation Expense                | 2,198,420              | 2,198,420              | 2,198,419              | 2,198,396              | 2,198,396              | 2,198,396              | 2,198,396              | 2,717,895              | 2,259,527              | 2,254,863               | 2,254,862               | 2,611,934               |
| Interest Expense                    | 3,291,062              | 3,252,428              | 3,436,358              | 3,292,387              | 3,311,345              | 3,312,543              | 3,244,468              | 3,310,816              | 3,569,957              | 3,499,367               | 3,265,290               | 3,901,496               |
| Other Expenses Total                | 5,501,386              | 5,462,210              | 5,708,347              | 5,508,510              | 5,521,488              | 5,528,470              | 5,456,787              | 6,028,712              | 5,857,881              | 5,758,007               | 5,542,061               | 10,278,561              |
| Expenses Total                      | <u>\$ 22,043,837</u>   | <u>\$ 18,865,061</u>   | <u>\$ 20,004,151</u>   | <u>\$ 20,486,391</u>   | <u>\$ 21,465,655</u>   | <u>\$ 26,868,967</u>   | <u>\$ 21,804,449</u>   | <u>\$ 22,271,023</u>   | <u>\$ 23,250,722</u>   | <u>\$ 24,062,742</u>    | <u>\$ 23,726,396</u>    | <u>\$ 16,512,306</u>    |
| <b>(Profit) / Loss</b>              | <b>\$ (908,843)</b>    | <b>\$ (4,142,966)</b>  | <b>\$ (1,909,903)</b>  | <b>\$ (3,593,640)</b>  | <b>\$ (858,382)</b>    | <b>\$ 3,789,316</b>    | <b>\$ (5,202,158)</b>  | <b>\$ (6,895,764)</b>  | <b>\$ (2,333,987)</b>  | <b>\$ (2,684,416)</b>   | <b>\$ 571,132</b>       | <b>\$ (12,121,473)</b>  |

**Pittsburgh Water & Sewer Authority**  
**Monthly Income Statements - FTY (2023)**

| <b>Monthly Profit / Loss</b>    | <b>Per Books</b><br><b>1/31/2023</b> |
|---------------------------------|--------------------------------------|
| <b>REVENUES</b>                 |                                      |
| Utility Revenue                 | \$ (23,903,988)                      |
| Fee Revenue                     | (80,294)                             |
| Misc Revenue                    | (309,519)                            |
| Interest Income (NonTrust)      | -                                    |
| Interest Income (Trust)         | (81,199)                             |
| Other Income                    | -                                    |
| Gain/Loss on Asset Disposal     | -                                    |
| Revenues Total                  | <u>\$ (24,374,999)</u>               |
| <b>EXPENSES</b>                 |                                      |
| Salaries & Benefits             |                                      |
| Salaries Expense                | \$ 2,445,644                         |
| Other Employee Expenses         | 731,320                              |
| Salaries & Benefits Total       | 3,176,964                            |
| Direct Operating Expenses       |                                      |
| Chemicals Costs                 | 744,566                              |
| Equipment Costs                 | 115,510                              |
| Material Costs                  | 74,556                               |
| Operating Contracts             | 7,219,169                            |
| Repairs and Maintenance         | 904,480                              |
| Misc Direct Operating Costs     | 19,246                               |
| Inventory Exp - Castings        | -                                    |
| Inventory Exp - Clarifier       | -                                    |
| Inventory Exp - Equipment       | 4,457                                |
| Inventory Exp - Hardware        | 36,076                               |
| Inventory Exp - Heavy Equip     | -                                    |
| Inventory Exp - Misc            | 3,188                                |
| Inventory Exp - Parts           | 2,468                                |
| Inventory Exp - Pipe            | 12,504                               |
| Inventory Exp - Valves          | 13,838                               |
| Direct Operating Expenses Total | 9,150,058                            |
| General & Administrative        |                                      |
| Admin Fees                      | 49,405                               |
| Freight and Postage             | 38,992                               |
| Leases and Rent                 | 229,010                              |
| Professional Services           | 850,110                              |
| Supplies                        | 63,258                               |
| Travel and Training             | 5,103                                |
| Utility Expense                 | 724,881                              |
| Admin Misc                      | 9,460                                |
| General & Administrative Total  | 1,970,219                            |
| Other Expenses                  |                                      |
| Other Expenses - City           | -                                    |
| Other Expenses - Non-City       | 10,967                               |
| Depreciation Expense            | 2,461,000                            |
| Interest Expense                | 3,241,071                            |
| Other Expenses Total            | 5,713,038                            |
| Expenses Total                  | <u>\$ 20,010,279</u>                 |
| <b>(Profit) / Loss</b>          | <b>\$ (4,364,720)</b>                |



**Pittsburgh Water & Sewer Authority  
Monthly Balance Sheets - HTY (2022)**

|                                     | <b>Per Books<br/>1/31/2022</b> | <b>Per Books<br/>2/28/2022</b> | <b>Per Books<br/>3/31/2022</b> | <b>Per Books<br/>4/30/2022</b> | <b>Per Books<br/>5/31/2022</b> | <b>Per Books<br/>6/30/2022</b> | <b>Per Books<br/>7/31/2022</b> | <b>Per Books<br/>8/31/2022</b> | <b>Per Books<br/>9/30/2022</b> | <b>Per Books<br/>10/31/2022</b> | <b>Per Books<br/>11/30/2022</b> | <b>Per Books<br/>12/31/2022</b> |
|-------------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|--------------------------------|---------------------------------|---------------------------------|---------------------------------|
| <b>ASSETS</b>                       |                                |                                |                                |                                |                                |                                |                                |                                |                                |                                 |                                 |                                 |
| Current Assets                      |                                |                                |                                |                                |                                |                                |                                |                                |                                |                                 |                                 |                                 |
| Cash                                | \$ 74,454,839                  | \$ 47,423,718                  | \$ 51,572,235                  | \$ 51,892,774                  | \$ 54,737,262                  | \$ 51,407,982                  | \$ 42,411,712                  | \$ 24,087,532                  | \$ 20,435,754                  | \$ 23,468,551                   | \$ 21,323,309                   | \$ 83,694,832                   |
| Short-Term Investments              | -                              | -                              | -                              | -                              | -                              | -                              | -                              | -                              | -                              | -                               | -                               | -                               |
| Accounts Receivable                 | 27,558,670                     | 30,481,419                     | 27,012,672                     | 29,805,137                     | 29,521,404                     | 28,718,496                     | 32,089,717                     | 37,277,242                     | 38,881,072                     | 36,703,068                      | 34,456,321                      | 35,936,833                      |
| Inventory                           | 2,076,433                      | 2,266,212                      | 2,123,329                      | 2,147,358                      | 2,434,123                      | 2,498,582                      | 2,366,137                      | 2,622,012                      | 2,650,491                      | 2,544,081                       | 2,473,282                       | 2,644,628                       |
| Other Assets                        | 4,331,721                      | 4,332,190                      | 4,327,982                      | 4,328,881                      | 4,299,463                      | 4,296,878                      | 4,294,501                      | 4,290,496                      | 4,289,085                      | 4,285,276                       | 4,282,656                       | 8,728,388                       |
| Current Assets Total                | 108,421,664                    | 84,503,539                     | 85,036,218                     | 88,174,151                     | 90,992,252                     | 86,921,939                     | 81,162,067                     | 68,277,282                     | 66,256,402                     | 67,000,976                      | 62,535,567                      | 131,004,680                     |
| Trusteed Funds                      |                                |                                |                                |                                |                                |                                |                                |                                |                                |                                 |                                 |                                 |
| Trusteed Funds                      | 47,326,707                     | 77,239,709                     | 60,929,586                     | 60,891,654                     | 60,895,389                     | 60,912,758                     | 60,944,740                     | 91,003,596                     | 47,472,267                     | 47,508,742                      | 47,569,675                      | 6,529,374                       |
| Trusteed Funds Total                | 47,326,707                     | 77,239,709                     | 60,929,586                     | 60,891,654                     | 60,895,389                     | 60,912,758                     | 60,944,740                     | 91,003,596                     | 47,472,267                     | 47,508,742                      | 47,569,675                      | 6,529,374                       |
| Long-Term Assets                    |                                |                                |                                |                                |                                |                                |                                |                                |                                |                                 |                                 |                                 |
| Construction.In.Progress            | 166,756,554                    | 171,807,918                    | 180,626,915                    | 185,690,937                    | 192,000,190                    | 200,370,377                    | 208,648,496                    | 223,065,239                    | 234,087,505                    | 242,450,953                     | 253,563,219                     | 220,280,823                     |
| Utility Assets                      | 1,200,535,619                  | 1,200,535,619                  | 1,200,535,619                  | 1,200,535,619                  | 1,200,535,619                  | 1,200,535,619                  | 1,200,535,619                  | 1,200,535,619                  | 1,200,535,619                  | 1,200,535,592                   | 1,200,535,592                   | 1,265,595,613                   |
| Accum Depr - Utility Assets         | (349,704,753)                  | (351,849,101)                  | (353,993,448)                  | (356,137,773)                  | (358,282,097)                  | (360,426,422)                  | (362,570,746)                  | (365,228,763)                  | (367,433,493)                  | (369,633,546)                   | (371,833,611)                   | (374,363,022)                   |
| Non-Utility Assets                  | 11,059,937                     | 11,059,937                     | 11,059,937                     | 11,059,937                     | 11,059,937                     | 11,059,937                     | 11,059,937                     | 11,059,937                     | 11,059,937                     | 10,940,221                      | 10,940,221                      | 10,940,221                      |
| Accum Depr - Non-Utility Assets     | (6,848,164)                    | (6,902,235)                    | (6,956,307)                    | (7,010,379)                    | (7,064,450)                    | (7,118,522)                    | (7,172,594)                    | (7,232,472)                    | (7,287,270)                    | (7,222,351)                     | (7,277,149)                     | (7,359,641)                     |
| Bond Issue Costs                    | (1,488)                        | (1,488)                        | (1,488)                        | (1,488)                        | (1,488)                        | (1,488)                        | (1,488)                        | (1,488)                        | (1,488)                        | (1,488)                         | (1,488)                         | (1,488)                         |
| Long-Term Assets Total              | 1,021,797,705                  | 1,024,650,650                  | 1,031,271,228                  | 1,034,136,853                  | 1,038,247,711                  | 1,044,419,501                  | 1,050,499,224                  | 1,062,198,072                  | 1,070,960,810                  | 1,077,069,381                   | 1,085,926,784                   | 1,115,092,506                   |
| Assets Total                        | \$ 1,177,546,076               | \$ 1,186,393,898               | \$ 1,177,237,032               | \$ 1,183,202,658               | \$ 1,190,135,352               | \$ 1,192,254,198               | \$ 1,192,606,031               | \$ 1,221,478,950               | \$ 1,184,689,479               | \$ 1,191,579,099                | \$ 1,196,032,026                | \$ 1,252,626,561                |
| <b>LIABILITIES &amp; EQUITY</b>     |                                |                                |                                |                                |                                |                                |                                |                                |                                |                                 |                                 |                                 |
| Current Liabilities                 |                                |                                |                                |                                |                                |                                |                                |                                |                                |                                 |                                 |                                 |
| Current Maturities of Long-Term Deb | \$ (33,121,137)                | \$ (32,816,644)                | \$ (32,257,827)                | \$ (31,699,541)                | \$ (31,141,183)                | \$ (30,583,817)                | \$ (30,025,929)                | \$ (29,467,435)                | \$ (28,885,690)                | \$ (28,303,316)                 | \$ (27,720,307)                 | \$ (35,765,326)                 |
| Accounts Payable                    | (5,911,469)                    | (6,502,852)                    | (5,749,350)                    | (5,914,839)                    | (7,783,564)                    | (8,981,991)                    | (45,184)                       | (13,219,560)                   | (8,317,366)                    | (7,882,748)                     | (9,981,785)                     | (7,911,815)                     |
| Accrued Payroll                     | (417,480)                      | (625,684)                      | (289,133)                      | (284,076)                      | 771,201                        | (388,126)                      | (381,716)                      | (882,942)                      | (424,836)                      | (757,488)                       | (393,055)                       | (1,023,820)                     |
| AP From Trusteed Funds              | (13,622,494)                   | (16,354,173)                   | (2,734,381)                    | (5,466,060)                    | (8,197,740)                    | (10,929,419)                   | (13,661,098)                   | (16,392,777)                   | (3,070,457)                    | (5,753,504)                     | (8,436,552)                     | (11,585,676)                    |
| AP Retainage                        | -                              | -                              | -                              | -                              | -                              | -                              | -                              | (2,812,991)                    | (2,812,991)                    | (2,812,991)                     | (2,812,991)                     | (7,352,539)                     |
| Other Current Liabilities           | (47,291,354)                   | (47,422,147)                   | (47,414,654)                   | (46,577,446)                   | (47,336,341)                   | (47,832,861)                   | (47,438,964)                   | (47,267,515)                   | (48,360,678)                   | (47,195,616)                    | (47,837,843)                    | (48,742,794)                    |
| Current Liabilities Total           | (100,363,934)                  | (103,721,500)                  | (88,445,346)                   | (89,941,962)                   | (93,687,626)                   | (98,716,213)                   | (91,552,890)                   | (110,043,221)                  | (91,872,017)                   | (92,705,663)                    | (97,182,532)                    | (112,381,969)                   |
| Long-Term Liabilities               |                                |                                |                                |                                |                                |                                |                                |                                |                                |                                 |                                 |                                 |
| Long-Term Debt                      | (1,045,402,980)                | (1,046,750,093)                | (1,050,959,361)                | (1,051,834,730)                | (1,054,161,900)                | (1,055,040,398)                | (1,057,355,200)                | (1,060,842,313)                | (1,039,897,085)                | (1,043,262,908)                 | (1,043,805,960)                 | (1,073,711,900)                 |
| Other LT Liabilities                | (5,344,470)                    | (5,344,470)                    | (5,344,470)                    | (5,344,470)                    | (5,344,470)                    | (5,344,470)                    | (5,344,470)                    | (5,344,470)                    | (5,344,470)                    | (5,344,470)                     | (5,344,470)                     | (4,712,154)                     |
| Long-Term Liabilities Total         | (1,050,747,450)                | (1,052,094,563)                | (1,056,303,831)                | (1,057,179,200)                | (1,059,506,370)                | (1,060,384,868)                | (1,062,699,670)                | (1,066,186,783)                | (1,045,241,555)                | (1,048,607,378)                 | (1,049,150,430)                 | (1,078,424,054)                 |
| Equity                              |                                |                                |                                |                                |                                |                                |                                |                                |                                |                                 |                                 |                                 |
| Contributed Capital                 | (5,277,000)                    | (5,277,000)                    | (5,277,000)                    | (5,277,000)                    | (5,277,000)                    | (5,277,000)                    | (5,277,000)                    | (5,277,000)                    | (5,277,000)                    | (5,277,000)                     | (5,277,000)                     | (5,277,000)                     |
| Net investment in capital assets    | (19,321,688)                   | (19,321,688)                   | (19,321,688)                   | (19,321,688)                   | (19,321,688)                   | (19,321,688)                   | (20,249,895)                   | (20,249,895)                   | (20,249,895)                   | (20,249,895)                    | (20,249,895)                    | (20,249,895)                    |
| Equity Total                        | (24,598,688)                   | (24,598,688)                   | (24,598,688)                   | (24,598,688)                   | (24,598,688)                   | (24,598,688)                   | (25,526,895)                   | (25,526,895)                   | (25,526,895)                   | (25,526,895)                    | (25,526,895)                    | (25,526,895)                    |
| Net (Profit) or Loss                | (908,843)                      | (5,051,809)                    | (6,961,713)                    | (10,555,353)                   | (11,413,734)                   | (7,624,418)                    | (12,826,576)                   | (19,722,052)                   | (22,049,013)                   | (24,739,164)                    | (24,172,169)                    | (36,293,642)                    |
| Liabilities & Equity Total          | \$ (1,176,618,915)             | \$ (1,185,466,560)             | \$ (1,176,309,578)             | \$ (1,182,275,202)             | \$ (1,189,206,418)             | \$ (1,191,324,188)             | \$ (1,192,606,031)             | \$ (1,221,478,950)             | \$ (1,184,689,479)             | \$ (1,191,579,099)              | \$ (1,196,032,026)              | \$ (1,252,626,561)              |

**Pittsburgh Water & Sewer Authority**  
**Monthly Balance Sheets - FTY (2023)**

|                                     | <b>Per Books</b>          |
|-------------------------------------|---------------------------|
|                                     | <b>1/31/2023</b>          |
| <b>ASSETS</b>                       |                           |
| Current Assets                      |                           |
| Cash                                | \$ 87,036,689             |
| Short-Term Investments              | -                         |
| Accounts Receivable                 | 38,414,245                |
| Inventory                           | 2,743,179                 |
| Other Assets                        | 8,724,553                 |
| Current Assets Total                | 136,918,666               |
| Trusteed Funds                      |                           |
| Trusteed Funds                      | 6,593,260                 |
| Trusteed Funds Total                | 6,593,260                 |
| Long-Term Assets                    |                           |
| Construction.In.Progress            | 220,622,710               |
| Utility Assets                      | 1,265,595,613             |
| Accum Depr - Utility Assets         | (374,363,022)             |
| Non.Utility Assets                  | 10,940,221                |
| Accum Depr - Non.Utility Assets     | (7,359,641)               |
| Bond Issue Costs                    | (1,488)                   |
| Long-Term Assets Total              | 1,115,434,394             |
| Assets Total                        | <u>\$ 1,258,946,320</u>   |
| <b>LIABILITIES &amp; EQUITY</b>     |                           |
| Current Liabilities                 |                           |
| Current Maturities of Long-Term Deb | \$ (35,181,042)           |
| Accounts Payable                    | (4,925,924)               |
| Accrued Payroll                     | (1,190,603)               |
| AP From Trusteed Funds              | (14,410,018)              |
| AP Retainage                        | (7,352,539)               |
| Other Current Liabilities           | (46,013,078)              |
| Current Liabilities Total           | (109,072,904)             |
| Long-Term Liabilities               |                           |
| Long-Term Debt                      | (1,076,515,005)           |
| Other LT Liabilities                | (4,712,154)               |
| Long-Term Liabilities Total         | (1,081,227,159)           |
| Equity                              |                           |
| Contributed Capital                 | (5,277,000)               |
| Net investment in capital assets    | (59,004,537)              |
| Equity Total                        | (64,281,537)              |
| Net (Profit) or Loss                | (4,364,720)               |
| Liabilities & Equity Total          | <u>\$ (1,258,946,320)</u> |

**XI. OTHER DATA**

XI.2. Supply a copy of internal and independent audit reports of the historic test year and prior calendar year, noting any exceptions and recommendations and disposition thereof.

**RESPONSE:**

Please refer to FR VII.15 for the December 31, 2021 and 2020 audited financial statements.

**XI. OTHER DATA**

XI.3. Provide all monthly or quarterly, or both, budget variance reports to management, or the board of directors, or both, submitted during the past year. Please provide the most recent detailed budget variance report which the company compiled, and update as additional reports are issued.

**RESPONSE:**

Please see attached.

The Pittsburgh Water and Sewer Authority  
2021 & 2022 Financial Status Update (Cash Basis)  
As of January 31, 2022



|  | FY 2021              |                      |              | FY 2022               |                       |                       | FY 2022               |  |  |  |
|--|----------------------|----------------------|--------------|-----------------------|-----------------------|-----------------------|-----------------------|--|--|--|
|  | Prior Year-to-Date   | Current Year-to-Date | YTD Growth   | Actual                | Projected             | Budget                | 2022 Difference       |  |  |  |
|  |                      |                      |              |                       |                       |                       | Actual- Budget        |  |  |  |
| <b>Receipts</b>  |                      |                      |              |                       |                       |                       |                       |  |  |  |
| <u>User Charge &amp; Wholesale Receipts</u>                        |                      |                      |              |                       |                       |                       |                       |  |  |  |
| Water Collections  | \$ 5,945,509         | \$ 8,029,539         | 35.1%        | \$ 106,885,626        | \$ 112,914,070        | \$ 113,424,315        | \$ (510,245)          |  |  |  |
| Wastewater Collections   | 3,767,328            | 4,690,481            | 24.5%        | 63,761,376            | 56,962,636            | 56,528,196            | 434,440               |  |  |  |
| DSIC - Water Collections   | 460                  | 386,313              | 83791.5%     | 4,520,928             | 5,630,540             | 5,671,216             | (40,676)              |  |  |  |
| DSIC - Wastewater Collections                                      | 95                   | 233,725              | 244868.7%    | 2,680,983             | 2,847,333             | 2,826,410             | 20,923                |  |  |  |
| Stormwater   | -                    | -                    | n.a.         | -                     | 16,838,186            | 17,127,744            | (289,558)             |  |  |  |
|  | -                    | -                    | -            | -                     | -                     | -                     | -                     |  |  |  |
| <i>Subtotal: User Charge &amp; Wholesale Receipts</i>              | \$ 9,713,393         | \$ 13,340,058        | 37.3%        | \$ 177,848,912        | \$ 195,192,764        | \$ 195,577,881        | \$ (385,117)          |  |  |  |
| <u>Other Operating Receipts</u>                                    |                      |                      |              |                       |                       |                       |                       |  |  |  |
| Other Misc. and Fee Operating Receipts                             | \$ 151,388           | \$ 1,383,290         | 813.7%       | \$ 9,672,503          | \$ 3,870,427          | \$ 2,683,488          | \$ 1,186,939          |  |  |  |
|  | -                    | -                    | -            | -                     | -                     | -                     | -                     |  |  |  |
| <i>Subtotal: Other Operating Receipts</i>                          | \$ 151,388           | \$ 1,383,290         | 813.7%       | \$ 9,672,503          | \$ 3,870,427          | \$ 2,683,488          | \$ 1,186,939          |  |  |  |
|  | -                    | -                    | -            | -                     | -                     | -                     | -                     |  |  |  |
| <b>Total: Receipts</b>   | <b>\$ 9,864,781</b>  | <b>\$ 14,723,348</b> | <b>49.3%</b> | <b>\$ 187,521,415</b> | <b>\$ 199,063,191</b> | <b>\$ 198,261,369</b> | <b>\$ 801,822</b>     |  |  |  |
| <b>Revenue Requirements</b>  |                      |                      |              |                       |                       |                       |                       |  |  |  |
| <u>Operating Expenses</u>  |                      |                      |              |                       |                       |                       |                       |  |  |  |
| Chief Executive Office   | 137,098              | 108,542              | -20.8%       | 2,990,200             | 2,458,205             | 2,464,652             | (6,448)               |  |  |  |
| Customer Service   | 526,142              | 663,865              | 26.2%        | 8,223,448             | 8,375,987             | 8,809,447             | (433,460)             |  |  |  |
| Management Information Systems                                     | 181,946              | 1,899,797            | 944.2%       | 8,931,474             | 4,142,143             | 4,780,822             | (638,679)             |  |  |  |
| Finance  | 1,288,048            | 1,920,041            | 49.1%        | 13,576,612            | 10,401,907            | 10,851,491            | (449,584)             |  |  |  |
| Human Resources  | 59,115               | 99,316               | 68.0%        | 977,857               | 1,735,104             | 1,816,321             | (81,217)              |  |  |  |
| Legal  | 549,720              | 221,369              | -59.7%       | 6,205,968             | 3,764,339             | 3,884,108             | (119,770)             |  |  |  |
| Safety & Security  | -                    | 15,779               | n.a.         | -                     | 1,076,802             | 1,121,999             | (45,197)              |  |  |  |
| Warehouse  | 36,495               | 33,773               | -7.5%        | 492,608               | 401,284               | 538,288               | (137,004)             |  |  |  |
| Public Affairs   | 51,562               | 169,003              | 227.8%       | 974,277               | 1,280,719             | 1,271,818             | 8,901                 |  |  |  |
| Engineering & Construction   | 1,321,111            | 1,698,521            | 28.6%        | 32,345,286            | 26,496,506            | 27,579,284            | (1,082,778)           |  |  |  |
| Environmental Compliance   | 75,268               | 97,864               | 30.0%        | 2,627,894             | 3,794,325             | 4,010,328             | (216,003)             |  |  |  |
| General Administration   | 1,012                | -                    | -100.0%      | 7,034                 | -                     | -                     | -                     |  |  |  |
| Laboratory   | 61,474               | 160,300              | 160.8%       | 1,724,973             | 3,926,070             | 4,068,444             | (142,374)             |  |  |  |
| Water Treatment Plant  | 1,510,156            | 1,433,988            | -5.0%        | 18,721,895            | 19,158,253            | 19,354,813            | (196,561)             |  |  |  |
| Water Operations   | 947,527              | 1,124,799            | 18.7%        | 13,493,185            | 15,393,916            | 15,522,618            | (128,702)             |  |  |  |
| Sewer Operations   | 207,902              | 240,317              | 15.6%        | 3,262,374             | 3,487,890             | 3,503,492             | (15,602)              |  |  |  |
| DSIC - Water   | 460                  | 386,313              | 83791.5%     | 4,520,928             | 5,630,540             | 5,671,216             | (40,676)              |  |  |  |
| DSIC - Wastewater  | 95                   | 233,725              | 244868.7%    | 2,680,983             | 2,847,333             | 2,826,410             | 20,923                |  |  |  |
|  | -                    | -                    | -            | -                     | -                     | -                     | -                     |  |  |  |
| Direct Operating Expenses  | \$ 6,955,131         | \$ 10,507,311        | 51.1%        | \$ 121,756,996        | \$ 114,371,322        | \$ 118,075,552        | \$ (3,704,230)        |  |  |  |
| Net ALCOSAN Expenses   | 2,675,429            | 2,924,157            | 9.3%         | (5,405,693)           | 3,332,406             | 1,997,954             | 1,334,452             |  |  |  |
|  | -                    | -                    | -            | -                     | -                     | -                     | -                     |  |  |  |
| In-Direct Operating Expenses                                       | \$ 2,675,429         | \$ 2,924,157         | 9.3%         | \$ (5,405,693)        | \$ 3,332,406          | \$ 1,997,954          | \$ 1,334,452          |  |  |  |
|  | -                    | -                    | -            | -                     | -                     | -                     | -                     |  |  |  |
| <i>Subtotal: Operating Expenses</i>                                | \$ 9,630,560         | \$ 13,431,468        | 39.5%        | \$ 116,351,303        | \$ 117,703,728        | \$ 120,073,506        | \$ (2,369,778)        |  |  |  |
| <u>Debt Service</u>  |                      |                      |              |                       |                       |                       |                       |  |  |  |
| <i>Subtotal: Debt Service</i>                                      | \$ 526,018           | \$ 674,218           | 28.2%        | \$ 64,338,574         | \$ 72,773,439         | \$ 73,002,260         | \$ (228,821)          |  |  |  |
|  | -                    | -                    | -            | -                     | -                     | -                     | -                     |  |  |  |
| <b>Total: Revenue Requirements</b>                                 | <b>\$ 10,156,578</b> | <b>\$ 14,105,686</b> | <b>38.9%</b> | <b>\$ 180,689,877</b> | <b>\$ 190,477,166</b> | <b>\$ 193,075,766</b> | <b>\$ (2,598,599)</b> |  |  |  |
| <b>Revenue Surplus / (Deficit)</b>                                 | <b>\$ (291,797)</b>  | <b>\$ 617,661</b>    |              | <b>\$ 6,831,538</b>   | <b>\$ 8,586,024</b>   | <b>\$ 5,185,603</b>   | <b>\$ 3,400,421</b>   |  |  |  |
| <b>Financial Metrics*</b>  |                      |                      |              | <b>FY 2021</b>        | <b>FY 2022</b>        | <b>FY 2022</b>        |                       |  |  |  |
|  |                      |                      |              | <i>Actual</i>         | <i>Forecast</i>       | <i>Budget</i>         |                       |  |  |  |
| <b>Senior Debt Service Coverage</b>                                |                      |                      |              | <b>1.52</b>           | <b>1.61</b>           | <b>1.55</b>           |                       |  |  |  |
| <i>Minimum Requirement</i>   |                      |                      |              | <i>1.25</i>           | <i>1.25</i>           | <i>1.25</i>           |                       |  |  |  |
| <b>Total Debt Service Coverage</b>                                 |                      |                      |              | <b>1.27</b>           | <b>1.25</b>           | <b>1.21</b>           |                       |  |  |  |
| <i>Minimum Requirement</i>   |                      |                      |              | <i>1.10</i>           | <i>1.10</i>           | <i>1.10</i>           |                       |  |  |  |
| <b>Unrestricted Days Cash without ALCOSAN Expense</b>              |                      |                      |              | <b>207.39</b>         | <b>261.88</b>         | <b>243.15</b>         |                       |  |  |  |
| <b>Unrestricted Days Cash with ALCOSAN Expense</b>                 |                      |                      |              | <b>217.03</b>         | <b>254.46</b>         | <b>239.10</b>         |                       |  |  |  |
| <b>Unrestricted Days Cash including the Operating Reserve Fund</b> |                      |                      |              | <b>276.76</b>         | <b>313.52</b>         | <b>296.99</b>         |                       |  |  |  |

\*Cash basis estimate. Final audited coverage ratio could be different due to the use of the accrual basis accounting method.

| 2022                                     |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
|--|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|-----------------------|
| The Pittsburgh Water and Sewer Authority |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| 2022 Cash Flow (Cash Basis)              |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| As of January 31, 2022                   |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
|  | Actual               | Budget            |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Receipts                                 | January              | February          | March             | April             | May               | June              | July              | August            | September         | October           | November          | December           | Total                 |
| Water                                    | \$ 8,029,539         | 8,591,278         | 9,038,032         | 9,276,844         | 8,817,548         | 9,316,593         | 10,396,031        | 10,495,548        | 10,835,794        | 9,956,235         | 9,596,753         | 8,563,875          | \$ 112,914,070        |
| Wastewater Conveyance                    | 4,690,481            | 4,281,705         | 4,504,357         | 4,623,376         | 4,394,473         | 4,643,186         | 5,181,154         | 5,230,751         | 5,400,323         | 4,961,970         | 4,782,812         | 4,268,048          | 56,962,636            |
| DSIC - Water*                            | 386,313              | 429,564           | 451,902           | 463,842           | 440,877           | 465,830           | 519,802           | 524,777           | 541,790           | 497,812           | 479,838           | 428,194            | 5,630,540             |
| DSIC - Wastewater*                       | 233,725              | 214,085           | 225,218           | 231,169           | 219,724           | 232,159           | 259,058           | 261,538           | 270,016           | 248,098           | 239,141           | 213,402            | 2,847,333             |
| Stormwater                               | -                    | 1,388,243         | 1,455,706         | 1,491,767         | 1,422,411         | 1,497,770         | 1,660,771         | 1,675,799         | 1,727,178         | 1,594,360         | 1,540,076         | 1,384,105          | 16,838,186            |
| Fees                                     | 1,335,368            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881             | 2,302,060             |
| Misc. Other                              | 47,922               | 108,470           | 435,743           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470            | 1,568,366             |
| <b>Total Receipts</b>                    | <b>\$ 14,723,348</b> | <b>15,101,227</b> | <b>16,198,839</b> | <b>16,283,349</b> | <b>15,491,385</b> | <b>16,351,889</b> | <b>18,213,168</b> | <b>18,384,764</b> | <b>18,971,452</b> | <b>17,454,826</b> | <b>16,834,970</b> | <b>15,053,975</b>  | <b>\$ 199,063,191</b> |
| <b>Cash Disbursements</b>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| <b>Operating Expenses</b>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Chief Executive Office                   | \$ 108,542           | 91,668            | 95,660            | 108,934           | 93,505            | 123,799           | 122,993           | 93,635            | 1,304,907         | 97,790            | 124,018           | 92,753             | \$ 2,458,205          |
| Customer Service                         | 663,865              | 636,299           | 642,420           | 681,041           | 689,032           | 842,999           | 687,161           | 650,035           | 716,811           | 689,459           | 833,283           | 643,583            | 8,375,987             |
| Management Information Systems           | 1,899,797            | 447,667           | 450,477           | 369,750           | 540,904           | 1,757,189         | 368,518           | 1,308,487         | 378,061           | 807,239           | 605,888           | (4,791,835)        | 4,142,143             |
| Finance                                  | 1,920,041            | 888,481           | 865,882           | 838,737           | 835,922           | 992,176           | 837,273           | 852,482           | 802,567           | 807,273           | 994,564           | (233,491)          | 10,401,907            |
| Human Resources                          | 99,316               | 161,173           | 109,969           | 142,026           | 168,789           | 157,225           | 132,887           | 176,964           | 122,682           | 167,231           | 167,892           | 128,950            | 1,735,104             |
| Legal                                    | 221,369              | 326,628           | 311,689           | 314,601           | 311,555           | 332,084           | 333,587           | 332,997           | 322,602           | 323,324           | 337,121           | 296,783            | 3,764,339             |
| Safety & Security                        | 15,779               | 71,789            | 58,607            | 93,342            | 75,887            | 105,927           | 70,901            | 321,843           | 62,632            | 66,689            | 86,311            | 47,096             | 1,076,802             |
| Warehouse                                | 33,773               | 41,388            | 46,016            | 58,314            | 42,457            | 59,226            | 42,173            | 40,807            | 41,278            | 56,525            | (102,823)         | 401,284            |                       |
| Public Affairs                           | 169,003              | 95,698            | 99,377            | 132,045           | 90,838            | 113,474           | 110,026           | 93,692            | 86,825            | 98,779            | 108,300           | 82,663             | 1,280,719             |
| Engineering & Construction               | 1,698,521            | 2,435,226         | 2,627,482         | 2,468,517         | 2,520,534         | 3,558,370         | 4,335,411         | 4,104,345         | 3,784,434         | 3,589,691         | 3,543,569         | (8,169,595)        | 26,496,506            |
| Environmental Compliance                 | 97,864               | 312,604           | 482,093           | 308,827           | 302,703           | 342,652           | 306,726           | 302,077           | 352,172           | 325,332           | 345,875           | 315,400            | 3,794,325             |
| Laboratory                               | 160,300              | 344,468           | 362,882           | 325,297           | 317,678           | 397,468           | 322,293           | 332,772           | 316,890           | 349,625           | 380,634           | 315,764            | 3,926,070             |
| Water Treatment Plant                    | 1,433,988            | 1,551,044         | 1,907,891         | 1,750,814         | 1,519,172         | 1,845,003         | 1,509,921         | 1,541,589         | 1,473,276         | 1,499,193         | 1,654,906         | 1,471,455          | 19,158,253            |
| Water Operations                         | 1,124,799            | 1,221,910         | 1,367,476         | 1,219,188         | 1,404,403         | 1,587,240         | 1,225,059         | 1,226,762         | 1,221,538         | 1,219,657         | 1,592,067         | 983,816            | 15,393,916            |
| Sewer Operations                         | 240,317              | 267,761           | 286,736           | 244,228           | 287,285           | 338,012           | 368,323           | 279,544           | 294,517           | 279,526           | 388,741           | 212,900            | 3,487,890             |
| Net ALCOSAN Expense                      | 2,924,157            | (44,033)          | 448,238           | 1,083,360         | (199,476)         | 256,872           | 314,501           | (1,352,227)       | (786,788)         | 616,632           | (734,773)         | 805,941            | 3,332,406             |
| DSIC - Water*                            | 386,313              | 429,564           | 451,902           | 463,842           | 440,877           | 465,830           | 519,802           | 524,777           | 541,790           | 497,812           | 479,838           | 428,194            | 5,630,540             |
| DSIC - Wastewater*                       | 233,725              | 214,085           | 225,218           | 231,169           | 219,724           | 232,159           | 259,058           | 261,538           | 270,016           | 248,098           | 239,141           | 213,402            | 2,847,333             |
| Sub Total                                | \$ 13,431,468        | 9,493,420         | 10,840,013        | 10,834,031        | 9,661,791         | 13,507,705        | 11,866,610        | 11,093,463        | 11,305,741        | 11,724,629        | 11,203,899        | (7,259,042)        | \$ 117,703,729        |
| <b>Debt Service</b>                      |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Bond Debt Service                        | \$ 278,811           | 30,254,780        | 255,000           | 255,000           | 255,000           | 255,000           | 255,000           | 30,254,780        | 255,000           | 255,000           | 255,000           | 255,000            | \$ 63,083,371         |
| PennVest Debt Service                    | 395,408              | 648,040           | 648,040           | 897,983           | 897,983           | 897,983           | 897,983           | 897,983           | 877,167           | 877,167           | 877,167           | 877,167            | 9,690,068             |
| Sub Total                                | \$ 674,218           | 30,902,820        | 903,040           | 1,152,983         | 1,152,983         | 1,152,983         | 1,152,983         | 31,152,763        | 1,132,167         | 1,132,167         | 1,132,167         | 1,132,167          | \$ 72,773,439         |
| <b>Total Disbursements</b>               | <b>\$ 14,105,686</b> | <b>40,396,240</b> | <b>11,743,052</b> | <b>11,987,014</b> | <b>10,814,774</b> | <b>14,660,687</b> | <b>13,019,593</b> | <b>42,246,226</b> | <b>12,437,907</b> | <b>12,856,796</b> | <b>12,336,066</b> | <b>(6,126,875)</b> | <b>\$ 190,477,166</b> |
| Surplus / Deficit                        | 617,661              | (25,295,013)      | 4,455,787         | 4,296,336         | 4,676,611         | 1,691,202         | 5,193,575         | (23,861,461)      | 6,533,545         | 4,598,030         | 4,498,904         | 21,180,850         |                       |
| <b>Annual Surplus/Deficit</b>            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    | <b>\$ 8,586,024</b>   |

| Capital Spending                | Actual              | Budget            |                   |                  |                   |                   |                   |                   |                   |                   |                   |                   |                       |
|---------------------------------|---------------------|-------------------|-------------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|
| Capital Spending (Non PENNVEST) | \$ 2,526,765        | 9,496,658         | 7,484,951         | 6,370,138        | 8,863,794         | 12,585,677        | 10,325,453        | 8,060,320         | 7,664,838         | 9,733,256         | 11,934,724        | 21,579,497        | \$ 116,626,071        |
| PennVEST Spending               | 2,029,508           | 4,179,540         | 3,294,175         | 2,803,539        | 3,901,012         | 5,539,037         | 4,544,298         | 3,547,398         | 3,373,344         | 4,283,668         | 5,252,548         | 9,497,274         | 52,245,342            |
| <b>Total</b>                    | <b>\$ 4,556,273</b> | <b>13,676,198</b> | <b>10,779,126</b> | <b>9,173,677</b> | <b>12,764,807</b> | <b>18,124,714</b> | <b>14,869,750</b> | <b>11,607,719</b> | <b>11,038,182</b> | <b>14,016,924</b> | <b>17,187,272</b> | <b>31,076,771</b> | <b>\$ 168,871,413</b> |

| Capital Line of Credit       | Actual         | Budget |   |   |   |   |   |   |   |   |   |   |  |
|------------------------------|----------------|--------|---|---|---|---|---|---|---|---|---|---|--|
| Capital Line of Credit Limit | \$ 150,000,000 |        |   |   |   |   |   |   |   |   |   |   |  |
| Capital Draws                | 95,791,576     |        |   |   |   |   |   |   |   |   |   |   |  |
| Outstanding Capital Draws    |                |        |   |   |   |   |   |   |   |   |   |   |  |
| Remaining Capital Credit     | \$ 54,208,424  | -      | - | - | - | - | - | - | - | - | - | - |  |

\*Source of PAYGO for capital projects

The Pittsburgh Water and Sewer Authority  
2021 & 2022 Financial Status Update (Cash Basis)  
As of February 28, 2022



|  | FY 2021                |                        |              | FY 2022               |                       |                       | FY 2022               |  | 2022 Difference |
|--|------------------------|------------------------|--------------|-----------------------|-----------------------|-----------------------|-----------------------|--|-----------------|
|  | Prior Year-to-Date     | Current Year-to-Date   | YTD Growth   | Actual                | Projected             | Budget                | Actual- Budget        |  |                 |
| <b>Receipts</b>  |                        |                        |              |                       |                       |                       |                       |  |                 |
| <b>User Charge &amp; Wholesale Receipts</b>                        |                        |                        |              |                       |                       |                       |                       |  |                 |
| Water Collections  | \$ 13,615,368          | \$ 15,367,947          | 12.9%        | \$ 106,885,626        | \$ 111,661,200        | \$ 113,424,315        | \$ (1,763,115)        |  |                 |
| Wastewater Collections   | 8,389,118              | 8,936,539              | 6.5%         | 63,761,376            | 56,926,988            | 56,528,196            | 398,792               |  |                 |
| DSIC - Water Collections   | 90,076                 | 741,127                | 722.8%       | 4,520,928             | 5,555,790             | 5,671,216             | (115,426)             |  |                 |
| DSIC - Wastewater Collections                                      | 44,957                 | 446,557                | 893.3%       | 2,680,983             | 2,846,080             | 2,826,410             | 19,670                |  |                 |
| Stormwater   | -                      | 320,787                | n.a.         | -                     | 15,770,730            | 17,127,744            | (1,357,014)           |  |                 |
|  | -                      | -                      | -            | -                     | -                     | -                     | -                     |  |                 |
| <i>Subtotal: User Charge &amp; Wholesale Receipts</i>              | \$ 22,139,520          | \$ 25,812,957          | 16.6%        | \$ 177,848,912        | \$ 192,760,788        | \$ 195,577,881        | \$ (2,817,093)        |  |                 |
| <b>Other Operating Receipts</b>                                    |                        |                        |              |                       |                       |                       |                       |  |                 |
| Other Misc. and Fee Operating Receipts                             | \$ 521,725             | \$ 3,326,292           | 537.6%       | \$ 9,672,503          | \$ 5,617,077          | \$ 2,683,488          | \$ 2,933,589          |  |                 |
|  | -                      | -                      | -            | -                     | -                     | -                     | -                     |  |                 |
| <i>Subtotal: Other Operating Receipts</i>                          | \$ 521,725             | \$ 3,326,292           | 537.6%       | \$ 9,672,503          | \$ 5,617,077          | \$ 2,683,488          | \$ 2,933,589          |  |                 |
|  | -                      | -                      | -            | -                     | -                     | -                     | -                     |  |                 |
| <b>Total: Receipts</b>   | <b>\$ 22,661,244</b>   | <b>\$ 29,139,249</b>   | <b>28.6%</b> | <b>\$ 187,521,415</b> | <b>\$ 198,377,865</b> | <b>\$ 198,261,369</b> | <b>\$ 116,496</b>     |  |                 |
| <b>Revenue Requirements</b>  |                        |                        |              |                       |                       |                       |                       |  |                 |
| <b>Operating Expenses</b>  |                        |                        |              |                       |                       |                       |                       |  |                 |
| Chief Executive Office   | 271,775                | 189,434                | -30.3%       | 2,990,200             | 2,447,429             | 2,464,652             | (17,224)              |  |                 |
| Customer Service   | 1,137,777              | 1,737,778              | 52.7%        | 8,223,448             | 8,813,602             | 8,809,447             | 4,154                 |  |                 |
| Management Information Systems                                     | 3,917,203              | 2,406,124              | -38.6%       | 8,931,474             | 4,200,802             | 4,780,822             | (580,019)             |  |                 |
| Finance  | 1,919,284              | 2,211,636              | 15.2%        | 13,576,612            | 9,805,020             | 10,851,491            | (1,046,470)           |  |                 |
| Human Resources  | 114,294                | 216,254                | 89.2%        | 977,857               | 1,690,869             | 1,816,321             | (125,452)             |  |                 |
| Legal  | 935,140                | 484,566                | -48.2%       | 6,205,968             | 3,700,909             | 3,884,108             | (183,200)             |  |                 |
| Safety & Security  | -                      | 110,634                | n.a.         | -                     | 1,099,868             | 1,121,999             | (22,131)              |  |                 |
| Warehouse  | 75,947                 | 67,346                 | -11.3%       | 492,608               | 393,469               | 538,288               | (144,819)             |  |                 |
| Public Affairs   | 177,406                | 245,516                | 38.4%        | 974,277               | 1,261,535             | 1,271,818             | (10,283)              |  |                 |
| Engineering & Construction   | 4,549,906              | 3,608,053              | -20.7%       | 32,345,286            | 25,970,812            | 27,579,284            | (1,608,472)           |  |                 |
| Environmental Compliance   | 193,670                | 495,760                | 156.0%       | 2,627,894             | 3,879,617             | 4,010,328             | (130,711)             |  |                 |
| General Administration   | 2,086                  | -                      | -100.0%      | 7,034                 | -                     | -                     | -                     |  |                 |
| Laboratory   | 153,047                | 398,014                | 160.1%       | 1,724,973             | 3,819,317             | 4,068,444             | (249,128)             |  |                 |
| Water Treatment Plant  | 2,587,181              | 2,992,789              | 15.7%        | 18,721,895            | 19,166,010            | 19,354,813            | (188,803)             |  |                 |
| Water Operations   | 2,118,552              | 2,458,726              | 16.1%        | 13,493,185            | 15,505,933            | 15,522,618            | (16,685)              |  |                 |
| Sewer Operations   | 382,634                | 412,923                | 7.9%         | 3,262,374             | 3,392,735             | 3,503,492             | (110,757)             |  |                 |
| DSIC - Water   | 90,076                 | 741,127                | 722.8%       | 4,520,928             | 5,555,790             | 5,671,216             | (115,426)             |  |                 |
| DSIC - Wastewater  | 44,957                 | 446,557                | 893.3%       | 2,680,983             | 2,846,080             | 2,826,410             | 19,670                |  |                 |
|  | -                      | -                      | -            | -                     | -                     | -                     | -                     |  |                 |
| Direct Operating Expenses  | \$ 18,670,936          | \$ 19,223,238          | 3.0%         | \$ 121,756,996        | \$ 113,549,796        | \$ 118,075,552        | \$ (4,525,756)        |  |                 |
| Net ALCOSAN Expenses   | 1,881,021              | 2,390,215              | 27.1%        | (5,405,693)           | 2,842,496             | 1,997,954             | 844,542               |  |                 |
|  | -                      | -                      | -            | -                     | -                     | -                     | -                     |  |                 |
| In-Direct Operating Expenses                                       | \$ 1,881,021           | \$ 2,390,215           | 27.1%        | \$ (5,405,693)        | \$ 2,842,496          | \$ 1,997,954          | \$ 844,542            |  |                 |
|  | -                      | -                      | -            | -                     | -                     | -                     | -                     |  |                 |
| <i>Subtotal: Operating Expenses</i>                                | \$ 20,551,956          | \$ 21,613,453          | 5.2%         | \$ 116,351,303        | \$ 116,392,293        | \$ 120,073,506        | \$ (3,681,213)        |  |                 |
| <b>Debt Service</b>  |                        |                        |              |                       |                       |                       |                       |  |                 |
| <i>Subtotal: Debt Service</i>                                      | \$ 29,171,703          | \$ 31,273,182          | 7.2%         | \$ 64,338,574         | \$ 72,469,583         | \$ 73,002,260         | \$ (532,677)          |  |                 |
|  | -                      | -                      | -            | -                     | -                     | -                     | -                     |  |                 |
| <b>Total: Revenue Requirements</b>                                 | <b>\$ 49,723,659</b>   | <b>\$ 52,886,635</b>   | <b>6.4%</b>  | <b>\$ 180,689,877</b> | <b>\$ 188,861,875</b> | <b>\$ 193,075,766</b> | <b>\$ (4,213,890)</b> |  |                 |
| <b>Revenue Surplus / (Deficit)</b>                                 | <b>\$ (27,062,415)</b> | <b>\$ (23,747,386)</b> |              | <b>\$ 6,831,538</b>   | <b>\$ 9,515,990</b>   | <b>\$ 5,185,603</b>   | <b>\$ 4,330,387</b>   |  |                 |
| <b>Financial Metrics*</b>  |                        |                        |              | <b>FY 2021</b>        | <b>FY 2022</b>        | <b>FY 2022</b>        |                       |  |                 |
|  |                        |                        |              | <i>Actual</i>         | <i>Forecast</i>       | <i>Budget</i>         |                       |  |                 |
| <b>Senior Debt Service Coverage</b>                                |                        |                        |              | <b>1.52</b>           | <b>1.62</b>           | <b>1.55</b>           |                       |  |                 |
| <i>Minimum Requirement</i>   |                        |                        |              | <i>1.25</i>           | <i>1.25</i>           | <i>1.25</i>           |                       |  |                 |
| <b>Total Debt Service Coverage</b>                                 |                        |                        |              | <b>1.27</b>           | <b>1.27</b>           | <b>1.21</b>           |                       |  |                 |
| <i>Minimum Requirement</i>   |                        |                        |              | <i>1.10</i>           | <i>1.10</i>           | <i>1.10</i>           |                       |  |                 |
| <b>Unrestricted Days Cash without ALCOSAN Expense</b>              |                        |                        |              | <b>207.39</b>         | <b>266.76</b>         | <b>243.15</b>         |                       |  |                 |
| <b>Unrestricted Days Cash with ALCOSAN Expense</b>                 |                        |                        |              | <b>217.03</b>         | <b>260.25</b>         | <b>239.10</b>         |                       |  |                 |
| <b>Unrestricted Days Cash including the Operating Reserve Fund</b> |                        |                        |              | <b>276.76</b>         | <b>319.97</b>         | <b>296.99</b>         |                       |  |                 |

\*Cash basis estimate. Final audited coverage ratio could be different due to the use of the accrual basis accounting method.

| 2022                                     |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
|--|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|-----------------------|
| The Pittsburgh Water and Sewer Authority |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| 2022 Cash Flow (Cash Basis)              |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| As of February 28, 2022                  |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
|  | Actual               |                   | Budget            |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Receipts                                 | January              | February          | March             | April             | May               | June              | July              | August            | September         | October           | November          | December           | Total                 |
| Water                                    | \$ 8,029,539         | 7,338,408         | 9,038,032         | 9,276,844         | 8,817,548         | 9,316,593         | 10,396,031        | 10,495,548        | 10,835,794        | 9,956,235         | 9,596,753         | 8,563,875          | \$ 111,661,200        |
| Wastewater Conveyance                    | 4,690,481            | 4,246,058         | 4,504,357         | 4,623,376         | 4,394,473         | 4,643,186         | 5,181,154         | 5,230,751         | 5,400,323         | 4,961,970         | 4,782,812         | 4,268,048          | 56,926,988            |
| DSIC - Water*                            | 386,313              | 354,814           | 451,902           | 463,842           | 440,877           | 465,830           | 519,802           | 524,777           | 541,790           | 497,812           | 479,838           | 428,194            | 5,555,790             |
| DSIC - Wastewater*                       | 233,725              | 212,833           | 225,218           | 231,169           | 219,724           | 232,159           | 259,058           | 261,538           | 270,016           | 248,098           | 239,141           | 213,402            | 2,846,080             |
| Stormwater                               | -                    | 320,787           | 1,455,706         | 1,491,767         | 1,422,411         | 1,497,770         | 1,660,771         | 1,675,799         | 1,727,178         | 1,594,360         | 1,540,076         | 1,384,105          | 15,770,730            |
| Fees                                     | 1,335,368            | 1,457,015         | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881             | 3,671,194             |
| Misc. Other                              | 47,922               | 485,987           | 435,743           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470            | 1,945,883             |
| <b>Total Receipts</b>                    | <b>\$ 14,723,348</b> | <b>14,415,902</b> | <b>16,198,839</b> | <b>16,283,349</b> | <b>15,491,385</b> | <b>16,351,889</b> | <b>18,213,168</b> | <b>18,384,764</b> | <b>18,971,452</b> | <b>17,454,826</b> | <b>16,834,970</b> | <b>15,053,975</b>  | <b>\$ 198,377,865</b> |
| <b>Cash Disbursements</b>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| <b>Operating Expenses</b>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Chief Executive Office                   | \$ 108,542           | 80,892            | 95,660            | 108,934           | 93,505            | 123,799           | 122,993           | 93,635            | 1,304,907         | 97,790            | 124,018           | 92,753             | \$ 2,447,429          |
| Customer Service                         | 663,865              | 1,073,913         | 642,420           | 681,041           | 689,032           | 842,999           | 687,161           | 650,035           | 716,811           | 689,459           | 833,283           | 643,583            | 8,813,602             |
| Management Information Systems           | 1,899,797            | 506,327           | 450,477           | 369,750           | 540,904           | 1,757,189         | 368,518           | 1,308,487         | 378,061           | 807,239           | 605,888           | (4,791,835)        | 4,200,802             |
| Finance                                  | 1,920,041            | 291,595           | 865,882           | 838,737           | 835,922           | 992,176           | 837,273           | 852,482           | 802,567           | 807,273           | 994,564           | (233,491)          | 9,805,020             |
| Human Resources                          | 99,316               | 116,938           | 109,969           | 142,026           | 168,789           | 157,225           | 132,887           | 176,964           | 122,682           | 167,231           | 167,892           | 128,950            | 1,690,869             |
| Legal                                    | 221,369              | 263,198           | 311,689           | 314,601           | 311,555           | 332,084           | 333,587           | 332,997           | 322,602           | 323,324           | 337,121           | 296,783            | 3,700,909             |
| Safety & Security                        | 15,779               | 94,855            | 58,607            | 93,342            | 75,887            | 105,927           | 70,901            | 321,843           | 62,632            | 66,689            | 86,311            | 47,096             | 1,099,868             |
| Warehouse                                | 33,773               | 33,574            | 46,016            | 58,314            | 42,457            | 59,226            | 42,173            | 42,151            | 40,807            | 41,278            | 56,525            | (102,823)          | 393,469               |
| Public Affairs                           | 169,003              | 76,513            | 99,377            | 132,045           | 90,838            | 113,474           | 110,026           | 93,692            | 86,825            | 98,779            | 108,300           | 82,663             | 1,261,535             |
| Engineering & Construction               | 1,698,521            | 1,909,532         | 2,627,482         | 2,468,517         | 2,520,534         | 3,558,370         | 4,335,411         | 4,104,345         | 3,784,434         | 3,589,691         | 3,543,569         | (8,169,595)        | 25,970,812            |
| Environmental Compliance                 | 97,864               | 397,896           | 482,093           | 308,827           | 302,703           | 342,652           | 306,726           | 302,077           | 352,172           | 325,332           | 345,875           | 315,400            | 3,879,617             |
| Laboratory                               | 160,300              | 237,715           | 362,882           | 325,297           | 317,678           | 397,468           | 322,293           | 332,772           | 316,890           | 349,625           | 380,634           | 315,764            | 3,819,317             |
| Water Treatment Plant                    | 1,433,988            | 1,558,801         | 1,907,891         | 1,750,814         | 1,519,172         | 1,845,003         | 1,509,921         | 1,541,589         | 1,473,276         | 1,499,193         | 1,654,906         | 1,471,455          | 19,166,010            |
| Water Operations                         | 1,124,799            | 1,333,927         | 1,367,476         | 1,219,188         | 1,404,403         | 1,587,240         | 1,225,059         | 1,226,762         | 1,221,538         | 1,219,657         | 1,592,067         | 983,816            | 15,505,933            |
| Sewer Operations                         | 240,317              | 172,606           | 286,736           | 244,228           | 287,285           | 338,012           | 368,323           | 279,544           | 294,517           | 279,526           | 388,741           | 212,900            | 3,392,735             |
| Net ALCOSAN Expense                      | 2,924,157            | (533,942)         | 448,238           | 1,083,360         | (199,476)         | 256,872           | 314,501           | (1,352,227)       | (786,788)         | 616,632           | (734,773)         | 805,941            | 2,842,496             |
| DSIC - Water*                            | 386,313              | 354,814           | 451,902           | 463,842           | 440,877           | 465,830           | 519,802           | 524,777           | 541,790           | 497,812           | 479,838           | 428,194            | 5,555,790             |
| DSIC - Wastewater*                       | 233,725              | 212,833           | 225,218           | 231,169           | 219,724           | 232,159           | 259,058           | 261,538           | 270,016           | 248,098           | 239,141           | 213,402            | 2,846,080             |
| Sub Total                                | \$ 13,431,468        | 8,181,985         | 10,840,013        | 10,834,031        | 9,661,791         | 13,507,705        | 11,866,610        | 11,093,463        | 11,305,741        | 11,724,629        | 11,203,899        | (7,259,042)        | \$ 116,392,294        |
| <b>Debt Service</b>                      |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Bond Debt Service                        | \$ 278,811           | 30,175,043        | 255,000           | 255,000           | 255,000           | 255,000           | 255,000           | 30,254,780        | 255,000           | 255,000           | 255,000           | 255,000            | \$ 63,003,633         |
| PennVest Debt Service                    | 408,312              | 411,017           | 648,040           | 897,983           | 897,983           | 897,983           | 897,983           | 897,983           | 877,167           | 877,167           | 877,167           | 877,167            | 9,465,949             |
| Sub Total                                | \$ 687,122           | 30,586,060        | 903,040           | 1,152,983         | 1,152,983         | 1,152,983         | 1,152,983         | 31,152,763        | 1,132,167         | 1,132,167         | 1,132,167         | 1,132,167          | \$ 72,469,583         |
| <b>Total Disbursements</b>               | <b>\$ 14,118,590</b> | <b>38,768,045</b> | <b>11,743,052</b> | <b>11,987,014</b> | <b>10,814,774</b> | <b>14,660,687</b> | <b>13,019,593</b> | <b>42,246,226</b> | <b>12,437,907</b> | <b>12,856,796</b> | <b>12,336,066</b> | <b>(6,126,875)</b> | <b>\$ 188,861,875</b> |
| Surplus / Deficit                        | 604,757              | (24,352,143)      | 4,455,787         | 4,296,336         | 4,676,611         | 1,691,202         | 5,193,575         | (23,861,461)      | 6,533,545         | 4,598,030         | 4,498,904         | 21,180,850         |                       |
| <b>Annual Surplus/Deficit</b>            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    | <b>\$ 9,515,990</b>   |

| Capital Spending                | Actual              |                  | Budget            |                  |                   |                   |                   |                   |                   |                   |                   |                   |                       |
|---------------------------------|---------------------|------------------|-------------------|------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|
| Capital Spending (Non PENNVEST) | \$ 2,526,765        | 3,921,965        | 7,484,951         | 6,370,138        | 8,863,794         | 12,585,677        | 10,325,453        | 8,060,320         | 7,664,838         | 9,733,256         | 11,934,724        | 21,579,497        | \$ 111,051,378        |
| PennVEST Spending               | 2,029,508           | 561,752          | 3,294,175         | 2,803,539        | 3,901,012         | 5,539,037         | 4,544,298         | 3,547,398         | 3,373,344         | 4,283,668         | 5,252,548         | 9,497,274         | 48,627,555            |
| <b>Total</b>                    | <b>\$ 4,556,273</b> | <b>4,483,718</b> | <b>10,779,126</b> | <b>9,173,677</b> | <b>12,764,807</b> | <b>18,124,714</b> | <b>14,869,750</b> | <b>11,607,719</b> | <b>11,038,182</b> | <b>14,016,924</b> | <b>17,187,272</b> | <b>31,076,771</b> | <b>\$ 159,678,932</b> |

| Capital Line of Credit       | Actual |             | Budget |   |   |   |   |   |   |   |   |   |  |
|------------------------------|--------|-------------|--------|---|---|---|---|---|---|---|---|---|--|
| Capital Line of Credit Limit |        | 150,000,000 |        |   |   |   |   |   |   |   |   |   |  |
| Capital Draws                |        | 95,791,576  |        |   |   |   |   |   |   |   |   |   |  |
| Outstanding Capital Draws    |        |             |        |   |   |   |   |   |   |   |   |   |  |
| Remaining Capital Credit     | \$ -   | 54,208,424  | -      | - | - | - | - | - | - | - | - | - |  |

\*Source of PAYGO for capital projects



**The Pittsburgh Water and Sewer Authority**  
 2021 & 2022 Financial Status Update (Cash Basis)  
 As of March 31, 2022



|   | <b>FY 2021</b>            |                             |                   | <b>FY 2022</b>        |                       |                       |                        |               |                     |  |
|---|---------------------------|-----------------------------|-------------------|-----------------------|-----------------------|-----------------------|------------------------|---------------|---------------------|--|
|   | <i>Prior Year-to-Date</i> | <i>Current Year-to-Date</i> | <i>YTD Growth</i> | <b>FY 2021</b>        | <b>FY 2022</b>        | <b>FY 2022</b>        | <b>2022 Difference</b> |               |                     |  |
|   |                           |                             |                   | <i>Actual</i>         | <i>Projected</i>      | <i>Budget</i>         | <i>Actual-</i>         | <i>Budget</i> |                     |  |
| <b>Receipts</b>                                       |                           |                             |                   |                       |                       |                       |                        |               |                     |  |
| <b>User Charge &amp; Wholesale Receipts</b>           |                           |                             |                   |                       |                       |                       |                        |               |                     |  |
| Water Collections                                     | \$ 22,261,172             | \$ 25,495,152               | 14.5%             | \$ 106,885,626        | \$ 112,750,373        | \$ 113,424,315        | \$                     |               | (673,942)           |  |
| Wastewater Collections                                | 13,663,649                | 14,229,386                  | 4.1%              | 63,761,376            | 57,715,478            | 56,528,196            |                        |               | 1,187,282           |  |
| DSIC - Water Collections                              | 428,701                   | 1,235,358                   | 188.2%            | 4,520,928             | 5,598,119             | 5,671,216             |                        |               | (73,097)            |  |
| DSIC - Wastewater Collections                         | 239,054                   | 710,201                     | 197.1%            | 2,680,983             | 2,884,506             | 2,826,410             |                        |               | 58,096              |  |
| Stormwater  | -                         | 1,553,524                   | n.a.              | -                     | 15,547,762            | 17,127,744            |                        |               | (1,579,982)         |  |
|   | -                         | -                           | -                 | -                     | -                     | -                     |                        |               | -                   |  |
| <i>Subtotal: User Charge &amp; Wholesale Receipts</i> | \$ 36,592,575             | \$ 43,223,621               | 18.1%             | \$ 177,848,912        | \$ 194,496,237        | \$ 195,577,881        | \$                     |               | (1,081,644)         |  |
| <b>Other Operating Receipts</b>                       |                           |                             |                   |                       |                       |                       |                        |               |                     |  |
| Other Misc. and Fee Operating Receipts                | \$ 1,038,285              | \$ 3,636,107                | 250.2%            | \$ 9,672,503          | \$ 5,403,269          | \$ 2,683,488          | \$                     |               | 2,719,781           |  |
|   | -                         | -                           | -                 | -                     | -                     | -                     |                        |               | -                   |  |
| <i>Subtotal: Other Operating Receipts</i>             | \$ 1,038,285              | \$ 3,636,107                | 250.2%            | \$ 9,672,503          | \$ 5,403,269          | \$ 2,683,488          | \$                     |               | 2,719,781           |  |
|   | -                         | -                           | -                 | -                     | -                     | -                     |                        |               | -                   |  |
| <b>Total: Receipts</b>                                | <b>\$ 37,630,860</b>      | <b>\$ 46,859,729</b>        | <b>24.5%</b>      | <b>\$ 187,521,415</b> | <b>\$ 199,899,506</b> | <b>\$ 198,261,369</b> | <b>\$</b>              |               | <b>\$ 1,638,137</b> |  |
| <b>Revenue Requirements</b>                           |                           |                             |                   |                       |                       |                       |                        |               |                     |  |
| <b>Operating Expenses</b>                             |                           |                             |                   |                       |                       |                       |                        |               |                     |  |
| Chief Executive Office                                | 420,377                   | 300,646                     | -28.5%            | 2,990,200             | 2,462,981             | 2,464,652             |                        |               | (1,671)             |  |
| Customer Service                                      | 1,936,744                 | 2,411,631                   | 24.5%             | 8,223,448             | 8,845,035             | 8,809,447             |                        |               | 35,588              |  |
| Management Information Systems                        | 4,310,913                 | 2,762,946                   | -35.9%            | 8,931,474             | 4,107,147             | 4,780,822             |                        |               | (673,675)           |  |
| Finance   | 2,588,497                 | 2,818,502                   | 8.9%              | 13,576,612            | 9,546,005             | 10,851,491            |                        |               | (1,305,485)         |  |
| Human Resources                                       | 168,643                   | 314,049                     | 86.2%             | 977,857               | 1,678,696             | 1,816,321             |                        |               | (137,625)           |  |
| Legal   | 1,428,455                 | 744,598                     | -47.9%            | 6,205,968             | 3,649,252             | 3,884,108             |                        |               | (234,856)           |  |
| Safety & Security                                     | -                         | 193,317                     | n.a.              | -                     | 1,123,945             | 1,121,999             |                        |               | 1,946               |  |
| Warehouse   | 104,008                   | 112,313                     | 8.0%              | 492,608               | 392,420               | 538,288               |                        |               | (145,868)           |  |
| Public Affairs  | 227,324                   | 329,618                     | 45.0%             | 974,277               | 1,246,259             | 1,271,818             |                        |               | (25,559)            |  |
| Engineering & Construction                            | 8,494,495                 | 5,521,293                   | -35.0%            | 32,345,286            | 25,256,570            | 27,579,284            |                        |               | (2,322,714)         |  |
| Environmental Compliance                              | 518,046                   | 688,677                     | 32.9%             | 2,627,894             | 3,590,442             | 4,010,328             |                        |               | (419,886)           |  |
| General Administration                                | 3,347                     | -                           | -100.0%           | 7,034                 | -                     | -                     |                        |               | -                   |  |
| Laboratory  | 362,788                   | 668,672                     | 84.3%             | 1,724,973             | 3,727,093             | 4,068,444             |                        |               | (341,351)           |  |
| Water Treatment Plant                                 | 5,073,786                 | 4,689,024                   | -7.6%             | 18,721,895            | 18,954,353            | 19,354,813            |                        |               | (400,460)           |  |
| Water Operations                                      | 3,141,451                 | 3,807,481                   | 21.2%             | 13,493,185            | 15,487,211            | 15,522,618            |                        |               | (35,407)            |  |
| Sewer Operations                                      | 593,679                   | 620,879                     | 4.6%              | 3,262,374             | 3,313,956             | 3,503,492             |                        |               | (189,536)           |  |
| DSIC - Water  | 428,701                   | 1,235,358                   | 188.2%            | 4,520,928             | 5,598,119             | 5,671,216             |                        |               | (73,097)            |  |
| DSIC - Wastewater                                     | 239,054                   | 710,201                     | 197.1%            | 2,680,983             | 2,884,506             | 2,826,410             |                        |               | 58,096              |  |
|   | -                         | -                           | -                 | -                     | -                     | -                     |                        |               | -                   |  |
| Direct Operating Expenses                             | \$ 30,040,306             | \$ 27,929,206               | -7.0%             | \$ 121,756,996        | \$ 111,863,989        | \$ 118,075,552        | \$                     |               | (6,211,563)         |  |
| Net ALCOSAN Expenses                                  | 1,248,568                 | 1,135,778                   | -9.0%             | (5,405,693)           | 1,139,822             | 1,997,954             |                        |               | (858,132)           |  |
|   | -                         | -                           | -                 | -                     | -                     | -                     |                        |               | -                   |  |
| In-Direct Operating Expenses                          | \$ 1,248,568              | \$ 1,135,778                | -9.0%             | \$ (5,405,693)        | \$ 1,139,822          | \$ 1,997,954          | \$                     |               | (858,132)           |  |
|   | -                         | -                           | -                 | -                     | -                     | -                     |                        |               | -                   |  |
| <i>Subtotal: Operating Expenses</i>                   | \$ 31,288,874             | \$ 29,064,984               | -7.1%             | \$ 116,351,303        | \$ 113,003,811        | \$ 120,073,506        | \$                     |               | (7,069,695)         |  |
| <b>Debt Service</b>                                   |                           |                             |                   |                       |                       |                       |                        |               |                     |  |
| <i>Subtotal: Debt Service</i>                         | \$ 29,855,075             | \$ 32,426,667               | 8.6%              | \$ 64,338,574         | \$ 72,720,028         | \$ 73,002,260         | \$                     |               | (282,232)           |  |
|   | -                         | -                           | -                 | -                     | -                     | -                     |                        |               | -                   |  |
| <b>Total: Revenue Requirements</b>                    | <b>\$ 61,143,949</b>      | <b>\$ 61,491,650</b>        | <b>0.6%</b>       | <b>\$ 180,689,877</b> | <b>\$ 185,723,838</b> | <b>\$ 193,075,766</b> | <b>\$</b>              |               | <b>(7,351,927)</b>  |  |
| <b>Revenue Surplus / (Deficit)</b>                    | <b>\$ (23,513,089)</b>    | <b>\$ (14,631,922)</b>      |                   | <b>\$ 6,831,538</b>   | <b>\$ 14,175,668</b>  | <b>\$ 5,185,603</b>   | <b>\$</b>              |               | <b>\$ 8,990,064</b> |  |

| <b>Financial Metrics*</b>  | <b>FY 2021</b> | <b>FY 2022</b>  | <b>FY 2022</b> |
|--|----------------|-----------------|----------------|
|  | <i>Actual</i>  | <i>Forecast</i> | <i>Budget</i>  |
| <b>Senior Debt Service Coverage</b>                                | <b>1.52</b>    | <b>1.71</b>     | <b>1.55</b>    |
| <i>Minimum Requirement</i>   | 1.25           | 1.25            | 1.25           |
| <b>Total Debt Service Coverage</b>                                 | <b>1.27</b>    | <b>1.33</b>     | <b>1.21</b>    |
| <i>Minimum Requirement</i>   | 1.10           | 1.10            | 1.10           |
| <b>Unrestricted Days Cash without ALCOSAN Expense</b>              | <b>207.39</b>  | <b>285.98</b>   | <b>243.15</b>  |
| <b>Unrestricted Days Cash with ALCOSAN Expense</b>                 | <b>217.03</b>  | <b>283.10</b>   | <b>239.10</b>  |
| <b>Unrestricted Days Cash including the Operating Reserve Fund</b> | <b>276.76</b>  | <b>344.61</b>   | <b>296.99</b>  |

\*Cash basis estimate. Final audited coverage ratio could be different due to the use of the accrual basis accounting method.

2022

| The Pittsburgh Water and Sewer Authority |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
|--|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|-----------------------|
| 2022 Cash Flow (Cash Basis)              |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| As of March 31, 2022                     |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Receipts                                 | Actual               |                   |                   |                   |                   |                   | Budget            |                   |                   |                   |                   |                    | Total                 |
|  | January              | February          | March             | April             | May               | June              | July              | August            | September         | October           | November          | December           |                       |
| Water                                    | \$ 8,029,539         | 7,338,408         | 10,127,205        | 9,276,844         | 8,817,548         | 9,316,593         | 10,396,031        | 10,495,548        | 10,835,794        | 9,956,235         | 9,596,753         | 8,563,875          | \$ 112,750,373        |
| Wastewater Conveyance                    | 4,690,481            | 4,246,058         | 5,292,847         | 4,623,376         | 4,394,473         | 4,643,186         | 5,181,154         | 5,230,751         | 5,400,323         | 4,961,970         | 4,782,812         | 4,268,048          | 57,715,478            |
| DSIC - Water*                            | 386,313              | 354,814           | 494,231           | 463,842           | 440,877           | 465,830           | 519,802           | 524,777           | 541,790           | 497,812           | 479,838           | 428,194            | 5,598,119             |
| DSIC - Wastewater*                       | 233,725              | 212,833           | 263,644           | 231,169           | 219,724           | 232,159           | 259,058           | 261,538           | 270,016           | 248,098           | 239,141           | 213,402            | 2,884,506             |
| Stormwater                               | -                    | 320,787           | 1,232,737         | 1,491,767         | 1,422,411         | 1,497,770         | 1,660,771         | 1,675,799         | 1,727,178         | 1,594,360         | 1,540,076         | 1,384,105          | 15,547,762            |
| Fees                                     | 1,335,368            | 1,457,015         | 286,737           | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881             | 3,870,050             |
| Misc. Other                              | 47,922               | 485,987           | 23,079            | 108,470           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470            | 1,533,219             |
| <b>Total Receipts</b>                    | <b>\$ 14,723,348</b> | <b>14,415,902</b> | <b>17,720,479</b> | <b>16,283,349</b> | <b>15,491,385</b> | <b>16,351,889</b> | <b>18,213,168</b> | <b>18,384,764</b> | <b>18,971,452</b> | <b>17,454,826</b> | <b>16,834,970</b> | <b>15,053,975</b>  | <b>\$ 199,899,506</b> |
| <b>Cash Disbursements</b>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| <u>Operating Expenses</u>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Chief Executive Office                   | \$ 108,542           | 80,892            | 111,213           | 108,934           | 93,505            | 123,799           | 122,993           | 93,635            | 1,304,907         | 97,790            | 124,018           | 92,753             | \$ 2,462,981          |
| Customer Service                         | 663,865              | 1,073,913         | 673,854           | 681,041           | 689,032           | 842,999           | 687,161           | 650,035           | 716,811           | 689,459           | 833,283           | 643,583            | 8,845,035             |
| Management Information Systems           | 1,899,797            | 506,327           | 356,822           | 369,750           | 540,904           | 1,757,189         | 368,518           | 1,308,487         | 378,061           | 807,239           | 605,888           | (4,791,835)        | 4,107,147             |
| Finance                                  | 1,920,041            | 291,595           | 606,866           | 838,737           | 835,922           | 992,176           | 837,273           | 852,482           | 802,567           | 807,273           | 994,564           | (233,491)          | 9,546,005             |
| Human Resources                          | 99,316               | 116,938           | 97,795            | 142,026           | 168,789           | 157,225           | 132,887           | 176,964           | 122,682           | 167,231           | 167,892           | 128,950            | 1,678,696             |
| Legal                                    | 221,369              | 263,198           | 260,032           | 314,601           | 311,555           | 332,084           | 333,587           | 332,997           | 322,602           | 323,324           | 337,121           | 296,783            | 3,649,252             |
| Safety & Security                        | 15,779               | 94,855            | 82,683            | 93,342            | 75,887            | 105,927           | 70,901            | 321,843           | 62,632            | 66,689            | 86,311            | 47,096             | 1,123,945             |
| Warehouse                                | 33,773               | 33,574            | 44,966            | 58,314            | 42,457            | 59,226            | 42,173            | 42,151            | 40,807            | 41,278            | 56,525            | (102,823)          | 392,420               |
| Public Affairs                           | 169,003              | 76,513            | 84,101            | 132,045           | 90,838            | 113,474           | 110,026           | 86,825            | 98,779            | 108,300           | 82,663            | 1,246,259          | 1,246,259             |
| Engineering & Construction               | 1,698,521            | 1,909,532         | 1,913,240         | 2,468,517         | 2,520,534         | 3,558,370         | 4,335,411         | 4,104,345         | 3,784,434         | 3,589,691         | 3,543,569         | (8,169,595)        | 25,256,570            |
| Environmental Compliance                 | 97,864               | 397,896           | 192,917           | 308,827           | 302,703           | 342,652           | 306,726           | 302,077           | 352,172           | 325,332           | 345,875           | 315,400            | 3,590,442             |
| Laboratory                               | 160,300              | 237,715           | 270,658           | 325,297           | 317,678           | 397,468           | 322,293           | 332,772           | 316,890           | 349,625           | 380,634           | 315,764            | 3,727,093             |
| Water Treatment Plant                    | 1,433,988            | 1,558,801         | 1,696,234         | 1,750,814         | 1,519,172         | 1,845,003         | 1,509,921         | 1,541,589         | 1,473,276         | 1,499,193         | 1,654,906         | 1,471,455          | 18,954,353            |
| Water Operations                         | 1,124,799            | 1,333,927         | 1,348,754         | 1,219,188         | 1,404,403         | 1,587,240         | 1,225,059         | 1,226,762         | 1,221,538         | 1,219,657         | 1,592,067         | 983,816            | 15,487,211            |
| Sewer Operations                         | 240,317              | 172,606           | 207,956           | 244,228           | 287,285           | 338,012           | 368,323           | 279,544           | 294,517           | 279,526           | 388,741           | 212,900            | 3,313,956             |
| Net ALCOSAN Expense                      | 2,924,157            | (533,942)         | (1,254,437)       | 1,083,360         | (199,476)         | 256,872           | 314,501           | (1,352,227)       | (786,788)         | 616,632           | (734,773)         | 805,941            | 1,139,822             |
| DSIC - Water*                            | 386,313              | 354,814           | 494,231           | 463,842           | 440,877           | 465,830           | 519,802           | 524,777           | 541,790           | 497,812           | 479,838           | 428,194            | 5,598,119             |
| DSIC - Wastewater*                       | 233,725              | 212,833           | 263,644           | 231,169           | 219,724           | 232,159           | 259,058           | 261,538           | 270,016           | 248,098           | 239,141           | 213,402            | 2,884,506             |
| Sub Total                                | \$ 13,431,468        | 8,181,985         | 7,451,531         | 10,834,031        | 9,661,791         | 13,507,705        | 11,866,610        | 11,093,463        | 11,305,741        | 11,724,629        | 11,203,899        | (7,259,042)        | \$ 113,003,812        |
| <u>Debt Service</u>                      |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Bond Debt Service                        | \$ 278,811           | 30,175,043        | 486,594           | 255,000           | 255,000           | 255,000           | 255,000           | 30,254,780        | 255,000           | 255,000           | 255,000           | 255,000            | \$ 63,235,227         |
| PennVest Debt Service                    | 408,312              | 411,017           | 666,890           | 897,983           | 897,983           | 897,983           | 897,983           | 897,983           | 877,167           | 877,167           | 877,167           | 877,167            | 9,484,800             |
| Sub Total                                | \$ 687,122           | 30,586,060        | 1,153,484         | 1,152,983         | 1,152,983         | 1,152,983         | 1,152,983         | 31,152,763        | 1,132,167         | 1,132,167         | 1,132,167         | 1,132,167          | \$ 72,720,028         |
| <b>Total Disbursements</b>               | <b>\$ 14,118,590</b> | <b>38,768,045</b> | <b>8,605,015</b>  | <b>11,987,014</b> | <b>10,814,774</b> | <b>14,660,687</b> | <b>13,019,593</b> | <b>42,246,226</b> | <b>12,437,907</b> | <b>12,856,796</b> | <b>12,336,066</b> | <b>(6,126,875)</b> | <b>\$ 185,723,838</b> |
| Surplus / Deficit                        | 604,757              | (24,352,143)      | 9,115,464         | 4,296,336         | 4,676,611         | 1,691,202         | 5,193,575         | (23,861,461)      | 6,533,545         | 4,598,030         | 4,498,904         | 21,180,850         |                       |
| <b>Annual Surplus/Deficit</b>            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    | <b>\$ 14,175,668</b>  |

| Capital Spending                | Actual       |           |           |           |            |            | Budget     |            |            |            |            |            |                |
|---------------------------------|--------------|-----------|-----------|-----------|------------|------------|------------|------------|------------|------------|------------|------------|----------------|
| Capital Spending (Non PENNVEST) | \$ 2,526,765 | 3,921,965 | 5,275,788 | 6,370,138 | 8,863,794  | 12,585,677 | 10,325,453 | 8,060,320  | 7,664,838  | 9,733,256  | 11,934,724 | 21,579,497 | \$ 108,842,214 |
| PennVEST Spending               | 2,029,508    | 561,752   | 2,794,184 | 2,803,539 | 3,901,012  | 5,539,037  | 4,544,298  | 3,547,398  | 3,373,344  | 4,283,668  | 5,252,548  | 9,497,274  | 48,127,564     |
| Total                           | \$ 4,556,273 | 4,483,718 | 8,069,972 | 9,173,677 | 12,764,807 | 18,124,714 | 14,869,750 | 11,607,719 | 11,038,182 | 14,016,924 | 17,187,272 | 31,076,771 | \$ 156,969,778 |

| Capital Line of Credit       | Actual |   |             | Budget |   |   |
|------------------------------|--------|---|-------------|--------|---|---|
| Capital Line of Credit Limit |        |   | 150,000,000 |        |   |   |
| Capital Draws                |        |   | 95,791,576  |        |   |   |
| Outstanding Capital Draws    |        |   |             |        |   |   |
| Remaining Capital Credit     | \$ -   | - | 54,208,424  | -      | - | - |

| Bank Cash Balance  | Actual |   |            | Budget |   |   |
|--------------------|--------|---|------------|--------|---|---|
| Unreserved         |        |   | 53,008,243 |        |   |   |
| Available for Draw |        |   | 12,098,028 |        |   |   |
| Rate Stabilization |        |   | 4,850,000  |        |   |   |
| Compliance         |        |   | 358,439    |        |   |   |
| Total              | \$ -   | - | 70,314,709 | -      | - | - |

\*Source of PAYGO for capital projects

The Pittsburgh Water and Sewer Authority  
2021 & 2022 Financial Status Update (Cash Basis)  
As of April 30, 2022



|   | <u>FY 2021</u>            |                     |                   | <u>FY 2022</u>              |              |                   | <u>FY 2021</u>     |    |                    | <u>FY 2022</u> |                    |                       | <u>2022 Difference</u> |  |
|---|---------------------------|---------------------|-------------------|-----------------------------|--------------|-------------------|--------------------|----|--------------------|----------------|--------------------|-----------------------|------------------------|--|
|   | <u>Prior Year-to-Date</u> |                     | <u>YTD Growth</u> | <u>Current Year-to-Date</u> |              | <u>YTD Growth</u> | <u>Actual</u>      |    | <u>Projected</u>   | <u>Budget</u>  |                    | <u>Actual- Budget</u> |                        |  |
| <b>Receipts</b>                                       |                           |                     |                   |                             |              |                   |                    |    |                    |                |                    |                       |                        |  |
| <u>User Charge &amp; Wholesale Receipts</u>           |                           |                     |                   |                             |              |                   |                    |    |                    |                |                    |                       |                        |  |
| Water Collections                                     | \$                        | 30,982,866          | \$                | 33,821,552                  | 9.2%         | \$                | 106,885,626        | \$ | 111,799,929        | \$             | 113,424,315        | \$                    | (1,624,386)            |  |
| Wastewater Collections                                |                           | 18,824,610          |                   | 18,545,860                  | -1.5%        |                   | 63,761,376         |    | 57,408,576         |                | 56,528,196         |                       | 880,380                |  |
| DSIC - Water Collections                              |                           | 827,368             |                   | 1,645,671                   | 98.9%        |                   | 4,520,928          |    | 5,544,590          |                | 5,671,216          |                       | (126,626)              |  |
| DSIC - Wastewater Collections                         |                           | 474,224             |                   | 928,168                     | 95.7%        |                   | 2,680,983          |    | 2,871,304          |                | 2,826,410          |                       | 44,894                 |  |
| Stormwater  |                           | -                   |                   | 2,659,942                   | n.a.         |                   | -                  |    | 15,162,412         |                | 17,127,744         |                       | (1,965,332)            |  |
|   |                           | -                   |                   | -                           | -            |                   | -                  |    | -                  |                | -                  |                       | -                      |  |
| <i>Subtotal: User Charge &amp; Wholesale Receipts</i> | \$                        | 51,109,068          | \$                | 57,601,193                  | 12.7%        | \$                | 177,848,912        | \$ | 192,786,811        | \$             | 195,577,881        | \$                    | (2,791,070)            |  |
| <u>Other Operating Receipts</u>                       |                           |                     |                   |                             |              |                   |                    |    |                    |                |                    |                       |                        |  |
| Other Misc. and Fee Operating Receipts                | \$                        | 1,261,603           | \$                | 4,059,048                   | 221.7%       | \$                | 9,672,503          | \$ | 5,629,859          | \$             | 2,683,488          | \$                    | 2,946,371              |  |
|   |                           | -                   |                   | -                           | -            |                   | -                  |    | -                  |                | -                  |                       | -                      |  |
| <i>Subtotal: Other Operating Receipts</i>             | \$                        | 1,261,603           | \$                | 4,059,048                   | 221.7%       | \$                | 9,672,503          | \$ | 5,629,859          | \$             | 2,683,488          | \$                    | 2,946,371              |  |
|   |                           | -                   |                   | -                           | -            |                   | -                  |    | -                  |                | -                  |                       | -                      |  |
| <b>Total: Receipts</b>                                | \$                        | <b>52,370,671</b>   | \$                | <b>61,660,242</b>           | <b>17.7%</b> | \$                | <b>187,521,415</b> | \$ | <b>198,416,670</b> | \$             | <b>198,261,369</b> | \$                    | <b>155,301</b>         |  |
| <b>Revenue Requirements</b>                           |                           |                     |                   |                             |              |                   |                    |    |                    |                |                    |                       |                        |  |
| <u>Operating Expenses</u>                             |                           |                     |                   |                             |              |                   |                    |    |                    |                |                    |                       |                        |  |
| Chief Executive Office                                |                           | 562,999             |                   | 401,229                     | -28.7%       |                   | 2,990,200          |    | 2,454,630          |                | 2,464,652          |                       | (10,023)               |  |
| Customer Service                                      |                           | 2,709,140           |                   | 3,029,468                   | 11.8%        |                   | 8,223,448          |    | 8,781,830          |                | 8,809,447          |                       | (27,617)               |  |
| Management Information Systems                        |                           | 4,579,727           |                   | 3,203,560                   | -30.0%       |                   | 8,931,474          |    | 4,178,011          |                | 4,780,822          |                       | (602,810)              |  |
| Finance   |                           | 2,981,216           |                   | 3,202,064                   | 7.4%         |                   | 13,576,612         |    | 9,090,830          |                | 10,851,491         |                       | (1,760,660)            |  |
| Human Resources                                       |                           | 239,737             |                   | 440,797                     | 83.9%        |                   | 977,857            |    | 1,663,418          |                | 1,816,321          |                       | (152,903)              |  |
| Legal   |                           | 2,053,922           |                   | 1,230,196                   | -40.1%       |                   | 6,205,968          |    | 3,820,249          |                | 3,884,108          |                       | (63,859)               |  |
| Safety & Security                                     |                           | -                   |                   | 264,630                     | n.a.         |                   | -                  |    | 1,101,916          |                | 1,121,999          |                       | (20,083)               |  |
| Warehouse   |                           | 144,899             |                   | 150,628                     | 4.0%         |                   | 492,608            |    | 372,421            |                | 538,288            |                       | (165,867)              |  |
| Public Affairs  |                           | 313,480             |                   | 418,847                     | 33.6%        |                   | 974,277            |    | 1,203,444          |                | 1,271,818          |                       | (68,374)               |  |
| Engineering & Construction                            |                           | 9,362,618           |                   | 7,585,274                   | -19.0%       |                   | 32,345,286         |    | 24,852,034         |                | 27,579,284         |                       | (2,727,250)            |  |
| Environmental Compliance                              |                           | 848,952             |                   | 1,217,084                   | 43.4%        |                   | 2,627,894          |    | 3,810,022          |                | 4,010,328          |                       | (200,306)              |  |
| General Administration                                |                           | 3,929               |                   | -                           | -100.0%      |                   | 7,034              |    | -                  |                | -                  |                       | -                      |  |
| Laboratory  |                           | 683,380             |                   | 835,269                     | 22.2%        |                   | 1,724,973          |    | 3,568,393          |                | 4,068,444          |                       | (500,051)              |  |
| Water Treatment Plant                                 |                           | 6,111,598           |                   | 6,392,437                   | 4.6%         |                   | 18,721,895         |    | 18,906,952         |                | 19,354,813         |                       | (447,861)              |  |
| Water Operations                                      |                           | 4,075,657           |                   | 4,981,146                   | 22.2%        |                   | 13,493,185         |    | 15,441,688         |                | 15,522,618         |                       | (80,930)               |  |
| Sewer Operations                                      |                           | 818,302             |                   | 817,593                     | -0.1%        |                   | 3,262,374          |    | 3,266,442          |                | 3,503,492          |                       | (237,050)              |  |
| DSIC - Water  |                           | 827,368             |                   | 1,645,671                   | 98.9%        |                   | 4,520,928          |    | 5,544,590          |                | 5,671,216          |                       | (126,626)              |  |
| DSIC - Wastewater                                     |                           | 474,224             |                   | 928,168                     | 95.7%        |                   | 2,680,983          |    | 2,871,304          |                | 2,826,410          |                       | 44,894                 |  |
|   |                           | -                   |                   | -                           | -            |                   | -                  |    | -                  |                | -                  |                       | -                      |  |
| Direct Operating Expenses                             | \$                        | 36,791,147          | \$                | 36,744,062                  | -0.1%        | \$                | 121,756,996        | \$ | 110,928,173        | \$             | 118,075,552        | \$                    | (7,147,378)            |  |
| Net ALCOSAN Expenses                                  |                           | 957,587             |                   | 2,523,914                   | 163.6%       |                   | (5,405,693)        |    | 1,444,598          |                | 1,997,954          |                       | (553,356)              |  |
|   |                           | -                   |                   | -                           | -            |                   | -                  |    | -                  |                | -                  |                       | -                      |  |
| In-Direct Operating Expenses                          | \$                        | 957,587             | \$                | 2,523,914                   | 163.6%       | \$                | (5,405,693)        | \$ | 1,444,598          | \$             | 1,997,954          | \$                    | (553,356)              |  |
|   |                           | -                   |                   | -                           | -            |                   | -                  |    | -                  |                | -                  |                       | -                      |  |
| <i>Subtotal: Operating Expenses</i>                   | \$                        | 37,748,734          | \$                | 39,267,975                  | 4.0%         | \$                | 116,351,303        | \$ | 112,372,771        | \$             | 120,073,506        | \$                    | (7,700,735)            |  |
| <u>Debt Service</u>                                   |                           |                     |                   |                             |              |                   |                    |    |                    |                |                    |                       |                        |  |
| <i>Subtotal: Debt Service</i>                         | \$                        | 30,382,435          | \$                | 33,343,014                  | 9.7%         | \$                | 64,338,574         | \$ | 72,483,392         | \$             | 73,002,260         | \$                    | (518,867)              |  |
|   |                           | -                   |                   | -                           | -            |                   | -                  |    | -                  |                | -                  |                       | -                      |  |
| <b>Total: Revenue Requirements</b>                    | \$                        | <b>68,131,170</b>   | \$                | <b>72,610,989</b>           | <b>6.6%</b>  | \$                | <b>180,689,877</b> | \$ | <b>184,856,163</b> | \$             | <b>193,075,766</b> | \$                    | <b>(8,219,602)</b>     |  |
| <b>Revenue Surplus / (Deficit)</b>                    | \$                        | <b>(15,760,498)</b> | \$                | <b>(10,950,748)</b>         |              | \$                | <b>6,831,538</b>   | \$ | <b>13,560,506</b>  | \$             | <b>5,185,603</b>   | \$                    | <b>8,374,903</b>       |  |

| <u>Financial Metrics*</u>  |  |  |  | <u>FY 2021</u> | <u>FY 2022</u>  | <u>FY 2022</u> |
|--|--|--|--|----------------|-----------------|----------------|
|  |  |  |  | <u>Actual</u>  | <u>Forecast</u> | <u>Budget</u>  |
| <b>Senior Debt Service Coverage</b>                                |  |  |  | <b>1.52</b>    | <b>1.69</b>     | <b>1.55</b>    |
| <i>Minimum Requirement</i>   |  |  |  | <i>1.25</i>    | <i>1.25</i>     | <i>1.25</i>    |
| <b>Total Debt Service Coverage</b>                                 |  |  |  | <b>1.27</b>    | <b>1.32</b>     | <b>1.21</b>    |
| <i>Minimum Requirement</i>   |  |  |  | <i>1.10</i>    | <i>1.10</i>     | <i>1.10</i>    |
| <b>Unrestricted Days Cash without ALCOSAN Expense</b>              |  |  |  | <b>207.39</b>  | <b>286.37</b>   | <b>243.15</b>  |
| <b>Unrestricted Days Cash with ALCOSAN Expense</b>                 |  |  |  | <b>217.03</b>  | <b>282.69</b>   | <b>239.10</b>  |
| <b>Unrestricted Days Cash including the Operating Reserve Fund</b> |  |  |  | <b>276.76</b>  | <b>344.55</b>   | <b>296.99</b>  |

\*Cash basis estimate. Final audited coverage ratio could be different due to the use of the accrual basis accounting method.

| 2022                                     |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
|--|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|-----------------------|
| The Pittsburgh Water and Sewer Authority |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| 2022 Cash Flow (Cash Basis)              |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| As of April 30, 2022                     |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Receipts                                 | Actual               |                   |                   |                   | Budget            |                   |                   |                   |                   |                   |                   |                    | Total                 |
|  | January              | February          | March             | April             | May               | June              | July              | August            | September         | October           | November          | December           |                       |
| Water                                    | \$ 8,029,539         | 7,338,408         | 10,127,205        | 8,326,400         | 8,817,548         | 9,316,593         | 10,396,031        | 10,495,548        | 10,835,794        | 9,956,235         | 9,596,753         | 8,563,875          | \$ 111,799,929        |
| Wastewater Conveyance                    | 4,690,481            | 4,246,058         | 5,292,847         | 4,316,474         | 4,394,473         | 4,643,186         | 5,181,154         | 5,230,751         | 5,400,323         | 4,961,970         | 4,782,812         | 4,268,048          | 57,408,576            |
| DSIC - Water*                            | 386,313              | 354,814           | 494,231           | 410,313           | 440,877           | 465,830           | 519,802           | 524,777           | 541,790           | 497,812           | 479,838           | 428,194            | 5,544,590             |
| DSIC - Wastewater*                       | 233,725              | 212,833           | 263,644           | 217,967           | 219,724           | 232,159           | 259,058           | 261,538           | 270,016           | 248,098           | 239,141           | 213,402            | 2,871,304             |
| Stormwater                               | -                    | 320,787           | 1,232,737         | 1,106,418         | 1,422,411         | 1,497,770         | 1,660,771         | 1,675,799         | 1,727,178         | 1,594,360         | 1,540,076         | 1,384,105          | 15,162,412            |
| Fees                                     | 1,335,368            | 1,457,015         | 286,737           | 80,259            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881             | 3,862,427             |
| Misc. Other                              | 47,922               | 485,987           | 23,079            | 342,682           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470            | 1,767,431             |
| <b>Total Receipts</b>                    | <b>\$ 14,723,348</b> | <b>14,415,902</b> | <b>17,720,479</b> | <b>14,800,513</b> | <b>15,491,385</b> | <b>16,351,889</b> | <b>18,213,168</b> | <b>18,384,764</b> | <b>18,971,452</b> | <b>17,454,826</b> | <b>16,834,970</b> | <b>15,053,975</b>  | <b>\$ 198,416,670</b> |
| <b>Cash Disbursements</b>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| <b>Operating Expenses</b>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Chief Executive Office                   | \$ 108,542           | 80,892            | 111,213           | 100,583           | 93,505            | 123,799           | 122,993           | 93,635            | 1,304,907         | 97,790            | 124,018           | 92,753             | \$ 2,454,630          |
| Customer Service                         | 663,865              | 1,073,913         | 673,854           | 617,836           | 689,032           | 842,999           | 687,161           | 650,035           | 716,811           | 689,459           | 833,283           | 643,583            | 8,781,830             |
| Management Information Systems           | 1,899,797            | 506,327           | 356,822           | 440,614           | 540,904           | 1,757,189         | 368,518           | 1,308,487         | 378,061           | 807,239           | 605,888           | (4,791,835)        | 4,178,011             |
| Finance                                  | 1,920,041            | 291,595           | 606,866           | 383,562           | 835,922           | 992,176           | 837,273           | 852,482           | 802,567           | 807,273           | 994,564           | (233,491)          | 9,090,830             |
| Human Resources                          | 99,316               | 116,938           | 97,795            | 126,748           | 168,789           | 157,225           | 132,887           | 176,964           | 122,682           | 167,231           | 167,892           | 128,950            | 1,663,418             |
| Legal                                    | 221,369              | 263,198           | 260,032           | 485,598           | 311,555           | 332,084           | 333,587           | 332,997           | 322,602           | 323,324           | 337,121           | 296,783            | 3,820,249             |
| Safety & Security                        | 15,779               | 94,855            | 82,683            | 71,313            | 75,887            | 105,927           | 70,901            | 321,843           | 62,632            | 66,689            | 86,311            | 47,096             | 1,101,916             |
| Warehouse                                | 33,773               | 33,574            | 44,966            | 38,315            | 42,457            | 59,226            | 42,173            | 42,151            | 40,807            | 41,278            | 56,525            | (102,823)          | 372,421               |
| Public Affairs                           | 169,003              | 76,513            | 84,101            | 89,229            | 90,838            | 113,474           | 110,026           | 93,692            | 86,825            | 98,779            | 108,300           | 82,663             | 1,203,444             |
| Engineering & Construction               | 1,698,521            | 1,909,532         | 1,913,240         | 2,063,981         | 2,520,534         | 3,558,370         | 4,335,411         | 4,104,345         | 3,784,434         | 3,589,691         | 3,543,569         | (8,169,595)        | 24,852,034            |
| Environmental Compliance                 | 97,864               | 397,896           | 192,917           | 528,407           | 302,703           | 342,652           | 306,726           | 302,077           | 352,172           | 325,332           | 345,875           | 315,400            | 3,810,022             |
| Laboratory                               | 160,300              | 237,715           | 270,658           | 166,597           | 317,678           | 397,468           | 322,293           | 332,772           | 316,890           | 349,625           | 380,634           | 315,764            | 3,568,393             |
| Water Treatment Plant                    | 1,433,988            | 1,558,801         | 1,696,234         | 1,703,413         | 1,519,172         | 1,845,003         | 1,509,921         | 1,541,589         | 1,473,276         | 1,499,193         | 1,654,906         | 1,471,455          | 18,906,952            |
| Water Operations                         | 1,124,799            | 1,333,927         | 1,348,754         | 1,173,665         | 1,404,403         | 1,587,240         | 1,225,059         | 1,226,762         | 1,221,538         | 1,219,657         | 1,592,067         | 983,816            | 15,441,688            |
| Sewer Operations                         | 240,317              | 172,606           | 207,956           | 196,714           | 287,285           | 338,012           | 368,323           | 279,544           | 294,517           | 279,526           | 388,741           | 212,900            | 3,266,442             |
| Net ALCOSAN Expense                      | 2,924,157            | (533,942)         | (1,254,437)       | 1,388,136         | (199,476)         | 256,872           | 314,501           | (1,352,227)       | (786,788)         | 616,632           | (734,773)         | 805,941            | 1,444,598             |
| DSIC - Water*                            | 386,313              | 354,814           | 494,231           | 410,313           | 440,877           | 465,830           | 519,802           | 524,777           | 541,790           | 497,812           | 479,838           | 428,194            | 5,544,590             |
| DSIC - Wastewater*                       | 233,725              | 212,833           | 263,644           | 217,967           | 219,724           | 232,159           | 259,058           | 261,538           | 270,016           | 248,098           | 239,141           | 213,402            | 2,871,304             |
| Sub Total                                | \$ 13,431,468        | 8,181,985         | 7,451,531         | 10,202,991        | 9,661,791         | 13,507,705        | 11,866,610        | 11,093,463        | 11,305,741        | 11,724,629        | 11,203,899        | (7,259,042)        | \$ 112,372,772        |
| <b>Debt Service</b>                      |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Bond Debt Service                        | \$ 278,811           | 30,175,043        | 486,594           | 250,629           | 255,000           | 255,000           | 255,000           | 30,254,780        | 255,000           | 255,000           | 255,000           | 255,000            | \$ 63,230,857         |
| PennVest Debt Service                    | 408,312              | 411,017           | 666,890           | 665,718           | 897,983           | 897,983           | 897,983           | 897,983           | 877,167           | 877,167           | 877,167           | 877,167            | 9,252,536             |
| Sub Total                                | \$ 687,122           | 30,586,060        | 1,153,484         | 916,348           | 1,152,983         | 1,152,983         | 1,152,983         | 31,152,763        | 1,132,167         | 1,132,167         | 1,132,167         | 1,132,167          | \$ 72,483,392         |
| <b>Total Disbursements</b>               | <b>\$ 14,118,590</b> | <b>38,768,045</b> | <b>8,605,015</b>  | <b>11,119,339</b> | <b>10,814,774</b> | <b>14,660,687</b> | <b>13,019,593</b> | <b>42,246,226</b> | <b>12,437,907</b> | <b>12,856,796</b> | <b>12,336,066</b> | <b>(6,126,875)</b> | <b>\$ 184,856,163</b> |
| Surplus / Deficit                        | 604,757              | (24,352,143)      | 9,115,464         | 3,681,174         | 4,676,611         | 1,691,202         | 5,193,575         | (23,861,461)      | 6,533,545         | 4,598,030         | 4,498,904         | 21,180,850         |                       |
| <b>Annual Surplus/Deficit</b>            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    | <b>\$ 13,560,506</b>  |
| <b>Capital Spending</b>                  |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Capital Spending (Non PENNVEST)          | \$ 2,526,765         | 3,921,965         | 5,275,788         | 3,724,731         | 8,863,794         | 12,585,677        | 10,325,453        | 8,060,320         | 7,664,838         | 9,733,256         | 11,934,724        | 21,579,497         | \$ 106,196,806        |
| PennVEST Spending                        | 2,029,508            | 561,752           | 2,794,184         | 737,443           | 3,901,012         | 5,539,037         | 4,544,298         | 3,547,398         | 3,373,344         | 4,283,668         | 5,252,548         | 9,497,274          | 46,061,468            |
| Total                                    | \$ 4,556,273         | 4,483,718         | 8,069,972         | 4,462,174         | 12,764,807        | 18,124,714        | 14,869,750        | 11,607,719        | 11,038,182        | 14,016,924        | 17,187,272        | 31,076,771         | \$ 152,258,275        |
| <b>Capital Line of Credit</b>            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Capital Line of Credit Limit             |                      |                   |                   | 150,000,000       |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Capital Draws                            |                      |                   |                   | 95,791,576        |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Outstanding Capital Draws                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Remaining Capital Credit                 | \$ -                 | -                 | -                 | 54,208,424        | -                 | -                 | -                 | -                 | -                 | -                 | -                 | -                  |                       |
| <b>Bank Cash Balance</b>                 |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Unreserved                               | \$ 73,201,887        | 42,980,950        | 53,008,243        | 49,715,279        |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Available for Draw                       | 2,545,881            | 7,124,047         | 12,098,028        | 15,550,195        |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Rate Stabilization                       | 2,350,000            | 4,850,000         | 4,850,000         | 4,850,000         |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Compliance                               | 363,146              | 358,439           | 358,439           | 350,164           |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Total                                    | \$ 78,460,914        | 55,313,435        | 70,314,709        | 70,465,638        | -                 | -                 | -                 | -                 | -                 | -                 | -                 | -                  |                       |

\*Source of PAYGO for capital projects

**The Pittsburgh Water and Sewer Authority**  
 2021 & 2022 Financial Status Update (Cash Basis)  
 As of May 31, 2022



|   | <u>FY 2021</u>            |                             |                   | <u>FY 2022</u>        |                       |                       | <u>FY 2021</u> | <u>FY 2022</u>  | <u>FY 2022</u> | <u>2022 Difference</u> |
|---|---------------------------|-----------------------------|-------------------|-----------------------|-----------------------|-----------------------|----------------|-----------------|----------------|------------------------|
|   | <u>Prior Year-to-Date</u> | <u>Current Year-to-Date</u> | <u>YTD Growth</u> | <u>Actual</u>         | <u>Forecast</u>       | <u>Budget</u>         | <u>Actual</u>  | <u>Forecast</u> | <u>Budget</u>  | <u>Actual- Budget</u>  |
| <b>Receipts</b>                                       |                           |                             |                   |                       |                       |                       |                |                 |                |                        |
| <u>User Charge &amp; Wholesale Receipts</u>           |                           |                             |                   |                       |                       |                       |                |                 |                |                        |
| Water Collections                                     | \$ 39,242,065             | \$ 42,820,712               | 9.1%              | \$ 106,885,626        | \$ 111,981,541        | \$ 113,424,315        | \$ -           | \$ -            | \$ -           | \$ (1,442,774)         |
| Wastewater Collections                                | 23,782,945                | 23,169,551                  | -2.6%             | 63,761,376            | 57,637,794            | 56,528,196            | -              | -               | -              | 1,109,598              |
| DSIC - Water Collections                              | 1,209,479                 | 2,084,739                   | 72.4%             | 4,520,928             | 5,542,780             | 5,671,216             | -              | -               | -              | (128,436)              |
| DSIC - Wastewater Collections                         | 702,592                   | 1,159,376                   | 65.0%             | 2,680,983             | 2,882,788             | 2,826,410             | -              | -               | -              | 56,378                 |
| Stormwater  | -                         | 3,915,254                   | n.a.              | -                     | 14,995,313            | 17,127,744            | -              | -               | -              | (2,132,431)            |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -              | -               | -              | -                      |
| <i>Subtotal: User Charge &amp; Wholesale Receipts</i> | \$ 64,937,081             | \$ 73,149,632               | 12.6%             | \$ 177,848,912        | \$ 193,040,217        | \$ 195,577,881        | \$ -           | \$ -            | \$ -           | \$ (2,537,664)         |
| <u>Other Operating Receipts</u>                       |                           |                             |                   |                       |                       |                       |                |                 |                |                        |
| Other Misc. and Fee Operating Receipts                | \$ 2,513,921              | \$ 4,218,648                | 67.8%             | \$ 9,672,503          | \$ 5,593,107          | \$ 2,683,488          | \$ -           | \$ -            | \$ -           | \$ 2,909,619           |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -              | -               | -              | -                      |
| <i>Subtotal: Other Operating Receipts</i>             | \$ 2,513,921              | \$ 4,218,648                | 67.8%             | \$ 9,672,503          | \$ 5,593,107          | \$ 2,683,488          | \$ -           | \$ -            | \$ -           | \$ 2,909,619           |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -              | -               | -              | -                      |
| <b>Total: Receipts</b>                                | <b>\$ 67,451,002</b>      | <b>\$ 77,368,281</b>        | <b>14.7%</b>      | <b>\$ 187,521,415</b> | <b>\$ 198,633,324</b> | <b>\$ 198,261,369</b> | <b>\$ -</b>    | <b>\$ -</b>     | <b>\$ -</b>    | <b>\$ 371,955</b>      |
| <b>Revenue Requirements</b>                           |                           |                             |                   |                       |                       |                       |                |                 |                |                        |
| <u>Operating Expenses</u>                             |                           |                             |                   |                       |                       |                       |                |                 |                |                        |
| Chief Executive Office                                | 702,642                   | 512,661                     | -27.0%            | 2,990,200             | 2,462,556             | 2,464,652             | -              | -               | -              | (2,097)                |
| Customer Service                                      | 3,341,705                 | 3,615,527                   | 8.2%              | 8,223,448             | 8,678,857             | 8,809,447             | -              | -               | -              | (130,590)              |
| Management Information Systems                        | 4,811,756                 | 3,480,910                   | -27.7%            | 8,931,474             | 3,914,456             | 4,780,822             | -              | -               | -              | (866,365)              |
| Finance   | 3,488,244                 | 4,150,727                   | 19.0%             | 13,576,612            | 10,846,570            | 10,851,491            | -              | -               | -              | (4,920)                |
| Human Resources                                       | 323,220                   | 576,175                     | 78.3%             | 977,857               | 1,630,007             | 1,816,321             | -              | -               | -              | (186,314)              |
| Legal   | 2,483,044                 | 1,450,190                   | -41.6%            | 6,205,968             | 3,728,688             | 3,884,108             | -              | -               | -              | (155,420)              |
| Safety & Security                                     | -                         | 326,247                     | n.a.              | -                     | 1,087,646             | 1,121,999             | -              | -               | -              | (34,353)               |
| Warehouse   | 173,466                   | 183,436                     | 5.7%              | 492,608               | 362,772               | 538,288               | -              | -               | -              | (175,516)              |
| Public Affairs  | 401,342                   | 521,678                     | 30.0%             | 974,277               | 1,271,437             | 1,271,818             | -              | -               | -              | (381)                  |
| Engineering & Construction                            | 11,340,448                | 11,598,358                  | 2.3%              | 32,345,286            | 27,574,584            | 27,579,284            | -              | -               | -              | (4,699)                |
| Environmental Compliance                              | 1,015,517                 | 1,555,404                   | 53.2%             | 2,627,894             | 3,845,639             | 4,010,328             | -              | -               | -              | (164,689)              |
| General Administration                                | 4,502                     | -                           | -100.0%           | 7,034                 | -                     | -                     | -              | -               | -              | -                      |
| Laboratory  | 772,341                   | 955,451                     | 23.7%             | 1,724,973             | 3,370,897             | 4,068,444             | -              | -               | -              | (697,547)              |
| Water Treatment Plant                                 | 7,713,899                 | 7,857,396                   | 1.9%              | 18,721,895            | 19,352,739            | 19,354,813            | -              | -               | -              | (2,074)                |
| Water Operations                                      | 5,077,280                 | 6,096,977                   | 20.1%             | 13,493,185            | 15,153,116            | 15,522,618            | -              | -               | -              | (369,502)              |
| Sewer Operations                                      | 1,077,993                 | 999,959                     | -7.2%             | 3,262,374             | 3,161,522             | 3,503,492             | -              | -               | -              | (341,970)              |
| DSIC - Water  | 1,209,479                 | 2,084,739                   | 72.4%             | 4,520,928             | 5,542,780             | 5,671,216             | -              | -               | -              | (128,436)              |
| DSIC - Wastewater                                     | 702,592                   | 1,159,376                   | 65.0%             | 2,680,983             | 2,882,788             | 2,826,410             | -              | -               | -              | 56,378                 |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -              | -               | -              | -                      |
| Direct Operating Expenses                             | \$ 44,639,470             | \$ 47,125,211               | 5.6%              | \$ 121,756,996        | \$ 114,867,056        | \$ 118,075,552        | \$ -           | \$ -            | \$ -           | \$ (3,208,495)         |
| Net ALCOSAN Expenses                                  | (49,295)                  | 1,195,856                   | -2525.9%          | (5,405,693)           | 316,015               | 1,997,954             | -              | -               | -              | (1,681,939)            |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -              | -               | -              | -                      |
| In-Direct Operating Expenses                          | \$ (49,295)               | \$ 1,195,856                | -2525.9%          | \$ (5,405,693)        | \$ 316,015            | \$ 1,997,954          | \$ -           | \$ -            | \$ -           | \$ (1,681,939)         |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -              | -               | -              | -                      |
| <i>Subtotal: Operating Expenses</i>                   | \$ 44,590,175             | \$ 48,321,067               | 8.4%              | \$ 116,351,303        | \$ 115,183,072        | \$ 120,073,506        | \$ -           | \$ -            | \$ -           | \$ (4,890,434)         |
| <u>Debt Service</u>                                   |                           |                             |                   |                       |                       |                       |                |                 |                |                        |
| <i>Subtotal: Debt Service</i>                         | \$ 30,923,555             | \$ 34,295,343               | 10.9%             | \$ 64,338,574         | \$ 72,282,739         | \$ 73,002,260         | \$ -           | \$ -            | \$ -           | \$ (719,521)           |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -              | -               | -              | -                      |
| <b>Total: Revenue Requirements</b>                    | <b>\$ 75,513,730</b>      | <b>\$ 82,616,410</b>        | <b>9.4%</b>       | <b>\$ 180,689,877</b> | <b>\$ 187,465,811</b> | <b>\$ 193,075,766</b> | <b>\$ -</b>    | <b>\$ -</b>     | <b>\$ -</b>    | <b>\$ (5,609,955)</b>  |
| <b>Revenue Surplus / (Deficit)</b>                    | <b>\$ (8,062,728)</b>     | <b>\$ (5,248,130)</b>       |                   | <b>\$ 6,831,538</b>   | <b>\$ 11,167,513</b>  | <b>\$ 5,185,603</b>   | <b>\$ -</b>    | <b>\$ -</b>     | <b>\$ -</b>    | <b>\$ 5,981,910</b>    |

**Financial Metrics\***

|  | <u>FY 2021</u> | <u>FY 2022</u>  | <u>FY 2022</u> |
|--|----------------|-----------------|----------------|
|  | <u>Actual</u>  | <u>Forecast</u> | <u>Budget</u>  |
| <b>Senior Debt Service Coverage</b>                                | <b>1.52</b>    | <b>1.65</b>     | <b>1.55</b>    |
| <i>Minimum Requirement</i>   | 1.25           | 1.25            | 1.25           |
| <b>Total Debt Service Coverage</b>                                 | <b>1.27</b>    | <b>1.29</b>     | <b>1.21</b>    |
| <i>Minimum Requirement</i>   | 1.10           | 1.10            | 1.10           |
| <i>Unrestricted Days Cash without ALCOSAN Expense</i>              | 207.39         | 268.95          | 243.15         |
| <i>Unrestricted Days Cash with ALCOSAN Expense</i>                 | 217.03         | 268.21          | 239.10         |
| <i>Unrestricted Days Cash including the Operating Reserve Fund</i> | 276.76         | 328.56          | 296.99         |

\*Cash basis estimate. Final audited coverage ratio could be different due to the use of the accrual basis accounting method.



| 2022                                     |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
|--|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|-----------------------|
| The Pittsburgh Water and Sewer Authority |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| 2022 Cash Flow (Cash Basis)              |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| As of May 31, 2022                       |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Receipts                                 | Actual               |                   |                   |                   |                   | Forecast          |                   |                   |                   |                   |                   |                    | Total                 |
|  | January              | February          | March             | April             | May               | June              | July              | August            | September         | October           | November          | December           |                       |
| Water                                    | \$ 8,029,539         | 7,338,408         | 10,127,205        | 8,326,400         | 8,999,160         | 9,316,593         | 10,396,031        | 10,495,548        | 10,835,794        | 9,956,235         | 9,596,753         | 8,563,875          | \$ 111,981,541        |
| Wastewater Conveyance                    | 4,690,481            | 4,246,058         | 5,292,847         | 4,316,474         | 4,623,691         | 4,643,186         | 5,181,154         | 5,230,751         | 5,400,323         | 4,961,970         | 4,782,812         | 4,268,048          | 57,637,794            |
| DSIC - Water*                            | 386,313              | 354,814           | 494,231           | 410,313           | 439,068           | 465,830           | 519,802           | 524,777           | 541,790           | 497,812           | 479,838           | 428,194            | 5,542,780             |
| DSIC - Wastewater*                       | 233,725              | 212,833           | 263,644           | 217,967           | 231,208           | 232,159           | 259,058           | 261,538           | 270,016           | 248,098           | 239,141           | 213,402            | 2,882,788             |
| Stormwater                               | -                    | 320,787           | 1,232,737         | 1,106,418         | 1,255,312         | 1,497,770         | 1,660,771         | 1,675,799         | 1,727,178         | 1,594,360         | 1,540,076         | 1,384,105          | 14,995,313            |
| Fees                                     | 1,335,368            | 1,457,015         | 286,737           | 80,259            | 67,137            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881             | 3,841,683             |
| Misc. Other                              | 47,922               | 485,987           | 23,079            | 342,682           | 92,463            | 108,470           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470            | 1,751,424             |
| <b>Total Receipts</b>                    | <b>\$ 14,723,348</b> | <b>14,415,902</b> | <b>17,720,479</b> | <b>14,800,513</b> | <b>15,708,039</b> | <b>16,351,889</b> | <b>18,213,168</b> | <b>18,384,764</b> | <b>18,971,452</b> | <b>17,454,826</b> | <b>16,834,970</b> | <b>15,053,975</b>  | <b>\$ 198,633,324</b> |
| <b>Cash Disbursements</b>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| <u>Operating Expenses</u>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Chief Executive Office                   | \$ 108,542           | 80,892            | 111,213           | 100,583           | 111,431           | 123,799           | 122,993           | 93,635            | 1,304,907         | 97,790            | 114,018           | 92,753             | \$ 2,462,556          |
| Customer Service                         | 663,865              | 1,073,913         | 673,854           | 617,836           | 586,059           | 842,999           | 687,161           | 650,035           | 716,811           | 689,459           | 833,283           | 643,583            | 8,678,857             |
| Management Information Systems           | 1,899,797            | 506,327           | 356,822           | 440,614           | 277,349           | 1,757,189         | 368,518           | 1,308,487         | 378,061           | 807,239           | 605,888           | (4,791,835)        | 3,914,456             |
| Finance                                  | 1,920,041            | 291,595           | 606,866           | 383,562           | 948,662           | 992,176           | 837,273           | 852,482           | 802,567           | 807,273           | 2,637,564         | (233,491)          | 10,846,570            |
| Human Resources                          | 99,316               | 116,938           | 97,795            | 126,748           | 135,378           | 157,225           | 132,887           | 176,964           | 122,682           | 167,231           | 167,892           | 128,950            | 1,630,007             |
| Legal                                    | 221,369              | 263,198           | 260,032           | 485,598           | 219,995           | 332,084           | 333,587           | 332,997           | 322,602           | 323,324           | 337,121           | 296,783            | 3,728,688             |
| Safety & Security                        | 15,779               | 94,855            | 82,683            | 71,313            | 61,616            | 105,927           | 70,901            | 321,843           | 62,632            | 66,689            | 86,311            | 47,096             | 1,087,646             |
| Warehouse                                | 33,773               | 33,574            | 44,966            | 38,315            | 32,808            | 59,226            | 42,173            | 42,151            | 40,807            | 41,278            | 56,525            | (102,823)          | 362,772               |
| Public Affairs                           | 169,003              | 76,513            | 84,101            | 89,229            | 102,831           | 113,474           | 110,026           | 93,692            | 86,825            | 98,779            | 164,300           | 82,663             | 1,271,437             |
| Engineering & Construction               | 1,698,521            | 1,909,532         | 1,913,240         | 2,063,981         | 4,013,084         | 3,558,370         | 4,335,411         | 4,104,345         | 3,784,434         | 3,589,691         | 4,773,569         | (8,169,595)        | 27,574,584            |
| Environmental Compliance                 | 97,864               | 397,896           | 192,917           | 338,320           | 342,652           | 306,726           | 302,077           | 352,172           | 325,332           | 325,332           | 345,875           | 315,400            | 3,845,639             |
| Laboratory                               | 160,300              | 237,715           | 270,658           | 166,597           | 120,182           | 397,468           | 322,293           | 332,772           | 316,890           | 349,625           | 380,634           | 315,764            | 3,370,897             |
| Water Treatment Plant                    | 1,433,988            | 1,558,801         | 1,696,234         | 1,703,413         | 1,464,960         | 1,845,003         | 1,509,921         | 1,541,589         | 1,473,276         | 1,499,193         | 2,154,906         | 1,471,455          | 19,352,739            |
| Water Operations                         | 1,124,799            | 1,333,927         | 1,348,754         | 1,173,665         | 1,115,831         | 1,587,240         | 1,225,059         | 1,226,762         | 1,221,538         | 1,219,657         | 1,592,067         | 983,816            | 15,153,116            |
| Sewer Operations                         | 240,317              | 172,606           | 207,956           | 196,714           | 182,366           | 338,012           | 368,323           | 279,544           | 294,517           | 279,526           | 388,741           | 212,900            | 3,161,522             |
| Net ALCOSAN Expense                      | 2,924,157            | (533,942)         | (1,254,437)       | 1,388,136         | (1,328,058)       | 256,872           | 314,501           | (1,352,227)       | (786,788)         | 616,632           | (734,773)         | 805,941            | 316,015               |
| DSIC - Water*                            | 386,313              | 354,814           | 494,231           | 410,313           | 439,068           | 465,830           | 519,802           | 524,777           | 541,790           | 497,812           | 479,838           | 428,194            | 5,542,780             |
| DSIC - Wastewater*                       | 233,725              | 212,833           | 263,644           | 217,967           | 231,208           | 232,159           | 259,058           | 261,538           | 270,016           | 248,098           | 239,141           | 213,402            | 2,882,788             |
| Sub Total                                | \$ 13,431,468        | 8,181,985         | 7,451,531         | 10,202,991        | 9,053,092         | 13,507,705        | 11,866,610        | 11,093,463        | 11,305,741        | 11,724,629        | 14,622,899        | (7,259,042)        | \$ 115,183,073        |
| <u>Debt Service</u>                      |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Bond Debt Service                        | \$ 278,811           | 30,175,043        | 486,594           | 250,629           | 306,772           | 255,000           | 255,000           | 30,254,780        | 255,000           | 255,000           | 255,000           | 255,000            | \$ 63,282,628         |
| PennVest Debt Service                    | 408,312              | 411,017           | 666,890           | 665,718           | 645,557           | 897,983           | 897,983           | 897,983           | 877,167           | 877,167           | 877,167           | 877,167            | 9,000,111             |
| Sub Total                                | \$ 687,122           | 30,586,060        | 1,153,484         | 916,348           | 952,329           | 1,152,983         | 1,152,983         | 31,152,763        | 1,132,167         | 1,132,167         | 1,132,167         | 1,132,167          | \$ 72,282,739         |
| <b>Total Disbursements</b>               | <b>\$ 14,118,590</b> | <b>38,768,045</b> | <b>8,605,015</b>  | <b>11,119,339</b> | <b>10,005,421</b> | <b>14,660,687</b> | <b>13,019,593</b> | <b>42,246,226</b> | <b>12,437,907</b> | <b>12,856,796</b> | <b>15,755,066</b> | <b>(6,126,875)</b> | <b>\$ 187,465,811</b> |
| Surplus / Deficit                        | 604,757              | (24,352,143)      | 9,115,464         | 3,681,174         | 5,702,618         | 1,691,202         | 5,193,575         | (23,861,461)      | 6,533,545         | 4,598,030         | 1,079,904         | 21,180,850         |                       |
| <b>Annual Surplus/Deficit</b>            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    | <b>\$ 11,167,513</b>  |
| <b>Capital Spending</b>                  |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| <u>Actual</u>                            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Capital Spending (Non PENNVEST)          | \$ 2,526,765         | 3,921,965         | 5,275,788         | 3,724,731         | 3,185,342         | 5,513,544         | 5,789,221         | 6,078,682         | 6,382,616         | 6,701,747         | 7,036,834         | 9,499,726          | \$ 65,636,959         |
| PennVEST Spending                        | 2,029,508            | 561,752           | 2,794,184         | 737,443           | 1,659,754         | 1,491,015         | 1,789,218         | 2,147,061         | 2,576,474         | 2,602,238         | 2,628,261         | 2,759,674          | 23,776,583            |
| Total                                    | \$ 4,556,273         | 4,483,718         | 8,069,972         | 4,462,174         | 4,845,096         | 7,004,558         | 7,578,439         | 8,225,743         | 8,959,090         | 9,303,985         | 9,665,095         | 12,259,400         | \$ 89,413,542         |
| <b>Capital Line of Credit</b>            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| <u>Actual</u>                            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Capital Line of Credit Limit             |                      |                   |                   |                   | 150,000,000       |                   |                   |                   |                   |                   |                   |                    |                       |
| Capital Draws                            |                      |                   |                   |                   | 95,791,576        |                   |                   |                   |                   |                   |                   |                    |                       |
| Outstanding Capital Draws                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Remaining Capital Credit                 | \$ -                 | -                 | -                 | -                 | 54,208,424        | -                 | -                 | -                 | -                 | -                 | -                 | -                  |                       |
| <b>Bank Cash Balance</b>                 |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| <u>Actual</u>                            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Unreserved                               | \$ 73,201,887        | 42,980,950        | 53,008,243        | 49,715,279        | 50,296,817        |                   |                   |                   |                   |                   |                   |                    |                       |
| Available for Draw                       | 2,545,881            | 7,124,047         | 12,098,028        | 15,550,195        | 19,950,986        |                   |                   |                   |                   |                   |                   |                    |                       |
| Rate Stabilization                       | 2,350,000            | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         |                   |                   |                   |                   |                   |                   |                    |                       |
| Compliance                               | 363,146              | 358,439           | 358,439           | 350,164           | 350,164           |                   |                   |                   |                   |                   |                   |                    |                       |
| Total                                    | \$ 78,460,914        | 55,313,435        | 70,314,709        | 70,465,638        | 75,447,968        | -                 | -                 | -                 | -                 | -                 | -                 | -                  |                       |

\*Source of PAYGO for capital projects

**The Pittsburgh Water and Sewer Authority**  
 2021 & 2022 Financial Status Update (Cash Basis)  
 As of June 30, 2022



|   | <u>FY 2021</u>            |                             |                   | <u>FY 2022</u>        |                       |                       | <u>FY 2021</u>        | <u>FY 2022</u> | <u>FY 2022</u>        | <u>2022 Difference</u> |
|---|---------------------------|-----------------------------|-------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------|-----------------------|------------------------|
|   | <u>Prior Year-to-Date</u> | <u>Current Year-to-Date</u> | <u>YTD Growth</u> | <u>Actual</u>         | <u>Forecast</u>       | <u>Budget</u>         | <u>Actual</u>         | <u>Budget</u>  | <u>Actual- Budget</u> |                        |
| <b>Receipts</b>                                       |                           |                             |                   |                       |                       |                       |                       |                |                       |                        |
| <u>User Charge &amp; Wholesale Receipts</u>           |                           |                             |                   |                       |                       |                       |                       |                |                       |                        |
| Water Collections                                     | \$ 48,667,644             | \$ 52,232,235               | 7.3%              | \$ 106,885,626        | \$ 112,076,471        | \$ 113,424,315        | \$ (1,347,844)        |                |                       |                        |
| Wastewater Collections                                | 29,258,453                | 28,064,240                  | -4.1%             | 63,761,376            | 57,889,297            | 56,528,196            | 1,361,101             |                |                       |                        |
| DSIC - Water Collections                              | 1,661,939                 | 2,556,280                   | 53.8%             | 4,520,928             | 5,548,492             | 5,671,216             | (122,724)             |                |                       |                        |
| DSIC - Wastewater Collections                         | 973,797                   | 1,404,636                   | 44.2%             | 2,680,983             | 2,895,889             | 2,826,410             | 69,479                |                |                       |                        |
| Stormwater  | -                         | 5,281,477                   | n.a.              | -                     | 14,863,766            | 17,127,744            | (2,263,978)           |                |                       |                        |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -                     |                |                       |                        |
| <i>Subtotal: User Charge &amp; Wholesale Receipts</i> | \$ 80,561,833             | \$ 89,538,868               | 11.1%             | \$ 177,848,912        | \$ 193,273,915        | \$ 195,577,881        | \$ (2,303,966)        |                |                       |                        |
| <u>Other Operating Receipts</u>                       |                           |                             |                   |                       |                       |                       |                       |                |                       |                        |
| Other Misc. and Fee Operating Receipts                | \$ 4,300,776              | \$ 4,415,000                | 2.7%              | \$ 9,672,503          | \$ 5,593,107          | \$ 2,683,488          | \$ 2,909,619          |                |                       |                        |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -                     |                |                       |                        |
| <i>Subtotal: Other Operating Receipts</i>             | \$ 4,300,776              | \$ 4,415,000                | 2.7%              | \$ 9,672,503          | \$ 5,593,107          | \$ 2,683,488          | \$ 2,909,619          |                |                       |                        |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -                     |                |                       |                        |
| <b>Total: Receipts</b>                                | <b>\$ 84,862,610</b>      | <b>\$ 93,953,868</b>        | <b>10.7%</b>      | <b>\$ 187,521,415</b> | <b>\$ 198,867,022</b> | <b>\$ 198,261,369</b> | <b>\$ 605,653</b>     |                |                       |                        |
| <b>Revenue Requirements</b>                           |                           |                             |                   |                       |                       |                       |                       |                |                       |                        |
| <u>Operating Expenses</u>                             |                           |                             |                   |                       |                       |                       |                       |                |                       |                        |
| Chief Executive Office                                | 888,236                   | 654,468                     | -26.3%            | 2,990,200             | 2,462,564             | 2,464,652             | (2,088)               |                |                       |                        |
| Customer Service                                      | 4,140,975                 | 4,373,141                   | 5.6%              | 8,223,448             | 8,593,472             | 8,809,447             | (215,975)             |                |                       |                        |
| Management Information Systems                        | 6,795,256                 | 5,237,888                   | -22.9%            | 8,931,474             | 4,114,247             | 4,780,822             | (666,575)             |                |                       |                        |
| Finance   | 4,758,243                 | 5,646,303                   | 18.7%             | 13,576,612            | 10,308,916            | 10,851,491            | (542,575)             |                |                       |                        |
| Human Resources                                       | 412,856                   | 735,091                     | 78.1%             | 977,857               | 1,631,698             | 1,816,321             | (184,623)             |                |                       |                        |
| Legal   | 2,997,616                 | 1,633,137                   | -45.5%            | 6,205,968             | 3,679,551             | 3,884,108             | (204,558)             |                |                       |                        |
| Safety & Security                                     | -                         | 410,495                     | n.a.              | -                     | 1,065,967             | 1,121,999             | (56,032)              |                |                       |                        |
| Warehouse   | 229,526                   | 235,725                     | 2.7%              | 492,608               | 463,108               | 538,288               | (75,180)              |                |                       |                        |
| Public Affairs  | 482,715                   | 658,502                     | 36.4%             | 974,277               | 1,271,787             | 1,271,818             | (31)                  |                |                       |                        |
| Engineering & Construction                            | 15,027,274                | 17,221,643                  | 14.6%             | 32,345,286            | 30,129,275            | 27,579,284            | 2,549,992             |                |                       |                        |
| Environmental Compliance                              | 1,367,485                 | 1,874,120                   | 37.0%             | 2,627,894             | 3,985,323             | 4,010,328             | (25,005)              |                |                       |                        |
| General Administration                                | 5,542                     | -                           | -100.0%           | 7,034                 | -                     | -                     | -                     |                |                       |                        |
| Laboratory  | 877,308                   | 1,119,592                   | 27.6%             | 1,724,973             | 3,137,570             | 4,068,444             | (930,875)             |                |                       |                        |
| Water Treatment Plant                                 | 8,939,885                 | 9,623,287                   | 7.6%              | 18,721,895            | 19,529,011            | 19,354,813            | 174,198               |                |                       |                        |
| Water Operations                                      | 6,411,067                 | 7,544,133                   | 17.7%             | 13,493,185            | 15,013,032            | 15,522,618            | (509,586)             |                |                       |                        |
| Sewer Operations                                      | 1,388,982                 | 1,194,026                   | -14.0%            | 3,262,374             | 3,017,577             | 3,503,492             | (485,915)             |                |                       |                        |
| DSIC - Water  | 1,661,939                 | 2,556,280                   | 53.8%             | 4,520,928             | 5,548,492             | 5,671,216             | (122,724)             |                |                       |                        |
| DSIC - Wastewater                                     | 973,797                   | 1,404,636                   | 44.2%             | 2,680,983             | 2,895,889             | 2,826,410             | 69,479                |                |                       |                        |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -                     |                |                       |                        |
| Direct Operating Expenses                             | \$ 57,358,701             | \$ 62,122,466               | 8.3%              | \$ 121,756,996        | \$ 116,847,478        | \$ 118,075,552        | \$ (1,228,074)        |                |                       |                        |
| Net ALCOSAN Expenses                                  | (945,046)                 | 560,918                     | -159.4%           | (5,405,693)           | (575,794)             | 1,997,954             | (2,573,748)           |                |                       |                        |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -                     |                |                       |                        |
| In-Direct Operating Expenses                          | \$ (945,046)              | \$ 560,918                  | -159.4%           | \$ (5,405,693)        | \$ (575,794)          | \$ 1,997,954          | \$ (2,573,748)        |                |                       |                        |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -                     |                |                       |                        |
| <i>Subtotal: Operating Expenses</i>                   | \$ 56,413,655             | \$ 62,683,384               | 11.1%             | \$ 116,351,303        | \$ 116,271,684        | \$ 120,073,506        | \$ (3,801,822)        |                |                       |                        |
| <u>Debt Service</u>                                   |                           |                             |                   |                       |                       |                       |                       |                |                       |                        |
| <i>Subtotal: Debt Service</i>                         | \$ 31,547,947             | \$ 35,273,272               | 11.8%             | \$ 64,338,574         | \$ 72,107,685         | \$ 73,002,260         | \$ (894,575)          |                |                       |                        |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -                     |                |                       |                        |
| <b>Total: Revenue Requirements</b>                    | <b>\$ 87,961,603</b>      | <b>\$ 97,956,656</b>        | <b>11.4%</b>      | <b>\$ 180,689,877</b> | <b>\$ 188,379,369</b> | <b>\$ 193,075,766</b> | <b>\$ (4,696,397)</b> |                |                       |                        |
| <b>Revenue Surplus / (Deficit)</b>                    | <b>\$ (3,098,993)</b>     | <b>\$ (4,002,788)</b>       |                   | <b>\$ 6,831,538</b>   | <b>\$ 10,487,654</b>  | <b>\$ 5,185,603</b>   | <b>\$ 5,302,050</b>   |                |                       |                        |

**Financial Metrics\***

|  | <u>FY 2021</u> | <u>FY 2022</u>  | <u>FY 2022</u> |
|--|----------------|-----------------|----------------|
|  | <u>Actual</u>  | <u>Forecast</u> | <u>Budget</u>  |
| <b>Senior Debt Service Coverage</b>                                | <b>1.52</b>    | <b>1.63</b>     | <b>1.55</b>    |
| <i>Minimum Requirement</i>   | 1.25           | 1.25            | 1.25           |
| <b>Total Debt Service Coverage</b>                                 | <b>1.27</b>    | <b>1.28</b>     | <b>1.21</b>    |
| <i>Minimum Requirement</i>   | 1.10           | 1.10            | 1.10           |
| <b>Unrestricted Days Cash without ALCOSAN Expense</b>              | <b>207.39</b>  | <b>262.27</b>   | <b>243.15</b>  |
| <b>Unrestricted Days Cash with ALCOSAN Expense</b>                 | <b>217.03</b>  | <b>263.57</b>   | <b>239.10</b>  |
| <b>Unrestricted Days Cash including the Operating Reserve Fund</b> | <b>276.76</b>  | <b>323.35</b>   | <b>296.99</b>  |

\*Cash basis estimate. Final audited coverage ratio could be different due to the use of the accrual basis accounting method.

| 2022                                     |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
|--|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|-----------------------|
| The Pittsburgh Water and Sewer Authority |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| 2022 Cash Flow (Cash Basis)              |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| As of June 30, 2022                      |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Receipts                                 | Actual               |                   |                   |                   |                   |                   | Forecast          |                   |                   |                   |                   |                    | Total                 |
|  | January              | February          | March             | April             | May               | June              | July              | August            | September         | October           | November          | December           |                       |
| Water                                    | \$ 8,029,539         | 7,338,408         | 10,127,205        | 8,326,400         | 8,999,160         | 9,411,523         | 10,396,031        | 10,495,548        | 10,835,794        | 9,956,235         | 9,596,753         | 8,563,875          | \$ 112,076,471        |
| Wastewater Conveyance                    | 4,690,481            | 4,246,058         | 5,292,847         | 4,316,474         | 4,623,691         | 4,894,689         | 5,181,154         | 5,230,751         | 5,400,323         | 4,961,970         | 4,782,812         | 4,268,048          | 57,889,297            |
| DSIC - Water*                            | 386,313              | 354,814           | 494,231           | 410,313           | 439,068           | 471,541           | 519,802           | 524,777           | 541,790           | 497,812           | 479,838           | 428,194            | 5,548,492             |
| DSIC - Wastewater*                       | 233,725              | 212,833           | 263,644           | 217,967           | 231,208           | 245,260           | 259,058           | 261,538           | 270,016           | 248,098           | 239,141           | 213,402            | 2,895,889             |
| Stormwater                               | -                    | 320,787           | 1,232,737         | 1,106,418         | 1,255,312         | 1,366,223         | 1,660,771         | 1,675,799         | 1,727,178         | 1,594,360         | 1,540,076         | 1,384,105          | 14,863,766            |
| Fees                                     | 1,335,368            | 1,457,015         | 286,737           | 80,259            | 67,137            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881             | 3,841,683             |
| Misc. Other                              | 47,922               | 485,987           | 23,079            | 342,682           | 92,463            | 108,470           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470            | 1,751,424             |
| <b>Total Receipts</b>                    | <b>\$ 14,723,348</b> | <b>14,415,902</b> | <b>17,720,479</b> | <b>14,800,513</b> | <b>15,708,039</b> | <b>16,585,587</b> | <b>18,213,168</b> | <b>18,384,764</b> | <b>18,971,452</b> | <b>17,454,826</b> | <b>16,834,970</b> | <b>15,053,975</b>  | <b>\$ 198,867,022</b> |
| <b>Cash Disbursements</b>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| <u>Operating Expenses</u>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Chief Executive Office                   | \$ 108,542           | 80,892            | 111,213           | 100,583           | 111,431           | 141,807           | 122,993           | 93,635            | 1,304,907         | 97,790            | 96,018            | 92,753             | \$ 2,462,564          |
| Customer Service                         | 663,865              | 1,073,913         | 673,854           | 617,836           | 586,059           | 757,614           | 687,161           | 650,035           | 716,811           | 689,459           | 833,283           | 643,583            | 8,593,437             |
| Management Information Systems           | 1,899,797            | 506,327           | 356,822           | 440,614           | 277,349           | 1,756,979         | 368,518           | 1,308,487         | 378,061           | 807,239           | 805,888           | (4,791,835)        | 4,114,242             |
| Finance                                  | 1,920,041            | 291,595           | 606,866           | 383,562           | 948,662           | 1,495,576         | 837,273           | 852,482           | 802,567           | 807,273           | 1,596,509         | (233,491)          | 10,308,916            |
| Human Resources                          | 99,316               | 116,938           | 97,795            | 126,748           | 135,378           | 158,916           | 132,887           | 176,964           | 122,682           | 167,231           | 167,892           | 128,950            | 1,631,698             |
| Legal                                    | 221,369              | 263,198           | 260,032           | 485,598           | 219,995           | 182,946           | 333,587           | 322,602           | 323,324           | 437,121           | 296,783           | 296,783            | 3,679,551             |
| Safety & Security                        | 15,779               | 94,855            | 82,683            | 71,313            | 61,616            | 84,249            | 70,901            | 321,843           | 62,632            | 66,689            | 86,311            | 47,096             | 1,065,967             |
| Warehouse                                | 33,773               | 33,574            | 44,966            | 38,315            | 32,808            | 52,290            | 42,173            | 42,151            | 40,807            | 41,278            | 56,525            | 4,448              | 463,108               |
| Public Affairs                           | 169,003              | 76,513            | 84,101            | 89,229            | 102,831           | 136,824           | 110,026           | 93,692            | 86,825            | 98,779            | 141,300           | 82,663             | 1,271,787             |
| Engineering & Construction               | 1,698,521            | 1,909,532         | 1,913,240         | 2,063,981         | 4,013,084         | 5,623,284         | 4,335,411         | 4,104,345         | 3,784,434         | 3,589,691         | 4,973,569         | (7,879,817)        | 30,129,275            |
| Environmental Compliance                 | 97,864               | 397,896           | 192,917           | 528,407           | 338,320           | 318,716           | 306,726           | 302,077           | 352,172           | 325,332           | 345,875           | 479,020            | 3,985,323             |
| Laboratory                               | 160,300              | 237,715           | 270,658           | 166,597           | 120,182           | 164,140           | 322,293           | 332,772           | 316,890           | 349,625           | 380,634           | 315,764            | 3,137,570             |
| Water Treatment Plant                    | 1,433,988            | 1,558,801         | 1,696,234         | 1,703,413         | 1,464,960         | 1,765,891         | 1,509,921         | 1,541,589         | 1,473,276         | 1,499,193         | 2,234,906         | 1,646,839          | 19,529,011            |
| Water Operations                         | 1,124,799            | 1,333,927         | 1,348,754         | 1,173,665         | 1,115,831         | 1,447,156         | 1,225,059         | 1,226,762         | 1,221,538         | 1,219,657         | 1,592,067         | 983,816            | 15,013,032            |
| Sewer Operations                         | 240,317              | 172,606           | 207,956           | 196,714           | 182,366           | 194,066           | 368,323           | 279,544           | 294,517           | 279,526           | 388,741           | 212,900            | 3,017,577             |
| Net ALCOSAN Expense                      | 2,924,157            | (533,942)         | (1,254,437)       | 1,388,136         | (1,328,058)       | (634,938)         | 314,501           | (1,352,227)       | (786,788)         | 616,632           | (734,773)         | 805,941            | (575,794)             |
| DSIC - Water*                            | 386,313              | 354,814           | 494,231           | 410,313           | 439,068           | 471,541           | 519,802           | 524,777           | 541,790           | 497,812           | 479,838           | 428,194            | 5,548,492             |
| DSIC - Wastewater*                       | 233,725              | 212,833           | 263,644           | 217,967           | 231,208           | 245,260           | 259,058           | 261,538           | 270,016           | 248,098           | 239,141           | 213,402            | 2,895,889             |
| Sub Total                                | \$ 13,431,468        | 8,181,985         | 7,451,531         | 10,202,991        | 9,053,092         | 14,362,317        | 11,866,610        | 11,093,463        | 11,305,741        | 11,724,629        | 14,120,845        | (6,522,989)        | \$ 116,271,684        |
| <u>Debt Service</u>                      |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Bond Debt Service                        | \$ 278,811           | 30,175,043        | 486,594           | 250,629           | 306,772           | 307,892           | 255,000           | 30,254,780        | 255,000           | 255,000           | 255,000           | 255,000            | \$ 63,335,520         |
| PennVest Debt Service                    | 408,312              | 411,017           | 666,890           | 665,718           | 645,557           | 670,037           | 897,983           | 897,983           | 877,167           | 877,167           | 877,167           | 877,167            | 8,772,165             |
| Sub Total                                | \$ 687,122           | 30,586,060        | 1,153,484         | 916,348           | 952,329           | 977,929           | 1,152,983         | 31,152,763        | 1,132,167         | 1,132,167         | 1,132,167         | 1,132,167          | \$ 72,107,685         |
| <b>Total Disbursements</b>               | <b>\$ 14,118,590</b> | <b>38,768,045</b> | <b>8,605,015</b>  | <b>11,119,339</b> | <b>10,005,421</b> | <b>15,340,246</b> | <b>13,019,593</b> | <b>42,246,226</b> | <b>12,437,907</b> | <b>12,856,796</b> | <b>15,253,011</b> | <b>(5,390,821)</b> | <b>\$ 188,379,369</b> |
| Surplus / Deficit                        | 604,757              | (24,352,143)      | 9,115,464         | 3,681,174         | 5,702,618         | 1,245,342         | 5,193,575         | (23,861,461)      | 6,533,545         | 4,598,030         | 1,581,958         | 20,444,796         |                       |
| <b>Annual Surplus/Deficit</b>            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    | <b>\$ 10,487,654</b>  |
| <b>Capital Spending</b>                  |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| <u>Actual</u>                            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Capital Spending (Non PENNVEST)          | \$ 2,526,765         | 3,921,965         | 5,275,788         | 3,724,731         | 3,185,342         | 4,964,398         | 5,789,221         | 6,078,682         | 6,382,616         | 6,701,747         | 7,036,834         | 9,499,726          | \$ 65,087,813         |
| PennVEST Spending                        | 2,029,508            | 561,752           | 2,794,184         | 737,443           | 1,659,754         | 3,495,421         | 1,789,218         | 2,147,061         | 2,576,474         | 2,602,238         | 2,628,261         | 2,759,674          | 25,780,989            |
| Total                                    | \$ 4,556,273         | 4,483,718         | 8,069,972         | 4,462,174         | 4,845,096         | 8,459,819         | 7,578,439         | 8,225,743         | 8,959,090         | 9,303,985         | 9,665,095         | 12,259,400         | \$ 90,868,802         |
| <b>Capital Line of Credit</b>            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| <u>Actual</u>                            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Capital Line of Credit Limit             |                      |                   |                   |                   |                   | 150,000,000       |                   |                   |                   |                   |                   |                    |                       |
| Capital Draws                            |                      |                   |                   |                   |                   | 95,791,576        |                   |                   |                   |                   |                   |                    |                       |
| Outstanding Capital Draws                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Remaining Capital Credit                 | \$ -                 | -                 | -                 | -                 | -                 | 54,208,424        | -                 | -                 | -                 | -                 | -                 | -                  |                       |
| <b>Bank Cash Balance</b>                 |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| <u>Actual</u>                            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Unreserved                               | \$ 73,201,887        | 42,980,950        | 53,008,243        | 49,715,279        | 50,296,817        | 51,101,245        |                   |                   |                   |                   |                   |                    |                       |
| Available for Draw                       | 2,545,881            | 7,124,047         | 12,098,028        | 15,550,195        | 19,950,986        | 25,709,827        |                   |                   |                   |                   |                   |                    |                       |
| Rate Stabilization                       | 2,350,000            | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         |                   |                   |                   |                   |                   |                    |                       |
| Compliance                               | 363,146              | 358,439           | 358,439           | 350,164           | 350,164           | 350,164           |                   |                   |                   |                   |                   |                    |                       |
| Total                                    | \$ 78,460,914        | 55,313,435        | 70,314,709        | 70,465,638        | 75,447,968        | 82,011,236        | -                 | -                 | -                 | -                 | -                 | -                  |                       |

\*Source of PAYGO for capital projects



The Pittsburgh Water and Sewer Authority  
2021 & 2022 Financial Status Update (Cash Basis)  
As of July 31, 2022



|   | <u>FY 2021</u>            |                             |                   | <u>FY 2022</u>        |                       |                       | <u>FY 2021</u> | <u>FY 2022</u>  | <u>FY 2022</u> | <u>2022 Difference</u> |
|---|---------------------------|-----------------------------|-------------------|-----------------------|-----------------------|-----------------------|----------------|-----------------|----------------|------------------------|
|   | <u>Prior Year-to-Date</u> | <u>Current Year-to-Date</u> | <u>YTD Growth</u> | <u>Actual</u>         | <u>Forecast</u>       | <u>Budget</u>         | <u>Actual</u>  | <u>Forecast</u> | <u>Budget</u>  | <u>Actual- Budget</u>  |
| <b>Receipts</b>                                       |                           |                             |                   |                       |                       |                       |                |                 |                |                        |
| <u>User Charge &amp; Wholesale Receipts</u>           |                           |                             |                   |                       |                       |                       |                |                 |                |                        |
| Water Collections                                     | \$ 56,643,130             | \$ 61,306,912               | 8.2%              | \$ 106,885,626        | \$ 110,755,116        | \$ 113,424,315        | \$ -           | \$ -            | \$ -           | \$ (2,669,199)         |
| Wastewater Collections                                | 34,057,746                | 32,582,119                  | -4.3%             | 63,761,376            | 57,226,021            | 56,528,196            | -              | -               | -              | 697,825                |
| DSIC - Water Collections                              | 2,054,283                 | 3,020,421                   | 47.0%             | 4,520,928             | 5,492,832             | 5,671,216             | -              | -               | -              | (178,384)              |
| DSIC - Wastewater Collections                         | 1,209,200                 | 1,653,898                   | 36.8%             | 2,680,983             | 2,886,093             | 2,826,410             | -              | -               | -              | 59,683                 |
| Stormwater  | -                         | 6,437,256                   | n.a.              | -                     | 14,358,773            | 17,127,744            | -              | -               | -              | (2,768,971)            |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -              | -               | -              | -                      |
| <i>Subtotal: User Charge &amp; Wholesale Receipts</i> | \$ 93,964,358             | \$ 105,000,605              | 11.7%             | \$ 177,848,912        | \$ 190,718,835        | \$ 195,577,881        | \$ -           | \$ -            | \$ -           | \$ (4,859,046)         |
| <u>Other Operating Receipts</u>                       |                           |                             |                   |                       |                       |                       |                |                 |                |                        |
| Other Misc. and Fee Operating Receipts                | \$ 4,597,644              | \$ 4,687,135                | 1.9%              | \$ 9,672,503          | \$ 5,668,891          | \$ 2,683,488          | \$ -           | \$ -            | \$ -           | \$ 2,985,403           |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -              | -               | -              | -                      |
| <i>Subtotal: Other Operating Receipts</i>             | \$ 4,597,644              | \$ 4,687,135                | 1.9%              | \$ 9,672,503          | \$ 5,668,891          | \$ 2,683,488          | \$ -           | \$ -            | \$ -           | \$ 2,985,403           |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -              | -               | -              | -                      |
| <b>Total: Receipts</b>                                | <b>\$ 98,562,002</b>      | <b>\$ 109,687,740</b>       | <b>11.3%</b>      | <b>\$ 187,521,415</b> | <b>\$ 196,387,727</b> | <b>\$ 198,261,369</b> | <b>\$ -</b>    | <b>\$ -</b>     | <b>\$ -</b>    | <b>\$ (1,873,642)</b>  |
| <b>Revenue Requirements</b>                           |                           |                             |                   |                       |                       |                       |                |                 |                |                        |
| <u>Operating Expenses</u>                             |                           |                             |                   |                       |                       |                       |                |                 |                |                        |
| Chief Executive Office                                | 1,078,782                 | 750,426                     | -30.4%            | 2,990,200             | 2,435,529             | 2,464,652             | -              | -               | -              | (29,124)               |
| Customer Service                                      | 4,714,587                 | 5,018,927                   | 6.5%              | 8,223,448             | 8,552,098             | 8,809,447             | -              | -               | -              | (257,349)              |
| Management Information Systems                        | 7,032,162                 | 5,717,624                   | -18.7%            | 8,931,474             | 4,225,464             | 4,780,822             | -              | -               | -              | (555,357)              |
| Finance   | 5,206,270                 | 6,620,761                   | 27.2%             | 13,576,612            | 10,446,102            | 10,851,491            | -              | -               | -              | (405,388)              |
| Human Resources                                       | 475,408                   | 856,026                     | 80.1%             | 977,857               | 1,619,747             | 1,816,321             | -              | -               | -              | (196,575)              |
| Legal   | 3,970,696                 | 1,933,905                   | -51.3%            | 6,205,968             | 3,646,732             | 3,884,108             | -              | -               | -              | (237,376)              |
| Safety & Security                                     | -                         | 444,351                     | n.a.              | -                     | 1,028,922             | 1,121,999             | -              | -               | -              | (93,077)               |
| Warehouse   | 274,648                   | 267,954                     | -2.4%             | 492,608               | 453,164               | 538,288               | -              | -               | -              | (85,124)               |
| Public Affairs  | 547,220                   | 725,060                     | 32.5%             | 974,277               | 1,228,319             | 1,271,818             | -              | -               | -              | (43,498)               |
| Engineering & Construction                            | 16,212,351                | 19,453,691                  | 20.0%             | 32,345,286            | 28,025,914            | 27,579,284            | -              | -               | -              | 446,630                |
| Environmental Compliance                              | 1,524,092                 | 2,263,413                   | 48.5%             | 2,627,894             | 4,067,889             | 4,010,328             | -              | -               | -              | 57,561                 |
| General Administration                                | 6,732                     | -                           | -100.0%           | 7,034                 | -                     | -                     | -              | -               | -              | -                      |
| Laboratory  | 961,278                   | 1,293,480                   | 34.6%             | 1,724,973             | 2,989,166             | 4,068,444             | -              | -               | -              | (1,079,279)            |
| Water Treatment Plant                                 | 10,332,644                | 11,208,776                  | 8.5%              | 18,721,895            | 19,604,578            | 19,354,813            | -              | -               | -              | 249,765                |
| Water Operations                                      | 7,427,088                 | 8,830,821                   | 18.9%             | 13,493,185            | 15,074,661            | 15,522,618            | -              | -               | -              | (447,957)              |
| Sewer Operations                                      | 1,736,306                 | 1,497,371                   | -13.8%            | 3,262,374             | 2,952,599             | 3,503,492             | -              | -               | -              | (550,893)              |
| DSIC - Water  | 2,054,283                 | 3,020,421                   | 47.0%             | 4,520,928             | 5,492,832             | 5,671,216             | -              | -               | -              | (178,384)              |
| DSIC - Wastewater                                     | 1,209,200                 | 1,653,898                   | 36.8%             | 2,680,983             | 2,886,093             | 2,826,410             | -              | -               | -              | 59,683                 |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -              | -               | -              | -                      |
| <i>Direct Operating Expenses</i>                      | \$ 64,763,746             | \$ 71,556,906               | 10.5%             | \$ 121,756,996        | \$ 114,729,809        | \$ 118,075,552        | \$ -           | \$ -            | \$ -           | \$ (3,345,742)         |
| Net ALCOSAN Expenses                                  | 328,180                   | 1,887,443                   | 475.1%            | (5,405,693)           | 436,229               | 1,997,954             | -              | -               | -              | (1,561,725)            |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -              | -               | -              | -                      |
| <i>In-Direct Operating Expenses</i>                   | \$ 328,180                | \$ 1,887,443                | 475.1%            | \$ (5,405,693)        | \$ 436,229            | \$ 1,997,954          | \$ -           | \$ -            | \$ -           | \$ (1,561,725)         |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -              | -               | -              | -                      |
| <i>Subtotal: Operating Expenses</i>                   | \$ 65,091,926             | \$ 73,444,349               | 12.8%             | \$ 116,351,303        | \$ 115,166,038        | \$ 120,073,506        | \$ -           | \$ -            | \$ -           | \$ (4,907,467)         |
| <u>Debt Service</u>                                   |                           |                             |                   |                       |                       |                       |                |                 |                |                        |
| <i>Subtotal: Debt Service</i>                         | \$ 32,109,292             | \$ 36,186,933               | 12.7%             | \$ 64,338,574         | \$ 71,140,323         | \$ 73,002,260         | \$ -           | \$ -            | \$ -           | \$ (1,861,937)         |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -              | -               | -              | -                      |
| <b>Total: Revenue Requirements</b>                    | <b>\$ 97,201,218</b>      | <b>\$ 109,631,283</b>       | <b>12.8%</b>      | <b>\$ 180,689,877</b> | <b>\$ 186,306,362</b> | <b>\$ 193,075,766</b> | <b>\$ -</b>    | <b>\$ -</b>     | <b>\$ -</b>    | <b>\$ (6,769,404)</b>  |
| <b>Revenue Surplus / (Deficit)</b>                    | <b>\$ 1,360,784</b>       | <b>\$ 56,458</b>            |                   | <b>\$ 6,831,538</b>   | <b>\$ 10,081,365</b>  | <b>\$ 5,185,603</b>   | <b>\$ -</b>    | <b>\$ -</b>     | <b>\$ -</b>    | <b>\$ 4,895,762</b>    |

| <u>Financial Metrics*</u>  | <u>FY 2021</u> | <u>FY 2022</u>  | <u>FY 2022</u> |
|--|----------------|-----------------|----------------|
|  | <u>Actual</u>  | <u>Forecast</u> | <u>Budget</u>  |
| <b>Senior Debt Service Coverage</b>                                | <b>1.52</b>    | <b>1.61</b>     | <b>1.55</b>    |
| <i>Minimum Requirement</i>   | <i>1.25</i>    | <i>1.25</i>     | <i>1.25</i>    |
| <b>Total Debt Service Coverage</b>                                 | <b>1.27</b>    | <b>1.28</b>     | <b>1.21</b>    |
| <i>Minimum Requirement</i>   | <i>1.10</i>    | <i>1.10</i>     | <i>1.10</i>    |
| <b>Unrestricted Days Cash without ALCOSAN Expense</b>              | <b>207.39</b>  | <b>265.82</b>   | <b>243.15</b>  |
| <b>Unrestricted Days Cash with ALCOSAN Expense</b>                 | <b>217.03</b>  | <b>264.81</b>   | <b>239.10</b>  |
| <b>Unrestricted Days Cash including the Operating Reserve Fund</b> | <b>276.76</b>  | <b>325.17</b>   | <b>296.99</b>  |

\*Cash basis estimate. Final audited coverage ratio could be different due to the use of the accrual basis accounting method.

| 2022                                     |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
|--|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|-----------------------|
| The Pittsburgh Water and Sewer Authority |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| 2022 Cash Flow (Cash Basis)              |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| As of July 31, 2022                      |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Receipts                                 | Actual               |                   |                   |                   |                   |                   |                   | Forecast          |                   |                   |                   |                    | Total                 |
|  | January              | February          | March             | April             | May               | June              | July              | August            | September         | October           | November          | December           |                       |
| Water                                    | \$ 8,029,539         | 7,338,408         | 10,127,205        | 8,326,400         | 8,999,160         | 9,411,523         | 9,074,676         | 10,495,548        | 10,835,794        | 9,956,235         | 9,596,753         | 8,563,875          | \$ 110,755,116        |
| Wastewater Conveyance                    | 4,690,481            | 4,246,058         | 5,292,847         | 4,316,474         | 4,623,691         | 4,894,689         | 4,517,879         | 5,230,751         | 5,400,323         | 4,961,970         | 4,782,812         | 4,268,048          | 57,226,021            |
| DSIC - Water*                            | 386,313              | 354,814           | 494,231           | 410,313           | 439,068           | 471,541           | 464,142           | 524,777           | 541,790           | 497,812           | 479,838           | 428,194            | 5,492,832             |
| DSIC - Wastewater*                       | 233,725              | 212,833           | 263,644           | 217,967           | 231,208           | 245,260           | 249,261           | 261,538           | 270,016           | 248,098           | 239,141           | 213,402            | 2,886,093             |
| Stormwater                               | -                    | 320,787           | 1,232,737         | 1,106,418         | 1,255,312         | 1,366,223         | 1,155,779         | 1,675,799         | 1,727,178         | 1,594,360         | 1,540,076         | 1,384,105          | 14,358,773            |
| Fees                                     | 1,335,368            | 1,457,015         | 286,737           | 80,259            | 67,137            | 87,881            | 77,530            | 87,881            | 87,881            | 87,881            | 87,881            | 87,881             | 3,831,332             |
| Misc. Other                              | 47,922               | 485,987           | 23,079            | 342,682           | 92,463            | 108,470           | 194,606           | 108,470           | 108,470           | 108,470           | 108,470           | 108,470            | 1,837,560             |
| <b>Total Receipts</b>                    | <b>\$ 14,723,348</b> | <b>14,415,902</b> | <b>17,720,479</b> | <b>14,800,513</b> | <b>15,708,039</b> | <b>16,585,587</b> | <b>15,733,872</b> | <b>18,384,764</b> | <b>18,971,452</b> | <b>17,454,826</b> | <b>16,834,970</b> | <b>15,053,975</b>  | <b>\$ 196,387,727</b> |
| <b>Cash Disbursements</b>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| <b>Operating Expenses</b>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Chief Executive Office                   | \$ 108,542           | 80,892            | 111,213           | 100,583           | 111,431           | 141,807           | 95,958            | 93,635            | 1,304,907         | 97,790            | 96,018            | 92,753             | \$ 2,435,529          |
| Customer Service                         | 663,865              | 1,073,913         | 673,854           | 617,836           | 586,059           | 757,614           | 645,787           | 650,035           | 716,811           | 689,459           | 833,283           | 643,583            | 8,552,098             |
| Management Information Systems           | 1,899,797            | 506,327           | 356,822           | 440,614           | 277,349           | 1,756,979         | 479,735           | 1,308,487         | 378,061           | 807,239           | 805,888           | (4,791,835)        | 4,225,464             |
| Finance                                  | 1,920,041            | 291,595           | 606,866           | 383,562           | 948,662           | 1,495,576         | 974,459           | 852,482           | 802,567           | 807,273           | 1,596,509         | (233,491)          | 10,446,102            |
| Human Resources                          | 99,316               | 116,938           | 97,795            | 126,748           | 135,378           | 158,916           | 120,935           | 176,964           | 122,682           | 167,231           | 167,892           | 128,950            | 1,619,747             |
| Legal                                    | 221,369              | 263,198           | 260,032           | 485,598           | 219,995           | 182,946           | 300,769           | 332,997           | 322,602           | 323,324           | 437,121           | 296,783            | 3,646,732             |
| Safety & Security                        | 15,779               | 94,855            | 82,683            | 71,313            | 61,616            | 84,249            | 33,855            | 321,843           | 62,632            | 66,689            | 86,311            | 47,096             | 1,028,922             |
| Warehouse                                | 33,773               | 33,574            | 44,966            | 38,315            | 32,808            | 52,290            | 32,229            | 42,151            | 40,807            | 41,278            | 56,525            | 4,448              | 453,164               |
| Public Affairs                           | 169,003              | 76,513            | 84,101            | 89,229            | 102,831           | 136,824           | 66,558            | 93,692            | 86,825            | 98,779            | 141,300           | 82,663             | 1,228,319             |
| Engineering & Construction               | 1,698,521            | 1,909,532         | 1,913,240         | 2,063,981         | 4,013,084         | 5,623,284         | 2,232,049         | 4,104,345         | 3,784,434         | 3,589,691         | 4,973,569         | (7,879,817)        | 28,025,914            |
| Environmental Compliance                 | 97,864               | 397,896           | 192,917           | 528,407           | 338,320           | 318,716           | 389,293           | 302,077           | 352,172           | 325,332           | 345,875           | 479,020            | 4,067,889             |
| Laboratory                               | 160,300              | 237,715           | 270,658           | 166,597           | 120,182           | 164,140           | 173,889           | 332,772           | 316,890           | 349,625           | 380,634           | 315,764            | 2,989,166             |
| Water Treatment Plant                    | 1,433,988            | 1,558,801         | 1,696,234         | 1,703,413         | 1,464,960         | 1,765,891         | 1,585,489         | 1,541,589         | 1,473,276         | 1,499,193         | 2,234,906         | 1,646,839          | 19,604,578            |
| Water Operations                         | 1,124,799            | 1,333,927         | 1,348,754         | 1,173,665         | 1,115,831         | 1,447,156         | 1,286,688         | 1,226,762         | 1,221,538         | 1,219,657         | 1,592,067         | 983,816            | 15,074,661            |
| Sewer Operations                         | 240,317              | 172,606           | 207,956           | 196,714           | 182,366           | 194,066           | 303,346           | 279,544           | 294,517           | 279,526           | 388,741           | 212,900            | 2,952,599             |
| Net ALCOSAN Expense                      | 2,924,157            | (533,942)         | (1,254,437)       | 1,388,136         | (1,328,058)       | (634,938)         | 1,326,525         | (1,352,227)       | (786,788)         | 616,632           | (734,773)         | 805,941            | 436,229               |
| DSIC - Water*                            | 386,313              | 354,814           | 494,231           | 410,313           | 439,068           | 471,541           | 464,142           | 524,777           | 541,790           | 497,812           | 479,838           | 428,194            | 5,492,832             |
| DSIC - Wastewater*                       | 233,725              | 212,833           | 263,644           | 217,967           | 231,208           | 245,260           | 249,261           | 261,538           | 270,016           | 248,098           | 239,141           | 213,402            | 2,886,093             |
| Sub Total                                | \$ 13,431,468        | 8,181,985         | 7,451,531         | 10,202,991        | 9,053,092         | 14,362,317        | 10,760,965        | 11,093,463        | 11,305,741        | 11,724,629        | 14,120,845        | (6,522,989)        | \$ 115,166,039        |
| <b>Debt Service</b>                      |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Bond Debt Service                        | \$ 278,811           | 30,175,043        | 486,594           | 250,629           | 306,772           | 307,892           | 239,050           | 30,254,780        | 255,000           | 255,000           | 255,000           | 255,000            | \$ 63,319,571         |
| PennVest Debt Service                    | 408,312              | 411,017           | 666,890           | 665,718           | 645,557           | 670,037           | 674,611           | 692,883           | 713,669           | 735,080           | 757,132           | 779,846            | 7,820,752             |
| Sub Total                                | \$ 687,122           | 30,586,060        | 1,153,484         | 916,348           | 952,329           | 977,929           | 913,661           | 30,947,663        | 968,669           | 990,080           | 1,012,132         | 1,034,846          | \$ 71,140,323         |
| <b>Total Disbursements</b>               | <b>\$ 14,118,590</b> | <b>38,768,045</b> | <b>8,605,015</b>  | <b>11,119,339</b> | <b>10,005,421</b> | <b>15,340,246</b> | <b>11,674,626</b> | <b>42,041,126</b> | <b>12,274,410</b> | <b>12,714,709</b> | <b>15,132,977</b> | <b>(5,488,143)</b> | <b>\$ 186,306,362</b> |
| Surplus / Deficit                        | 604,757              | (24,352,143)      | 9,115,464         | 3,681,174         | 5,702,618         | 1,245,342         | 4,059,246         | (23,656,362)      | 6,697,042         | 4,740,117         | 1,701,993         | 20,542,117         |                       |
| <b>Annual Surplus/Deficit</b>            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    | <b>\$ 10,081,365</b>  |
| <b>Capital Spending</b>                  |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Capital Spending (Non PENNVEST)          | \$ 2,526,765         | 3,921,965         | 5,275,788         | 3,724,731         | 3,185,342         | 4,964,398         | 9,652,537         | 5,934,092         | 6,112,115         | 6,295,478         | 6,484,343         | 9,499,726          | \$ 67,577,278         |
| PennVEST Spending                        | 2,029,508            | 561,752           | 2,794,184         | 737,443           | 1,659,754         | 3,495,421         | 1,510,050         | 2,147,061         | 2,576,474         | 2,602,238         | 2,628,261         | 2,759,674          | 25,501,820            |
| Total                                    | \$ 4,556,273         | 4,483,718         | 8,069,972         | 4,462,174         | 4,845,096         | 8,459,819         | 11,162,586        | 8,081,154         | 8,688,589         | 8,897,717         | 9,112,603         | 12,259,400         | \$ 93,079,099         |
| <b>Capital Line of Credit</b>            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Capital Line of Credit Limit             |                      |                   |                   |                   |                   |                   | 150,000,000       |                   |                   |                   |                   |                    |                       |
| Capital Draws                            |                      |                   |                   |                   |                   |                   | 95,791,576        |                   |                   |                   |                   |                    |                       |
| Outstanding Capital Draws                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Remaining Capital Credit                 | \$ -                 | -                 | -                 | -                 | -                 | -                 | 54,208,424        | -                 | -                 | -                 | -                 | -                  |                       |
| <b>Bank Cash Balance</b>                 |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Unreserved                               | \$ 73,201,887        | 42,980,950        | 53,008,243        | 49,715,279        | 50,296,817        | 51,101,245        | 41,429,604        |                   |                   |                   |                   |                    |                       |
| Available for Draw                       | 2,545,881            | 7,124,047         | 12,098,028        | 15,550,195        | 19,950,986        | 25,709,827        | 35,158,859        |                   |                   |                   |                   |                    |                       |
| Rate Stabilization                       | 2,350,000            | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         |                   |                   |                   |                   |                    |                       |
| Compliance                               | 363,146              | 358,439           | 358,439           | 350,164           | 350,164           | 350,164           | 275,164           |                   |                   |                   |                   |                    |                       |
| Total                                    | \$ 78,460,914        | 55,313,435        | 70,314,709        | 70,465,638        | 75,447,968        | 82,011,236        | 81,713,628        | -                 | -                 | -                 | -                 | -                  |                       |

\*Source of PAYGO for capital projects



|   | <u>FY 2021</u>            |              |                   | <u>FY 2022</u>              |         |                   | <u>FY 2021</u> |    |                 | <u>FY 2022</u> |               |    | <u>2022 Difference</u> |  |
|---|---------------------------|--------------|-------------------|-----------------------------|---------|-------------------|----------------|----|-----------------|----------------|---------------|----|------------------------|--|
|   | <u>Prior Year-to-Date</u> |              | <u>YTD Growth</u> | <u>Current Year-to-Date</u> |         | <u>YTD Growth</u> | <u>Actual</u>  |    | <u>Forecast</u> |                | <u>Budget</u> |    | <u>Actual- Budget</u>  |  |
| <b>Receipts</b>                                       |                           |              |                   |                             |         |                   |                |    |                 |                |               |    |                        |  |
| <u>User Charge &amp; Wholesale Receipts</u>           |                           |              |                   |                             |         |                   |                |    |                 |                |               |    |                        |  |
| Water Collections                                     | \$                        | 67,327,600   | \$                | 70,016,238                  | 4.0%    | \$                | 106,885,626    | \$ | 108,968,894     | \$             | 113,424,315   | \$ | (4,455,421)            |  |
| Wastewater Collections                                |                           | 40,348,880   |                   | 37,190,028                  | -7.8%   |                   | 63,761,376     |    | 56,603,179      |                | 56,528,196    |    | 74,983                 |  |
| DSIC - Water Collections                              |                           | 2,569,111    |                   | 3,445,681                   | 34.1%   |                   | 4,520,928      |    | 5,393,314       |                | 5,671,216     |    | (277,902)              |  |
| DSIC - Wastewater Collections                         |                           | 1,518,036    |                   | 1,882,997                   | 24.0%   |                   | 2,680,983      |    | 2,853,654       |                | 2,826,410     |    | 27,244                 |  |
| Stormwater  |                           | -            |                   | 7,627,339                   | n.a.    |                   | -              |    | 13,873,057      |                | 17,127,744    |    | (3,254,687)            |  |
|   |                           | -            |                   | -                           | -       |                   | -              |    | -               |                | -             |    | -                      |  |
| <i>Subtotal: User Charge &amp; Wholesale Receipts</i> | \$                        | 111,763,627  | \$                | 120,162,282                 | 7.5%    | \$                | 177,848,912    | \$ | 187,692,099     | \$             | 195,577,881   | \$ | (7,885,782)            |  |
| <u>Other Operating Receipts</u>                       |                           |              |                   |                             |         |                   |                |    |                 |                |               |    |                        |  |
| Other Misc. and Fee Operating Receipts                | \$                        | 5,387,958    | \$                | 4,976,443                   | -7.6%   | \$                | 9,672,503      | \$ | 5,761,848       | \$             | 2,683,488     | \$ | 3,078,360              |  |
|   |                           | -            |                   | -                           | -       |                   | -              |    | -               |                | -             |    | -                      |  |
| <i>Subtotal: Other Operating Receipts</i>             | \$                        | 5,387,958    | \$                | 4,976,443                   | -7.6%   | \$                | 9,672,503      | \$ | 5,761,848       | \$             | 2,683,488     | \$ | 3,078,360              |  |
|   |                           | -            |                   | -                           | -       |                   | -              |    | -               |                | -             |    | -                      |  |
| <b>Total: Receipts</b>                                | \$                        | 117,151,585  | \$                | 125,138,725                 | 6.8%    | \$                | 187,521,415    | \$ | 193,453,948     | \$             | 198,261,369   | \$ | (4,807,421)            |  |
| <b>Revenue Requirements</b>                           |                           |              |                   |                             |         |                   |                |    |                 |                |               |    |                        |  |
| <u>Operating Expenses</u>                             |                           |              |                   |                             |         |                   |                |    |                 |                |               |    |                        |  |
| Chief Executive Office                                |                           | 1,247,638    |                   | 841,640                     | -32.5%  |                   | 2,990,200      |    | 2,433,108       |                | 2,464,652     |    | (31,544)               |  |
| Customer Service                                      |                           | 5,491,898    |                   | 5,544,883                   | 1.0%    |                   | 8,223,448      |    | 8,428,018       |                | 8,809,447     |    | (381,429)              |  |
| Management Information Systems                        |                           | 7,356,760    |                   | 6,091,454                   | -17.2%  |                   | 8,931,474      |    | 3,290,808       |                | 4,780,822     |    | (1,490,014)            |  |
| Finance   |                           | 5,598,258    |                   | 7,362,003                   | 31.5%   |                   | 13,576,612     |    | 10,334,862      |                | 10,851,491    |    | (516,628)              |  |
| Human Resources                                       |                           | 557,551      |                   | 939,924                     | 68.6%   |                   | 977,857        |    | 1,526,681       |                | 1,816,321     |    | (289,641)              |  |
| Legal   |                           | 4,328,267    |                   | 1,977,653                   | -54.3%  |                   | 6,205,968      |    | 3,357,483       |                | 3,884,108     |    | (526,625)              |  |
| Safety & Security                                     |                           | -            |                   | 485,939                     | n.a.    |                   | -              |    | 748,667         |                | 1,121,999     |    | (373,332)              |  |
| Warehouse   |                           | 313,745      |                   | 318,980                     | 1.7%    |                   | 492,608        |    | 462,039         |                | 538,288       |    | (76,249)               |  |
| Public Affairs  |                           | 619,309      |                   | 803,277                     | 29.7%   |                   | 974,277        |    | 1,212,844       |                | 1,271,818     |    | (58,974)               |  |
| Engineering & Construction                            |                           | 20,654,072   |                   | 22,865,329                  | 10.7%   |                   | 32,345,286     |    | 27,333,206      |                | 27,579,284    |    | (246,078)              |  |
| Environmental Compliance                              |                           | 1,668,019    |                   | 2,357,300                   | 41.3%   |                   | 2,627,894      |    | 3,859,699       |                | 4,010,328     |    | (150,629)              |  |
| General Administration                                |                           | 6,777        |                   | -                           | -100.0% |                   | 7,034          |    | -               |                | -             |    | -                      |  |
| Laboratory  |                           | 1,041,700    |                   | 1,413,965                   | 35.7%   |                   | 1,724,973      |    | 2,776,879       |                | 4,068,444     |    | (1,291,566)            |  |
| Water Treatment Plant                                 |                           | 12,112,439   |                   | 12,586,651                  | 3.9%    |                   | 18,721,895     |    | 19,440,865      |                | 19,354,813    |    | 86,052                 |  |
| Water Operations                                      |                           | 8,415,113    |                   | 9,783,083                   | 16.3%   |                   | 13,493,185     |    | 14,800,162      |                | 15,522,618    |    | (722,457)              |  |
| Sewer Operations                                      |                           | 2,017,285    |                   | 1,632,444                   | -19.1%  |                   | 3,262,374      |    | 2,808,127       |                | 3,503,492     |    | (695,365)              |  |
| DSIC - Water  |                           | 2,569,111    |                   | 3,445,681                   | 34.1%   |                   | 4,520,928      |    | 5,393,314       |                | 5,671,216     |    | (277,902)              |  |
| DSIC - Wastewater                                     |                           | 1,518,036    |                   | 1,882,997                   | 24.0%   |                   | 2,680,983      |    | 2,853,654       |                | 2,826,410     |    | 27,244                 |  |
|   |                           | -            |                   | -                           | -       |                   | -              |    | -               |                | -             |    | -                      |  |
| Direct Operating Expenses                             | \$                        | 75,515,979   | \$                | 80,333,203                  | 6.4%    | \$                | 121,756,996    | \$ | 111,060,416     | \$             | 118,075,552   | \$ | (7,015,136)            |  |
| Net ALCOSAN Expenses                                  |                           | (2,345,042)  |                   | 3,061,496                   | -230.6% |                   | (5,405,693)    |    | 2,962,508       |                | 1,997,954     |    | 964,554                |  |
|   |                           | -            |                   | -                           | -       |                   | -              |    | -               |                | -             |    | -                      |  |
| In-Direct Operating Expenses                          | \$                        | (2,345,042)  | \$                | 3,061,496                   | -230.6% | \$                | (5,405,693)    | \$ | 2,962,508       | \$             | 1,997,954     | \$ | 964,554                |  |
|   |                           | -            |                   | -                           | -       |                   | -              |    | -               |                | -             |    | -                      |  |
| <i>Subtotal: Operating Expenses</i>                   | \$                        | 73,170,936   | \$                | 83,394,699                  | 14.0%   | \$                | 116,351,303    | \$ | 114,022,924     | \$             | 120,073,506   | \$ | (6,050,581)            |  |
| <u>Debt Service</u>                                   |                           |              |                   |                             |         |                   |                |    |                 |                |               |    |                        |  |
| <i>Subtotal: Debt Service</i>                         | \$                        | 61,883,858   | \$                | 67,183,166                  | 8.6%    | \$                | 64,338,574     | \$ | 71,188,893      | \$             | 73,002,260    | \$ | (1,813,367)            |  |
|   |                           | -            |                   | -                           | -       |                   | -              |    | -               |                | -             |    | -                      |  |
| <b>Total: Revenue Requirements</b>                    | \$                        | 135,054,795  | \$                | 150,577,865                 | 11.5%   | \$                | 180,689,877    | \$ | 185,211,817     | \$             | 193,075,766   | \$ | (7,863,948)            |  |
| <b>Revenue Surplus / (Deficit)</b>                    | \$                        | (17,903,210) | \$                | (25,439,139)                |         | \$                | 6,831,538      | \$ | 8,242,130       | \$             | 5,185,603     | \$ | 3,056,527              |  |

| <u>Financial Metrics*</u>  |  |  |  | <u>FY 2021</u> | <u>FY 2022</u>  | <u>FY 2022</u> |
|--|--|--|--|----------------|-----------------|----------------|
|  |  |  |  | <u>Actual</u>  | <u>Forecast</u> | <u>Budget</u>  |
| <b>Senior Debt Service Coverage</b>                                |  |  |  | <b>1.52</b>    | <b>1.57</b>     | <b>1.55</b>    |
| <i>Minimum Requirement</i>   |  |  |  | 1.25           | 1.25            | 1.25           |
| <b>Total Debt Service Coverage</b>                                 |  |  |  | <b>1.27</b>    | <b>1.25</b>     | <b>1.21</b>    |
| <i>Minimum Requirement</i>   |  |  |  | 1.10           | 1.10            | 1.10           |
| <b>Unrestricted Days Cash without ALCOSAN Expense</b>              |  |  |  | <b>207.39</b>  | <b>268.55</b>   | <b>243.15</b>  |
| <b>Unrestricted Days Cash with ALCOSAN Expense</b>                 |  |  |  | <b>217.03</b>  | <b>261.58</b>   | <b>239.10</b>  |
| <b>Unrestricted Days Cash including the Operating Reserve Fund</b> |  |  |  | <b>276.76</b>  | <b>322.54</b>   | <b>296.99</b>  |

\*Cash basis estimate. Final audited coverage ratio could be different due to the use of the accrual basis accounting method.



| 2022                                     |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
|--|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|-----------------------|
| The Pittsburgh Water and Sewer Authority |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| 2022 Cash Flow (Cash Basis)              |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| As of August 31, 2022                    |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Receipts                                 | Actual               |                   |                   |                   |                   |                   | Forecast          |                   |                   |                   |                   |                    | Total                 |
|  | January              | February          | March             | April             | May               | June              | July              | August            | September         | October           | November          | December           |                       |
| Water                                    | \$ 8,029,539         | 7,338,408         | 10,127,205        | 8,326,400         | 8,999,160         | 9,411,523         | 9,074,676         | 8,709,326         | 10,835,794        | 9,956,235         | 9,596,753         | 8,563,875          | \$ 108,968,894        |
| Wastewater Conveyance                    | 4,690,481            | 4,246,058         | 5,292,847         | 4,316,474         | 4,623,691         | 4,894,689         | 4,517,879         | 4,607,909         | 5,400,323         | 4,961,970         | 4,782,812         | 4,268,048          | 56,603,179            |
| DSIC - Water*                            | 386,313              | 354,814           | 494,231           | 410,313           | 439,068           | 471,541           | 464,142           | 425,260           | 541,790           | 497,812           | 479,838           | 428,194            | 5,393,314             |
| DSIC - Wastewater*                       | 233,725              | 212,833           | 263,644           | 217,967           | 231,208           | 245,260           | 249,261           | 229,099           | 270,016           | 248,098           | 239,141           | 213,402            | 2,853,654             |
| Stormwater                               | -                    | 320,787           | 1,232,737         | 1,106,418         | 1,255,312         | 1,366,223         | 1,155,779         | 1,190,083         | 1,727,178         | 1,594,360         | 1,540,076         | 1,384,105          | 13,873,057            |
| Fees                                     | 1,335,368            | 1,457,015         | 286,737           | 80,259            | 67,137            | 87,881            | 77,530            | 60,772            | 87,881            | 87,881            | 87,881            | 87,881             | 3,804,222             |
| Misc. Other                              | 47,922               | 485,987           | 23,079            | 342,682           | 92,463            | 108,470           | 194,606           | 228,537           | 108,470           | 108,470           | 108,470           | 108,470            | 1,957,626             |
| <b>Total Receipts</b>                    | <b>\$ 14,723,348</b> | <b>14,415,902</b> | <b>17,720,479</b> | <b>14,800,513</b> | <b>15,708,039</b> | <b>16,585,587</b> | <b>15,733,872</b> | <b>15,450,985</b> | <b>18,971,452</b> | <b>17,454,826</b> | <b>16,834,970</b> | <b>15,053,975</b>  | <b>\$ 193,453,948</b> |
| <b>Cash Disbursements</b>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| <b>Operating Expenses</b>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Chief Executive Office                   | \$ 108,542           | 80,892            | 111,213           | 100,583           | 111,431           | 141,807           | 95,958            | 91,214            | 1,304,907         | 97,790            | 96,018            | 92,753             | \$ 2,433,108          |
| Customer Service                         | 663,865              | 1,073,913         | 673,854           | 617,836           | 586,059           | 757,614           | 645,787           | 525,955           | 716,811           | 689,459           | 833,283           | 643,583            | 8,428,018             |
| Management Information Systems           | 1,899,797            | 506,327           | 356,822           | 440,614           | 277,349           | 1,756,979         | 479,735           | 373,830           | 378,061           | 807,239           | 805,888           | (4,791,835)        | 3,290,808             |
| Finance                                  | 1,920,041            | 291,595           | 606,866           | 383,562           | 948,662           | 1,495,576         | 974,459           | 741,242           | 802,567           | 807,273           | 1,596,509         | (233,491)          | 10,334,862            |
| Human Resources                          | 99,316               | 116,938           | 97,795            | 126,748           | 135,378           | 158,916           | 120,935           | 83,898            | 122,682           | 167,231           | 167,892           | 128,950            | 1,526,681             |
| Legal                                    | 221,369              | 263,198           | 260,032           | 485,598           | 219,995           | 182,946           | 300,769           | 43,748            | 322,602           | 323,324           | 437,121           | 296,783            | 3,357,483             |
| Safety & Security                        | 15,779               | 94,855            | 82,683            | 71,313            | 61,616            | 84,249            | 33,855            | 41,588            | 62,632            | 66,689            | 86,311            | 47,096             | 748,667               |
| Warehouse                                | 33,773               | 33,574            | 44,966            | 38,315            | 32,808            | 52,290            | 32,229            | 51,026            | 40,807            | 41,278            | 56,525            | 4,448              | 462,039               |
| Public Affairs                           | 169,003              | 76,513            | 84,101            | 89,229            | 102,831           | 136,824           | 66,558            | 78,217            | 86,825            | 98,779            | 141,300           | 82,663             | 1,212,844             |
| Engineering & Construction               | 1,698,521            | 1,909,532         | 1,913,240         | 2,063,981         | 4,013,084         | 5,623,284         | 2,232,049         | 3,411,638         | 3,784,434         | 3,589,691         | 4,973,569         | (7,879,817)        | 27,333,206            |
| Environmental Compliance                 | 97,864               | 397,896           | 192,917           | 528,407           | 338,320           | 318,716           | 389,293           | 93,887            | 352,172           | 325,332           | 345,875           | 479,020            | 3,859,699             |
| Laboratory                               | 160,300              | 237,715           | 270,658           | 166,597           | 120,182           | 164,140           | 173,889           | 120,485           | 316,890           | 349,625           | 380,634           | 315,764            | 2,776,879             |
| Water Treatment Plant                    | 1,433,988            | 1,558,801         | 1,696,234         | 1,703,413         | 1,464,960         | 1,765,891         | 1,585,489         | 1,377,875         | 1,473,276         | 1,499,193         | 2,234,906         | 1,646,839          | 19,440,865            |
| Water Operations                         | 1,124,799            | 1,333,927         | 1,348,754         | 1,173,665         | 1,115,831         | 1,447,156         | 1,286,688         | 952,262           | 1,221,538         | 1,219,657         | 1,592,067         | 983,816            | 14,800,162            |
| Sewer Operations                         | 240,317              | 172,606           | 207,956           | 196,714           | 182,366           | 194,066           | 303,346           | 135,072           | 294,517           | 279,526           | 388,741           | 212,900            | 2,808,127             |
| Net ALCOSAN Expense                      | 2,924,157            | (533,942)         | (1,254,437)       | 1,388,136         | (1,328,058)       | (634,938)         | 1,326,525         | 1,174,052         | (786,788)         | 616,632           | (734,773)         | 805,941            | 2,962,508             |
| DSIC - Water*                            | 386,313              | 354,814           | 494,231           | 410,313           | 439,068           | 471,541           | 464,142           | 425,260           | 541,790           | 497,812           | 479,838           | 428,194            | 5,393,314             |
| DSIC - Wastewater*                       | 233,725              | 212,833           | 263,644           | 217,967           | 231,208           | 245,260           | 249,261           | 229,099           | 270,016           | 248,098           | 239,141           | 213,402            | 2,853,654             |
| Sub Total                                | \$ 13,431,468        | 8,181,985         | 7,451,531         | 10,202,991        | 9,053,092         | 14,362,317        | 10,760,965        | 9,950,349         | 11,305,741        | 11,724,629        | 14,120,845        | (6,522,989)        | \$ 114,022,925        |
| <b>Debt Service</b>                      |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Bond Debt Service                        | \$ 278,811           | 30,175,043        | 486,594           | 250,629           | 306,772           | 308,093           | 242,996           | 30,321,795        | 255,000           | 255,000           | 255,000           | 255,000            | \$ 63,390,732         |
| PennVest Debt Service                    | 408,312              | 411,017           | 666,890           | 665,718           | 645,557           | 670,037           | 674,611           | 670,291           | 713,669           | 735,080           | 757,132           | 779,846            | 7,798,161             |
| Sub Total                                | \$ 687,122           | 30,586,060        | 1,153,484         | 916,348           | 952,329           | 978,130           | 917,606           | 30,992,087        | 968,669           | 990,080           | 1,012,132         | 1,034,846          | \$ 71,188,893         |
| <b>Total Disbursements</b>               | <b>\$ 14,118,590</b> | <b>38,768,045</b> | <b>8,605,015</b>  | <b>11,119,339</b> | <b>10,005,421</b> | <b>15,340,447</b> | <b>11,678,572</b> | <b>40,942,436</b> | <b>12,274,410</b> | <b>12,714,709</b> | <b>15,132,977</b> | <b>(5,488,143)</b> | <b>\$ 185,211,817</b> |
| Surplus / Deficit                        | 604,757              | (24,352,143)      | 9,115,464         | 3,681,174         | 5,702,618         | 1,245,141         | 4,055,301         | (25,491,451)      | 6,697,042         | 4,740,117         | 1,701,993         | 20,542,117         |                       |
| <b>Annual Surplus/Deficit</b>            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    | <b>\$ 8,242,130</b>   |
| <b>Capital Spending</b>                  |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Capital Spending (Non PENNVEST)          | \$ 2,526,765         | 3,921,965         | 5,275,788         | 3,724,731         | 3,185,342         | 4,964,398         | 9,652,537         | 3,623,267         | 6,112,115         | 6,295,478         | 6,484,343         | 9,499,726          | \$ 65,266,453         |
| PennVEST Spending                        | 2,029,508            | 561,752           | 2,794,184         | 737,443           | 1,659,754         | 3,495,421         | 1,510,050         | 2,226,292         | 2,576,474         | 2,602,238         | 2,628,261         | 2,759,674          | 25,581,051            |
| Total                                    | \$ 4,556,273         | 4,483,718         | 8,069,972         | 4,462,174         | 4,845,096         | 8,459,819         | 11,162,586        | 5,849,559         | 8,688,589         | 8,897,717         | 9,112,603         | 12,259,400         | \$ 90,847,504         |
| <b>Capital Line of Credit</b>            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Capital Line of Credit Limit             |                      |                   |                   |                   |                   |                   |                   | 150,000,000       |                   |                   |                   |                    |                       |
| Capital Draws                            |                      |                   |                   |                   |                   |                   |                   | 95,791,576        |                   |                   |                   |                    |                       |
| Outstanding Capital Draws                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Remaining Capital Credit                 | \$ -                 | -                 | -                 | -                 | -                 | -                 | -                 | 54,208,424        | -                 | -                 | -                 | -                  |                       |
| <b>Bank Cash Balance</b>                 |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Unreserved                               | \$ 73,201,887        | 42,980,950        | 53,008,243        | 49,715,279        | 50,296,817        | 51,101,245        | 41,429,604        | 19,221,373        |                   |                   |                   |                    |                       |
| Available for Draw                       | 2,545,881            | 7,124,047         | 12,098,028        | 15,550,195        | 19,950,986        | 25,709,827        | 35,158,859        | 40,956,434        |                   |                   |                   |                    |                       |
| Rate Stabilization                       | 2,350,000            | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         |                   |                   |                   |                    |                       |
| Compliance                               | 363,146              | 358,439           | 358,439           | 350,164           | 350,164           | 350,164           | 275,164           | 275,164           |                   |                   |                   |                    |                       |
| Total                                    | \$ 78,460,914        | 55,313,435        | 70,314,709        | 70,465,638        | 75,447,968        | 82,011,236        | 81,713,628        | 65,302,971        | -                 | -                 | -                 | -                  |                       |

\*Source of PAYGO for capital projects

The Pittsburgh Water and Sewer Authority  
2021 & 2022 Financial Status Update (Cash Basis)  
As of September 30, 2022



|  | <u>FY 2021</u> |                           |    | <u>FY 2022</u>              |                   |                | <u>FY 2021</u>     |                |                    | <u>FY 2022</u> |                    |    | <u>2022 Difference</u> |  |
|--|----------------|---------------------------|----|-----------------------------|-------------------|----------------|--------------------|----------------|--------------------|----------------|--------------------|----|------------------------|--|
|  |                | <u>Prior Year-to-Date</u> |    | <u>Current Year-to-Date</u> | <u>YTD Growth</u> |                | <u>Actual</u>      |                | <u>Forecast</u>    |                | <u>Budget</u>      |    | <u>Actual- Budget</u>  |  |
| <b>Receipts</b>  |                |                           |    |                             |                   |                |                    |                |                    |                |                    |    |                        |  |
| <u>User Charge &amp; Wholesale Receipts</u>                        |                |                           |    |                             |                   |                |                    |                |                    |                |                    |    |                        |  |
| Water Collections  | \$             | 77,450,260                | \$ | 80,302,948                  | 3.7%              | \$             | 106,885,626        | \$             | 108,419,811        | \$             | 113,424,315        | \$ | (5,004,504)            |  |
| Wastewater Collections   |                | 46,317,629                |    | 41,474,066                  | -10.5%            |                | 63,761,376         |                | 55,486,895         |                | 56,528,196         |    | (1,041,301)            |  |
| DSIC - Water Collections   |                | 3,060,015                 |    | 3,891,953                   | 27.2%             |                | 4,520,928          |                | 5,297,796          |                | 5,671,216          |    | (373,420)              |  |
| DSIC - Wastewater Collections                                      |                | 1,811,837                 |    | 2,095,867                   | 15.7%             |                | 2,680,983          |                | 2,796,508          |                | 2,826,410          |    | (29,902)               |  |
| Stormwater   |                | -                         |    | 8,866,788                   | n.a.              |                | -                  |                | 13,385,328         |                | 17,127,744         |    | (3,742,416)            |  |
|  |                | -                         |    | -                           | -                 |                | -                  |                | -                  |                | -                  |    | -                      |  |
| <i>Subtotal: User Charge &amp; Wholesale Receipts</i>              | \$             | 128,639,742               | \$ | 136,631,622                 | 6.2%              | \$             | 177,848,912        | \$             | 185,386,338        | \$             | 195,577,881        | \$ | (10,191,543)           |  |
| <u>Other Operating Receipts</u>                                    |                |                           |    |                             |                   |                |                    |                |                    |                |                    |    |                        |  |
| Other Misc. and Fee Operating Receipts                             | \$             | 5,729,986                 | \$ | 5,120,381                   | -10.6%            | \$             | 9,672,503          | \$             | 5,709,435          | \$             | 2,683,488          | \$ | 3,025,947              |  |
|  |                | -                         |    | -                           | -                 |                | -                  |                | -                  |                | -                  |    | -                      |  |
| <i>Subtotal: Other Operating Receipts</i>                          | \$             | 5,729,986                 | \$ | 5,120,381                   | -10.6%            | \$             | 9,672,503          | \$             | 5,709,435          | \$             | 2,683,488          | \$ | 3,025,947              |  |
|  |                | -                         |    | -                           | -                 |                | -                  |                | -                  |                | -                  |    | -                      |  |
| <b>Total: Receipts</b>   | \$             | <b>134,369,728</b>        | \$ | <b>141,752,003</b>          | <b>5.5%</b>       | \$             | <b>187,521,415</b> | \$             | <b>191,095,773</b> | \$             | <b>198,261,369</b> | \$ | <b>(7,165,596)</b>     |  |
| <b>Revenue Requirements</b>  |                |                           |    |                             |                   |                |                    |                |                    |                |                    |    |                        |  |
| <u>Operating Expenses</u>  |                |                           |    |                             |                   |                |                    |                |                    |                |                    |    |                        |  |
| Chief Executive Office   |                | 2,539,874                 |    | 944,934                     | -62.8%            |                | 2,990,200          |                | 2,431,495          |                | 2,464,652          |    | (33,157)               |  |
| Customer Service   |                | 6,123,880                 |    | 6,140,481                   | 0.3%              |                | 8,223,448          |                | 8,306,806          |                | 8,809,447          |    | (502,641)              |  |
| Management Information Systems                                     |                | 7,601,556                 |    | 6,949,039                   | -8.6%             |                | 8,931,474          |                | 3,770,331          |                | 4,780,822          |    | (1,010,490)            |  |
| Finance  |                | 6,024,069                 |    | 8,167,926                   | 35.6%             |                | 13,576,612         |                | 10,338,218         |                | 10,851,491         |    | (513,272)              |  |
| Human Resources  |                | 631,233                   |    | 1,080,191                   | 71.1%             |                | 977,857            |                | 1,544,265          |                | 1,816,321          |    | (272,056)              |  |
| Legal  |                | 4,546,117                 |    | 2,232,793                   | -50.9%            |                | 6,205,968          |                | 3,290,020          |                | 3,884,108          |    | (594,088)              |  |
| Safety & Security  |                | -                         |    | 568,322                     | n.a.              |                | -                  |                | 768,419            |                | 1,121,999          |    | (353,580)              |  |
| Warehouse  |                | 351,271                   |    | 360,420                     | 2.6%              |                | 492,608            |                | 462,672            |                | 538,288            |    | (75,616)               |  |
| Public Affairs   |                | 697,990                   |    | 882,929                     | 26.5%             |                | 974,277            |                | 1,205,670          |                | 1,271,818          |    | (66,147)               |  |
| Engineering & Construction   |                | 23,288,784                |    | 25,860,025                  | 11.0%             |                | 32,345,286         |                | 26,543,468         |                | 27,579,284         |    | (1,035,816)            |  |
| Environmental Compliance   |                | 1,868,708                 |    | 2,639,039                   | 41.2%             |                | 2,627,894          |                | 3,789,266          |                | 4,010,328          |    | (221,062)              |  |
| General Administration   |                | 6,777                     |    | -                           | -100.0%           |                | 7,034              |                | -                  |                | -                  |    | -                      |  |
| Laboratory   |                | 1,157,969                 |    | 1,668,975                   | 44.1%             |                | 1,724,973          |                | 2,714,998          |                | 4,068,444          |    | (1,353,447)            |  |
| Water Treatment Plant  |                | 13,828,075                |    | 14,234,052                  | 2.9%              |                | 18,721,895         |                | 19,614,990         |                | 19,354,813         |    | 260,177                |  |
| Water Operations   |                | 9,426,313                 |    | 11,131,521                  | 18.1%             |                | 13,493,185         |                | 14,927,062         |                | 15,522,618         |    | (595,557)              |  |
| Sewer Operations   |                | 2,282,254                 |    | 1,787,608                   | -21.7%            |                | 3,262,374          |                | 2,668,775          |                | 3,503,492          |    | (834,717)              |  |
| DSIC - Water   |                | 3,060,015                 |    | 3,891,953                   | 27.2%             |                | 4,520,928          |                | 5,297,796          |                | 5,671,216          |    | (373,420)              |  |
| DSIC - Wastewater  |                | 1,811,837                 |    | 2,095,867                   | 15.7%             |                | 2,680,983          |                | 2,796,508          |                | 2,826,410          |    | (29,902)               |  |
|  |                | -                         |    | -                           | -                 |                | -                  |                | -                  |                | -                  |    | -                      |  |
| Direct Operating Expenses  | \$             | 85,246,724                | \$ | 90,636,076                  | 6.3%              | \$             | 121,756,996        | \$             | 110,470,760        | \$             | 118,075,552        | \$ | (7,604,792)            |  |
| Net ALCOSAN Expenses   |                | (3,306,436)               |    | 390,763                     | -111.8%           |                | (5,405,693)        |                | 1,078,563          |                | 1,997,954          |    | (919,391)              |  |
|  |                | -                         |    | -                           | -                 |                | -                  |                | -                  |                | -                  |    | -                      |  |
| In-Direct Operating Expenses                                       | \$             | (3,306,436)               | \$ | 390,763                     | -111.8%           | \$             | (5,405,693)        | \$             | 1,078,563          | \$             | 1,997,954          | \$ | (919,391)              |  |
|  |                | -                         |    | -                           | -                 |                | -                  |                | -                  |                | -                  |    | -                      |  |
| <i>Subtotal: Operating Expenses</i>                                | \$             | 81,940,288                | \$ | 91,026,838                  | 11.1%             | \$             | 116,351,303        | \$             | 111,549,323        | \$             | 120,073,506        | \$ | (8,524,182)            |  |
| <u>Debt Service</u>  |                |                           |    |                             |                   |                |                    |                |                    |                |                    |    |                        |  |
| <i>Subtotal: Debt Service</i>                                      | \$             | 62,521,669                | \$ | 68,009,119                  | 8.8%              | \$             | 64,338,574         | \$             | 71,046,176         | \$             | 73,002,260         | \$ | (1,956,084)            |  |
|  |                | -                         |    | -                           | -                 |                | -                  |                | -                  |                | -                  |    | -                      |  |
| <b>Total: Revenue Requirements</b>                                 | \$             | <b>144,461,957</b>        | \$ | <b>159,035,957</b>          | <b>10.1%</b>      | \$             | <b>180,689,877</b> | \$             | <b>182,595,500</b> | \$             | <b>193,075,766</b> | \$ | <b>(10,480,266)</b>    |  |
| <b>Revenue Surplus / (Deficit)</b>                                 | \$             | <b>(10,092,229)</b>       | \$ | <b>(17,283,955)</b>         |                   | \$             | <b>6,831,538</b>   | \$             | <b>8,500,273</b>   | \$             | <b>5,185,603</b>   | \$ | <b>3,314,669</b>       |  |
| <b>Financial Metrics*</b>  |                |                           |    |                             |                   | <b>FY 2021</b> | <b>FY 2022</b>     | <b>FY 2022</b> |                    |                |                    |    |                        |  |
|  |                |                           |    |                             |                   | <i>Actual</i>  | <i>Forecast</i>    | <i>Budget</i>  |                    |                |                    |    |                        |  |
| <b>Senior Debt Service Coverage</b>                                |                |                           |    |                             |                   | <b>1.52</b>    | <b>1.57</b>        | <b>1.55</b>    |                    |                |                    |    |                        |  |
| <i>Minimum Requirement</i>   |                |                           |    |                             |                   | <i>1.25</i>    | <i>1.25</i>        | <i>1.25</i>    |                    |                |                    |    |                        |  |
| <b>Total Debt Service Coverage</b>                                 |                |                           |    |                             |                   | <b>1.27</b>    | <b>1.25</b>        | <b>1.21</b>    |                    |                |                    |    |                        |  |
| <i>Minimum Requirement</i>   |                |                           |    |                             |                   | <i>1.10</i>    | <i>1.10</i>        | <i>1.10</i>    |                    |                |                    |    |                        |  |
| <b>Unrestricted Days Cash without ALCOSAN Expense</b>              |                |                           |    |                             |                   | <b>207.39</b>  | <b>270.84</b>      | <b>243.15</b>  |                    |                |                    |    |                        |  |
| <b>Unrestricted Days Cash with ALCOSAN Expense</b>                 |                |                           |    |                             |                   | <b>217.03</b>  | <b>268.22</b>      | <b>239.10</b>  |                    |                |                    |    |                        |  |
| <b>Unrestricted Days Cash including the Operating Reserve Fund</b> |                |                           |    |                             |                   | <b>276.76</b>  | <b>330.53</b>      | <b>296.99</b>  |                    |                |                    |    |                        |  |

\*Cash basis estimate. Final audited coverage ratio could be different due to the use of the accrual basis accounting method.

| 2022                                     |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
|--|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|-----------------------|
| The Pittsburgh Water and Sewer Authority |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| 2022 Cash Flow (Cash Basis)              |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| As of September 30, 2022                 |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
|  | Actual               |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   | Forecast           |                       |
| Receipts                                 | January              | February          | March             | April             | May               | June              | July              | August            | September         | October           | November          | December           | Total                 |
| Water                                    | \$ 8,029,539         | 7,338,408         | 10,127,205        | 8,326,400         | 8,999,160         | 9,411,523         | 9,074,676         | 8,709,326         | 10,286,710        | 9,956,235         | 9,596,753         | 8,563,875          | \$ 108,419,811        |
| Wastewater Conveyance                    | 4,690,481            | 4,246,058         | 5,292,847         | 4,316,474         | 4,623,691         | 4,894,689         | 4,517,879         | 4,607,909         | 4,284,038         | 4,961,970         | 4,782,812         | 4,268,048          | 55,486,895            |
| DSIC - Water*                            | 386,313              | 354,814           | 494,231           | 410,313           | 439,068           | 471,541           | 464,142           | 425,260           | 446,272           | 497,812           | 479,838           | 428,194            | 5,297,796             |
| DSIC - Wastewater*                       | 233,725              | 212,833           | 263,644           | 217,967           | 231,208           | 245,260           | 249,261           | 229,099           | 212,870           | 248,098           | 239,141           | 213,402            | 2,796,508             |
| Stormwater                               | -                    | 320,787           | 1,232,737         | 1,106,418         | 1,255,312         | 1,366,223         | 1,155,779         | 1,190,083         | 1,239,449         | 1,594,360         | 1,540,076         | 1,384,105          | 13,385,328            |
| Fees                                     | 1,335,368            | 1,457,015         | 286,737           | 80,259            | 67,137            | 87,881            | 77,530            | 60,772            | 61,236            | 87,881            | 87,881            | 87,881             | 3,777,577             |
| Misc. Other                              | 47,922               | 485,987           | 23,079            | 342,682           | 92,463            | 108,470           | 194,606           | 228,537           | 82,701            | 108,470           | 108,470           | 108,470            | 1,931,857             |
| <b>Total Receipts</b>                    | <b>\$ 14,723,348</b> | <b>14,415,902</b> | <b>17,720,479</b> | <b>14,800,513</b> | <b>15,708,039</b> | <b>16,585,587</b> | <b>15,733,872</b> | <b>15,450,985</b> | <b>16,613,277</b> | <b>17,454,826</b> | <b>16,834,970</b> | <b>15,053,975</b>  | <b>\$ 191,095,773</b> |
| <b>Cash Disbursements</b>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| <b>Operating Expenses</b>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Chief Executive Office                   | \$ 108,542           | 80,892            | 111,213           | 100,583           | 111,431           | 141,807           | 95,958            | 91,214            | 103,294           | 1,297,790         | 96,018            | 92,753             | \$ 2,431,495          |
| Customer Service                         | 663,865              | 1,073,913         | 673,854           | 617,836           | 586,059           | 757,614           | 645,787           | 525,955           | 595,599           | 689,459           | 833,283           | 643,583            | 8,306,806             |
| Management Information Systems           | 1,899,797            | 506,327           | 356,822           | 440,614           | 277,349           | 1,756,979         | 479,735           | 373,830           | 857,585           | 807,239           | 805,888           | (4,791,835)        | 3,770,331             |
| Finance                                  | 1,920,041            | 291,595           | 606,866           | 383,562           | 948,662           | 1,495,576         | 974,459           | 741,242           | 805,923           | 807,273           | 1,596,509         | (233,491)          | 10,338,218            |
| Human Resources                          | 99,316               | 116,938           | 97,795            | 126,748           | 135,378           | 158,916           | 120,935           | 83,898            | 140,266           | 167,231           | 167,892           | 128,950            | 1,544,265             |
| Legal                                    | 221,369              | 263,198           | 260,032           | 485,598           | 219,995           | 182,946           | 300,769           | 43,748            | 255,139           | 323,324           | 437,121           | 296,783            | 3,290,020             |
| Safety & Security                        | 15,779               | 94,855            | 82,683            | 71,313            | 61,616            | 84,249            | 33,855            | 41,588            | 82,384            | 66,689            | 86,311            | 47,096             | 768,419               |
| Warehouse                                | 33,773               | 33,574            | 44,966            | 38,315            | 32,808            | 52,290            | 32,229            | 51,026            | 41,440            | 41,278            | 56,525            | 4,448              | 462,672               |
| Public Affairs                           | 169,003              | 76,513            | 84,101            | 89,229            | 102,831           | 136,824           | 66,558            | 78,217            | 79,652            | 98,779            | 141,300           | 82,663             | 1,205,670             |
| Engineering & Construction               | 1,698,521            | 1,909,532         | 1,913,240         | 2,063,981         | 4,013,084         | 5,623,284         | 2,232,049         | 3,411,638         | 2,994,696         | 3,589,691         | 4,973,569         | (7,879,817)        | 26,543,468            |
| Environmental Compliance                 | 97,864               | 397,896           | 192,917           | 528,407           | 338,320           | 318,716           | 389,293           | 93,887            | 281,739           | 325,332           | 345,875           | 479,020            | 3,789,266             |
| Laboratory                               | 160,300              | 237,715           | 270,658           | 166,597           | 120,182           | 164,140           | 173,889           | 120,485           | 255,009           | 349,625           | 380,634           | 315,764            | 2,714,998             |
| Water Treatment Plant                    | 1,433,988            | 1,558,801         | 1,696,234         | 1,703,413         | 1,464,960         | 1,765,891         | 1,585,489         | 1,377,875         | 1,647,401         | 1,499,193         | 2,234,906         | 1,646,839          | 19,614,990            |
| Water Operations                         | 1,124,799            | 1,333,927         | 1,348,754         | 1,173,665         | 1,115,831         | 1,447,156         | 1,286,688         | 952,262           | 1,348,438         | 1,219,657         | 1,592,067         | 983,816            | 14,927,062            |
| Sewer Operations                         | 240,317              | 172,606           | 207,956           | 196,714           | 182,366           | 194,066           | 303,346           | 135,072           | 155,165           | 279,526           | 388,741           | 212,900            | 2,668,775             |
| Net ALCOSAN Expense                      | 2,924,157            | (533,942)         | (1,254,437)       | 1,388,136         | (1,328,058)       | (634,938)         | 1,326,525         | (706,612)         | (790,068)         | 616,632           | (734,773)         | 805,941            | 1,078,563             |
| DSIC - Water*                            | 386,313              | 354,814           | 494,231           | 410,313           | 439,068           | 471,541           | 464,142           | 425,260           | 446,272           | 497,812           | 479,838           | 428,194            | 5,297,796             |
| DSIC - Wastewater*                       | 233,725              | 212,833           | 263,644           | 217,967           | 231,208           | 245,260           | 249,261           | 229,099           | 212,870           | 248,098           | 239,141           | 213,402            | 2,796,508             |
| Sub Total                                | \$ 13,431,468        | 8,181,985         | 7,451,531         | 10,202,991        | 9,053,092         | 14,362,317        | 10,760,965        | 8,069,685         | 9,512,804         | 12,924,629        | 14,120,845        | (6,522,989)        | \$ 111,549,324        |
| <b>Debt Service</b>                      |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Bond Debt Service                        | \$ 278,811           | 30,175,043        | 486,594           | 250,629           | 306,772           | 308,093           | 242,996           | 30,321,795        | 127,523           | 255,000           | 255,000           | 255,000            | \$ 63,263,255         |
| PENNVEST Debt Service                    | 408,312              | 411,017           | 666,890           | 665,718           | 645,557           | 670,037           | 674,611           | 670,291           | 698,430           | 735,080           | 757,132           | 779,846            | 7,782,921             |
| Sub Total                                | \$ 687,122           | 30,586,060        | 1,153,484         | 916,348           | 952,329           | 978,130           | 917,606           | 30,992,087        | 825,953           | 990,080           | 1,012,132         | 1,034,846          | \$ 71,046,176         |
| <b>Total Disbursements</b>               | <b>\$ 14,118,590</b> | <b>38,768,045</b> | <b>8,605,015</b>  | <b>11,119,339</b> | <b>10,005,421</b> | <b>15,340,447</b> | <b>11,678,572</b> | <b>39,061,771</b> | <b>10,338,757</b> | <b>13,914,709</b> | <b>15,132,977</b> | <b>(5,488,143)</b> | <b>\$ 182,595,500</b> |
| Surplus / Deficit                        | 604,757              | (24,352,143)      | 9,115,464         | 3,681,174         | 5,702,618         | 1,245,141         | 4,055,301         | (23,610,786)      | 6,274,520         | 3,540,117         | 1,701,993         | 20,542,117         |                       |
| <b>Annual Surplus/Deficit</b>            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    | <b>\$ 8,500,273</b>   |
| <b>Capital Spending</b>                  |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Capital Spending (Non PENNVEST)          | \$ 2,526,765         | 3,921,965         | 5,275,788         | 3,724,731         | 3,185,342         | 4,964,398         | 9,652,537         | 3,623,267         | 9,490,363         | 6,295,478         | 6,484,343         | 9,499,726          | \$ 68,644,702         |
| PENNVEST Spending                        | 2,029,508            | 561,752           | 2,794,184         | 737,443           | 1,659,754         | 3,495,421         | 1,510,050         | 2,226,292         | 3,754,986         | 2,602,238         | 2,628,261         | 2,759,674          | 26,759,563            |
| Total                                    | \$ 4,556,273         | 4,483,718         | 8,069,972         | 4,462,174         | 4,845,096         | 8,459,819         | 11,162,586        | 5,849,559         | 13,245,349        | 8,897,717         | 9,112,603         | 12,259,400         | \$ 95,404,265         |
| <b>Capital Line of Credit</b>            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Capital Line of Credit Limit             |                      |                   |                   |                   |                   |                   |                   |                   | 150,000,000       |                   |                   |                    |                       |
| Capital Draws                            |                      |                   |                   |                   |                   |                   |                   |                   | 101,802,850       |                   |                   |                    |                       |
| Outstanding Capital Draws                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Remaining Capital Credit                 | \$ -                 | -                 | -                 | -                 | -                 | -                 | -                 | -                 | 48,197,150        | -                 | -                 | -                  |                       |
| <b>Bank Cash Balance</b>                 |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Unreserved                               | \$ 73,201,887        | 42,980,950        | 53,008,243        | 49,715,279        | 50,296,817        | 51,101,245        | 41,429,604        | 19,221,373        | 19,293,629        |                   |                   |                    |                       |
| Available for Draw                       | 2,545,881            | 7,124,047         | 12,098,028        | 15,550,195        | 19,950,986        | 25,709,827        | 35,158,859        | 40,956,434        | 44,428,533        |                   |                   |                    |                       |
| Rate Stabilization                       | 2,350,000            | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         |                   |                   |                    |                       |
| Compliance                               | 363,146              | 358,439           | 358,439           | 350,164           | 350,164           | 350,164           | 275,164           | 275,164           | 275,164           |                   |                   |                    |                       |
| Total                                    | \$ 78,460,914        | 55,313,435        | 70,314,709        | 70,465,638        | 75,447,968        | 82,011,236        | 81,713,628        | 65,302,971        | 68,847,326        | -                 | -                 | -                  |                       |

\*Source of PAYGO for capital projects

**The Pittsburgh Water and Sewer Authority**  
 2021 & 2022 Financial Status Update (Cash Basis)  
 As of October 31, 2022



|   | <b>FY 2021</b>            |                             |                   | <b>FY 2022</b>        |                       |                       |                          |  |  |  |
|---|---------------------------|-----------------------------|-------------------|-----------------------|-----------------------|-----------------------|--------------------------|--|--|--|
|   | <i>Prior Year-to-Date</i> | <i>Current Year-to-Date</i> | <i>YTD Growth</i> | <b>FY 2021</b>        | <b>FY 2022</b>        | <b>FY 2022</b>        | <b>2022 Difference</b>   |  |  |  |
|   |                           |                             |                   | <i>Actual</i>         | <i>Forecast</i>       | <i>Budget</i>         | <i>Forecast - Budget</i> |  |  |  |
| <b>Receipts</b>                                       |                           |                             |                   |                       |                       |                       |                          |  |  |  |
| <b>User Charge &amp; Wholesale Receipts</b>           |                           |                             |                   |                       |                       |                       |                          |  |  |  |
| Water Collections                                     | \$ 87,035,025             | \$ 91,388,353               | 5.0%              | \$ 106,885,626        | \$ 111,594,836        | \$ 113,424,315        | \$ (1,829,479)           |  |  |  |
| Wastewater Collections                                | 52,067,658                | 47,097,989                  | -9.5%             | 63,761,376            | 56,148,848            | 56,528,196            | (379,348)                |  |  |  |
| DSIC - Water Collections                              | 3,518,921                 | 4,467,660                   | 27.0%             | 4,520,928             | 5,375,691             | 5,671,216             | (295,525)                |  |  |  |
| DSIC - Wastewater Collections                         | 2,091,692                 | 2,372,539                   | 13.4%             | 2,680,983             | 2,825,082             | 2,826,410             | (1,328)                  |  |  |  |
| Stormwater  | -                         | 10,292,243                  | n.a.              | -                     | 13,216,423            | 17,127,744            | (3,911,321)              |  |  |  |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -                        |  |  |  |
| <i>Subtotal: User Charge &amp; Wholesale Receipts</i> | \$ 144,713,295            | \$ 155,618,784              | 7.5%              | \$ 177,848,912        | \$ 189,160,881        | \$ 195,577,881        | \$ (6,417,000)           |  |  |  |
| <b>Other Operating Receipts</b>                       |                           |                             |                   |                       |                       |                       |                          |  |  |  |
| Other Misc. and Fee Operating Receipts                | \$ 6,046,775              | \$ 5,199,019                | -14.0%            | \$ 9,672,503          | \$ 5,591,721          | \$ 2,683,488          | \$ 2,908,233             |  |  |  |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -                        |  |  |  |
| <i>Subtotal: Other Operating Receipts</i>             | \$ 6,046,775              | \$ 5,199,019                | -14.0%            | \$ 9,672,503          | \$ 5,591,721          | \$ 2,683,488          | \$ 2,908,233             |  |  |  |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -                        |  |  |  |
| <b>Total: Receipts</b>                                | <b>\$ 150,760,070</b>     | <b>\$ 160,817,803</b>       | <b>6.7%</b>       | <b>\$ 187,521,415</b> | <b>\$ 194,752,602</b> | <b>\$ 198,261,369</b> | <b>\$ (3,508,767)</b>    |  |  |  |
| <b>Revenue Requirements</b>                           |                           |                             |                   |                       |                       |                       |                          |  |  |  |
| <b>Operating Expenses</b>                             |                           |                             |                   |                       |                       |                       |                          |  |  |  |
| Chief Executive Office                                | 2,677,691                 | 2,318,889                   | -13.4%            | 2,990,200             | 2,507,660             | 2,464,652             | 43,008                   |  |  |  |
| Customer Service                                      | 6,719,461                 | 6,819,358                   | 1.5%              | 8,223,448             | 8,296,224             | 8,809,447             | (513,223)                |  |  |  |
| Management Information Systems                        | 7,816,539                 | 7,642,322                   | -2.2%             | 8,931,474             | 3,656,375             | 4,780,822             | (1,124,446)              |  |  |  |
| Finance   | 6,442,407                 | 8,494,349                   | 31.9%             | 13,576,612            | 9,857,368             | 10,851,491            | (994,123)                |  |  |  |
| Human Resources                                       | 709,880                   | 1,209,091                   | 70.3%             | 977,857               | 1,505,934             | 1,816,321             | (310,387)                |  |  |  |
| Legal   | 5,275,555                 | 2,374,751                   | -55.0%            | 6,205,968             | 3,108,655             | 3,884,108             | (775,453)                |  |  |  |
| Safety & Security                                     | -                         | 605,701                     | n.a.              | -                     | 739,109               | 1,121,999             | (382,890)                |  |  |  |
| Warehouse   | 402,874                   | 470,168                     | 16.7%             | 492,608               | 531,141               | 538,288               | (7,147)                  |  |  |  |
| Public Affairs  | 766,605                   | 988,589                     | 29.0%             | 974,277               | 1,212,551             | 1,271,818             | (59,266)                 |  |  |  |
| Engineering & Construction                            | 30,921,249                | 28,623,049                  | -7.4%             | 32,345,286            | 25,716,801            | 27,579,284            | (1,862,483)              |  |  |  |
| Environmental Compliance                              | 2,053,685                 | 2,956,792                   | 44.0%             | 2,627,894             | 3,781,687             | 4,010,328             | (228,641)                |  |  |  |
| General Administration                                | 7,034                     | -                           | -100.0%           | 7,034                 | -                     | -                     | -                        |  |  |  |
| Laboratory  | 1,262,068                 | 1,888,210                   | 49.6%             | 1,724,973             | 2,584,608             | 4,068,444             | (1,483,837)              |  |  |  |
| Water Treatment Plant                                 | 15,102,389                | 16,435,913                  | 8.8%              | 18,721,895            | 20,317,658            | 19,354,813            | 962,845                  |  |  |  |
| Water Operations                                      | 10,478,326                | 12,560,461                  | 19.9%             | 13,493,185            | 15,136,344            | 15,522,618            | (386,274)                |  |  |  |
| Sewer Operations                                      | 2,645,958                 | 1,947,783                   | -26.4%            | 3,262,374             | 2,549,425             | 3,503,492             | (954,067)                |  |  |  |
| DSIC - Water  | 3,518,921                 | 4,467,660                   | 27.0%             | 4,520,928             | 5,375,691             | 5,671,216             | (295,525)                |  |  |  |
| DSIC - Wastewater                                     | 2,091,692                 | 2,372,539                   | 13.4%             | 2,680,983             | 2,825,082             | 2,826,410             | (1,328)                  |  |  |  |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -                        |  |  |  |
| Direct Operating Expenses                             | \$ 98,892,335             | \$ 102,175,626              | 3.3%              | \$ 121,756,996        | \$ 109,702,314        | \$ 118,075,552        | \$ (8,373,238)           |  |  |  |
| Net ALCOSAN Expenses                                  | (2,888,816)               | 567,441                     | -119.6%           | (5,405,693)           | 638,609               | 1,997,954             | (1,359,345)              |  |  |  |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -                        |  |  |  |
| In-Direct Operating Expenses                          | \$ (2,888,816)            | \$ 567,441                  | -119.6%           | \$ (5,405,693)        | \$ 638,609            | \$ 1,997,954          | \$ (1,359,345)           |  |  |  |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -                        |  |  |  |
| <i>Subtotal: Operating Expenses</i>                   | \$ 96,003,519             | \$ 102,743,067              | 7.0%              | \$ 116,351,303        | \$ 110,340,923        | \$ 120,073,506        | \$ (9,732,583)           |  |  |  |
| <b>Debt Service</b>                                   |                           |                             |                   |                       |                       |                       |                          |  |  |  |
| <i>Subtotal: Debt Service</i>                         | \$ 63,090,130             | \$ 69,234,023               | 9.7%              | \$ 64,338,574         | \$ 71,281,001         | \$ 73,002,260         | \$ (1,721,259)           |  |  |  |
|   | -                         | -                           | -                 | -                     | -                     | -                     | -                        |  |  |  |
| <b>Total: Revenue Requirements</b>                    | <b>\$ 159,093,648</b>     | <b>\$ 171,977,090</b>       | <b>8.1%</b>       | <b>\$ 180,689,877</b> | <b>\$ 181,621,924</b> | <b>\$ 193,075,766</b> | <b>\$ (11,453,842)</b>   |  |  |  |
| <b>Revenue Surplus / (Deficit)</b>                    | <b>\$ (8,333,578)</b>     | <b>\$ (11,159,288)</b>      |                   | <b>\$ 6,831,538</b>   | <b>\$ 13,130,678</b>  | <b>\$ 5,185,603</b>   | <b>\$ 7,945,075</b>      |  |  |  |

| <b>Financial Metrics*</b>  | <b>FY 2021</b> | <b>FY 2022</b>  | <b>FY 2022</b> |
|--|----------------|-----------------|----------------|
|  | <i>Actual</i>  | <i>Forecast</i> | <i>Budget</i>  |
| <b>Senior Debt Service Coverage</b>                                | <b>1.52</b>    | <b>1.66</b>     | <b>1.55</b>    |
| <i>Minimum Requirement</i>   | 1.25           | 1.25            | 1.25           |
| <b>Total Debt Service Coverage</b>                                 | <b>1.27</b>    | <b>1.32</b>     | <b>1.21</b>    |
| <i>Minimum Requirement</i>   | 1.10           | 1.10            | 1.10           |
| <b>Unrestricted Days Cash without ALCOSAN Expense</b>              | <b>207.39</b>  | <b>288.14</b>   | <b>243.15</b>  |
| <b>Unrestricted Days Cash with ALCOSAN Expense</b>                 | <b>217.03</b>  | <b>286.47</b>   | <b>239.10</b>  |
| <b>Unrestricted Days Cash including the Operating Reserve Fund</b> | <b>276.76</b>  | <b>349.47</b>   | <b>296.99</b>  |

\*Cash basis estimate. Final audited coverage ratio could be different due to the use of the accrual basis accounting method.



2022

| The Pittsburgh Water and Sewer Authority |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
|--|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|--------------------|-----------------------|
| 2022 Cash Flow (Cash Basis)              |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| As of October 31, 2022                   |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Receipts                                 | Actual               |                   |                   |                   |                   |                   |                   |                   |                   |                   | Forecast          |                    | Total                 |
|  | January              | February          | March             | April             | May               | June              | July              | August            | September         | October           | November          | December           |                       |
| Water                                    | \$ 8,029,539         | 7,338,408         | 10,127,205        | 8,326,400         | 8,999,160         | 9,411,523         | 9,074,676         | 8,709,326         | 10,286,710        | 11,085,405        | 11,642,609        | 8,563,875          | \$ 111,594,836        |
| Wastewater Conveyance                    | 4,690,481            | 4,246,058         | 5,292,847         | 4,316,474         | 4,623,691         | 4,894,689         | 4,517,879         | 4,607,909         | 4,284,038         | 5,623,923         | 4,782,812         | 4,268,048          | 56,148,848            |
| DSIC - Water*                            | 386,313              | 354,814           | 494,231           | 410,313           | 439,068           | 471,541           | 464,142           | 425,260           | 446,272           | 575,707           | 479,838           | 428,194            | 5,375,691             |
| DSIC - Wastewater*                       | 233,725              | 212,833           | 263,644           | 217,967           | 231,208           | 245,260           | 249,261           | 229,099           | 212,870           | 276,672           | 239,141           | 213,402            | 2,825,082             |
| Stormwater                               | -                    | 320,787           | 1,232,737         | 1,106,418         | 1,255,312         | 1,366,223         | 1,155,779         | 1,190,083         | 1,239,449         | 1,425,455         | 1,540,076         | 1,384,105          | 13,216,423            |
| Fees                                     | 1,335,368            | 1,457,015         | 286,737           | 80,259            | 67,137            | 87,881            | 77,530            | 60,772            | 61,236            | 55,540            | 87,881            | 87,881             | 3,745,236             |
| Misc. Other                              | 47,922               | 485,987           | 23,079            | 342,682           | 92,463            | 108,470           | 194,606           | 228,537           | 82,701            | 23,098            | 108,470           | 108,470            | 1,846,485             |
| <b>Total Receipts</b>                    | <b>\$ 14,723,348</b> | <b>14,415,902</b> | <b>17,720,479</b> | <b>14,800,513</b> | <b>15,708,039</b> | <b>16,585,587</b> | <b>15,733,872</b> | <b>15,450,985</b> | <b>16,613,277</b> | <b>19,065,800</b> | <b>18,880,825</b> | <b>15,053,975</b>  | <b>\$ 194,752,602</b> |
| <b>Cash Disbursements</b>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| <u>Operating Expenses</u>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Chief Executive Office                   | \$ 108,542           | 80,892            | 111,213           | 100,583           | 111,431           | 141,807           | 95,958            | 91,214            | 103,294           | 1,373,955         | 96,018            | 92,753             | \$ 2,507,660          |
| Customer Service                         | 663,865              | 1,073,913         | 673,854           | 617,836           | 586,059           | 757,614           | 645,787           | 525,955           | 595,599           | 678,877           | 833,283           | 643,583            | 8,296,224             |
| Management Information Systems           | 1,899,797            | 506,327           | 356,822           | 440,614           | 277,349           | 1,756,979         | 479,735           | 373,830           | 857,585           | 693,283           | 805,888           | (4,791,835)        | 3,656,375             |
| Finance                                  | 1,920,041            | 291,595           | 606,866           | 383,562           | 948,662           | 1,495,576         | 974,459           | 741,242           | 805,923           | 326,423           | 1,596,509         | (233,491)          | 9,857,368             |
| Human Resources                          | 99,316               | 116,938           | 97,795            | 126,748           | 135,378           | 158,916           | 120,935           | 83,898            | 140,266           | 128,901           | 167,892           | 128,950            | 1,505,934             |
| Legal                                    | 221,369              | 263,198           | 260,032           | 485,598           | 219,995           | 182,946           | 300,769           | 43,748            | 255,139           | 141,958           | 437,121           | 296,783            | 3,108,655             |
| Safety & Security                        | 15,779               | 94,855            | 82,683            | 71,313            | 61,616            | 84,249            | 33,855            | 41,588            | 82,384            | 37,379            | 86,311            | 47,096             | 739,109               |
| Warehouse                                | 33,773               | 33,574            | 44,966            | 38,315            | 32,808            | 52,290            | 32,229            | 51,026            | 41,440            | 109,748           | 56,525            | 4,448              | 531,141               |
| Public Affairs                           | 169,003              | 76,513            | 84,101            | 89,229            | 102,831           | 136,824           | 66,558            | 78,217            | 79,652            | 105,660           | 141,300           | 82,663             | 1,212,551             |
| Engineering & Construction               | 1,698,521            | 1,909,532         | 1,913,240         | 2,063,981         | 4,013,084         | 5,623,284         | 2,232,049         | 3,411,638         | 2,994,696         | 2,763,024         | 4,973,569         | (7,879,817)        | 25,716,801            |
| Environmental Compliance                 | 97,864               | 397,896           | 192,917           | 528,407           | 338,320           | 318,716           | 389,293           | 93,887            | 281,739           | 317,753           | 345,875           | 479,020            | 3,781,687             |
| Laboratory                               | 160,300              | 237,715           | 270,658           | 166,597           | 120,182           | 164,140           | 173,889           | 120,485           | 255,009           | 219,235           | 380,634           | 315,764            | 2,584,608             |
| Water Treatment Plant                    | 1,433,988            | 1,558,801         | 1,696,234         | 1,703,413         | 1,464,960         | 1,765,891         | 1,585,489         | 1,377,875         | 1,647,401         | 2,201,861         | 2,234,906         | 1,646,839          | 20,317,658            |
| Water Operations                         | 1,124,799            | 1,333,927         | 1,348,754         | 1,173,665         | 1,115,831         | 1,447,156         | 1,286,688         | 952,262           | 1,348,438         | 1,428,940         | 1,592,067         | 983,816            | 15,136,344            |
| Sewer Operations                         | 240,317              | 172,606           | 207,956           | 196,714           | 182,366           | 194,066           | 303,346           | 135,072           | 155,165           | 160,175           | 388,741           | 212,900            | 2,549,425             |
| Net ALCOSAN Expense                      | 2,924,157            | (533,942)         | (1,254,437)       | 1,388,136         | (1,328,058)       | (634,938)         | 1,326,525         | (706,612)         | (790,068)         | 176,678           | (734,773)         | 805,941            | 638,609               |
| DSIC - Water*                            | 386,313              | 354,814           | 494,231           | 410,313           | 439,068           | 471,541           | 464,142           | 425,260           | 446,272           | 575,707           | 479,838           | 428,194            | 5,375,691             |
| DSIC - Wastewater*                       | 233,725              | 212,833           | 263,644           | 217,967           | 231,208           | 245,260           | 249,261           | 229,099           | 212,870           | 276,672           | 239,141           | 213,402            | 2,825,082             |
| Sub Total                                | \$ 13,431,468        | 8,181,985         | 7,451,531         | 10,202,991        | 9,053,092         | 14,362,317        | 10,760,965        | 8,069,685         | 9,512,804         | 11,716,229        | 14,120,845        | (6,522,989)        | \$ 110,340,924        |
| <u>Debt Service</u>                      |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    |                       |
| Bond Debt Service                        | \$ 278,811           | 30,175,043        | 486,594           | 250,629           | 306,772           | 308,093           | 242,996           | 30,321,795        | 127,523           | 526,150           | 255,000           | 255,000            | \$ 63,534,405         |
| PENNVEST Debt Service                    | 408,312              | 411,017           | 666,890           | 665,718           | 645,557           | 670,037           | 674,611           | 670,291           | 698,430           | 698,754           | 757,132           | 779,846            | 7,746,596             |
| Sub Total                                | \$ 687,122           | 30,586,060        | 1,153,484         | 916,348           | 952,329           | 978,130           | 917,606           | 30,992,087        | 825,953           | 1,224,904         | 1,012,132         | 1,034,846          | \$ 71,281,001         |
| <b>Total Disbursements</b>               | <b>\$ 14,118,590</b> | <b>38,768,045</b> | <b>8,605,015</b>  | <b>11,119,339</b> | <b>10,005,421</b> | <b>15,340,447</b> | <b>11,678,572</b> | <b>39,061,771</b> | <b>10,338,757</b> | <b>12,941,133</b> | <b>15,132,977</b> | <b>(5,488,143)</b> | <b>\$ 181,621,924</b> |
| Surplus / Deficit                        | 604,757              | (24,352,143)      | 9,115,464         | 3,681,174         | 5,702,618         | 1,245,141         | 4,055,301         | (23,610,786)      | 6,274,520         | 6,124,667         | 3,747,849         | 20,542,117         |                       |
| <b>Annual Surplus/Deficit</b>            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                    | <b>\$ 13,130,678</b>  |

| Capital Spending                |              |           |           |           |           |           |            |           |            |           |           |            |               |
|---------------------------------|--------------|-----------|-----------|-----------|-----------|-----------|------------|-----------|------------|-----------|-----------|------------|---------------|
| Capital Spending (Non PENNVEST) | Actual       |           |           |           |           |           |            |           |            |           | Forecast  |            | Total         |
|                                 | January      | February  | March     | April     | May       | June      | July       | August    | September  | October   | November  | December   |               |
| Capital Spending (Non PENNVEST) | \$ 2,526,765 | 3,921,965 | 5,275,788 | 3,724,731 | 3,185,342 | 4,964,398 | 9,652,537  | 3,623,267 | 9,490,363  | 4,916,971 | 6,484,343 | 9,499,726  | \$ 67,266,195 |
| PENNVEST Spending               | 2,029,508    | 561,752   | 2,794,184 | 737,443   | 1,659,754 | 3,495,421 | 1,510,050  | 2,226,292 | 3,754,986  | 4,483,621 | 2,628,261 | 2,759,674  | 28,640,946    |
| Total                           | \$ 4,556,273 | 4,483,718 | 8,069,972 | 4,462,174 | 4,845,096 | 8,459,819 | 11,162,586 | 5,849,559 | 13,245,349 | 9,400,593 | 9,112,603 | 12,259,400 | \$ 95,907,140 |

| Capital Line of Credit       |      |   |   |   |   |   |   |   |   |   |   |   |             |
|------------------------------|------|---|---|---|---|---|---|---|---|---|---|---|-------------|
| Actual                       |      |   |   |   |   |   |   |   |   |   |   |   |             |
| Capital Line of Credit Limit |      |   |   |   |   |   |   |   |   |   |   |   | 150,000,000 |
| Capital Draws                |      |   |   |   |   |   |   |   |   |   |   |   | 101,802,850 |
| Outstanding Capital Draws    |      |   |   |   |   |   |   |   |   |   |   |   |             |
| Remaining Capital Credit     | \$ - | - | - | - | - | - | - | - | - | - | - | - | 48,197,150  |

| Bank Cash Balance  |               |            |            |            |            |            |            |            |            |            |  |  |  |
|--------------------|---------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|--|--|--|
| Actual             |               |            |            |            |            |            |            |            |            |            |  |  |  |
| Unreserved         | \$ 73,201,887 | 42,980,950 | 53,008,243 | 49,715,279 | 50,296,817 | 51,101,245 | 41,429,604 | 19,221,373 | 19,293,629 | 20,873,171 |  |  |  |
| Available for Draw | 2,545,881     | 7,124,047  | 12,098,028 | 15,550,195 | 19,950,986 | 25,709,827 | 35,158,859 | 40,956,434 | 44,428,533 | 50,611,202 |  |  |  |
| Rate Stabilization | 2,350,000     | 4,850,000  | 4,850,000  | 4,850,000  | 4,850,000  | 4,850,000  | 4,850,000  | 4,850,000  | 4,850,000  | 4,850,000  |  |  |  |
| Compliance         | 363,146       | 358,439    | 358,439    | 350,164    | 350,164    | 350,164    | 275,164    | 275,164    | 275,164    | 275,164    |  |  |  |
| Total              | \$ 78,460,914 | 55,313,435 | 70,314,709 | 70,465,638 | 75,447,968 | 82,011,236 | 81,713,628 | 65,302,971 | 68,847,326 | 76,609,537 |  |  |  |

\*Source of PAYGO for capital projects





|  | <u>FY 2021</u>            |                             |                   | <u>FY 2022</u>        |                       |                       | <u>FY 2021</u>           |  |  | <u>FY 2022</u> |  |  | <u>2022 Difference</u> |  |
|--|---------------------------|-----------------------------|-------------------|-----------------------|-----------------------|-----------------------|--------------------------|--|--|----------------|--|--|------------------------|--|
|  | <u>Prior Year-to-Date</u> | <u>Current Year-to-Date</u> | <u>YTD Growth</u> | <u>Actual</u>         | <u>Forecast</u>       | <u>Budget</u>         | <u>Forecast - Budget</u> |  |  |                |  |  |                        |  |
| <b>Receipts</b>  |                           |                             |                   |                       |                       |                       |                          |  |  |                |  |  |                        |  |
| <u>User Charge &amp; Wholesale Receipts</u>                        |                           |                             |                   |                       |                       |                       |                          |  |  |                |  |  |                        |  |
| Water Collections  | \$ 97,127,781             | \$ 100,762,398              | 3.7%              | \$ 106,885,626        | \$ 109,326,273        | \$ 113,424,315        | \$ (4,098,042)           |  |  |                |  |  |                        |  |
| Wastewater Collections   | 58,008,905                | 52,980,788                  | -8.7%             | 63,761,376            | 57,248,836            | 56,528,196            | 720,640                  |  |  |                |  |  |                        |  |
| DSIC - Water Collections   | 4,029,358                 | 4,977,280                   | 23.5%             | 4,520,928             | 5,405,474             | 5,671,216             | (265,742)                |  |  |                |  |  |                        |  |
| DSIC - Wastewater Collections                                      | 2,393,761                 | 2,673,864                   | 11.7%             | 2,680,983             | 2,887,266             | 2,826,410             | 60,856                   |  |  |                |  |  |                        |  |
| Stormwater   | -                         | 11,668,191                  | n.a.              | -                     | 13,052,296            | 17,127,744            | (4,075,448)              |  |  |                |  |  |                        |  |
|  | -                         | -                           | -                 | -                     | -                     | -                     | -                        |  |  |                |  |  |                        |  |
| <i>Subtotal: User Charge &amp; Wholesale Receipts</i>              | \$ 161,559,804            | \$ 173,062,521              | 7.1%              | \$ 177,848,912        | \$ 187,920,144        | \$ 195,577,881        | \$ (7,657,737)           |  |  |                |  |  |                        |  |
| <u>Other Operating Receipts</u>                                    |                           |                             |                   |                       |                       |                       |                          |  |  |                |  |  |                        |  |
| Other Misc. and Fee Operating Receipts                             | \$ 8,798,428              | \$ 5,317,451                | -39.6%            | \$ 9,672,503          | \$ 5,513,803          | \$ 2,683,488          | \$ 2,830,315             |  |  |                |  |  |                        |  |
|  | -                         | -                           | -                 | -                     | -                     | -                     | -                        |  |  |                |  |  |                        |  |
| <i>Subtotal: Other Operating Receipts</i>                          | \$ 8,798,428              | \$ 5,317,451                | -39.6%            | \$ 9,672,503          | \$ 5,513,803          | \$ 2,683,488          | \$ 2,830,315             |  |  |                |  |  |                        |  |
|  | -                         | -                           | -                 | -                     | -                     | -                     | -                        |  |  |                |  |  |                        |  |
| <b>Total: Receipts</b>   | <b>\$ 170,358,232</b>     | <b>\$ 178,379,972</b>       | <b>4.7%</b>       | <b>\$ 187,521,415</b> | <b>\$ 193,433,947</b> | <b>\$ 198,261,369</b> | <b>\$ (4,827,422)</b>    |  |  |                |  |  |                        |  |
| <b>Revenue Requirements</b>  |                           |                             |                   |                       |                       |                       |                          |  |  |                |  |  |                        |  |
| <u>Operating Expenses</u>  |                           |                             |                   |                       |                       |                       |                          |  |  |                |  |  |                        |  |
| Chief Executive Office   | 2,821,814                 | 2,437,068                   | -13.6%            | 2,990,200             | 2,529,821             | 2,464,652             | 65,169                   |  |  |                |  |  |                        |  |
| Customer Service   | 7,302,786                 | 7,822,456                   | 7.1%              | 8,223,448             | 8,466,038             | 8,809,447             | (343,409)                |  |  |                |  |  |                        |  |
| Management Information Systems                                     | 8,443,392                 | 8,172,572                   | -3.2%             | 8,931,474             | 8,894,545             | 4,780,822             | 4,113,724                |  |  |                |  |  |                        |  |
| Finance  | 7,129,336                 | 9,322,992                   | 30.8%             | 13,576,612            | 13,421,804            | 10,851,491            | 2,570,314                |  |  |                |  |  |                        |  |
| Human Resources  | 812,810                   | 1,380,499                   | 69.8%             | 977,857               | 1,509,450             | 1,816,321             | (306,871)                |  |  |                |  |  |                        |  |
| Legal  | 5,907,202                 | 2,873,976                   | -51.3%            | 6,205,968             | 3,170,759             | 3,884,108             | (713,349)                |  |  |                |  |  |                        |  |
| Safety & Security  | -                         | 690,664                     | n.a.              | -                     | 737,760               | 1,121,999             | (384,239)                |  |  |                |  |  |                        |  |
| Warehouse  | 469,743                   | 565,107                     | 20.3%             | 492,608               | 654,061               | 538,288               | 115,773                  |  |  |                |  |  |                        |  |
| Public Affairs   | 825,374                   | 1,116,777                   | 35.3%             | 974,277               | 1,199,439             | 1,271,818             | (72,378)                 |  |  |                |  |  |                        |  |
| Engineering & Construction   | 35,022,779                | 32,045,646                  | -8.5%             | 32,345,286            | 24,165,828            | 27,579,284            | (3,413,455)              |  |  |                |  |  |                        |  |
| Environmental Compliance   | 2,278,931                 | 3,834,045                   | 68.2%             | 2,627,894             | 4,313,065             | 4,010,328             | 302,737                  |  |  |                |  |  |                        |  |
| General Administration   | 7,034                     | -                           | -100.0%           | 7,034                 | -                     | -                     | -                        |  |  |                |  |  |                        |  |
| Laboratory   | 1,430,774                 | 2,136,311                   | 49.3%             | 1,724,973             | 2,452,075             | 4,068,444             | (1,616,369)              |  |  |                |  |  |                        |  |
| Water Treatment Plant  | 17,028,585                | 18,209,024                  | 6.9%              | 18,721,895            | 20,515,417            | 19,354,813            | 1,160,604                |  |  |                |  |  |                        |  |
| Water Operations   | 11,679,822                | 14,219,822                  | 21.7%             | 13,493,185            | 15,203,638            | 15,522,618            | (318,980)                |  |  |                |  |  |                        |  |
| Sewer Operations   | 2,919,063                 | 2,364,396                   | -19.0%            | 3,262,374             | 2,577,296             | 3,503,492             | (926,196)                |  |  |                |  |  |                        |  |
| DSIC - Water   | 4,029,358                 | 4,977,280                   | 23.5%             | 4,520,928             | 5,405,474             | 5,671,216             | (265,742)                |  |  |                |  |  |                        |  |
| DSIC - Wastewater  | 2,393,761                 | 2,673,864                   | 11.7%             | 2,680,983             | 2,887,266             | 2,826,410             | 60,856                   |  |  |                |  |  |                        |  |
|  | -                         | -                           | -                 | -                     | -                     | -                     | -                        |  |  |                |  |  |                        |  |
| Direct Operating Expenses  | \$ 110,502,564            | \$ 114,842,498              | 3.9%              | \$ 121,756,996        | \$ 118,103,739        | \$ 118,075,552        | \$ 28,187                |  |  |                |  |  |                        |  |
| Net ALCOSAN Expenses   | (4,903,929)               | (287,952)                   | -94.1%            | (5,405,693)           | 517,989               | 1,997,954             | (1,479,965)              |  |  |                |  |  |                        |  |
|  | -                         | -                           | -                 | -                     | -                     | -                     | -                        |  |  |                |  |  |                        |  |
| In-Direct Operating Expenses                                       | \$ (4,903,929)            | \$ (287,952)                | -94.1%            | \$ (5,405,693)        | \$ 517,989            | \$ 1,997,954          | \$ (1,479,965)           |  |  |                |  |  |                        |  |
|  | -                         | -                           | -                 | -                     | -                     | -                     | -                        |  |  |                |  |  |                        |  |
| <i>Subtotal: Operating Expenses</i>                                | \$ 105,598,635            | \$ 114,554,546              | 8.5%              | \$ 116,351,303        | \$ 118,621,728        | \$ 120,073,506        | \$ (1,451,777)           |  |  |                |  |  |                        |  |
| <u>Debt Service</u>  |                           |                             |                   |                       |                       |                       |                          |  |  |                |  |  |                        |  |
| <i>Subtotal: Debt Service</i>                                      | \$ 63,656,548             | \$ 70,238,970               | 10.3%             | \$ 64,338,574         | \$ 71,273,816         | \$ 73,002,260         | \$ (1,728,444)           |  |  |                |  |  |                        |  |
|  | -                         | -                           | -                 | -                     | -                     | -                     | -                        |  |  |                |  |  |                        |  |
| <b>Total: Revenue Requirements</b>                                 | <b>\$ 169,255,183</b>     | <b>\$ 184,793,516</b>       | <b>9.2%</b>       | <b>\$ 180,689,877</b> | <b>\$ 189,895,544</b> | <b>\$ 193,075,766</b> | <b>\$ (3,180,221)</b>    |  |  |                |  |  |                        |  |
| <b>Revenue Surplus / (Deficit)</b>                                 | <b>\$ 1,103,049</b>       | <b>\$ (6,413,543)</b>       |                   | <b>\$ 6,831,538</b>   | <b>\$ 3,538,402</b>   | <b>\$ 5,185,603</b>   | <b>\$ (1,647,201)</b>    |  |  |                |  |  |                        |  |
| <b>Financial Metrics*</b>  |                           |                             |                   | <b>FY 2021</b>        | <b>FY 2022</b>        | <b>FY 2022</b>        |                          |  |  |                |  |  |                        |  |
|  |                           |                             |                   | <i>Actual</i>         | <i>Forecast</i>       | <i>Budget</i>         |                          |  |  |                |  |  |                        |  |
| <b>Senior Debt Service Coverage</b>                                |                           |                             |                   | <b>1.52</b>           | <b>1.49</b>           | <b>1.55</b>           |                          |  |  |                |  |  |                        |  |
| <i>Minimum Requirement</i>   |                           |                             |                   | <i>1.25</i>           | <i>1.25</i>           | <i>1.25</i>           |                          |  |  |                |  |  |                        |  |
| <b>Total Debt Service Coverage</b>                                 |                           |                             |                   | <b>1.27</b>           | <b>1.19</b>           | <b>1.21</b>           |                          |  |  |                |  |  |                        |  |
| <i>Minimum Requirement</i>   |                           |                             |                   | <i>1.10</i>           | <i>1.10</i>           | <i>1.10</i>           |                          |  |  |                |  |  |                        |  |
| <b>Unrestricted Days Cash without ALCOSAN Expense</b>              |                           |                             |                   | <b>207.39</b>         | <b>247.27</b>         | <b>243.15</b>         |                          |  |  |                |  |  |                        |  |
| <b>Unrestricted Days Cash with ALCOSAN Expense</b>                 |                           |                             |                   | <b>217.03</b>         | <b>246.19</b>         | <b>239.10</b>         |                          |  |  |                |  |  |                        |  |
| <b>Unrestricted Days Cash including the Operating Reserve Fund</b> |                           |                             |                   | <b>276.76</b>         | <b>304.79</b>         | <b>296.99</b>         |                          |  |  |                |  |  |                        |  |

\*Cash basis estimate. Final audited coverage ratio could be different due to the use of the accrual basis accounting method.

| 2022                                     |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
|--|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|
| The Pittsburgh Water and Sewer Authority |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
| 2022 Cash Flow (Cash Basis)              |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
| As of November 30, 2022                  |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
|  | Actual               |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   | Forecast              |
| Receipts                                 | January              | February          | March             | April             | May               | June              | July              | August            | September         | October           | November          | December          | Total                 |
| Water                                    | \$ 8,029,539         | 7,338,408         | 10,127,205        | 8,326,400         | 8,999,160         | 9,411,523         | 9,074,676         | 8,709,326         | 10,286,710        | 11,085,405        | 9,374,045         | 8,563,875         | \$ 109,326,273        |
| Wastewater Conveyance                    | 4,690,481            | 4,246,058         | 5,292,847         | 4,316,474         | 4,623,691         | 4,894,689         | 4,517,879         | 4,607,909         | 4,284,038         | 5,623,923         | 5,882,799         | 4,268,048         | 57,248,836            |
| DSIC - Water*                            | 386,313              | 354,814           | 494,231           | 410,313           | 439,068           | 471,541           | 464,142           | 425,260           | 446,272           | 575,707           | 509,620           | 428,194           | 5,405,474             |
| DSIC - Wastewater*                       | 233,725              | 212,833           | 263,644           | 217,967           | 231,208           | 245,260           | 249,261           | 229,099           | 212,870           | 276,672           | 301,325           | 213,402           | 2,887,266             |
| Stormwater                               | -                    | 320,787           | 1,232,737         | 1,106,418         | 1,255,312         | 1,366,223         | 1,155,779         | 1,190,083         | 1,239,449         | 1,425,455         | 1,375,948         | 1,384,105         | 13,052,296            |
| Fees                                     | 1,335,368            | 1,457,015         | 286,737           | 80,259            | 67,137            | 87,881            | 77,530            | 60,772            | 61,236            | 55,540            | 61,861            | 87,881            | 3,719,215             |
| Misc. Other                              | 47,922               | 485,987           | 23,079            | 342,682           | 92,463            | 108,470           | 194,606           | 228,537           | 82,701            | 23,098            | 56,572            | 108,470           | 1,794,587             |
| <b>Total Receipts</b>                    | <b>\$ 14,723,348</b> | <b>14,415,902</b> | <b>17,720,479</b> | <b>14,800,513</b> | <b>15,708,039</b> | <b>16,585,587</b> | <b>15,733,872</b> | <b>15,450,985</b> | <b>16,613,277</b> | <b>19,065,800</b> | <b>17,562,170</b> | <b>15,053,975</b> | <b>\$ 193,433,947</b> |
| <b>Cash Disbursements</b>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
| <b>Operating Expenses</b>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
| Chief Executive Office                   | \$ 108,542           | 80,892            | 111,213           | 100,583           | 111,431           | 141,807           | 95,958            | 91,214            | 103,294           | 1,373,955         | 118,179           | 92,753            | \$ 2,529,821          |
| Customer Service                         | 663,865              | 1,073,913         | 673,854           | 617,836           | 586,059           | 757,614           | 645,787           | 525,955           | 595,599           | 678,877           | 1,003,098         | 643,583           | 8,466,038             |
| Management Information Systems           | 1,899,797            | 506,327           | 356,822           | 440,614           | 277,349           | 1,756,979         | 479,735           | 373,830           | 857,585           | 693,283           | 530,249           | 721,974           | 8,894,545             |
| Finance                                  | 1,920,041            | 291,595           | 606,866           | 383,562           | 948,662           | 1,495,576         | 974,459           | 741,242           | 805,923           | 326,423           | 828,643           | 4,098,812         | 13,421,804            |
| Human Resources                          | 99,316               | 116,938           | 97,795            | 126,748           | 135,378           | 158,916           | 120,935           | 83,898            | 140,266           | 128,901           | 171,408           | 128,950           | 1,509,450             |
| Legal                                    | 221,369              | 263,198           | 260,032           | 485,598           | 219,995           | 182,946           | 300,769           | 43,748            | 255,139           | 141,958           | 499,225           | 296,783           | 3,170,759             |
| Safety & Security                        | 15,779               | 94,855            | 82,683            | 71,313            | 61,616            | 84,249            | 33,855            | 41,588            | 82,384            | 37,379            | 84,963            | 47,096            | 737,760               |
| Warehouse                                | 33,773               | 33,574            | 44,966            | 38,315            | 32,808            | 52,290            | 32,229            | 51,026            | 41,440            | 109,748           | 94,939            | 88,954            | 654,061               |
| Public Affairs                           | 169,003              | 76,513            | 84,101            | 89,229            | 102,831           | 136,824           | 66,558            | 78,217            | 79,652            | 105,660           | 128,188           | 82,663            | 1,199,439             |
| Engineering & Construction               | 1,698,521            | 1,909,532         | 1,913,240         | 2,063,981         | 4,013,084         | 5,623,284         | 2,232,049         | 3,411,638         | 2,994,696         | 2,763,024         | 3,422,596         | (7,879,817)       | 24,165,828            |
| Environmental Compliance                 | 97,864               | 397,896           | 192,917           | 528,407           | 338,320           | 318,716           | 389,293           | 93,887            | 281,739           | 317,753           | 877,253           | 479,020           | 4,313,065             |
| Laboratory                               | 160,300              | 237,715           | 270,658           | 166,597           | 120,182           | 164,140           | 173,889           | 120,485           | 255,009           | 219,235           | 248,101           | 315,764           | 2,452,075             |
| Water Treatment Plant                    | 1,433,988            | 1,558,801         | 1,696,234         | 1,703,413         | 1,464,960         | 1,765,891         | 1,585,489         | 1,377,875         | 1,647,401         | 2,201,861         | 1,773,111         | 2,306,393         | 20,515,417            |
| Water Operations                         | 1,124,799            | 1,333,927         | 1,348,754         | 1,173,665         | 1,115,831         | 1,447,156         | 1,286,688         | 952,262           | 1,348,438         | 1,428,940         | 1,659,361         | 983,816           | 15,203,638            |
| Sewer Operations                         | 240,317              | 172,606           | 207,956           | 196,714           | 182,366           | 194,066           | 303,346           | 135,072           | 155,165           | 160,175           | 416,612           | 212,900           | 2,577,296             |
| Net ALCOSAN Expense                      | 2,924,157            | (533,942)         | (1,254,437)       | 1,388,136         | (1,328,058)       | (634,938)         | 1,326,525         | (706,612)         | (790,068)         | 176,678           | (855,393)         | 805,941           | 517,989               |
| DSIC - Water*                            | 386,313              | 354,814           | 494,231           | 410,313           | 439,068           | 471,541           | 464,142           | 425,260           | 446,272           | 575,707           | 509,620           | 428,194           | 5,405,474             |
| DSIC - Wastewater*                       | 233,725              | 212,833           | 263,644           | 217,967           | 231,208           | 245,260           | 249,261           | 229,099           | 212,870           | 276,672           | 301,325           | 213,402           | 2,887,266             |
| Sub Total                                | \$ 13,431,468        | 8,181,985         | 7,451,531         | 10,202,991        | 9,053,092         | 14,362,317        | 10,760,965        | 8,069,685         | 9,512,804         | 11,716,229        | 11,811,479        | 4,067,183         | \$ 118,621,729        |
| <b>Debt Service</b>                      |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
| Bond Debt Service                        | \$ 278,811           | 30,175,043        | 486,594           | 250,629           | 306,772           | 308,093           | 242,996           | 30,321,795        | 127,523           | 526,150           | 304,392           | 255,000           | \$ 63,583,797         |
| PENNVEST Debt Service                    | 408,312              | 411,017           | 666,890           | 665,718           | 645,557           | 670,037           | 674,611           | 670,291           | 698,430           | 698,754           | 700,555           | 779,846           | 7,690,019             |
| Sub Total                                | \$ 687,122           | 30,586,060        | 1,153,484         | 916,348           | 952,329           | 978,130           | 917,606           | 30,992,087        | 825,953           | 1,224,904         | 1,004,947         | 1,034,846         | \$ 71,273,816         |
| <b>Total Disbursements</b>               | <b>\$ 14,118,590</b> | <b>38,768,045</b> | <b>8,605,015</b>  | <b>11,119,339</b> | <b>10,005,421</b> | <b>15,340,447</b> | <b>11,678,572</b> | <b>39,061,771</b> | <b>10,338,757</b> | <b>12,941,133</b> | <b>12,816,426</b> | <b>5,102,029</b>  | <b>\$ 189,895,544</b> |
| Surplus / Deficit                        | 604,757              | (24,352,143)      | 9,115,464         | 3,681,174         | 5,702,618         | 1,245,141         | 4,055,301         | (23,610,786)      | 6,274,520         | 6,124,667         | 4,745,744         | 9,951,946         |                       |
| <b>Annual Surplus/Deficit</b>            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   | <b>\$ 3,538,402</b>   |

| Capital Spending                | Actual       |           |           |           |           |           |            |           |            |           |           |            | Forecast      |
|---------------------------------|--------------|-----------|-----------|-----------|-----------|-----------|------------|-----------|------------|-----------|-----------|------------|---------------|
| Capital Spending (Non PENNVEST) | \$ 2,526,765 | 3,921,965 | 5,275,788 | 3,724,731 | 3,185,342 | 4,964,398 | 9,652,537  | 3,623,267 | 9,490,363  | 4,916,971 | 5,797,777 | 9,499,726  | \$ 66,579,629 |
| PENNVEST Spending               | 2,029,508    | 561,752   | 2,794,184 | 737,443   | 1,659,754 | 3,495,421 | 1,510,050  | 2,226,292 | 3,754,986  | 4,483,621 | 2,708,477 | 2,759,674  | 28,721,162    |
| Total                           | \$ 4,556,273 | 4,483,718 | 8,069,972 | 4,462,174 | 4,845,096 | 8,459,819 | 11,162,586 | 5,849,559 | 13,245,349 | 9,400,593 | 8,506,254 | 12,259,400 | \$ 95,300,791 |

| Capital Line of Credit       | Actual |   |   |   |   |   |   |   |   |   |            |             |  |
|------------------------------|--------|---|---|---|---|---|---|---|---|---|------------|-------------|--|
| Capital Line of Credit Limit |        |   |   |   |   |   |   |   |   |   |            | 150,000,000 |  |
| Capital Draws                |        |   |   |   |   |   |   |   |   |   |            | 56,802,850  |  |
| Outstanding Capital Draws    |        |   |   |   |   |   |   |   |   |   |            |             |  |
| Remaining Capital Credit     | \$ -   | - | - | - | - | - | - | - | - | - | 93,197,150 | -           |  |

| Bank Cash Balance  | Actual        |            |            |            |            |            |            |            |            |            |            |   |  |
|--------------------|---------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|------------|---|--|
| Unreserved         | \$ 73,201,887 | 42,980,950 | 53,008,243 | 49,715,279 | 50,296,817 | 51,101,245 | 41,429,604 | 19,221,373 | 19,293,629 | 20,873,171 | 16,871,111 |   |  |
| Available for Draw | 2,545,881     | 7,124,047  | 12,098,028 | 15,550,195 | 19,950,986 | 25,709,827 | 35,158,859 | 40,956,434 | 44,428,533 | 50,611,202 | 57,877,943 |   |  |
| Rate Stabilization | 2,350,000     | 4,850,000  | 4,850,000  | 4,850,000  | 4,850,000  | 4,850,000  | 4,850,000  | 4,850,000  | 4,850,000  | 4,850,000  | 4,850,000  |   |  |
| Compliance         | 363,146       | 358,439    | 358,439    | 350,164    | 350,164    | 350,164    | 275,164    | 275,164    | 275,164    | 275,164    | 230,377    |   |  |
| Total              | \$ 78,460,914 | 55,313,435 | 70,314,709 | 70,465,638 | 75,447,968 | 82,011,236 | 81,713,628 | 65,302,971 | 68,847,326 | 76,609,537 | 79,829,431 | - |  |

\*Source of PAYGO for capital projects

**The Pittsburgh Water and Sewer Authority**  
 2021 & 2022 Financial Status Update (Cash Basis)  
 As of December 31, 2022



|   | <u>FY 2021</u>            |                    |    | <u>FY 2022</u>              |             |    | <u>FY 2021</u>     |    |                    | <u>FY 2022</u> |                    |    | <u>FY 2022</u>     |  |  | <u>2022 Difference</u> |  |  |                          |  |  |
|---|---------------------------|--------------------|----|-----------------------------|-------------|----|--------------------|----|--------------------|----------------|--------------------|----|--------------------|--|--|------------------------|--|--|--------------------------|--|--|
|   | <u>Prior Year-to-Date</u> |                    |    | <u>Current Year-to-Date</u> |             |    | <u>YTD Growth</u>  |    |                    | <u>Actual</u>  |                    |    | <u>Forecast</u>    |  |  | <u>Budget</u>          |  |  | <u>Forecast - Budget</u> |  |  |
| <b>Receipts</b>                                       |                           |                    |    |                             |             |    |                    |    |                    |                |                    |    |                    |  |  |                        |  |  |                          |  |  |
| <u>User Charge &amp; Wholesale Receipts</u>           |                           |                    |    |                             |             |    |                    |    |                    |                |                    |    |                    |  |  |                        |  |  |                          |  |  |
| Water Collections                                     | \$                        | 106,885,626        | \$ | 111,395,207                 | 4.2%        | \$ | 106,885,626        | \$ | 111,395,207        | \$             | 113,424,315        | \$ | (2,029,108)        |  |  |                        |  |  |                          |  |  |
| Wastewater Collections                                |                           | 63,761,376         |    | 58,534,155                  | -8.2%       |    | 63,761,376         |    | 58,534,155         |                | 56,528,196         |    | 2,005,959          |  |  |                        |  |  |                          |  |  |
| DSIC - Water Collections                              |                           | 4,520,928          |    | 5,512,492                   | 21.9%       |    | 4,520,928          |    | 5,512,492          |                | 5,671,216          |    | (158,724)          |  |  |                        |  |  |                          |  |  |
| DSIC - Wastewater Collections                         |                           | 2,680,983          |    | 2,950,029                   | 10.0%       |    | 2,680,983          |    | 2,950,029          |                | 2,826,410          |    | 123,619            |  |  |                        |  |  |                          |  |  |
| Stormwater  |                           | -                  |    | 13,259,102                  | n.a.        |    | -                  |    | 13,259,102         |                | 17,127,744         |    | (3,868,642)        |  |  |                        |  |  |                          |  |  |
|   |                           | -                  |    | -                           | -           |    | -                  |    | -                  |                | -                  |    | -                  |  |  |                        |  |  |                          |  |  |
| <i>Subtotal: User Charge &amp; Wholesale Receipts</i> | \$                        | 177,848,912        | \$ | 191,650,985                 | 7.8%        | \$ | 177,848,912        | \$ | 191,650,985        | \$             | 195,577,881        | \$ | (3,926,896)        |  |  |                        |  |  |                          |  |  |
| <u>Other Operating Receipts</u>                       |                           |                    |    |                             |             |    |                    |    |                    |                |                    |    |                    |  |  |                        |  |  |                          |  |  |
| Other Misc. and Fee Operating Receipts                | \$                        | 9,672,503          | \$ | 5,587,759                   | -42.2%      | \$ | 9,672,503          | \$ | 5,587,759          | \$             | 2,683,488          | \$ | 2,904,271          |  |  |                        |  |  |                          |  |  |
|   |                           | -                  |    | -                           | -           |    | -                  |    | -                  |                | -                  |    | -                  |  |  |                        |  |  |                          |  |  |
| <i>Subtotal: Other Operating Receipts</i>             | \$                        | 9,672,503          | \$ | 5,587,759                   | -42.2%      | \$ | 9,672,503          | \$ | 5,587,759          | \$             | 2,683,488          | \$ | 2,904,271          |  |  |                        |  |  |                          |  |  |
|   |                           | -                  |    | -                           | -           |    | -                  |    | -                  |                | -                  |    | -                  |  |  |                        |  |  |                          |  |  |
| <b>Total: Receipts</b>                                | \$                        | <b>187,521,415</b> | \$ | <b>197,238,744</b>          | <b>5.2%</b> | \$ | <b>187,521,415</b> | \$ | <b>197,238,744</b> | \$             | <b>198,261,369</b> | \$ | <b>(1,022,625)</b> |  |  |                        |  |  |                          |  |  |
| <b>Revenue Requirements</b>                           |                           |                    |    |                             |             |    |                    |    |                    |                |                    |    |                    |  |  |                        |  |  |                          |  |  |
| <u>Operating Expenses</u>                             |                           |                    |    |                             |             |    |                    |    |                    |                |                    |    |                    |  |  |                        |  |  |                          |  |  |
| Chief Executive Office                                |                           | 2,990,200          |    | 2,570,182                   | -14.0%      |    | 2,990,200          |    | 2,570,182          |                | 2,464,652          |    | 105,529            |  |  |                        |  |  |                          |  |  |
| Customer Service                                      |                           | 8,223,448          |    | 8,250,195                   | 0.3%        |    | 8,223,448          |    | 8,250,195          |                | 8,809,447          |    | (559,252)          |  |  |                        |  |  |                          |  |  |
| Management Information Systems                        |                           | 8,931,474          |    | 9,733,455                   | 9.0%        |    | 8,931,474          |    | 9,733,455          |                | 4,780,822          |    | 4,952,633          |  |  |                        |  |  |                          |  |  |
| Finance   |                           | 13,576,612         |    | 9,859,711                   | -27.4%      |    | 13,576,612         |    | 9,859,711          |                | 10,851,491         |    | (991,780)          |  |  |                        |  |  |                          |  |  |
| Human Resources                                       |                           | 977,857            |    | 1,501,580                   | 53.6%       |    | 977,857            |    | 1,501,580          |                | 1,816,321          |    | (314,741)          |  |  |                        |  |  |                          |  |  |
| Legal   |                           | 6,205,968          |    | 3,080,261                   | -50.4%      |    | 6,205,968          |    | 3,080,261          |                | 3,884,108          |    | (803,848)          |  |  |                        |  |  |                          |  |  |
| Safety & Security                                     |                           | -                  |    | 847,280                     | n.a.        |    | -                  |    | 847,280            |                | 1,121,999          |    | (274,719)          |  |  |                        |  |  |                          |  |  |
| Warehouse   |                           | 492,608            |    | 621,623                     | 26.2%       |    | 492,608            |    | 621,623            |                | 538,288            |    | 83,335             |  |  |                        |  |  |                          |  |  |
| Public Affairs  |                           | 974,277            |    | 1,229,732                   | 26.2%       |    | 974,277            |    | 1,229,732          |                | 1,271,818          |    | (42,086)           |  |  |                        |  |  |                          |  |  |
| Engineering & Construction                            |                           | 32,345,286         |    | 28,221,202                  | -12.8%      |    | 32,345,286         |    | 28,221,202         |                | 27,579,284         |    | 641,919            |  |  |                        |  |  |                          |  |  |
| Environmental Compliance                              |                           | 2,627,894          |    | 4,427,185                   | 68.5%       |    | 2,627,894          |    | 4,427,185          |                | 4,010,328          |    | 416,857            |  |  |                        |  |  |                          |  |  |
| General Administration                                |                           | 7,034              |    | -                           | -100.0%     |    | 7,034              |    | -                  |                | -                  |    | -                  |  |  |                        |  |  |                          |  |  |
| Laboratory  |                           | 1,724,973          |    | 2,423,278                   | 40.5%       |    | 1,724,973          |    | 2,423,278          |                | 4,068,444          |    | (1,645,166)        |  |  |                        |  |  |                          |  |  |
| Water Treatment Plant                                 |                           | 18,721,895         |    | 20,943,963                  | 11.9%       |    | 18,721,895         |    | 20,943,963         |                | 19,354,813         |    | 1,589,150          |  |  |                        |  |  |                          |  |  |
| Water Operations                                      |                           | 13,493,185         |    | 15,743,318                  | 16.7%       |    | 13,493,185         |    | 15,743,318         |                | 15,522,618         |    | 220,700            |  |  |                        |  |  |                          |  |  |
| Sewer Operations                                      |                           | 3,262,374          |    | 2,568,876                   | -21.3%      |    | 3,262,374          |    | 2,568,876          |                | 3,503,492          |    | (934,616)          |  |  |                        |  |  |                          |  |  |
| DSIC - Water  |                           | 4,520,928          |    | 5,512,492                   | 21.9%       |    | 4,520,928          |    | 5,512,492          |                | 5,671,216          |    | (158,724)          |  |  |                        |  |  |                          |  |  |
| DSIC - Wastewater                                     |                           | 2,680,983          |    | 2,950,029                   | 10.0%       |    | 2,680,983          |    | 2,950,029          |                | 2,826,410          |    | 123,619            |  |  |                        |  |  |                          |  |  |
|   |                           | -                  |    | -                           | -           |    | -                  |    | -                  |                | -                  |    | -                  |  |  |                        |  |  |                          |  |  |
| <i>Direct Operating Expenses</i>                      | \$                        | 121,756,996        | \$ | 120,484,361                 | -1.0%       | \$ | 121,756,996        | \$ | 120,484,361        | \$             | 118,075,552        | \$ | 2,408,809          |  |  |                        |  |  |                          |  |  |
| <i>Net ALCOSAN Expenses</i>                           |                           | (5,405,693)        |    | (413,783)                   | -92.3%      |    | (5,405,693)        |    | (413,783)          |                | 1,997,954          |    | (2,411,737)        |  |  |                        |  |  |                          |  |  |
|   |                           | -                  |    | -                           | -           |    | -                  |    | -                  |                | -                  |    | -                  |  |  |                        |  |  |                          |  |  |
| <i>In-Direct Operating Expenses</i>                   | \$                        | (5,405,693)        | \$ | (413,783)                   | -92.3%      | \$ | (5,405,693)        | \$ | (413,783)          | \$             | 1,997,954          | \$ | (2,411,737)        |  |  |                        |  |  |                          |  |  |
|   |                           | -                  |    | -                           | -           |    | -                  |    | -                  |                | -                  |    | -                  |  |  |                        |  |  |                          |  |  |
| <i>Subtotal: Operating Expenses</i>                   | \$                        | 116,351,303        | \$ | 120,070,577                 | 3.2%        | \$ | 116,351,303        | \$ | 120,070,577        | \$             | 120,073,506        | \$ | (2,928)            |  |  |                        |  |  |                          |  |  |
| <u>Debt Service</u>                                   |                           |                    |    |                             |             |    |                    |    |                    |                |                    |    |                    |  |  |                        |  |  |                          |  |  |
| <i>Subtotal: Debt Service</i>                         | \$                        | 64,338,574         | \$ | 71,354,384                  | 10.9%       | \$ | 64,338,574         | \$ | 71,354,384         | \$             | 73,002,260         | \$ | (1,647,876)        |  |  |                        |  |  |                          |  |  |
| <u>Transfers to Reserves</u>                          |                           |                    |    |                             |             |    |                    |    |                    |                |                    |    |                    |  |  |                        |  |  |                          |  |  |
| <i>Subtotal: Transfers to Reserves</i>                | \$                        | -                  | \$ | 122,000                     |             | \$ | -                  | \$ | 122,000            | \$             | -                  | \$ | 122,000.00         |  |  |                        |  |  |                          |  |  |
|   |                           | -                  |    | -                           | -           |    | -                  |    | -                  |                | -                  |    | -                  |  |  |                        |  |  |                          |  |  |
| <b>Total: Revenue Requirements</b>                    | \$                        | <b>180,689,877</b> | \$ | <b>191,546,961</b>          | <b>6.0%</b> | \$ | <b>180,689,877</b> | \$ | <b>191,546,961</b> | \$             | <b>193,075,766</b> | \$ | <b>(1,528,804)</b> |  |  |                        |  |  |                          |  |  |
| <b>Revenue Surplus / (Deficit)</b>                    | \$                        | <b>6,831,538</b>   | \$ | <b>5,691,782</b>            |             | \$ | <b>6,831,538</b>   | \$ | <b>5,691,782</b>   | \$             | <b>5,185,603</b>   | \$ | <b>506,179</b>     |  |  |                        |  |  |                          |  |  |

Financial Metrics\*

|  | <u>FY 2021</u> | <u>FY 2022</u>  | <u>FY 2022</u> |
|--|----------------|-----------------|----------------|
|  | <u>Actual</u>  | <u>Forecast</u> | <u>Budget</u>  |
| <b>Senior Debt Service Coverage</b>                                | <b>1.52</b>    | <b>1.54</b>     | <b>1.55</b>    |
| <i>Minimum Requirement</i>   | <i>1.25</i>    | <i>1.25</i>     | <i>1.25</i>    |
| <b>Total Debt Service Coverage</b>                                 | <b>1.27</b>    | <b>1.22</b>     | <b>1.21</b>    |
| <i>Minimum Requirement</i>   | <i>1.10</i>    | <i>1.10</i>     | <i>1.10</i>    |
| <i>Unrestricted Days Cash without ALCOSAN Expense</i>              | <i>207.39</i>  | <i>248.91</i>   | <i>243.15</i>  |
| <i>Unrestricted Days Cash with ALCOSAN Expense</i>                 | <i>217.03</i>  | <i>249.77</i>   | <i>239.10</i>  |
| <i>Unrestricted Days Cash including the Operating Reserve Fund</i> | <i>276.76</i>  | <i>307.66</i>   | <i>296.99</i>  |

\*Cash basis estimate. Final audited coverage ratio could be different due to the use of the accrual basis accounting method.

2022

| The Pittsburgh Water and Sewer Authority |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
|--|----------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-------------------|-----------------------|
| 2022 Cash Flow (Cash Basis)              |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
| As of December 31, 2022                  |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
| Actual                                   |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
| Receipts                                 | January              | February          | March             | April             | May               | June              | July              | August            | September         | October           | November          | December          | Total                 |
| Water                                    | \$ 8,029,539         | 7,338,408         | 10,127,205        | 8,326,400         | 8,999,160         | 9,411,523         | 9,074,676         | 8,709,326         | 10,286,710        | 11,085,405        | 9,374,045         | 10,632,809        | \$ 111,395,207        |
| Wastewater Conveyance                    | 4,690,481            | 4,246,058         | 5,292,847         | 4,316,474         | 4,623,691         | 4,894,689         | 4,517,879         | 4,607,909         | 4,284,038         | 5,623,923         | 5,882,799         | 5,553,367         | 58,534,155            |
| DSJC - Water*                            | 386,313              | 354,814           | 494,231           | 410,313           | 439,068           | 471,541           | 464,142           | 425,260           | 446,272           | 575,707           | 509,620           | 535,212           | 5,512,492             |
| DSJC - Wastewater*                       | 233,725              | 212,833           | 263,644           | 217,967           | 231,208           | 245,260           | 249,261           | 229,099           | 212,870           | 276,672           | 301,325           | 276,165           | 2,950,029             |
| Stormwater                               | -                    | 320,787           | 1,232,737         | 1,106,418         | 1,255,312         | 1,366,223         | 1,155,779         | 1,190,083         | 1,239,449         | 1,425,455         | 1,375,948         | 1,590,911         | 13,259,102            |
| Fees                                     | 1,335,368            | 1,457,015         | 286,737           | 80,259            | 67,137            | 87,881            | 77,530            | 60,772            | 61,236            | 55,540            | 61,861            | 66,292            | 3,697,626             |
| Misc. Other                              | 47,922               | 485,987           | 23,079            | 342,682           | 92,463            | 108,470           | 194,606           | 228,537           | 82,701            | 23,098            | 56,572            | 204,015           | 1,890,132             |
| <b>Total Receipts</b>                    | <b>\$ 14,723,348</b> | <b>14,415,902</b> | <b>17,720,479</b> | <b>14,800,513</b> | <b>15,708,039</b> | <b>16,585,587</b> | <b>15,733,872</b> | <b>15,450,985</b> | <b>16,613,277</b> | <b>19,065,800</b> | <b>17,562,170</b> | <b>18,858,771</b> | <b>\$ 197,238,744</b> |
| <b>Cash Disbursements</b>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
| <b>Operating Expenses</b>                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
| Chief Executive Office                   | \$ 108,542           | 80,892            | 111,213           | 100,583           | 111,431           | 141,807           | 95,958            | 91,214            | 103,294           | 1,373,955         | 118,179           | 133,113           | \$ 2,570,182          |
| Customer Service                         | 663,865              | 1,073,913         | 673,854           | 617,836           | 586,059           | 757,614           | 645,787           | 525,955           | 595,599           | 678,877           | 1,003,098         | 427,739           | 8,250,195             |
| Management Information Systems           | 1,899,797            | 506,327           | 356,822           | 440,614           | 277,349           | 1,756,979         | 479,735           | 373,830           | 593,283           | 850,249           | 1,560,883         | 9,733,455         | 9,733,455             |
| Finance                                  | 1,920,041            | 291,595           | 606,866           | 383,562           | 948,662           | 1,495,576         | 974,459           | 741,242           | 805,923           | 326,423           | 828,643           | 536,719           | 9,859,711             |
| Human Resources                          | 99,316               | 116,938           | 97,795            | 126,748           | 135,378           | 158,916           | 120,935           | 83,898            | 140,266           | 128,901           | 171,408           | 121,081           | 1,501,580             |
| Legal                                    | 221,369              | 263,198           | 260,032           | 485,598           | 219,995           | 182,946           | 300,769           | 43,748            | 255,139           | 141,958           | 499,225           | 206,285           | 3,080,261             |
| Safety & Security                        | 15,779               | 94,855            | 82,683            | 71,313            | 61,616            | 84,249            | 33,855            | 41,588            | 82,384            | 37,379            | 84,963            | 156,616           | 847,280               |
| Warehouse                                | 33,773               | 33,574            | 44,966            | 38,315            | 32,808            | 52,290            | 51,026            | 41,440            | 109,748           | 94,939            | 56,516            | 621,623           | 621,623               |
| Public Affairs                           | 169,003              | 76,513            | 84,101            | 89,229            | 102,831           | 136,824           | 66,558            | 78,217            | 79,652            | 105,660           | 128,188           | 112,955           | 1,229,732             |
| Engineering & Construction               | 1,698,521            | 1,909,532         | 1,913,240         | 2,063,981         | 4,013,084         | 5,623,284         | 2,232,049         | 3,411,638         | 2,994,696         | 2,763,024         | 3,422,596         | (3,824,443)       | 28,221,202            |
| Environmental Compliance                 | 97,864               | 397,896           | 192,917           | 528,407           | 338,320           | 318,716           | 389,293           | 93,887            | 281,739           | 317,753           | 877,253           | 593,140           | 4,427,185             |
| Laboratory                               | 160,300              | 237,715           | 270,658           | 166,597           | 120,182           | 164,140           | 173,889           | 120,485           | 255,009           | 219,235           | 248,101           | 286,968           | 2,423,278             |
| Water Treatment Plant                    | 1,433,988            | 1,558,801         | 1,696,234         | 1,703,413         | 1,464,960         | 1,765,891         | 1,585,489         | 1,377,875         | 1,647,401         | 2,201,861         | 1,773,111         | 2,734,938         | 20,943,963            |
| Water Operations                         | 1,124,799            | 1,333,927         | 1,348,754         | 1,173,665         | 1,115,831         | 1,447,156         | 1,286,688         | 952,262           | 1,348,438         | 1,428,940         | 1,659,361         | 1,523,496         | 15,743,318            |
| Sewer Operations                         | 240,317              | 172,606           | 207,956           | 196,714           | 182,366           | 194,066           | 303,346           | 135,072           | 155,165           | 160,175           | 204,480           | 2,568,876         | 2,568,876             |
| Net ALCOSAN Expense                      | 2,924,157            | (533,942)         | (1,254,437)       | 1,388,136         | (1,328,058)       | (634,938)         | 1,326,525         | (706,612)         | (790,068)         | 176,678           | (855,393)         | (125,831)         | (413,783)             |
| DSJC - Water*                            | 386,313              | 354,814           | 494,231           | 410,313           | 439,068           | 471,541           | 464,142           | 425,260           | 446,272           | 575,707           | 509,620           | 535,212           | 5,512,492             |
| DSJC - Wastewater*                       | 233,725              | 212,833           | 263,644           | 217,967           | 231,208           | 245,260           | 249,261           | 229,099           | 212,870           | 276,672           | 301,325           | 276,165           | 2,950,029             |
| Sub Total                                | \$ 13,431,468        | 8,181,985         | 7,451,531         | 10,202,991        | 9,053,092         | 14,362,317        | 10,760,965        | 8,069,685         | 9,512,804         | 11,716,229        | 11,811,479        | 5,516,032         | \$ 120,070,578        |
| <b>Debt Service</b>                      |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
| Bond Debt Service                        | \$ 278,811           | 30,175,043        | 486,594           | 250,629           | 306,772           | 308,093           | 242,996           | 30,321,795        | 127,523           | 526,150           | 304,392           | 335,568           | \$ 63,664,365         |
| PENNVEST Debt Service                    | 408,312              | 411,017           | 666,890           | 665,718           | 645,557           | 670,037           | 674,611           | 620,291           | 698,430           | 698,754           | 700,546           | 779,846           | 7,690,019             |
| Sub Total                                | \$ 687,122           | 30,586,060        | 1,153,484         | 916,348           | 952,329           | 978,130           | 917,606           | 30,992,087        | 825,953           | 1,224,904         | 1,004,947         | 1,115,414         | \$ 71,354,384         |
| <b>Transfer to Restricted Funds</b>      |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
|  | \$ -                 | -                 | -                 | -                 | -                 | -                 | -                 | -                 | -                 | -                 | -                 | 122,000           | 122,000               |
| <b>Total Disbursements</b>               | <b>\$ 14,118,590</b> | <b>38,768,045</b> | <b>8,605,015</b>  | <b>11,119,339</b> | <b>10,005,421</b> | <b>15,340,447</b> | <b>11,678,572</b> | <b>39,061,771</b> | <b>10,338,757</b> | <b>12,941,133</b> | <b>12,816,426</b> | <b>6,753,446</b>  | <b>\$ 191,546,961</b> |
| Surplus / Deficit                        | 604,757              | (24,352,143)      | 9,115,464         | 3,681,174         | 5,702,618         | 1,245,141         | 4,055,301         | (23,610,786)      | 6,274,520         | 6,124,667         | 4,745,744         | 12,105,326        |                       |
| <b>Annual Surplus/Deficit</b>            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   | <b>\$ 5,691,782</b>   |
| <b>Capital Spending</b>                  |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
| Actual                                   |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
| Capital Spending (Non PENNVEST)          | \$ 2,526,765         | 3,921,965         | 5,275,788         | 3,724,731         | 3,185,342         | 4,964,398         | 9,652,537         | 3,623,267         | 9,490,363         | 4,916,971         | 5,797,777         | 14,935,510        | \$ 72,015,412         |
| PENNVEST Spending                        | 2,029,508            | 561,752           | 2,794,184         | 737,443           | 1,659,754         | 3,495,421         | 1,510,050         | 2,226,292         | 3,754,986         | 4,483,621         | 2,708,477         | 6,059,885         | 32,021,374            |
| Total                                    | \$ 4,556,273         | 4,483,718         | 8,069,972         | 4,462,174         | 4,845,096         | 8,459,819         | 11,162,586        | 5,849,559         | 13,245,349        | 9,400,593         | 8,506,254         | 20,995,395        | \$ 104,036,786        |
| <b>Capital Line of Credit</b>            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
| Actual                                   |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
| Capital Line of Credit Limit             |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   | 150,000,000       |                       |
| Capital Draws                            |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   | 131,711,603       |                       |
| Outstanding Capital Draws                |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
| Remaining Capital Credit                 | \$ -                 | -                 | -                 | -                 | -                 | -                 | -                 | -                 | -                 | -                 | -                 | 18,288,397        |                       |
| <b>Bank Cash Balance</b>                 |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
| Actual                                   |                      |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                   |                       |
| Unreserved                               | \$ 73,201,887        | 42,980,950        | 53,008,243        | 49,715,279        | 50,296,817        | 51,101,245        | 41,429,604        | 19,221,373        | 19,293,629        | 20,873,171        | 16,871,111        | 85,818,012        |                       |
| Available for Draw                       | 2,545,881            | 7,124,047         | 12,098,028        | 15,550,195        | 19,950,986        | 25,709,827        | 35,158,859        | 40,956,434        | 44,428,533        | 50,611,202        | 57,877,943        | -                 |                       |
| Rate Stabilization                       | 2,350,000            | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         | 4,850,000         |                       |
| Compliance                               | 363,146              | 358,439           | 358,439           | 350,164           | 350,164           | 350,164           | 275,164           | 275,164           | 275,164           | 275,164           | 230,377           | 210,504           |                       |
| Total                                    | \$ 78,460,914        | 55,313,435        | 70,314,709        | 70,465,638        | 75,447,968        | 82,011,236        | 81,713,628        | 65,302,971        | 68,847,326        | 76,609,537        | 79,829,431        | 90,878,516        |                       |

\*Source of PAYGO for capital projects

| Account Type         | Category Description              | GL Account      | GL Description                                 | Monthly Budget        | Monthly Actual        | Monthly Variance     | Monthly %     | Annual Budget          | YTD Budget             | YTD Actual            | YTD Variance          | YTD % | PR YR Month Actual | PR YR YTD Actual |             |
|----------------------|-----------------------------------|-----------------|--|-----------------------|-----------------------|----------------------|---------------|------------------------|------------------------|-----------------------|-----------------------|-------|--------------------|------------------|-------------|
| <b>Revenues</b>      | <b>Utility Revenue</b>            |                 |  | <b>-21,116,134.25</b> | <b>-24,498,664.10</b> | <b>-3,382,529.9</b>  | <b>13.81</b>  | <b>-278,348,382.99</b> | <b>-278,348,382.99</b> | <b>-283,172,816.8</b> | <b>-4,824,433.81</b>  |       | <b>1.70</b>        | <b>0.00</b>      | <b>0.00</b> |
|                      |                                   | 30100000        | Meter Sales Revenue                            | -20,859,686.01        | -23,595,073.79        | -2,735,387.78        | 11.59         | -278,062,759.83        | -278,062,759.83        | -279,555,392.09       | -1,492,632.26         |       | 0.53               | 0.00             | 0.00        |
|                      |                                   | 30200000        | Meter Sales Adjustments                        | 483,000.00            | -5,443.35             | -488,443.4           | 8,973.21      | 9,396,000.00           | 9,396,000.00           | 6,539,043.10          | -2,856,956.90         |       | -43.69             | 0.00             | 0.00        |
|                      |                                   | 30300000        | Penalty & Interest                             | -90,000.00            | -158,026.34           | -68,026.34           | 43.05         | -1,080,000.00          | -1,080,000.00          | -1,526,320.89         | -446,320.89           |       | 29.24              | 0.00             | 0.00        |
|                      |                                   | 30400000        | Lien Sales                                     | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 3010DSIC        | DSIC Sales Revenue                             | -649,448.24           | -740,120.62           | -90,672.38           | 12.25         | -8,601,623.16          | -8,601,623.16          | -8,630,146.92         | -28,523.76            |       | 0.33               | 0.00             | 0.00        |
| <b>Revenues</b>      | <b>Fee Revenue</b>                |                 |  | <b>-87,881.12</b>     | <b>-66,292.13</b>     | <b>21,588.99</b>     | <b>-32.57</b> | <b>-1,054,573.44</b>   | <b>-1,054,573.44</b>   | <b>-3,691,475.01</b>  | <b>-2,636,901.57</b>  |       | <b>71.43</b>       | <b>0.00</b>      | <b>0.00</b> |
|                      |                                   | 31050000        | Certified Mail Fees                            | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | -5,967.12             | -5,967.12             |       | 100.00             | 0.00             | 0.00        |
|                      |                                   | 31100000        | Customer Work                                  | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 31150000        | Dye Testinq                                    | -25,132.9             | -10,540               | 14,592.90            | -138.45       | -301,594.8             | -301,594.8             | -173,055              | 128,539.80            |       | -74.28             | 0.00             | 0.00        |
|                      |                                   | 31200000        | Final Bill Fees                                | 0.00                  | -5,968.2              | -5,968.2             | 100.00        | 0.00                   | 0.00                   | -35,748.3             | -35,748.3             |       | 100.00             | 0.00             | 0.00        |
|                      |                                   | 31250000        | History Fees                                   | 0.00                  | -182.76               | -182.76              | 100.00        | 0.00                   | 0.00                   | -974.72               | -974.72               |       | 100.00             | 0.00             | 0.00        |
|                      |                                   | 31300000        | Hydrant Line Use                               | -9,607.49             | -6,150                | 3,457.49             | -56.22        | -115,289.88            | -115,289.88            | -80,047.8             | 35,242.08             |       | -44.03             | 0.00             | 0.00        |
|                      |                                   | 31310000        | Hydrant Sales                                  | -341.28               | 0.00                  | 341.28               | 0.00          | -4,095.36              | -4,095.36              | -6,200                | -2,104.64             |       | 33.95              | 0.00             | 0.00        |
|                      |                                   | 31400000        | Lab Test Fees                                  | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 31500000        | Map Fees                                       | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | -4,360                | -4,360                |       | 100.00             | 0.00             | 0.00        |
|                      |                                   | 31510000        | Backflow Fees                                  | -8,813.02             | -12,791.52            | -3,978.50            | 31.10         | -105,756.24            | -105,756.24            | -146,899.75           | -41,143.51            |       | 28.01              | 0.00             | 0.00        |
|                      |                                   | 31520000        | Meter Sales                                    | -17,118.15            | -7,854                | 9,264.15             | -117.95       | -205,417.8             | -205,417.8             | -63,790.93            | 141,656.87            |       | -222.17            | 0.00             | 0.00        |
|                      |                                   | 31530000        | Meter Test Fees                                | -517.36               | -680                  | -162.64              | 23.92         | -6,208.32              | -6,208.32              | -3,211                | 2,997.32              |       | -93.35             | 0.00             | 0.00        |
|                      |                                   | 31600000        | New Connection Fees                            | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 31620000        | NSF Fees                                       | -4,787.17             | 0.00                  | 4,787.17             | 0.00          | -57,446.04             | -57,446.04             | -13,593.43            | 43,852.61             |       | -322.60            | 0.00             | 0.00        |
|                      |                                   | 31650000        | Permit Fees                                    | 0.00                  | -21,150               | -21,150              | 100.00        | 0.00                   | 0.00                   | -84,919               | -84,919               |       | 100.00             | 0.00             | 0.00        |
|                      |                                   | 31660000        | Public Fire Protection Service Charge          | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 31700000        | Repair Fees                                    | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 31750000        | Restoration Fees                               | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 31800000        | Shut Fees                                      | -6,563.75             | -975.65               | 5,588.10             | -572.76       | -78,765                | -78,765                | -54,337.40            | 24,427.60             |       | -44.96             | 0.00             | 0.00        |
|                      |                                   | 31900000        | Tap Fees                                       | -15,000.00            | 0.00                  | 15,000.00            | 0.00          | -180,000.00            | -180,000.00            | -3,018,400.3          | -2,838,400.3          |       | 94.04              | 0.00             | 0.00        |
|                      |                                   | 35990000        | Migrated Revenue                               | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
| <b>Revenues</b>      | <b>Misc Revenue</b>               |                 |  | <b>-108,470.16</b>    | <b>-204,015.17</b>    | <b>-95,545.01</b>    | <b>46.83</b>  | <b>-1,628,914.65</b>   | <b>-1,628,914.65</b>   | <b>-1,638,834.25</b>  | <b>-9,919.60</b>      |       | <b>0.61</b>        | <b>0.00</b>      | <b>0.00</b> |
|                      |                                   | 32100000        | Bid Fees                                       | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 32150000        | Lien Satisfaction Fees                         | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 32160000        | Lien Filing Fees                               | -1,527.98             | -936.00               | 591.98               | -63.25        | -18,335.76             | -18,335.76             | -19,666.00            | -1,320.24             |       | 6.72               | 0.00             | 0.00        |
|                      |                                   | 32200000        | Miscellaneous Fees                             | -106,942.18           | -203,079              | -96,136.99           | 47.34         | -1,610,578.89          | -1,610,578.89          | -1,619,178            | -8,599.36             |       | 0.53               | 0.00             | 0.00        |
|                      |                                   | 32250000        | Sewage FICHE Collect                           | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 32920000        | Sewage Treatment Clr                           | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
| <b>Revenues</b>      | <b>Interest Income (NonTrust)</b> |                 |  | <b>0.00</b>           | <b>0.00</b>           | <b>0.00</b>          | <b>0.00</b>   | <b>0.00</b>            | <b>0.00</b>            | <b>0.00</b>           | <b>0.00</b>           |       | <b>0.00</b>        | <b>0.00</b>      | <b>0.00</b> |
| <b>Revenues</b>      | <b>Interest Income (Trust)</b>    |                 |  | <b>0.00</b>           | <b>-70,984.09</b>     | <b>-70,984.09</b>    | <b>100.00</b> | <b>0.00</b>            | <b>0.00</b>            | <b>-347,220.06</b>    | <b>-347,220.06</b>    |       | <b>100.00</b>      | <b>0.00</b>      | <b>0.00</b> |
|                      |                                   | <b>33100000</b> | <b>Int Inc.Escrow</b>                          | <b>0.00</b>           | <b>-1,799.1</b>       | <b>-1,799.1</b>      | <b>100.00</b> | <b>0.00</b>            | <b>0.00</b>            | <b>-6,653.07</b>      | <b>-6,653.07</b>      |       | <b>100.00</b>      | <b>0.00</b>      | <b>0.00</b> |
|                      |                                   | 34200000        | Interest Income Capital Project Fund           | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 34300000        | Interest Income Clearing Fund                  | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 34400000        | Interest Income Debt Service Fund              | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 34500000        | Interest Income Debt Service Reserve Fund      | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 34501300        | Interest Income Debt Service Reserve Fund 2013 | 0.00                  | -18,044.38            | -18,044.38           | 100.00        | 0.00                   | 0.00                   | -74,583.87            | -74,583.87            |       | 100.00             | 0.00             | 0.00        |
|                      |                                   | 34700000        | Interest Income Operating Reserve Fund         | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 34709300        | Interest Income Operating Reserve Fund 1993    | 0.00                  | -51,038.69            | -51,038.69           | 100.00        | 0.00                   | 0.00                   | -199,952.21           | -199,952.21           |       | 100.00             | 0.00             | 0.00        |
|                      |                                   | 34750000        | Interest Income Bond Redemption Fund           | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 34950000        | Unreal G/L Trst Inv                            | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 344013A0        | Interest Income Debt Service Fund 2013A        | 0.00                  | -32.56                | -32.56               | 100.00        | 0.00                   | 0.00                   | -24,108.59            | -24,108.59            |       | 100.00             | 0.00             | 0.00        |
|                      |                                   | 344013B0        | Interest Income Debt Service Fund 2013B        | 0.00                  | -2.08                 | -2.08                | 100.00        | 0.00                   | 0.00                   | -742.58               | -742.58               |       | 100.00             | 0.00             | 0.00        |
|                      |                                   | 344017AB        | Interest Income Debt Service Fund 2017AB       | 0.00                  | -55.57                | -55.57               | 100.00        | 0.00                   | 0.00                   | -40,843.78            | -40,843.78            |       | 100.00             | 0.00             | 0.00        |
|                      |                                   | 344017C0        | Interest Income Debt Service Fund 2017C        | 0.00                  | -11.75                | -11.75               | 100.00        | 0.00                   | 0.00                   | -335.96               | -335.96               |       | 100.00             | 0.00             | 0.00        |
|                      |                                   | 344020A0        | Interest Income Debt Service Fund 2020A        | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 344020B0        | Interest Income Debt Service Fund 2020B        | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 344022A0        | Interest Income Debt Service Fund 2022A        | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
| <b>Revenues</b>      | <b>Other Income</b>               |                 |  | <b>0.00</b>           | <b>-392,572.18</b>    | <b>-392,572.18</b>   | <b>100.00</b> | <b>0.00</b>            | <b>0.00</b>            | <b>-5,401,185.42</b>  | <b>-5,401,185.42</b>  |       | <b>100.00</b>      | <b>0.00</b>      | <b>0.00</b> |
|                      |                                   | 35050000        | Donated Asset Income                           | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 35200000        | Federal Grants                                 | 0.00                  | -392,572.2            | -392,572.2           | 100.00        | 0.00                   | 0.00                   | -3,486,248.28         | -3,486,248.28         |       | 100.00             | 0.00             | 0.00        |
|                      |                                   | 35300000        | Private Grants                                 | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | -1,914,937.14         | -1,914,937.14         |       | 100.00             | 0.00             | 0.00        |
|                      |                                   | 35700000        | Swap FMV                                       | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
| <b>Revenue Total</b> |                                   |                 |  | <b>-21,312,485.53</b> | <b>-25,232,527.67</b> | <b>-3,920,042.14</b> | <b>15.54</b>  | <b>-281,031,871.08</b> | <b>-281,031,871.08</b> | <b>-294,251,531.5</b> | <b>-13,219,660.46</b> |       | <b>4.49</b>        | <b>0.00</b>      | <b>0.00</b> |
| <b>Expenses</b>      | <b>Salaries Expense</b>           |                 |  | <b>2,568,639.01</b>   | <b>2,540,821.69</b>   | <b>-27,817.32</b>    | <b>-1.09</b>  | <b>33,672,788.15</b>   | <b>33,672,788.15</b>   | <b>29,461,084.20</b>  | <b>-4,211,703.95</b>  |       | <b>-14.30</b>      | <b>0.00</b>      | <b>0.00</b> |
|                      |                                   | 40010000        | Salary & Waqes Regular Time                    | 1,939,813.88          | 1,714,728.57          | -225,085.31          | -13.13        | 27,521,176.02          | 27,521,176.02          | 22,881,649.26         | -4,639,526.76         |       | -20.28             | 0.00             | 0.00        |
|                      |                                   | 40050000        | OT Premium Pav                                 | 109,983.24            | 216,117.96            | 106,134.72           | 49.11         | 1,428,980.18           | 1,428,980.18           | 1,846,867.87          | 417,887.69            |       | 22.63              | 0.00             | 0.00        |
|                      |                                   | 40100000        | Shift Differential                             | 7,039.51              | 12,296.35             | 5,256.84             | 42.75         | 91,498.48              | 91,498.48              | 127,550.53            | 36,052.05             |       | 28.26              | 0.00             | 0.00        |
|                      |                                   | 40150000        | Semi Skill                                     | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 40200000        | Pay Adjustments                                | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00                   | 0.00                   | 0.00                  | 0.00                  |       | 0.00               | 0.00             | 0.00        |
|                      |                                   | 40250000        | Bonus  | 0.00                  | 167,850.00            | 167,850.00           | 100.00        | 95,000.02              | 95,000.02              | 242,062.50            | 147,062.48            |       | 60.75              | 0.00             | 0.00        |
|                      |                                   | 4030            |  |                       |                       |                      |               |                        |                        |                       |                       |       |                    |                  |             |



|                 |                                |  |                     |                      |                     |              |                       |                       |                       |                      |               |             |             |
|-----------------|--------------------------------|--|---------------------|----------------------|---------------------|--------------|-----------------------|-----------------------|-----------------------|----------------------|---------------|-------------|-------------|
|                 | 40810000                       | Paid Parental Leave                        | 192.31              | 1,981.76             | 1,789.45            | 90.30        | 4,500.02              | 4,500.02              | 53,634.48             | 49,134.46            | 91.61         | 0.00        | 0.00        |
|                 | 40850000                       | Special                                    | 0.00                | 3,000.00             | 3,000.00            | 100.00       | 0.00                  | 0.00                  | 27,000.00             | 27,000.00            | 100.00        | 0.00        | 0.00        |
|                 | 40900000                       | Administrative Leave                       | 0.00                | 3,391.71             | 3,391.71            | 100.00       | 24,560.90             | 24,560.90             | 210,455.80            | 185,894.90           | 88.33         | 0.00        | 0.00        |
|                 | 40950000                       | Severence                                  | 0.00                | 0.00                 | 0.00                | 0.00         | 0.00                  | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00        | 0.00        |
| <b>Expenses</b> | <b>Other Employee Expenses</b> |  | <b>793,408.79</b>   | <b>709,090.72</b>    | <b>-84,318.11</b>   | <b>-11.9</b> | <b>9,689,507.81</b>   | <b>9,689,507.81</b>   | <b>8,239,377.02</b>   | <b>-1,450,130.79</b> | <b>-17.60</b> | <b>0.00</b> | <b>0.00</b> |
|                 | 41100000                       | Federal Insurance Contribution Act Tax     | 159,078.72          | 155,100.31           | -3,978.41           | -2.57        | 2,064,859.00          | 2,064,859.00          | 1,769,655.55          | -295,203.45          | -16.7         | 0.00        | 0.00        |
|                 | 41150000                       | Medicare                                   | 38,107.35           | 39,107.13            | 999.78              | 2.56         | 494,337.12            | 494,337.12            | 422,495.36            | -71,841.8            | -17.00        | 0.00        | 0.00        |
|                 | 41200000                       | Federal Unemployment Tax                   | 0.00                | 0.00                 | 0.00                | 0.00         | 0.00                  | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00        | 0.00        |
|                 | 41250000                       | State Unemployment Tax                     | 0.00                | 0.00                 | 0.00                | 0.00         | 25,000.00             | 25,000.00             | 27,684.54             | 2,684.54             | 10            | 0.00        | 0.00        |
|                 | 41300000                       | Workers Compensation Insurance             | 0.00                | 0.00                 | 0.00                | 0.00         | 0.00                  | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00        | 0.00        |
|                 | 41350000                       | Medical Health Insurance                   | 468,961.22          | 416,870.34           | -52,090.88          | -12.50       | 5,627,534.64          | 5,627,534.64          | 4,862,522.32          | -765,012.3           | -15.73        | 0.00        | 0.00        |
|                 | 41400000                       | Medical Health Insurance Waiver            | 4,583.30            | 5,633.30             | 1,050.00            | 18.64        | 54,999.60             | 54,999.60             | 58,124.42             | 3,124.82             | 5.38          | 0.00        | 0.00        |
|                 | 41450000                       | Short Term Disability                      | 30,127.79           | 29,130.01            | -997.78             | -3.43        | 361,533.48            | 361,533.48            | 341,290.95            | -20,242.53           | -5.93         | 0.00        | 0.00        |
|                 | 41500000                       | Long Term Disability                       | 3,504.76            | 1,848.52             | -1,656.24           | -89.60       | 42,057.12             | 42,057.12             | 21,846.71             | -20,210.4            | -92.51        | 0.00        | 0.00        |
|                 | 41550000                       | Life Insurance <50k                        | 4,290.66            | 3,976.03             | -314.63             | -7.91        | 51,487.92             | 51,487.92             | 45,852.14             | -5,635.78            | -12.29        | 0.00        | 0.00        |
|                 | 41600000                       | Accidental Death & Dismemberment Insurance | 572.08              | 530.14               | -41.94              | -7.91        | 6,864.96              | 6,864.96              | 6,113.68              | -751.28              | -12.29        | 0.00        | 0.00        |
|                 | 41650000                       | Dental Insurance                           | 17,326.70           | 15,603.65            | -1,723.05           | -11.04       | 207,920.40            | 207,920.40            | 180,775.10            | -27,145.3            | -15.02        | 0.00        | 0.00        |
|                 | 41700000                       | Vision Insurance                           | 2,265.17            | 2,144.49             | -120.68             | -5.63        | 27,182.04             | 27,182.04             | 24,791.46             | -2,390.58            | -9.64         | 0.00        | 0.00        |
|                 | 41750000                       | Uniforms                                   | 10,520.91           | 8,469.32             | -2,051.59           | -24.2        | 174,280.01            | 174,280.01            | 151,226.52            | -23,053.49           | -15.24        | 0.00        | 0.00        |
|                 | 41800000                       | Tuition Reimbursement                      | 23,867.00           | 2,664.00             | -21,203.0           | -795.91      | 158,059.20            | 158,059.20            | 37,288.71             | -120,770.49          | -323.9        | 0.00        | 0.00        |
|                 | 41850000                       | Retirement Benefit                         | 32,139.13           | 32,193.48            | 54.35               | 0.17         | 416,624.32            | 416,624.32            | 332,800.56            | -83,823.76           | -25.19        | 0.00        | 0.00        |
|                 | 41950000                       | Miscellaneous Benefits                     | -1,936              | -4,180               | -2,244              | 53.68        | -23,232               | -23,232               | -43,091               | -19,859              | 46.09         | 0.00        | 0.00        |
|                 | 41990000                       | Payroll Upload Exception                   | 0.00                | 0.00                 | 0.00                | 0.00         | 0.00                  | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00        | 0.00        |
| <b>Expenses</b> | <b>Chemicals Costs</b>         |  | <b>378,757.57</b>   | <b>558,960.24</b>    | <b>180,202.67</b>   | <b>32.24</b> | <b>5,053,474.87</b>   | <b>5,053,474.87</b>   | <b>5,634,064.81</b>   | <b>580,589.94</b>    | <b>10.30</b>  | <b>0.00</b> | <b>0.00</b> |
|                 | 50050000                       | Orthophosphate                             | 32,083.33           | 15,312.75            | -16,770.58          | -109.52      | 384,999.99            | 384,999.99            | 385,881.30            | 881.31               | 0.23          | 0.00        | 0.00        |
|                 | 50100000                       | Boiler Chemicals                           | 2,077.00            | 9,991.27             | 7,914               | 79.21        | 24,924.00             | 24,924.00             | 44,907.67             | 19,983.67            | 44.50         | 0.00        | 0.00        |
|                 | 50150000                       | Calcium Hypochlorite                       | 0.00                | 0.00                 | 0.00                | 0.00         | 20,000.00             | 20,000.00             | 0.00                  | -20,000              | 0.00          | 0.00        | 0.00        |
|                 | 50200000                       | Clariifoc                                  | 0.00                | 0.00                 | 0.00                | 0.00         | 125,916.00            | 125,916.00            | 91,395.33             | -34,520.67           | -37.77        | 0.00        | 0.00        |
|                 | 50250000                       | Caustic Soda                               | 258.90              | 0.00                 | -258.9              | 0.00         | 3,106.80              | 3,106.80              | 692.11                | -2,414.69            | -348.89       | 0.00        | 0.00        |
|                 | 50300000                       | Sodium Bisulfite                           | 14,166.67           | 7,773.12             | -6,393.55           | -82.25       | 173,072.04            | 173,072.04            | 77,095.13             | -95,976.91           | -124.49       | 0.00        | 0.00        |
|                 | 50350000                       | Sodium Permanganate                        | 0.00                | 102,812.64           | 102,812.64          | 100.00       | 0.00                  | 0.00                  | 345,902.22            | 345,902.22           | 100.00        | 0.00        | 0.00        |
|                 | 50400000                       | Citric Acid                                | 0.00                | 12,059.30            | 12,059              | 100.00       | 49,396.00             | 49,396.00             | 25,041.80             | -24,354              | -97.25        | 0.00        | 0.00        |
|                 | 50450000                       | Copper Sulphate                            | 0.00                | 0.00                 | 0.00                | 0.00         | 0.00                  | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00        | 0.00        |
|                 | 50500000                       | Ferric Chloride                            | 161,270.33          | 207,397.01           | 46,126.68           | 22.24        | 1,935,243.96          | 1,935,243.96          | 2,476,475.56          | 541,231.60           | 21.85         | 0.00        | 0.00        |
|                 | 50550000                       | Hydrofluorosilicic Acid                    | 13,484.67           | 21,325.84            | 7,841.17            | 36.77        | 161,816.04            | 161,816.04            | 173,067.36            | 11,251.32            | 6.80          | 0.00        | 0.00        |
|                 | 50600000                       | Lime                                       | 47,916.67           | 49,178.22            | 1,261.55            | 2.57         | 575,000.04            | 575,000.04            | 617,865.47            | 42,865.43            | 6.94          | 0.00        | 0.00        |
|                 | 50650000                       | Potassium Permanganate                     | 0.00                | 0.00                 | 0                   | 0.00         | 200,000.00            | 200,000.00            | 0.00                  | -200,000             | 0.00          | 0.00        | 0.00        |
|                 | 50700000                       | Powdered Active Carbon                     | 12,500.00           | 0.00                 | -12,500             | 0.00         | 150,000.00            | 150,000.00            | 0.00                  | -150,000             | 0.00          | 0.00        | 0.00        |
|                 | 50750000                       | Soda Ash                                   | 40,000.00           | 59,589.36            | 19,589.36           | 32.87        | 580,000.00            | 580,000.00            | 552,444.27            | -27,555.7            | -4.99         | 0.00        | 0.00        |
|                 | 50800000                       | Sodium Hypochlorite                        | 55,000.00           | 73,520.73            | 18,520.73           | 25.19        | 660,000.00            | 660,000.00            | 821,696.59            | 161,696.59           | 19.68         | 0.00        | 0.00        |
|                 | 50850000                       | Sodium Carbonate Peroxyhydrate             | 0.00                | 0.00                 | 0                   | 0.00         | 10,000.00             | 10,000.00             | 21,600.00             | 11,600.00            | 53.70         | 0.00        | 0.00        |
| <b>Expenses</b> | <b>Equipment Costs</b>         |  | <b>266,837.55</b>   | <b>1,058,301.03</b>  | <b>791,463.48</b>   | <b>74.79</b> | <b>8,947,188.53</b>   | <b>8,947,188.53</b>   | <b>8,007,596.83</b>   | <b>-939,591.70</b>   | <b>-11.73</b> | <b>0.00</b> | <b>0.00</b> |
|                 | 51200000                       | Computer Peripherals                       | 26,420.88           | 61,421.49            | 35,000.61           | 56.98        | 499,396.02            | 499,396.02            | 404,354.91            | -95,041.11           | -23.50        | 0.00        | 0.00        |
|                 | 51250000                       | Computers & Networking                     | 0.00                | 639,649.15           | 639,649.15          | 100.00       | 5,208,541.48          | 5,208,541.48          | 4,756,653.33          | -451,888.15          | -9.50         | 0.00        | 0.00        |
|                 | 51400000                       | Fixtures & Furniture                       | 0.00                | 14,909.72            | 14,909.72           | 100.00       | 60,500.00             | 60,500.00             | 98,026.39             | 37,526.39            | 38.28         | 0.00        | 0.00        |
|                 | 51450000                       | Grounds & Maintenance                      | 10,833.34           | 230,957.77           | 220,124.43          | 95.3         | 248,900.07            | 248,900.07            | 450,837.68            | 201,937.61           | 44.79         | 0.00        | 0.00        |
|                 | 51470000                       | Lab Equipment                              | 5,000.00            | 14,851.94            | 9,851.94            | 66.33        | 100,000.00            | 100,000.00            | 99,966.89             | -33.11               | -0.03         | 0.00        | 0.00        |
|                 | 51500000                       | Machinery & Equipment                      | 13,750.00           | 69,278.22            | 55,528.22           | 80.15        | 282,000.00            | 282,000.00            | 559,546.72            | 277,546.72           | 49.60         | 0.00        | 0.00        |
|                 | 51600000                       | Office Equipment                           | 0.00                | 0.00                 | 0.00                | 0.00         | 17,851.00             | 17,851.00             | 2,096.33              | -15,754.67           | -75.15        | 0.00        | 0.00        |
|                 | 51700000                       | Pumps & Motors                             | 0.00                | 19,262.00            | 19,262.00           | 100.00       | 0.00                  | 0.00                  | 32,141.98             | 32,141.98            | 100.00        | 0.00        | 0.00        |
|                 | 51800000                       | SCADA Equipment                            | 0.00                | 7,970.74             | 7,970.74            | 100.00       | 0.00                  | 0.00                  | 32,655.60             | 32,655.60            | 100.00        | 0.00        | 0.00        |
|                 | 51900000                       | Vehicles                                   | 210,833.33          | 0.00                 | -210,833.33         | 0.00         | 2,529,999.96          | 2,529,999.96          | 1,571,317.00          | -958,682.96          | -61.01        | 0.00        | 0.00        |
| <b>Expenses</b> | <b>Material Costs</b>          |  | <b>35,591.67</b>    | <b>85,316.52</b>     | <b>49,724.85</b>    | <b>58.28</b> | <b>461,300.04</b>     | <b>461,300.04</b>     | <b>673,147.28</b>     | <b>211,847.24</b>    | <b>31.47</b>  | <b>0.00</b> | <b>0.00</b> |
|                 | 52050000                       | Asphalt Cold Patch                         | 7,083.33            | 9,652.22             | 2,568.89            | 26.61        | 84,999.96             | 84,999.96             | 90,661.89             | 5,661.9              | 6.25          | 0.00        | 0.00        |
|                 | 52200000                       | Asphalt Hotmix                             | 0.00                | 975.32               | 975.32              | 100.00       | 0.00                  | 0.00                  | 16,333.04             | 16,333.04            | 100.00        | 0.00        | 0.00        |
|                 | 52270000                       | Brick                                      | 0.00                | 0.00                 | 0                   | 0.00         | 1,200.00              | 1,200.00              | 0.00                  | -1,200               | 0.00          | 0.00        | 0.00        |
|                 | 52300000                       | Cement Bagged                              | 125.00              | 380.78               | 255.78              | 67.17        | 4,500.00              | 4,500.00              | 4,500.56              | 0.56                 | 0.01          | 0.00        | 0.00        |
|                 | 52350000                       | Gravel                                     | 0.00                | 0.00                 | 0.00                | 0.00         | 0.00                  | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00        | 0.00        |
|                 | 52400000                       | Iron Steel Brass                           | 0.00                | 0.00                 | 0.00                | 0.00         | 0.00                  | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00        | 0.00        |
|                 | 52450000                       | Lumber                                     | 800.00              | 199.08               | -600.92             | -301.85      | 33,600.00             | 33,600.00             | 38,008.15             | 4,408.15             | 11.60         | 0.00        | 0.00        |
|                 | 52500000                       | Sand                                       | 0.00                | 0.00                 | 0                   | 0.00         | 6,000.00              | 6,000.00              | 0.00                  | -6,000               | 0.00          | 0.00        | 0.00        |
|                 | 52550000                       | Aggregate Material                         | 27,166.67           | 74,109.12            | 46,942.45           | 63.34        | 326,000.04            | 326,000.04            | 519,496.64            | 193,496.60           | 37.25         | 0.00        | 0.00        |
|                 | 52600000                       | Stone                                      | 0.00                | 0.00                 | 0.00                | 0.00         | 0.00                  | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00        | 0.00        |
|                 | 52650000                       | Top Soil                                   | 416.67              | 0.00                 | -416.67             | 0.00         | 5,000.04              | 5,000.04              | 4,147.00              | -853.04              | -20.6         | 0.00        | 0.00        |
| <b>Expenses</b> | <b>Operating Contracts</b>     |  | <b>8,647,063.08</b> | <b>10,966,836.61</b> | <b>2,319,773.53</b> | <b>21.15</b> | <b>104,244,253.05</b> | <b>104,244,253.05</b> | <b>105,604,107.47</b> | <b>1,359,854.42</b>  | <b>1.29</b>   | <b>0.00</b> | <b>0.00</b> |
|                 | 53050000                       | Sewer Line Contract                        | 900,000.00          | 1,292,539.89         | 392,539.89          | 30.37        | 11,400,000.00         | 11,400,000.00         | 7,955,491.80          | -3,444,508.20        | -43.30        | 0.00        | 0.00        |
|                 | 53150000                       | Catch Basin Cleaning                       | 31,666.66           | 0.00                 | -31,667             | 0.00         | 650,000.01            | 650,000.01            | 342,948.00            | -307,052.01          | -89.53        | 0.00        | 0.00        |
|                 | 53160000                       | Catch Basin Repair                         | 0.00                | 0.00                 | 0.00                | 0.00         | 0.00                  | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00        | 0.00        |
|                 | 53280000                       | Curb Box Repair                            | 0.00                | 0.00                 | 0.00                | 0.00         | 0.00                  | 0.00                  | 0.00                  | 0.00                 | 0.00          | 0.00        | 0.00        |
|                 | 53300000                       | Debris Removal                             | 16,666.67           | 31,590.00            | 14,923.33           | 47.24        | 200,000.04            | 200,000.04            | 223,224.00            | 23,223.96            | 10.40         | 0.00        | 0.00        |

|                 |                                     |                     |                     |                   |                 |                      |                      |                      |                     |                |             |             |             |             |
|-----------------|-------------------------------------|---------------------|---------------------|-------------------|-----------------|----------------------|----------------------|----------------------|---------------------|----------------|-------------|-------------|-------------|-------------|
| 53750000        | Security Guards                     | 0.00                | 0.00                | 0.00              | 0.00            | 0.00                 | 0.00                 | 0.00                 | 0.00                | 0.00           | 0.00        | 0.00        | 0.00        | 0.00        |
| 53800000        | Line Locating                       | 0.00                | 0.00                | 0.00              | 0.00            | 0.00                 | 0.00                 | 0.00                 | 0.00                | 0.00           | 0.00        | 0.00        | 0.00        | 0.00        |
| 53830000        | Sewage Treatment                    | 6,659,843.75        | 7,029,142.08        | 369,298.33        | 5.25            | 79,918,125.00        | 79,918,125.00        | 83,479,904.64        | 3,561,779.64        | 4.27           | 0.00        | 0.00        | 0.00        | 0.00        |
| 53850000        | Temporary Help                      | 0.00                | 238.40              | 238.40            | 100.00          | 0.00                 | 0.00                 | 31,200.78            | 31,200.78           | 100.00         | 0.00        | 0.00        | 0.00        | 0.00        |
| 53900000        | Welding                             | 0.00                | 0.00                | 0.00              | 0.00            | 0.00                 | 0.00                 | 0.00                 | 0.00                | 0.00           | 0.00        | 0.00        | 0.00        | 0.00        |
| <b>Expenses</b> | <b>Repairs and Maintenance</b>      | <b>1,381,084.59</b> | <b>1,885,185.64</b> | <b>504,101.05</b> | <b>26.74</b>    | <b>10,711,633.93</b> | <b>10,711,633.93</b> | <b>13,617,206.66</b> | <b>2,905,572.73</b> | <b>21.34</b>   | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |
| 54020000        | Annual Software Support             | 116,588.73          | 707,294.87          | 590,706.1         | 83.52           | 2,263,589.60         | 2,263,589.60         | 2,626,516.70         | 362,927.10          | 13.82          | 0.00        | 0.00        | 0.00        | 0.00        |
| 54050000        | Building & Property Repairs         | 10,250.00           | 102,751.40          | 92,501.40         | 90.02           | 504,336.08           | 504,336.08           | 501,344.07           | -2,992.01           | -0.60          | 0.00        | 0.00        | 0.00        | 0.00        |
| 54080000        | Computer Hardware Maintenance       | 2,039.85            | 4,111.09            | 2,071.24          | 50.38           | 126,811.52           | 126,811.52           | 49,970.63            | -76,840.89          | -153.77        | 0.00        | 0.00        | 0.00        | 0.00        |
| 54110000        | Computer Software Support           | 1,500.00            | 1,212.00            | -288              | -23.76          | 26,000.00            | 26,000.00            | 86,997.00            | 60,997.00           | 70.11          | 0.00        | 0.00        | 0.00        | 0.00        |
| 54130000        | Surface Restoration                 | 600,000.00          | 677,554.06          | 77,554.06         | 11.45           | 5,800,000.00         | 5,800,000.00         | 8,409,526.99         | 2,609,526.99        | 31.03          | 0.00        | 0.00        | 0.00        | 0.00        |
| 54150000        | Crane Repairs                       | 3,636.36            | 0.00                | -3,636.36         | 0.00            | 104,999.96           | 104,999.96           | 1,045.00             | -103,954.96         | -9,947.84      | 0.00        | 0.00        | 0.00        | 0.00        |
| 54170000        | Electrical Repairs                  | 8,533.33            | 2,975.00            | -5,558.33         | -186.83         | 102,399.96           | 102,399.96           | 43,446.28            | -58,953.68          | -135.69        | 0.00        | 0.00        | 0.00        | 0.00        |
| 54200000        | Fence Repairs                       | 3,333.33            | 0.00                | -3,333.33         | 0.00            | 39,999.96            | 39,999.96            | 2,960.00             | -37,039.96          | -1,251.4       | 0.00        | 0.00        | 0.00        | 0.00        |
| 54220000        | Chemical Removal                    | 0.00                | 29,524.13           | 29,524.13         | 100.00          | 0.00                 | 0.00                 | 71,304.92            | 71,304.92           | 100.00         | 0.00        | 0.00        | 0.00        | 0.00        |
| 54270000        | GIS Hardware & Software Maintenance | 333.33              | 544.00              | 210.67            | 38.73           | 3,999.96             | 3,999.96             | 3,536.00             | -463.96             | -13.12         | 0.00        | 0.00        | 0.00        | 0.00        |
| 54320000        | Hardware Repairs                    | 0.00                | 0.00                | 0.00              | 0.00            | 0.00                 | 0.00                 | 0.00                 | 0.00                | 0.00           | 0.00        | 0.00        | 0.00        | 0.00        |
| 54370000        | Heavy Equipment Repairs             | 0.00                | 1,907.48            | 1,907.48          | 100.00          | 0.00                 | 0.00                 | 2,860.31             | 2,860.31            | 100.00         | 0.00        | 0.00        | 0.00        | 0.00        |
| 54390000        | HVAC & Plumbing Repairs             | 10,433.33           | 33,403.22           | 22,969.89         | 68.77           | 130,199.96           | 130,199.96           | 86,499.25            | -43,700.71          | -50.52         | 0.00        | 0.00        | 0.00        | 0.00        |
| 54520000        | Machinery Repairs                   | 14,300.00           | 11,560.00           | -2,740.00         | -23.70          | 189,809.00           | 189,809.00           | 165,365.63           | -24,443.37          | -14.8          | 0.00        | 0.00        | 0.00        | 0.00        |
| 54570000        | Office Equipment Repairs            | 0.00                | 0.00                | 0.00              | 0.00            | 0.00                 | 0.00                 | 322.94               | 322.94              | 100.00         | 0.00        | 0.00        | 0.00        | 0.00        |
| 54620000        | Plant Repairs                       | 3,334.00            | 168,224.88          | 164,891           | 98.02           | 500,000.00           | 500,000.00           | 453,765.07           | -46,234.93          | -10.19         | 0.00        | 0.00        | 0.00        | 0.00        |
| 54670000        | Power Tool Repairs                  | 1,000.00            | 0.00                | -1,000.00         | 0.00            | 12,000.00            | 12,000.00            | 673.06               | -11,326.94          | -1,682.9       | 0.00        | 0.00        | 0.00        | 0.00        |
| 54820000        | Tool Repairs                        | 4,125.00            | 0.00                | -4,125.00         | 0.00            | 9,900.00             | 9,900.00             | 14,912.65            | 5,012.65            | 33.61          | 0.00        | 0.00        | 0.00        | 0.00        |
| 54880000        | TV Repairs                          | 0.00                | 0.00                | 0.00              | 0.00            | 0.00                 | 0.00                 | 0.00                 | 0.00                | 0.00           | 0.00        | 0.00        | 0.00        | 0.00        |
| 54900000        | Vector Repairs                      | 0.00                | 0.00                | 0.00              | 0.00            | 0.00                 | 0.00                 | 0.00                 | 0.00                | 0.00           | 0.00        | 0.00        | 0.00        | 0.00        |
| 54910000        | Vehicle Repairs                     | 600,000.00          | 135,873.15          | -464,126.85       | -341.59         | 849,999.97           | 849,999.97           | 970,666.55           | 120,666.58          | 12.43          | 0.00        | 0.00        | 0.00        | 0.00        |
| 54960000        | Miscellaneous Repair & Maintenance  | 1,677.33            | 8,250.36            | 6,573.03          | 79.67           | 47,587.96            | 47,587.96            | 125,493.61           | 77,905.65           | 62.08          | 0.00        | 0.00        | 0.00        | 0.00        |
| <b>Expenses</b> | <b>Misc Direct Operating Costs</b>  | <b>38,767.00</b>    | <b>39,524.70</b>    | <b>757.70</b>     | <b>1.92</b>     | <b>729,604.00</b>    | <b>729,604.00</b>    | <b>356,972.10</b>    | <b>-372,631.90</b>  | <b>-104.39</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |
| 55700000        | Testing                             | 38,767.00           | 39,524.70           | 757.70            | 1.92            | 729,604.00           | 729,604.00           | 356,972.10           | -372,631.90         | -104.39        | 0.00        | 0.00        | 0.00        | 0.00        |
| <b>Expenses</b> | <b>Inventory Exp - Castings</b>     | <b>21,000.00</b>    | <b>0.00</b>         | <b>-21,000.00</b> | <b>0.00</b>     | <b>252,000.00</b>    | <b>252,000.00</b>    | <b>118,496.17</b>    | <b>-133,503.83</b>  | <b>-112.67</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |
| 60150000        | Castings Manhole & Catch Basin      | 3,500.00            | 0.00                | -3,500.00         | 0.00            | 42,000.00            | 42,000.00            | 6,138.73             | -35,861.27          | -584.18        | 0.00        | 0.00        | 0.00        | 0.00        |
| 60250000        | Castings Risers Lids                | 3,000.00            | 0.00                | -3,000.00         | 0.00            | 36,000.00            | 36,000.00            | 31,490.56            | -4,509.44           | -14.32         | 0.00        | 0.00        | 0.00        | 0.00        |
| 60350000        | Castings Sewer Inlet                | 1,500.00            | 0.00                | -1,500.00         | 0.00            | 18,000.00            | 18,000.00            | 2,648.96             | -15,351.04          | -579.51        | 0.00        | 0.00        | 0.00        | 0.00        |
| 60600000        | Castings Water Valve Box            | 13,000.00           | 0.00                | -13,000.00        | 0.00            | 156,000.00           | 156,000.00           | 78,217.92            | -77,782.08          | -99.44         | 0.00        | 0.00        | 0.00        | 0.00        |
| <b>Expenses</b> | <b>Inventory Exp - Equipment</b>    | <b>5,539.00</b>     | <b>1,641.53</b>     | <b>-3,897.47</b>  | <b>-237.43</b>  | <b>66,968.00</b>     | <b>66,968.00</b>     | <b>78,330.63</b>     | <b>11,362.63</b>    | <b>14.51</b>   | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |
| 62000000        | Inventory - Equipment               | 0.00                | 4,273.42            | 4,273.42          | 100.00          | 0.00                 | 0.00                 | 45,450.57            | 45,450.57           | 100.00         | 0.00        | 0.00        | 0.00        | 0.00        |
| 62450000        | Materials - Handling                | 500.00              | 0.00                | -500.00           | 0.00            | 6,000.00             | 6,000.00             | 0.00                 | -6,000.00           | 0.00           | 0.00        | 0.00        | 0.00        | 0.00        |
| 62600000        | Safety Equipment                    | 5,039.00            | -2,631.89           | -7,671            | 291.46          | 60,968.00            | 60,968.00            | 32,880.06            | -28,087.94          | -85.43         | 0.00        | 0.00        | 0.00        | 0.00        |
| <b>Expenses</b> | <b>Inventory Exp - Hardware</b>     | <b>30,886.66</b>    | <b>37,526.51</b>    | <b>6,639.85</b>   | <b>17.69</b>    | <b>370,639.92</b>    | <b>370,639.92</b>    | <b>696,452.64</b>    | <b>325,812.72</b>   | <b>46.78</b>   | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |
| 63000000        | Inventory-Hardware                  | 1,158.33            | 37,526.51           | 36,368.18         | 96.91           | 13,899.96            | 13,899.96            | 455,618.04           | 441,718.08          | 96.95          | 0.00        | 0.00        | 0.00        | 0.00        |
| 63150000        | Fittings                            | 13,056.33           | 0.00                | -13,056.33        | 0.00            | 156,675.96           | 156,675.96           | 124,035.48           | -32,640.48          | -26.32         | 0.00        | 0.00        | 0.00        | 0.00        |
| 63200000        | Hardware Other                      | 0.00                | 0.00                | 0.00              | 0.00            | 0.00                 | 0.00                 | 0.00                 | 0.00                | 0.00           | 0.00        | 0.00        | 0.00        | 0.00        |
| 63250000        | Hoses & Fittings                    | 850.33              | 0.00                | -850.33           | 0.00            | 10,203.96            | 10,203.96            | 7,649.89             | -2,554.07           | -33.39         | 0.00        | 0.00        | 0.00        | 0.00        |
| 63350000        | Lights                              | 433.00              | 0.00                | -433.00           | 0.00            | 5,196.00             | 5,196.00             | 1,673.64             | -3,522.36           | -210.46        | 0.00        | 0.00        | 0.00        | 0.00        |
| 63400000        | Machinery Miscellaneous             | 1,000.00            | 0.00                | -1,000.00         | 0.00            | 12,000.00            | 12,000.00            | 7,595.51             | -4,404.49           | -57.99         | 0.00        | 0.00        | 0.00        | 0.00        |
| 63450000        | Meters                              | 1,000.00            | 0.00                | -1,000.00         | 0.00            | 12,000.00            | 12,000.00            | 13,755.80            | 1,755.80            | 12.76          | 0.00        | 0.00        | 0.00        | 0.00        |
| 63500000        | Plumbing                            | 1,838.67            | 0.00                | -1,838.67         | 0.00            | 22,064.04            | 22,064.04            | 8,808.06             | -13,256.00          | -15.1          | 0.00        | 0.00        | 0.00        | 0.00        |
| 63550000        | Power Tools                         | 833.33              | 0.00                | -833.33           | 0.00            | 9,999.96             | 9,999.96             | 6,013.12             | -3,986.84           | -66.30         | 0.00        | 0.00        | 0.00        | 0.00        |
| 63600000        | Tools                               | 10,716.67           | 0.00                | -10,716.67        | 0.00            | 128,600.04           | 128,600.04           | 71,303.10            | -57,296.94          | -80.36         | 0.00        | 0.00        | 0.00        | 0.00        |
| 63650000        | Hand Tools                          | 0.00                | 0.00                | 0.00              | 0.00            | 0.00                 | 0.00                 | 0.00                 | 0.00                | 0.00           | 0.00        | 0.00        | 0.00        | 0.00        |
| <b>Expenses</b> | <b>Inventory Exp - Heavy Equip</b>  | <b>0.00</b>         | <b>0.00</b>         | <b>0.00</b>       | <b>0.00</b>     | <b>0.00</b>          | <b>0.00</b>          | <b>0.00</b>          | <b>0.00</b>         | <b>0.00</b>    | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |
| 64200000        | Backhoe                             | 0.00                | 0.00                | 0.00              | 0.00            | 0.00                 | 0.00                 | 0.00                 | 0.00                | 0.00           | 0.00        | 0.00        | 0.00        | 0.00        |
| <b>Expenses</b> | <b>Inventory Exp - Misc</b>         | <b>7,015.33</b>     | <b>327.55</b>       | <b>-6,687.78</b>  | <b>-2,041.8</b> | <b>84,183.96</b>     | <b>84,183.96</b>     | <b>38,891.04</b>     | <b>-45,292.92</b>   | <b>-116.46</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |
| 65000000        | Inventory - Miscellaneous           | 3,960.00            | 327.55              | -3,632.45         | -1,109.0        | 47,520.00            | 47,520.00            | 25,902.39            | -21,617.61          | -83.46         | 0.00        | 0.00        | 0.00        | 0.00        |
| 65060000        | Batteries                           | 0.00                | 0.00                | 0.00              | 0.00            | 0.00                 | 0.00                 | 545.28               | 545.28              | 100.00         | 0.00        | 0.00        | 0.00        | 0.00        |
| 65150000        | Cleaning                            | 416.33              | 0.00                | -416.33           | 0.00            | 4,995.96             | 4,995.96             | 5,306.81             | 310.85              | 5.86           | 0.00        | 0.00        | 0.00        | 0.00        |
| 65250000        | Filters                             | 0.00                | 0.00                | 0.00              | 0.00            | 0.00                 | 0.00                 | 0.00                 | 0.00                | 0.00           | 0.00        | 0.00        | 0.00        | 0.00        |
| 65300000        | First Aid                           | 83.33               | 0.00                | -83.33            | 0.00            | 999.96               | 999.96               | 500.88               | -499.08             | -99.64         | 0.00        | 0.00        | 0.00        | 0.00        |
| 65400000        | Lamps                               | 0.00                | 0.00                | 0.00              | 0.00            | 0.00                 | 0.00                 | 0.00                 | 0.00                | 0.00           | 0.00        | 0.00        | 0.00        | 0.00        |
| 65440000        | Lubricating Oil                     | 567.00              | 0.00                | -567.00           | 0.00            | 6,804.00             | 6,804.00             | 1,365.12             | -5,438.88           | -398.42        | 0.00        | 0.00        | 0.00        | 0.00        |
| 65480000        | Paint Oils Putty Glass              | 788.67              | 0.00                | -788.67           | 0.00            | 9,464.04             | 9,464.04             | 1,625.12             | -7,838.92           | -482.36        | 0.00        | 0.00        | 0.00        | 0.00        |
| 65650000        | Sewer Material Supplies             | 0.00                | 0.00                | 0.00              | 0.00            | 0.00                 | 0.00                 | 0.00                 | 0.00                | 0.00           | 0.00        | 0.00        | 0.00        | 0.00        |
| 65700000        | Testing Dyes                        | 1,000.00            | 0.00                | -1,000.00         | 0.00            | 12,000.00            | 12,000.00            | 3,645.44             | -8,354.56           | -229.18        | 0.00        | 0.00        | 0.00        | 0.00        |
| 65800000        | Vehicle Oil                         | 200.00              | 0.00                | -200.00           | 0.00            | 2,400.00             | 2,400.00             | 0.00                 | -2,400.00           | 0.00           | 0.00        | 0.00        | 0.00        | 0.00        |
| 65850000        | Welding Supplies                    | 0.00                | 0.00                | 0.00              | 0.00            | 0.00                 | 0.00                 | 0.00                 | 0.00                | 0.00           | 0.00        | 0.00        | 0.00        | 0.00        |
| <b>Expenses</b> | <b>Inventory Exp - Parts</b>        | <b>22,833.34</b>    | <b>-1,230.30</b>    | <b>-24,063.64</b> | <b>1,955.92</b> | <b>274,000.08</b>    | <b>274,000.08</b>    | <b>140,339.25</b>    | <b>-133,660.83</b>  | <b>-95.2</b>   | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |
| 66450000        | Parts - Other                       | 8,666.67            | -1,230.30           | -9,896.97         | 804.44          | 104,000.04           | 104,000.04           | 35,251.92            | -68,748.12          | -195.02        | 0.00        | 0.00        | 0.00        | 0.00        |
| 66800000        | Yard                                | 14,166.67           | 0.00                | -14,166.67        | 0.00            | 170,000.04           | 170,000.04           | 105,087.33           | -64,912.71          | -61.77         | 0.00        | 0.00        | 0.00        | 0.00        |
| <b>Expenses</b> | <b>Inventory Exp - Pipe</b>         | <b>43,512.67</b>    | <b>7,361.28</b>     | <b>-36,151.39</b> | <b>-491.10</b>  | <b>522,152.04</b>    | <b>522,152.04</b>    | <b>709,487.18</b>    | <b>187,335.14</b>   | <b>26.40</b>   | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |
| 67050000        | Pipe                                | 343.33              | 7,361.28            | 7,017.95          | 95.34           | 4,119.96             | 4,1                  |                      |                     |                |             |             |             |             |

|                 |                              |  |                       |                      |                      |                |                       |                       |                      |                      |                |             |             |
|-----------------|------------------------------|--|-----------------------|----------------------|----------------------|----------------|-----------------------|-----------------------|----------------------|----------------------|----------------|-------------|-------------|
|                 | 70350000                     | Customer Credit Card Fees                | 35,000.00             | 35,759.10            | 759.10               | 2.12           | 430,000.00            | 430,000.00            | 435,201.87           | 5,201.87             | 1.20           | 0.00        | 0.00        |
| <b>Expenses</b> | <b>Freight and Postage</b>   |  | <b>31,158.33</b>      | <b>62,684.30</b>     | <b>31,525.97</b>     | <b>50.29</b>   | <b>433,799.96</b>     | <b>433,799.96</b>     | <b>488,140.32</b>    | <b>54,340.36</b>     | <b>11.13</b>   | <b>0.00</b> | <b>0.00</b> |
|                 | 71100000                     | Freight                                  | 1,158.33              | 99.32                | -1,059.01            | -1,066.26      | 13,799.96             | 13,799.96             | 4,452.12             | -9,347.84            | -209.96        | 0.00        | 0.00        |
|                 | 71150000                     | Postage                                  | 30,000.00             | 62,584.98            | 32,584.98            | 52.07          | 420,000.00            | 420,000.00            | 483,688.20           | 63,688.20            | 13.17          | 0.00        | 0.00        |
| <b>Expenses</b> | <b>Leases and Rent</b>       |  | <b>103,625.61</b>     | <b>15,698.35</b>     | <b>-87,927.26</b>    | <b>-560.11</b> | <b>1,509,708.65</b>   | <b>1,509,708.65</b>   | <b>1,085,839.85</b>  | <b>-423,868.8</b>    | <b>-39.04</b>  | <b>0.00</b> | <b>0.00</b> |
|                 | 72100000                     | Copier & Fax Machine Rental              | 7,592.27              | 4,421.42             | -3,170.85            | -71.72         | 91,107.24             | 91,107.24             | 59,644.15            | -31,463.09           | -52.8          | 0.00        | 0.00        |
|                 | 72150000                     | Equipment Rental                         | 4,783.34              | 10,352.26            | 5,568.92             | 53.79          | 69,047.68             | 69,047.68             | 115,836.28           | 46,788.60            | 40.39          | 0.00        | 0.00        |
|                 | 72550000                     | Office Rent                              | 91,250.00             | 924.67               | -90,325.33           | -9,768.39      | 1,349,553.73          | 1,349,553.73          | 910,359.42           | -439,194.31          | -48.24         | 0.00        | 0.00        |
|                 | 72600000                     | Parking Lease                            | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00                  | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00        | 0.00        |
| <b>Expenses</b> | <b>Professional Services</b> |  | <b>1,317,938.16</b>   | <b>2,428,333.65</b>  | <b>1,110,395.49</b>  | <b>45.73</b>   | <b>19,576,526.30</b>  | <b>19,576,526.30</b>  | <b>18,124,844.73</b> | <b>-1,451,681.57</b> | <b>-8.01</b>   | <b>0.00</b> | <b>0.00</b> |
|                 | 73050000                     | Advertising                              | 3,083.33              | 494.55               | -2,588.78            | -523.46        | 37,399.96             | 37,399.96             | 14,266.76            | -23,133.20           | -162.15        | 0.00        | 0.00        |
|                 | 73100000                     | Annual Audit                             | 0.00                  | 0.00                 | 0.00                 | 0.00           | 54,698.00             | 54,698.00             | 53,632.37            | -1,065.63            | -1.99          | 0.00        | 0.00        |
|                 | 73150000                     | Billing Contract                         | 19,000.00             | 18,544.44            | -455.56              | -2.46          | 289,000.00            | 289,000.00            | 303,632.73           | 14,632.73            | 4.82           | 0.00        | 0.00        |
|                 | 73210000                     | Collection Agency                        | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00                  | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00        | 0.00        |
|                 | 73230000                     | Consultants                              | 538,917.00            | 1,240,452.80         | 701,535.80           | 56.55          | 6,552,047.59          | 6,552,047.59          | 6,105,715.51         | -446,332.08          | -7.31          | 0.00        | 0.00        |
|                 | 73250000                     | Annual Report                            | 0.00                  | 0.00                 | 0.00                 | 0.00           | 3,500.00              | 3,500.00              | 0.00                 | -3,500.00            | 0.00           | 0.00        | 0.00        |
|                 | 73300000                     | Construction Management                  | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00                  | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00        | 0.00        |
|                 | 73320000                     | Consulting Engineers                     | 0.00                  | 11,845.37            | 11,845.37            | 100.00         | 173,000.00            | 173,000.00            | 52,858.82            | -120,141.18          | -227.29        | 0.00        | 0.00        |
|                 | 73350000                     | Non Capital Engineering Services         | 184,271.93            | 445,328.19           | 261,056.26           | 58.6           | 2,522,006.17          | 2,522,006.17          | 2,291,326.00         | -230,680.17          | -10.07         | 0.00        | 0.00        |
|                 | 73450000                     | Insurance Auto                           | 0.00                  | 0.00                 | 0.00                 | 0.00           | 49,752.15             | 49,752.15             | 68,166.00            | 18,413.85            | 27.01          | 0.00        | 0.00        |
|                 | 73480000                     | Insurance Commercial Property            | 0.00                  | 0.00                 | 0.00                 | 0.00           | 280,000.00            | 280,000.00            | 286,159.00           | 6,159.00             | 2.15           | 0.00        | 0.00        |
|                 | 73530000                     | Insurance General Liability              | 0.00                  | 0.00                 | 0.00                 | 0.00           | 40,000.00             | 40,000.00             | 77,234.00            | 37,234.00            | 48.21          | 0.00        | 0.00        |
|                 | 73590000                     | Insurance Officer & Director             | 0.00                  | 0.00                 | 0.00                 | 0.00           | 123,173.40            | 123,173.40            | 140,923.00           | 17,749.60            | 12.60          | 0.00        | 0.00        |
|                 | 73650000                     | Insurance Workers Compensation           | 0.00                  | 0.00                 | 0.00                 | 0.00           | 446,742.45            | 446,742.45            | 447,152.00           | 409.55               | 0.09           | 0.00        | 0.00        |
|                 | 73660000                     | Insurance Workers Compensation City      | 0.00                  | 3,836.76             | 3,836.76             | 100.00         | 30,000.00             | 30,000.00             | 19,488.34            | -10,511.66           | -53.94         | 0.00        | 0.00        |
|                 | 73680000                     | Insurance Cyber                          | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00                  | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00        | 0.00        |
|                 | 73700000                     | Legal Services                           | 174,666.00            | 164,308.67           | -10,357.33           | -6.30          | 2,378,792.00          | 2,378,792.00          | 2,210,514.48         | -168,277.52          | -7.61          | 0.00        | 0.00        |
|                 | 73750000                     | Meter Services                           | 53,916.00             | 53,915.82            | -0.18                | 0.00           | 796,992.00            | 796,992.00            | 772,653.44           | -24,338.56           | -3.15          | 0.00        | 0.00        |
|                 | 73820000                     | Payroll Services                         | 12,500.00             | 10,125.46            | -2,375               | -23.45         | 150,000.00            | 150,000.00            | 135,577.90           | -14,242.10           | -10.49         | 0.00        | 0.00        |
|                 | 73830000                     | Miscellaneous Professional Services      | 283,883.90            | 379,181.59           | 95,297.69            | 25.1           | 5,466,137.58          | 5,466,137.58          | 5,024,765.38         | -441,372.20          | -8.78          | 0.00        | 0.00        |
|                 | 73890000                     | Trust Admin                              | 47,700.00             | 40,300.00            | -7,400.00            | -18.36         | 83,285.00             | 83,285.00             | 60,485.00            | -22,800.00           | -37.70         | 0.00        | 0.00        |
|                 | 73900000                     | Water Liens                              | 0.00                  | 60,000.00            | 60,000.00            | 100.00         | 100,000.00            | 100,000.00            | 60,114.00            | -39,886.00           | -66.35         | 0.00        | 0.00        |
| <b>Expenses</b> | <b>Supplies</b>              |  | <b>412,034.91</b>     | <b>189,884.34</b>    | <b>-222,150.57</b>   | <b>-116.99</b> | <b>1,041,018.94</b>   | <b>1,041,018.94</b>   | <b>1,419,369.43</b>  | <b>378,350.49</b>    | <b>26.66</b>   | <b>0.00</b> | <b>0.00</b> |
|                 | 74050000                     | Computer Software Supplies               | 3,140.26              | 4,742.33             | 1,602.07             | 37.78          | 37,683.12             | 37,683.12             | 92,217.88            | 54,534.76            | 59.14          | 0.00        | 0.00        |
|                 | 74220000                     | Fuel Gasses                              | 359,167.33            | 91,525.35            | -267,642             | -292.42        | 410,007.98            | 410,007.98            | 530,662.98           | 120,655.00           | 22.74          | 0.00        | 0.00        |
|                 | 74230000                     | Fuel Kerosene                            | 85.00                 | 0.00                 | -85                  | 0.00           | 1,020.00              | 1,020.00              | 503.58               | -516.42              | -102.55        | 0.00        | 0.00        |
|                 | 74240000                     | Fuel Propane                             | 182.00                | 0.00                 | -182.00              | 0.00           | 2,184.00              | 2,184.00              | 1,173.74             | -1,010.26            | -86.07         | 0.00        | 0.00        |
|                 | 74400000                     | Grounds & Maintenance Supplies           | 35,250.00             | 56,644.78            | 21,394.78            | 37.77          | 417,500.00            | 417,500.00            | 572,335.77           | 154,835.77           | 27.05          | 0.00        | 0.00        |
|                 | 74450000                     | Lab Chemicals                            | 833.33                | 64.10                | -769.23              | -1,200.05      | 9,999.96              | 9,999.96              | 2,054.39             | -7,945.57            | -386.76        | 0.00        | 0.00        |
|                 | 74470000                     | Lab Supplies                             | 10,000.00             | 19,253.01            | 9,253.01             | 48.06          | 120,000.00            | 120,000.00            | 139,294.67           | 19,294.67            | 13.85          | 0.00        | 0.00        |
|                 | 74500000                     | Office Supplies                          | 3,034.99              | 2,661.10             | -373.89              | -14.05         | 38,519.88             | 38,519.88             | 33,850.56            | -4,669.32            | -13.79         | 0.00        | 0.00        |
|                 | 74600000                     | Uniforms                                 | 0.00                  | 10,439.87            | 10,439.87            | 100.00         | 0.00                  | 0.00                  | 20,555.93            | 20,555.93            | 100.00         | 0.00        | 0.00        |
|                 | 74900000                     | Welding Supplies                         | 342.00                | 4,553.80             | 4,211.8              | 92.49          | 4,104.00              | 4,104.00              | 26,719.93            | 22,615.93            | 84.64          | 0.00        | 0.00        |
| <b>Expenses</b> | <b>Travel and Training</b>   |  | <b>9,572.46</b>       | <b>36,460.96</b>     | <b>26,888.50</b>     | <b>73.75</b>   | <b>181,939.98</b>     | <b>181,939.98</b>     | <b>280,680.00</b>    | <b>98,740.02</b>     | <b>35.18</b>   | <b>0.00</b> | <b>0.00</b> |
|                 | 75050000                     | Travel & Training Airfare                | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00                  | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00        | 0.00        |
|                 | 75100000                     | Travel & Training Auto                   | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00                  | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00        | 0.00        |
|                 | 75200000                     | Travel & Training Fuel                   | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00                  | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00        | 0.00        |
|                 | 75400000                     | Travel & Training Lodging                | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00                  | 0.00                  | 115.36               | 115.36               | 100.00         | 0.00        | 0.00        |
|                 | 75450000                     | Travel & Training Meals                  | 0.00                  | 2,670.65             | 2,670.65             | 100.00         | 0.00                  | 0.00                  | 2,670.65             | 2,670.65             | 100.00         | 0.00        | 0.00        |
|                 | 75500000                     | Travel & Training Mileage                | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00                  | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00        | 0.00        |
|                 | 75550000                     | Travel & Training Seminars & Conferences | 0.00                  | 0.00                 | 0.00                 | 0.00           | 1,000.00              | 1,000.00              | 1,380.00             | 380                  | 27.54          | 0.00        | 0.00        |
|                 | 75600000                     | Travel & Training                        | 5,704.55              | 22,345.68            | 16,641.13            | 74.47          | 127,500.06            | 127,500.06            | 207,803.33           | 80,303.27            | 38.64          | 0.00        | 0.00        |
|                 | 75750000                     | Travel & Training Miscellaneous          | 3,867.91              | 11,444.63            | 7,576.72             | 66.20          | 53,439.92             | 53,439.92             | 68,710.66            | 15,270.74            | 22.22          | 0.00        | 0.00        |
| <b>Expenses</b> | <b>Utility Expense</b>       |  | <b>483,883.54</b>     | <b>1,060,382.18</b>  | <b>576,498.64</b>    | <b>54.37</b>   | <b>5,436,602.48</b>   | <b>5,436,602.48</b>   | <b>6,643,329.14</b>  | <b>1,206,726.66</b>  | <b>18.16</b>   | <b>0.00</b> | <b>0.00</b> |
|                 | 76050000                     | Electric                                 | 375,000.00            | 945,023.48           | 570,023.48           | 60.32          | 4,500,000.00          | 4,500,000.00          | 5,558,804.37         | 1,058,804.37         | 19.05          | 0.00        | 0.00        |
|                 | 76500000                     | Natural Gas                              | 60,000.00             | 55,146.02            | -4,853.98            | -8.80          | 350,000.00            | 350,000.00            | 370,174.69           | 20,174.69            | 5.45           | 0.00        | 0.00        |
|                 | 76750000                     | SCADA Connectivity                       | 15,604.00             | 24,675.48            | 9,071.48             | 36.76          | 187,248.00            | 187,248.00            | 289,803.66           | 102,555.66           | 35.39          | 0.00        | 0.00        |
|                 | 76800000                     | Cellular Phone                           | 15,786.12             | 18,022.44            | 2,236.32             | 12.41          | 189,433.44            | 189,433.44            | 203,634.28           | 14,200.84            | 6.97           | 0.00        | 0.00        |
|                 | 76810000                     | Local Phones                             | 13,743.42             | 14,487.19            | 743.77               | 5.13           | 164,921.04            | 164,921.04            | 183,587.28           | 18,666.24            | 10.17          | 0.00        | 0.00        |
|                 | 76830000                     | Internet                                 | 3,750.00              | 3,027.57             | -722                 | -23.86         | 45,000.00             | 45,000.00             | 37,324.86            | -7,675.14            | -20.56         | 0.00        | 0.00        |
| <b>Expenses</b> | <b>Admin Misc</b>            |  | <b>-21,502,571.48</b> | <b>-9,954,239.20</b> | <b>11,548,332.28</b> | <b>-116.01</b> | <b>-20,626,345.48</b> | <b>-20,626,345.48</b> | <b>-8,301,734.76</b> | <b>12,324,610.72</b> | <b>-148.46</b> | <b>0.00</b> | <b>0.00</b> |
|                 | 77010000                     | Capital Project Clearing                 | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00                  | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00        | 0.00        |
|                 | 77050000                     | Bad Debt                                 | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00                  | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00        | 0.00        |
|                 | 77100000                     | Capital Asset Reclass                    | -21,581,541.48        | -10,010,402.15       | 11,571,139.33        | -115.59        | -21,581,541.48        | -21,581,541.48        | -10,010,402.15       | 11,571,139.33        | -115.59        | 0.00        | 0.00        |
|                 | 77120000                     | Cash Discount Taken                      | 0.00                  | -451.66              | -451.66              | 100.00         | 0.00                  | 0.00                  | -3,105.00            | -3,105.00            | 100.00         | 0.00        | 0.00        |
|                 | 77150000                     | Claims                                   | 70,833.33             | 364.49               | -70,468.84           | -19,333.55     | 849,999.96            | 849,999.96            | 505,097.83           | -344,902.13          | -68.3          | 0.00        | 0.00        |
|                 | 77200000                     | Customer Refund CSM                      | -45,833               | -30,704.23           | 15,128.77            | -49.27         | -549,996              | -549,996              | -480,615.86          | 69,380.14            | -14.44         | 0.00        | 0.00        |
|                 | 77210000                     | Customer Refund AP                       | 45,833.00             | 60,183.22            | 14,350               | 23.84          | 549,996.00            | 549,996.00            | 786,109.44           | 236,113.44           | 30.04          | 0.00        | 0.00        |
|                 | 77300000                     | Fines & Penalties                        | 0.00                  | 0.00                 | 0.00                 | 0.00           | 0.00                  | 0.00                  | 28,026.00            | 2                    |                |             |             |



|                             |                                     |                       |                      |                     |               |                       |                       |                       |                       |              |             |             |             |
|-----------------------------|-------------------------------------|-----------------------|----------------------|---------------------|---------------|-----------------------|-----------------------|-----------------------|-----------------------|--------------|-------------|-------------|-------------|
| 83050000                    | Amortization Debt Discount          | 0.00                  | 0.00                 | 0.00                | 0.00          | 0.00                  | 0.00                  | 0.00                  | 0.00                  | 0.00         | 0.00        | 0.00        | 0.00        |
| 83350000                    | Bond Interest                       | 2,843,467.79          | 0.00                 | -2,843,467.79       | 0.00          | 34,512,081.64         | 34,512,081.64         | 0.00                  | -34,512,081.64        | 0.00         | 0.00        | 0.00        | 0.00        |
| 83450000                    | Net Swap Interest                   | 0.00                  | 0.00                 | 0.00                | 0.00          | 0.00                  | 0.00                  | 0.00                  | 0.00                  | 0.00         | 0.00        | 0.00        | 0.00        |
| 83550000                    | Pennvest Interest                   | 290,609.20            | 0.00                 | -290,609.20         | 0.00          | 3,834,234.67          | 3,834,234.67          | 467.86                | -3,833,766.81         | -819,426.07  | 0.00        | 0.00        | 0.00        |
| 83600000                    | Line of Credit Interest             | 125,000.00            | 201,314.55           | 76,314.55           | 37.91         | 1,500,000.00          | 1,500,000.00          | 2,167,225.40          | 667,225.40            | 30.79        | 0.00        | 0.00        | 0.00        |
| 833513A0                    | Bond Interest 2013A                 | 0.00                  | 282,469.35           | 282,469.35          | 100.00        | 0.00                  | 0.00                  | 3,709,507.23          | 3,709,507.23          | 100.00       | 0.00        | 0.00        | 0.00        |
| 833513B0                    | Bond Interest 2013B                 | 0.00                  | 107,789.77           | 107,789.77          | 100.00        | 0.00                  | 0.00                  | 1,293,477.24          | 1,293,477.24          | 100.00       | 0.00        | 0.00        | 0.00        |
| 833517A0                    | Bond Interest 2017A                 | 0.00                  | 497,192.49           | 497,192.49          | 100.00        | 0.00                  | 0.00                  | 5,966,309.88          | 5,966,309.88          | 100.00       | 0.00        | 0.00        | 0.00        |
| 833517C0                    | Bond Interest 2017C                 | 0.00                  | 715,014.51           | 715,014.51          | 100.00        | 0.00                  | 0.00                  | 8,580,174.12          | 8,580,174.12          | 100.00       | 0.00        | 0.00        | 0.00        |
| 833519A0                    | Bond Interest 2019A                 | 0.00                  | 354,095.84           | 354,095.84          | 100.00        | 0.00                  | 0.00                  | 4,344,400.14          | 4,344,400.14          | 100.00       | 0.00        | 0.00        | 0.00        |
| 833519B0                    | Bond Interest 2019B                 | 0.00                  | 315,907.91           | 315,907.91          | 100.00        | 0.00                  | 0.00                  | 3,790,894.92          | 3,790,894.92          | 100.00       | 0.00        | 0.00        | 0.00        |
| 833520A0                    | Bond Interest 2020A                 | 0.00                  | 0.00                 | 0.00                | 0.00          | 0.00                  | 0.00                  | 4,672.53              | 4,672.53              | 100.00       | 0.00        | 0.00        | 0.00        |
| 833520B0                    | Bond Interest 2020B                 | 0.00                  | 268,011.56           | 268,011.56          | 100.00        | 0.00                  | 0.00                  | 3,234,026.22          | 3,234,026.22          | 100.00       | 0.00        | 0.00        | 0.00        |
| 833522A0                    | Bond Interest 2022A                 | 0.00                  | 0.00                 | 0.00                | 0.00          | 0.00                  | 0.00                  | 0.00                  | 0.00                  | 0.00         | 0.00        | 0.00        | 0.00        |
| 833598B0                    | Bond Interest 1998B                 | 0.00                  | 302,985.84           | 302,985.84          | 100.00        | 0.00                  | 0.00                  | 3,588,618.30          | 3,588,618.30          | 100.00       | 0.00        | 0.00        | 0.00        |
| 834517C0                    | Net Swap Interest 2017C             | 0.00                  | 119,722.72           | 119,722.72          | 100.00        | 0.00                  | 0.00                  | 2,019,382.32          | 2,019,382.32          | 100.00       | 0.00        | 0.00        | 0.00        |
| 8355SS01                    | Pennvest Interest SS1               | 0.00                  | 1,596.33             | 1,596.33            | 100.00        | 0.00                  | 0.00                  | 20,083.81             | 20,083.81             | 100.00       | 0.00        | 0.00        | 0.00        |
| 8355SS02                    | Pennvest Interest SS2               | 0.00                  | 4,342.87             | 4,342.87            | 100.00        | 0.00                  | 0.00                  | 54,664.50             | 54,664.50             | 100.00       | 0.00        | 0.00        | 0.00        |
| 8355SS03                    | Pennvest Interest SS3               | 0.00                  | 944.87               | 944.87              | 100.00        | 0.00                  | 0.00                  | 11,904.98             | 11,904.98             | 100.00       | 0.00        | 0.00        | 0.00        |
| 8355SS04                    | Pennvest Interest SS4               | 0.00                  | 774.51               | 774.51              | 100.00        | 0.00                  | 0.00                  | 9,615.30              | 9,615.30              | 100.00       | 0.00        | 0.00        | 0.00        |
| 8355SS05                    | Pennvest Interest SS5               | 0.00                  | 902.74               | 902.74              | 100.00        | 0.00                  | 0.00                  | 11,186.95             | 11,186.95             | 100.00       | 0.00        | 0.00        | 0.00        |
| 8355SS06                    | Pennvest Interest SS6               | 0.00                  | 819.33               | 819.33              | 100.00        | 0.00                  | 0.00                  | 18,818.86             | 18,818.86             | 100.00       | 0.00        | 0.00        | 0.00        |
| 8355SS07                    | Pennvest Interest SS7               | 0.00                  | 6,493.82             | 6,493.82            | 100.00        | 0.00                  | 0.00                  | 61,588.63             | 61,588.63             | 100.00       | 0.00        | 0.00        | 0.00        |
| 8355SS08                    | Pennvest Interest SS8               | 0.00                  | 3,847.40             | 3,847.40            | 100.00        | 0.00                  | 0.00                  | 24,207.76             | 24,207.76             | 100.00       | 0.00        | 0.00        | 0.00        |
| 8355SS09                    | Pennvest Interest SS9               | 0.00                  | 0.00                 | 0.00                | 0.00          | 0.00                  | 0.00                  | 0.00                  | 0.00                  | 0.00         | 0.00        | 0.00        | 0.00        |
| 8355STRN                    | Pennvest Interest STRN              | 0.00                  | 237.01               | 237.01              | 100.00        | 0.00                  | 0.00                  | 1,608.35              | 1,608.35              | 100.00       | 0.00        | 0.00        | 0.00        |
| 8355WS01                    | Pennvest Interest WS1               | 0.00                  | 59.94                | 59.94               | 100.00        | 0.00                  | 0.00                  | 1,703.37              | 1,703.37              | 100.00       | 0.00        | 0.00        | 0.00        |
| 8355WS02                    | Pennvest Interest WS2               | 0.00                  | 448.66               | 448.66              | 100.00        | 0.00                  | 0.00                  | 6,713.32              | 6,713.32              | 100.00       | 0.00        | 0.00        | 0.00        |
| 8355WS03                    | Pennvest Interest WS3               | 0.00                  | 510.61               | 510.61              | 100.00        | 0.00                  | 0.00                  | 7,313.09              | 7,313.09              | 100.00       | 0.00        | 0.00        | 0.00        |
| 8355WS05                    | Pennvest Interest WS5               | 0.00                  | 8,469.23             | 8,469.23            | 100.00        | 0.00                  | 0.00                  | 106,493.39            | 106,493.39            | 100.00       | 0.00        | 0.00        | 0.00        |
| 8355WS06                    | Pennvest Interest WS6               | 0.00                  | 8,575.93             | 8,575.93            | 100.00        | 0.00                  | 0.00                  | 98,927.21             | 98,927.21             | 100.00       | 0.00        | 0.00        | 0.00        |
| 8355WS07                    | Pennvest Interest WS7               | 0.00                  | 573.07               | 573.07              | 100.00        | 0.00                  | 0.00                  | 7,117.93              | 7,117.93              | 100.00       | 0.00        | 0.00        | 0.00        |
| 8355WS08                    | Pennvest Interest WS8               | 0.00                  | 1,360.90             | 1,360.90            | 100.00        | 0.00                  | 0.00                  | 16,895.13             | 16,895.13             | 100.00       | 0.00        | 0.00        | 0.00        |
| 8355WS09                    | Pennvest Interest WS9               | 0.00                  | 26,680.70            | 26,680.70           | 100.00        | 0.00                  | 0.00                  | 325,989.97            | 325,989.97            | 100.00       | 0.00        | 0.00        | 0.00        |
| 8355WS10                    | Pennvest Interest WS10              | 0.00                  | 47,477.35            | 47,477.35           | 100.00        | 0.00                  | 0.00                  | 566,709.84            | 566,709.84            | 100.00       | 0.00        | 0.00        | 0.00        |
| 8355WS11                    | Pennvest Interest WS11              | 0.00                  | 5,898.44             | 5,898.44            | 100.00        | 0.00                  | 0.00                  | 19,063.12             | 19,063.12             | 100.00       | 0.00        | 0.00        | 0.00        |
| 8355WS12                    | Pennvest Interest WS12              | 0.00                  | 697.39               | 697.39              | 100.00        | 0.00                  | 0.00                  | 1,475.67              | 1,475.67              | 100.00       | 0.00        | 0.00        | 0.00        |
| <b>Expense Total</b>        |                                     | <b>3,516,316.06</b>   | <b>15,114,139.48</b> | <b>11,597,823.4</b> | <b>76.73</b>  | <b>256,920,770.75</b> | <b>256,920,770.75</b> | <b>259,963,873.82</b> | <b>3,043,103.07</b>   | <b>1.17</b>  | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |
| <b>Asset disposal</b>       | <b>Gain/Loss on Asset Disposal</b>  | <b>0.00</b>           | <b>0.00</b>          | <b>0.00</b>         | <b>0.00</b>   | <b>0.00</b>           | <b>0.00</b>           | <b>0.00</b>           | <b>0.00</b>           | <b>0.00</b>  | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |
| 35900000                    | Unrealized Gain/Loss Asset Disposal | 0.00                  | 0.00                 | 0.00                | 0.00          | 0.00                  | 0.00                  | 0.00                  | 0.00                  | 0.00         | 0.00        | 0.00        | 0.00        |
| 35910000                    | Recognized Gain/Loss Asset Disposal | 0.00                  | 0.00                 | 0.00                | 0.00          | 0.00                  | 0.00                  | 0.00                  | 0.00                  | 0.00         | 0.00        | 0.00        | 0.00        |
| 35920000                    | Proceeds Assets Disposal            | 0.00                  | 0.00                 | 0.00                | 0.00          | 0.00                  | 0.00                  | 0.00                  | 0.00                  | 0.00         | 0.00        | 0.00        | 0.00        |
| <b>Asset Disposal Total</b> |                                     | <b>0.00</b>           | <b>0.00</b>          | <b>0.00</b>         | <b>0.00</b>   | <b>0.00</b>           | <b>0.00</b>           | <b>0.00</b>           | <b>0.00</b>           | <b>0.00</b>  | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |
| <b>Net Income</b>           |                                     | <b>-17,796,169.47</b> | <b>-10,118,388.2</b> | <b>7,677,781.28</b> | <b>-75.88</b> | <b>-24,111,100.33</b> | <b>-24,111,100.33</b> | <b>-34,287,657.72</b> | <b>-10,176,557.39</b> | <b>29.68</b> | <b>0.00</b> | <b>0.00</b> | <b>0.00</b> |

**XI. OTHER DATA**

XI.4. Provide a copy of the company's most recent operating and capital budgets.

**RESPONSE:**

Please see attached.



# **The Pittsburgh Water and Sewer Authority**

**2023 – 2027 Capital Improvement Plan**

**Approved on October 28, 2022**



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**Erika Strassburger**, Vice Chairperson

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**William McFaddin**, Director, Operations

**Joseph Tewell**, Deputy Director, Operations

**George Watson**, Deputy Director, Water Production



Pittsburgh  
Water & Sewer  
Authority

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## Introduction

The Pittsburgh Water and Sewer Authority (“**the Authority**” or “**the PWSA**”) is a body corporate and politic organized and existing under the Act pursuant to Resolution No. 36 of the Council of the City of Pittsburgh (the “**City**”), duly enacted on February 6, 1984, approved by the Mayor on February 8, 1984, and effective February 16, 1984. The Secretary of the Commonwealth of Pennsylvania approved the Authority’s Articles of Incorporation and issued a Certificate of Incorporation on February 17, 1984. Articles of Amendment were approved and a Certificate of Amendment was issued by the Pennsylvania Department of State on December 11, 1989, to include, among authorized projects, low head dams and facilities for generating surplus electric power. Articles of Amendment were approved and a Certificate of Amendment was issued by the Pennsylvania Department of State on May 9, 2008, to extend the term of existence of the Authority to May 21, 2045. Articles of Amendment were approved and a Certificate of Amendment was issued by the Pennsylvania Department of State on March 19, 2020, to extend the term of existence of the Authority to March 13, 2070 and to include stormwater systems.

Under its Articles of Incorporation, the Authority is specifically authorized to acquire, hold, construct, finance, improve, maintain, operate, own and lease, either as lessor or lessee, projects of the following kinds and character: sewers, sewer systems or parts thereof, waterworks, water supply works, and water distribution systems, low head dams, facilities for generating surplus power, and stormwater systems.

The System provides water to approximately 75,000 customers or 84% of the total population in the geographic boundaries of the City. The Authority provides wastewater collection and transmission service to almost the entire City, estimated at 301,000 residents. The System does not include wastewater treatment facilities; such facilities are the responsibility of Allegheny County Sanitary Authority (“**ALCOSAN**”), a separate and distinct legal entity.

The Authority operates and maintains a 117 million gallon per day (MGD) rapid sand type water treatment plant, a 21 MGD microfiltration plant, approximately 964 miles of water mains, over 32,000 valves and fire hydrants, 1 raw water pump station, 10 finished water pump stations, 4 in-ground reservoirs, 10 storage tanks, approximately 1,220 miles of sanitary, storm and combined sewers, 29,500 manholes, 25,000 catch basins and inlets, 98 combined sewer overflow outfalls, 195 storm outfalls, and 4 wastewater pump stations.

## Pennsylvania Public Utility Commission Oversight of the Authority

On December 21, 2017, the Pennsylvania legislature enacted Act 65 of 2017 (“**Act 65**”), placing the Authority under the jurisdiction of the Pennsylvania Public Utility Commission (“**PUC**”) pursuant to the Pennsylvania Public Utility Code (the “**Public Utility Code**”). Act 65 applies most of the provisions of the Public Utility Code to the Authority in the same manner as a “public utility,” resulting in regulation of the Authority’s rate making, its operating effectiveness, debt issuances and other aspects of conducting its business similar to the way the PUC regulates investor-owned utilities. Act 65 includes provisions that allow the Authority to impose, charge or collect rates or charges as necessary to permit the Authority to comply with its covenants with the holders of any bonds or other financial obligations of the Authority, and prohibits the PUC from requiring the Authority to take any action that would cause the interest on the Authority’s financial obligations to be includible in gross income of the holders of such obligations for federal income tax purposes.

## Capital Improvement Program

### Overview

The PWSA's Capital Improvement Program (CIP) focuses on sustaining cost-effective operations, while optimizing the system's asset performance and life expectancy. The 2023-2027 Capital Improvement Program invests in programs which consider risk and consequence of asset failure and levels of service benefits.

### Development and Approval Process

The PWSA’s CIP process begins each year in May when project nominations are solicited from the entire organization. At the completion of the nomination period, the CIP Review Committee screens, evaluates and prioritizes the nominated projects to determine the projects that should be included in the CIP. Further planning efforts consist of the preparation of a project sheet, which provides more detailed information on a project’s potential scope options, risks, schedule, and the

cost estimate. This process lasts several months and culminates with the presentation of the updated CIP to PWSA's Board of Directors. Projects that are not selected for execution at any stage will be re-assessed during the next year's CIP development process.

### **Capital Project Prioritization**

Due to funding limitations and the need to renew/replacing a significant amount of aging infrastructure, the following criteria are used to evaluate and prioritize capital projects:

- Regulatory Compliance
- Safety
- Operating Efficiency
- Quality of Service
- Organizational Goals
- Social Impact

### **Funding Sources**

The PWSA Capital Improvement Program is funded through several primary sources to which specific programs and projects are allocated. These funding sources include, but are not limited to, Debt (Revenue Bonds), Distribution System Improvement Charge ("DSIC"), Water Infrastructure Finance and Innovation Act ("WIFIA"), Pennsylvania Infrastructure Investment Authority ("PENNVEST"), American Rescue Plan Act ("ARPA") and cost shares with other entities.

### **Capital Improvement Plan Organization**

The CIP is organized into six project classes (types):

- Water Treatment Plant
- Water Pumping and Storage
- Water Distribution
- Wastewater System
- Stormwater
- Miscellaneous

Each project class is then made up of individual projects. Projects are defined based upon current information, which range from annual allowances for asset renewal and/or replacement activities, to major, multiple phase facility renewal projects.

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## **Project Information**

The following information is provided for each project:

- **Cash Flow Summary** – Estimated five-year cash flow for the project.
- **DSIC Eligibility** – Determination of whether costs qualify under the Distribution System Improvement Charge.
- **Funding Source(s)** – Proposed funding source(s) for the project.
- **Impact on Operations** – Describes the anticipated impact to the PWSA’s operations when the project is completed.
- **Phase** – Phase in the project life-cycle (i.e. assessment/design/construction).
- **Priority** – Criteria utilized to prioritize the project.
- **Project Class** – Type of project.
- **Project Description** - A basic understanding of the project’s intent and scope of work.
- **Project Justification** - A detailed explanation to why the project is needed.
- **Project Name** – Descriptive name assigned to the project.
- **Project Number** – Unique number(s) assigned to track the project from inception to completion. This number is established once a project is approved.
- **Risk(s)** - Outlines the risk(s) to the PWSA if the project is delayed or is not selected.

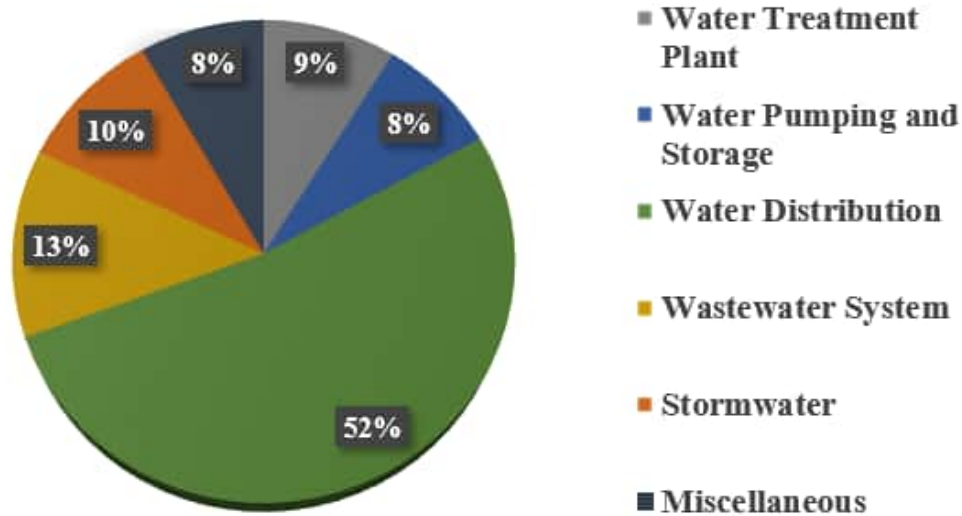
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# Historical and Forecasted Capital Expenditures

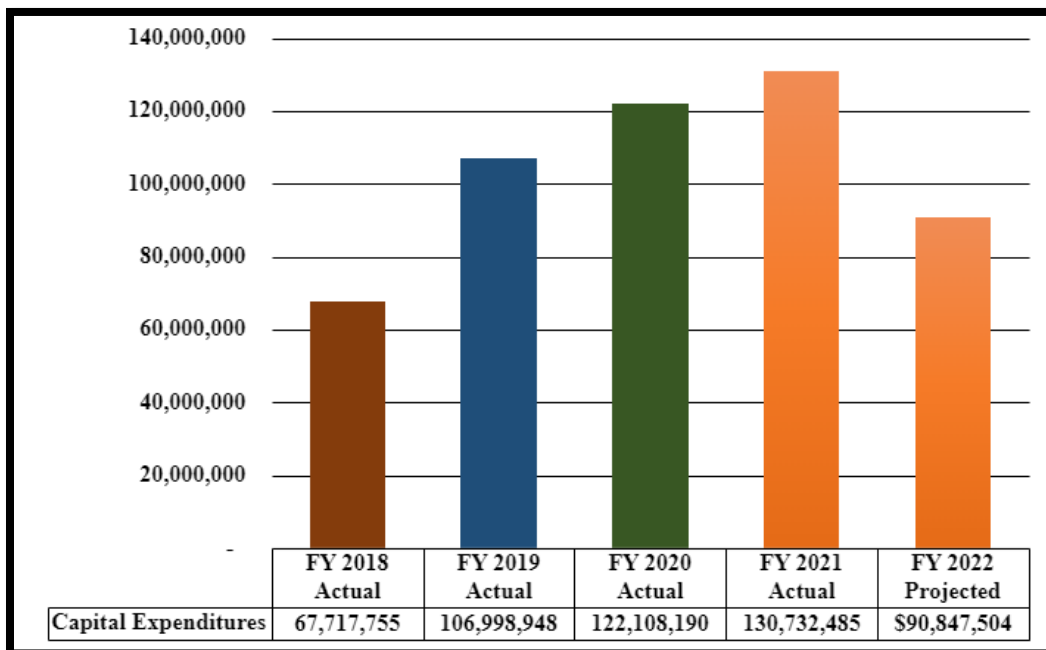
The figures below illustrate the historical capital expenditures by project class for FY 2018 – FY 2021 as well as the historical and forecasted capital expenditures for FY 2018 – FY 2021.

Figure 1. Historical Capital Expenditures by Project Class: FY 2018 – FY 2021



|                           | FY 2018 - Actual     | FY 2019 - Actual   | FY 2020 - Actual   | FY 2021 - Actual   | Total                 |
|---------------------------|----------------------|--------------------|--------------------|--------------------|-----------------------|
| Water Treatment Plant     | 7,275,878            | 15,665,185         | 8,959,256          | 5,946,283          | \$ 37,846,602         |
| Water Pumping and Storage | 11,732,850           | 9,667,165          | 7,304,722          | 5,941,184          | 34,645,921            |
| Water Distribution        | 27,185,518           | 55,588,889         | 64,838,953         | 76,722,470         | 224,335,829           |
| Wastewater System         | 9,225,987            | 15,152,656         | 8,767,047          | 20,632,500         | 53,778,189            |
| Stormwater                | 3,156,175            | 6,901,255          | 15,791,622         | 15,614,923         | 41,463,976            |
| Miscellaneous             | 9,141,347            | 4,023,798          | 16,446,590         | 5,875,126          | 35,486,861            |
| <b>Total</b>              | <b>\$ 67,717,755</b> | <b>106,998,948</b> | <b>122,108,190</b> | <b>130,732,485</b> | <b>\$ 427,557,378</b> |

Figure 2. Historical and Forecasted Capital Expenditures: FY 2018 – FY 2022



## 2023-2027 Capital Improvement Program

The figures below illustrate the proposed breakdown of the project classes, funding sources, and yearly cash flows for the 2023 to 2027 CIP.

Figure 3. Proposed Yearly Capital Cash Flow by Project Class

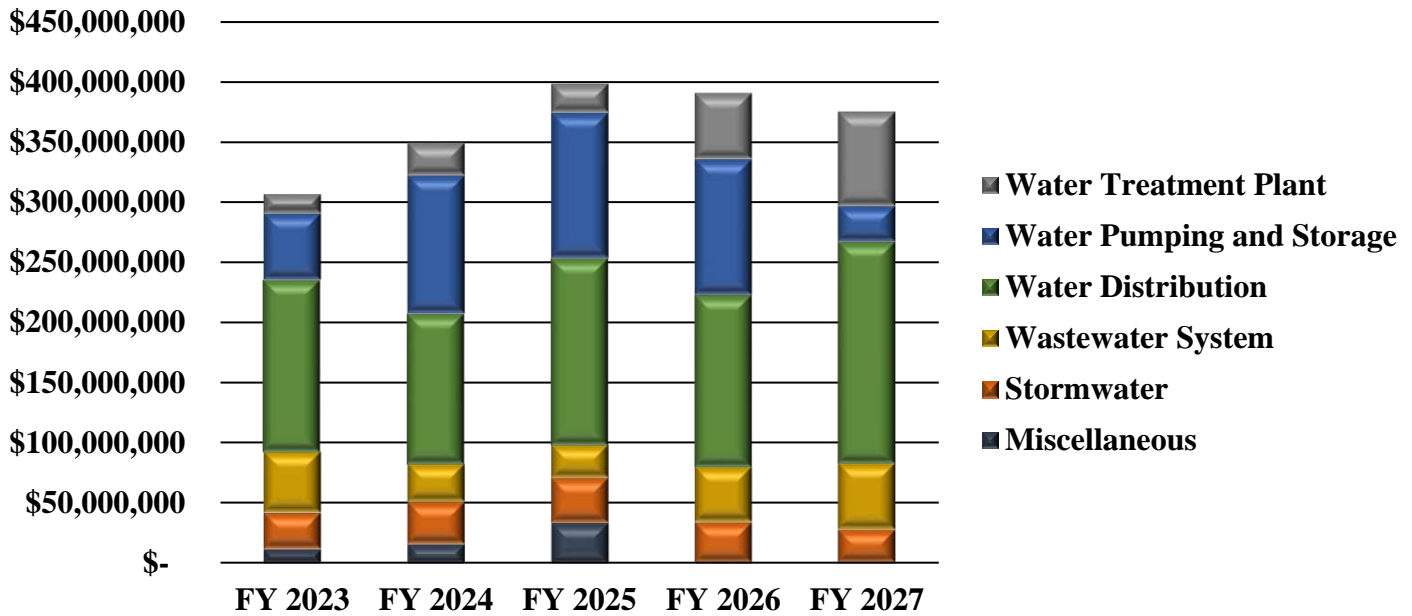


Figure 4. Capital Requirements

|                                   | FY 2023               | FY 2024            | FY 2025            | FY 2026            | FY 2027            | Total                   |
|-----------------------------------|-----------------------|--------------------|--------------------|--------------------|--------------------|-------------------------|
| Water Treatment Plant             | \$ 16,030,211         | 26,885,665         | 24,038,988         | 54,790,691         | 78,451,718         | \$ 200,197,272          |
| Water Pumping and Storage         | 55,304,597            | 115,127,475        | 121,491,637        | 113,245,473        | 30,009,851         | 435,179,033             |
| Water Distribution                | 143,302,527           | 125,439,446        | 155,468,790        | 143,283,004        | 184,525,120        | 752,018,887             |
| Wastewater System                 | 50,634,240            | 31,442,487         | 27,579,779         | 45,751,309         | 54,918,077         | 210,325,892             |
| Stormwater                        | 29,822,932            | 34,827,423         | 36,884,821         | 33,038,424         | 26,808,750         | 161,382,350             |
| Miscellaneous                     | 11,439,316            | 15,500,000         | 33,000,000         | 500,000            | 500,000            | 60,939,316              |
| <b>Total Capital Requirements</b> | <b>\$ 306,533,823</b> | <b>349,222,497</b> | <b>398,464,014</b> | <b>390,608,900</b> | <b>375,213,516</b> | <b>\$ 1,820,042,750</b> |

Figure 5. Funding Sources

|                              | FY 2023               | FY 2024            | FY 2025            | FY 2026            | FY 2027            | Total                   |
|------------------------------|-----------------------|--------------------|--------------------|--------------------|--------------------|-------------------------|
| Debt (Revenue Bonds)         | \$ 122,335,310        | 150,214,517        | 203,743,270        | 236,469,077        | 316,179,204        | \$ 1,028,941,377        |
| PENNVEST                     | 127,409,339           | 97,299,382         | 86,216,706         | 47,511,528         | 10,020,526         | 368,457,481             |
| WIFIA/PENNVEST               | 35,113,456            | 89,843,438         | 98,036,402         | 98,113,624         | 40,456,543         | 361,563,462             |
| DSIC - Water                 | 6,028,526             | 6,058,669          | 6,088,962          | 6,119,407          | 6,150,004          | 30,445,568              |
| DSIC - Wastewater            | 2,359,691             | 2,371,490          | 2,383,347          | 2,395,264          | 2,407,240          | 11,917,032              |
| ARPA                         | 10,582,757            | -                  | -                  | -                  | -                  | 10,582,757              |
| WIFIA                        | 2,540,345             | 3,310,501          | 1,995,327          | -                  | -                  | 7,846,173               |
| Cash (Rates)                 | 164,400               | 124,500            | -                  | -                  | -                  | 288,900                 |
| <b>Total Funding Sources</b> | <b>\$ 306,533,823</b> | <b>349,222,497</b> | <b>398,464,014</b> | <b>390,608,900</b> | <b>375,213,516</b> | <b>\$ 1,820,042,750</b> |



# 2023-2027 Project Summary



| Page  | Project Name   | 2023 Budget            | 2024 Budget            | 2025 Budget            | 2026 Budget            | 2027 Budget            | Total                   |
|---|--|------------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|
| <b>Project Class: Water Treatment Plant</b>     |  |                        |                        |                        |                        |                        |                         |
| 11  | Algae Control for Open Basins  | \$360,000.00           | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$360,000.00            |
| 12  | Aspinwall Water Treatment Plant Electrical and Backup Power Improvements                                     | \$0.00                 | \$866,981.00           | \$1,087,515.00         | \$7,794,745.00         | \$14,874,582.00        | \$24,623,823.00         |
| 13  | Aspinwall Water Treatment Plant Filter Improvements  | \$123,706.90           | \$164,942.53           | \$246,599.62           | \$1,208,045.99         | \$1,006,704.99         | \$2,750,000.02          |
| 14  | Aspinwall Water Treatment Plant Filter Building Sodium Hypochlorite Improvements                             | \$3,222,924.72         | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$3,222,924.72          |
| 15  | Aspinwall Water Treatment Plant Raw Water Intakes - East Intake  | \$0.00                 | \$465,000.00           | \$1,116,000.00         | \$756,000.00           | \$36,000.00            | \$2,373,000.00          |
| 16  | Aspinwall Water Treatment Plant Raw Water Intakes - West Intake  | \$469,736.84           | \$1,127,368.42         | \$767,368.42           | \$5,747,368.42         | \$8,597,368.42         | \$16,709,210.53         |
| 17  | Chemical Feed Modernization Project/Rapid Mix and Clarifier Improvements                                     | \$1,252,063.75         | \$2,789,028.23         | \$2,936,058.88         | \$16,350,331.00        | \$19,072,483.58        | \$42,399,965.45         |
| 18  | Clearwell Emergency Response Project   | \$2,741,630.73         | \$7,408,660.00         | \$7,408,660.00         | \$7,408,660.00         | \$1,234,457.00         | \$26,202,067.73         |
| 19  | Clearwell Improvements   | \$4,293,312.12         | \$2,448,008.62         | \$107,717.51           | \$107,717.51           | \$16,708,182.43        | \$23,664,938.19         |
| 20  | Corrosion Control Chemical Storage & Feed Systems  | \$50,000.00            | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$50,000.00             |
| 21  | Highland Park Membrane Filtration Plant Assessment and Critical Process Improvements                         | \$150,000.00           | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$150,000.00            |
| 22  | Highland Park Microfiltration Plant Improvements Project   | \$14,128.00            | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$14,128.00             |
| 23  | Hydraulic Valve Replacement Program  | \$89,942.53            | \$302,298.85           | \$2,144,252.89         | \$713,505.75           | \$0.00                 | \$3,250,000.02          |
| 24  | Lime Slurry System Improvements  | \$756,079.00           | \$3,548,360.00         | \$1,182,787.00         | \$0.00                 | \$0.00                 | \$5,487,226.00          |
| 25  | Overhead Crane Modernization   | \$0.00                 | \$375,000.00           | \$440,000.00           | \$0.00                 | \$0.00                 | \$815,000.00            |
| 26  | Phase 1 Sedimentation Basin Rehabilitation and Water Treatment Plant Gate Valve and 84-inch Coupling Project | \$224,921.63           | \$299,895.51           | \$448,362.94           | \$2,196,447.25         | \$1,830,372.70         | \$5,000,000.03          |
| 27  | Phase 2 Sedimentation Basin Rehabilitation Project   | \$0.00                 | \$0.00                 | \$0.00                 | \$562,304.08           | \$749,738.77           | \$1,312,042.85          |
| 28  | Post-Filter Chemical System Improvements   | \$0.00                 | \$0.00                 | \$0.00                 | \$607,288.41           | \$809,717.87           | \$1,417,006.28          |
| 29  | Powdered Activated Carbon System Improvements  | \$40,588.77            | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$40,588.77             |
| 30  | Ross Pump Station  | \$0.00                 | \$1,249,655.17         | \$2,499,310.34         | \$1,299,310.34         | \$13,232,110.34        | \$18,280,386.21         |
| 31  | Sludge Chamber Pump Project  | \$386,721.63           | \$869,343.78           | \$0.00                 | \$0.00                 | \$0.00                 | \$1,256,065.41          |
| 32  | Water Treatment Plant Filter Backwash System Improvements  | \$740,054.00           | \$883,290.00           | \$2,996,022.00         | \$8,880,634.00         | \$0.00                 | \$13,500,000.00         |
| 33  | Water Treatment Plant Filter Building Roof   | \$0.00                 | \$3,500,000.00         | \$0.00                 | \$0.00                 | \$0.00                 | \$3,500,000.00          |
| 34  | Water Treatment Plant HVAC Improvements  | \$0.00                 | \$163,333.00           | \$358,333.00           | \$858,333.00           | \$0.00                 | \$1,379,999.00          |
| 35  | Water Treatment Plant NPDES Permit Autosamplers and Flow Meters  | \$164,400.00           | \$124,500.00           | \$0.00                 | \$0.00                 | \$0.00                 | \$288,900.00            |
| 36  | Water Treatment Plant Rail Siding Improvements   | \$800,000.00           | \$300,000.00           | \$300,000.00           | \$300,000.00           | \$300,000.00           | \$2,000,000.00          |
| 37  | WTP Sodium Hypochlorite Tank Emergency Replacement   | \$150,000.00           | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$150,000.00            |
| 38  | Water Treatment Plant Contingency  | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                  |
| <b>Total: Water Treatment Plant</b>             |  | <b>\$16,030,210.63</b> | <b>\$26,885,665.11</b> | <b>\$24,038,987.61</b> | <b>\$54,790,690.74</b> | <b>\$78,451,718.12</b> | <b>\$200,197,272.21</b> |
| <b>Project Class: Water Pumping and Storage</b> |  |                        |                        |                        |                        |                        |                         |
| 40  | Aspinwall Pump Station Improvements  | \$4,748,965.78         | \$15,197,171.56        | \$15,197,171.56        | \$15,227,973.56        | \$2,548,262.93         | \$52,919,545.37         |
| 41  | Aspinwall Pump Station to Lanpher Reservoir Rising Main  | \$2,147,166.98         | \$29,622,031.14        | \$44,331,726.56        | \$44,331,726.56        | \$14,777,242.19        | \$135,209,893.42        |
| 42  | Aspinwall WTP Chemical Unloading Area Improvements, Underground Storage Tank Removal & Replacement           | \$1,352,161.22         | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$1,352,161.22          |
| 43  | Bruecken Pump Station Concealed Gutters  | \$0.00                 | \$175,000.00           | \$0.00                 | \$0.00                 | \$0.00                 | \$175,000.00            |
| 44  | Bruecken Pump Station Improvements   | \$8,653,054.00         | \$30,991,126.00        | \$30,991,126.00        | \$31,037,546.00        | \$5,188,398.00         | \$106,861,250.00        |
| 45  | Chlorine Booster Station Improvements  | \$311,268.79           | \$6,436,147.83         | \$7,007,549.12         | \$583,962.43           | \$0.00                 | \$14,338,928.16         |
| 46  | Disinfection By-Products Mitigation  | \$5,183,170.61         | \$1,426,705.77         | \$0.00                 | \$0.00                 | \$0.00                 | \$6,609,876.38          |
| 47  | Garfield Tank Improvements   | \$0.00                 | \$122,198.00           | \$244,397.00           | \$314,224.00           | \$2,246,121.00         | \$2,926,940.00          |
| 48  | Herron Hill Pump Station Improvements  | \$409,195.41           | \$818,390.81           | \$496,551.73           | \$12,275,862.15        | \$0.00                 | \$14,000,000.09         |
| 49  | Herron Hill Reservoir Improvements   | \$198,631.00           | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$198,631.00            |
| 50  | Herron Hill Reservoir Improvements - Sodium Hypochlorite Building  | \$828,429.11           | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$828,429.11            |
| 51  | Herron Hill Tank Pump Station Improvements   | \$0.00                 | \$164,077.30           | \$195,528.61           | \$1,320,197.05         | \$1,320,197.05         | \$3,000,000.02          |
| 52  | Highland 1 Reservoir Liner   | \$0.00                 | \$0.00                 | \$0.00                 | \$704,981.00           | \$0.00                 | \$704,981.00            |
| 53  | Highland No. 2 Reservoir Liner and Cover Replacements  | \$2,122,235.00         | \$6,515,354.50         | \$4,072,096.57         | \$0.00                 | \$0.00                 | \$12,709,686.07         |
| 54  | Highland Reservoir Pump Station and Rising Main  | \$23,789,287.16        | \$14,537,145.09        | \$8,983,409.85         | \$0.00                 | \$0.00                 | \$47,309,842.10         |
| 55  | Howard Pump Station Improvements   | \$0.00                 | \$0.00                 | \$577,266.93           | \$1,154,533.85         | \$694,763.73           | \$2,426,564.51          |
| 56  | Inline Pump Station (Coral and Pacific) Improvements   | \$0.00                 | \$32,979.66            | \$39,434.13            | \$264,367.82           | \$263,218.39           | \$600,000.00            |



| Project Class: Water Pumping and Storage Cont. |   |                        |                         |                         |                         |                        |                         |
|--|---|------------------------|-------------------------|-------------------------|-------------------------|------------------------|-------------------------|
| 57   | Lanpher Reservoir Improvements                    | \$2,778,963.09         | \$6,370,326.38          | \$3,716,023.72          | \$0.00                  | \$0.00                 | \$12,865,313.19         |
| 58   | Lincoln Pump Station Improvements                 | \$288,633.46           | \$288,633.46            | \$1,258,748.41          | \$2,109,323.13          | \$1,054,661.57         | \$5,000,000.03          |
| 59   | Lincoln Pump Station: Bypass Pump Station Project | \$2,155,907.00         | \$2,164,264.00          | \$0.00                  | \$0.00                  | \$0.00                 | \$4,320,171.00          |
| 60   | Lincoln Tank Improvements                         | \$337,528.74           | \$203,588.76            | \$3,680,670.52          | \$0.00                  | \$0.00                 | \$4,221,788.02          |
| 61   | Mission Pump Station Improvements                 | \$0.00                 | \$0.00                  | \$577,267.00            | \$1,154,534.00          | \$694,764.00           | \$2,426,565.00          |
| 62   | Pump Station Architectural                        | \$0.00                 | \$0.00                  | \$0.00                  | \$2,500,000.00          | \$0.00                 | \$2,500,000.00          |
| 63   | Saline Pump Station Improvements                  | \$0.00                 | \$0.00                  | \$0.00                  | \$192,422.00            | \$288,633.00           | \$481,055.00            |
| 64   | Spring Hill Tank Improvements                     | \$0.00                 | \$62,335.00             | \$122,669.00            | \$73,819.00             | \$933,589.00           | \$1,192,412.00          |
| 65   | Water Pumping and Storage Contingency             | \$0.00                 | \$0.00                  | \$0.00                  | \$0.00                  | \$0.00                 | \$0.00                  |
| <b>Total: Water Pumping and Storage</b>        |   | <b>\$55,304,597.34</b> | <b>\$115,127,475.27</b> | <b>\$121,491,636.70</b> | <b>\$113,245,472.55</b> | <b>\$30,009,850.86</b> | <b>\$435,179,032.71</b> |

| Project Class: Water Distribution |  |                         |                         |                         |                         |                         |                         |
|-----------------------------------|--|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|-------------------------|
| 67                                | 2019 Large Diameter Water Main Improvements - Rising Main 3/4    | \$3,062,142.13          | \$240,769.90            | \$0.00                  | \$0.00                  | \$0.00                  | \$3,302,912.04          |
| 68                                | 2019 Large Diameter Water Main Improvements - Rising Main 4      | \$12,529,326.00         | \$4,176,441.00          | \$0.00                  | \$0.00                  | \$0.00                  | \$16,705,767.00         |
| 69                                | Bus Rapid Transit Water Distribution                             | \$1,500,000.00          | \$0.00                  | \$0.00                  | \$0.00                  | \$0.00                  | \$1,500,000.00          |
| 70                                | District Metering Program  | \$0.00                  | \$0.00                  | \$2,600,000.02          | \$3,380,000.02          | \$3,380,000.02          | \$9,360,000.06          |
| 71                                | Hazelwood Backup Feed (formerly Duck Hollow Main Replacement)    | \$175,156.10            | \$175,156.10            | \$1,115,470.61          | \$1,534,487.21          | \$0.00                  | \$3,000,270.02          |
| 72                                | Herron Hill - Squirrel Hill Boundary Adjustments                 | \$0.00                  | \$0.00                  | \$52,928.57             | \$355,186.81            | \$635,884.62            | \$1,044,000.00          |
| 73                                | Interconnection Vault Stormwater Removal                         | \$453,007.96            | \$1,225,931.03          | \$611,310.34            | \$0.00                  | \$0.00                  | \$2,290,249.34          |
| 74                                | Intermediate Diameter Water Main Replacement Program             | \$0.00                  | \$0.00                  | \$2,603,833.08          | \$4,488,230.43          | \$42,775,187.01         | \$49,867,250.52         |
| 75                                | Intermediate Meter Replacement Program                           | \$143,076.92            | \$84,307.69             | \$86,538.46             | \$87,000.00             | \$87,000.00             | \$487,923.08            |
| 76                                | Large Diameter Water Main Replacement Program                    | \$2,980,665.80          | \$4,820,095.96          | \$23,316,701.96         | \$38,087,876.89         | \$33,256,579.29         | \$102,461,919.89        |
| 77                                | Large Meter Replacement Program                                  | \$1,557,508.32          | \$1,341,456.69          | \$567,307.69            | \$337,000.00            | \$337,000.00            | \$4,140,272.71          |
| 78                                | Low Pressure Area Remediation                                    | \$0.00                  | \$0.00                  | \$23,277.57             | \$279,330.90            | \$1,393,833.02          | \$1,696,441.49          |
| 79                                | Neighborhood Lead Service Line Replacement Program               | \$13,582,757.48         | \$27,792,500.00         | \$55,585,000.00         | \$27,792,500.00         | \$0.00                  | \$124,752,757.48        |
| 80                                | North Side Boundary Adjustments                                  | \$0.00                  | \$0.00                  | \$79,392.86             | \$532,780.22            | \$953,826.92            | \$1,566,000.00          |
| 81                                | Priority LSLR  | \$3,000,000.00          | \$0.00                  | \$0.00                  | \$0.00                  | \$0.00                  | \$3,000,000.00          |
| 82                                | Private Lead Service Line Reimbursement                          | \$400,000.00            | \$0.00                  | \$0.00                  | \$0.00                  | \$0.00                  | \$400,000.00            |
| 83                                | Regulator Valve and Vault Replacement Program                    | \$378,494.08            | \$1,839,360.70          | \$3,446,738.96          | \$4,173,179.80          | \$3,439,080.48          | \$13,276,854.01         |
| 84                                | Small Diameter Water Main Replacement Program                    | \$83,515,128.68         | \$75,057,893.92         | \$57,763,375.00         | \$53,807,131.41         | \$89,408,775.74         | \$359,552,304.75        |
| 85                                | Small Meter Replacement Program                                  | \$1,723,171.54          | \$1,351,089.38          | \$480,769.23            | \$250,000.00            | \$291,667.00            | \$4,096,697.15          |
| 86                                | South Side Slopes Boundary Adjustments                           | \$0.00                  | \$0.00                  | \$79,392.86             | \$532,780.22            | \$953,826.92            | \$1,566,000.00          |
| 87                                | Unmetered and Flat Rate Properties                               | \$327,250.00            | \$635,250.00            | \$0.00                  | \$0.00                  | \$0.00                  | \$962,500.00            |
| 88                                | Urgent Lead Service Line Replacement                             | \$1,778,653.60          | \$1,749,194.10          | \$1,670,085.73          | \$1,590,751.08          | \$1,246,677.20          | \$8,035,361.70          |
| 89                                | Valve Replacement Program  | \$2,505,485.32          | \$2,800,000.00          | \$2,674,358.97          | \$2,800,000.00          | \$2,925,641.03          | \$13,705,485.32         |
| 90                                | Water and Wastewater Safety and Security Improvements            | \$1,567,547.00          | \$0.00                  | \$0.00                  | \$0.00                  | \$0.00                  | \$1,567,547.00          |
| 91                                | Water and Wastewater Safety and Security Improvements (Pennvest) | \$9,978,156.00          | \$0.00                  | \$0.00                  | \$0.00                  | \$0.00                  | \$9,978,156.00          |
| 92                                | Water Relay Program  | \$2,145,000.00          | \$2,150,000.00          | \$2,712,307.69          | \$3,254,769.23          | \$3,440,140.58          | \$13,702,217.50         |
| 93                                | Water Distribution Contingency                                   | \$0.00                  | \$0.00                  | \$0.00                  | \$0.00                  | \$0.00                  | \$0.00                  |
| <b>Total: Water Distribution</b>  |  | <b>\$143,302,526.93</b> | <b>\$125,439,446.48</b> | <b>\$155,468,789.61</b> | <b>\$143,283,004.22</b> | <b>\$184,525,119.82</b> | <b>\$752,018,887.06</b> |

| Project Class: Wastewater System |  |                        |                        |                        |                        |                        |                         |
|----------------------------------|--|------------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|
| 95                               | 31st Ward Pump Station and Appurtenances - Phase 2   | \$958,333.00           | \$726,666.67           | \$613,666.67           | \$7,447,000.00         | \$7,447,000.00         | \$17,192,666.33         |
| 96                               | 6122 and 6150 Mifflin Road Demolition                | \$50,000.00            | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$50,000.00             |
| 97                               | Browns Hill Road Sewer Pump Station Replacement      | \$432,000.00           | \$1,608,000.00         | \$1,880,000.00         | \$0.00                 | \$0.00                 | \$3,920,000.00          |
| 98                               | Large Diameter Sewer Rehabilitation Program          | \$12,774,486.37        | \$2,997,238.10         | \$4,266,000.00         | \$4,897,000.00         | \$4,957,000.00         | \$29,891,724.46         |
| 99                               | M-29 Outfall Improvements                            | \$250,000.00           | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$250,000.00            |
| 100                              | Maytide Storm and Sanitary Sewer System Improvements | \$118,026.95           | \$4,026,497.00         | \$1,957,785.00         | \$0.00                 | \$0.00                 | \$6,102,308.95          |
| 101                              | Queenston Sewer Improvements                         | \$2,210,550.00         | \$243,203.00           | \$0.00                 | \$0.00                 | \$0.00                 | \$2,453,753.00          |
| 102                              | Sewer Reconstruction Program                         | \$2,691,769.00         | \$1,810,000.00         | \$1,810,000.00         | \$1,886,458.21         | \$2,701,329.79         | \$10,899,557.00         |
| 103                              | Sewers Under Structures Program                      | \$6,786,029.94         | \$2,373,663.24         | \$2,422,730.16         | \$3,530,382.94         | \$3,386,507.35         | \$18,499,313.62         |
| 104                              | Small Diameter Sewer Rehabilitation Program          | \$24,363,045.00        | \$17,657,219.00        | \$14,629,597.00        | \$27,990,467.53        | \$36,426,240.26        | \$121,066,568.79        |
| 105                              | Wastewater Contingency                               | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                  |
| <b>Total: Wastewater System</b>  |  | <b>\$50,634,240.26</b> | <b>\$31,442,487.00</b> | <b>\$27,579,778.83</b> | <b>\$45,751,308.67</b> | <b>\$54,918,077.41</b> | <b>\$210,325,892.16</b> |

| Project Class: Stormwater    |   |                        |                        |                        |                        |                        |                         |
|------------------------------|---|------------------------|------------------------|------------------------|------------------------|------------------------|-------------------------|
| 107                          | Braywood Stormwater Improvements                                | \$434,625.00           | \$439,375.00           | \$0.00                 | \$0.00                 | \$0.00                 | \$874,000.00            |
| 108                          | Bus Rapid Transit Phase 2                                       | \$0.00                 | \$500,000.00           | \$500,000.00           | \$500,000.00           | \$0.00                 | \$1,500,000.00          |
| 109                          | Bus Rapid Transit Stormwater Infrastructure Improvements        | \$71,382.00            | \$785,634.29           | \$703,637.86           | \$0.00                 | \$0.00                 | \$1,560,654.15          |
| 110                          | Catch Basin and Inlet Replacement Program                       | \$11,539,876.64        | \$16,007,303.03        | \$14,436,109.17        | \$14,867,220.83        | \$15,308,750.00        | \$72,159,259.67         |
| 111                          | Dragoon Way Stormwater Improvements                             | \$983,000.00           | \$95,625.00            | \$0.00                 | \$0.00                 | \$0.00                 | \$1,078,625.00          |
| 112                          | Fleury Way Stormwater Infrastructure Improvements               | \$476,212.00           | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$476,212.00            |
| 113                          | Four Mile Run Stormwater Infrastructure Improvements            | \$645,557.00           | \$4,500,108.00         | \$8,723,924.00         | \$6,171,203.00         | \$0.00                 | \$20,040,792.00         |
| 114                          | Haverhill Street Improvements Project                           | \$1,003,900.00         | \$104,500.00           | \$0.00                 | \$0.00                 | \$0.00                 | \$1,108,400.00          |
| 115                          | Lawn and Ophelia  | \$203,741.00           | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$203,741.00            |
| 116                          | Martin Luther King Field Stormwater Infrastructure Improvements | \$3,096,867.00         | \$1,324,108.00         | \$0.00                 | \$0.00                 | \$0.00                 | \$4,420,975.00          |
| 117                          | Maryland Avenue Stormwater Infrastructure Improvements          | \$6,925.00             | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$6,925.00              |
| 118                          | MS4 Permit PRP Plan Sediment Reduction Project                  | \$173,000.00           | \$605,000.00           | \$307,500.00           | \$0.00                 | \$0.00                 | \$1,085,500.00          |
| 119                          | Saw Mill Run Municipal Separate Storm Sewer System Compliance   | \$0.00                 | \$0.00                 | \$500,000.00           | \$1,500,000.00         | \$1,500,000.00         | \$3,500,000.00          |
| 120                          | Saw Mill Run Watershed Improvements                             | \$850,000.00           | \$150,000.00           | \$0.00                 | \$0.00                 | \$0.00                 | \$1,000,000.00          |
| 121                          | Southside Flats Sewer Separation                                | \$3,327,529.00         | \$2,232,587.00         | \$0.00                 | \$0.00                 | \$0.00                 | \$5,560,116.00          |
| 122                          | Southside Stormwater Infrastructure Improvements                | \$2,029,140.00         | \$2,703,667.00         | \$0.00                 | \$0.00                 | \$0.00                 | \$4,732,807.00          |
| 123                          | Stewart Avenue Stormwater Infrastructure Project                | \$1,400,000.00         | \$1,515,389.00         | \$894,444.00           | \$0.00                 | \$0.00                 | \$3,809,833.00          |
| 124                          | Thomas and McPherson Stormwater Infrastructure Improvements     | \$854,905.13           | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$854,905.13            |
| 125                          | Volunteer's Field Stormwater Infrastructure Improvements        | \$413,125.42           | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$413,125.42            |
| 126                          | Wet Weather Program Projects                                    | \$500,000.00           | \$2,500,000.00         | \$10,000,000.00        | \$10,000,000.00        | \$10,000,000.00        | \$33,000,000.00         |
| 127                          | Wightman Park Phase 2 Project                                   | \$182,166.00           | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$182,166.00            |
| 128                          | Woodland Road Stormwater Infrastructure Improvements            | \$245,256.31           | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$245,256.31            |
| 129                          | Woods Run Stream Removal Stormwater Infrastructure Improvements | \$1,385,724.66         | \$1,364,127.00         | \$819,206.00           | \$0.00                 | \$0.00                 | \$3,569,057.66          |
| 130                          | Stormwater Contingency  | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                  |
| <b>Total: Stormwater</b>     |   | <b>\$29,822,932.16</b> | <b>\$34,827,423.32</b> | <b>\$36,884,821.02</b> | <b>\$33,038,423.83</b> | <b>\$26,808,750.00</b> | <b>\$161,382,350.34</b> |
| Project Class: Miscellaneous |   |                        |                        |                        |                        |                        |                         |
| 132                          | 2023 Capital Project Reclassification                           | \$8,639,316.00         | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$8,639,316.00          |
| 133                          | New Headquarters and Operations Facility                        | \$2,500,000.00         | \$15,000,000.00        | \$32,500,000.00        | \$0.00                 | \$0.00                 | \$50,000,000.00         |
| 134                          | Utility Cost Shares   | \$300,000.00           | \$500,000.00           | \$500,000.00           | \$500,000.00           | \$500,000.00           | \$2,300,000.00          |
| 135                          | Miscellaneous Contingency                                       | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                 | \$0.00                  |
| <b>Total: Miscellaneous</b>  |   | <b>\$11,439,316.00</b> | <b>\$15,500,000.00</b> | <b>\$33,000,000.00</b> | <b>\$500,000.00</b>    | <b>\$500,000.00</b>    | <b>\$60,939,316.00</b>  |



# Water Treatment Plant



# Water Treatment Plant

## Algae Control for Open Basins

**PROJECT NUMBER:** 2023-100-100-0

**DSIC Eligible:** No

**PHASE:**  
Not Started

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Installation of up to 5 ultrasonic buoys in the Sedimentation Basin and Highland 1 Reservoir (open basins) to provide non-chemical control of algae growth in these waters exposed to sunlight. Installation includes solar powered buoy, anchor system, associated instrumentation, and remote monitoring service.

**PROJECT JUSTIFICATION:**  
Open reservoirs subject to sunlight allow for the growth of algae starting in early spring through late fall. Algae can impact water production operations by increasing total organic carbon in the water and physically fouling downstream filters.

**RISK(S):**  
Buoys require maintenance including removal in the winter to avoid ice damage. Instruments require infrequent maintenance.

**IMPACT ON OPERATIONS:**  
Reduced chemical usage at Highland 1 for treating reservoir and reduced filter backwashed water requirements at Aspinwall Pump Station.

| <u>CASH FLOW SUMMARY</u> |                  |                |                |                |                |                  | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|------------------|----------------|----------------|----------------|----------------|------------------|-----------------------------|
|                          | <u>FY 2023</u>   | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u>     | <b>Debt (Revenue Bonds)</b> |
| <b>Annual Allocation</b> | <b>\$360,000</b> | <b>\$0</b>     | <b>\$0</b>     | <b>\$0</b>     | <b>\$0</b>     | <b>\$360,000</b> |                             |



# Water Treatment Plant

## Aspinwall Water Treatment Plant Electrical and Backup Power Improvements

PROJECT NUMBER: 2017-322-100-0

DSIC Eligible: No

**PHASE:**

Design

**PRIORITY:**

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,

**PROJECT DESCRIPTION:**

Improvements to electrical systems at the Water Treatment Plant, including provisions for stand-by or backup power systems, upgrades to existing electrical distribution system, replacement of motor control centers, and associated panels, conduit, wiring, and systems.

**PROJECT JUSTIFICATION:**

Electrical systems at the Water Treatment Plant have generally met the end of their useful lives and spare/replacement parts are unavailable.

**RISK(S):**

Electrical power is critical to maintain pumping and treatment of water. Failure of these systems will result in the inability to produce water to meet demand and/or quality requirements.

**IMPACT ON OPERATIONS:**

Increased operating efficiency, flexibility, and reliability and improved safety conditions for staff.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
| <b>Annual Allocation</b> | \$0            | \$866,981      | \$1,087,515    | \$7,794,745    | \$14,874,582   | \$24,623,823 | <b>Debt (Revenue Bonds)</b> |

# Water Treatment Plant

## Aspinwall Water Treatment Plant Filter Improvements

PROJECT NUMBER: 2023-100-101-0

DSIC Eligible: No

**PHASE:**  
Not Started

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,

**PROJECT DESCRIPTION:**  
Improvements for filters at the Water Treatment Plant to address various recommendations from regulatory agencies including safety issues, improve process control, and monitoring. Project components including providing hand railing around filter basins to facilitate operator inspections, adding components to allow safer performance of required quarterly monitoring and cell entry, moving IFE turbidimeters to locate them within 10 feet of sample points, addressing structural issues, and other electrical and safety updates.

**PROJECT JUSTIFICATION:**  
To meet industry standards and regulatory recommendations, turbidimeters should be located not more than 10 feet away from the sample taps. Currently, meters are located up to 30 feet away, reducing meter response time and data accuracy. Structural deficiencies in the floor and beams of the filter building have been observed as evidenced by cracks and water leakage.

**RISK(S):**  
Violations of permit conditions as a result of turbidimeter locations and sample travel time. Safety and compliance issues with not accessing filter cells for observation during backwash and quarterly/annual inspections. Not properly assessing and repairing areas of structural deficiencies could lead to catastrophic failure. Foundation sagging in the filter building could result in excessive leakage or inability to produce filtered water.

**IMPACT ON OPERATIONS:**  
Relocation of turbidimeters will shorten tubing distance between meter and sample point. Tubing is an annual replacement item, so less distance results in less time and material for replacement. Repair of structure deficiencies will result in less water leakage and maintain the integrity of the facility to reduce operational repairs and water in storage areas.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt<br>(Revenue Bonds)  |
| Annual Allocation        | \$123,707      | \$164,943      | \$246,600      | \$1,208,046    | \$1,006,705    | \$2,750,000  |                          |

# Water Treatment Plant

## Aspinwall Water Treatment Plant Filter Building Sodium Hypochlorite Improvements

PROJECT NUMBER: 2017-322-101-8 / 9 / 10 / 11

DSIC Eligible: No

**PHASE:**  
Construction

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,

**PROJECT DESCRIPTION:**  
General and mechanical work will include demolition, new filling station, new storage and pumping room, furnishing and installing new storage tanks, feed pumps and piping. HVAC work will include furnishing and installing new HVAC system including air handling unit, condensing unit, exhaust system and ductwork. Plumbing work will include new water service lines inside building, furnishing and installing eyewash stations, hot water units, sanitary drain modifications and installation of a wet sprinkler fire suppression system and fire alarm system. Electrical work will include furnishing and installing power wiring and conduit to new equipment, control wiring to instrumentation and program system integration services to operate the new treatment process.

**PROJECT JUSTIFICATION:**  
To increase storage of sodium hypochlorite solution as required by PADEP and enhance the operational safety and efficiency of the system.

**RISK(S):**  
Not meeting requirements of PADEP if project not completed.

**IMPACT ON OPERATIONS:**  
Operating budget will likely decrease due to efficiencies.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>   |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt<br>(Revenue<br>Bonds) |
| Annual Allocation        | \$3,222,925    | \$0            | \$0            | \$0            | \$0            | \$3,222,925  |                            |

# Water Treatment Plant

## Aspinwall Water Treatment Plant Raw Water Intakes - West Intake

**PROJECT NUMBER:** 2018-322-100-0

**DSIC Eligible:** No

**PHASE:**

Design

**PRIORITY:**

Regulatory, Quality of Service

**PROJECT DESCRIPTION:**

Project will include condition assessment, renewing or replacing the existing West and East Raw Water Intake Gate House buildings and associated systems, including gates, screens, and associated mechanical equipment as well as the addition of SCADA. Influent piping through the Ross Pump Station will also be addressed.

**PROJECT JUSTIFICATION:**

The West Gate is 90% closed and inoperable. Both gate houses are in need of rehabilitation or replacement. The West Gatehouse is 100 years old, and the East Gate is almost 90 years old.

**RISK(S):**

Both gates have reach the end of their useful life and need replaced. Failure of the East Gate would cause a disruption to the supply of water.

**IMPACT ON OPERATIONS:**

Modernization of systems will require less time spent in operations and maintenance of these facilities.

| <u>CASH FLOW SUMMARY</u> |                  |                    |                  |                    |                    |                     | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|------------------|--------------------|------------------|--------------------|--------------------|---------------------|-----------------------------|
|                          | <u>FY 2023</u>   | <u>FY 2024</u>     | <u>FY 2025</u>   | <u>FY 2026</u>     | <u>FY 2027</u>     | <u>Total</u>        |                             |
| <b>Annual Allocation</b> | <b>\$469,737</b> | <b>\$1,127,368</b> | <b>\$767,368</b> | <b>\$5,747,368</b> | <b>\$8,597,368</b> | <b>\$16,709,211</b> | <b>Debt (Revenue Bonds)</b> |

# Water Treatment Plant

## Aspinwall Water Treatment Plant Raw Water Intakes - East Intake

PROJECT NUMBER: 2023-100-102-0

DSIC Eligible: No

**PHASE:**

Design

**PRIORITY:**

Regulatory, Quality of Service

**PROJECT DESCRIPTION:**

Project will include condition assessment, renewing or replacing the existing West and East Raw Water Intake Gate House buildings and associated systems, including gates, screens, and associated mechanical equipment as well as the addition of SCADA. Influent piping through the Ross Pump Station will also be addressed.

**PROJECT JUSTIFICATION:**

The West Gate is 90% closed and inoperable. Both gate houses are in need of rehabilitation or replacement. The West Gatehouse is 100 years old, and the East Gate is almost 90 years old.

**RISK(S):**

Only one gate is operational. Failure of the East Gate would result in a major disruption to the supply of water for the City of Pittsburgh.

**IMPACT ON OPERATIONS:**

Modernization of systems will require less time spent in operations and maintenance of these facilities.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
| <b>Annual Allocation</b> | \$0            | \$465,000      | \$1,116,000    | \$756,000      | \$36,000       | \$2,373,000  |                             |

# Water Treatment Plant

## Chemical Feed Modernization Project/Rapid Mix and Clarifier Improvements

PROJECT NUMBER: 2023-100-103-0

DSIC Eligible: No

**PHASE:**  
Not Started

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Upgrade of chemical feed systems (equipment, storage, instrumentation, and injection points) to meet current regulatory requirements, improve chemical application, and optimize the water treatment process. Upgrades include ferric chloride, potassium permanganate, and other chemical systems located in the chemical building and possible construction of a new chemical building or repurposing of existing facilities. Assess, design, and construct repairs to structural defects associated with settlement with the pipe bridge between the Chemical Building and Screen Room.

**PROJECT JUSTIFICATION:**  
Chemical feed improvements will address recommendations from both consultants and regulatory agencies. The lack of attention to the pretreatment chemical feed systems could cause over/under dosing of chemicals leading to permit violations or the loss of a chemical system resulting in an emergency project.

**RISK(S):**  
Not addressing these recommendations will put the PWSA at risk for permit violations and failures at the Water Treatment Plant.

**IMPACT ON OPERATIONS:**  
Optimization and flow/residual pacing of chemicals can result in reduced chemical consumption. New storage and chemical feed equipment will result in reduced maintenance costs associated with repairs on the existing pumps, maintaining storage bins and feeders. Improvements to SCADA system and flow/residual pacing will reduce manual adjustments to chemical feed systems.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt<br>(Revenue Bonds)  |
| Annual Allocation        | \$1,252,064    | \$2,789,028    | \$2,936,059    | \$16,350,331   | \$19,072,484   | \$42,399,965 |                          |

# Water Treatment Plant

## Clearwell Emergency Response Project

PROJECT NUMBER: 2017-323-100-0

DSIC Eligible: No

**PHASE:**

Design

**PRIORITY:**

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**

Long-term bypass of the existing 100 + year old clearwell (finished water structure) including the construction of pump wetwells at the Aspinwall and Bruecken Pump Stations, modifications to the clearwell inlet and outlet gate house, and the construction of a bypass line around the clearwell to the outlet gate house.

**PROJECT JUSTIFICATION:**

The clearwell was constructed in 1908 and has not undergone any major modifications or upgrades since. The clearwell has two main functions: providing equalization storage that allows the filters to operate independently of potential fluctuations in system demands and providing sufficient contact time for disinfection agents to meet the requirements of the Surface Water Treatment Rule and Long-Term 2 Enhanced Surface Water Treatment Rule. In order to replace the clearwell, a long-term bypass is required in order to provide adequate suction pressure for the pump stations.

**RISK(S):**

Failure of the Clearwell would cause a disruption to the supply of water.

**IMPACT ON OPERATIONS:**

Ability to meet system reliability and water quality regulations.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>   |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt<br>(Revenue<br>Bonds) |
| Annual Allocation        | \$2,741,631    | \$7,408,660    | \$7,408,660    | \$7,408,660    | \$1,234,457    | \$26,202,068 |                            |

# Water Treatment Plant

## Clearwell Improvements

**PROJECT NUMBER:** 2023-100-104-0

**DSIC Eligible:** No

|   |
|---|
| <b>PHASE:</b><br>Planning   |
| <b>PRIORITY:</b><br>Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact  |
| <b>PROJECT DESCRIPTION:</b><br>Replacement of the existing 100 + year old clearwell (finished water structure) with multi-celled clearwell to allow for maintenance.  |
| <b>PROJECT JUSTIFICATION:</b><br>The clearwell was constructed in 1908 and has not undergone any major modifications or upgrades since. It has two main functions: providing equalization storage that allows the filters to operate independently of potential fluctuations in system demands, and providing sufficient retention contact time for disinfection agents to meet the requirements of the Surface Water Treatment Rule and Long-Term 2 Enhanced Surface Water Treatment Rule. |
| <b>RISK(S):</b><br>Failure of the Clearwell would cause a disruption to the supply of water.  |
| <b>IMPACT ON OPERATIONS:</b><br>Ability to meet system reliability and water quality regulations.   |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt<br>(Revenue Bonds)  |
| <b>Annual Allocation</b> | \$4,293,312    | \$2,448,009    | \$107,718      | \$107,718      | \$16,708,182   | \$23,664,938 |                          |



# Water Treatment Plant

## Corrosion Control Chemical Storage & Feed Systems

**PROJECT NUMBER:** 2017-322-107-0

**DSIC Eligible:** No

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|--|
| <b>PHASE:</b><br>Construction  |
| <b>PRIORITY:</b><br>Regulatory, Quality of Service   |
| <b>PROJECT DESCRIPTION:</b><br>Installation of three phosphoric acid storage and feed systems located at Aspinwall Pump Station, Bruecken Pump Station, and the Membrane Filtration Plant to provide corrosion control in the distribution system.                 |
| <b>PROJECT JUSTIFICATION:</b><br>Required in order to lower lead levels in water.  |
| <b>RISK(S):</b><br>Not completing this project will increase the risk of not maintaining lead levels below the PADEP action level.   |
| <b>IMPACT ON OPERATIONS:</b><br>In order to prevent algae growth in the open Highland No. 1 Reservoir, treatment must occur at three major locations with 7 injection points. This requires additional maintenance of treatment facilities at satellite locations. |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt<br>(Revenue Bonds)  |
| Annual Allocation        | \$50,000       | \$0            | \$0            | \$0            | \$0            | \$50,000     |                          |

# Water Treatment Plant

## Highland Park Membrane Filtration Plant Assessment and Critical Process Improvements

PROJECT NUMBER: 2017-322-104-0

DSIC Eligible: No

**PHASE:**  
Construction

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals

**PROJECT DESCRIPTION:**  
Complete a condition assessment of systems supporting the treatment process and perform critical improvements to maintain water treatment and allow full warranty of replacement modules. Improvements may include electrical, chemical feed, strainers, and other support systems.

**PROJECT JUSTIFICATION:**  
Membrane module failure rate has continually increased over the last several years and are more than 5 years beyond the manufacturer’s recommended replacement cycle. To allow module membrane manufacturers to extend a full warranty, a system condition assessment is needed. A detailed condition assessment is needed to address other critical worker safety and degradation of equipment that are essential to maintain the water treatment process. Improvements to the plan are required in order to restart the Membrane Filtration Plant.

**RISK(S):**  
Exposes the Authority to higher costs to address emergency failures and exposes the Highland No. 1 Service Area to a potentially deficient or non-complaint water supply.

**IMPACT ON OPERATIONS:**  
Increase operating flexibility and reliability.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt<br>(Revenue Bonds)  |
| Annual Allocation        | \$150,000      | \$0            | \$0            | \$0            | \$0            | \$150,000    |                          |

# Water Treatment Plant

## Highland Park Microfiltration Plant Improvements Project

PROJECT NUMBER: 2021-322-100-0

DSIC Eligible: No

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|--|
| <b>PHASE:</b><br>Planning  |
| <b>PRIORITY:</b><br>Safety, Operating Efficiency, Quality of Service   |
| <b>PROJECT DESCRIPTION:</b><br>Repair damage caused by process water leakage from second floor membrane racks to composite floor deck system and structural steel framing above main floor of Microfiltration Plant (MFP). Construction joints in floor were sealed during the MFP UV Project. This project will repair deterioration to composite deck system and structural steel support system and apply protective coatings. This project will also repair damage to the surface of concrete floor and sump pump in acid storage room caused by leakage from acid storage tanks, piping connections and acid mixing operations. |
| <b>PROJECT JUSTIFICATION:</b><br>This project will increase the safety and security of operations in addition to maintaining the integrity of chemical containment in the event of future failure.   |
| <b>RISK(S):</b><br>The risk of delaying the project could cause potential damage to equipment on the first floor of the MFP from falling concrete or steel deck fragments. With respect to repair of the acid storage room floor, the risk of delaying the project is the lack of integrity in the provisions for chemical containment in the event of tank failure. Acid is able to leak through the damaged sump pump into the subfloor where it could damage underground cast iron plumbing and ductile iron process piping.  |
| <b>IMPACT ON OPERATIONS:</b><br>This project will mitigate the potential for future emergency repairs to the first floor ceiling components or to the acid room floor that would likely be funded from the Operating Budget.   |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt<br>(Revenue Bonds)  |
| Annual Allocation        | \$14,128       | \$0            | \$0            | \$0            | \$0            | \$14,128     |                          |

# Water Treatment Plant

## Hydraulic Valve Replacement Program

PROJECT NUMBER: 2023-100-105-0

DSIC Eligible: No

|   |
|---|
| <b>PHASE:</b><br>Not Started  |
| <b>PRIORITY:</b><br>Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact                        |
| <b>PROJECT DESCRIPTION:</b><br>This project is retrofitting the various hydraulic valve actuators primarily in the filters to electric valve actuators. |
| <b>PROJECT JUSTIFICATION:</b><br>Improve operational control while modernizing the facility to better align with industry standard practices.           |
| <b>RISK(S):</b><br>Inefficient operations resulting from an aged facility that do not align with industry standard practices.                           |
| <b>IMPACT ON OPERATIONS:</b><br>Increased system reliability and improved system management.  |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt<br>(Revenue Bonds)  |
| Annual Allocation        | \$89,943       | \$302,299      | \$2,144,253    | \$713,506      | \$0            | \$3,250,000  |                          |

# Water Treatment Plant

## Lime Slurry System Improvements

PROJECT NUMBER: 2017-322-101-7 / 12 / 13

DSIC Eligible: No

|   |
|---|
| <b>PHASE:</b><br>Design   |
| <b>PRIORITY:</b><br>Safety, Operating Efficiency, Quality of Service  |
| <b>PROJECT DESCRIPTION:</b><br>Lime slurry system capacity expansion improvements to include demolition, installation of additional tanks, chemical feed equipment, minor revisions to the existing lime slurry system, and SCADA communications equipment and SCADA interface. |
| <b>PROJECT JUSTIFICATION:</b><br>Adequate lime storage is mandated by PADEP. New system will be more efficient/require less labor to operate and maintain.  |
| <b>RISK(S):</b><br>The extra storage for liquid lime is critical to the reliable operation of the Water Treatment Plant.  |
| <b>IMPACT ON OPERATIONS:</b><br>Adequate storage, increased reliability and efficiency, less housekeeping labor.  |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt<br>(Revenue Bonds)  |
| Annual Allocation        | \$756,079      | \$3,548,360    | \$1,182,787    | \$0            | \$0            | \$5,487,226  |                          |

# Water Treatment Plant

## Overhead Crane Modernization

PROJECT NUMBER: 2024-100-100-0

DSIC Eligible: No

|  |
|--|
| <b>PHASE:</b><br>Not Started   |
| <b>PRIORITY:</b><br>Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact                 |
| <b>PROJECT DESCRIPTION:</b><br>Replacement and upgrade of existing cranes at Bruecken, Mission, Aspinwal, and Ross Pump Stations.                |
| <b>PROJECT JUSTIFICATION:</b><br>The current age of existing overhead cranes are well beyond their useful life and are in need of a replacement. |
| <b>RISK(S):</b><br>Inefficient operations resulting from an aged facility that do not align with industry standard practices.                    |
| <b>IMPACT ON OPERATIONS:</b><br>Increase operating flexibility and reliability.  |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt<br>(Revenue Bonds)  |
| Annual Allocation        | \$0            | \$375,000      | \$440,000      | \$0            | \$0            | \$815,000    |                          |

# Water Treatment Plant

## Phase 1 Sedimentation Basin Rehabilitation and Water Treatment Plant Gate Valve and 84-inch Coupling Project

PROJECT NUMBER: 2023-100-106-0

DSIC Eligible: No

**PHASE:**  
Not Started

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Phase 1 of the rehabilitation of the existing sedimentation Basins as recommended by the 2019 WTP CIP (Arcadis 2019) and EPA CEP (2017). Projects including regrading around existing sedimentation Basins to mitigate stormwater infiltration, rehabilitation or replacement of existing sluice gates including drain gates, disconnect existing stormwater outfall including related permitting, repair of existing vaults. The WTP portion of the project will include replacement of various isolation valves at the plant and the encasement of an existing 84-inch diameter pipe coupling.

**PROJECT JUSTIFICATION:**  
The sedimentation basins are the only system in the Water Treatment Plant process that is open to the environment. As such, care must be taken to prevent infiltration of contaminants via surface runoff. These repairs and valve replacements were recommended by regulating agencies. Working isolation valves are required in order to properly isolate and maintain treatment. Proactive repair/maintenance will reduce the chance of complete failure of the asset.

**RISK(S):**  
Inability to isolate the sedimentation basins in the event of an emergency and/or uncontrolled runoff into the Basins could cause regulatory violations.

**IMPACT ON OPERATIONS:**  
Ability for staff to quickly isolate the sedimentation basins as part of routine or emergency maintenance.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
| <b>Annual Allocation</b> | \$224,922      | \$299,896      | \$448,363      | \$2,196,447    | \$1,830,373    | \$5,000,000  |                             |

# Water Treatment Plant

## Phase 2 Sedimentation Basin Rehabilitation Project

PROJECT NUMBER: 2026-100-100-0

DSIC Eligible: No

**PHASE:**  
Not Started

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Phase 2 of this project includes cleaning the sedimentation basins, rehabilitation of weirs, intakes, and associated structures.

**PROJECT JUSTIFICATION:**  
The sedimentation basins serve a role in secondary clarification of water after the clarifiers. This clarification combined with the fact that the basins are uncovered has led to accumulation of sediment in the basins. Secondly, structural defects in the existing concrete structure cannot be detected due to the presence of this sediment. Once the sediment is removed, each basin will be removed from service for a structural inspection and concrete repair. If moderate/major structural defects are not proactively addressed, complete failure will eventually occur and excavation will be required. Any complete failure that occurs will result in dramatically increased expenditures for repair.

**RISK(S):**  
Possible regulatory violations due to sediment, possible failure of structure due to lack of maintenance.

**IMPACT ON OPERATIONS:**  
Ability for staff to quickly isolate the sedimentation basins as part of routine or emergency maintenance.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
| <b>Annual Allocation</b> | \$0            | \$0            | \$0            | \$562,304      | \$749,739      | \$1,312,043  |                             |



# Water Treatment Plant

## Post-Filter Chemical System Improvements

PROJECT NUMBER: 2026-100-101-0

DSIC Eligible: No

**PHASE:**  
Not Started

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Construction of new building for soda ash, fluoride, and phosphoric acid system closer to the feed point providing updated equipment, storage, instrumentation, and injection points. This will result in meeting current regulatory requirements, improve chemical application, and optimize the water treatment process. Portions of this project may be combined with the Clearwell Improvements Project or Aspinwall Pump Station Project.

**PROJECT JUSTIFICATION:**  
The improvements from this project will address the recommendations from various regulatory agencies. In addition, the lack of attention to the post-filter chemical feed systems could cause over/under dosing of chemicals leading to permit violations or the loss of a chemical system resulting in an emergency project.

**RISK(S):**  
Potential violations of permit conditions as a result of improper dosing of chemicals or failure of a chemical system resulting in emergency action.

**IMPACT ON OPERATIONS:**  
Optimization and flow/residual pacing of chemicals can result in reduced chemical consumption. New storage and chemical feed equipment will result in reduced maintenance costs associated with repairs on the existing pumps, maintaining storage bins and feeders. Moving soda ash closer to the point of injection will reduce issues with feeding the chemical from the other end of the plant. Improvements to SCADA system and flow/residual pacing will reduce manual adjustments to chemical feed systems.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt<br>(Revenue Bonds)  |
| Annual Allocation        | \$0            | \$0            | \$0            | \$607,288      | \$809,718      | \$1,417,006  |                          |

# Water Treatment Plant

## Powdered Activated Carbon System Improvements

PROJECT NUMBER: 2017-322-101-2/ 3

DSIC Eligible: No

**PHASE:**  
Construction

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,

**PROJECT DESCRIPTION:**  
Powdered Activated Carbon System Improvements are to include the replacement of a carbon premix tank and existing carbon slurry pumping and dosing pipework.

**PROJECT JUSTIFICATION:**  
Components of the chemical treatment systems can no longer be operated in an effective and reliable manner to meet water quality requirements. The storage and pumping systems associated with these chemicals have reached the end of their useful life and are susceptible to failures.

**RISK(S):**  
Inefficient operation of chemical systems results in increased operating costs, including chemical consumption, labor, solids generation and disposal, and wear on equipment.

**IMPACT ON OPERATIONS:**  
Increased operating efficiency, flexibility, reliability, and life expectancy and improved safety conditions.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>   |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt<br>(Revenue<br>Bonds) |
| <b>Annual Allocation</b> | \$40,589       | \$0            | \$0            | \$0            | \$0            | \$40,589     |                            |

# Water Treatment Plant

## Ross Pump Station

**PROJECT NUMBER:** 2018-323-101-0

**DSIC Eligible:** No

|   |
|---|
| <b>PHASE:</b><br>Design   |
| <b>PRIORITY:</b><br>Regulatory, Operating Efficiency, Quality of Service  |
| <b>PROJECT DESCRIPTION:</b><br>Replacement of aged pump and valve equipment, meters, SCADA, electrical equipment, HVAC, auxiliary systems, as well as the rehabilitation of the building architectural and energy management systems. |
| <b>PROJECT JUSTIFICATION:</b><br>Pump station is in need of rehabilitation. Pumps and ancillary systems are beyond their design life.   |
| <b>RISK(S):</b><br>Exposes the Authority to higher capital costs to address emergency failures, and exposes customers to a potentially deficient water supply.  |
| <b>IMPACT ON OPERATIONS:</b><br>Increased operating efficiency, flexibility, reliability, life expectancy, and improved safety conditions for staff.  |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
| <b>Annual Allocation</b> | \$0            | \$1,249,655    | \$2,499,310    | \$1,299,310    | \$13,232,110   | \$18,280,386 | <b>Debt (Revenue Bonds)</b> |

# Water Treatment Plant

## Sludge Chamber Pump Project

PROJECT NUMBER: 2021-322-102-0

DSIC Eligible: No

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|--|
| <b>PHASE:</b><br>Design  |
| <b>PRIORITY:</b><br>Regulatory Compliance, Operating Efficiency, Quality of Service  |
| <b>PROJECT DESCRIPTION:</b><br><br>Replacement of existing Sludge Pump and related components to the sludge chamber.   |
| <b>PROJECT JUSTIFICATION:</b><br>The submersible pumps are not operational because they are not capable of handling the type of sludge coming from the clarifier drainage. The pump system needs to be designed to ensure the proper pump size and selection suitable for sludge handling is utilized. |
| <b>RISK(S):</b><br>Inefficient operations resulting from an aged facility that do not align with industry standard practices.  |
| <b>IMPACT ON OPERATIONS:</b><br>Increased operating efficiency, flexibility, reliability, and life expectancy,.  |

| <u>CASH FLOW SUMMARY</u> |                  |                  |                |                |                |                    | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|------------------|------------------|----------------|----------------|----------------|--------------------|-----------------------------|
|                          | <u>FY 2023</u>   | <u>FY 2024</u>   | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u>       |                             |
| <b>Annual Allocation</b> | <b>\$386,722</b> | <b>\$869,344</b> | <b>\$0</b>     | <b>\$0</b>     | <b>\$0</b>     | <b>\$1,256,065</b> | <b>Debt (Revenue Bonds)</b> |

# Water Treatment Plant

## Water Treatment Plant Filter Backwash System Improvements

**PROJECT NUMBER:** 2023-100-107-0

**DSIC Eligible:** No

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| <b>PHASE:</b><br>Not Started   |
| <b>PRIORITY:</b><br>Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact   |
| <b>PROJECT DESCRIPTION:</b><br>Improvements to filter backwash system to increase capacity and provide greater high backwash flow rates and addressing issues.   |
| <b>PROJECT JUSTIFICATION:</b><br>The backwash system cannot attain high wash flow rates recommended by regulators, which may be impacting filter performance/backwash frequency. In addition, the backwash system has areas that can be improved to help with operations including resolving pump vibration and shutdown issues at low flow rates. |
| <b>RISK(S):</b><br>Potential noncompliance with permitted design of filter system and water quality issues.  |
| <b>IMPACT ON OPERATIONS:</b><br>Improved operating efficiency.   |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <b>Debt (Revenue Bonds)</b> |
| <b>Annual Allocation</b> | \$740,054      | \$883,290      | \$2,996,022    | \$8,880,634    | \$0            | \$13,500,000 |                             |

# Water Treatment Plant

## Water Treatment Plant Filter Building Roof

PROJECT NUMBER: 2024-100-101-0

DSIC Eligible: No

**PHASE:**  
Not Started

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Roof and parapet flashing replacement at the Water Treatment Plant filter building.

**PROJECT JUSTIFICATION:**  
The existing roof is aged and in need of replacement.

**RISK(S):**  
Continued deterioration of the roof could result in a emergency replacement.

**IMPACT ON OPERATIONS:**  
Decrease in yearly maintenance for the existing roof.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt<br>(Revenue Bonds)  |
| Annual Allocation        | \$0            | \$3,500,000    | \$0            | \$0            | \$0            | \$3,500,000  |                          |

# Water Treatment Plant

## Water Treatment Plant HVAC Improvements

PROJECT NUMBER: 2024-100-102-0

DSIC Eligible: No

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|--|
| <b>PHASE:</b><br>Not Started   |
| <b>PRIORITY:</b><br>Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact |
| <b>PROJECT DESCRIPTION:</b><br>Improvements to aged HVAC systems at the Water Treatment Plant.                                   |
| <b>PROJECT JUSTIFICATION:</b><br>The HVAC systems at the Water Treatment Plant are at risk for failure due to its age.           |
| <b>RISK(S):</b><br>Failure of HVAC systems.  |
| <b>IMPACT ON OPERATIONS:</b><br>Reduction in future maintenance costs associated with aging equipment and multiple HVAC units.   |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt<br>(Revenue Bonds)  |
| Annual Allocation        | \$0            | \$163,333      | \$358,333      | \$858,333      | \$0            | \$1,379,999  |                          |

# Water Treatment Plant

## Water Treatment Plant NPDES Permit Autosamplers and Flow Meters

PROJECT NUMBER: 2023-100-108-0

DSIC Eligible: No

|   |
|---|
| <b>PHASE:</b><br>Not Started  |
| <b>PRIORITY:</b><br>Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact                          |
| <b>PROJECT DESCRIPTION:</b><br>Purchase and installation of autosamplers to improve the ability of DEP required sampling.                                 |
| <b>PROJECT JUSTIFICATION:</b><br>This project is necessary to ensure that all of the required DEP sampling gets performed in a safe and efficient manner. |
| <b>RISK(S):</b><br>The risks with not completing or delaying this project would be potentially missing sampling deadlines for DEP required sampling.      |
| <b>IMPACT ON OPERATIONS:</b><br>Improved operating efficiency.  |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Cash (Rates)             |
| <b>Annual Allocation</b> | \$164,400      | \$124,500      | \$0            | \$0            | \$0            | \$288,900    |                          |



# Water Treatment Plant

## Water Treatment Plant Rail Siding Improvements

**PROJECT NUMBER:** 2023-100-109-0

**DSIC Eligible:** No

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| <b>PHASE:</b><br>Not Started   |
| <b>PRIORITY:</b><br>Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact   |
| <b>PROJECT DESCRIPTION:</b><br>Replacement of failed railroad ties, missing aggregate, and switch/track/stop repairs or removal for the rail siding at Aspinwall Pump Station.   |
| <b>PROJECT JUSTIFICATION:</b><br>Rail siding is required to maintain an alternate means of chemical delivery to Aspinwall Pump Station. This project will allow for the annual replacement of rail siding in order to meet rail standards. |
| <b>RISK(S):</b><br>Failure to pass rail inspection and loss of alternate chemical delivery means.  |
| <b>IMPACT ON OPERATIONS:</b><br>Improved operating efficiency.   |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt<br>(Revenue Bonds)  |
| Annual Allocation        | \$800,000      | \$300,000      | \$300,000      | \$300,000      | \$300,000      | \$2,000,000  |                          |

# Water Treatment Plant

## WTP Sodium Hypochlorite Tank Emergency Replacement

PROJECT NUMBER: 2022-322-101-0

DSIC Eligible: No

|   |
|---|
| <b>PHASE:</b><br>Construction   |
| <b>PRIORITY:</b><br>Regulatory Compliance, Safety, Quality of Service   |
| <b>PROJECT DESCRIPTION:</b><br>The project includes the replacement of three Sodium Hypochlorite storage tanks.   |
| <b>PROJECT JUSTIFICATION:</b><br>This is an urgent project to maintain adequate treatment capabilities.   |
| <b>RISK(S):</b><br>The project includes the emergency replacement of three Sodium Hypochlorite storage tanks. There are four existing storage tanks. Two of the storage tanks will be removed from service in 2022 due to leakage and the age of the other two is such that they are at the end of their useful life. They will be replaced with three new tanks in kind to maintain the required storage capacity. |
| <b>IMPACT ON OPERATIONS:</b><br>Maintain adequate treatment capabilities.   |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
| <b>Annual Allocation</b> | \$150,000      | \$0            | \$0            | \$0            | \$0            | \$150,000    |                             |

# Water Treatment Plant

## Water Treatment Plant Contingency

**PROJECT NUMBER:** 2023-100-110-0

**DSIC Eligible:** No

|   |
|---|
| <b>PHASE:</b><br>Not Applicable   |
| <b>PRIORITY:</b><br>Not Applicable  |
| <b>PROJECT DESCRIPTION:</b><br>Water Treatment Plant contingency pass-through project.            |
| <b>PROJECT JUSTIFICATION:</b><br>Improved efficiency of capital improvement plan fund management. |
| <b>RISK(S):</b><br>No identified risks.   |
| <b>IMPACT ON OPERATIONS:</b><br>Improved efficiency of capital improvement plan management.       |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>   |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt<br>(Revenue<br>Bonds) |
| Annual Allocation        | \$0            | \$0            | \$0            | \$0            | \$0            | \$0          |                            |



# Water Pumping and Storage



# Water Pumping and Storage

## Aspinwall Pump Station Improvements

**PROJECT NUMBER:** 2017-323-104-0

**DSIC Eligible:** No

**PHASE:**  
Construction – Project Close

**PRIORITY:**  
Regulatory Compliance, Safety Operating Efficiency, Quality of Service,

**PROJECT DESCRIPTION:**  
Replacement of aged pump and valve equipment, electrical equipment, HVAC, auxiliary systems, and rehabilitation of the building architectural and energy management systems at the Bruecken and Aspinwall Pump Stations or replacement with a single high service pump station at the Water Treatment Plant.

**PROJECT JUSTIFICATION:**  
The pump Station is in need of renovations and upgrades to maintain service, restore a 20 to 25 year useful life expectancy, and to provide safer conditions for staff. Additionally, installation of variable frequency drives will reduce water pressure surges during start-up, and allow the pumps to operate over a wide range of flow, allow the pumps to operate while the clearwell is being replaced. Alternately, a new high service pump station to replace the existing pump stations is also being investigated.

**RISK(S):**  
Exposes the Authority to higher capital costs to address emergency failures and customers to a potentially deficient water supply.

**IMPACT ON OPERATIONS:**  
Increased operating efficiency, flexibility, and reliability and improved safety conditions for staff.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                          |
| Annual Allocation        | \$4,748,966    | \$15,197,172   | \$15,197,172   | \$15,227,974   | \$2,548,263    | \$52,919,545 | WIFIA/PENN VEST          |

# Water Pumping and Storage

## Aspinwall Pump Station to Lanpher Reservoir Rising Main

PROJECT NUMBER: 2018-323-100-0

DSIC Eligible: No

**PHASE:**

Design – Project Close

**PRIORITY:**

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,

**PROJECT DESCRIPTION:**

Construction of a new, redundant rising main from Aspinwall Pump Station to Lanpher Reservoir.

**PROJECT JUSTIFICATION:**

The existing 60" rising main that supplies the Lanpher Reservoir is a 150 year old riveted steel pipe, has several tap connections to critical and bulk customers, and has experienced recent pipe failures. The proposed rising main would serve as a primary supply source for the Lanpher Reservoir during the Clearwell Replacement Project and a redundant supply line in case of a failure or planned cleaning and rehabilitation of the existing 60" supply main.

**RISK(S):**

Failure of the rising main could impact up to half of PWSA's customers.

**IMPACT ON OPERATIONS:**

Increased operating flexibility and reliability.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |               | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|---------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u>  |                          |
| <b>Annual Allocation</b> | \$2,147,167    | \$29,622,031   | \$44,331,727   | \$44,331,727   | \$14,777,242   | \$135,209,893 | <b>WIFIA/PENN VEST</b>   |

# Water Pumping and Storage

## Aspinwall WTP Chemical Unloading Area Improvements and Underground Storage Tank Removal and Replacement

PROJECT NUMBER: 2022-322-100-0

DSIC Eligible: No

**PHASE:**  
Design – Project Close

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**  
Design and construction of secondary spill containment around railcar and truck chemical unloading areas. A nearby tunnel underdrain must also be disconnected from the combined sewers, and will be completed as part of the work in the area.

**PROJECT JUSTIFICATION:**  
Required as part of PADEP regulatory recommendations.

**RISK(S):**  
Not completing the work could lead to future environmental incidents and potential violations from regulatory agencies due to chemical spills.

**IMPACT ON OPERATIONS:**  
Increased flexibility and reliability, system compliance, and improved environmental conditions.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
| <b>Annual Allocation</b> | \$1,352,161    | \$0            | \$0            | \$0            | \$0            | \$1,352,161  | <b>Debt (Revenue Bonds)</b> |

# Water Pumping and Storage

## Bruecken Pump Station Concealed Gutters

PROJECT NUMBER: 2024-300-100-0

DSIC Eligible: No

**PHASE:**  
Planning – Project Close

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Concealed gutter replacement and related improvements at Bruecken Pump Station.

**PROJECT JUSTIFICATION:**  
The existing concealed gutters backup with water and can cause leakage inside of the building.

**RISK(S):**  
Continued leaks will eventually damage roof substrate and interior and exterior masonry.

**IMPACT ON OPERATIONS:**  
Reduced service repair needs and improved efficiency of operations.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
| <b>Annual Allocation</b> | \$0            | \$175,000      | \$0            | \$0            | \$0            | \$175,000    | <b>Debt (Revenue Bonds)</b> |



# Water Pumping and Storage

## Bruecken Pump Station Improvements

PROJECT NUMBER: 2017-323-106-0

DSIC Eligible: No

**PHASE:**

Construction – Project Close

**PRIORITY:**

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**

Replacement of aged pump and valve equipment, electrical equipment, HVAC, auxiliary systems, and rehabilitation of the building architectural and energy management systems.

**PROJECT JUSTIFICATION:**

The pump station was constructed in 1931. The pump station is in need of renovations and upgrades to maintain service, restore a 20 to 25 year useful life expectancy, and to provide safer conditions for staff. Additionally, installation of variable frequency drives will reduce water pressure surges during start-up, allow the pumps to operate more efficiently over a wide range of flow demands, and will reduce the required size of the new Clearwell.

**RISK(S):**

Exposes PWSA to higher capital costs to address emergency facility failures and its customers to a potentially deficient water supply.

**IMPACT ON OPERATIONS:**

Increased operating efficiency, flexibility, reliability, and improved safety conditions for staff.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |               | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|---------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u>  |                          |
| <b>Annual Allocation</b> | \$8,653,054    | \$30,991,126   | \$30,991,126   | \$31,037,546   | \$5,188,398    | \$106,861,250 | <b>WIFIA/PENN VEST</b>   |

# Water Pumping and Storage

## Chlorine Booster Station Improvements

**PROJECT NUMBER:** 2019-323-101-0

**DSIC Eligible:** No

**PHASE:**  
Design – Project Close

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**  
Replacement of existing chlorine injection facilities at reservoirs and tanks for chlorine residual.

**PROJECT JUSTIFICATION:**  
PWSA boosts chlorine residual at a majority of its storage facilities. Recent changes to PADEP regulations require an increase in minimum chlorine residual levels in the distribution system. All chlorine booster facilities need to be upgraded in order to meet these requirements.

**RISK(S):**  
Exposes the Authority's customers to poor water quality.

**IMPACT ON OPERATIONS:**  
Increased flexibility and reliability, system compliance, and improved safety conditions for staff.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>   |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt<br>(Revenue<br>Bonds) |
| Annual Allocation        | \$311,269      | \$6,436,148    | \$7,007,549    | \$583,962      | \$0            | \$14,338,928 |                            |

# Water Pumping and Storage

## Disinfection By-Products Mitigation

PROJECT NUMBER: 2020-323-101-0

DSIC Eligible: No

**PHASE:**  
Design – Project Close

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**  
Replacement of existing trihalomethane (THM) removal systems at Allentown tanks, Squirrel Hill tank, and Brashears tanks.

**PROJECT JUSTIFICATION:**  
Repair of the existing system to improve the level of service provided to customers.

**RISK(S):**  
Delaying the replacement of the existing systems will result in increased downtime of the existing systems that need to be repaired. This will lead to possible regulatory violations for exceeding THM levels.

**IMPACT ON OPERATIONS:**  
Decrease in yearly maintenance for the existing system.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
| <b>Annual Allocation</b> | \$5,183,171    | \$1,426,706    | \$0            | \$0            | \$0            | \$6,609,876  | <b>Debt (Revenue Bonds)</b> |

# Water Pumping and Storage

## Garfield Tank Improvements

PROJECT NUMBER: 2024-300-101-0

DSIC Eligible: No

**PHASE:**  
Not Started – Project Close

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Rehabilitation or replacement of the existing tank. Increase of tank capacity may be necessary.

**PROJECT JUSTIFICATION:**  
The Garfield Elevated Storage Tank was constructed in 1959 and last rehabilitated in 1992. The existing tank does not have sufficient capacity to meet PADEP's requirements for sizing, which states that a tank must have sufficient capacity to meet average day demand plus fire flow demand. This project will provide adequate storage through system redundancy to meet the pressure district's demand and fire flow conditions.

**RISK(S):**  
Exposes PWSA customers to poor water quality from coating problems or a potentially deficient water supply.

**IMPACT ON OPERATIONS:**  
Increased flexibility and reliability, system compliance, and improved safety conditions for staff.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
| <b>Annual Allocation</b> | \$0            | \$122,198      | \$244,397      | \$314,224      | \$2,246,121    | \$2,926,940  | <b>Debt (Revenue Bonds)</b> |

# Water Pumping and Storage

## Herron Hill Pump Station Improvements

**PROJECT NUMBER:** 2023-300-100-0

**DSIC Eligible:** No

**PHASE:**  
Not Started – Project Close

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Replacement of aged pump and valve equipment, electrical equipment, HVAC, auxiliary systems, and rehabilitation of the building architectural and energy management systems as prioritized by the recommended Finished Water Pump Stations Condition Assessment Project.

**PROJECT JUSTIFICATION:**  
The pump station was originally constructed in the late 1890's. The pump station is in need of renovations and upgrades to maintain service, restore a 20 to 25 year useful life expectancy, and to provide safer conditions for staff.

**RISK(S):**  
Lack of facility planning exposes PWSA to higher capital costs to address emergency failures and customers to a potentially deficient water supply.

**IMPACT ON OPERATIONS:**  
Increased operating efficiency, flexibility, and reliability and improved safety conditions for staff.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                          |
| Annual Allocation        | \$409,195      | \$818,391      | \$496,552      | \$12,275,862   | \$0            | \$14,000,000 | Debt (Revenue Bonds)     |

# Water Pumping and Storage

## Herron Hill Reservoir Improvements

PROJECT NUMBER: 2019-323-100-0

DSIC Eligible: No

**PHASE:**  
Construction – Project Close

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**  
Replacement of existing reservoir liner and cover and associated reservoir rehabilitation. Replacement of existing chlorine injection system. Project close-out phase in 2023.

**PROJECT JUSTIFICATION:**  
The existing cover has reached the end of its useful life and must be replaced. Existing chlorine feed systems are beyond their useful life and must be replaced.

**RISK(S):**  
Exposes the Authority's customers to poor water quality from reservoir failure and inadequate booster disinfection.

**IMPACT ON OPERATIONS:**  
Increased flexibility and reliability, system compliance, and improved safety conditions for staff.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <b>Debt (Revenue Bonds)</b> |
| <b>Annual Allocation</b> | \$198,631      | \$0            | \$0            | \$0            | \$0            | \$198,631    |                             |

# Water Pumping and Storage

## Herron Hill Reservoir Improvements - Sodium Hypochlorite Building

**PROJECT NUMBER:** 2019-323-100-1 / 2 / 3 / 4

**DSIC Eligible:** No

|  |
|--|
| <b>PHASE:</b><br>Construction – Project Close  |
| <b>PRIORITY:</b><br>Regulatory Compliance, Safety, Operating Efficiency, Quality of Service  |
| <b>PROJECT DESCRIPTION:</b><br>Replacement of existing chlorine injection system.  |
| <b>PROJECT JUSTIFICATION:</b><br>Existing chlorine feed systems are beyond their useful life and must be replaced.                               |
| <b>RISK(S):</b><br>Exposes the Authority's customers to poor water quality and possible PADEP violations due to inadequate booster disinfection. |
| <b>IMPACT ON OPERATIONS:</b><br>Increased flexibility and reliability, system compliance, and improved safety conditions for staff.              |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                          |
| <b>Annual Allocation</b> | \$828,429      | \$0            | \$0            | \$0            | \$0            | \$828,429    | Debt (Revenue Bonds)     |

# Water Pumping and Storage

## Herron Hill Tank Pump Station Improvements

PROJECT NUMBER: 2024-300-102-0

DSIC Eligible: No

**PHASE:**  
Not Started – Project Close

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Replacement of aged pump and valve equipment, electrical equipment, HVAC, auxiliary systems, and rehabilitation of the building architectural and energy management systems as prioritized by the recommended Finished Water Pump Stations Condition Assessment Project.

**PROJECT JUSTIFICATION:**  
The pump station is in need of renovations and upgrades to maintain service, restore a 20 to 25 year useful life expectancy, and to provide safer conditions for staff.

**RISK(S):**  
Lack of facility planning exposes PWSA to higher capital costs to address emergency failures and customers to a potentially deficient water supply.

**IMPACT ON OPERATIONS:**  
Increased operating efficiency, flexibility, and reliability and improved safety conditions for staff.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                          |
| Annual Allocation        | \$0            | \$164,077      | \$195,529      | \$1,320,197    | \$1,320,197    | \$3,000,000  | Debt (Revenue Bonds)     |



# Water Pumping and Storage

## Highland 1 Reservoir Liner

PROJECT NUMBER: 2026-300-100-0

DSIC Eligible: No

**PHASE:**  
Not Started – Project Close

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Replacement of existing Highland 1 Reservoir liner.

**PROJECT JUSTIFICATION:**  
The reservoir liner is past it's useful design life and is in need of replacement.

**RISK(S):**  
Failure to replace the liner could result an emergency repairs or replacement.

**IMPACT ON OPERATIONS:**  
Increased operating efficiency, flexibility, reliability, and life expectancy,.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
| <b>Annual Allocation</b> | \$0            | \$0            | \$0            | \$704,981      | \$0            | \$704,981    | <b>Debt (Revenue Bonds)</b> |

# Water Pumping and Storage

## Highland No. 2 Reservoir Liner and Cover Replacements

PROJECT NUMBER: 2019-323-102-0 / 1

DSIC Eligible: No

**PHASE:**  
Construction – Project Close

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**  
Replacement of existing reservoir liner and cover and associated reservoir rehabilitation. Replacement of existing chlorine injection system and an upgrade of the reservoir outlet structure.

**PROJECT JUSTIFICATION:**  
The Highland No. 2 Reservoir will be used as a temporary Clearwell while the new Clearwell is being constructed. Existing chlorine feed facilities must be upgraded to meet PADEP regulatory requirements for distribution chlorine residual. Existing reservoir outlet structure must be upgraded to accommodate new Highland Reservoir Pump Station.

**RISK(S):**  
Exposes PWSA customers to poor water quality from reservoir failure and inadequate booster disinfection.

**IMPACT ON OPERATIONS:**  
Increased flexibility and reliability, system compliance, and improved safety conditions for staff.

### CASH FLOW SUMMARY

### FUNDING SOURCE(S)

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                                   |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------------|
| <b>Annual Allocation</b> | \$2,122,235    | \$6,515,355    | \$4,072,097    | \$0            | \$0            | \$12,709,686 | <b>WIFIA/Debt (Revenue Bonds)</b> |

# Water Pumping and Storage

## Highland Reservoir Pump Station and Rising Main

**PROJECT NUMBER:** 2017-323-101-0/ 5

**DSIC Eligible:** No

**PHASE:**

Design – Project Close

**PRIORITY:**

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**

Construction of a new finished water pump station and transmission main to supply water to the Highland No. 1 Service Area from Highland No. 2 Reservoir.

**PROJECT JUSTIFICATION:**

All water supply for the Highland No. 1 Service Area currently flows through the Highland No. 1 Reservoir and the MFP. There is no other source water supply for the Highland No. 1 Service Area. In addition to providing alternate supply, this project is to temporarily provide finished water that meets the chlorine disinfection rules to the Highland No. 1 Service Area during the Clearwell Replacement Project. Additionally, this new facility could also be designed to service the Garfield pressure district, thus eliminating the rehabilitation of the Highland Pump Station.

**RISK(S):**

Failure of the two rising mains (No. 1 or No. 2), MFP, or Bruecken Pump Station would result in significant service disruption.

**IMPACT ON OPERATIONS:**

Increased operation and maintenance labor and expenses. Increased operating flexibility in the future.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>        |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|---------------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <b>Debt<br/>(Revenue Bonds)</b> |
| <b>Annual Allocation</b> | \$23,789,287   | \$14,537,145   | \$8,983,410    | \$0            | \$0            | \$47,309,842 |                                 |

# Water Pumping and Storage

## Howard Pump Station Improvements

PROJECT NUMBER: 2025-300-100-0

DSIC Eligible: No

**PHASE:**  
Not Started – Project Close

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Replacement of aged pump and valve equipment, electrical equipment, HVAC, auxiliary systems, and rehabilitation of the building architectural and energy management systems as prioritized by the recommended Finished Water Pump Stations Condition Assessment Project.

**PROJECT JUSTIFICATION:**  
The pump station was originally constructed between 1900 and 1904. The pump station is in need of renovations and upgrades to maintain service, restore a 20 to 25 year useful life expectancy, and to provide safer conditions for the staff.

**RISK(S):**  
Lack of facility planning exposes the Authority to higher capital costs to address emergency failures and its customers to a potentially deficient water supply.

**IMPACT ON OPERATIONS:**  
Increased operating efficiency, flexibility, and reliability and improved safety conditions for staff.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                          |
| Annual Allocation        | \$0            | \$0            | \$577,267      | \$1,154,534    | \$694,764      | \$2,426,565  | Debt (Revenue Bonds)     |

# Water Pumping and Storage

## Inline Pump Station (Coral and Pacific) Improvements

PROJECT NUMBER: 2024-300-103-0

DSIC Eligible: No

**PHASE:**  
Not Started – Project Close

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Replacement of aged pump and valve equipment, electrical equipment, HVAC, auxiliary systems, and rehabilitation of the building architectural and energy management systems as prioritized by the recommended Finished Water Pump Stations Condition Assessment Project.

**PROJECT JUSTIFICATION:**  
The pump station is in need of renovations and upgrades to maintain service, restore a 20 to 25 year useful life expectancy, and to provide safer conditions for staff.

**RISK(S):**  
Lack of facility planning exposes the Authority to higher capital costs to address emergency failures and its customers to a potentially deficient water supply.

**IMPACT ON OPERATIONS:**  
Increased operating efficiency, flexibility, reliability, and improved safety conditions for staff.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                          |
| Annual Allocation        | \$0            | \$32,980       | \$39,434       | \$264,368      | \$263,218      | \$600,000    | Debt (Revenue Bonds)     |

# Water Pumping and Storage

## Lanpher Reservoir Improvements

PROJECT NUMBER: 2017-323-105-0 / 1 / 2 / 3

DSIC Eligible: No

**PHASE:**  
Construction – Project Close

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**  
Replacement of existing reservoir liner and cover and associated reservoir rehabilitation. Replacement of existing chlorine injection system.

**PROJECT JUSTIFICATION:**  
The existing cover failed and had to be replaced on an emergency basis as part of the PADEP October 2017 Administrative Order. Existing chlorine feed systems are beyond their useful life and must be replaced.

**RISK(S):**  
Exposes the Authority's customers to poor water quality from reservoir failure and inadequate booster disinfection.

**IMPACT ON OPERATIONS:**  
Increased flexibility and reliability, system compliance, and improved safety conditions for staff.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <b>Debt (Revenue Bonds)</b> |
| <b>Annual Allocation</b> | \$2,778,963    | \$6,370,326    | \$3,716,024    | \$0            | \$0            | \$12,865,313 |                             |

# Water Pumping and Storage

## Lincoln Pump Station Improvements

**PROJECT NUMBER:** 2023-300-101-0

**DSIC Eligible:** No

**PHASE:**  
Planning – Project Close

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Replacement of aged pump and valve equipment, electrical equipment, HVAC, and auxiliary systems, and rehabilitation of the building architectural and energy management systems as prioritized by the recommended Finished Water Pump Stations Condition Assessment Project.

**PROJECT JUSTIFICATION:**  
The pump station was originally constructed in 1952. The pump station is in need of renovations and upgrades to maintain service, restore a 20 to 25 year useful life expectancy, and to provide safer conditions for staff.

**RISK(S):**  
Lack of facility planning exposes the Authority to higher capital costs to address emergency failures and customers to a potentially deficient water supply.

**IMPACT ON OPERATIONS:**  
Increased operating efficiency, flexibility, and reliability and improved safety conditions for staff.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                          |
| Annual Allocation        | \$288,633      | \$288,633      | \$1,258,748    | \$2,109,323    | \$1,054,662    | \$5,000,000  | Debt (Revenue Bonds)     |

# Water Pumping and Storage

## Lincoln Pump Station: Bypass Pump Station Project

PROJECT NUMBER: 2020-323-100-0/ 1/ 2

DSIC Eligible: No

**PHASE:**  
Construction – Project Close

**PRIORITY:**  
Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**  
Construction of a temporary bypass pump station that will be used at the Lincoln Pump Station and Saline Pump Station. This pump station will allow for the existing pump station to be taken off line completely for rehabilitation.

**PROJECT JUSTIFICATION:**  
Repair of existing pump station while trying to keep it online increases the cost and construction time. This is a cost effective way to provide temporary pumping.

**RISK(S):**  
Delaying the construction of this pump station will delay the renewal of existing pump stations that are in need of upgrades.

**IMPACT ON OPERATIONS:**  
Decrease in yearly maintenance for the existing system.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <b>Debt (Revenue Bonds)</b> |
| <b>Annual Allocation</b> | \$2,155,907    | \$2,164,264    | \$0            | \$0            | \$0            | \$4,320,171  |                             |



# Water Pumping and Storage

## Lincoln Tank Improvements

**PROJECT NUMBER:** 2023-300-102-0

**DSIC Eligible:** No

**PHASE:**  
Not Started – Project Close

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Rehabilitation or replacement of the existing tank.

**PROJECT JUSTIFICATION:**  
Constructed in 1939, this tank is nearing the end of its useful life. The last inspection, which was performed in 2018, noted deficiencies that need to be addressed to ensure water quality standards are met.

**RISK(S):**  
Exposes the Authority's customers to poor water quality from coating problems or a potentially deficient water supply in the event of tank failure.

**IMPACT ON OPERATIONS:**  
Increased flexibility and reliability and system compliance.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>   |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt<br>(Revenue<br>Bonds) |
| Annual Allocation        | \$337,529      | \$203,589      | \$3,680,671    | \$0            | \$0            | \$4,221,788  |                            |

# Water Pumping and Storage

## Mission Pump Station Improvements

PROJECT NUMBER: 2025-300-101-0

DSIC Eligible: No

**PHASE:**  
Not Started – Project Close

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Replacement of aged pump and valve equipment, electrical equipment, HVAC, auxiliary systems, and rehabilitation of the building architectural and energy management systems as prioritized by the recommended Finished Water Pump Stations Condition Assessment Project.

**PROJECT JUSTIFICATION:**  
The Mission Pump Station is the only pumping station located south of the Monongahela River and was originally constructed between 1910 and 1912. The pump station is in need of renovations and upgrades to maintain service, restore a 20 to 25 year useful life expectancy, and to provide safer conditions for staff.

**RISK(S):**  
Lack of facility planning exposes the Authority to higher capital costs to address emergency failures and its customers to a potentially deficient water supply.

**IMPACT ON OPERATIONS:**  
Increased operating efficiency, flexibility, and reliability and improved safety conditions for staff.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
| <b>Annual Allocation</b> | \$0            | \$0            | \$577,267      | \$1,154,534    | \$694,764      | \$2,426,565  | <b>Debt (Revenue Bonds)</b> |

# Water Pumping and Storage

## Pump Station Architectural

PROJECT NUMBER: 2026-300-101-0

DSIC Eligible: No

**PHASE:**  
Not Started – Project Close

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Rehabilitate exterior and interior masonry, glazing, and roof of existing pump stations

**PROJECT JUSTIFICATION:**  
Existing building façade, roof, and window systems are in need of upgrade to protect interior pumps and electrical equipment from the elements. Rehabilitation of these pump stations has not occurred within the past 40 years for most facilities.

**RISK(S):**  
Façade collapse, leaking roof and windows could lead to equipment failures

**IMPACT ON OPERATIONS:**  
Increased operating efficiency, flexibility, and reliability and improved safety conditions for staff.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <b>Debt (Revenue Bonds)</b> |
| <b>Annual Allocation</b> | \$0            | \$0            | \$0            | \$2,500,000    | \$0            | \$2,500,000  |                             |

# Water Pumping and Storage

## Saline Pump Station Improvements

**PROJECT NUMBER:** 2026-300-102-0

**DSIC Eligible:** No

**PHASE:**  
Not Started – Project Close

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Replacement of aged pump and valve equipment, electrical equipment, HVAC, auxiliary systems, and rehabilitation of the building architectural and energy management systems as prioritized by the recommended Finished Water Pump Stations Condition Assessment Project.

**PROJECT JUSTIFICATION:**  
The pump station was originally constructed in 1935. The pump station is in need of renovations and upgrades to maintain service, restore a 20 to 25 year useful life expectancy, and to provide safer conditions for staff.

**RISK(S):**  
Lack of facility planning exposes the Authority to higher capital costs to address emergency failures and its customers to a potentially deficient water supply.

**IMPACT ON OPERATIONS:**  
Increased operating efficiency, flexibility, and reliability and improved safety conditions for staff.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                          |
| Annual Allocation        | \$0            | \$0            | \$0            | \$192,422      | \$288,633      | \$481,055    | Debt (Revenue Bonds)     |

# Water Pumping and Storage

## Spring Hill Tank Improvements

PROJECT NUMBER: 2024-300-104-0

DSIC Eligible: No

**PHASE:**  
Not Started – Project Close

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Perform a comprehensive inspection of the existing storage tanks and rehabilitation or replacement of the existing tanks.

**PROJECT JUSTIFICATION:**  
Constructed in 1929 of riveted steel, the coatings and structure of these tanks need to be rehabilitated due to corrosion.

**RISK(S):**  
Exposes the Authority's customers to poor water quality from coating problems or a potentially deficient water supply in the event of tank failure.

**IMPACT ON OPERATIONS:**  
Increased flexibility and reliability and system compliance.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
| <b>Annual Allocation</b> | \$0            | \$62,335       | \$122,669      | \$73,819       | \$933,589      | \$1,192,412  | <b>Debt (Revenue Bonds)</b> |

# Water Pumping and Storage

## Water Pumping and Storage Contingency

**PROJECT NUMBER:** 2023-300-103-0

**DSIC Eligible:** No

**PHASE:**  
Not Applicable – Project Close

**PRIORITY:**  
Not Applicable

**PROJECT DESCRIPTION:**  
Water Pumping and Storage contingency pass-through project.

**PROJECT JUSTIFICATION:**  
Improved efficiency of capital improvement plan fund management.

**RISK(S):**  
No identified risks.

**IMPACT ON OPERATIONS:**  
Improved efficiency of capital improvement plan management.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt<br>(Revenue Bonds)  |
| Annual Allocation        | \$0            | \$0            | \$0            | \$0            | \$0            | \$0          |                          |



# Water Distribution



# Water Distribution System

## 2019 Large Diameter Water Main Improvements - Rising Main 3/4

**PROJECT NUMBER:** 2019-325-103-0

**DSIC Eligible:** No

|  |
|--|
| <b>PHASE:</b><br>Construction  |
| <b>PRIORITY:</b><br>Regulatory Compliance, Safety Operating Efficiency, Quality of Service,  |
| <b>PROJECT DESCRIPTION:</b><br>Strategic replacement or rehabilitation of large diameter water mains (16-inch and larger) and appurtenances to improve system reliability and hydraulics, including internal and external inspections.                         |
| <b>PROJECT JUSTIFICATION:</b><br>Maintaining a proactive approach to replacing large mains will ensure that large mains are replaced before the end of their useful life.  |
| <b>RISK(S):</b><br>The consequences of failure for larger mains are much greater than for smaller distribution mains, which typically include significant service outages (larger area and longer time frame impacts), as well as property and roadway damage. |
| <b>IMPACT ON OPERATIONS:</b><br>Increased system reliability and improved system management.   |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>      |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-------------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | WIFIA/Debt<br>(Revenue Bonds) |
| <b>Annual Allocation</b> | \$3,062,142    | \$240,770      | \$0            | \$0            | \$0            | \$3,302,912  |                               |



# Water Distribution System

## 2019 Large Diameter Water Main Improvements - Rising Main 4

**PROJECT NUMBER:** 2019-325-103-1

**DSIC Eligible:** No

|  |
|--|
| <b>PHASE:</b><br>Procurement   |
| <b>PRIORITY:</b><br>Regulatory Compliance, Safety Operating Efficiency, Quality of Service,  |
| <b>PROJECT DESCRIPTION:</b><br>Strategic replacement or rehabilitation of large diameter water mains (16-inch and larger) and appurtenances to improve system reliability and hydraulics, including internal and external inspections.                         |
| <b>PROJECT JUSTIFICATION:</b><br>Maintaining a proactive approach to replacing large mains will ensure that large mains are replaced before the end of their useful life.  |
| <b>RISK(S):</b><br>The consequences of failure for larger mains are much greater than for smaller distribution mains, which typically include significant service outages (larger area and longer time frame impacts), as well as property and roadway damage. |
| <b>IMPACT ON OPERATIONS:</b><br>Increased system reliability and improved system management.   |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                          |
| <b>Annual Allocation</b> | \$12,529,326   | \$4,176,441    | \$0            | \$0            | \$0            | \$16,705,767 | <b>WIFIA/PENNV EST</b>   |

# Water Distribution System

## Bus Rapid Transit Water Distribution

PROJECT NUMBER: 2020-325-102-0

DSIC Eligible: No

**PHASE:**  
Construction

**PRIORITY:**  
Safety, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
The City of Pittsburgh is making roadway improvements on Fifth Ave and Forbes Ave from downtown through Oakland, with full depth reconstruction planned on Forbes from Crosstown Blvd to Craft Ave and on Fifth between Crosstown Blvd and the Birmingham Bridge. The City's work, in partnership with the Port Authority, will include signal pole upgrades, traffic redesign, sidewalk bumpouts, and new bus shelters. The full depth reconstruction portion of the project has the potential to affect existing 15-inch, 16-inch, 20-inch, and 6-inch mains that are 80-100+ years old. The full depth replacement of the roadway along with lowering of the roadway could result in damage to these mains. These mains should be replaced as part of this project.

**PROJECT JUSTIFICATION:**  
The full depth replacement of the roadway along with lowering of the roadway could result in damage to these mains.

**RISK(S):**  
Replacement of water mains along the Fifth and Forbes corridor reduces the risk of service outages due to breaks, reduces the potential for inadequate capacity for firefighting activities, and improves water quality.

**IMPACT ON OPERATIONS:**  
Increased system reliability and improved system management.

### CASH FLOW SUMMARY

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
| <b>Annual Allocation</b> | \$1,500,000    | \$0            | \$0            | \$0            | \$0            | \$1,500,000  | <b>Debt (Revenue Bonds)</b> |

# Water Distribution System

## District Metering Program

PROJECT NUMBER: 2025-200-100-0, Unidentified

DSIC Eligible: No

**PHASE:**  
Not Started

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Installation of system flow meters to track the flow of water and compare to area consumption to determine where leaks are the greatest.

**PROJECT JUSTIFICATION:**  
The district metering is intended to gather additional information on areas with suspected leakage and then prioritize areas for rehabilitation and replacement.

**RISK(S):**  
Failure to track water loss will result in loss of revenue.

**IMPACT ON OPERATIONS:**  
Decreased water loss.

| <u>Program Years</u>   | <u>CASH FLOW SUMMARY</u> |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|------------------------|--------------------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                        | <u>FY 2023</u>           | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                          |
|                        | \$0                      | \$0            | \$2,600,000    | \$3,380,000    | \$3,380,000    | \$9,360,000  | Debt<br>(Revenue Bonds)  |
| 2025 District Metering | \$0                      | \$0            | \$2,600,000    | \$780,000      | \$0            | \$3,380,000  |                          |
| 2026 District Metering | \$0                      | \$0            | \$0            | \$2,600,000    | \$780,000      | \$3,380,000  |                          |
| 2027 District Metering | \$0                      | \$0            | \$0            | \$0            | \$2,600,000    | \$2,600,000  |                          |

# Water Distribution System

## Hazelwood Backup Feed

**PROJECT NUMBER:** 2023-200-100-0

**DSIC Eligible:** No

|  |
|--|
| <b>PHASE:</b><br>Not Started   |
| <b>PRIORITY:</b><br>Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact   |
| <b>PROJECT DESCRIPTION:</b><br>Either repair the existing failed 16" main or abandon and provide interconnections with the Squirrel Hill system.   |
| <b>PROJECT JUSTIFICATION:</b><br>The Duck Hollow 16" main failed as a result of a landslide in 2018. The main will need to either be abandoned and replaced with emergency interconnections. |
| <b>RISK(S):</b><br>Existing failed 16" main does not provide any backup water supply leading to a loss of resiliency.  |
| <b>IMPACT ON OPERATIONS:</b><br>Increased system reliability and improved system management.   |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
| <b>Annual Allocation</b> | \$175,156      | \$175,156      | \$1,115,471    | \$1,534,487    | \$0            | \$3,000,270  | <b>Debt (Revenue Bonds)</b> |

# Water Distribution System

## Herron Hill - Squirrel Hill Boundary Adjustments

**PROJECT NUMBER:** 2025-200-101-0

**DSIC Eligible:** No

|   |
|---|
| <b>PHASE:</b><br>Not Started  |
| <b>PRIORITY:</b><br>Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact  |
| <b>PROJECT DESCRIPTION:</b><br>Main and valve adjustments to move the boundary between the Herron Hill Reservoir and Squirrel Hill pressure districts.  |
| <b>PROJECT JUSTIFICATION:</b><br>Herron Hill and Squirrel Hill operate on similar hydraulic gradients. There are areas where these two systems intertwine, which has resulted in long dead end lines as well as frequent opening and altering of dividing pressure valves. Moving the boundary of the two zones to incorporate more of the Herron Hill system into the Squirrel Hill system will alleviate these issues as well as alleviate demand on the Herron Hill Reservoir. |
| <b>RISK(S):</b><br>Existing long dead ends can cause water quality issues.  |
| <b>IMPACT ON OPERATIONS:</b><br>Decreased leakage between pressure districts.   |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
| <b>Annual Allocation</b> | \$0            | \$0            | \$52,929       | \$355,187      | \$635,885      | \$1,044,000  |                             |

# Water Distribution System

## Interconnection Vault Stormwater Removal

**PROJECT NUMBER:** 2022-325-102-0

**DSIC Eligible:** No

|   |
|---|
| <b>PHASE:</b><br>Planning   |
| <b>PRIORITY:</b><br>Regulatory Compliance, Operating Efficiency, Quality of Service   |
| <b>PROJECT DESCRIPTION:</b><br>The purpose of this project is to install permanent sump pumps for stormwater dewatering at all of our interconnection vault locations. This project is required by a Consent Order Agreement. |
| <b>PROJECT JUSTIFICATION:</b><br>This project is required by a Consent Order Agreement.   |
| <b>RISK(S):</b><br>Failure to maintain regulatory compliance.   |
| <b>IMPACT ON OPERATIONS:</b><br>Improved system efficiency.   |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
| <b>Annual Allocation</b> | \$453,008      | \$1,225,931    | \$611,310      | \$0            | \$0            | \$2,290,249  |                             |

# Water Distribution System

## Intermediate Diameter Water Main Replacement Program

PROJECT NUMBER: 2025-200-102-0

DSIC Eligible: No

**PHASE:**  
Construction

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Strategic replacement of water mains to improve system reliability as well as improve water pressure, maintain water quality, and minimize disturbance to the community. Program will focus on 16" to 36" diameter mains.

**PROJECT JUSTIFICATION:**  
By maintaining a proactive approach to asset management, efforts can be directed towards remedying assets before their failure, thus saving overall replacement cost. Additionally, projects will be coordinated with other utilities to minimize disturbance to the community and street surface restoration costs. Water quality will also improve by removing tuberculated mains.

**RISK(S):**  
Customers may be subject to service outages or the potential for inadequate pressure.

**IMPACT ON OPERATIONS:**  
Increased operating flexibility and reliability, decrease in non-revenue water due to leaks.

|                                    | <u>CASH FLOW SUMMARY</u> |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|------------------------------------|--------------------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
| <u>Program Years</u>               | <u>FY 2023</u>           | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
|                                    | \$0                      | \$0            | \$2,603,833    | \$4,488,230    | \$42,775,187   | \$49,867,251 |                             |
| 2025 Intermediate Main Replacement | \$0                      | \$0            | 1,283,549      | 1,541,899      | 20,364,552     | \$23,190,000 | <b>Debt (Revenue Bonds)</b> |
| 2026 Intermediate Main Replacement | \$0                      | \$0            | \$1,320,284    | \$1,584,614    | 20,774,834     | \$23,679,732 |                             |
| 2027 Intermediate Main Replacement | \$0                      | \$0            | \$0            | \$1,361,717    | \$1,635,801    | \$2,997,518  |                             |

# Water Distribution System

## Intermediate Meter Replacement Program

**PROJECT NUMBER:** 2021-325-100-0

**DSIC Eligible:** No

|   |
|---|
| <b>PHASE:</b><br>Planning   |
| <b>PRIORITY:</b><br>Operating Efficiency, Quality of Service, Organizational Goals  |
| <b>PROJECT DESCRIPTION:</b><br>Replacement of customer meters size 1.5" to 2".  |
| <b>PROJECT JUSTIFICATION:</b><br>Ensure capture of all revenue. As meters age, they typically underestimate the amount of water consumed. |
| <b>RISK(S):</b><br>Failure to replace meters annually could result in lost revenue or violate regulatory requirements.                    |
| <b>IMPACT ON OPERATIONS:</b><br>Increased system reliability, reliability, and improved system management.                                |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
| <b>Annual Allocation</b> | \$143,077      | \$84,308       | \$86,538       | \$87,000       | \$87,000       | \$487,923    |                             |



# Water Distribution System

## Large Diameter Water Main Replacement Program

**PROJECT NUMBER:** 2019-325-103-0, 2019-323-103-1, 2020-325-109-0, 2023-200-101-0, 2024-200-100-0, 2025-200-103-0, 2026-200-100-0, 2027-200-100-0, Unidentified

**DSIC Eligible:** No

**PHASE:**  
Construction / Not Started

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Strategic replacement or rehabilitation of large diameter water mains (16" and larger) and appurtenances to improve system reliability and hydraulics, including internal and external inspections.

**PROJECT JUSTIFICATION:**  
The Authority's water system has approximately 122 miles of large diameter water mains. Maintaining a proactive approach to replacing large mains will ensure that large mains are replaced before the end of their useful life.

**RISK(S):**  
The consequences of failure for larger mains are much greater than for smaller distribution mains, which typically include significant service outages (larger area and longer time frame impacts).

**IMPACT ON OPERATIONS:**  
Increased system reliability and improved system management.

| Program Year   | CASH FLOW SUMMARY |             |              |              |              |               | FUNDING SOURCE(S)    |
|--|-------------------|-------------|--------------|--------------|--------------|---------------|----------------------|
|  | FY 2023           | FY 2024     | FY 2025      | FY 2026      | FY 2027      | Total         | Debt (Revenue Bonds) |
|  | \$2,980,666       | \$4,820,096 | \$23,316,702 | \$38,087,877 | \$33,256,579 | \$102,461,920 |                      |
| 2020 Large Diameter Main Replacement – Four Mile Run | \$801,877         | \$850,000   | \$7,156,250  | \$17,175,000 | \$10,018,750 | \$36,001,877  |                      |
| 2023 Large Diameter Main Replacement                 | \$1,244,067       | \$1,137,890 | \$11,464,181 | \$5,713,861  | \$0          | \$19,560,000  |                      |
| 2024 Large Diameter Main Replacement                 | \$934,721         | \$1,869,443 | \$1,779,098  | \$10,361,857 | \$8,634,881  | \$23,580,000  |                      |
| 2025 Large Diameter Main Replacement                 | \$0               | 962,763     | 1,925,526    | 1,832,471    | 10,672,713   | \$15,393,473  |                      |
| 2026 Large Diameter Main Replacement                 | \$0               | \$0         | \$991,646    | \$1,983,292  | \$1,887,445  | \$4,862,383   |                      |
| 2027 Large Diameter Main Replacement                 | \$0               | \$0         | \$0          | \$1,021,395  | \$2,042,791  | \$3,064,186   |                      |

# Water Distribution System

## Large Meter Replacement Program

**PROJECT NUMBER:** 2023-200-102-0

**DSIC Eligible:** No

|   |
|---|
| <b>PHASE:</b><br>Planning   |
| <b>PRIORITY:</b><br>Regulatory Compliance, Operating Efficiency, Quality of Service   |
| <b>PROJECT DESCRIPTION:</b><br>Annual replacement of water meters larger than 1".   |
| <b>PROJECT JUSTIFICATION:</b><br>Ensure capture of all revenue. As meters age, they typically underestimate the amount of water consumed. |
| <b>RISK(S):</b><br>Failure to replace meters annually could result in lost revenue.   |
| <b>IMPACT ON OPERATIONS:</b><br>Increased system reliability, reliability, and improved system management.                                |

### CASH FLOW SUMMARY

#### FUNDING SOURCE(S)

|                   | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                      |
|-------------------|----------------|----------------|----------------|----------------|----------------|--------------|----------------------|
| Annual Allocation | \$1,557,508    | \$1,341,457    | \$567,308      | \$337,000      | \$337,000      | \$4,140,273  | Debt (Revenue Bonds) |

# Water Distribution System

## Low Pressure Area Remediation

**PROJECT NUMBER:** 2021-325-101-0

**DSIC Eligible:** No

|   |
|---|
| <b>PHASE:</b><br>Planning   |
| <b>PRIORITY:</b><br>Regulatory Compliance, Operating Efficiency, Quality of Service   |
| <b>PROJECT DESCRIPTION:</b><br>Fix chronically low pressure areas by either extending neighboring higher pressure districts into the area, booster pump stations, or household booster pumps. |
| <b>PROJECT JUSTIFICATION:</b><br>This project is in response to the low pressure monitors required by the October 2017 Administrative Order.  |
| <b>RISK(S):</b><br>Customers may experience temporary service outages as a result of the work on this project.  |
| <b>IMPACT ON OPERATIONS:</b><br>Increased system reliability and improved system management.  |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt<br>(Revenue Bonds)  |
| Annual Allocation        | \$0            | \$0            | \$23,278       | \$279,331      | \$1,393,833    | \$1,696,441  |                          |

# Water Distribution System

## Neighborhood Lead Service Line Replacement Program

**PROJECT NUMBER:** 2021-325-109-0

**DSIC Eligible:** Yes

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|--|
| <b>PHASE:</b><br>Planning/Construction   |
| <b>PRIORITY:</b><br>Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact   |
| <b>PROJECT DESCRIPTION:</b><br>Neighborhood Lead Service Line Replacement (LSLR) program to replace all remaining public and private lead service lines within the PWSA water service area. Program will be developed once 2023-2026 Small Diameter Water Main Replacement program is fully planned. |
| <b>PROJECT JUSTIFICATION:</b><br>Comply with PWSA goals in the Lead Infrastructure Plan approved by PUC.   |
| <b>RISK(S):</b><br>Compliance with PWSA goals and regulatory recommendations.  |
| <b>IMPACT ON OPERATIONS:</b><br>Increased operating flexibility and reliability and water quality.   |

| <b>CASH FLOW SUMMARY</b> |                       |                       |                       |                       |                       |                      | <b>FUNDING SOURCE(S)</b> |
|--------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|----------------------|--------------------------|
|                          | <b><u>FY 2023</u></b> | <b><u>FY 2024</u></b> | <b><u>FY 2025</u></b> | <b><u>FY 2026</u></b> | <b><u>FY 2027</u></b> | <b><u>Total</u></b>  |                          |
| <b>Annual Allocation</b> | <b>\$13,582,757</b>   | <b>\$27,792,500</b>   | <b>\$55,585,000</b>   | <b>\$27,792,500</b>   | <b>\$0</b>            | <b>\$124,752,757</b> | <b>ARPA/PEN NVEST</b>    |

# Water Distribution System

## North Side Boundary Adjustments

**PROJECT NUMBER:** 2025-200-104-0

**DSIC Eligible:** No

|   |
|---|
| <b>PHASE:</b><br>Not Started  |
| <b>PRIORITY:</b><br>Operating Efficiency, Quality of Service, Organizational Goals  |
| <b>PROJECT DESCRIPTION:</b><br>Main and valve installation to move some low pressure areas from the McNaugher Pressure District to the Brashears Pressure District.   |
| <b>PROJECT JUSTIFICATION:</b><br>Areas within the McNaugher Pressure District that are near the Brashears Pressure District could have increased pressure by moving the pressure zone boundary through main improvements and valve adjustments. |
| <b>RISK(S):</b><br>Existing services are near or below minimum standards (20 psi).  |
| <b>IMPACT ON OPERATIONS:</b><br>Increased system reliability and improved system management.  |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
| <b>Annual Allocation</b> | \$0            | \$0            | \$79,393       | \$532,780      | \$953,827      | \$1,566,000  |                             |

# Water Distribution System

## Priority LSLR

**PROJECT NUMBER:** 2021-325-107-0

**DSIC Eligible:** No

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| <b>PHASE:</b><br>Construction  |
| <b>PRIORITY:</b><br>Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact |
| <b>PROJECT DESCRIPTION:</b><br>Provide for LSLR at Priority sides including childcare facilities and exceedance locations.       |
| <b>PROJECT JUSTIFICATION:</b><br>Comply with PWSA goals in the Lead Infrastructure Plan approved by PUC.                         |
| <b>RISK(S):</b><br>Failure to replace private lead service lines poses a public health risk.                                     |
| <b>IMPACT ON OPERATIONS:</b><br>Increased operating flexibility and reliability and water quality.                               |

### CASH FLOW SUMMARY

|                          | <u>FY 2023</u>     | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u>       | <u>FUNDING SOURCE(S)</u> |
|--------------------------|--------------------|----------------|----------------|----------------|----------------|--------------------|--------------------------|
| <b>Annual Allocation</b> | <b>\$3,000,000</b> | <b>\$0</b>     | <b>\$0</b>     | <b>\$0</b>     | <b>\$0</b>     | <b>\$3,000,000</b> | <b>PENNVEST</b>          |

# Water Distribution System

## Private Lead Service Line Reimbursement Program

**PROJECT NUMBER:** 2023-200-103-0

**DSIC Eligible:** Yes

|  |
|--|
| <b>PHASE:</b><br>Not Started   |
| <b>PRIORITY:</b><br>Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact         |
| <b>PROJECT DESCRIPTION:</b><br>Reimbursement of private line lead service line costs.  |
| <b>PROJECT JUSTIFICATION:</b><br>Replacing both private and public lead service lines is required to eliminate lead in the water system. |
| <b>RISK(S):</b><br>Failure to replace private lead service lines poses a public health risk.   |
| <b>IMPACT ON OPERATIONS:</b><br>Increased system reliability and improved system management.   |

### CASH FLOW SUMMARY

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
| <b>Annual Allocation</b> | \$400,000      | \$0            | \$0            | \$0            | \$0            | \$400,000    | Debt (Revenue Bonds)     |

# Water Distribution System

## Regulator Valve and Vault Replacement Program

PROJECT NUMBER: 2021-325-102-0, 2023-200-104-0, 2024-200-101-0, 2025-200-105-0, 2026-200-101-0, 2027-325-200-0

DSIC Eligible: No

|   |
|---|
| <b>PHASE:</b><br>Planning   |
| <b>PRIORITY:</b><br>Safety, Operating Efficiency, Quality of Service  |
| <b>PROJECT DESCRIPTION:</b><br>Replacement of pressure zone interconnection vaults including new pressure regulators, flow meters, pressure transmitters, and SCADA communications. |
| <b>PROJECT JUSTIFICATION:</b><br>Existing regulator stations are in need of replacement. This will also aid in identification of non-revenue water.                                 |
| <b>RISK(S):</b><br>Failure to fix could result in failure of the vault.   |
| <b>IMPACT ON OPERATIONS:</b><br>Decreased leakage will result in decrease of pumping energy.  |

| Program Years                              | CASH FLOW SUMMARY |             |             |             |             |              | FUNDING SOURCE(S)    |
|--|-------------------|-------------|-------------|-------------|-------------|--------------|----------------------|
|  | FY 2023           | FY 2024     | FY 2025     | FY 2026     | FY 2027     | Total        |                      |
|  | \$378,494         | \$1,839,361 | \$3,446,739 | \$4,173,180 | \$3,439,080 | \$13,276,854 |                      |
| 2021 Regulator Valve and Vault Replacement | \$233,422         | \$933,717   | 914,265     | \$0         | \$0         | \$2,081,403  | Debt (Revenue Bonds) |
| 2022 Regulator Valve and Vault Replacement | \$89,723          | \$517,050   | \$257,850   | \$292,720   | \$0         | \$1,157,343  |                      |
| 2023 Regulator Valve and Vault Replacement | \$55,349          | \$305,570   | \$1,760,920 | \$878,161   | \$0         | \$3,000,000  |                      |
| 2024 Regulator Valve and Vault Replacement | \$0               | \$83,024    | \$458,355   | \$2,641,379 | \$1,317,241 | \$4,500,000  |                      |
| 2025 Regulator Valve and Vault Replacement | \$0               | \$          | \$55,349    | \$305,570   | \$1,760,920 | \$2,121,839  |                      |
| 2026 Regulator Valve and Vault Replacement | \$0               | \$0         | \$0         | \$55,349    | \$305,570   | \$360,920    |                      |
| 2027 Regulator Valve and Vault Replacement | \$0               | \$0         | \$0         | \$0         | 55,349      | \$55,349     |                      |



# Water Distribution System

## Small Diameter Water Main Replacement Program

**PROJECT NUMBER:** 2020-325-106-0 / 1 / 2, 2021-325-104-0/ 1/ 2, 2022-325-113-0/ 2/ 3, 2023-200-105-0, 2024-200-102-0, 2025-200-106-0, 2026-200-102-0, Unidentified

**DSIC Eligible:** Yes

|   |
|---|
| <b>PHASE:</b><br>Construction / Design / Not Started  |
| <b>PRIORITY:</b><br>Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact  |
| <b>PROJECT DESCRIPTION:</b><br>Strategic replacement of water mains to improve system reliability as well as improve water pressure, maintain water quality, and minimize disturbance to the community. Program will initially focus on replacing existing 4" and 6" unlined cast iron mains and mains with a history of frequent breaks.   |
| <b>PROJECT JUSTIFICATION:</b><br>By maintaining a proactive approach to asset management, efforts can be directed towards remedying assets before their failure, thus saving overall replacement cost. Additionally, projects will be coordinated with other utilities to minimize disturbance to the community and street surface restoration costs. Water quality will also improve by removing tuberculated mains. |
| <b>RISK(S):</b><br>Customers may be subject to service outages.   |
| <b>IMPACT ON OPERATIONS:</b><br>Increased operating flexibility and reliability.  |

| Program Year                | <u>CASH FLOW SUMMARY</u> |                     |                     |                     |                     |                      | <u>FUNDING SOURCE(S)</u>        |
|-----------------------------|--------------------------|---------------------|---------------------|---------------------|---------------------|----------------------|---------------------------------|
|                             | <u>FY 2023</u>           | <u>FY 2024</u>      | <u>FY 2025</u>      | <u>FY 2026</u>      | <u>FY 2027</u>      | <u>Total</u>         |                                 |
|                             | <b>\$83,515,129</b>      | <b>\$75,057,894</b> | <b>\$57,763,375</b> | <b>\$53,807,131</b> | <b>\$89,408,776</b> | <b>\$359,552,305</b> |                                 |
| 2021 Small Main Replacement | \$27,077,320             | \$0                 | \$0                 | \$0                 | \$0                 | \$27,077,320         | Debt (Revenue Bonds) / PENNVEST |
| 2022 Small Main Replacement | \$47,405,571             | \$33,861,122        | \$0                 | \$0                 | \$0                 | \$81,266,693         |                                 |
| 2023 Small Main Replacement | \$7,982,472              | \$26,104,038        | \$8,701,346         | \$0                 | \$0                 | \$42,787,856         |                                 |
| 2024 Small Main Replacement | \$1,049,756              | \$14,287,293        | \$37,846,331        | \$9,461,583         | \$0                 | \$62,644,973         |                                 |
| 2025 Small Main Replacement | \$0                      | \$805,441           | \$10,109,849        | \$26,498,219        | \$6,624,555         | \$44,038,064         |                                 |
| 2026 Small Main Replacement | \$0                      | \$0                 | \$1,105,849         | \$14,431,097        | \$38,033,034        | \$53,569,980         |                                 |
| 2027 Small Main Replacement | \$0                      | \$0                 | \$0                 | \$3,416,232         | \$44,751,187        | \$48,167,419         |                                 |

# Water Distribution System

## Small Meter Replacement Program

**PROJECT NUMBER:** 2023-200-106-0

**DSIC Eligible:** No

|   |
|---|
| <b>PHASE:</b><br>Construction / Not Started   |
| <b>PRIORITY:</b><br>Regulatory Compliance, Operating Efficiency, Quality of Service   |
| <b>PROJECT DESCRIPTION:</b><br>Annual replacement of water meters 1" or less.   |
| <b>PROJECT JUSTIFICATION:</b><br>Ensure capture of all revenue. As meters age, they typically underestimate the amount of water consumed. |
| <b>RISK(S):</b><br>Failure to replace meters annually could result in lost revenue or violate regulatory requirements.                    |
| <b>IMPACT ON OPERATIONS:</b><br>Increased system reliability, reliability, and improved system management.                                |

### CASH FLOW SUMMARY

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
| <b>Annual Allocation</b> | \$1,723,172    | \$1,351,089    | \$480,769      | \$250,000      | \$291,667      | \$4,096,697  | <b>Debt (Revenue Bonds)</b> |

# Water Distribution System

## South Side Slopes Boundary Adjustments

**PROJECT NUMBER:** 2025-200-107-0

**DSIC Eligible:** No

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| <b>PHASE:</b><br>Not Started   |
| <b>PRIORITY:</b><br>Operating Efficiency, Quality of Service, Organizational Goals   |
| <b>PROJECT DESCRIPTION:</b><br>Main and valve adjustments to move the boundary between the Highland No. 2 and Allentown Pressure Districts.  |
| <b>PROJECT JUSTIFICATION:</b><br>Areas within the Highland No. 2 pressure district that are near the Allentown pressure district could have increased pressure by moving the pressure zone boundary through main improvements and valve adjustments. |
| <b>RISK(S):</b><br>Existing services are near or below minimum standards (20 psi).   |
| <b>IMPACT ON OPERATIONS:</b><br>Increased system reliability and improved system management.   |

### CASH FLOW SUMMARY

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
| <b>Annual Allocation</b> | \$0            | \$0            | \$79,393       | \$532,780      | \$953,827      | \$1,566,000  | <b>Debt (Revenue Bonds)</b> |

# Water Distribution System

## Unmetered and Flat Rate Properties

**PROJECT NUMBER:** 2021-325-103-0

**DSIC Eligible:** No

|  |
|--|
| <b>PHASE:</b><br>Planning  |
| <b>PRIORITY:</b><br>Regulatory Compliance, Operating Efficiency, Quality of Service  |
| <b>PROJECT DESCRIPTION:</b><br>Metering unmetered and flat rate properties as required by regulations.   |
| <b>PROJECT JUSTIFICATION:</b><br>Required per the PUC regulations. The impact of not installing meters is the loss of revenue and lack of ability to accurately estimate water loss in the system. |
| <b>RISK(S):</b><br>Failure to comply with PUC regulations and the potential of lost revenue.   |
| <b>IMPACT ON OPERATIONS:</b><br>Increased system reliability, reliability, and improved system management.   |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
| <b>Annual Allocation</b> | \$327,250      | \$635,250      | \$0            | \$0            | \$0            | \$962,500    |                             |

# Water Distribution System

## Urgent Lead Service Line Replacement

**PROJECT NUMBER:** 2021-325-112-0, 2023-200-107-0, 2024-200-103-0, 2025-200-108-0, 2026-200-103-0, 2027-200-102-0

**DSIC Eligible:** Yes

|  |
|--|
| <b>PHASE:</b><br>Not Started   |
| <b>PRIORITY:</b><br>Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact   |
| <b>PROJECT DESCRIPTION:</b><br>This project involves the private side Lead Service Line Replacements (LSLR) associated with operations public side replacements. It includes provisions for some full line replacements when operations requests both sides be completed due to their workload or other factors. |
| <b>PROJECT JUSTIFICATION:</b><br>Compliance with the Lead Infrastructure Plan approved by the PUC. PUC requires termination if a private side lead service line is not replaced the same time the public service line is replaced. Not completing this project would lead to water service terminations.         |
| <b>RISK(S):</b><br>Required to terminate service if property owners do not replace their private side lead service lines after operations replaces a public side service line.   |
| <b>IMPACT ON OPERATIONS:</b><br>Increased operating flexibility and reliability and water quality.   |

| Program Year                              | <u>CASH FLOW SUMMARY</u> |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|---|--------------------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|   | <u>FY 2023</u>           | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                          |
|   | \$1,778,654              | \$1,749,194    | \$1,670,086    | \$1,590,751    | \$1,246,677    | \$8,035,362  |                          |
| 2022 Urgent Lead Service Line Replacement | \$762,720                | \$0            | \$0            | \$0            | \$0            | \$762,720    | DSIC - Water             |
| 2023 Urgent Lead Service Line Replacement | \$1,015,934              | \$721,566      | \$0            | \$0            | \$0            | \$1,737,500  |                          |
| 2024 Urgent Lead Service Line Replacement | \$0                      | \$1,027,628    | \$729,872      | \$0            | \$0            | \$1,757,500  |                          |
| 2025 Urgent Lead Service Line Replacement | \$0                      | \$0            | 940,214        | \$667,786      | \$0            | \$1,578,500  |                          |
| 2026 Urgent Lead Service Line Replacement | \$0                      | \$0            | \$0            | \$922,965      | \$655,535      | \$1,578,500  |                          |
| 2027 Urgent Lead Service Line Replacement | \$0                      | \$0            | \$0            | \$0            | 591,142        | \$591,142    |                          |

# Water Distribution System

## Valve Replacement Program

PROJECT NUMBER: 2021-325-113-0, 2023-200-108-0, 2024-200-104-0, 2025-200-109-0, 2026-200-104-0, 2027-200-103-0

DSIC Eligible: Yes

**PHASE:**  
Construction / Not Started

**PRIORITY:**  
Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**  
Replacement of defective or non-operational valves on transmission and distribution mains throughout the water distribution system, excluding valves replaced during waterline relays.

**PROJECT JUSTIFICATION:**  
Increasing the number of operable valves in the system will reduce the number of valves that would need to be closed during emergency conditions, and therefore the number of customers that may be impacted.

**RISK(S):**  
A larger number of customers may be subject to service outages.

**IMPACT ON OPERATIONS:**  
Increased operating flexibility and reliability.

| Program Year           | <u>CASH FLOW SUMMARY</u> |                    |                    |                    |                    |                     | <u>FUNDING SOURCE(S)</u> |
|------------------------|--------------------------|--------------------|--------------------|--------------------|--------------------|---------------------|--------------------------|
|                        | <u>FY 2023</u>           | <u>FY 2024</u>     | <u>FY 2025</u>     | <u>FY 2026</u>     | <u>FY 2027</u>     | <u>Total</u>        |                          |
|                        | <b>\$2,505,485</b>       | <b>\$2,800,000</b> | <b>\$2,674,359</b> | <b>\$2,800,000</b> | <b>\$2,925,641</b> | <b>\$13,705,485</b> |                          |
| 2021 Valve Replacement | \$150,000                | \$0                | \$0                | \$0                | \$0                | \$150,000           | DSIC - Water             |
| 2022 Valve Replacement | \$722,152                | \$0                | \$0                | \$0                | \$0                | \$722,152           |                          |
| 2023 Valve Replacement | \$1,633,333              | \$1,166,667        | \$0                | \$0                | \$0                | \$2,800,000         |                          |
| 2024 Valve Replacement | \$0                      | \$1,633,333        | \$1,166,667        | \$0                | \$0                | \$2,800,000         |                          |
| 2025 Valve Replacement | \$0                      | \$0                | \$1,507,692        | \$1,292,308        | \$0                | \$2,800,000         |                          |
| 2026 Valve Replacement | \$0                      | \$0                | \$0                | \$1,507,692        | \$1,292,308        | \$2,800,000         |                          |
| 2027 Valve Replacement | \$0                      | \$0                | \$0                | \$0                | \$1,633,333        | \$1,633,333         |                          |

# Water Distribution System

## Water and Wastewater Safety and Security Improvements

**PROJECT NUMBER:** 2022-325-101-0

**DSIC Eligible:** No

|  |
|--|
| <b>PHASE:</b><br>Construction / Not Started  |
| <b>PRIORITY:</b><br>Safety, Operating Efficiency   |
| <b>PROJECT DESCRIPTION:</b><br>Safety and security improvements throughout PWSA facilities.  |
| <b>PROJECT JUSTIFICATION:</b><br>Failure to implement safety and security measures will increase the likelihood of a security breach causing harm to PWSA employees and customers. |
| <b>RISK(S):</b><br>Security breaches.  |
| <b>IMPACT ON OPERATIONS:</b><br>Increased safety and security at all PWSA facilities.  |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <b>Debt (Revenue Bonds)</b> |
| <b>Annual Allocation</b> | \$1,567,547    | \$0            | \$0            | \$0            | \$0            | \$1,567,547  |                             |

# Water Distribution System

## Water and Wastewater Safety and Security Improvements (Pennvest)

**PROJECT NUMBER:** 2023-200-109-0

**DSIC Eligible:** No

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| <b>PHASE:</b><br>Design  |
| <b>PRIORITY:</b><br>Safety, Operating Efficiency   |
| <b>PROJECT DESCRIPTION:</b><br>Safety and security improvements throughout PWSA facilities.  |
| <b>PROJECT JUSTIFICATION:</b><br>Failure to implement safety and security measures will increase the likelihood of a security breach causing harm to PWSA employees and customers. |
| <b>RISK(S):</b><br>Security breaches.  |
| <b>IMPACT ON OPERATIONS:</b><br>Increased safety and security at all PWSA facilities.  |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                          |
| <b>Annual Allocation</b> | \$9,978,156    | \$0            | \$0            | \$0            | \$0            | \$9,978,156  | PENNVEST                 |



# Water Distribution System

## Water Relay Program

PROJECT NUMBER: 2021-325-110-0, 2023-200-110-0, 2024-200-105-0, 2025-200-110-0, 2026,200-105-0, 2027-200-104-0

DSIC Eligible: Yes

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|--|
| <b>PHASE:</b><br>Construction  |
| <b>PRIORITY:</b><br>Safety, Operating Efficiency, Quality of Service   |
| <b>PROJECT DESCRIPTION:</b><br>Replacement of existing water mains, valves, fittings, service connections, and hydrants due to emergency situations.                           |
| <b>PROJECT JUSTIFICATION:</b><br>The existing water distribution system is aging and updates are required to address failures that could be significant public safety hazards. |
| <b>RISK(S):</b><br>Customers will be subject to service outages or inadequate pressure.  |
| <b>IMPACT ON OPERATIONS:</b><br>Increased operating flexibility and reliability.   |

| Program Year     | <u>CASH FLOW SUMMARY</u> |                    |                    |                    |                    |                     | <u>FUNDING SOURCE(S)</u> |
|------------------|--------------------------|--------------------|--------------------|--------------------|--------------------|---------------------|--------------------------|
|                  | <u>FY 2023</u>           | <u>FY 2024</u>     | <u>FY 2025</u>     | <u>FY 2026</u>     | <u>FY 2027</u>     | <u>Total</u>        | Debt<br>(Revenue Bonds)  |
|                  | <b>\$2,145,000</b>       | <b>\$2,150,000</b> | <b>\$2,712,308</b> | <b>\$3,254,769</b> | <b>\$3,440,141</b> | <b>\$13,702,218</b> |                          |
| 2022 Water Relay | \$1,500,000              | \$0                | \$0                | \$0                | \$0                | \$1,500,000         |                          |
| 2023 Water Relay | \$645,000                | \$1,290,000        | \$0                | \$0                | \$0                | \$1,935,000         |                          |
| 2024 Water Relay | \$0                      | \$860,000          | \$1,720,000        | \$0                | \$0                | \$2,580,000         |                          |
| 2025 Water Relay | \$0                      | \$0                | \$992,308          | \$2,232,692        | \$0                | \$3,225,000         |                          |
| 2026 Water Relay | \$0                      | \$0                | \$0                | \$1,022,077        | \$2,299,673        | \$3,321,750         |                          |
| 2027 Water Relay | \$0                      | \$0                | \$0                | \$0                | \$1,140,468        | \$1,140,468         |                          |

# Water Distribution System

## Water Distribution Contingency

**PROJECT NUMBER:** 2023-200-111-0

**DSIC Eligible:** No

|   |
|---|
| <b>PHASE:</b><br>Not Applicable   |
| <b>PRIORITY:</b><br>Not Applicable  |
| <b>PROJECT DESCRIPTION:</b><br>Water Distribution System contingency pass-through project.        |
| <b>PROJECT JUSTIFICATION:</b><br>Improved efficiency of capital improvement plan fund management. |
| <b>RISK(S):</b><br>No identified risks.   |
| <b>IMPACT ON OPERATIONS:</b><br>Improved efficiency of capital improvement plan management.       |

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
| <b>Annual Allocation</b> | \$0            | \$0            | \$0            | \$0            | \$0            | \$0          |                             |



# Wastewater System



# Wastewater System

## 31st Ward Pump Station and Appurtenances - Phase 2

PROJECT NUMBER: 2022-424-108-0

DSIC Eligible: No

**PHASE:**

Planning

**PRIORITY:**

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,

**PROJECT DESCRIPTION:**

Evaluation to identify and locate the source(s) of the infiltration and inflow (I/I), removal of public I/I sources, and rehabilitation/replacement of the Rogers Street and Mifflin Road Pump Station and force main.

**PROJECT JUSTIFICATION:**

Both sewage pump stations and the force main that convey flow to the Streets Run Sanitary Trunk Sewer were constructed in the late 1940's and are reaching the end of their useful life. Additionally, past studies suggest this sewershed may be significantly impacted by high levels of infiltration/inflow.

**RISK(S):**

Increased combined sewer overflows and pump station system failures.

**IMPACT ON OPERATIONS:**

Increased operating flexibility and reliability.

CASH FLOW SUMMARY

FUNDING SOURCE(S)

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
| <b>Annual Allocation</b> | \$958,333      | \$726,667      | \$613,667      | \$7,447,000    | \$7,447,000    | \$17,192,666 |                             |

# Wastewater System

## 6122 and 6150 Mifflin Road Demolition

PROJECT NUMBER: 2022-424-104-0

DSIC Eligible: No

**PHASE:**

Planning

**PRIORITY:**

Safety, Quality of Service

**PROJECT DESCRIPTION:**

This project associated with 31st Ward Pump Station and Appurtences - Phase 2 - providing for the demolition of 6122 and 6150 Mifflin Road.

**PROJECT JUSTIFICATION:**

This project is essential to the completion of the 31st Ward Pump Station and Appurtences project.

**RISK(S):**

Decreased ability to complete existing projects.

**IMPACT ON OPERATIONS:**

Increased operating flexibility and reliability.

### CASH FLOW SUMMARY

FUNDING SOURCE(S)

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
| <b>Annual Allocation</b> | \$50,000       | \$0            | \$0            | \$0            | \$0            | \$50,000     |                             |

# Wastewater System

## Browns Hill Road Sewer Pump Station Replacement

PROJECT NUMBER: 2022-424-109-0

DSIC Eligible: No

**PHASE:**

Planning

**PRIORITY:**

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,

**PROJECT DESCRIPTION:**

Construction of a replacement 160 GPM sanitary sewer pump station, including standby power, safer ingress and egress for routine maintenance, a water supply for equipment wash down and odor control facilities, if required. Additionally, perform a condition assessment of the 4" force main ( approx. 790 l.f.) constructed in 2007, but not utilized and confirm sanitary sewer separation occurred. Additional sewer separation may need to occur prior to modifying the existing diversion chamber.

**PROJECT JUSTIFICATION:**

The existing sanitary sewer pump station has reached the end of its useful life. The replacement station will provide increased operating efficiency and resiliency and improved safety conditions for staff.

**RISK(S):**

If the station is not replaced, pump or wet well failures could occur, which would result in sanitary sewer overflows. Sanitary sewer overflows could result in fines and notice of violations from regulating agencies.

**IMPACT ON OPERATIONS:**

Increased operating flexibility and reliability.

### CASH FLOW SUMMARY

FUNDING SOURCE(S)

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
| <b>Annual Allocation</b> | \$432,000      | \$1,608,000    | \$1,880,000    | \$0            | \$0            | \$3,920,000  |                             |



# Wastewater System

## Large Diameter Sewer Rehabilitation Program

**PROJECT NUMBER:** 2020-424-101-0, 2020-424-107-0, 2021-424-105-0, 2022-424-110-0, 2024-400-100-0, 2025-400-100-0, 2026-400-100-0, 2027-400-100-0

**DSIC Eligible:** No

**PHASE:**  
Design / Not Started

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,

**PROJECT DESCRIPTION:**  
Proactive, trenchless rehabilitation of 36" diameter or greater sewer mains to restore structural integrity, reduce root intrusion, and reduce infiltration and inflow; including cleaning and pre and post construction CCTV inspections.

**PROJECT JUSTIFICATION:**  
Provides the Authority with a means to address several moderate/major structural defects in pipe segments prior to complete failure. This trenchless pipe renewal method renews the asset, eliminates disruptive excavation, and is more cost effective than replacement.

**RISK(S):**  
If moderate/major structural defects are not proactively addressed, complete failure will eventually occur and excavation will be required. Any complete failure that occurs will result in dramatically increased expenditures for repair.

**IMPACT ON OPERATIONS:**  
Increased operating flexibility and reliability.

| Program Year                             | <u>CASH FLOW SUMMARY</u> |                    |                    |                    |                    |                     | <u>FUNDING SOURCE(S)</u>                 |
|--|--------------------------|--------------------|--------------------|--------------------|--------------------|---------------------|--|
|  | <u>FY 2023</u>           | <u>FY 2024</u>     | <u>FY 2025</u>     | <u>FY 2026</u>     | <u>FY 2027</u>     | <u>Total</u>        |  |
|  | <b>\$12,774,486</b>      | <b>\$2,997,238</b> | <b>\$4,266,000</b> | <b>\$4,897,000</b> | <b>\$4,957,000</b> | <b>\$29,891,724</b> |  |
| 2020 Large Diameter Sewer Rehabilitation | \$623,290                | \$0                | \$0                | \$0                | \$0                | \$623,290           | Debt (Revenue Bonds) / DSIC – Wastewater |
| 2021 Large Diameter Sewer Rehabilitation | \$7,136,911              | \$0                | \$0                | \$0                | \$0                | \$7,136,911         |  |
| 2022 Large Diameter Sewer Rehabilitation | \$4,536,190              | \$522,000          | \$0                | \$0                | \$0                | \$5,058,190         |  |
| 2023 Large Diameter Sewer Rehabilitation | \$478,095                | \$1,935,238        | \$0                | \$0                | \$0                | \$2,413,333         |  |
| 2024 Large Diameter Sewer Rehabilitation | \$0                      | \$540,000          | \$3,706,000        | \$414,000          | \$0                | \$4,660,000         |  |
| 2025 Large Diameter Sewer Rehabilitation | \$0                      | \$0                | \$560,000          | \$3,903,000        | \$437,000          | \$4,900,000         |  |
| 2026 Large Diameter Sewer Rehabilitation | \$0                      | \$0                | \$0                | \$580,000          | \$4,100,000        | \$4,680,000         |  |
| 2027 Large Diameter Sewer Rehabilitation | \$0                      | \$0                | \$0                | \$0                | \$420,000          | \$420,000           |  |

# Wastewater System

## M-29 Outfall Improvements

PROJECT NUMBER: 2018-424-103-0

DSIC Eligible: No

|  |
|--|
| <b>PHASE:</b><br>Construction  |
| <b>PRIORITY:</b><br>Regulatory Compliance, Quality of Service  |
| <b>PROJECT DESCRIPTION:</b><br>Modifying diversion chamber, rehabilitating culvert, constructing an endwall, and installing flapgate associated with the M-29 outfall structure.                             |
| <b>PROJECT JUSTIFICATION:</b><br>The M-29 outfall structure is critical infrastructure that has been in jeopardy of failing for several years due to significant structural defects in the existing culvert. |
| <b>RISK(S):</b><br>Project close-out phase. The M-29 outfall structure could have failed if not addressed through this project.  |
| <b>IMPACT ON OPERATIONS:</b><br>Increased operating flexibility and reliability.   |

### CASH FLOW SUMMARY

### FUNDING SOURCE(S)

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
| <b>Annual Allocation</b> | \$250,000      | \$0            | \$0            | \$0            | \$0            | \$250,000    |                             |



# Wastewater System

## Maytide Storm and Sanitary Sewer System Improvements

PROJECT NUMBER: 2017-424-109-0

DSIC Eligible: No

**PHASE:**

Design

**PRIORITY:**

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,

**PROJECT DESCRIPTION:**

Reconstruction of storm infrastructure from Merritt Avenue to the storm interceptor on Ravilla Avenue and the realignment of the 10" sanitary sewer on Maytide (Sanderson to Valline).

**PROJECT JUSTIFICATION:**

Localized property and street flooding has been well-documented for several years at this location and the undeveloped right-of-way of Sanderson has significantly deteriorated. Additionally, an inspection of the 10" sanitary sewer on Maytide Street revealed structural and construction defects.

**RISK(S):**

Continual degradation to a steep slope could result in property damage and an increased cost to stabilize.

**IMPACT ON OPERATIONS:**

Increased operating reliability.

### CASH FLOW SUMMARY

FUNDING SOURCE(S)

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
| <b>Annual Allocation</b> | \$118,027      | \$4,026,497    | \$1,957,785    | \$0            | \$0            | \$6,102,309  |                             |

# Wastewater System

## Queenston Sewer Improvements

**PROJECT NUMBER:** 2019-424-103-2

**DSIC Eligible:** No

**PHASE:**

Design

**PRIORITY:**

Regulatory Compliance, Safety, Quality of Service

**PROJECT DESCRIPTION:**

Removal of a combined sewer diversion chamber and installation of new sewer infrastructure, which will result in the separation of the sewershed.

**PROJECT JUSTIFICATION:**

The existing sewer infrastructure (both storm and sanitary) have significant structural defects, which are located under a large structure in a paper street over 40 feet deep.

**RISK(S):**

The existing sewer infrastructure (both storm and sanitary) have significant structural defects, which if not mitigated, could result in property damage and increased costs.

**IMPACT ON OPERATIONS:**

Increased operating flexibility and reliability.

### CASH FLOW SUMMARY

**FUNDING SOURCE(S)**

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
| <b>Annual Allocation</b> | \$2,210,550    | \$243,203      | \$0            | \$0            | \$0            | \$2,453,753  | <b>Debt (Revenue Bonds)</b> |

# Wastewater System

## Sewer Reconstruction Program

**PROJECT NUMBER:** 2022-424-100-0, 2023-400-100-0, 2024-400-101-0, 2025-400-101-0, 2026-400-101-0, 2027-400-101-0

**DSIC Eligible:** Yes

**PHASE:**  
Construction / Not Started

**PRIORITY:**  
Regulatory Compliance, Safety, Quality of Service

**PROJECT DESCRIPTION:**  
Reconstruction of existing sewers, manholes, catch basins, and inlets due to emergency situations or pipe failures.

**PROJECT JUSTIFICATION:**  
The existing sewer system is aging and immediate repairs are required.

**RISK(S):**  
The Authority may be subject to related fines due to sewer overflows or for non-compliance as outlined in the Consent Order and Agreement.

**IMPACT ON OPERATIONS:**  
Increased operating flexibility and reliability.

| Program Year              | <u>CASH FLOW SUMMARY</u> |                    |                    |                    |                    |                     | <u>FUNDING SOURCE(S)</u>                 |
|---------------------------|--------------------------|--------------------|--------------------|--------------------|--------------------|---------------------|--|
|                           | <u>FY 2023</u>           | <u>FY 2024</u>     | <u>FY 2025</u>     | <u>FY 2026</u>     | <u>FY 2027</u>     | <u>Total</u>        |  |
|                           | <b>\$2,691,769</b>       | <b>\$1,810,000</b> | <b>\$1,810,000</b> | <b>\$1,886,458</b> | <b>\$2,701,330</b> | <b>\$10,899,557</b> |  |
| 2021 Sewer Reconstruction | \$200,000                | \$0                | \$0                | \$0                | \$0                | \$200,000           | Debt (Revenue Bonds) / DSIC – Wastewater |
| 2022 Sewer Reconstruction | \$1,456,849              | \$0                | \$0                | \$0                | \$0                | \$1,456,849         |  |
| 2023 Sewer Reconstruction | \$1,034,920              | \$775,080          | \$0                | \$0                | \$0                | \$1,810,000         |  |
| 2024 Sewer Reconstruction | \$0                      | \$1,034,920        | \$775,080          | \$0                | \$0                | \$1,810,000         |  |
| 2025 Sewer Reconstruction | \$0                      | \$0                | \$1,034,920        | \$775,080          | \$775,080          | \$2,585,080         |  |
| 2026 Sewer Reconstruction | \$0                      | \$0                | \$0                | \$1,111,378        | \$833,622          | \$1,945,000         |  |
| 2027 Sewer Reconstruction | \$0                      | \$0                | \$0                | \$0                | \$1,092,628        | \$1,092,628         |  |



# Wastewater System

## Small Diameter Sewer Rehabilitation Program

**PROJECT NUMBER:** 2020-424-108-0, 2020-424-106-0 / 1 / 2, 2021-424-101-0 / 1/ 2, 2021-424-108-0/ 1/ 2/ 3, 2024-400-103-0, 2025-400-102-0, 2026-400-103-0, 2027-400-103-0, Unidentified

**DSIC Eligible:** Yes

**PHASE:**  
Design, Construction, Not Started

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,

**PROJECT DESCRIPTION:**  
Proactive, trenchless rehabilitation of sewer mains (36" diameter and less) to restore structural integrity, reduce root intrusion, and reduce infiltration and inflow; including cleaning and pre and post construction CCTV inspections.

**PROJECT JUSTIFICATION:**  
Provides the Authority with a means to address several moderate/major structural defects in pipe segments prior to complete failure. This trenchless pipe renewal method renews the asset, eliminates disruptive excavation, and is more cost effective than replacement.

**RISK(S):**  
If moderate/major structural defects are not proactively addressed, complete failure will eventually occur and excavation will be required. Any complete failure that occurs will result in dramatically increased expenditures for repair.

**IMPACT ON OPERATIONS:**  
Increased operating flexibility and reliability.

| Program<br>Year   | CASH FLOW SUMMARY |              |              |              |              |               | FUNDING<br>SOURCE(S)                     |
|---|-------------------|--------------|--------------|--------------|--------------|---------------|--|
|   | FY 2023           | FY 2024      | FY 2025      | FY 2026      | FY 2027      | Total         |  |
|   | \$24,363,045      | \$17,657,219 | \$14,629,597 | \$27,990,468 | \$36,426,240 | \$121,066,569 |  |
| 2020 Small Diameter Sewer Rehabilitation Contract 2 Defined Sites | \$731,123         | \$0          | \$0          | \$0          | \$0          | \$731,123     | Debt<br>(Revenue<br>Bonds) /<br>PENNVEST |
| 2021 Small Diameter Rehabilitation                                | \$1,928,755       | \$0          | \$0          | \$0          | \$0          | \$642,910     |  |
| 2022 Small Diameter Rehabilitation                                | \$7,469,189       | \$0          | \$0          | \$0          | \$0          | \$7,469,189   |  |
| 2023 Small Diameter Rehabilitation                                | \$11,723,978      | \$5,736,816  | \$0          | \$0          | \$0          | \$17,460,794  |  |
| 2024 Small Diameter Rehabilitation                                | \$2,510,000       | \$11,920,403 | \$9,339,597  | \$0          | \$0          | \$23,770,000  |  |
| 2025 Small Diameter Rehabilitation                                | \$0               | \$0          | \$2,590,000  | \$12,236,474 | \$9,583,526  | \$24,410,000  |  |
| 2026 Small Diameter Rehabilitation                                | \$0               | \$0          | \$2,700,000  | \$12,813,994 | \$10,046,006 | \$25,560,000  |  |
| 2027 Small Diameter Rehabilitation                                | \$0               | \$0          | \$0          | \$2,940,000  | \$13,796,708 | \$16,736,708  |  |
| 2028 Small Diameter Rehabilitation                                | \$0               | \$0          | \$0          | \$0          | \$3,000,000  | \$3,000,000   |  |

# Wastewater System

## Wastewater Contingency

PROJECT NUMBER: 2023-400-102-0

DSIC Eligible: No

**PHASE:**  
Not Applicable

**PRIORITY:**  
Not Applicable

**PROJECT DESCRIPTION:**  
Wastewater contingency pass-through project.

**PROJECT JUSTIFICATION:**  
Improved efficiency of capital improvement plan fund management.

**RISK(S):**  
No identified risks.

**IMPACT ON OPERATIONS:**  
Improved efficiency of capital improvement plan management.

### CASH FLOW SUMMARY

### FUNDING SOURCE(S)

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
| <b>Annual Allocation</b> | \$0            | \$0            | \$0            | \$0            | \$0            | \$0          |                             |





# Stormwater



# Stormwater System

## Braywood Stormwater Improvements

PROJECT NUMBER: 2022-424-105-0

DSIC Eligible: No

**PHASE:**

Design

**PRIORITY:**

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service,

**PROJECT DESCRIPTION:**

Stormwater detention system in the right-of-way in and around Braywood Way to increase stormwater control and mitigate flooding experienced by residents. Infrastructure could include permeable pavement, bioswales, subsurface detention, etc. depending on design determinations. This project is subject to a cost share between the Pittsburgh Water and Sewer Authority and City of Pittsburgh.

**PROJECT JUSTIFICATION:**

There's a low point on Braywood Way that experiences persistent, severe flooding. This system is undersized and deteriorating, keeping up with minor precipitation events but the majority cause flooding.

**RISK(S):**

Risks associated with not completing this project include poor level of service.

**IMPACT ON OPERATIONS:**

This project would decrease the need for persistent catch basin cleaning in this location.

### CASH FLOW SUMMARY

**FUNDING  
SOURCE(S)**

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                                 |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|---------------------------------|
| <b>Annual Allocation</b> | \$434,625      | \$439,375      | \$0            | \$0            | \$0            | \$874,000    | <b>Debt<br/>(Revenue Bonds)</b> |



# Stormwater System

## Bus Rapid Transit Phase 2

PROJECT NUMBER: 2023-500-100-0

DSIC Eligible: No

**PHASE:**

Planning

**PRIORITY:**

Safety, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**

The betterments in phase 2 currently includes the stormwater/green infrastructure (GI) improvements in the Uptown Neighborhood.

**PROJECT JUSTIFICATION:**

The construction of the BRT Project requires that certain facilities owned and/or operated by PWSA be removed, replaced, and/or relocated.

**RISK(S):**

Could result in PWSA being 100% responsible for the removal, replacement, and/or relocation of certain facilities owned and/or operated by PWSA.

**IMPACT ON OPERATIONS:**

Increased operating flexibility and reliability.

### CASH FLOW SUMMARY

FUNDING SOURCE(S)

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
| <b>Annual Allocation</b> | \$0            | \$500,000      | \$500,000      | \$500,000      | \$0            | \$1,500,000  | <b>Debt (Revenue Bonds)</b> |

# Stormwater System

## Bus Rapid Transit Stormwater Infrastructure Improvements

PROJECT NUMBER: 2020-GI-100-0

DSIC Eligible: No

**PHASE:**

Design

**PRIORITY:**

Safety, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**

A cost share with the City of Pittsburgh's Department of Mobility and Infrastructure on the redesign of Forbes Avenue and Fifth Avenue to accommodate bus rapid transit from downtown to Birmingham Bridge. This project will include the installation of permeable paving, underground storage, and bioretention plantings and is tributary to the M-05 and M-19 outfall.

**PROJECT JUSTIFICATION:**

This project will help slow or reduce runoff into the combined sewer system during wet weather events.

**RISK(S):**

Wet weather flow may continue to flow into the combined sewer system prior to the completion of the project, which could cause issues during wet weather events.

**IMPACT ON OPERATIONS:**

Increased system reliability and improved system management.

### CASH FLOW SUMMARY

FUNDING SOURCE(S)

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
| <b>Annual Allocation</b> | \$71,382       | \$785,634      | \$703,638      | \$0            | \$0            | \$1,560,654  | <b>Debt (Revenue Bonds)</b> |

# Stormwater System

## Catch Basin and Inlet Replacement Program

**PROJECT NUMBER:** 2020-424-107-0, 2020-424-106-0/ 1/ 2, 2021-424-107-0, 2022-424-106-0, 2024-500-100-0, 2025-500-100-0, 2026-500-100-0, 2027-500-100-0, Unidentified

**DSIC Eligible:** No

|   |
|---|
| <b>PHASE:</b><br>Construction / Not Started   |
| <b>PRIORITY:</b><br>Regulatory Compliance, Safety, Operating Efficiency, Quality of Service   |
| <b>PROJECT DESCRIPTION:</b><br>Strategic replacement of catch basins and storm inlets throughout the system to replace failed units, stormwater control reliability, and minimize disturbance to the community. |
| <b>PROJECT JUSTIFICATION:</b><br>By maintaining a proactive approach to asset management, efforts can be directed towards remedying assets before their failure, thus saving in overall replacement cost.       |
| <b>RISK(S):</b><br>Overland and street flooding could occur due to a defective or undersized catch basin or storm inlet, creating a public health and safety hazard during wet weather events.                  |
| <b>IMPACT ON OPERATIONS:</b><br>Increased operating reliability.  |

| <u>Program</u><br><u>Year</u>          | <u>CASH FLOW SUMMARY</u> |                |                |                |                |              | <u>FUNDING</u><br><u>SOURCE(S)</u>      |
|--|--------------------------|----------------|----------------|----------------|----------------|--------------|---|
|  | <u>FY 2023</u>           | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |   |
|  | \$11,539,877             | \$16,007,303   | \$14,436,109   | \$14,867,221   | \$15,308,750   | \$72,159,260 | PENNVEST<br>/Debt<br>(Revenue<br>Bonds) |
| 2022 Catch Basin and Inlet Replacement | \$2,803,513              | \$0            | \$0            | \$0            | \$0            | \$2,803,513  |   |
| 2023 Catch Basin and Inlet Replacement | \$8,736,364              | \$4,963,636    | \$0            | \$0            | \$0            | \$13,700,000 |   |
| 2024 Catch Basin and Inlet Replacement | \$0                      | \$11,043,667   | \$3,067,333    | \$0            | \$0            | \$14,111,000 |   |
| 2025 Catch Basin and Inlet Replacement | \$0                      | \$0            | \$11,368,776   | \$3,165,554    | \$0            | \$14,534,330 |   |
| 2026 Catch Basin and Inlet Replacement | \$0                      | \$0            | \$0            | \$11,701,667   | \$3,248,333    | \$14,950,000 |   |
| 2027 Catch Basin and Inlet Replacement | \$0                      | \$0            | \$0            | \$0            | \$12,060,417   | \$12,060,417 |   |

# Stormwater System

## Dragoon Way Stormwater Improvements

**PROJECT NUMBER:** 2020-424-103-0

**DSIC Eligible:** No

**PHASE:**

Design

**PRIORITY:**

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**

This would involve upsizing stormwater infrastructure as well as road paving on Dragoon Way. This project is subject to a cost share between the Pittsburgh Water and Sewer Authority and City of Pittsburgh.

**PROJECT JUSTIFICATION:**

This area experiences significant roadway and property flooding. Runoff flows down Dragoon Way and through multiple Adelphia Street properties, flooding Adelphia Street. PWSA currently owns stormwater infrastructure on Adelphia Street that is undersized and deteriorating.

**RISK(S):**

Risks associated with not completing this project include poor level of service.

**IMPACT ON OPERATIONS:**

Reduced need for catch basin cleaning after significant precipitation events.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt (Revenue Bonds)     |
| Annual Allocation        | \$983,000      | \$95,625       | \$0            | \$0            | \$0            | \$1,078,625  |                          |

# Stormwater System

## Fleury Way Stormwater Infrastructure Improvements

PROJECT NUMBER: 2021-424-102-0

DSIC Eligible: No

**PHASE:**  
Construction

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**  
Construction of storm sewer infrastructure to address persistent and severe street flooding and roadway damage. Project will include installing approximately 500 ft of 18" storm sewers and 4 new catch basins as well as inverting the crown of the road and adding proper curbing for optimal drainage. This project is subject to a cost share between the Pittsburgh Water and Sewer Authority and City of Pittsburgh.

**PROJECT JUSTIFICATION:**  
After field assessment and review, the stormwater group ranked this issue as a "high priority" because of the severity of road degradation and persistent street flooding caused by lack of stormwater infrastructure and improper road design. This issue is located in the A-42 Green First sewershed.

**RISK(S):**  
Continued road degradation and persistent flooding.

**IMPACT ON OPERATIONS:**  
4 additional inlets, operations will need to be added to the cleaning schedule.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
| <b>Annual Allocation</b> | \$476,212      | \$0            | \$0            | \$0            | \$0            | \$476,212    |                             |

# Stormwater System

## Four Mile Run Stormwater Infrastructure Improvements

**PROJECT NUMBER:** 2018-GI-102-0

**DSIC Eligible:** No

**PHASE:**  
Construction

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**  
Sewer separation, stream restoration, stream daylighting, bioretention, and underground storage to remove the existing stream base and wet weather flow currently discharging into the combined sewer located in M-29.

**PROJECT JUSTIFICATION:**  
This project will separate wet weather flow being directly discharged into the Authority's combined sewer system.

**RISK(S):**  
Wet weather flow may continue to flow into the combined sewer system prior to the completion of the project, which could create issues during wet weather events.

**IMPACT ON OPERATIONS:**  
Increased operating flexibility and reliability.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
| <b>Annual Allocation</b> | \$645,557      | \$4,500,108    | \$8,723,924    | \$6,171,203    | \$0            | \$20,040,792 |                             |

# Stormwater System

## Haverhill Street Improvements Project

PROJECT NUMBER: 2022-424-102-0

DSIC Eligible: No

**PHASE:**

Design

**PRIORITY:**

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**

This project will capture and redirect an existing nuisance groundwater seep into retention/slow release subsurface infrastructure, either in the form of a perforated pipe and gravel bed or a retention tank. The project will also involve landslide stabilization to prevent current persistent sediment accumulation in the downstream sewer and green infrastructure as well as associated roadway restoration. This project is subject to a cost share between the Pittsburgh Water and Sewer Authority and City of Pittsburgh.

**PROJECT JUSTIFICATION:**

There is currently an unmanaged groundwater seep flowing down Haverhill Street, flooding properties, depositing significant amounts of sediment into PWSA's sewer system and a PWSA green infrastructure site (Oakwood and Batavia). This project would decrease private property flooding, reduce the amount of sediment entering the sewer system, save PWSA maintenance costs involved with removing sediment from nearby catch basins and green infrastructure and stop continued green infrastructure system degradation caused by this seep.

**RISK(S):**

Risk of persistent depositing of sediment into PWSA's sewer system.

**IMPACT ON OPERATIONS:**

This would decrease maintenance needs for both the green infrastructure maintenance contract as well as the catch basin cleaning contract.

CASH FLOW SUMMARY

FUNDING SOURCE(S)

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
| <b>Annual Allocation</b> | \$1,003,900    | \$104,500      | \$0            | \$0            | \$0            | \$1,108,400  | <b>Debt (Revenue Bonds)</b> |

# Stormwater System

## Lawn and Ophelia

PROJECT NUMBER: 2017-424-104-0

DSIC Eligible: No

**PHASE:**  
Construction

**PRIORITY:**  
Safety, Regulatory Compliance, Organizational Goals

**PROJECT DESCRIPTION:**  
Project is located in the South Oakland neighborhood in the City of Pittsburgh and is a tributary to the M-19B outfall. This project is intended to be a community gathering space combined with stormwater management features.

**PROJECT JUSTIFICATION:**  
It is anticipated that 1.9 impervious acres from neighboring roads and roofs can be managed.

**RISK(S):**  
Risk of service disruption.

**IMPACT ON OPERATIONS:**  
Increased system reliability and improved system management.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt (Revenue Bonds)     |
| Annual Allocation        | \$203,741      | \$0            | \$0            | \$0            | \$0            | \$203,741    |                          |



# Stormwater System

## Martin Luther King Field Stormwater Infrastructure Improvements

PROJECT NUMBER: 2019-GI-104-0

DSIC Eligible: No

**PHASE:**

Design

**PRIORITY:**

Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**

Installation of regenerative bioswale and underground detention facilities to capture and detain impervious acres from the adjacent streets and upstream separate storm sewers, which currently discharges into the combined sewer located in M-19.

**PROJECT JUSTIFICATION:**

This project will help slow or reduce runoff into the combined sewer system during wet weather events.

**RISK(S):**

Wet weather flow may continue to flow into the combined sewer system prior to the completion of the project, which could cause issues during wet weather events.

**IMPACT ON OPERATIONS:**

Increased system reliability and improved system management.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
| <b>Annual Allocation</b> | \$3,096,867    | \$1,324,108    | \$0            | \$0            | \$0            | \$4,420,975  |                             |

# Stormwater System

## Maryland Avenue Stormwater Infrastructure Improvements

**PROJECT NUMBER:** 2017-424-101-0

**DSIC Eligible:** No

**PHASE:**  
Construction

**PRIORITY:**  
Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**  
Permeable paver based GSI project to manage approximately 5.3 acres of impervious acres for 1.5" runoff event.

**PROJECT JUSTIFICATION:**  
The project purpose is to reduce combined sewer overflows at the downstream A-22 outfall while also improving performance of the local combined sewer system that has experienced surcharge and flooding during intense rain events in downstream areas of Shadyside.

**RISK(S):**  
Risk of flooding and service disruption.

**IMPACT ON OPERATIONS:**  
Increased system reliability and improved system management.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                          |
| <b>Annual Allocation</b> | \$6,925        | \$0            | \$0            | \$0            | \$0            | \$6,925      | Debt (Revenue Bonds)     |

# Stormwater System

## MS4 Permit PRP Plan Sediment Reduction Project

PROJECT NUMBER: 2023-500-101-0

DSIC Eligible: No

**PHASE:**  
Not Started

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
Pollutant Reduction Plan (PRP) project to reduce sediment and phosphate levels from entering designated impaired streams per the MS4 permit.

**PROJECT JUSTIFICATION:**  
The MS4 permit requires a reduction of sediment and phosphate loading from baseline levels.

**RISK(S):**  
Failure to meet future regulatory requirements.

**IMPACT ON OPERATIONS:**  
Increased system reliability and improved system management.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | Debt (Revenue Bonds)     |
| Annual Allocation        | \$173,000      | \$605,000      | \$307,500      | \$0            | \$0            | \$1,085,500  |                          |

# Stormwater System

## Saw Mill Run Municipal Separate Storm Sewer System Compliance

**PROJECT NUMBER:** 2025-500-101-0

**DSIC Eligible:** No

**PHASE:**

Planning

**PRIORITY:**

Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**

Identifying and completing projects related to Municipal Separate Storm Sewer System (MS4) compliance.

**PROJECT JUSTIFICATION:**

This project is necessary to become compliant with MS4 regulatory requirements.

**RISK(S):**

The timeline to complete the MS4 compliance projects could take longer than expected.

**IMPACT ON OPERATIONS:**

Increased system reliability and improved system management.

### CASH FLOW SUMMARY

**FUNDING SOURCE(S)**

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
| <b>Annual Allocation</b> | \$0            | \$0            | \$500,000      | \$1,500,000    | \$1,500,000    | \$3,500,000  | <b>Debt (Revenue Bonds)</b> |

# Stormwater System

## Saw Mill Run Watershed Improvements

PROJECT NUMBER: 2020-424-109-0

DSIC Eligible: No

**PHASE:**

Design

**PRIORITY:**

Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**

Implementation of stormwater treatment and reconnection of streams to vegetated floodplains to help mitigate stormwater peak flows and reduce sediment and other pollutant loads. This project will demonstrate the effectiveness of green infrastructure in reducing pollutants, controlling CSO/SSOs, and restoring the health of the aquatic ecosystems in the Saw Mill Run watershed to comply with regulatory obligations.

**PROJECT JUSTIFICATION:**

This project will help to comply with regulatory obligations by reducing pollutants and controlling CSO/SSOs.

**RISK(S):**

It may be difficult to comply with certain regulatory obligations prior to the completion of the project.

**IMPACT ON OPERATIONS:**

Increased system reliability and improved system management.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
| <b>Annual Allocation</b> | \$850,000      | \$150,000      | \$0            | \$0            | \$0            | \$1,000,000  |                             |

# Stormwater System

## Southside Flats Sewer Separation

**PROJECT NUMBER:** 2021-424-106-0

**DSIC Eligible:** No

**PHASE:**

Design

**PRIORITY:**

Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**

Separation of 17 acres of combined sewer through the construction of storm drain along Wharton Street to 18th Street.

**PROJECT JUSTIFICATION:**

This project will help slow or reduce runoff into the combined sewer system during wet weather events.

**RISK(S):**

Community members are concerned about disruptions during construction and potential rooftop disconnect costs.

**IMPACT ON OPERATIONS:**

Increased system reliability and improved system management.

### CASH FLOW SUMMARY

**FUNDING SOURCE(S)**

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
| <b>Annual Allocation</b> | \$3,327,529    | \$2,232,587    | \$0            | \$0            | \$0            | \$5,560,116  | <b>Debt (Revenue Bonds)</b> |

# Stormwater System

## Southside Stormwater Infrastructure Improvements

**PROJECT NUMBER:** 2019-GI-100-0

**DSIC Eligible:** No

**PHASE:**

Design

**PRIORITY:**

Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**

The Southside Green / Stormwater project is located in the M-16 sewershed, which discharges approximately 103MG of CSOs in a typical year as it is defined in the current system model. Additionally, there are 15 known surface streams/seeps within the park that appear to connect into the combined sewer system. The project will focus on stormwater management source control opportunities within Southside Park. The project will look at separating the stormwater runoff from the park and road right-of-way areas. It will connect through a new storm sewer discharge to be built under South 21st Street to the Monongahela River. The project will detain and slowly return the stormwater runoff to the combined sewer system.

**PROJECT JUSTIFICATION:**

This project will help comply with regulatory requirements by reducing CSOs.

**RISK(S):**

It may be difficult to comply with certain regulatory obligations prior to the completion of the project.

**IMPACT ON OPERATIONS:**

Increased system reliability and improved system management.

**CASH FLOW SUMMARY**

**FUNDING SOURCE(S)**

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
| <b>Annual Allocation</b> | \$2,029,140    | \$2,703,667    | \$0            | \$0            | \$0            | \$4,732,807  | <b>Debt (Revenue Bonds)</b> |

# Stormwater System

## Stewart Avenue Stormwater Infrastructure Project

**PROJECT NUMBER:** 2022-424-1010

**DSIC Eligible:** No

**PHASE:**

Design

**PRIORITY:**

Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**

Overland stormwater runoff during larger precipitation events in the Stewart Avenue area contribute to downstream flooding along Saw Mill Run Blvd, flooding of nearby private properties, street flooding, and roadway damage. Catch basins and storm inlets once discharged to an open drainage channel along Stewart Avenue, however this is no longer operational as the road was recently paved and widened, eliminating the channel. Recognizing that the Saw Mill Run stream corridor is overwhelmed during relatively small rainfall events, PWSA desires to evaluate alternatives with an emphasis toward source control measures and other green strategies where peak flows from the Stewart Avenue runoff area can be possibly detained and mitigated. This project is subject to a cost share between the Pittsburgh Water and Sewer Authority and City of Pittsburgh.

**PROJECT JUSTIFICATION:**

This project is necessary to increase stormwater service and control in the area, which is currently lacking adequate stormwater infrastructure.

**RISK(S):**

Failing to complete this project will lead to persistent private property and roadway flooding, chronic depreciation of roadway conditions, and continued worsening flooding and impairment of Saw Mill Run.

**IMPACT ON OPERATIONS:**

Increased system reliability and improved system management.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
| <b>Annual Allocation</b> | \$1,400,000    | \$1,515,389    | \$894,444      | \$0            | \$0            | \$3,809,833  |                             |



# Stormwater System

## Thomas and McPherson Stormwater Infrastructure Improvements

PROJECT NUMBER: 2018-GI-106-0

DSIC Eligible: No

**PHASE:**  
Construction

**PRIORITY:**  
Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**  
Installation of roadside bioretention features to capture and detain impervious road runoff in the North Point Breeze neighborhood of the City of Pittsburgh, which is a tributary to the A-42 combined sewer outfall.

**PROJECT JUSTIFICATION:**  
This project will help slow or reduce runoff into the combined sewer system during wet weather events.

**RISK(S):**  
Wet weather flow may continue to flow into the combined sewer system prior to the completion of the project, which could in issues during wet weather events.

**IMPACT ON OPERATIONS:**  
Increased system reliability and improved system management.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
| <b>Annual Allocation</b> | \$854,905      | \$0            | \$0            | \$0            | \$0            | \$854,905    |                             |

# Stormwater System

## Volunteer's Field Stormwater Infrastructure Improvements

PROJECT NUMBER: 2018-GI-104-0/ 1

DSIC Eligible: No

**PHASE:**  
Construction

**PRIORITY:**  
Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**  
Project is located in the Carrick neighborhood of the City of Pittsburgh and is a tributary to Saw Mill Run. Installation of green infrastructure within the park to reduce sediment and other pollutant loads.

**PROJECT JUSTIFICATION:**  
Required for compliance with the MS4 permit and EPA TMDL requirements. Project will also detain stormwater to reduce downstream flooding in Saw Mill Run.

**RISK(S):**  
It may be difficult to comply with certain regulatory obligations prior to the completion of the project.

**IMPACT ON OPERATIONS:**  
Increased operating flexibility and reliability.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
| <b>Annual Allocation</b> | \$413,125      | \$0            | \$0            | \$0            | \$0            | \$413,125    |                             |

# Stormwater System

## Wet Weather Program Projects

PROJECT NUMBER: 2023-500-102-0

DSIC Eligible: No

**PHASE:**  
Not Started

**PRIORITY:**  
Regulatory Compliance, Safety, Operating Efficiency, Quality of Service, Organizational Goals, Social Impact

**PROJECT DESCRIPTION:**  
This project is for improvements to the sewer system facilities to bring combined sewer overflows into compliance with the negotiated consent decree and to remediate sanitary sewer overflows.

**PROJECT JUSTIFICATION:**  
This project is required to ensure PWSA meets regulatory requirements related to wet weather flow being directly discharged into the PWSA's combined sewer system.

**RISK(S):**  
Failure to meet future regulatory requirements.

**IMPACT ON OPERATIONS:**  
Increased system reliability and improved system management.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
| <b>Annual Allocation</b> | \$500,000      | \$2,500,000    | \$10,000,000   | \$10,000,000   | \$10,000,000   | \$33,000,000 |                             |

# Stormwater System

## Wightman Park Phase 2 Project

PROJECT NUMBER: 2017-424-105-0 / 1

DSIC Eligible: No

**PHASE:**  
Construction

**PRIORITY:**  
Safety, Operating Efficiency, Quality of Service, Social Impact

**PROJECT DESCRIPTION:**  
Project is located in the Squirrel Hill neighborhood of the City of Pittsburgh and is a tributary to the M-29 outfall. Stormwater management within the park itself as well as the necessary piping or inlet work to direct up to 3.25 impervious acres from the adjacent streets into the park. The Wightman Park project along with future street bioswale projects are expected to increase the impervious acres captured as well as alleviate reported sewer basement backups in the neighborhood around Wightman Park.

**PROJECT JUSTIFICATION:**  
2.24 million gallons of stormwater runoff will be managed through this project in a typical year, producing downstream CSO reduction. The project will also improve the performance of adjacent, downstream sewers through peak flow reduction.

**RISK(S):**  
Risk of fines due to sewer overflows or for non-compliance as outlined in the Consent Order and Agreement.

**IMPACT ON OPERATIONS:**  
Increased operating flexibility and reliability.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
| <b>Annual Allocation</b> | \$182,166      | \$0            | \$0            | \$0            | \$0            | \$182,166    |                             |

# Stormwater System

## Woodland Road Stormwater Infrastructure Improvements

PROJECT NUMBER: 2018-GI-108-0

DSIC Eligible: No

**PHASE:**  
Construction

**PRIORITY:**  
Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**  
Bioretention based GSI project to manage approximately 7 acres of impervious acres for 1.5" runoff event. Project location is in A-22 sewershed on the campus of Chatham University adjacent to Woodland Road

**PROJECT JUSTIFICATION:**  
The project purpose is to reduce combined sewer overflows at the downstream A-22 outfall while also improving performance of the local combined sewer system that has experienced surcharge and flooding during intense rain events in downstream areas of Shadyside.

**RISK(S):**  
Risk of service disruption.

**IMPACT ON OPERATIONS:**  
Increased system reliability and improved system management.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
| <b>Annual Allocation</b> | \$245,256      | \$0            | \$0            | \$0            | \$0            | \$245,256    | <b>Debt (Revenue Bonds)</b> |

# Stormwater System

## Woods Run Stream Removal Stormwater Infrastructure Improvements

PROJECT NUMBER: 2017-424-108-0 / 1

DSIC Eligible: No

**PHASE:**  
Construction

**PRIORITY:**  
Safety, Operating Efficiency, Quality of Service

**PROJECT DESCRIPTION:**  
This project will redirect an existing stream inflow location into a detain and slow release subsurface storage facility. The stream base and wet weather flow currently discharge directly into a 36" diameter combined sewer on Mairdale Avenue.

**PROJECT JUSTIFICATION:**  
This project will separate wet weather flow being directly discharged into the PWSA's combined sewer system.

**RISK(S):**  
Wet weather flow may continue to flow into the combined sewer system prior to the completion of the project, which could in issues during wet weather events.

**IMPACT ON OPERATIONS:**  
Increased operating flexibility and reliability.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u>    |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> | <u>Debt (Revenue Bonds)</u> |
| <b>Annual Allocation</b> | \$1,385,725    | \$1,364,127    | \$819,206      | \$0            | \$0            | \$3,569,058  |                             |

# Stormwater System

## Stormwater Contingency

PROJECT NUMBER: 2023-500-103-0

DSIC Eligible: No

**PHASE:**  
Not Applicable

**PRIORITY:**  
Not Applicable

**PROJECT DESCRIPTION:**  
Stormwater contingency pass-through project.

**PROJECT JUSTIFICATION:**  
Improved efficiency of capital improvement plan fund management.

**RISK(S):**  
No identified risks.

**IMPACT ON OPERATIONS:**  
Improved efficiency of capital improvement plan management.

| <u>CASH FLOW SUMMARY</u> |                |                |                |                |                |              | <u>FUNDING SOURCE(S)</u> |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|--------------------------|
|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                          |
| <b>Annual Allocation</b> | \$0            | \$0            | \$0            | \$0            | \$0            | \$0          | Debt (Revenue Bonds)     |



# Miscellaneous





# Miscellaneous

## 2023 Capital Project Reclassification

PROJECT NUMBER: 2023-600-100-0

DSIC Eligible: No

|   |
|---|
| <b>PHASE:</b><br>Not Applicable   |
| <b>PRIORITY:</b><br>Operating Efficiency, Organizational Goals  |
| <b>PROJECT DESCRIPTION:</b><br>Annual capital project reclassification project.   |
| <b>PROJECT JUSTIFICATION:</b><br>This project is required to reclassify operating costs related to urgent water replacements, urgent sewer replacements, and manhole and point repairs. |
| <b>RISK(S):</b><br>Failure to fully capitalize PWSA assets.   |
| <b>IMPACT ON OPERATIONS:</b><br>Increased operating flexibility and reliability.  |

### CASH FLOW SUMMARY

### FUNDING SOURCE(S)

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
| <b>Annual Allocation</b> | \$8,639,316    | \$0            | \$0            | \$0            | \$0            | \$8,639,316  | <b>Debt (Revenue Bonds)</b> |

# Miscellaneous

## New Headquarters and Operations Facility

PROJECT NUMBER: 2023-600-101-0

DSIC Eligible: No

|  |
|--|
| <b>PHASE:</b><br>Planning  |
| <b>PRIORITY:</b><br>Operating Efficiency, Quality of Service, Organizational Goals   |
| <b>PROJECT DESCRIPTION:</b><br>PWSA is searching for an area to build a new headquarters location that would also include a space for the operations division. |
| <b>PROJECT JUSTIFICATION:</b><br>A new location would provide additional space that is needed as a result of increased operations.                             |
| <b>RISK(S):</b><br>Increased operational challenges.   |
| <b>IMPACT ON OPERATIONS:</b><br>Increased operating flexibility and reliability.   |

### CASH FLOW SUMMARY

#### FUNDING SOURCE(S)

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
| <b>Annual Allocation</b> | \$2,500,000    | \$15,000,000   | \$15,000,000   | \$32,500,000   | \$0            | \$50,000,000 | <b>Debt (Revenue Bonds)</b> |

# Miscellaneous

## Utility Cost Shares

**PROJECT NUMBER:** 2023-600-102-0

**DSIC Eligible:** No

|   |
|---|
| <b>PHASE:</b><br>Not Started  |
| <b>PRIORITY:</b><br>Operating Efficiency, Quality of Service, Organizational Goals                    |
| <b>PROJECT DESCRIPTION:</b><br>This project will fund future cost sharing projects.                   |
| <b>PROJECT JUSTIFICATION:</b><br>Cost sharing projects can provide a savings to the Authority.        |
| <b>RISK(S):</b><br>Cost sharing projects have the potential to be delayed due to coordination issues. |
| <b>IMPACT ON OPERATIONS:</b><br>Increased operating flexibility and reliability.                      |

### CASH FLOW SUMMARY

### FUNDING SOURCE(S)

|                          | <u>FY 2023</u>   | <u>FY 2024</u>   | <u>FY 2025</u>   | <u>FY 2026</u>   | <u>FY 2027</u>   | <u>Total</u>       |                             |
|--------------------------|------------------|------------------|------------------|------------------|------------------|--------------------|-----------------------------|
| <b>Annual Allocation</b> | <b>\$300,000</b> | <b>\$500,000</b> | <b>\$500,000</b> | <b>\$500,000</b> | <b>\$500,000</b> | <b>\$2,300,000</b> | <b>Debt (Revenue Bonds)</b> |

# Miscellaneous

## Miscellaneous Contingency

PROJECT NUMBER: 2023-600-103-0

DSIC Eligible: No

|   |
|---|
| <b>PHASE:</b><br>Not Applicable   |
| <b>PRIORITY:</b><br>Not Applicable  |
| <b>PROJECT DESCRIPTION:</b><br>Miscellaneous contingency pass-through project.                    |
| <b>PROJECT JUSTIFICATION:</b><br>Improved efficiency of capital improvement plan fund management. |
| <b>RISK(S):</b><br>No identified risks.   |
| <b>IMPACT ON OPERATIONS:</b><br>Improved efficiency of capital improvement plan management.       |

### CASH FLOW SUMMARY

### FUNDING SOURCE(S)

|                          | <u>FY 2023</u> | <u>FY 2024</u> | <u>FY 2025</u> | <u>FY 2026</u> | <u>FY 2027</u> | <u>Total</u> |                             |
|--------------------------|----------------|----------------|----------------|----------------|----------------|--------------|-----------------------------|
| <b>Annual Allocation</b> | \$0            | \$0            | \$0            | \$0            | \$0            | \$0          | <b>Debt (Revenue Bonds)</b> |



# **The Pittsburgh Water and Sewer Authority**

2023 Operating Budget

Approved on December 16, 2022



## **BOARD OF DIRECTORS**

**Alex Sciulli**, Chairperson

**Erika Strassburger**, Vice Chairperson

**BJ Leber**, Secretary

**Michael L. Domach**, Assistant Secretary/Treasurer

**Dr. Audrey Murrell, Ph.D**, Member

**Rosamaria Cristello**, Member

**Margaret (Peg) McCormick Barron**, Member

## **EXECUTIVE LEADERSHIP**

**William J. Pickering**, Chief Executive Officer

**Jennifer Presutti**, Chief Operating Officer & Chief Financial Officer

**Frank P. Sidari III, PE, BCEE**, Chief Environmental Compliance & Ethics Officer

**Logan Carmichael**, Chief People & Culture Officer

**Lee Haller**, Chief Information & Performance Officer

**Monica Walaan**, Esquire, Chief Legal Officer

## **SENIOR MANAGEMENT TEAM**

**Edward Barca**, Director of Finance

**Kevin Pawlos**, Deputy Director, Finance

**John Nagel**, Manager, Operating Budget

**Julie Mechling**, Director of Customer Services

**Jason Felser**, Director of Information Technology

**Brittany Schacht**, Deputy Director, Customer Service

**Barry King, PE**, Director of Engineering and Construction

**Kate Mechler, PE**, Deputy Director, Engineering and Construction

**Kelly Morgano**, Senior Manager, Human Resources

**Kasey Stewart**, Senior Manager, Safety and Security

**William Bennett**, Senior Manager, Warehouse

**Rebecca Zito**, Senior Manager of Public Affairs

**Kevin Wood**, Senior Manager, Water Quality

**William McFaddin**, Director of Operations

**Joe Tewell**, Deputy Director, Operations

**George Watson**, Deputy Director, Water Production

**Randy Bergia**, Senior Manager, Field Operations

**John McCarthy**, Senior Manager, Field Operations

**Michael Dusch**, Senior Manager, Sewer Operations



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# Budget Summary



The Pittsburgh Water and Sewer Authority Operating Budget  
Budget Summary

|   | <b>2022*</b><br><b><u>Estimate</u></b> | <b>2023</b><br><b><u>Budget</u></b> | <b><u>Difference</u></b> |
|---|--|-------------------------------------|--------------------------|
| <b>Revenues</b>                           |  |                                     |                          |
| User & Wholesale Charges                  | \$ 166,575,108                         | \$ 168,607,574                      | \$ 2,032,466             |
| ALCOSAN Collections                       | 81,565,333                             | 86,558,914                          | 4,993,581                |
| Distribution System Improvement Charge    | 8,292,740                              | 8,430,379                           | 137,639                  |
| Other Miscellaneous & Fee Revenues        | 5,513,803                              | 3,496,157                           | (2,017,646)              |
| Stormwater Charges                        | 13,052,296                             | 21,629,072                          | 8,576,776                |
| Rate Stabilization Fund                   | -                                      | 4,500,000                           | 4,500,000                |
| <b>Total Revenues</b>                     | <b>\$ 274,999,280</b>                  | <b>\$ 293,222,096</b>               | <b>\$ 18,222,816</b>     |
| <b>Expenditures</b>                       |  |                                     |                          |
| Chief Executive Office                    | \$ 2,529,821                           | \$ 2,788,992                        | \$ 259,170               |
| Customer Service                          | 8,466,038                              | 9,214,830                           | 748,792                  |
| Engineering & Construction                | 24,165,828                             | 26,947,790                          | 2,781,962                |
| Environmental Compliance                  | 4,313,065                              | 4,234,203                           | (78,862)                 |
| Finance                                   | 13,421,804                             | 10,119,574                          | (3,302,230)              |
| Human Resources                           | 1,509,450                              | 1,750,666                           | 241,216                  |
| Laboratory                                | 2,452,075                              | 2,400,034                           | (52,041)                 |
| Legal                                     | 3,170,759                              | 4,638,131                           | 1,467,372                |
| Safety & Security                         | 737,760                                | 2,051,186                           | 1,313,426                |
| Management Information Systems            | 8,894,545                              | 6,291,824                           | (2,602,722)              |
| Public Affairs                            | 1,199,439                              | 1,469,848                           | 270,409                  |
| Sewer Operations                          | 2,577,296                              | 3,322,879                           | 745,583                  |
| Warehouse                                 | 654,061                                | 531,048                             | (123,013)                |
| Water Operations                          | 15,203,638                             | 15,929,517                          | 725,879                  |
| Water Treatment Plant                     | 20,515,417                             | 24,047,029                          | 3,531,611                |
| ALCOSAN Expenses                          | 82,083,322                             | 88,325,422                          | 6,242,100                |
| Debt Service                              | 71,273,816                             | 79,523,035                          | 8,249,219                |
| Rate Stabilization Fund                   | 3,000,000                              | -                                   | (3,000,000)              |
| Distribution System Improvement Charge    | 8,292,740                              | 8,430,379                           | 137,639                  |
| <b>Total Expenditures</b>                 | <b>\$ 274,460,878</b>                  | <b>\$ 292,016,386</b>               | <b>\$ 17,555,509</b>     |
| <b>Operating Result</b>                   | <b>\$ 538,402</b>                      | <b>\$ 1,205,710</b>                 | <b>\$ 667,307</b>        |
| <b>Senior Debt Service Coverage Ratio</b> | <b>1.49x</b>                           | <b>1.52x</b>                        |                          |
| <b>Total Debt Service Coverage Ratio</b>  | <b>1.19x</b>                           | <b>1.18x</b>                        |                          |

\*Cash-basis unaudited estimate.



# **2023 Operating Budget Summary**

| GL # | GL Description                       | Laboratory       | Water Treatment Plant | Water Operations  | Sewer Operations | Chief Executive Office | Customer Service | Management Information Systems | Finance          | Human Resources  | Legal          | Safety & Security | Warehouse      | Public Affairs | Engineering & Construction | Environmental Compliance | Total             |
|------|--------------------------------------|------------------|-----------------------|-------------------|------------------|------------------------|------------------|--------------------------------|------------------|------------------|----------------|-------------------|----------------|----------------|----------------------------|--------------------------|-------------------|
| 4001 | Salary & Wages Reg                   | \$ 839,005       | \$ 4,182,789          | \$ 7,225,464      | \$ 1,308,908     | \$ 749,907             | \$ 3,822,451     | \$ 1,605,567                   | \$ 1,280,997     | \$ 869,053       | \$ 630,173     | \$ 606,658        | \$ 312,423     | \$ 512,981     | \$ 3,680,835               | \$ 522,671               | \$ 28,149,882     |
| 4005 | OT Premium Pay                       | 46,336           | 477,692               | 778,783           | 75,105           | -                      | 121,288          | 2,000                          | -                | -                | -              | -                 | 3,336          | 809            | 8,993                      | -                        | 1,514,343         |
| 4010 | Shift Differential                   | -                | 37,005                | 44,042            | 2,220            | -                      | 11,690           | -                              | -                | -                | -              | -                 | 104            | -              | 120                        | -                        | 95,182            |
| 4015 | Semi Skill                           | -                | -                     | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | -                 |
| 4020 | Pay Adjustments                      | -                | -                     | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | -                 |
| 4025 | Bonus                                | -                | -                     | -                 | -                | 44,550                 | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | 44,550            |
| 4030 | Holiday Pay                          | 49,790           | 243,558               | 422,515           | 75,983           | 46,066                 | 221,786          | 91,352                         | 78,270           | 52,982           | 38,273         | 36,590            | 18,397         | 31,298         | 224,055                    | 31,707                   | 1,662,625         |
| 4035 | Vacation Pay                         | 66,004           | 269,431               | 551,344           | 84,861           | 85,620                 | 299,913          | 141,066                        | 134,848          | 89,012           | 55,640         | 51,849            | 25,750         | 54,083         | 375,379                    | 49,870                   | 2,334,672         |
| 4040 | Other                                | -                | -                     | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | -                 |
| 4045 | Sick Pay                             | -                | -                     | 12,000            | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | 12,000            |
| 4050 | Personal Time Pay                    | 49,542           | 210,146               | 327,825           | 57,036           | 56,697                 | 214,818          | 101,896                        | 98,851           | 65,209           | 47,105         | 44,502            | 15,593         | 38,521         | 275,421                    | 39,025                   | 1,642,185         |
| 4055 | Comp Time Taken                      | -                | -                     | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | -                 |
| 4060 | Comp Time Earned                     | -                | -                     | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | -                 |
| 4065 | Jury Duty                            | -                | -                     | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | -                 |
| 4070 | Military Leave                       | -                | -                     | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | -                 |
| 4075 | Supper Pay                           | -                | 3,800                 | 25,000            | 1,200            | -                      | -                | -                              | -                | -                | -              | -                 | 20             | -              | -                          | -                        | 30,020            |
| 4080 | Bereavement                          | -                | -                     | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | -                 |
| 4081 | Paid Parental Leave                  | -                | -                     | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | -                 |
| 4085 | Special                              | -                | -                     | -                 | -                | 24,000                 | -                | -                              | -                | 12,000           | -              | -                 | -              | -              | -                          | -                        | 36,000            |
| 4090 | Admin Leave                          | -                | -                     | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | -                 |
| 4095 | Severance                            | -                | -                     | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | -                 |
|      | <b>Total Wages &amp; Salaries</b>    | <b>1,050,677</b> | <b>5,424,421</b>      | <b>9,386,974</b>  | <b>1,605,314</b> | <b>1,006,840</b>       | <b>4,691,948</b> | <b>1,941,881</b>               | <b>1,592,966</b> | <b>1,088,256</b> | <b>771,190</b> | <b>739,599</b>    | <b>375,624</b> | <b>637,693</b> | <b>4,564,803</b>           | <b>643,273</b>           | <b>35,521,459</b> |
| 4110 | FICA Tax                             | 65,142           | 336,314               | 580,291           | 99,529           | 41,866                 | 289,943          | 119,703                        | 97,806           | 62,992           | 44,078         | 45,855            | 23,289         | 39,487         | 276,700                    | 36,147                   | 2,159,140         |
| 4115 | Medicare                             | 15,235           | 78,654                | 135,937           | 23,277           | 14,599                 | 68,033           | 28,128                         | 23,098           | 15,780           | 11,182         | 10,724            | 5,447          | 9,235          | 66,058                     | 9,327                    | 514,714           |
| 4120 | Fed Unemploy Tax                     | -                | -                     | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | -                 |
| 4125 | State Unemploy Tax                   | -                | -                     | -                 | -                | -                      | -                | -                              | -                | 35,000           | -              | -                 | -              | -              | -                          | -                        | 35,000            |
| 4130 | Workers Comp Ins                     | -                | -                     | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | -                 |
| 4135 | Med Health Ins                       | 186,813          | 1,060,853             | 1,725,480         | 241,804          | 139,860                | 1,109,199        | 324,662                        | 248,321          | 122,542          | 114,258        | 172,193           | 85,727         | 106,422        | 759,878                    | 97,388                   | 6,495,401         |
| 4140 | Med Hlth Ins Waiver                  | 1,500            | 6,250                 | 20,900            | 8,800            | -                      | 7,800            | 3,300                          | 1,400            | 3,400            | -              | 3,150             | -              | -              | 2,900                      | -                        | 59,399            |
| 4145 | Short Term Disability                | 9,663            | 54,349                | 114,436           | 20,537           | 8,688                  | 52,644           | 21,734                         | 18,529           | 11,684           | 4,329          | 5,675             | 4,495          | 8,764          | 50,662                     | 8,034                    | 394,224           |
| 4150 | Long Term Disability                 | 796              | 7,271                 | 18,573            | 2,718            | 1,455                  | 9,167            | 3,127                          | 1,251            | 1,441            | 320            | -                 | 855            | 1,257          | 3,437                      | -                        | 51,670            |
| 4155 | Life Ins <50k                        | 1,792            | 8,768                 | 15,211            | 2,735            | 1,658                  | 7,984            | 3,289                          | 2,803            | 1,378            | 1,302          | 662               | 1,127          | 1,907          | 7,987                      | 1,141                    | 59,744            |
| 4160 | AD&D Ins                             | 239              | 1,169                 | 2,028             | 365              | 221                    | 1,065            | 438                            | 374              | 254              | 184            | 174               | 88             | 150            | 1,065                      | 152                      | 7,966             |
| 4165 | Dental Ins                           | 6,149            | 34,441                | 59,918            | 8,928            | 3,628                  | 33,901           | 10,751                         | 7,302            | 4,413            | 3,886          | 5,687             | 2,464          | 3,238          | 22,735                     | 2,923                    | 210,363           |
| 4170 | Vision Ins                           | 1,290            | 5,842                 | 9,842             | 1,122            | 539                    | 6,773            | 2,053                          | 1,453            | 899              | 629            | 1,053             | 456            | 809            | 3,876                      | 635                      | 30,417            |
| 4180 | Tuition Reimbursement                | -                | 3,000                 | -                 | -                | -                      | 5,250            | 11,525                         | 2,000            | 10,867           | -              | 4,000             | -              | 5,000          | 38,658                     | 10,000                   | 90,300            |
| 4185 | Retirement Benefit                   | 23,144           | 136,385               | 112,801           | 29,783           | 22,322                 | 53,013           | 44,555                         | 48,718           | 48,312           | 41,307         | 44,647            | -              | 18,140         | 199,529                    | 39,343                   | 862,000           |
| 4195 | Miscellaneous Benefits               | -                | -                     | -                 | -                | (1,200)                | (14,880)         | (5,160)                        | (8,340)          | (4,320)          | (2,760)        | -                 | -              | (2,340)        | (14,280)                   | -                        | (53,280)          |
| 4199 | Payroll Upload Exception             | -                | -                     | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | -                 |
|      | <b>Total Employee Benefits</b>       | <b>311,765</b>   | <b>1,730,442</b>      | <b>2,791,415</b>  | <b>439,599</b>   | <b>233,636</b>         | <b>1,629,892</b> | <b>568,105</b>                 | <b>444,715</b>   | <b>315,171</b>   | <b>218,791</b> | <b>294,459</b>    | <b>123,484</b> | <b>191,288</b> | <b>1,419,204</b>           | <b>205,092</b>           | <b>10,917,059</b> |
|      | <b>TOTAL SALARIES &amp; BENEFITS</b> | <b>1,362,442</b> | <b>7,154,863</b>      | <b>12,178,388</b> | <b>2,044,913</b> | <b>1,240,477</b>       | <b>6,321,840</b> | <b>2,509,986</b>               | <b>2,037,681</b> | <b>1,403,427</b> | <b>989,981</b> | <b>1,034,058</b>  | <b>499,108</b> | <b>828,981</b> | <b>5,984,007</b>           | <b>848,366</b>           | <b>46,438,518</b> |
| 5005 | Orthophosphate                       | -                | 379,200               | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | 379,200           |
| 5010 | Boiler Chemicals                     | -                | 33,600                | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | 33,600            |
| 5015 | Calcium Hypochlorite                 | -                | 20,000                | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | 20,000            |
| 5020 | Clarifloc                            | -                | 97,800                | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | 97,800            |
| 5025 | Caustic Soda                         | -                | 2,400                 | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | 2,400             |
| 5030 | Sodium Bisulfite                     | -                | 5,000                 | 80,000            | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | 85,000            |
| 5035 | Sodium Permanganate                  | -                | 850,000               | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | 850,000           |
| 5040 | Citric Acid                          | -                | 8,000                 | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | 8,000             |
| 5045 | Copper Sulphate                      | -                | -                     | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | -                 |
| 5050 | Ferric Chloride                      | -                | 2,400,000             | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | 2,400,000         |
| 5055 | Hydrofluorosilicic Acid              | -                | 192,000               | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | 192,000           |
| 5060 | Lime                                 | -                | 650,000               | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | 650,000           |
| 5065 | Potassium Permanganate               | -                | -                     | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | -                 |
| 5070 | Powdered Active Carbon               | -                | -                     | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | -                 |
| 5075 | Soda Ash                             | -                | 529,800               | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | 529,800           |
| 5080 | Sodium Hypochlorite                  | -                | 800,400               | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | 800,400           |
| 5085 | Sodium Carbonate                     | -                | 18,000                | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | 18,000            |
|      | Peroxyhydrate                        | -                | -                     | -                 | -                | -                      | -                | -                              | -                | -                | -              | -                 | -              | -              | -                          | -                        | -                 |
|      | <b>Chemicals</b>                     | <b>-</b>         | <b>5,986,200</b>      | <b>80,000</b>     | <b>-</b>         | <b>-</b>               | <b>-</b>         | <b>-</b>                       | <b>-</b>         | <b>-</b>         | <b>-</b>       | <b>-</b>          | <b>-</b>       | <b>-</b>       | <b>-</b>                   | <b>-</b>                 | <b>6,066,200</b>  |

| GL # | GL Description                    | Laboratory | Water Treatment Plant | Water Operations | Sewer Operations | Chief Executive Office | Customer Service | Management Information Systems | Finance   | Human Resources | Legal | Safety & Security | Warehouse | Public Affairs | Engineering & Construction | Environmental Compliance | Total      |
|------|-----------------------------------|------------|-----------------------|------------------|------------------|------------------------|------------------|--------------------------------|-----------|-----------------|-------|-------------------|-----------|----------------|----------------------------|--------------------------|------------|
| 5120 | Computer & Peripherals            | -          | -                     | -                | -                | -                      | -                | 272,737                        | -         | -               | -     | -                 | -         | -              | 1,500                      | -                        | 274,237    |
| 5125 | Computers & Networking            | -          | 175,859               | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 175,859    |
| 5140 | Fixtures & Furniture              | -          | -                     | -                | -                | -                      | -                | 3,107                          | -         | 500             | -     | 4,000             | 900       | 4,000          | -                          | 11,000                   | 23,507     |
| 5145 | Grounds & Maintenance             | -          | 12,000                | 67,000           | -                | -                      | -                | 28,000                         | -         | -               | -     | 53,250            | 5,000     | 150,000        | -                          | 45,500                   | 360,750    |
| 5147 | Lab Equipment                     | 100,000    | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 100,000    |
| 5150 | Machinery & Equipment             | -          | 321,000               | -                | 12,000           | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 333,000    |
| 5160 | Office Equipment                  | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |
| 5170 | Pumps & Motors                    | -          | 64,000                | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 64,000     |
| 5180 | SCADA Equipment                   | -          | 282,682               | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 282,682    |
| 5190 | Vehicles                          | -          | -                     | -                | -                | -                      | -                | -                              | 2,411,093 | -               | -     | -                 | -         | -              | -                          | -                        | 2,411,093  |
|      | Equipment                         | 100,000    | 855,541               | 67,000           | 12,000           | -                      | -                | 303,843                        | 2,411,093 | 500             | -     | 57,250            | 5,900     | 154,000        | 1,500                      | 56,500                   | 4,025,128  |
| 5205 | Asphalt Cold Patch                | -          | -                     | 90,000           | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 90,000     |
| 5220 | Asphalt Hotmix                    | -          | -                     | 24,000           | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 24,000     |
| 5227 | Brick                             | -          | -                     | 1,200            | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 1,200      |
| 5230 | Cement Bagged                     | -          | -                     | 2,400            | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 2,400      |
| 5235 | Gravel                            | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |
| 5240 | Iron Steel Brass                  | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |
| 5245 | Lumber                            | -          | -                     | 36,000           | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 36,000     |
| 5250 | Sand                              | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |
| 5255 | Aggregate Material                | -          | -                     | 432,000          | 108,000          | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 540,000    |
| 5260 | Stone                             | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |
| 5265 | Top Soil                          | -          | -                     | 4,800            | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 4,800      |
|      | Materials                         | -          | -                     | 590,400          | 108,000          | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 698,400    |
| 5305 | Sewer Line Contract               | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | 8,540,715                  | -                        | 8,540,715  |
| 5315 | Catch Basin Cleaning              | -          | -                     | -                | 550,000          | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 550,000    |
| 5316 | Catch Basin Repair                | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |
| 5328 | Curb Box Repair                   | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |
| 5330 | Debris Removal                    | -          | -                     | 263,300          | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 263,300    |
| 5335 | Flow Monitoring                   | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | 736,200                  | 736,200    |
| 5340 | Dumpster                          | -          | 6,000                 | 16,800           | 2,400            | -                      | -                | -                              | -         | -               | -     | -                 | 3,000     | -              | -                          | -                        | 28,200     |
| 5341 | Vector Debris Removal Contract    | -          | -                     | -                | 220,000          | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 220,000    |
| 5342 | Water Line Contract               | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | 4,563,124                  | -                        | 4,563,124  |
| 5343 | Manhole & Point Repair Contract   | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | 1,500,000                  | -                        | 1,500,000  |
| 5344 | Pump & Motor Contract             | -          | 600,000               | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 600,000    |
| 5345 | Miscellaneous Inspection          | -          | 5,000                 | -                | -                | -                      | -                | -                              | -         | -               | -     | 2,500             | -         | -              | -                          | 60,000                   | 67,500     |
| 5347 | Engineering Inspection            | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |
| 5348 | Line Televising                   | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | 2,751,165                  | -                        | 2,751,165  |
| 5350 | Key & Lock Services               | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | 720,750                  | 720,750    |
| 5355 | Landscape & Grounds               | -          | 180,000               | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | 152,756                    | -                        | 332,756    |
| 5360 | Flagging                          | -          | -                     | 199,992          | 49,998           | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 249,990    |
| 5370 | Miscellaneous Operating Contracts | -          | 800,000               | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | 488,908                    | -                        | 1,288,908  |
| 5375 | Security Guards                   | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | 651,399           | -         | -              | -                          | -                        | 651,399    |
| 5380 | Line Locating                     | -          | -                     | 445,008          | 111,252          | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 556,260    |
| 5383 | Sewage Treatment                  | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |
| 5385 | Temporary Help                    | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |
| 5390 | Welding                           | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |
|      | Operating Contracts               | -          | 1,591,000             | 925,100          | 933,650          | -                      | -                | -                              | -         | -               | -     | 653,899           | 3,000     | -              | 17,996,668                 | 1,516,950                | 23,620,267 |
| 5402 | Annual Software Support           | 61,586     | 52,845                | 56,974           | -                | -                      | 237,473          | 2,464,157                      | 326,566   | 970             | -     | 63,529            | -         | 91,572         | 373,762                    | 78,375                   | 3,807,809  |
| 5405 | Building & Property Repairs       | -          | 12,000                | 8,500            | 1,200            | -                      | -                | 2,727                          | -         | -               | -     | 6,000             | 2,400     | -              | -                          | -                        | 32,827     |
| 5408 | Computer Hardware Maintenance     | -          | -                     | -                | -                | -                      | -                | 23,913                         | -         | 4,041           | -     | 43,195            | -         | -              | -                          | -                        | 71,149     |
| 5411 | Computer Software Support         | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | 49,900            | -         | -              | -                          | -                        | 49,900     |
| 5413 | Surface Restoration               | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | 7,392,784                  | -                        | 7,392,784  |
| 5415 | Crane Repairs                     | -          | 87,000                | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | 3,000     | -              | -                          | -                        | 90,000     |
| 5417 | Electrical Repairs                | -          | 144,000               | 1,200            | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 145,200    |
| 5420 | Fence Repairs                     | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |

| GL # | GL Description                      | Laboratory | Water Treatment Plant | Water Operations | Sewer Operations | Chief Executive Office | Customer Service | Management Information Systems | Finance   | Human Resources | Legal | Safety & Security | Warehouse | Public Affairs | Engineering & Construction | Environmental Compliance | Total      |         |
|------|-------------------------------------|------------|-----------------------|------------------|------------------|------------------------|------------------|--------------------------------|-----------|-----------------|-------|-------------------|-----------|----------------|----------------------------|--------------------------|------------|---------|
| 5422 | Chemical Removal                    | 4,000      | 145,000               | 18,000           | -                | -                      | -                | -                              | -         | -               | -     | -                 | 2,000     | -              | -                          | -                        | 169,000    |         |
| 5427 | GIS Hardware & Software Maintenance | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | 4,980                      | -                        | 4,980      |         |
| 5432 | Hardware Repairs                    | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |         |
| 5437 | Heavy Equipment Repairs             | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |         |
| 5439 | HVAC & Plumbing Repairs             | -          | 93,000                | 2,400            | 2,400            | -                      | -                | -                              | -         | -               | -     | -                 | 2,400     | -              | -                          | -                        | 100,200    |         |
| 5452 | Machinery Repairs                   | 128,112    | 173,000               | 13,954           | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | 7,002                      | -                        | 322,068    |         |
| 5457 | Office Equipment Repairs            | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |         |
| 5462 | Plant Repairs                       | -          | 521,500               | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 521,500    |         |
| 5467 | Power Tool Repairs                  | -          | -                     | 3,000            | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 3,000      |         |
| 5482 | Tool Repairs                        | -          | -                     | 10,000           | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 10,000     |         |
| 5488 | TV Repairs                          | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |         |
| 5490 | Vactor Repairs                      | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |         |
| 5491 | Vehicle Repairs                     | -          | -                     | -                | -                | -                      | -                | -                              | 1,022,999 | -               | -     | -                 | -         | -              | -                          | -                        | 1,022,999  |         |
| 5496 | Miscellaneous Repair & Maintenance  | -          | 21,000                | 4,000            | 2,016            | -                      | -                | -                              | -         | -               | -     | 7,455             | 1,000     | -              | -                          | 60,000                   | 95,471     |         |
|      | Repairs & Maintenance               | 193,698    | 1,249,345             | 118,028          | 5,616            | -                      | 237,473          | 2,490,796                      | 1,349,565 | 5,011           | -     | 170,079           | 10,800    | 91,572         | 7,778,527                  | 138,375                  | 13,838,886 |         |
| 5570 | Testing                             | 257,500    | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | 1,000             | -         | -              | -                          | -                        | 56,000     | 314,500 |
|      | Misc. Operating                     | 257,500    | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | 1,000             | -         | -              | -                          | 56,000                   | 314,500    |         |
| 6015 | Casting Manhole & Catch Basin       | -          | -                     | 2,400            | 40,000           | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 42,400     |         |
| 6025 | Casting Risers Lids                 | -          | -                     | 6,000            | 40,000           | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 46,000     |         |
| 6035 | Casting Sewer Inlet                 | -          | -                     | -                | 18,000           | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 18,000     |         |
| 6060 | Casting Water Valve Box             | -          | -                     | 120,000          | 6,000            | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 126,000    |         |
|      | Inventory - Castings                | -          | -                     | 128,400          | 104,000          | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 232,400    |         |
| 6200 | Inventory - Equipment               | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |         |
| 6245 | Materials - Handling                | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |         |
| 6260 | Safety Equipment                    | -          | 1,200                 | 60,000           | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 61,200     |         |
|      | Inventory - Equipment               | -          | 1,200                 | 60,000           | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 61,200     |         |
| 6300 | Inventory-Hardware                  | -          | 6,000                 | 10,000           | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 16,000     |         |
| 6315 | Fittings                            | -          | 22,000                | 155,000          | 9,600            | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 186,600    |         |
| 6320 | Hardware Other                      | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |         |
| 6325 | Hoses & Fittings                    | -          | 360                   | 12,000           | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 12,360     |         |
| 6335 | Lights                              | -          | 3,000                 | 2,400            | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 5,400      |         |
| 6340 | Machinery Miscellaneous             | -          | -                     | 10,000           | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 10,000     |         |
| 6345 | Meters                              | -          | -                     | 12,000           | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 12,000     |         |
| 6350 | Plumbing                            | -          | 2,000                 | 18,000           | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 20,000     |         |
| 6355 | Power Tools                         | -          | -                     | 12,000           | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 12,000     |         |
| 6360 | Tools                               | -          | 9,000                 | 100,000          | 6,000            | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 115,000    |         |
| 6365 | Hand Tools                          | -          | 19,000                | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 19,000     |         |
|      | Inventory - Hardware                | -          | 61,360                | 331,400          | 15,600           | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 408,360    |         |
| 6420 | Backhoe                             | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |         |
|      | Inventory - Heavy Equipment         | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |         |
| 6500 | Inventory-Miscellaneous             | -          | 20,000                | 12,000           | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 32,000     |         |
| 6506 | Batteries                           | -          | -                     | 1,000            | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 1,000      |         |
| 6515 | Cleaning                            | -          | 480                   | 7,800            | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 8,280      |         |
| 6525 | Filters                             | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |         |
| 6530 | First Aid                           | -          | -                     | 1,200            | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 1,200      |         |
| 6540 | Lamps                               | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |         |
| 6544 | Lubricating Oil                     | -          | 720                   | 2,400            | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 3,120      |         |
| 6548 | Paint Oils Putty Glass              | -          | 600                   | 1,200            | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 1,800      |         |
| 6565 | Sewer Material Supplies             | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |         |
| 6570 | Testing Dyes                        | -          | -                     | -                | 6,000            | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 6,000      |         |
| 6580 | Vehicle Oil                         | -          | -                     | 1,200            | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 1,200      |         |
| 6585 | Welding Supplies                    | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | -          |         |
|      | Inventory - Miscellaneous           | -          | 21,800                | 26,800           | 6,000            | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 54,600     |         |
| 6645 | Parts-Other                         | -          | 14,400                | 24,000           | -                | -                      | -                | -                              | -         | -               | -     | -                 | -         | -              | -                          | -                        | 38,400     |         |

| GL # | GL Description                      | Laboratory | Water Treatment Plant | Water Operations | Sewer Operations | Chief Executive Office | Customer Service | Management Information Systems | Finance   | Human Resources | Legal     | Safety & Security | Warehouse | Public Affairs | Engineering & Construction | Environmental Compliance | Total      |
|------|-------------------------------------|------------|-----------------------|------------------|------------------|------------------------|------------------|--------------------------------|-----------|-----------------|-----------|-------------------|-----------|----------------|----------------------------|--------------------------|------------|
| 6680 | Yard                                | -          | -                     | 180,000          | -                | -                      | -                | -                              | -         | -               | -         | -                 | -         | -              | -                          | -                        | 180,000    |
|      | Inventory - Parts                   | -          | 14,400                | 204,000          | -                | -                      | -                | -                              | -         | -               | -         | -                 | -         | -              | -                          | -                        | 218,400    |
| 6705 | Pipe                                | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -         | -                 | -         | -              | -                          | -                        | -          |
| 6710 | Pipe Ductile                        | -          | -                     | 750,000          | -                | -                      | -                | -                              | -         | -               | -         | -                 | -         | -              | -                          | -                        | 750,000    |
| 6755 | Pipe Plastic                        | -          | 1,200                 | 3,300            | -                | -                      | -                | -                              | -         | -               | -         | -                 | -         | -              | -                          | -                        | 4,500      |
| 6765 | Pipe Service Line                   | -          | 1,200                 | 11,000           | -                | -                      | -                | -                              | -         | -               | -         | -                 | -         | -              | -                          | -                        | 12,200     |
|      | Inventory - Pipe                    | -          | 2,400                 | 764,300          | -                | -                      | -                | -                              | -         | -               | -         | -                 | -         | -              | -                          | -                        | 766,700    |
| 6825 | Valves                              | -          | 18,000                | 200,000          | -                | -                      | -                | -                              | -         | -               | -         | -                 | -         | -              | -                          | -                        | 218,000    |
|      | Inventory - Valves                  | -          | 18,000                | 200,000          | -                | -                      | -                | -                              | -         | -               | -         | -                 | -         | -              | -                          | -                        | 218,000    |
|      | INVENTORY TOTAL                     | -          | 119,160               | 1,714,900        | 125,600          | -                      | -                | -                              | -         | -               | -         | -                 | -         | -              | -                          | -                        | 1,959,660  |
|      | DIRECT OPERATING TOTAL              | 1,913,640  | 16,956,109            | 15,673,817       | 3,229,779        | 1,240,477              | 6,559,313        | 5,304,626                      | 5,798,340 | 1,408,938       | 989,981   | 1,916,286         | 518,808   | 1,074,553      | 31,760,702                 | 2,616,191                | 96,961,559 |
| 7003 | Bank Fees                           | -          | -                     | -                | -                | -                      | -                | -                              | 360,000   | -               | -         | -                 | -         | -              | -                          | -                        | 360,000    |
| 7005 | Certification Fees                  | 2,500      | -                     | -                | -                | 70                     | -                | 1,035                          | 10,000    | 3,925           | -         | 1,000             | -         | -              | 4,575                      | 2,800                    | 25,905     |
| 7010 | Membership Fees                     | 625        | -                     | -                | -                | 27,595                 | -                | 6,532                          | 1,900     | 7,145           | 1,700     | 1,300             | -         | 65,624         | 6,405                      | 900                      | 119,726    |
| 7015 | Permits                             | -          | 100                   | -                | -                | -                      | -                | -                              | 475,000   | -               | -         | -                 | -         | -              | -                          | -                        | 550,138    |
| 7020 | Registration Fees                   | -          | -                     | -                | -                | -                      | -                | -                              | -         | 4,000           | -         | -                 | -         | -              | -                          | -                        | 19,750     |
| 7030 | Licenses                            | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | 2,100     | -                 | -         | -              | -                          | -                        | 2,100      |
| 7035 | Customer Credit Card Fees           | -          | -                     | -                | -                | -                      | 470,000          | -                              | -         | -               | -         | -                 | -         | -              | -                          | -                        | 470,000    |
|      | Total Fees                          | 3,125      | 100                   | -                | -                | 27,665                 | 470,000          | 7,567                          | 846,900   | 15,070          | 3,800     | 2,300             | -         | 65,624         | 10,980                     | 94,488                   | 1,547,618  |
| 7110 | Freight                             | 1,200      | 120                   | -                | -                | -                      | -                | -                              | -         | 1,920           | -         | -                 | 240       | -              | -                          | -                        | 3,480      |
| 7115 | Postage                             | -          | -                     | -                | -                | -                      | 444,450          | -                              | -         | -               | -         | -                 | -         | -              | -                          | 300                      | 444,750    |
|      | Total Freight and Postage           | 1,200      | 120                   | -                | -                | -                      | 444,450          | -                              | -         | 1,920           | -         | -                 | 240       | -              | -                          | 300                      | 448,230    |
| 7210 | Copier & Fax Machine Rental         | -          | -                     | -                | -                | -                      | -                | 58,122                         | -         | -               | -         | -                 | -         | -              | -                          | -                        | 58,122     |
| 7215 | Equipment Rental                    | 2,700      | 16,800                | 6,000            | -                | -                      | 1,648            | -                              | -         | -               | -         | -                 | 1,000     | -              | -                          | -                        | 28,148     |
| 7255 | Office Rent                         | -          | -                     | -                | -                | -                      | -                | -                              | 960,530   | -               | -         | -                 | -         | -              | -                          | -                        | 960,530    |
| 7260 | Parking Lease                       | -          | -                     | -                | -                | -                      | -                | -                              | 60,000    | -               | -         | -                 | -         | -              | -                          | -                        | 60,000     |
|      | Total Leases & Rents                | 2,700      | 16,800                | 6,000            | -                | -                      | 1,648            | 58,122                         | 1,020,530 | -               | -         | -                 | 1,000     | -              | -                          | -                        | 1,106,799  |
| 7305 | Advertising                         | -          | -                     | -                | -                | -                      | -                | -                              | 13,200    | 6,540           | 5,000     | -                 | -         | 5,296          | 1,200                      | -                        | 31,236     |
| 7310 | Annual Audit                        | -          | -                     | -                | -                | -                      | -                | -                              | 57,200    | -               | -         | -                 | -         | -              | -                          | -                        | 57,200     |
| 7315 | Billing Contract                    | -          | -                     | -                | -                | -                      | 216,000          | -                              | -         | -               | -         | -                 | -         | -              | -                          | -                        | 216,000    |
| 7321 | Collection Agency                   | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -         | -                 | -         | -              | -                          | -                        | -          |
| 7323 | Consultants                         | -          | 100,000               | -                | -                | 90,000                 | 45,000           | 290,000                        | 970,000   | -               | -         | 90,000            | -         | 235,917        | 4,030,000                  | 779,900                  | 6,630,817  |
| 7325 | Annual Report                       | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -         | -                 | -         | -              | -                          | -                        | -          |
| 7330 | Construction Management             | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -         | -                 | -         | -              | 1,314,587                  | 86,490                   | 1,401,077  |
| 7332 | Consulting Engineers                | -          | -                     | -                | -                | -                      | -                | -                              | 174,000   | -               | -         | -                 | -         | -              | -                          | -                        | 174,000    |
| 7335 | Non Capital Engineering Services    | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -         | -                 | -         | 337,500        | -                          | -                        | 337,500    |
| 7345 | Insurance Auto                      | -          | -                     | -                | -                | -                      | -                | -                              | 74,983    | -               | -         | -                 | -         | -              | -                          | -                        | 74,983     |
| 7348 | Insurance Commercial Property       | -          | -                     | -                | -                | -                      | -                | -                              | 329,083   | -               | -         | -                 | -         | -              | -                          | -                        | 329,083    |
| 7353 | Insurance General Liability         | -          | -                     | -                | -                | -                      | -                | -                              | 83,413    | -               | -         | -                 | -         | -              | -                          | -                        | 83,413     |
| 7359 | Insurance Officer & Director        | -          | -                     | -                | -                | -                      | -                | -                              | 152,197   | -               | -         | -                 | -         | -              | -                          | -                        | 152,197    |
| 7365 | Insurance Workers Compensation      | -          | -                     | -                | -                | -                      | -                | -                              | 447,152   | -               | -         | -                 | -         | -              | -                          | -                        | 447,152    |
| 7366 | Insurance Workers Compensation City | -          | -                     | -                | -                | -                      | -                | -                              | 12,406    | -               | -         | -                 | -         | -              | -                          | -                        | 12,406     |
| 7368 | Insurance Cyber                     | -          | -                     | -                | -                | -                      | -                | -                              | -         | -               | -         | -                 | -         | -              | -                          | -                        | -          |
| 7370 | Legal Services                      | -          | -                     | -                | -                | 92,700                 | -                | -                              | 15,000    | -               | 2,865,750 | -                 | -         | -              | -                          | -                        | 2,973,450  |
| 7375 | Meter Services                      | -          | -                     | -                | -                | -                      | 753,913          | -                              | -         | -               | -         | -                 | -         | -              | -                          | -                        | 753,913    |
| 7382 | Payroll Services                    | -          | -                     | -                | -                | -                      | -                | -                              | -         | 169,397         | -         | -                 | -         | -              | -                          | -                        | 169,397    |
| 7383 | Miscellaneous Professional Services | 353,519    | 100,000               | 16,000           | 20,000           | 1,300,950              | 451,856          | 378,258                        | 282,704   | 96,402          | -         | -                 | -         | 1,320          | -                          | 633,750                  | 3,634,759  |
| 7389 | Trust Administration                | -          | -                     | -                | -                | -                      | -                | -                              | 85,000    | -               | -         | -                 | -         | -              | -                          | -                        | 85,000     |
| 7390 | Water Liens                         | -          | -                     | -                | -                | -                      | 80,000           | -                              | -         | -               | -         | -                 | -         | -              | -                          | -                        | 80,000     |
|      | Total Professional Services         | 353,519    | 200,000               | 16,000           | 20,000           | 1,483,650              | 1,546,769        | 668,258                        | 2,696,337 | 272,338         | 2,870,750 | 90,000            | -         | 242,533        | 5,683,287                  | 1,500,140                | 17,643,582 |
| 7405 | Computer Software Supplies          | -          | -                     | -                | -                | -                      | -                | 50,000                         | -         | -               | -         | -                 | -         | -              | -                          | -                        | 50,000     |
| 7422 | Fuel & Gasses                       | 10,000     | 30,000                | -                | -                | -                      | -                | -                              | 504,000   | -               | -         | -                 | -         | -              | -                          | -                        | 544,000    |

| GL #               | GL Description                               | Laboratory          | Water Treatment Plant | Water Operations     | Sewer Operations    | Chief Executive Office | Customer Service    | Management Information Systems | Finance              | Human Resources     | Legal               | Safety & Security   | Warehouse         | Public Affairs      | Engineering & Construction | Environmental Compliance | Total                 |
|--------------------|--|---------------------|-----------------------|----------------------|---------------------|------------------------|---------------------|--------------------------------|----------------------|---------------------|---------------------|---------------------|-------------------|---------------------|----------------------------|--------------------------|-----------------------|
| 7423               | Fuel Kerosene                                | -                   | 1,200                 | -                    | -                   | -                      | -                   | -                              | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | 1,200                 |
| 7424               | Fuel Propane                                 | -                   | 1,800                 | -                    | -                   | -                      | -                   | -                              | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | 1,800                 |
| 7435               | Uniforms                                     | 2,700               | 46,900                | 71,700               | 36,500              | -                      | 600                 | -                              | -                    | 600                 | -                   | 3,000               | 6,050             | -                   | 3,600                      | 1,620                    | 173,270               |
| 7440               | Grounds & Maintenance Supplies               | -                   | 220,000               | 110,000              | 25,000              | -                      | -                   | -                              | -                    | -                   | -                   | 27,000              | 1,200             | -                   | 9,000                      | 6,600                    | 398,800               |
| 7445               | Lab Chemicals                                | 6,000               | -                     | -                    | -                   | -                      | -                   | -                              | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | 6,000                 |
| 7447               | Lab Supplies                                 | 100,000             | -                     | -                    | -                   | -                      | -                   | -                              | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | 100,000               |
| 7450               | Office Supplies                              | 750                 | 6,000                 | 7,000                | 3,600               | 600                    | 2,400               | 9,000                          | 1,800                | 2,000               | 2,000               | 1,100               | 1,200             | 2,400               | 2,401                      | 3,500                    | 45,751                |
| 7490               | Welding Supplies                             | -                   | 18,000                | -                    | -                   | -                      | -                   | -                              | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | 18,000                |
|                    | <b>Total Supplies</b>                        | <b>119,450</b>      | <b>323,900</b>        | <b>188,700</b>       | <b>65,100</b>       | <b>600</b>             | <b>3,000</b>        | <b>59,000</b>                  | <b>505,800</b>       | <b>2,600</b>        | <b>2,000</b>        | <b>31,100</b>       | <b>8,450</b>      | <b>2,400</b>        | <b>15,001</b>              | <b>11,720</b>            | <b>1,338,821</b>      |
| 7505               | Travel & Training Airfare                    | -                   | -                     | -                    | -                   | -                      | 1,500               | -                              | -                    | -                   | -                   | -                   | -                 | 3,000               | -                          | -                        | 4,500                 |
| 7510               | Travel & Training Auto                       | -                   | -                     | -                    | -                   | -                      | 150                 | -                              | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | 150                   |
| 7520               | Travel & Training Fuel                       | -                   | -                     | -                    | -                   | -                      | -                   | -                              | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | -                     |
| 7540               | Travel & Training Lodging                    | 1,600               | -                     | -                    | -                   | -                      | 1,500               | -                              | -                    | -                   | -                   | -                   | 1,000             | 6,000               | -                          | 1,600                    | 11,700                |
| 7545               | Travel & Training Meals                      | -                   | -                     | -                    | -                   | -                      | -                   | -                              | 400                  | -                   | -                   | -                   | 600               | -                   | -                          | -                        | 1,000                 |
| 7550               | Travel & Training Mileage                    | -                   | -                     | -                    | -                   | -                      | -                   | -                              | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | -                     |
| 7555               | Travel & Training Seminars & Conferences     | 1,800               | 9,000                 | 4,000                | -                   | 16,000                 | -                   | 3,000                          | -                    | 2,500               | 3,000               | 2,000               | 500               | 3,000               | 17,500                     | 1,765                    | 64,065                |
| 7560               | Travel & Training                            | 3,000               | 30,000                | 23,000               | 8,000               | 20,000                 | 4,100               | 5,400                          | -                    | 41,100              | 8,000               | 9,500               | -                 | 6,900               | -                          | 7,000                    | 166,000               |
| 7575               | Travel & Training Miscellaneous              | -                   | 3,000                 | -                    | -                   | -                      | -                   | -                              | 2,600                | 1,500               | 8,200               | -                   | 450               | -                   | 1,865                      | -                        | 17,615                |
|                    | <b>Total Travel &amp; Training</b>           | <b>6,400</b>        | <b>42,000</b>         | <b>27,000</b>        | <b>8,000</b>        | <b>36,000</b>          | <b>7,250</b>        | <b>8,400</b>                   | <b>3,000</b>         | <b>45,100</b>       | <b>19,200</b>       | <b>11,500</b>       | <b>2,550</b>      | <b>18,900</b>       | <b>19,365</b>              | <b>10,365</b>            | <b>265,030</b>        |
| 7605               | Electric                                     | -                   | 6,000,000             | -                    | -                   | -                      | -                   | -                              | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | 6,000,000             |
| 7650               | Natural Gas                                  | -                   | 360,000               | -                    | -                   | -                      | -                   | -                              | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | 360,000               |
| 7675               | SCADA Connectivity                           | -                   | 240,000               | -                    | -                   | -                      | -                   | -                              | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | 240,000               |
| 7680               | Cellular Phone                               | -                   | -                     | -                    | -                   | -                      | -                   | 213,264                        | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | 213,264               |
| 7681               | Local Phones                                 | -                   | -                     | -                    | -                   | -                      | -                   | 171,600                        | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | 171,600               |
| 7682               | Long Distance                                | -                   | -                     | -                    | -                   | -                      | -                   | -                              | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | -                     |
| 7683               | Internet                                     | -                   | -                     | -                    | -                   | -                      | -                   | 50,987                         | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | 50,987                |
|                    | <b>Total Utilities</b>                       | <b>-</b>            | <b>6,600,000</b>      | <b>-</b>             | <b>-</b>            | <b>-</b>               | <b>-</b>            | <b>435,851</b>                 | <b>-</b>             | <b>-</b>            | <b>-</b>            | <b>-</b>            | <b>-</b>          | <b>-</b>            | <b>-</b>                   | <b>-</b>                 | <b>7,035,851</b>      |
| 7705               | Bad Debt                                     | -                   | -                     | -                    | -                   | -                      | -                   | -                              | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | -                     |
| 7710               | Capital Asset Reclss                         | -                   | (92,000)              | -                    | -                   | -                      | -                   | (250,000)                      | (2,411,093)          | -                   | -                   | -                   | -                 | -                   | (10,541,546)               | -                        | (13,294,639)          |
| 7712               | Cash Discount Taken                          | -                   | -                     | -                    | -                   | -                      | -                   | -                              | (2,400)              | -                   | -                   | -                   | -                 | -                   | -                          | -                        | (2,400)               |
| 7715               | Claims                                       | -                   | -                     | -                    | -                   | -                      | -                   | -                              | -                    | -                   | 750,000             | -                   | -                 | -                   | -                          | -                        | 750,000               |
| 7720               | Customer Refund CSM                          | -                   | -                     | -                    | -                   | -                      | (500,000)           | -                              | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | (500,000)             |
| 7721               | Customer Refund AP                           | -                   | -                     | -                    | -                   | -                      | 500,000             | -                              | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | 500,000               |
| 7730               | Fines & Penalties                            | -                   | -                     | 18,000               | -                   | -                      | -                   | -                              | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | 18,000                |
| 7742               | Education & Outreach                         | -                   | -                     | -                    | -                   | -                      | 5,000               | -                              | -                    | 3,500               | -                   | -                   | -                 | 61,200              | -                          | 1,000                    | 70,700                |
| 7750               | Inventory Adjustments                        | -                   | -                     | -                    | -                   | -                      | -                   | -                              | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | -                     |
| 7760               | Miscellaneous General Administrative Expense | -                   | -                     | -                    | -                   | -                      | -                   | -                              | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | -                     |
| 7765               | One Call                                     | -                   | -                     | -                    | -                   | -                      | 24,000              | -                              | -                    | -                   | -                   | -                   | -                 | -                   | -                          | -                        | 24,000                |
| 7770               | Publication & Subscription                   | -                   | -                     | -                    | -                   | 600                    | 3,600               | -                              | 9,000                | 1,200               | 2,400               | -                   | -                 | 4,638               | -                          | -                        | 21,438                |
|                    | <b>Total Miscellaneous Admin</b>             | <b>-</b>            | <b>(92,000)</b>       | <b>18,000</b>        | <b>-</b>            | <b>600</b>             | <b>32,600</b>       | <b>(250,000)</b>               | <b>(2,404,493)</b>   | <b>4,700</b>        | <b>752,400</b>      | <b>-</b>            | <b>-</b>          | <b>65,838</b>       | <b>(10,541,546)</b>        | <b>1,000</b>             | <b>(12,412,901)</b>   |
|                    | <b>TOTAL ADMINISTRATIVE</b>                  | <b>486,394</b>      | <b>7,090,920</b>      | <b>255,700</b>       | <b>93,100</b>       | <b>1,548,515</b>       | <b>2,505,717</b>    | <b>987,198</b>                 | <b>2,668,073</b>     | <b>341,728</b>      | <b>3,648,150</b>    | <b>134,900</b>      | <b>12,240</b>     | <b>395,295</b>      | <b>(4,812,912)</b>         | <b>1,618,013</b>         | <b>16,973,031</b>     |
| 8005               | City Costs                                   | -                   | -                     | -                    | -                   | -                      | -                   | -                              | 1,632,500            | -                   | -                   | -                   | -                 | -                   | -                          | -                        | 1,632,500             |
| 8180               | Non City Water                               | -                   | -                     | -                    | -                   | -                      | 149,800             | -                              | 20,661               | -                   | -                   | -                   | -                 | -                   | -                          | -                        | 170,461               |
|                    | <b>OTHER EXPENSES TOTAL</b>                  | <b>-</b>            | <b>-</b>              | <b>-</b>             | <b>-</b>            | <b>-</b>               | <b>149,800</b>      | <b>-</b>                       | <b>1,653,161</b>     | <b>-</b>            | <b>-</b>            | <b>-</b>            | <b>-</b>          | <b>-</b>            | <b>-</b>                   | <b>-</b>                 | <b>1,802,961</b>      |
| <b>GRAND TOTAL</b> |  | <b>\$ 2,400,034</b> | <b>\$ 24,047,029</b>  | <b>\$ 15,929,517</b> | <b>\$ 3,322,879</b> | <b>\$ 2,788,992</b>    | <b>\$ 9,214,830</b> | <b>\$ 6,291,824</b>            | <b>\$ 10,119,574</b> | <b>\$ 1,750,666</b> | <b>\$ 4,638,131</b> | <b>\$ 2,051,186</b> | <b>\$ 531,048</b> | <b>\$ 1,469,848</b> | <b>\$ 26,947,790</b>       | <b>\$ 4,234,203</b>      | <b>\$ 115,737,550</b> |

# Chief Executive Office





**Position Summary**

| <b>Title</b>                                      | <b>Positions</b> | <b>GL #</b> | <b>GL Description</b>               | <b>2022 Budget</b>  | <b>2023 Budget</b>  | <b>Difference</b> |
|---|------------------|-------------|-------------------------------------|---------------------|---------------------|-------------------|
| Chief Executive Officer                           | 1                | 4001        | Salary & Wages Reg                  | \$ 746,708          | \$ 749,907          | \$ 3,199          |
| Chief Information & Performance Officer           | 1                | 4025        | Bonus                               | 20,917              | 44,550              | 23,633            |
|   |                  | 4030        | Holiday Pay                         | 40,873              | 46,066              | 5,193             |
| Chief Operating Officer & Chief Financial Officer | 1                | 4035        | Vacation Pay                        | 60,032              | 85,620              | 25,588            |
|   |                  | 4050        | Personal Time Pay                   | 28,297              | 56,697              | 28,400            |
| Executive Administration Supervisor               | 1                | 4065        | Jury Duty                           | 500                 | -                   | (500)             |
| Senior Manager of Performance                     | 1                | 4080        | Bereavement                         | 1,000               | -                   | (1,000)           |
| Receptionist                                      | 1                | 4085        | Special                             | -                   | 24,000              | 24,000            |
| <b>Total Positions</b>                            | <b>6</b>         | 4090        | Admin Leave                         | 500                 | -                   | (500)             |
| <b>Total Wages &amp; Salaries</b>                 |                  |             |                                     | <b>898,827</b>      | <b>1,006,840</b>    | <b>108,013</b>    |
|   |                  | 4110        | FICA Tax                            | 37,972              | 41,866              | 3,893             |
|   |                  | 4115        | Medicare                            | 12,701              | 14,599              | 1,898             |
|   |                  | 4135        | Med Health Ins                      | 111,128             | 139,860             | 28,731            |
|   |                  | 4145        | Short Term Disability               | 8,626               | 8,688               | 62                |
|   |                  | 4150        | Long Term Disability                | 972                 | 1,455               | 483               |
|   |                  | 4155        | Life Ins <50k                       | 807                 | 1,658               | 852               |
|   |                  | 4160        | AD&D Ins                            | 108                 | 221                 | 114               |
|   |                  | 4165        | Dental Ins                          | 3,270               | 3,628               | 358               |
|   |                  | 4170        | Vision Ins                          | 449                 | 539                 | 90                |
|   |                  | 4185        | Retirement Benefit                  | 14,213              | 22,322              | 8,109             |
|   |                  | 4195        | Miscellaneous Benefits              | (528)               | (1,200)             | (672)             |
| <b>Total Employee Benefits</b>                    |                  |             |                                     | <b>189,718</b>      | <b>233,636</b>      | <b>43,918</b>     |
| <b>TOTAL SALARIES &amp; BENEFITS</b>              |                  |             |                                     | <b>1,088,545</b>    | <b>1,240,477</b>    | <b>151,931</b>    |
|   |                  | 5140        | Fixtures & Furniture                | 1,000               | -                   | (1,000)           |
| <b>Equipment</b>                                  |                  |             |                                     | <b>1,000</b>        | <b>-</b>            | <b>(1,000)</b>    |
|   |                  | 5405        | Building & Property Repairs         | 500                 | -                   | (500)             |
| <b>Repairs &amp; Maintenance</b>                  |                  |             |                                     | <b>500</b>          | <b>-</b>            | <b>(500)</b>      |
| <b>DIRECT OPERATING TOTAL</b>                     |                  |             |                                     | <b>1,090,045</b>    | <b>1,240,477</b>    | <b>150,431</b>    |
|   |                  | 7005        | Certification Fees                  | 70                  | 70                  | -                 |
|   |                  | 7010        | Membership Fees                     | 23,533              | 27,595              | 4,062             |
| <b>Total Fees</b>                                 |                  |             |                                     | <b>23,603</b>       | <b>27,665</b>       | <b>4,062</b>      |
|   |                  | 7323        | Consultants                         | 50,004              | 90,000              | 39,996            |
|   |                  | 7370        | Legal                               | 90,000              | 92,700              | 2,700             |
|   |                  | 7383        | Miscellaneous Professional Service: | 1,200,900           | 1,300,950           | 100,050           |
| <b>Total Professional Services</b>                |                  |             |                                     | <b>1,340,904</b>    | <b>1,483,650</b>    | <b>142,746</b>    |
|   |                  | 7450        | Office Supplies                     | 600                 | 600                 | -                 |
| <b>Total Supplies</b>                             |                  |             |                                     | <b>600</b>          | <b>600</b>          | <b>-</b>          |
|   |                  | 7555        | T&T Seminars & Conferences          | -                   | 16,000              | 16,000            |
|   |                  | 7575        | T&T Miscellaneous                   | 9,000               | 20,000              | 11,000            |
| <b>Total Travel &amp; Training</b>                |                  |             |                                     | <b>9,000</b>        | <b>36,000</b>       | <b>27,000</b>     |
|   |                  | 7770        | Publication & Subscription          | 500                 | 600                 | 100               |
| <b>Total Miscellaneous Admin</b>                  |                  |             |                                     | <b>500</b>          | <b>600</b>          | <b>100</b>        |
| <b>TOTAL ADMINISTRATIVE</b>                       |                  |             |                                     | <b>1,374,607</b>    | <b>1,548,515</b>    | <b>173,908</b>    |
| <b>GRAND TOTAL</b>                                |                  |             |                                     | <b>\$ 2,464,652</b> | <b>\$ 2,788,992</b> | <b>\$ 324,339</b> |

# Customer Service





|                                  |                     |                     |                   |
|----------------------------------|---------------------|---------------------|-------------------|
| <b>Total Miscellaneous Admin</b> | <b>40,000</b>       | <b>32,600</b>       | <b>(7,400)</b>    |
| <b>TOTAL ADMINISTRATIVE</b>      | <b>2,400,103</b>    | <b>2,505,717</b>    | <b>105,614</b>    |
| 8180 Non City Water              | 167,000             | 149,800             | (17,200)          |
| <b>OTHER EXPENSES TOTAL</b>      | <b>167,000</b>      | <b>149,800</b>      | <b>(17,200)</b>   |
| <b>GRAND TOTAL</b>               | <b>\$ 8,809,447</b> | <b>\$ 9,214,830</b> | <b>\$ 405,383</b> |

# Engineering & Construction



| Position Summary                                  |           | GL #                                 | GL Description                     | 2022 Budget       | 2023 Budget       | Difference         |
|---|-----------|--------------------------------------|------------------------------------|-------------------|-------------------|--------------------|
| Title   | Positions |                                      |                                    |                   |                   |                    |
| Administrative Assistant                          | 1         | 4001                                 | Salary & Wages Reg                 | \$ 3,393,609      | \$ 3,680,835      | \$ 287,226         |
| Associate Project Manager                         | 8         | 4005                                 | OT Premium Pay                     | 8,993             | 8,993             | -                  |
| Chief Engineering Officer                         | 1         | 4010                                 | Shift Differential                 | 62                | 120               | 58                 |
| Deputy Director, Engineering                      | 1         | 4025                                 | Bonus                              | 6,601             | -                 | (6,601)            |
| Director of Engineering & Construction            | 1         | 4030                                 | Holiday Pay                        | 188,879           | 224,055           | 35,176             |
| Engineer II                                       | 1         | 4035                                 | Vacation Pay                       | 255,792           | 375,379           | 119,587            |
| Inspector II                                      | 2         | 4050                                 | Personal Time Pay                  | 129,911           | 275,421           | 145,509            |
| Inspector III, Stormwater                         | 1         | 4065                                 | Jury Duty                          | 400               | -                 | (400)              |
| Project Controls Associate                        | 1         | 4080                                 | Bereavement                        | 1,750             | -                 | (1,750)            |
| Project Engineer                                  | 3         | 4081                                 | Paid Parental Leave                | 2,000             | -                 | (2,000)            |
| Project Manager                                   | 7         | 4090                                 | Admin Leave                        | 1,342             | -                 | (1,342)            |
|   |           | <b>Total Wages &amp; Salaries</b>    |                                    | <b>3,989,339</b>  | <b>4,564,803</b>  | <b>575,464</b>     |
| Project Manager, Construction                     | 1         | 4110                                 | FICA Tax                           | 239,041           | 276,700           | 37,658             |
| Project Systems Coordinator                       | 1         | 4115                                 | Medicare                           | 58,235            | 66,058            | 7,822              |
| Senior Engineering Technician                     | 1         | 4135                                 | Med Health Ins                     | 586,192           | 759,878           | 173,686            |
| Senior Group Manager, Construction                | 1         | 4140                                 | Med Hlth Ins Waiver                | 3,100             | 2,900             | (200)              |
| Senior Group Manager, Stormwater                  | 1         | 4145                                 | Short Term Disability              | 45,568            | 50,662            | 5,095              |
| Senior Group Manager, Wastewater                  | 1         | 4150                                 | Long Term Disability               | 2,589             | 3,437             | 848                |
| Senior Group Manager, Water Programs              | 1         | 4155                                 | Life Ins <50k                      | 5,824             | 7,987             | 2,162              |
| Senior Manager, Project Controls                  | 1         | 4160                                 | AD&D Ins                           | 777               | 1,065             | 288                |
| Senior Project Manager                            | 1         | 4165                                 | Dental Ins                         | 19,620            | 22,735            | 3,115              |
| Senior Project Manager, Construction              | 1         | 4170                                 | Vision Ins                         | 3,385             | 3,876             | 491                |
| Senior Project Manager, Facilities (Construction) | 1         | 4175                                 | Uniforms                           | 3,000             | -                 | (3,000)            |
| Senior Project Manager, Stormwater                | 1         | 4180                                 | Tuition Reimburse                  | 53,605            | 38,658            | (14,948)           |
| Senior Project Manager, Water                     | 2         | 4185                                 | Retirement Benefit                 | 112,529           | 199,529           | 86,999             |
| Sustainability Manager                            | 1         | 4195                                 | Miscellaneous Benefits             | (5,280)           | (14,280)          | (9,000)            |
|   |           | <b>Total Employee Benefits</b>       |                                    | <b>1,128,185</b>  | <b>1,419,204</b>  | <b>291,019</b>     |
|   |           | <b>TOTAL SALARIES &amp; BENEFITS</b> |                                    | <b>5,117,525</b>  | <b>5,984,007</b>  | <b>866,482</b>     |
| Water Distribution Program Coordinator            | 1         | 5120                                 | Computer & Peripherals             | 1,500             | 1,500             | -                  |
| *Cooperative Education                            | 1         | 5140                                 | Fixtures & Furniture               | 1,000             | -                 | (1,000)            |
|   |           | <b>Equipment</b>                     |                                    | <b>2,500</b>      | <b>1,500</b>      | <b>(1,000)</b>     |
| <b>Total Positions</b>                            |           |                                      |                                    |                   |                   | <b>44</b>          |
| *Denotes a PT position.                           |           |                                      |                                    |                   |                   |                    |
|   |           | 5305                                 | Sewer Line Contract                | 11,400,000        | 8,540,715         | (2,859,285)        |
|   |           | 5342                                 | Water Line Contract                | 4,000,000         | 4,563,124         | 563,124            |
|   |           | 5343                                 | Manhole & Point Repair Contract    | -                 | 1,500,000         | 1,500,000          |
|   |           | 5347                                 | Engineering Inspection             | 2,250,000         | 2,751,165         | 501,165            |
|   |           | 5355                                 | Landscape & Grounds                | 120,000           | 152,756           | 32,756             |
|   |           | 5370                                 | Miscellaneous Operating Contracts  | 2,932,500         | 488,908           | (2,443,592)        |
|   |           | <b>Operating Contracts</b>           |                                    | <b>20,702,500</b> | <b>17,996,668</b> | <b>(2,705,832)</b> |
|   |           | 5402                                 | Annual Software Support            | 29,236            | 373,762           | 344,526            |
|   |           | 5413                                 | Surface Restoration                | 5,800,000         | 7,392,784         | 1,592,784          |
|   |           | 5427                                 | GIS Hardware & Software Maint.     | 4,000             | 4,980             | 980                |
|   |           | 5452                                 | Machinery Repairs                  | -                 | 7,002             | 7,002              |
|   |           | <b>Repairs &amp; Maintenance</b>     |                                    | <b>5,833,236</b>  | <b>7,778,527</b>  | <b>1,945,291</b>   |
|   |           | <b>DIRECT OPERATING TOTAL</b>        |                                    | <b>31,655,761</b> | <b>31,760,702</b> | <b>104,941</b>     |
|   |           | 7010                                 | Membership Fees                    | 3,000             | 4,575             | 1,575              |
|   |           | 7015                                 | Permits                            | 25,000            | 6,405             | (18,595)           |
|   |           | <b>Total Fees</b>                    |                                    | <b>28,000</b>     | <b>10,980</b>     | <b>(17,020)</b>    |
|   |           | 7305                                 | Advertising                        | -                 | 1,200             | 1,200              |
|   |           | 7323                                 | Consultants                        | 4,869,242         | 4,030,000         | (839,242)          |
|   |           | 7330                                 | Construction Management            | -                 | 1,314,587         | 1,314,587          |
|   |           | 7335                                 | Non Capital Engineering Services   | 2,504,006         | 337,500           | (2,166,506)        |
|   |           | 7383                                 | Miscellaneous Professional Service | 50,000            | -                 | (50,000)           |
|   |           | <b>Total Professional Services</b>   |                                    | <b>7,423,248</b>  | <b>5,683,287</b>  | <b>(1,739,961)</b> |
|   |           | 7435                                 | Uniforms                           | -                 | 3,600             | 3,600              |
|   |           | 7440                                 | Grounds & Maint Supp               | 7,000             | 9,000             | 2,000              |
|   |           | 7450                                 | Office Supplies                    | 1,500             | 2,401             | 901                |
|   |           | <b>Total Supplies</b>                |                                    | <b>8,500</b>      | <b>15,001</b>     | <b>6,501</b>       |
|   |           | 7555                                 | T&T Seminars & Conferences         | 1,000             | 17,500            | 16,500             |
|   |           | 7560                                 | Travel & Training                  | 4,500             | -                 | (4,500)            |

|                                    |                      |                      |                     |
|------------------------------------|----------------------|----------------------|---------------------|
| 7575 T&T Miscellaneous             | 8,275                | 1,865                | (6,410)             |
| <b>Total Travel &amp; Training</b> | <b>13,775</b>        | <b>19,365</b>        | <b>5,590</b>        |
| 7710 Capital Asset Reclass         | (11,550,000)         | (10,541,546)         | 1,008,454           |
| <b>Total Miscellaneous Admin</b>   | <b>(11,550,000)</b>  | <b>(10,541,546)</b>  | <b>1,008,454</b>    |
| <b>TOTAL ADMINISTRATIVE</b>        | <b>(4,076,477)</b>   | <b>(4,812,912)</b>   | <b>(736,435)</b>    |
| <b>GRAND TOTAL</b>                 | <b>\$ 27,579,284</b> | <b>\$ 26,947,790</b> | <b>\$ (631,494)</b> |

# Environmental Compliance





**Position Summary**

| <b>Title</b>                                    | <b>Positions</b> | <b>GL #</b> | <b>GL Description</b>               | <b>2022 Budget</b> | <b>2023 Budget</b> | <b>Difference</b>  |
|---|------------------|-------------|-------------------------------------|--------------------|--------------------|--------------------|
| Chief Environmental Compliance & Ethics Officer | 1                | 4001        | Salary & Wages Reg                  | \$ 475,058         | \$ 522,671         | \$ 47,614          |
|   |                  | 4025        | Bonus                               | 734                | -                  | (734)              |
| Environmental Compliance Program Manager        | 1                | 4030        | Holiday Pay                         | 26,300             | 31,707             | 5,407              |
|   |                  | 4035        | Vacation Pay                        | 29,846             | 49,870             | 20,024             |
| Environmental Compliance Specialist             | 2                | 4050        | Personal Time Pay                   | 16,104             | 39,025             | 22,921             |
| Senior Environmental Compliance Specialist      | 2                | 4065        | Jury Duty                           | 300                | -                  | (300)              |
|   |                  | 4080        | Bereavement                         | 1,000              | -                  | (1,000)            |
|   |                  | 4090        | Admin Leave                         | 1,000              | -                  | (1,000)            |
| <b>Total Positions</b>                          | <b>6</b>         |             |                                     |                    |                    |                    |
| <b>Total Wages &amp; Salaries</b>               |                  |             |                                     | <b>550,341</b>     | <b>643,273</b>     | <b>92,932</b>      |
|   |                  | 4110        | FICA Tax                            | 29,892             | 36,147             | 6,254              |
|   |                  | 4115        | Medicare                            | 8,064              | 9,327              | 1,263              |
|   |                  | 4135        | Med Health Ins                      | 86,670             | 97,388             | 10,718             |
|   |                  | 4145        | Short Term Disability               | 2,184              | 8,034              | 5,850              |
|   |                  | 4155        | Life Ins <50k                       | 743                | 1,141              | 399                |
|   |                  | 4160        | AD&D Ins                            | 99                 | 152                | 53                 |
|   |                  | 4165        | Dental Ins                          | 2,864              | 2,923              | 60                 |
|   |                  | 4170        | Vision Ins                          | 479                | 635                | 156                |
|   |                  | 4175        | Uniforms                            | 3,200              | -                  | (3,200)            |
|   |                  | 4180        | Tuition Reimbursement               | -                  | 10,000             | 10,000             |
|   |                  | 4185        | Retirement Benefit                  | 20,742             | 39,343             | 18,602             |
| <b>Total Employee Benefits</b>                  |                  |             |                                     | <b>154,937</b>     | <b>205,092</b>     | <b>50,155</b>      |
| <b>TOTAL SALARIES &amp; BENEFITS</b>            |                  |             |                                     | <b>705,278</b>     | <b>848,366</b>     | <b>143,088</b>     |
|   |                  | 5140        | Fixtures & Furniture                | 1,000              | 11,000             | 10,000             |
|   |                  | 5145        | Grounds & Maintenance               | 36,000             | 45,500             | 9,500              |
| <b>Equipment</b>                                |                  |             |                                     | <b>37,000</b>      | <b>56,500</b>      | <b>19,500</b>      |
|   |                  | 5335        | Flow Monitoring                     | -                  | 736,200            | 736,200            |
|   |                  | 5345        | Miscellaneous Inspection            | -                  | 60,000             | 60,000             |
|   |                  | 5347        | Engineering Inspection              | 48,000             | -                  | (48,000)           |
|   |                  | 5348        | Line Televising                     | -                  | 720,750            | 720,750            |
| <b>Operating Contracts</b>                      |                  |             |                                     | <b>48,000</b>      | <b>1,516,950</b>   | <b>1,468,950</b>   |
|   |                  | 5402        | Annual Software Support             | 120,000            | 78,375             | (41,625)           |
|   |                  | 5405        | Building & Property Repairs         | 3,000              | -                  | (3,000)            |
|   |                  | 5452        | Machinery Repairs                   | 1,200              | -                  | (1,200)            |
|   |                  | 5496        | Misc. Repair & Maintenance          | -                  | 60,000             | 60,000             |
| <b>Repairs &amp; Maintenance</b>                |                  |             |                                     | <b>124,200</b>     | <b>138,375</b>     | <b>14,175</b>      |
|   |                  | 5570        | Testing                             | 8,000              | 56,000             | 48,000             |
| <b>Misc. Operating</b>                          |                  |             |                                     | <b>8,000</b>       | <b>56,000</b>      | <b>48,000</b>      |
| <b>DIRECT OPERATING TOTAL</b>                   |                  |             |                                     | <b>922,478</b>     | <b>2,616,191</b>   | <b>1,693,713</b>   |
|   |                  | 7005        | Certification Fees                  | 1,100              | 2,800              | 1,700              |
|   |                  | 7010        | Membership Fees                     | -                  | 900                | 900                |
|   |                  | 7015        | Permits                             | 13,500             | 75,038             | 61,538             |
|   |                  | 7020        | Registration Fees                   | 12,000             | 15,750             | 3,750              |
| <b>Total Fees</b>                               |                  |             |                                     | <b>26,600</b>      | <b>94,488</b>      | <b>67,888</b>      |
|   |                  | 7110        | Freight                             | 500                | -                  | (500)              |
|   |                  | 7115        | Postage                             | -                  | 300                | 300                |
| <b>Total Freight and Postage</b>                |                  |             |                                     | <b>500</b>         | <b>300</b>         | <b>(200)</b>       |
|   |                  | 7215        | Equipment Rental                    | 6,000              | -                  | (6,000)            |
| <b>Total Leases &amp; Rents</b>                 |                  |             |                                     | <b>6,000</b>       | <b>-</b>           | <b>(6,000)</b>     |
|   |                  | 7305        | Advertising                         | 400                | -                  | (400)              |
|   |                  | 7323        | Consultants                         | 730,000            | 779,900            | 49,900             |
|   |                  | 7330        | Construction Management             | -                  | 86,490             | 86,490             |
|   |                  | 7335        | Non Capital Engineering Services    | 5,000              | -                  | (5,000)            |
|   |                  | 7383        | Miscellaneous Professional Service: | 2,303,000          | 633,750            | (1,669,250)        |
| <b>Total Professional Services</b>              |                  |             |                                     | <b>3,038,400</b>   | <b>1,500,140</b>   | <b>(1,538,260)</b> |
|   |                  | 7435        | Uniforms                            | -                  | 1,620              | 1,620              |
|   |                  | 7440        | Grounds & Maintenance Supplies      | -                  | 6,600              | 6,600              |
|   |                  | 7450        | Office Supplies                     | 1,200              | 3,500              | 2,300              |
| <b>Total Supplies</b>                           |                  |             |                                     | <b>1,200</b>       | <b>11,720</b>      | <b>10,520</b>      |
|   |                  | 7540        | T&T Lodging                         | -                  | 1,600              | 1,600              |

|                                    |                     |                     |                    |
|------------------------------------|---------------------|---------------------|--------------------|
| 7555 T&T Seminars & Conferences    | -                   | 1,765               | 1,765              |
| 7560 Travel & Training             | 12,000              | 7,000               | (5,000)            |
| 7575 T&T Miscellaneous             | 2,150               | -                   | (2,150)            |
| <b>Total Travel &amp; Training</b> | <b>14,150</b>       | <b>10,365</b>       | <b>(3,785)</b>     |
| 7742 Education & Outreach          | 1,000               | 1,000               | -                  |
| <b>Total Miscellaneous Admin</b>   | <b>1,000</b>        | <b>1,000</b>        | <b>-</b>           |
| <b>TOTAL ADMINISTRATIVE</b>        | <b>3,087,850</b>    | <b>1,618,013</b>    | <b>(1,469,838)</b> |
| <b>GRAND TOTAL</b>                 | <b>\$ 4,010,328</b> | <b>\$ 4,234,203</b> | <b>\$ 223,875</b>  |

# Finance



**Position Summary**

| Title                          | Positions | GL # | GL Description                       | 2022 Budget      | 2023 Budget      | Difference         |
|--------------------------------|-----------|------|--------------------------------------|------------------|------------------|--------------------|
| Accounting Specialist          | 1         | 4001 | Salary & Wages Reg                   | \$ 1,423,371     | \$ 1,280,997     | \$ (142,375)       |
| Contract Specialist            | 2         | 4025 | Bonus                                | 2,934            | -                | (2,934)            |
| Controller                     | 1         | 4030 | Holiday Pay                          | 79,505           | 78,270           | (1,234)            |
| Deputy Director, Finance       | 1         | 4035 | Vacation Pay                         | 98,574           | 134,848          | 36,274             |
| Director of Finance            | 1         | 4050 | Personal Time Pay                    | 53,719           | 98,851           | 45,132             |
| Financial Analyst              | 2         | 4065 | Jury Duty                            | 300              | -                | (300)              |
| Fleet & Contract Administrator | 1         | 4080 | Bereavement                          | 2,000            | -                | (2,000)            |
| Fleet Manager                  | 1         | 4090 | Admin Leave                          | 500              | -                | (500)              |
| Manager, Capital Budget        | 1         |      | <b>Total Wages &amp; Salaries</b>    | <b>1,660,903</b> | <b>1,592,966</b> | <b>(67,937)</b>    |
| Manager, Operating Budget      | 1         | 4110 | FICA Tax                             | 102,003          | 97,806           | (4,196)            |
| Procurement Assistant          | 1         | 4115 | Medicare                             | 24,312           | 23,098           | (1,214)            |
| Procurement Manager            | 1         | 4135 | Med Health Ins                       | 203,729          | 248,321          | 44,593             |
| Senior Accounting Specialist   | 1         | 4140 | Med Hlth Ins Waiver                  | 3,500            | 1,400            | (2,100)            |
| Senior Contract Specialist     | 1         | 4145 | Short Term Disability                | 19,017           | 18,529           | (487)              |
| Senior Manager, Procurement    | 1         | 4150 | Long Term Disability                 | 899              | 1,251            | 352                |
| <b>Total Positions</b>         | <b>17</b> | 4155 | Life Ins <50k                        | 2,479            | 2,803            | 324                |
|                                |           | 4160 | AD&D Ins                             | 330              | 374              | 43                 |
|                                |           | 4165 | Dental Ins                           | 6,892            | 7,302            | 410                |
|                                |           | 4170 | Vision Ins                           | 1,535            | 1,453            | (82)               |
|                                |           | 4175 | Uniforms                             | 1,500            | -                | (1,500)            |
|                                |           | 4180 | Tuition Reimbursement                | 22,752           | 2,000            | (20,752)           |
|                                |           | 4185 | Retirement Benefit                   | 33,405           | 48,718           | 15,313             |
|                                |           | 4195 | Miscellaneous Benefits               | (2,640)          | (8,340)          | (5,700)            |
|                                |           |      | <b>Total Employee Benefits</b>       | <b>419,712</b>   | <b>444,715</b>   | <b>25,003</b>      |
|                                |           |      | <b>TOTAL SALARIES &amp; BENEFITS</b> | <b>2,080,615</b> | <b>2,037,681</b> | <b>(42,934)</b>    |
|                                |           | 5140 | Fixtures & Furniture                 | 3,000            | -                | (3,000)            |
|                                |           | 5190 | Vehicles                             | 2,500,000        | 2,411,093        | (88,907)           |
|                                |           |      | <b>Equipment</b>                     | <b>2,503,000</b> | <b>2,411,093</b> | <b>(91,907)</b>    |
|                                |           | 5402 | Annual Software Support              | 393,119          | 326,566          | (66,552)           |
|                                |           | 5491 | Vehicle Repairs                      | 850,000          | 1,022,999        | 172,999            |
|                                |           |      | <b>Repairs &amp; Maintenance</b>     | <b>1,243,119</b> | <b>1,349,565</b> | <b>106,446</b>     |
|                                |           |      | <b>DIRECT OPERATING TOTAL</b>        | <b>5,826,734</b> | <b>5,798,340</b> | <b>(28,394)</b>    |
|                                |           | 7003 | Bank Fees                            | 294,168          | 360,000          | 65,832             |
|                                |           | 7005 | Certification Fees                   | -                | 10,000           | 10,000             |
|                                |           | 7010 | Membership Fees                      | 1,140            | 1,900            | 760                |
|                                |           | 7015 | Permits                              | 3,000,000        | 475,000          | (2,525,000)        |
|                                |           | 7020 | Registration Fees                    | 100,000          | -                | (100,000)          |
|                                |           |      | <b>Total Fees</b>                    | <b>3,395,308</b> | <b>846,900</b>   | <b>(2,548,408)</b> |
|                                |           | 7255 | Office Rent                          | 1,349,554        | 960,530          | (389,024)          |
|                                |           | 7260 | Parking Lease                        | -                | 60,000           | 60,000             |
|                                |           |      | <b>Total Leases &amp; Rents</b>      | <b>1,349,554</b> | <b>1,020,530</b> | <b>(329,024)</b>   |
|                                |           | 7305 | Advertising                          | 12,000           | 13,200           | 1,200              |
|                                |           | 7310 | Annual Audit                         | 54,698           | 57,200           | 2,502              |
|                                |           | 7323 | Consultants                          | 300,000          | 970,000          | 670,000            |
|                                |           | 7332 | Consulting Engineers                 | 173,000          | 174,000          | 1,000              |
|                                |           | 7345 | Insurance Auto                       | 49,752           | 74,983           | 25,230             |
|                                |           | 7348 | Insurance Commercial Property        | 280,000          | 329,083          | 49,083             |
|                                |           | 7353 | Insurance General Liability          | 40,000           | 83,413           | 43,413             |
|                                |           | 7359 | Insurance Officer & Director         | 123,173          | 152,197          | 29,023             |
|                                |           | 7365 | Insurance Workers Compensation       | 446,742          | 447,152          | 410                |
|                                |           | 7366 | Insurance Workers Comp. City         | 30,000           | 12,406           | (17,594)           |
|                                |           | 7370 | Legal                                | 22,800           | 15,000           | (7,800)            |
|                                |           | 7383 | Miscellaneous Professional Service:  | 275,104          | 282,704          | 7,600              |
|                                |           | 7389 | Trust Administration                 | 83,285           | 85,000           | 1,715              |
|                                |           |      | <b>Total Professional Services</b>   | <b>1,890,555</b> | <b>2,696,337</b> | <b>805,782</b>     |
|                                |           | 7422 | Fuel & Gasses                        | 350,000          | 504,000          | 154,000            |
|                                |           | 7450 | Office Supplies                      | 4,800            | 1,800            | (3,000)            |
|                                |           |      | <b>Total Supplies</b>                | <b>354,800</b>   | <b>505,800</b>   | <b>151,000</b>     |
|                                |           | 7545 | T&T Meals                            | -                | 400              | 400                |

|                                    |                      |                      |                     |
|------------------------------------|----------------------|----------------------|---------------------|
| 7575 T&T Miscellaneous             | 11,340               | 2,600                | (8,740)             |
| <b>Total Travel &amp; Training</b> | <b>11,340</b>        | <b>3,000</b>         | <b>(8,340)</b>      |
| 7710 Capital Asset Reclass         | (4,500,000)          | (2,411,093)          | 2,088,907           |
| 7712 Cash Discount Taken           | -                    | (2,400)              | (2,400)             |
| 7770 Publication & Subscription    | 1,200                | 9,000                | 7,800               |
| <b>Total Miscellaneous Admin</b>   | <b>(4,498,800)</b>   | <b>(2,404,493)</b>   | <b>2,094,307</b>    |
| <b>TOTAL ADMINISTRATIVE</b>        | <b>2,502,757</b>     | <b>2,668,073</b>     | <b>165,316</b>      |
| 8005 City Costs                    | 2,500,000            | 1,632,500            | (867,500)           |
| 8180 Non City Water                | 22,000               | 20,661               | (1,339)             |
| <b>OTHER EXPENSES TOTAL</b>        | <b>2,522,000</b>     | <b>1,653,161</b>     | <b>(868,839)</b>    |
| <b>GRAND TOTAL</b>                 | <b>\$ 10,851,491</b> | <b>\$ 10,119,574</b> | <b>\$ (731,917)</b> |

# Human Resources



**Position Summary**

| <b>Title</b>                         | <b>Positions</b> | <b>GL #</b> | <b>GL Description</b>                | <b>2022 Budget</b>  | <b>2023 Budget</b>  | <b>Difference</b>  |
|--------------------------------------|------------------|-------------|--------------------------------------|---------------------|---------------------|--------------------|
| Chief People & Culture Officer       | 1                | 4001        | Salary & Wages Reg                   | \$ 859,679          | \$ 869,053          | \$ 9,374           |
| Human Resources Assistant            | 1                | 4025        | Bonus                                | 1,650               | -                   | (1,650)            |
| Human Resources Compliance Manager   | 1                | 4030        | Holiday Pay                          | 47,143              | 52,982              | 5,839              |
|                                      |                  | 4035        | Vacation Pay                         | 62,966              | 89,012              | 26,046             |
| Human Resources Specialist 2         | 1                | 4050        | Personal Time Pay                    | 31,797              | 65,209              |                    |
| Manager, HR Administration           | 1                | 4065        | Jury Duty                            | 300                 | -                   | (300)              |
| Senior Manager, Human Resources      | 1                | 4080        | Bereavement                          | 2,300               | -                   | (2,300)            |
| Senior Payroll Administrator         | 1                | 4085        | Special                              | -                   | 12,000              | 12,000             |
| Senior Talent Acquisition Specialist | 1                | 4090        | Admin Leave                          | 500                 | -                   | (500)              |
| Talent Acquisition Specialist        | 1                |             | <b>TOTAL SALARIES &amp; BENEFITS</b> | <b>1,006,336</b>    | <b>1,088,256</b>    | <b>81,920</b>      |
| Training & Development Manager       | 1                | 4110        | FICA Tax                             | 57,905              | 62,992              | 5,087              |
| Workforce Development Manager        | 1                | 4115        | Medicare                             | 14,615              | 15,780              | 1,164              |
| <b>Total Positions</b>               | <b>11</b>        | 4125        | State Unemploy Tax                   | 25,000              | 35,000              | 10,000             |
|                                      |                  | 4135        | Med Health Ins                       | 122,577             | 122,542             | (35)               |
|                                      |                  | 4140        | Med Hlth Ins Waiver                  | 3,400               | 3,400               | -                  |
|                                      |                  | 4145        | Short Term Disability                | 7,993               | 11,684              | 3,691              |
|                                      |                  | 4150        | Long Term Disability                 | 1,387               | 1,441               | 54                 |
|                                      |                  | 4155        | Life Ins <50k                        | 1,426               | 1,907               | 481                |
|                                      |                  | 4160        | AD&D Ins                             | 190                 | 254                 | 64                 |
|                                      |                  | 4165        | Dental Ins                           | 4,872               | 4,413               | (459)              |
|                                      |                  | 4170        | Vision Ins                           | 884                 | 899                 | 15                 |
|                                      |                  | 4174        | Customer Service Week                | 500                 | -                   | (500)              |
|                                      |                  | 4175        | Uniforms                             | 500                 | -                   | (500)              |
|                                      |                  | 4180        | Tuition Reimbursement                | 17,000              | 10,867              | (6,133)            |
|                                      |                  | 4185        | Retirement Benefit                   | 25,048              | 48,312              | 23,264             |
|                                      |                  | 4195        | Miscellaneous Benefits               | (2,112)             | (4,320)             | (2,208)            |
|                                      |                  |             | <b>Total Employee Benefits</b>       | <b>281,185</b>      | <b>315,171</b>      | <b>33,986</b>      |
|                                      |                  |             | <b>TOTAL SALARIES &amp; BENEFITS</b> | <b>1,287,521</b>    | <b>1,403,427</b>    | <b>115,906</b>     |
|                                      |                  | 5140        | Fixtures & Furniture                 | 500                 | 500                 | -                  |
|                                      |                  | 5190        | Vehicles                             | 30,000              | -                   | (30,000)           |
|                                      |                  |             | <b>Equipment</b>                     | <b>30,500</b>       | <b>500</b>          | <b>(30,000)</b>    |
|                                      |                  | 5402        | Annual Software Support              | 2,090               | 970                 | (1,120)            |
|                                      |                  | 5408        | Computer Hardware Maintenance        | 3,850               | 4,041               | 191                |
|                                      |                  |             | <b>Repairs &amp; Maintenance</b>     | <b>5,940</b>        | <b>5,011</b>        | <b>(929)</b>       |
|                                      |                  |             | <b>DIRECT OPERATING TOTAL</b>        | <b>1,323,961</b>    | <b>1,408,938</b>    | <b>84,977</b>      |
|                                      |                  | 7005        | Certification Fees                   | -                   | 3,925               | 3,925              |
|                                      |                  | 7010        | Membership Fees                      | 5,420               | 7,145               | 1,725              |
|                                      |                  | 7020        | Registration Fees                    | 1,600               | 4,000               | 2,400              |
|                                      |                  |             | <b>Total Fees</b>                    | <b>7,020</b>        | <b>15,070</b>       | <b>8,050</b>       |
|                                      |                  | 7110        | Freight                              | 1,500               | 1,920               | 420                |
|                                      |                  |             | <b>Total Freight and Postage</b>     | <b>1,500</b>        | <b>1,920</b>        | <b>420</b>         |
|                                      |                  | 7305        | Advertising                          | 15,000              | 6,540               | (8,460)            |
|                                      |                  | 7323        | Consultants                          | 28,000              | -                   | (28,000)           |
|                                      |                  | 7382        | Payroll Services                     | 150,000             | 169,397             | 19,397             |
|                                      |                  | 7383        | Miscellaneous Professional Service:  | 244,400             | 96,402              | (147,998)          |
|                                      |                  |             | <b>Total Professional Services</b>   | <b>437,400</b>      | <b>272,338</b>      | <b>(165,062)</b>   |
|                                      |                  | 7435        | Uniforms                             | -                   | 600                 | 600                |
|                                      |                  | 7450        | Office Supplies                      | 3,000               | 2,000               | (1,000)            |
|                                      |                  |             | <b>Total Supplies</b>                | <b>3,000</b>        | <b>2,600</b>        | <b>(400)</b>       |
|                                      |                  | 7555        | T&T Seminars & Conferences           | -                   | 2,500               | 2,500              |
|                                      |                  | 7560        | Travel & Training                    | 36,000              | 41,100              | 5,100              |
|                                      |                  | 7575        | T&T Miscellaneous                    | 3,000               | 1,500               | (1,500)            |
|                                      |                  |             | <b>Total Travel &amp; Training</b>   | <b>39,000</b>       | <b>45,100</b>       | <b>6,100</b>       |
|                                      |                  | 7742        | Education & Outreach                 | -                   | 3,500               | 3,500              |
|                                      |                  | 7770        | Publication & Subscription           | 4,440               | 1,200               | (3,240)            |
|                                      |                  |             | <b>Total Miscellaneous Admin</b>     | <b>4,440</b>        | <b>4,700</b>        | <b>260</b>         |
|                                      |                  |             | <b>TOTAL ADMINISTRATIVE</b>          | <b>492,360</b>      | <b>341,728</b>      | <b>(150,632)</b>   |
|                                      |                  |             | <b>GRAND TOTAL</b>                   | <b>\$ 1,816,321</b> | <b>\$ 1,750,666</b> | <b>\$ (65,655)</b> |

# Laboratory





**Position Summary**

| <b>Title</b>                  | <b>Positions</b> | <b>GL #</b> | <b>GL Description</b>                | <b>2022 Budget</b> | <b>2023 Budget</b> | <b>Difference</b>  |
|-------------------------------|------------------|-------------|--------------------------------------|--------------------|--------------------|--------------------|
| Chemist I                     | 3                | 4001        | Salary & Wages Reg                   | \$ 1,109,902       | \$ 839,005         | \$ (270,898)       |
| Chemist II                    | 4                | 4005        | OT Premium Pay                       | 43,989             | 46,336             | 2,347              |
| Laboratory Manager            | 1                | 4010        | Shift Differential                   | 120                | -                  | (120)              |
| Scientist                     | 3                | 4025        | Bonus                                | 2,934              | -                  | (2,934)            |
| Senior Manager, Water Quality | 1                | 4030        | Holiday Pay                          | 61,845             | 49,790             | (12,055)           |
| Special Projects Coordinator  | 1                | 4035        | Vacation Pay                         | 61,895             | 66,004             | 4,109              |
| Water Quality Data Manager    | 1                | 4050        | Personal Time Pay                    | 41,478             | 49,542             | 8,064              |
| <b>Total Positions</b>        | <b>14</b>        |             |                                      |                    |                    |                    |
|                               |                  | 4065        | Jury Duty                            | 300                | -                  | (300)              |
|                               |                  | 4080        | Bereavement                          | 1,200              | -                  | (1,200)            |
|                               |                  | 4090        | Admin Leave                          | 500                | -                  | (500)              |
|                               |                  |             | <b>Total Wages &amp; Salaries</b>    | <b>1,324,163</b>   | <b>1,050,677</b>   | <b>(273,486)</b>   |
|                               |                  | 4110        | FICA Tax                             | 83,336             | 65,142             | (18,194)           |
|                               |                  | 4115        | Medicare                             | 19,490             | 15,235             | (4,255)            |
|                               |                  | 4135        | Med Health Ins                       | 259,865            | 186,813            | (73,051)           |
|                               |                  | 4140        | Med Hlth Ins Waiver                  | 3,200              | 1,500              | (1,700)            |
|                               |                  | 4145        | Short Term Disability                | 12,427             | 9,663              | (2,763)            |
|                               |                  | 4150        | Long Term Disability                 | 1,513              | 796                | (717)              |
|                               |                  | 4155        | Life Ins <50k                        | 2,191              | 1,792              | (399)              |
|                               |                  | 4160        | AD&D Ins                             | 292                | 239                | (53)               |
|                               |                  | 4165        | Dental Ins                           | 8,730              | 6,149              | (2,581)            |
|                               |                  | 4170        | Vision Ins                           | 1,618              | 1,290              | (327)              |
|                               |                  | 4175        | Uniforms                             | 1,750              | -                  | (1,750)            |
|                               |                  | 4180        | Tuition Reimbursement                | 20,000             | -                  | (20,000)           |
|                               |                  | 4185        | Retirement Benefit                   | 20,202             | 23,144             | 2,942              |
|                               |                  | 4195        | Miscellaneous Benefits               | (528)              | -                  | 528                |
|                               |                  |             | <b>Total Employee Benefits</b>       | <b>434,085</b>     | <b>311,765</b>     | <b>(122,320)</b>   |
|                               |                  |             | <b>TOTAL SALARIES &amp; BENEFITS</b> | <b>1,758,248</b>   | <b>1,362,442</b>   | <b>(395,807)</b>   |
|                               |                  | 5140        | Fixtures & Furniture                 | 15,000             | -                  | (15,000)           |
|                               |                  | 5147        | Lab Equipment                        | 100,000            | 100,000            | -                  |
|                               |                  |             | <b>Equipment</b>                     | <b>115,000</b>     | <b>100,000</b>     | <b>(15,000)</b>    |
|                               |                  | 5370        | Miscellaneous Operating Contracts    | 720,000            | -                  | (720,000)          |
|                               |                  |             | <b>Operating Contracts</b>           | <b>720,000</b>     | <b>-</b>           | <b>(720,000)</b>   |
|                               |                  | 5402        | Annual Software Support              | 5,050              | 61,586             | 56,536             |
|                               |                  | 5405        | Building & Property Repairs          | 1,600              | -                  | (1,600)            |
|                               |                  | 5422        | Chemical Removal                     | -                  | 4,000              | 4,000              |
|                               |                  | 5452        | Machinery Repairs                    | 22,808             | 128,112            | 105,304            |
|                               |                  | 5496        | Misc. Repair & Maintenance           | 1,000              | -                  | (1,000)            |
|                               |                  |             | <b>Repairs &amp; Maintenance</b>     | <b>30,458</b>      | <b>193,698</b>     | <b>163,240</b>     |
|                               |                  | 5570        | Testing                              | 411,604            | 257,500            | (154,104)          |
|                               |                  |             | <b>Misc. Operating</b>               | <b>411,604</b>     | <b>257,500</b>     | <b>(154,104)</b>   |
|                               |                  |             | <b>DIRECT OPERATING TOTAL</b>        | <b>3,035,310</b>   | <b>1,913,640</b>   | <b>(1,121,671)</b> |
|                               |                  | 7005        | Certification Fees                   | 2,300              | 2,500              | 200                |
|                               |                  | 7010        | Membership Fees                      | 500                | 625                | 125                |
|                               |                  | 7015        | Permits                              | 80,200             | -                  | (80,200)           |
|                               |                  | 7020        | Registration Fees                    | 5,526              | -                  | (5,526)            |
|                               |                  |             | <b>Total Fees</b>                    | <b>88,526</b>      | <b>3,125</b>       | <b>(85,401)</b>    |
|                               |                  | 7110        | Freight                              | 1,200              | 1,200              | -                  |
|                               |                  |             | <b>Total Freight and Postage</b>     | <b>1,200</b>       | <b>1,200</b>       | <b>-</b>           |
|                               |                  | 7215        | Equipment Rental                     | 2,400              | 2,700              | 300                |
|                               |                  |             | <b>Total Leases &amp; Rents</b>      | <b>2,400</b>       | <b>2,700</b>       | <b>300</b>         |
|                               |                  | 7335        | Non Capital Engineering Service      | 13,000             | -                  | (13,000)           |
|                               |                  | 7383        | Miscellaneous Professional Service   | 743,000            | 353,519            | (389,481)          |
|                               |                  |             | <b>Total Professional Services</b>   | <b>756,000</b>     | <b>353,519</b>     | <b>(402,481)</b>   |
|                               |                  | 7422        | Fuel & Gasses                        | 10,008             | 10,000             | (8)                |
|                               |                  | 7435        | Uniforms                             | -                  | 2,700              | 2,700              |
|                               |                  | 7445        | Lab Chemicals                        | 10,000             | 6,000              | (4,000)            |
|                               |                  | 7447        | Lab Supplies                         | 120,000            | 100,000            | (20,000)           |
|                               |                  | 7450        | Office Supplies                      | 1,000              | 750                | (250)              |
|                               |                  |             | <b>Total Supplies</b>                | <b>141,008</b>     | <b>119,450</b>     | <b>(21,558)</b>    |

The Pittsburgh Water and Sewer Authority Operating Budget  
 Fiscal Year 2023

Laboratory

|                                    |                     |                     |                       |
|------------------------------------|---------------------|---------------------|-----------------------|
| 7540 T&T Lodging                   | -                   | 1,600               | 1,600                 |
| 7555 T&T Seminars & Conferences    | -                   | 1,800               | 1,800                 |
| 7560 Travel & Training             | 42,000              | 3,000               | (39,000)              |
| 7575 T&T Miscellaneous             | 2,000               | -                   | (2,000)               |
| <b>Total Travel &amp; Training</b> | <b>44,000</b>       | <b>6,400</b>        | <b>(37,600)</b>       |
| <b>TOTAL ADMINISTRATIVE</b>        | <b>1,033,134</b>    | <b>486,394</b>      | <b>(546,740)</b>      |
| <b>GRAND TOTAL</b>                 | <b>\$ 4,068,444</b> | <b>\$ 2,400,034</b> | <b>\$ (1,668,411)</b> |

# Legal



**Position Summary**

| <b>Title</b>                         | <b>Positions</b> | <b>GL #</b> | <b>GL Description</b>               | <b>2022 Budget</b>  | <b>2023 Budget</b>  | <b>Difference</b> |
|--------------------------------------|------------------|-------------|-------------------------------------|---------------------|---------------------|-------------------|
| Legal Assistant                      | 1                | 4001        | Salary & Wages Reg                  | \$ 520,226          | \$ 630,173          | \$ 109,947        |
| Chief Legal Officer                  | 1                | 4025        | Bonus                               | 734                 | -                   | (734)             |
| Corporate Counsel, Commercial        | 1                | 4030        | Holiday Pay                         | 29,581              | 38,273              | 8,691             |
| Corporate Counsel, Litigation        | 1                | 4035        | Vacation Pay                        | 45,395              | 55,640              | 10,245            |
| Paralegal                            | 1                | 4050        | Personal Time Pay                   | 18,702              | 47,105              | 28,403            |
| Paralegal Supervisor                 | 1                | 4065        | Jury Duty                           | 300                 | -                   | (300)             |
| Risk Coordinator                     | 1                | 4080        | Bereavement                         | 1,500               | -                   | (1,500)           |
| <b>Total Positions</b>               | <b>7</b>         | 4090        | Admin Leave                         | 500                 | -                   | (500)             |
| <b>Total Wages &amp; Salaries</b>    |                  |             |                                     | <b>616,937</b>      | <b>771,190</b>      | <b>154,252</b>    |
|                                      |                  | 4110        | FICA Tax                            | 34,436              | 44,078              | 9,642             |
|                                      |                  | 4115        | Medicare                            | 9,045               | 11,182              | 2,138             |
|                                      |                  | 4135        | Med Health Ins                      | 70,339              | 114,258             | 43,919            |
|                                      |                  | 4145        | Short Term Disability               | 2,887               | 4,329               | 1,442             |
|                                      |                  | 4150        | Long Term Disability                | 804                 | 320                 | (484)             |
|                                      |                  | 4155        | Life Ins <50k                       | 737                 | 1,378               | 641               |
|                                      |                  | 4160        | AD&D Ins                            | 98                  | 184                 | 85                |
|                                      |                  | 4165        | Dental Ins                          | 2,214               | 3,886               | 1,671             |
|                                      |                  | 4170        | Vision Ins                          | 472                 | 629                 | 157               |
|                                      |                  | 4185        | Retirement Benefit                  | 11,730              | 41,307              | 29,577            |
|                                      |                  | 4195        | Miscellaneous Benefits              | (1,584)             | (2,760)             | (1,176)           |
| <b>Total Employee Benefits</b>       |                  |             |                                     | <b>131,179</b>      | <b>218,791</b>      | <b>87,612</b>     |
| <b>TOTAL SALARIES &amp; BENEFITS</b> |                  |             |                                     | <b>748,116</b>      | <b>989,981</b>      | <b>241,865</b>    |
| <b>DIRECT OPERATING TOTAL</b>        |                  |             |                                     | <b>748,116</b>      | <b>989,981</b>      | <b>241,865</b>    |
|                                      |                  | 7010        | Membership Fees                     | -                   | 1,700               | 1,700             |
|                                      |                  | 7030        | Licenses                            | -                   | 2,100               | 2,100             |
| <b>Total Fees</b>                    |                  |             |                                     | <b>-</b>            | <b>3,800</b>        | <b>3,800</b>      |
|                                      |                  | 7305        | Advertising                         | -                   | 5,000               | 5,000             |
|                                      |                  | 7370        | Legal                               | 2,265,992           | 2,865,750           | 599,758           |
|                                      |                  | 7383        | Miscellaneous Professional Service: | 11,000              | -                   | (11,000)          |
| <b>Total Professional Services</b>   |                  |             |                                     | <b>2,276,992</b>    | <b>2,870,750</b>    | <b>593,758</b>    |
|                                      |                  | 7450        | Office Supplies                     | 1,000               | 2,000               | 1,000             |
| <b>Total Supplies</b>                |                  |             |                                     | <b>1,000</b>        | <b>2,000</b>        | <b>1,000</b>      |
|                                      |                  | 7555        | T&T Seminars & Conferences          | -                   | 3,000               | 3,000             |
|                                      |                  | 7560        | Travel & Training                   | 1,000               | 8,000               | 7,000             |
|                                      |                  | 7575        | T&T Miscellaneous                   | 4,000               | 8,200               | 4,200             |
| <b>Total Travel &amp; Training</b>   |                  |             |                                     | <b>5,000</b>        | <b>19,200</b>       | <b>14,200</b>     |
|                                      |                  | 7715        | Claims                              | 850,000             | 750,000             | (100,000)         |
|                                      |                  | 7770        | Publication & Subscription          | 3,000               | 2,400               | (600)             |
| <b>Total Miscellaneous Admin</b>     |                  |             |                                     | <b>853,000</b>      | <b>752,400</b>      | <b>(100,600)</b>  |
| <b>TOTAL ADMINISTRATIVE</b>          |                  |             |                                     | <b>3,135,992</b>    | <b>3,648,150</b>    | <b>512,158</b>    |
| <b>GRAND TOTAL</b>                   |                  |             |                                     | <b>\$ 3,884,108</b> | <b>\$ 4,638,131</b> | <b>\$ 754,023</b> |

# Management Information Systems



**Position Summary**

| Title                                       | Positions | GL # | GL Description                       | 2022 Budget         | 2023 Budget         | Difference          |
|---|-----------|------|--------------------------------------|---------------------|---------------------|---------------------|
| BI Analyst & Database Administrator         | 1         | 4001 | Salary & Wages Reg                   | \$ 1,534,222        | \$ 1,605,567        | \$ 71,345           |
| Director of Information Technology          | 1         | 4005 | OT Premium Pay                       | 630                 | 2,000               | 1,370               |
| Document Management Associate               | 1         | 4025 | Bonus                                | 4,034               | -                   | (4,034)             |
| Document Management Specialist              | 1         | 4030 | Holiday Pay                          | 82,270              | 91,352              | 9,082               |
| Engineering Technician II                   | 1         | 4035 | Vacation Pay                         | 99,622              | 141,066             | 41,444              |
| GIS Analyst                                 | 3         | 4050 | Personal Time Pay                    | 56,174              | 101,896             | 45,722              |
| GIS Manager                                 | 1         | 4065 | Jury Duty                            | 300                 | -                   | (300)               |
| Help Desk Coordinator                       | 1         | 4080 | Bereavement                          | 2,000               | -                   | (2,000)             |
| Help Desk Technician II                     | 2         | 4090 | Admin Leave                          | 500                 | -                   | (500)               |
| IT Administrative Assistant                 | 1         |      | <b>Total Wages &amp; Salaries</b>    | <b>1,779,752</b>    | <b>1,941,881</b>    | <b>162,129</b>      |
| IT Project Manager                          | 1         | 4110 | FICA Tax                             | 110,035             | 119,703             | 9,667               |
| Network Systems Administrator               | 2         | 4115 | Medicare                             | 25,949              | 28,128              | 2,180               |
| Senior GIS Analyst                          | 3         | 4135 | Med Health Ins                       | 244,090             | 324,662             | 80,571              |
| SQL BI Developer                            | 1         | 4140 | Med Hlth Ins Waiver                  | 3,200               | 3,300               | 100                 |
| Senior Manager, Information Technology      | 1         | 4145 | Short Term Disability                | 19,709              | 21,734              | 2,025               |
| Technical Program Manager, Asset Management | 1         | 4150 | Long Term Disability                 | 1,227               | 3,127               | 1,900               |
|   |           | 4155 | Life Ins <50k                        | 2,834               | 3,289               | 455                 |
|   |           | 4160 | AD&D Ins                             | 378                 | 438                 | 61                  |
| *GIS Special Projects Intern                | 4         | 4165 | Dental Ins                           | 8,795               | 10,751              | 1,956               |
| *Records Management Intern                  | 1         | 4170 | Vision Ins                           | 1,843               | 2,053               | 211                 |
| <b>Total Positions</b>                      | <b>27</b> | 4175 | Uniforms                             | 800                 | -                   | (800)               |
| *Denotes a PT position.                     |           | 4180 | Tuition Reimbursement                | -                   | 11,525              | 11,525              |
|   |           | 4185 | Retirement Benefit                   | 23,787              | 44,555              | 20,768              |
|   |           | 4195 | Miscellaneous Benefits               | (1,584)             | (5,160)             | (3,576)             |
|   |           |      | <b>Total Employee Benefits</b>       | <b>441,062</b>      | <b>568,105</b>      | <b>127,043</b>      |
|   |           |      | <b>TOTAL SALARIES &amp; BENEFITS</b> | <b>2,220,815</b>    | <b>2,509,987</b>    | <b>289,172</b>      |
|   |           | 5120 | Computer & Peripherals               | 320,700             | 272,737             | (47,963)            |
|   |           | 5125 | Computers & Networking               | 5,158,541           | -                   | (5,158,541)         |
|   |           | 5140 | Fixtures & Furniture                 | 1,000               | 3,107               | 2,107               |
|   |           | 5145 | Grounds & Maintenance                | -                   | 28,000              | 28,000              |
|   |           | 5160 | Office Equipment                     | 17,851              | -                   | (17,851)            |
|   |           |      | <b>Equipment</b>                     | <b>5,498,093</b>    | <b>303,843</b>      | <b>(5,194,249)</b>  |
|   |           | 5402 | Annual Software Support              | 1,270,946           | 2,464,157           | 1,193,210           |
|   |           | 5405 | Building & Property Repairs          | 3,236               | 2,727               | (510)               |
|   |           | 5408 | Computer Hardware Maintenance        | 18,392              | 23,913              | 5,522               |
|   |           |      | <b>Repairs &amp; Maintenance</b>     | <b>1,292,574</b>    | <b>2,490,796</b>    | <b>1,198,222</b>    |
|   |           |      | <b>DIRECT OPERATING TOTAL</b>        | <b>9,011,481</b>    | <b>5,304,626</b>    | <b>(3,706,855)</b>  |
|   |           | 7005 | Certification Fees                   | 927                 | 1,035               | 108                 |
|   |           | 7010 | Membership Fees                      | 2,050               | 6,532               | 4,482               |
|   |           |      | <b>Total Fees</b>                    | <b>2,977</b>        | <b>7,567</b>        | <b>4,590</b>        |
|   |           | 7210 | Copier & Fax Machine Rental          | 91,107              | 58,122              | (32,985)            |
|   |           |      | <b>Total Leases &amp; Rents</b>      | <b>91,107</b>       | <b>58,122</b>       | <b>(32,985)</b>     |
|   |           | 7323 | Consultants                          | 204,802             | 290,000             | 85,198              |
|   |           | 7383 | Miscellaneous Professional Service:  | 180,559             | 378,258             | 197,700             |
|   |           |      | <b>Total Professional Services</b>   | <b>385,360</b>      | <b>668,258</b>      | <b>282,898</b>      |
|   |           | 7405 | Computer Software Supplies           | 37,683              | 50,000              | 12,317              |
|   |           | 7450 | Office Supplies                      | 1,000               | 9,000               | 8,000               |
|   |           |      | <b>Total Supplies</b>                | <b>38,683</b>       | <b>59,000</b>       | <b>20,317</b>       |
|   |           | 7555 | T&T Seminars & Conferences           | -                   | 3,000               | 3,000               |
|   |           | 7560 | Travel & Training                    | 10,400              | 5,400               | (5,000)             |
|   |           |      | <b>Total Travel &amp; Training</b>   | <b>10,400</b>       | <b>8,400</b>        | <b>(2,000)</b>      |
|   |           | 7680 | Cellular Phone                       | 189,433             | 213,264             | 23,831              |
|   |           | 7681 | Local Phones                         | 164,921             | 171,600             | 6,679               |
|   |           | 7683 | Internet                             | 45,000              | 50,987              | 5,987               |
|   |           |      | <b>Total Utilities</b>               | <b>399,354</b>      | <b>435,851</b>      | <b>36,496</b>       |
|   |           | 7710 | Capital Asset Reclass                | (5,158,541)         | (250,000)           | 4,908,541           |
|   |           |      | <b>Total Miscellaneous Admin</b>     | <b>(5,158,541)</b>  | <b>(250,000)</b>    | <b>4,908,541</b>    |
|   |           |      | <b>TOTAL ADMINISTRATIVE</b>          | <b>(4,230,659)</b>  | <b>987,198</b>      | <b>5,217,857</b>    |
|   |           |      | <b>GRAND TOTAL</b>                   | <b>\$ 4,780,822</b> | <b>\$ 6,291,824</b> | <b>\$ 1,511,002</b> |

# Public Affairs



**Position Summary**

| <b>Title</b>                                | <b>Positions</b> | <b>GL #</b> | <b>GL Description</b>                | <b>2022 Budget</b>  | <b>2023 Budget</b>  | <b>Difference</b> |
|---|------------------|-------------|--------------------------------------|---------------------|---------------------|-------------------|
| Construction Communications Project Manager | 1                | 4001        | Salary & Wages Reg                   | \$ 560,112          | \$ 512,981          | \$ (47,131)       |
| Development Coordinator                     | 1                | 4005        | OT Premium Pay                       | -                   | 809                 | 809               |
| Education and Outreach Associate            | 1                | 4025        | Bonus                                | 1,650               |                     | (1,650)           |
| Industry Relations Manager                  | 1                | 4030        | Holiday Pay                          | 29,579              | 31,298              | 1,719             |
| Internal Communications Specialist          | 1                | 4035        | Vacation Pay                         | 30,804              | 54,083              | 23,280            |
| Public Affairs Associate                    | 2                | 4050        | Personal Time Pay                    | 20,478              | 38,521              | 18,043            |
| Senior Manager, Public Affairs              | 1                | 4065        | Jury Duty                            | 300                 | -                   | (300)             |
| Senior Public Affairs Coordinator           | 1                | 4080        | Bereavement                          | 750                 | -                   | (750)             |
|   |                  | 4090        | Admin Leave                          | 500                 | -                   | (500)             |
| <b>Total Positions</b>                      | <b>9</b>         |             | <b>Total Wages &amp; Salaries</b>    | <b>644,173</b>      | <b>637,693</b>      | <b>(6,480)</b>    |
|   |                  | 4110        | FICA Tax                             | 40,185              | 39,487              | (698)             |
|   |                  | 4115        | Medicare                             | 9,398               | 9,235               | (163)             |
|   |                  | 4135        | Med Health Ins                       | 76,990              | 106,422             | 29,432            |
|   |                  | 4145        | Short Term Disability                | 7,489               | 8,764               | 1,275             |
|   |                  | 4150        | Long Term Disability                 | 536                 | 1,257               | 720               |
|   |                  | 4155        | Life Ins <50k                        | 1,041               | 1,127               | 86                |
|   |                  | 4160        | AD&D Ins                             | 139                 | 150                 | 11                |
|   |                  | 4165        | Dental Ins                           | 2,428               | 3,238               | 810               |
|   |                  | 4170        | Vision Ins                           | 809                 | 809                 | -                 |
|   |                  | 4174        | Customer Service Week                | 375                 | -                   | (375)             |
|   |                  | 4180        | Tuition Reimbursement                | 11,250              | 5,000               | (6,250)           |
|   |                  | 4185        | Retirement Benefit                   | 12,581              | 18,140              | 5,559             |
|   |                  | 4195        | Miscellaneous Benefits               | (528)               | (2,340)             | (1,812)           |
|   |                  |             | <b>Total Employee Benefits</b>       | <b>162,692</b>      | <b>191,288</b>      | <b>28,595</b>     |
|   |                  |             | <b>TOTAL SALARIES &amp; BENEFITS</b> | <b>806,865</b>      | <b>828,981</b>      | <b>22,116</b>     |
|   |                  | 5140        | Fixtures & Furniture                 | 2,000               | 4,000               | 2,000             |
|   |                  | 5145        | Grounds & Maintenance                | 25,000              | 150,000             | 125,000           |
|   |                  |             | <b>Equipment</b>                     | <b>27,000</b>       | <b>154,000</b>      | <b>127,000</b>    |
|   |                  | 5402        | Annual Software Support              | 73,177              | 91,572              | 18,396            |
|   |                  |             | <b>Repairs &amp; Maintenance</b>     | <b>73,177</b>       | <b>91,572</b>       | <b>18,396</b>     |
|   |                  |             | <b>DIRECT OPERATING TOTAL</b>        | <b>907,042</b>      | <b>1,074,553</b>    | <b>167,511</b>    |
|   |                  | 7010        | Membership Fees                      | 61,908              | 65,624              | 3,716             |
|   |                  |             | <b>Total Fees</b>                    | <b>61,908</b>       | <b>65,624</b>       | <b>3,716</b>      |
|   |                  | 7305        | Advertising                          | 10,000              | 5,296               | (4,704)           |
|   |                  | 7323        | Consultants                          | 225,000             | 235,917             | 10,917            |
|   |                  | 7325        | Annual Report                        | 3,500               | -                   | (3,500)           |
|   |                  | 7383        | Miscellaneous Professional Service:  | 4,812               | 1,320               | (3,492)           |
|   |                  |             | <b>Total Professional Services</b>   | <b>243,312</b>      | <b>242,533</b>      | <b>(779)</b>      |
|   |                  | 7450        | Office Supplies                      | 1,500               | 2,400               | 900               |
|   |                  |             | <b>Total Supplies</b>                | <b>1,500</b>        | <b>2,400</b>        | <b>900</b>        |
|   |                  | 7505        | T&T Airfare                          | -                   | 3,000               | 3,000             |
|   |                  | 7540        | T&T Lodging                          | -                   | 6,000               | 6,000             |
|   |                  | 7555        | T&T Seminars & Conferences           | -                   | 3,000               | 3,000             |
|   |                  | 7560        | Travel & Training                    | -                   | 6,900               | 6,900             |
|   |                  | 7575        | T&T Miscellaneous                    | 3,000               | -                   | (3,000)           |
|   |                  |             | <b>Total Travel &amp; Training</b>   | <b>3,000</b>        | <b>18,900</b>       | <b>15,900</b>     |
|   |                  | 7742        | Education & Outreach                 | 50,546              | 61,200              | 10,654            |
|   |                  | 7770        | Publication & Subscription           | 4,510               | 4,638               | 128               |
|   |                  |             | <b>Total Miscellaneous Admin</b>     | <b>55,056</b>       | <b>65,838</b>       | <b>10,782</b>     |
|   |                  |             | <b>TOTAL ADMINISTRATIVE</b>          | <b>364,776</b>      | <b>395,295</b>      | <b>30,519</b>     |
|   |                  |             | <b>GRAND TOTAL</b>                   | <b>\$ 1,271,818</b> | <b>\$ 1,469,848</b> | <b>\$ 198,031</b> |



# Safety & Security



**Position Summary**

| Title  | Positions | GL # | GL Description                       | 2022 Budget         | 2023 Budget         | Difference        |
|--|-----------|------|--------------------------------------|---------------------|---------------------|-------------------|
| Construction Health & Safety Specialist              | 1         | 4001 | Salary & Wages Reg                   | \$ 386,090          | \$ 606,658          | \$ 220,568        |
|  |           | 4025 | Bonus                                | 734                 | -                   | (734)             |
| Emergency Planning & Water Production Safety Manager | 1         | 4030 | Holiday Pay                          | 19,939              | 36,590              | 16,652            |
|  |           | 4035 | Vacation Pay                         | 18,822              | 51,849              | 33,027            |
| Security Coordinator                                 | 1         | 4050 | Personal Time Pay                    | 12,472              | 44,502              | 32,029            |
| Security Guard                                       | 5         | 4065 | Jury Duty                            | 300                 | -                   | (300)             |
| Security Manager                                     | 1         | 4080 | Bereavement                          | 1,000               | -                   | (1,000)           |
| Senior Manager, Safety & Security                    | 1         | 4090 | Admin Leave                          | 500                 | -                   | (500)             |
| Workplace Safety Manager                             | 1         |      | <b>Total Wages &amp; Salaries</b>    | <b>439,857</b>      | <b>739,599</b>      | <b>299,742</b>    |
| *Intern  | 1         | 4110 | FICA Tax                             | 27,663              | 45,855              | 18,192            |
| <b>Total Positions</b>                               | <b>12</b> | 4115 | Medicare                             | 6,470               | 10,724              | 4,255             |
|  |           | 4135 | Med Health Ins                       | 100,508             | 172,193             | 71,686            |
|  |           | 4140 | Med Hlth Ins Waiver                  | 1,500               | 3,150               | 1,650             |
|  |           | 4145 | Short Term Disability                | 2,244               | 5,675               | 3,431             |
|  |           | 4155 | Life Ins <50k                        | 677                 | 1,302               | 625               |
|  |           | 4160 | AD&D Ins                             | 90                  | 174                 | 83                |
|  |           | 4165 | Dental Ins                           | 3,133               | 5,687               | 2,553             |
|  |           | 4170 | Vision Ins                           | 599                 | 1,053               | 454               |
|  |           | 4175 | Uniforms                             | 8,200               | -                   | (8,200)           |
|  |           | 4180 | Tuition Reimbursement                | 6,000               | 4,000               | (2,000)           |
|  |           | 4185 | Retirement Benefit                   | 15,516              | 44,647              | 29,132            |
|  |           |      | <b>Total Employee Benefits</b>       | <b>172,599</b>      | <b>294,459</b>      | <b>121,860</b>    |
|  |           |      | <b>TOTAL SALARIES &amp; BENEFITS</b> | <b>612,456</b>      | <b>1,034,058</b>    | <b>421,602</b>    |
|  |           | 5140 | Fixtures & Furniture                 | 1,500               | 4,000               | 2,500             |
|  |           | 5145 | Grounds & Maintenance                | 52,900              | 53,250              | 350               |
|  |           |      | <b>Equipment</b>                     | <b>54,400</b>       | <b>57,250</b>       | <b>2,850</b>      |
|  |           | 5345 | Miscellaneous Inspection             | -                   | 2,500               | 2,500             |
|  |           | 5350 | Key & Lock Services                  | 10,000              | -                   | (10,000)          |
|  |           | 5355 | Landscape & Grounds                  | 50,000              | -                   | (50,000)          |
|  |           | 5375 | Security Guards                      | -                   | 651,399             | 651,399           |
|  |           |      | <b>Operating Contracts</b>           | <b>60,000</b>       | <b>653,899</b>      | <b>593,899</b>    |
|  |           | 5402 | Annual Software Support              | 9,650               | 63,529              | 53,879            |
|  |           | 5405 | Building & Property Repairs          | 3,000               | 6,000               | 3,000             |
|  |           | 5408 | Computer Hardware Maintenance        | -                   | 43,195              | 43,195            |
|  |           | 5411 | Computer Software Support            | -                   | 49,900              | 49,900            |
|  |           | 5496 | Misc. Repair & Maintenance           | -                   | 7,455               | 7,455             |
|  |           |      | <b>Repairs &amp; Maintenance</b>     | <b>12,650</b>       | <b>170,079</b>      | <b>157,429</b>    |
|  |           | 5570 | Testing                              | 282,500             | 1,000               | (281,500)         |
|  |           |      | <b>Misc. Operating</b>               | <b>282,500</b>      | <b>1,000</b>        | <b>(281,500)</b>  |
|  |           |      | <b>DIRECT OPERATING TOTAL</b>        | <b>1,022,006</b>    | <b>1,916,286</b>    | <b>894,280</b>    |
|  |           | 7005 | Certification Fees                   | 3,100               | 1,000               | (2,100)           |
|  |           | 7010 | Membership Fees                      | 1,400               | 1,300               | (100)             |
|  |           |      | <b>Total Fees</b>                    | <b>4,500</b>        | <b>2,300</b>        | <b>(2,200)</b>    |
|  |           | 7323 | Consultants                          | 80,993              | 90,000              | 9,007             |
|  |           |      | <b>Total Professional Services</b>   | <b>80,993</b>       | <b>90,000</b>       | <b>9,007</b>      |
|  |           | 7435 | Uniforms                             | -                   | 3,000               | 3,000             |
|  |           | 7440 | Grounds & Maintenance Supplies       | -                   | 27,000              | 27,000            |
|  |           | 7450 | Office Supplies                      | 500                 | 1,100               | 600               |
|  |           |      | <b>Total Supplies</b>                | <b>500</b>          | <b>31,100</b>       | <b>30,600</b>     |
|  |           | 7555 | T&T Seminars & Conferences           | -                   | 2,000               | 2,000             |
|  |           | 7560 | Travel & Training                    | 14,000              | 9,500               | (4,500)           |
|  |           |      | <b>Total Travel &amp; Training</b>   | <b>14,000</b>       | <b>11,500</b>       | <b>(2,500)</b>    |
|  |           |      | <b>TOTAL ADMINISTRATIVE</b>          | <b>99,993</b>       | <b>134,900</b>      | <b>34,907</b>     |
|  |           |      | <b>GRAND TOTAL</b>                   | <b>\$ 1,121,999</b> | <b>\$ 2,051,186</b> | <b>\$ 929,187</b> |

# Sewer Operations



**Position Summary**

| Title                            | Positions | GL # | GL Description                       | 2022 Budget      | 2023 Budget      | Difference      |
|----------------------------------|-----------|------|--------------------------------------|------------------|------------------|-----------------|
| Administrative Assistant, Sewer  | 1         | 4001 | Salary & Wages Reg                   | \$ 1,350,845     | \$ 1,308,908     | \$ (41,937)     |
| Senior Manager, Sewer Operations | 1         | 4005 | OT Premium Pay                       | 75,105           | 75,105           | -               |
| Sewer Service Foremen            | 1         | 4010 | Shift Differential                   | 2,220            | 2,220            | -               |
| T.V. Truck Specialist            | 6         | 4025 | Bonus                                | 4,034            | -                | (4,034)         |
| Utility Worker I                 | 8         | 4030 | Holiday Pay                          | 76,925           | 75,983           | (942)           |
| Vactor Operator                  | 6         | 4035 | Vacation Pay                         | 77,315           | 84,861           | 7,546           |
| <b>Total Positions</b>           | <b>23</b> | 4050 | Personal Time Pay                    | 51,513           | 57,036           | 5,523           |
|                                  |           | 4065 | Jury Duty                            | 300              | -                | (300)           |
|                                  |           | 4075 | Supper Pay                           | 2,308            | 1,200            | (1,108)         |
|                                  |           | 4080 | Bereavement                          | 1,000            | -                | (1,000)         |
|                                  |           | 4090 | Admin Leave                          | 6,608            | -                | (6,608)         |
|                                  |           |      | <b>Total Wages &amp; Salaries</b>    | <b>1,648,175</b> | <b>1,605,314</b> | <b>(42,861)</b> |
|                                  |           | 4110 | FICA Tax                             | 103,916          | 99,529           | (4,386)         |
|                                  |           | 4115 | Medicare                             | 24,303           | 23,277           | (1,026)         |
|                                  |           | 4135 | Med Health Ins                       | 257,668          | 241,804          | (15,864)        |
|                                  |           | 4140 | Med Hlth Ins Waiver                  | 7,400            | 8,800            | 1,400           |
|                                  |           | 4145 | Short Term Disability                | 18,830           | 20,537           | 1,707           |
|                                  |           | 4150 | Long Term Disability                 | 2,104            | 2,718            | 614             |
|                                  |           | 4155 | Life Ins <50k                        | 2,744            | 2,735            | (9)             |
|                                  |           | 4160 | AD&D Ins                             | 366              | 365              | (1)             |
|                                  |           | 4165 | Dental Ins                           | 10,607           | 8,928            | (1,679)         |
|                                  |           | 4170 | Vision Ins                           | 812              | 1,122            | 310             |
|                                  |           | 4175 | Uniforms                             | 38,000           | -                | (38,000)        |
|                                  |           | 4185 | Retirement Benefit                   | 16,248           | 29,783           | 13,535          |
|                                  |           |      | <b>Total Employee Benefits</b>       | <b>482,997</b>   | <b>439,599</b>   | <b>(43,398)</b> |
|                                  |           |      | <b>TOTAL SALARIES &amp; BENEFITS</b> | <b>2,131,172</b> | <b>2,044,913</b> | <b>(86,259)</b> |
|                                  |           | 5120 | Computer & Peripherals               | 4,000            | -                | (4,000)         |
|                                  |           | 5145 | Grounds & Maintenance                | 3,000            | -                | (3,000)         |
|                                  |           | 5150 | Machinery & Equipment                | 12,000           | 12,000           | -               |
|                                  |           |      | <b>Equipment</b>                     | <b>19,000</b>    | <b>12,000</b>    | <b>(7,000)</b>  |
|                                  |           | 5230 | Cement Bagged                        | 1,500            | -                | (1,500)         |
|                                  |           | 5245 | Lumber                               | 9,600            | -                | (9,600)         |
|                                  |           | 5255 | Aggregate Material                   | 126,000          | 108,000          | (18,000)        |
|                                  |           |      | <b>Materials</b>                     | <b>137,100</b>   | <b>108,000</b>   | <b>(29,100)</b> |
|                                  |           | 5315 | Catch Basin Cleaning                 | 650,000          | 550,000          | (100,000)       |
|                                  |           | 5340 | Dumpster                             | 2,400            | 2,400            | -               |
|                                  |           | 5341 | Vactor Debris Removal Contract       | 150,000          | 220,000          | 70,000          |
|                                  |           | 5360 | Flagging                             | -                | 49,998           | 49,998          |
|                                  |           | 5370 | Miscellaneous Operating Contracts    | 175,000          | -                | (175,000)       |
|                                  |           | 5380 | Line Locating                        | -                | 111,252          | 111,252         |
|                                  |           |      | <b>Operating Contracts</b>           | <b>977,400</b>   | <b>933,650</b>   | <b>(43,750)</b> |
|                                  |           | 5405 | Building & Property Repairs          | 25,000           | 1,200            | (23,800)        |
|                                  |           | 5439 | HVAC & Plumbing Repairs              | 1,200            | 2,400            | 1,200           |
|                                  |           | 5486 | Miscellaneous Tool Repairs           | 1,200            | -                | (1,200)         |
|                                  |           | 5496 | Misc. Repair & Maintenance           | 1,800            | 2,016            | 216             |
|                                  |           |      | <b>Repairs &amp; Maintenance</b>     | <b>29,200</b>    | <b>5,616</b>     | <b>(23,584)</b> |
|                                  |           | 6015 | Casting Manhole & Catch Basin        | 40,000           | 40,000           | -               |
|                                  |           | 6025 | Casting Risers Lids                  | 30,000           | 40,000           | 10,000          |
|                                  |           | 6035 | Casting Sewer Inlet                  | 18,000           | 18,000           | -               |
|                                  |           | 6060 | Casting Water Valve Box              | 6,000            | 6,000            | -               |
|                                  |           |      | <b>Inventory - Castings</b>          | <b>94,000</b>    | <b>104,000</b>   | <b>10,000</b>   |
|                                  |           | 6260 | Safety Equipment                     | 500              | -                | (500)           |
|                                  |           |      | <b>Inventory - Equipment</b>         | <b>500</b>       | <b>-</b>         | <b>(500)</b>    |
|                                  |           | 6300 | Inventory-Hardware                   | 1,200            | -                | (1,200)         |
|                                  |           | 6315 | Fittings                             | 16,000           | 9,600            | (6,400)         |
|                                  |           | 6360 | Tools                                | 600              | 6,000            | 5,400           |
|                                  |           |      | <b>Inventory - Hardware</b>          | <b>17,800</b>    | <b>15,600</b>    | <b>(2,200)</b>  |
|                                  |           | 6515 | Cleaning                             | 600              | -                | (600)           |
|                                  |           | 6548 | Paint Oils Putty Glass               | 1,200            | -                | (1,200)         |
|                                  |           | 6570 | Testing Dyes                         | 12,000           | 6,000            | (6,000)         |

|  |                     |                     |                     |
|--|---------------------|---------------------|---------------------|
| <b>Inventory - Miscellaneous</b>         | <b>13,800</b>       | <b>6,000</b>        | <b>(7,800)</b>      |
| 6705 Pipe                                | 120                 | -                   | (120)               |
| 6755 Pipe Plastic                        | 1,800               | -                   | (1,800)             |
| <b>Inventory - Pipe</b>                  | <b>1,920</b>        | <b>-</b>            | <b>(1,920)</b>      |
| <b>INVENTORY TOTAL</b>                   | <b>128,020</b>      | <b>125,600</b>      | <b>(2,420)</b>      |
| <b>DIRECT OPERATING TOTAL</b>            | <b>3,421,892</b>    | <b>3,229,779</b>    | <b>(192,113)</b>    |
| 7215 Equipment Rental                    | 4,000               | -                   | (4,000)             |
| <b>Total Leases &amp; Rents</b>          | <b>4,000</b>        | <b>-</b>            | <b>(4,000)</b>      |
| 7383 Miscellaneous Professional Service: | 60,000              | 20,000              | (40,000)            |
| <b>Total Professional Services</b>       | <b>60,000</b>       | <b>20,000</b>       | <b>(40,000)</b>     |
| 7435 Uniforms                            | -                   | 36,500              | 36,500              |
| 7440 Grounds & Maintenance Supplies      | 35,000              | 25,000              | (10,000)            |
| 7450 Office Supplies                     | 4,000               | 3,600               | (400)               |
| <b>Total Supplies</b>                    | <b>39,000</b>       | <b>65,100</b>       | <b>26,100</b>       |
| 7560 Travel & Training                   | 2,600               | 8,000               | 5,400               |
| 7575 T&T Miscellaneous                   | 1,000               | -                   | (1,000)             |
| <b>Total Travel &amp; Training</b>       | <b>3,600</b>        | <b>8,000</b>        | <b>4,400</b>        |
| 7710 Capital Asset Reclass               | (25,000)            | -                   | 25,000              |
| <b>Total Miscellaneous Admin</b>         | <b>(25,000)</b>     | <b>-</b>            | <b>25,000</b>       |
| <b>TOTAL ADMINISTRATIVE</b>              | <b>81,600</b>       | <b>93,100</b>       | <b>11,500</b>       |
| <b>GRAND TOTAL</b>                       | <b>\$ 3,503,492</b> | <b>\$ 3,322,879</b> | <b>\$ (180,613)</b> |

# Warehouse



**Position Summary**

| <b>Title</b>                    | <b>Positions</b> | <b>GL #</b> | <b>GL Description</b>                   | <b>2022 Budget</b> | <b>2023 Budget</b> | <b>Difference</b> |
|---------------------------------|------------------|-------------|---|--------------------|--------------------|-------------------|
| Inventory Control Specialist    | 2                | 4001        | Salary & Wages Reg                      | \$ 329,314         | \$ 312,423         | \$ (16,891)       |
| Inventory Control Specialist II | 2                | 4005        | OT Premium Pay                          | 3,103              | 3,336              | 233               |
| Meter Repair Specialist         | 1                | 4010        | Shift Differential                      | 76                 | 104                | 28                |
| Senior Manager, Warehouse       | 1                | 4025        | Bonus                                   | 1,100              | -                  | (1,100)           |
| <b>Total Positions</b>          | <b>6</b>         | 4030        | Holiday Pay                             | 18,449             | 18,397             | (52)              |
|                                 |                  | 4035        | Vacation Pay                            | 18,352             | 25,750             | 7,399             |
|                                 |                  | 4050        | Personal Time Pay                       | 12,358             | 15,593             | 3,234             |
|                                 |                  | 4065        | Jury Duty                               | 300                | -                  | (300)             |
|                                 |                  | 4075        | Supper Pay                              | 12                 | 20                 | 8                 |
|                                 |                  | 4080        | Bereavement                             | 1,000              | -                  | (1,000)           |
|                                 |                  | 4090        | Admin Leave                             | 500                | -                  | (500)             |
|                                 |                  |             | <b>Total Wages &amp; Salaries</b>       | <b>384,565</b>     | <b>375,624</b>     | <b>(8,941)</b>    |
|                                 |                  | 4110        | FICA Tax                                | 23,973             | 23,289             | (685)             |
|                                 |                  | 4115        | Medicare                                | 5,607              | 5,447              | (160)             |
|                                 |                  | 4135        | Med Health Ins                          | 80,876             | 85,727             | 4,851             |
|                                 |                  | 4145        | Short Term Disability                   | 4,412              | 4,495              | 84                |
|                                 |                  | 4150        | Long Term Disability                    | 431                | 855                | 424               |
|                                 |                  | 4155        | Life Ins <50k                           | 659                | 662                | 4                 |
|                                 |                  | 4160        | AD&D Ins                                | 88                 | 88                 | 0                 |
|                                 |                  | 4165        | Dental Ins                              | 2,838              | 2,464              | (374)             |
|                                 |                  | 4170        | Vision Ins                              | 474                | 456                | (18)              |
|                                 |                  | 4175        | Uniforms                                | 6,000              | -                  | (6,000)           |
|                                 |                  | 4185        | Retirement Benefit                      | 2,766              | -                  | (2,766)           |
|                                 |                  |             | <b>Total Employee Benefits</b>          | <b>128,123</b>     | <b>123,484</b>     | <b>(4,639)</b>    |
|                                 |                  |             | <b>TOTAL SALARIES &amp; BENEFITS</b>    | <b>512,688</b>     | <b>499,108</b>     | <b>(13,580)</b>   |
|                                 |                  | 5140        | Fixtures & Furniture                    | 1,500              | 900                | (600)             |
|                                 |                  | 5145        | Grounds & Maintenance                   | 2,000              | 5,000              | 3,000             |
|                                 |                  |             | <b>Equipment</b>                        | <b>3,500</b>       | <b>5,900</b>       | <b>2,400</b>      |
|                                 |                  | 5340        | Dumpster                                | 3,000              | 3,000              | -                 |
|                                 |                  |             | <b>Operating Contracts</b>              | <b>3,000</b>       | <b>3,000</b>       | <b>-</b>          |
|                                 |                  | 5405        | Building & Property Repairs             | 138,000            | 2,400              | (135,600)         |
|                                 |                  | 5415        | Crane Repairs                           | 5,000              | 3,000              | (2,000)           |
|                                 |                  | 5422        | Chemical Removal                        | -                  | 2,000              | 2,000             |
|                                 |                  | 5439        | HVAC & Plumbing Repairs                 | 5,000              | 2,400              | (2,600)           |
|                                 |                  | 5496        | Misc. Repair & Maintenance              | -                  | 1000               | 1000              |
|                                 |                  |             | <b>Repairs &amp; Maintenance</b>        | <b>148,000</b>     | <b>10,800</b>      | <b>(137,200)</b>  |
|                                 |                  | 6220        | Fire Extinguishers                      | 500                | -                  | (500)             |
|                                 |                  |             | <b>Inventory - Equipment</b>            | <b>500</b>         | <b>-</b>           | <b>(500)</b>      |
|                                 |                  |             | <b>INVENTORY TOTAL</b>                  | <b>500</b>         | <b>-</b>           | <b>(500)</b>      |
|                                 |                  |             | <b>DIRECT OPERATING TOTAL</b>           | <b>667,688</b>     | <b>518,808</b>     | <b>(148,880)</b>  |
|                                 |                  | 7110        | Freight                                 | 600                | 240                | (360)             |
|                                 |                  |             | <b>Total Freight and Postage</b>        | <b>600</b>         | <b>240</b>         | <b>(360)</b>      |
|                                 |                  | 7215        | Equipment Rental                        | -                  | 1,000              | 1,000             |
|                                 |                  |             | <b>Total Leases and Rents</b>           | <b>-</b>           | <b>1,000</b>       | <b>1,000</b>      |
|                                 |                  | 7435        | Uniforms                                | -                  | 6,050              | 6,050             |
|                                 |                  | 7440        | Grounds & Maintenance Supplies          | 5,000              | 1,200              | (3,800)           |
|                                 |                  | 7450        | Office Supplies                         | 2,000              | 1,200              | (800)             |
|                                 |                  |             | <b>Total Supplies</b>                   | <b>7,000</b>       | <b>8,450</b>       | <b>1,450</b>      |
|                                 |                  | 7540        | T&T Lodging                             | -                  | 1,000              | 1,000             |
|                                 |                  | 7545        | T&T Meals                               | -                  | 600                | 600               |
|                                 |                  | 7555        | T&T Seminars & Conferences              | -                  | 500                | 500               |
|                                 |                  | 7575        | T&T Miscellaneous                       | 1,000              | 450                | (550)             |
|                                 |                  |             | <b>Total Travel &amp; Entertainment</b> | <b>1,000</b>       | <b>2,550</b>       | <b>1,550</b>      |
|                                 |                  | 7710        | Capital Asset Reclass                   | (138,000)          | -                  | 138,000           |
|                                 |                  |             | <b>Total Miscellaneous Admin</b>        | <b>(138,000)</b>   | <b>-</b>           | <b>138,000</b>    |
|                                 |                  |             | <b>TOTAL ADMINISTRATIVE</b>             | <b>(129,400)</b>   | <b>12,240</b>      | <b>141,640</b>    |
|                                 |                  |             | <b>GRAND TOTAL</b>                      | <b>\$ 538,288</b>  | <b>\$ 531,048</b>  | <b>\$ (7,240)</b> |

# Water Operations





**Position Summary**

| Title                                | Positions  | GL # | GL Description                       | 2022 Budget       | 2023 Budget       | Difference       |
|--------------------------------------|------------|------|--------------------------------------|-------------------|-------------------|------------------|
| Administrative Assistant             | 1          | 4001 | Salary & Wages Reg                   | \$ 7,526,208      | \$ 7,225,464      | \$ (300,743)     |
| Deputy Director, Operations          | 1          | 4005 | OT Premium Pay                       | 678,783           | 778,783           | 100,000          |
| Director of Operations               | 1          | 4010 | Shift Differential                   | 44,042            | 44,042            | -                |
| Equipment Repair Scceialist          | 1          | 4025 | Bonus                                | 22,922            | -                 | (22,922)         |
| Field Service Technician II          | 3          | 4030 | Holiday Pay                          | 431,693           | 422,515           | (9,178)          |
| Field Service Technician III         | 2          | 4035 | Vacation Pay                         | 523,711           | 551,344           | 27,633           |
| Heavy Equipment Operator             | 8          | 4045 | Sick Pay                             | 12,000            | 12,000            | -                |
| Heavy Equipment Operator, Licensed   | 1          | 4050 | Personal Time Pay                    | 294,488           | 327,825           | 33,337           |
| Inspector I                          | 1          | 4065 | Jury Duty                            | 750               | -                 | (750)            |
| Leak Detection Specialist            | 4          | 4075 | Supper Pay                           | 16,122            | 25,000            | 8,878            |
| Manager, Field Operations            | 7          | 4080 | Bereavement                          | 17,137            | -                 | (17,137)         |
| Plumber                              | 15         | 4090 | Admin Leave                          | 8,845             | -                 | (8,845)          |
| Plumber - Licensed                   | 1          |      | <b>Total Wages &amp; Salaries</b>    | <b>9,576,700</b>  | <b>9,386,974</b>  | <b>(189,726)</b> |
| Senior Manager, Field Operations     | 2          | 4110 | FICA Tax                             | 600,268           | 580,291           | (19,978)         |
| Sewer Service Foreman                | 1          | 4115 | Medicare                             | 141,370           | 135,937           | (5,433)          |
| Truck Driver                         | 14         | 4135 | Med Health Ins                       | 1,684,912         | 1,725,480         | 40,568           |
| Truck Driver, Licensed               | 1          | 4140 | Med Hlth Ins Waiver                  | 18,200            | 20,900            | 2,700            |
| Truck Driver, Special/Winch          | 2          | 4145 | Short Term Disability                | 110,759           | 114,436           | 3,677            |
| Utility Worker I                     | 14         | 4150 | Long Term Disability                 | 17,156            | 18,573            | 1,416            |
| Utility Worker II                    | 18         | 4155 | Life Ins <50k                        | 15,099            | 15,211            | 111              |
| Utility Worker II - Licensed         | 1          | 4160 | AD&D Ins                             | 2,013             | 2,028             | 15               |
| Valve & Hydrant Specialist           | 12         | 4165 | Dental Ins                           | 68,069            | 59,918            | (8,151)          |
| Valve & Hydrant Specialist, Licensed | 1          | 4170 | Vision Ins                           | 5,046             | 5,842             | 796              |
| Water Repair Foreman                 | 8          | 4175 | Uniforms                             | 65,000            | -                 | (65,000)         |
| Water Repair Foreman, Licensed       | 1          | 4185 | Retirement Benefit                   | 43,799            | 112,801           | 69,002           |
| <b>Total Positions</b>               | <b>121</b> |      | <b>Total Employee Benefits</b>       | <b>2,771,691</b>  | <b>2,791,415</b>  | <b>19,724</b>    |
|                                      |            |      | <b>TOTAL SALARIES &amp; BENEFITS</b> | <b>12,348,390</b> | <b>12,178,388</b> | <b>(170,002)</b> |
|                                      |            | 5030 | Sodium Bisulfite                     | 170,000           | 80,000            | (90,000)         |
|                                      |            |      | <b>Chemicals</b>                     | <b>170,000</b>    | <b>80,000</b>     | <b>(90,000)</b>  |
|                                      |            | 5140 | Fixtures & Furniture                 | 3,000             | -                 | (3,000)          |
|                                      |            | 5145 | Grounds & Maintenance                | 50,000            | 67,000            | 17,000           |
|                                      |            | 5150 | Machinery & Equipment                | 150,000           | -                 | (150,000)        |
|                                      |            |      | <b>Equipment</b>                     | <b>203,000</b>    | <b>67,000</b>     | <b>(136,000)</b> |
|                                      |            | 5205 | Asphalt Cold Patch                   | 85,000            | 90,000            | 5,000            |
|                                      |            | 5220 | Asphalt Hotmix                       | -                 | 24,000            | 24,000           |
|                                      |            | 5227 | Brick                                | 1,200             | 1,200             | -                |
|                                      |            | 5230 | Cement Bagged                        | 3,000             | 2,400             | (600)            |
|                                      |            | 5245 | Lumber                               | 24,000            | 36,000            | 12,000           |
|                                      |            | 5250 | Sand                                 | 6,000             | -                 | (6,000)          |
|                                      |            | 5255 | Aggregate Material                   | 200,000           | 432,000           | 232,000          |
|                                      |            | 5265 | Top Soil                             | 5,000             | 4,800             | (200)            |
|                                      |            |      | <b>Materials</b>                     | <b>324,200</b>    | <b>590,400</b>    | <b>266,200</b>   |
|                                      |            | 5330 | Debris Removal                       | 200,000           | 263,300           | 63,300           |
|                                      |            | 5340 | Dumpster                             | 25,000            | 16,800            | (8,200)          |
|                                      |            | 5360 | Flagging                             | -                 | 199,992           | 199,992          |
|                                      |            | 5370 | Miscellaneous Operating Contracts    | 550,000           | -                 | (550,000)        |
|                                      |            | 5380 | Line Locating                        | -                 | 445,008           | 445,008          |
|                                      |            |      | <b>Operating Contracts</b>           | <b>775,000</b>    | <b>925,100</b>    | <b>150,100</b>   |
|                                      |            | 5402 | Annual Software Support              | 50,327            | 56,974            | 6,647            |
|                                      |            | 5405 | Building & Property Repairs          | 210,000           | 8,500             | (201,500)        |
|                                      |            | 5417 | Electrical Repairs                   | 2,400             | 1,200             | (1,200)          |
|                                      |            | 5422 | Chemical Removal                     | -                 | 18,000            | 18,000           |
|                                      |            | 5439 | HVAC & Plumbing Repairs              | 4,000             | 2,400             | (1,600)          |
|                                      |            | 5452 | Machinery Repairs                    | 14,601            | 13,954            | (647)            |
|                                      |            | 5467 | Power Tool Repairs                   | 12,000            | 3,000             | (9,000)          |
|                                      |            | 5482 | Tool Repairs                         | 6,000             | 10,000            | 4,000            |
|                                      |            | 5484 | Hand Tool Repairs                    | 1,000             | -                 | (1,000)          |
|                                      |            | 5486 | Miscellaneous Tool Repairs           | 1,400             | -                 | (1,400)          |
|                                      |            | 5496 | Misc. Repair & Maintenance           | 4,000             | 4,000             | -                |
|                                      |            |      | <b>Repairs &amp; Maintenance</b>     | <b>305,728</b>    | <b>118,028</b>    | <b>(187,700)</b> |

|  |                      |                      |                   |
|--|----------------------|----------------------|-------------------|
| 5570 Testing                             | 500                  | -                    | (500)             |
| <b>Misc. Operating</b>                   | <b>500</b>           | <b>-</b>             | <b>(500)</b>      |
| 6015 Casting Manhole & Catch Basin       | 2,000                | 2,400                | 400               |
| 6025 Casting Risers Lids                 | 6,000                | 6,000                | -                 |
| 6060 Casting Water Valve Box             | 150,000              | 120,000              | (30,000)          |
| <b>Inventory - Castings</b>              | <b>158,000</b>       | <b>128,400</b>       | <b>(29,600)</b>   |
| 6245 Materials - Handling                | 6,000                | -                    | (6,000)           |
| 6260 Safety Equipment                    | 60,000               | 60,000               | -                 |
| <b>Inventory - Equipment</b>             | <b>66,000</b>        | <b>60,000</b>        | <b>(6,000)</b>    |
| 6300 Inventory-Hardware                  | 9,000                | 10,000               | 1,000             |
| 6315 Fittings                            | 120,000              | 155,000              | 35,000            |
| 6325 Hoses & Fittings                    | 10,000               | 12,000               | 2,000             |
| 6335 Lights                              | 2,400                | 2,400                | -                 |
| 6340 Machinery Miscellaneous             | 12,000               | 10,000               | (2,000)           |
| 6345 Meters                              | 12,000               | 12,000               | -                 |
| 6350 Plumbing                            | 20,000               | 18,000               | (2,000)           |
| 6355 Power Tools                         | 10,000               | 12,000               | 2,000             |
| 6360 Tools                               | 120,000              | 100,000              | (20,000)          |
| <b>Inventory - Hardware</b>              | <b>315,400</b>       | <b>331,400</b>       | <b>16,000</b>     |
| 6500 Inventory-Miscellaneous             | 15,000               | 12,000               | (3,000)           |
| 6506 Batteries                           | -                    | 1,000                | 1,000             |
| 6515 Cleaning                            | 4,000                | 7,800                | 3,800             |
| 6530 First Aid                           | 1,000                | 1,200                | 200               |
| 6544 Lubricating Oil                     | 6,000                | 2,400                | (3,600)           |
| 6548 Paint Oils Putty Glass              | 8,000                | 1,200                | (6,800)           |
| 6580 Vehicle Oil                         | 2,400                | 1,200                | (1,200)           |
| <b>Inventory - Miscellaneous</b>         | <b>36,400</b>        | <b>26,800</b>        | <b>(9,600)</b>    |
| 6645 Parts-Other                         | 84,000               | 24,000               | (60,000)          |
| 6680 Yard                                | 170,000              | 180,000              | 10,000            |
| <b>Inventory - Parts</b>                 | <b>254,000</b>       | <b>204,000</b>       | <b>(50,000)</b>   |
| 6705 Pipe                                | 4,000                | -                    | (4,000)           |
| 6710 Pipe Ductile                        | 500,000              | 750,000              | 250,000           |
| 6755 Pipe Plastic                        | 3,000                | 3,300                | 300               |
| 6765 Pipe Service Line                   | 11,000               | 11,000               | -                 |
| <b>Inventory - Pipe</b>                  | <b>518,000</b>       | <b>764,300</b>       | <b>246,300</b>    |
| 6825 Valves                              | 90,000               | 200,000              | 110,000           |
| <b>Inventory - Valves</b>                | <b>90,000</b>        | <b>200,000</b>       | <b>110,000</b>    |
| <b>INVENTORY TOTAL</b>                   | <b>1,437,800</b>     | <b>1,714,900</b>     | <b>277,100</b>    |
| <b>DIRECT OPERATING TOTAL</b>            | <b>15,564,618</b>    | <b>15,673,817</b>    | <b>109,198</b>    |
| 7215 Equipment Rental                    | 20,000               | 6,000                | (14,000)          |
| <b>Total Leases &amp; Rents</b>          | <b>20,000</b>        | <b>6,000</b>         | <b>(14,000)</b>   |
| 7383 Miscellaneous Professional Service: | 18,000               | 16,000               | (2,000)           |
| <b>Total Professional Services</b>       | <b>18,000</b>        | <b>16,000</b>        | <b>(2,000)</b>    |
| 7435 Uniforms                            | -                    | 71,700               | 71,700            |
| 7440 Grounds & Maintenance Supplies      | 120,000              | 110,000              | (10,000)          |
| 7450 Office Supplies                     | 7,000                | 7,000                | -                 |
| <b>Total Supplies</b>                    | <b>127,000</b>       | <b>188,700</b>       | <b>61,700</b>     |
| 7555 T&T Seminars & Conferences          | -                    | 4,000                | 4,000             |
| 7560 Travel & Training                   | 1,200                | 23,000               | 21,800            |
| 7575 T&T Miscellaneous                   | 1,800                | -                    | (1,800)           |
| <b>Total Travel &amp; Training</b>       | <b>3,000</b>         | <b>27,000</b>        | <b>24,000</b>     |
| 7710 Capital Asset Reclasp               | (210,000)            | -                    | 210,000           |
| 7730 Fines & Penalties                   | -                    | 18,000               | 18,000            |
| <b>Total Miscellaneous Admin</b>         | <b>(210,000)</b>     | <b>18,000</b>        | <b>228,000</b>    |
| <b>TOTAL ADMINISTRATIVE</b>              | <b>(42,000)</b>      | <b>255,700</b>       | <b>297,700</b>    |
| <b>GRAND TOTAL</b>                       | <b>\$ 15,522,618</b> | <b>\$ 15,929,517</b> | <b>\$ 406,898</b> |

# Water Treatment Plant



| <b>Position Summary</b>                     |                  | <b>GL #</b> | <b>GL Description</b>                | <b>2022 Budget</b> | <b>2023 Budget</b> | <b>Difference</b> |
|---|------------------|-------------|--------------------------------------|--------------------|--------------------|-------------------|
| <b>Title</b>                                | <b>Positions</b> |             |                                      |                    |                    |                   |
| Administrative Assistant                    | 2                | 4001        | Salary & Wages Reg                   | \$ 3,516,349       | \$ 4,182,789       | \$ 666,440        |
| Deputy Director, Water Production           | 1                | 4005        | OT Premium Pay                       | 477,692            | 477,692            | -                 |
| Electrical Foreman                          | 1                | 4010        | Shift Differential                   | 37,005             | 37,005             | -                 |
| Electrician                                 | 2                | 4025        | Bonus                                | 9,902              | -                  | (9,902)           |
| Electrician, Licensed                       | 2                | 4030        | Holiday Pay                          | 199,781            | 243,558            | 43,777            |
| Equipment Repair Specialist                 | 4                | 4035        | Vacation Pay                         | 232,052            | 269,431            | 37,379            |
| I&C Technician                              | 1                | 4050        | Personal Time Pay                    | 135,971            | 210,146            | 74,175            |
| Machinist                                   | 1                | 4065        | Jury Duty                            | 300                | -                  | (300)             |
| Manager, I&C                                | 1                | 4075        | Supper Pay                           | 2,180              | 3,800              | 1,620             |
| Manager, Commissioning                      | 1                | 4080        | Bereavement                          | 4,000              | -                  | (4,000)           |
| Manager, Distribution Group                 | 1                | 4090        | Admin Leave                          | 1,543              | -                  | (1,543)           |
| Manager, Storage Tanks                      | 1                |             | <b>Total Wages &amp; Salaries</b>    | <b>4,616,775</b>   | <b>5,424,421</b>   | <b>807,646</b>    |
| Manager, Treatment Group                    | 1                | 4110        | FICA Tax                             | 290,105            | 336,314            | 46,209            |
| Office Manager                              | 1                | 4115        | Medicare                             | 67,898             | 78,654             | 10,756            |
| Plant Maintenance Foreman                   | 2                | 4135        | Med Health Ins                       | 748,304            | 1,060,853          | 312,548           |
| Plant Operator                              | 14               | 4140        | Med Hlth Ins Waiver                  | 3,400              | 6,250              | 2,850             |
| Plant Operator, Class A                     | 3                | 4145        | Short Term Disability                | 49,836             | 54,349             | 4,513             |
| Plumber                                     | 3                | 4150        | Long Term Disability                 | 5,714              | 7,271              | 1,557             |
| SCADA Technician                            | 1                | 4155        | Life Ins <50k                        | 6,863              | 8,768              | 1,905             |
| Senior Manager, Electrical & I&C            | 1                | 4160        | AD&D Ins                             | 915                | 1,169              | 254               |
| Senior Manager, Mechanical                  | 1                | 4165        | Dental Ins                           | 29,321             | 34,441             | 5,120             |
| Senior Manager, Project Manager, Production | 1                | 4170        | Vision Ins                           | 2,051              | 2,987              | 936               |
| Sr. Group Manager, Water Quality            | 1                | 4175        | Uniforms                             | 45,730             | -                  | (45,730)          |
| Stationary Engineer                         | 5                | 4180        | Tuition Reimbursement                | 7,452              | 3,000              | (4,452)           |
| Steamfitter                                 | 1                | 4185        | Retirement Benefit                   | 30,734             | 136,385            | 105,652           |
| Truck Driver, Hazmat                        | 2                |             | <b>Total Employee Benefits</b>       | <b>1,288,323</b>   | <b>1,730,442</b>   | <b>442,119</b>    |
| Utility Worker I                            | 8                |             | <b>TOTAL SALARIES &amp; BENEFITS</b> | <b>5,905,097</b>   | <b>7,154,863</b>   | <b>1,249,766</b>  |
| Welder                                      | 1                | 5005        | Orthophosphate                       | 385,000            | 379,200            | (5,800)           |
| <b>Total Positions</b>                      | <b>64</b>        | 5010        | Boiler Chemicals                     | 24,924             | 33,600             | 8,676             |
|   |                  | 5015        | Calcium Hypochlorite                 | 20,000             | 20,000             | -                 |
|   |                  | 5020        | Clarifloc                            | 125,916            | 97,800             | (28,116)          |
|   |                  | 5025        | Caustic Soda                         | 3,107              | 2,400              | (707)             |
|   |                  | 5030        | Sodium Bisulfite                     | 3,072              | 5,000              | 1,928             |
|   |                  | 5035        | Sodium Permanganate                  | -                  | 850,000            | 850,000           |
|   |                  | 5040        | Citric Acid                          | 49,396             | 8,000              | (41,396)          |
|   |                  | 5050        | Ferric Chloride                      | 1,935,244          | 2,400,000          | 464,756           |
|   |                  | 5055        | Hydrofluorosil Acid                  | 161,816            | 192,000            | 30,184            |
|   |                  | 5060        | Lime                                 | 575,000            | 650,000            | 75,000            |
|   |                  | 5065        | Potassium Permanganate               | 200,000            | -                  | (200,000)         |
|   |                  | 5070        | Powdered Active Carbon               | 150,000            | -                  | (150,000)         |
|   |                  | 5075        | Soda Ash                             | 580,000            | 529,800            | (50,200)          |
|   |                  | 5080        | Sodium Hypochlorite                  | 660,000            | 800,400            | 140,400           |
|   |                  | 5085        | Sodium Carbonate Peroxyhydrate       | 10,000             | 18,000             | 8,000             |
|   |                  |             | <b>Chemicals</b>                     | <b>4,883,475</b>   | <b>5,986,200</b>   | <b>1,102,725</b>  |
|   |                  | 5120        | Computer & Peripherals               | 173,196            | -                  | (173,196)         |
|   |                  | 5125        | Computers & Networking               | 50,000             | 175,859            | 125,859           |
|   |                  | 5140        | Fixtures & Furniture                 | 30,000             | -                  | (30,000)          |
|   |                  | 5145        | Grounds & Maintenance                | 80,000             | 12,000             | (68,000)          |
|   |                  | 5150        | Machinery                            | 120,000            | 321,000            | 201,000           |
|   |                  | 5170        | Pumps & Motors                       | -                  | 64,000             | 64,000            |
|   |                  | 5180        | SCADA Equipment                      | -                  | 282,682            | 282,682           |
|   |                  |             | <b>Equipment</b>                     | <b>453,196</b>     | <b>855,541</b>     | <b>402,345</b>    |
|   |                  | 5310        | Boiler Compressor Elevator           | 1,200              | -                  | (1,200)           |
|   |                  | 5340        | Dumpster                             | 20,000             | 6,000              | (14,000)          |
|   |                  | 5344        | Pump & Motor Contract                | -                  | 600,000            | 600,000           |
|   |                  | 5345        | Miscellaneous Inspection             | 2,232              | 5,000              | 2,768             |
|   |                  | 5355        | Landscape & Grounds                  | 177,996            | 180,000            | 2,004             |
|   |                  | 5370        | Miscellaneous Operating Contracts    | 840,000            | 800,000            | (40,000)          |
|   |                  |             | <b>Operating Contracts</b>           | <b>1,041,428</b>   | <b>1,591,000</b>   | <b>549,572</b>    |
|   |                  | 5402        | Annual Software Support              | 98,995             | 52,845             | (46,150)          |

|  |                   |                   |                  |
|--|-------------------|-------------------|------------------|
| 5405 Building & Property Repairs         | 120,000           | 12,000            | (108,000)        |
| 5408 Computer Hardware Maintenance       | 104,570           | -                 | (104,570)        |
| 5411 Computer Software Support           | 26,000            | -                 | (26,000)         |
| 5415 Crane Repairs                       | 100,000           | 87,000            | (13,000)         |
| 5417 Electrical Repairs                  | 100,000           | 144,000           | 44,000           |
| 5420 Fence Repairs                       | 40,000            | -                 | (40,000)         |
| 5422 Chemical Removal                    | -                 | 145,000           | 145,000          |
| 5439 HVAC & Plumbing Repairs             | 120,000           | 93,000            | (27,000)         |
| 5452 Machinery Repairs                   | 150,000           | 173,000           | 23,000           |
| 5462 Plant Repairs                       | 500,000           | 521,500           | 21,500           |
| 5482 Tool Repairs                        | 300               | -                 | (300)            |
| 5496 Misc. Repair & Maintenance          | 40,788            | 21,000            | (19,788)         |
| <b>Repairs &amp; Maintenance</b>         | <b>1,400,653</b>  | <b>1,249,345</b>  | <b>(151,308)</b> |
| 5570 Testing                             | 27,000            | -                 | (27,000)         |
| <b>Misc. Operating</b>                   | <b>27,000</b>     | <b>-</b>          | <b>(27,000)</b>  |
| 6260 Safety Equipment                    | 468               | 1,200             | 732              |
| <b>Inventory - Equipment</b>             | <b>468</b>        | <b>1,200</b>      | <b>732</b>       |
| 6300 Inventory-Hardware                  | 3,700             | 6,000             | 2,300            |
| 6315 Fittings                            | 20,676            | 22,000            | 1,324            |
| 6325 Hoses & Fittings                    | 204               | 360               | 156              |
| 6335 Lights                              | 2,796             | 3,000             | 204              |
| 6350 Plumbing                            | 2,064             | 2,000             | (64)             |
| 6360 Tools                               | 8,000             | 9,000             | 1,000            |
| 6365 Hand Tools                          | -                 | 19,000            | 19,000           |
| <b>Inventory - Hardware</b>              | <b>37,440</b>     | <b>61,360</b>     | <b>23,920</b>    |
| 6500 Inventory - Miscellaneous           | 32,520            | 20,000            | (12,520)         |
| 6515 Cleaning                            | 396               | 480               | 84               |
| 6544 Lubricating Oil                     | 804               | 720               | (84)             |
| 6548 Paint Oils Putty Glass              | 264               | 600               | 336              |
| <b>Inventory - Miscellaneous</b>         | <b>33,984</b>     | <b>21,800</b>     | <b>(12,184)</b>  |
| 6645 Parts Other                         | 20,000            | 14,400            | (5,600)          |
| <b>Inventory - Parts</b>                 | <b>20,000</b>     | <b>14,400</b>     | <b>(5,600)</b>   |
| 6755 Pipe Plastic                        | 540               | 1,200             | 660              |
| 6765 Pipe Service Line                   | 1,692             | 1,200             | (492)            |
| <b>Inventory - Pipe</b>                  | <b>2,232</b>      | <b>2,400</b>      | <b>168</b>       |
| 6825 Valves                              | 15,564            | 18,000            | 2,436            |
| <b>Inventory - Valves</b>                | <b>15,564</b>     | <b>18,000</b>     | <b>2,436</b>     |
| <b>INVENTORY TOTAL</b>                   | <b>109,688</b>    | <b>119,160</b>    | <b>9,472</b>     |
| <b>DIRECT OPERATING TOTAL</b>            | <b>13,820,537</b> | <b>16,956,109</b> | <b>3,135,572</b> |
| 7015 Permits                             | 100               | 100               | -                |
| <b>Total Fees</b>                        | <b>100</b>        | <b>100</b>        | <b>-</b>         |
| 7110 Freight                             | 10,000            | 120               | (9,880)          |
| <b>Total Freight and Postage</b>         | <b>10,000</b>     | <b>120</b>        | <b>(9,880)</b>   |
| 7215 Equipment Rental                    | 35,000            | 16,800            | (18,200)         |
| <b>Total Leases &amp; Rents</b>          | <b>35,000</b>     | <b>16,800</b>     | <b>(18,200)</b>  |
| 7323 Consultants                         | 40,000            | 100,000           | 60,000           |
| 7383 Miscellaneous Professional Service: | 94,500            | 100,000           | 5,500            |
| <b>Total Professional Services</b>       | <b>134,500</b>    | <b>200,000</b>    | <b>65,500</b>    |
| 7422 Fuel & Gasses                       | 50,000            | 30,000            | (20,000)         |
| 7423 Fuel Kerosene                       | 1,020             | 1,200             | 180              |
| 7424 Fuel Propane                        | 2,184             | 1,800             | (384)            |
| 7435 Uniforms                            | -                 | 46,900            | 46,900           |
| 7440 Grounds & Maintenance Supplies      | 250,000           | 220,000           | (30,000)         |
| 7450 Office Supplies                     | 5,820             | 6,000             | 180              |
| 7490 Welding Supplies                    | 4,104             | 18,000            | 13,896           |
| <b>Total Supplies</b>                    | <b>313,128</b>    | <b>323,900</b>    | <b>10,772</b>    |
| 7555 T&T Seminars & Conferences          | -                 | 9,000             | 9,000            |
| 7560 Travel & Training                   | 1,800             | 30,000            | 28,200           |
| 7575 T&T Miscellaneous                   | 2,500             | 3,000             | 500              |
| <b>Total Travel &amp; Training</b>       | <b>4,300</b>      | <b>42,000</b>     | <b>37,700</b>    |
| 7605 Electric                            | 4,500,000         | 6,000,000         | 1,500,000        |
| 7650 Natural Gas                         | 350,000           | 360,000           | 10,000           |
| 7675 SCADA Connectivity                  | 187,248           | 240,000           | 52,752           |

|                                  |                      |                      |                     |
|----------------------------------|----------------------|----------------------|---------------------|
| <b>Total Utilities</b>           | <b>5,037,248</b>     | <b>6,600,000</b>     | <b>1,562,752</b>    |
| 7710 Capital Asset Reclass       | -                    | (92,000)             | (92,000)            |
| <b>Total Miscellaneous Admin</b> | <b>-</b>             | <b>(92,000)</b>      | <b>(92,000)</b>     |
| <b>TOTAL ADMINISTRATIVE</b>      | <b>5,534,276</b>     | <b>7,090,920</b>     | <b>1,556,644</b>    |
| <b>GRAND TOTAL</b>               | <b>\$ 19,354,813</b> | <b>\$ 24,047,029</b> | <b>\$ 4,692,216</b> |



Pittsburgh  
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**XI. OTHER DATA**

XI.5. Provide a schedule that shows the percentage of unaccounted for water for the test year and 2 prior years. Describe how this amount was determined and explain any steps taken to reduce unaccounted for water. Provide a similar analysis of infiltration for wastewater utilities.

**RESPONSE:**

PWSA has had significant problems with high levels of unaccounted for water and with sewer infiltration. Estimates for unaccounted for water are approximately 66%. This calculation can be generated by taking the non-revenue water amount of 15,262 MG/yr and dividing it by the volume of water from own sources of 23,140 MG/yr in the attached 2021 water audit document.



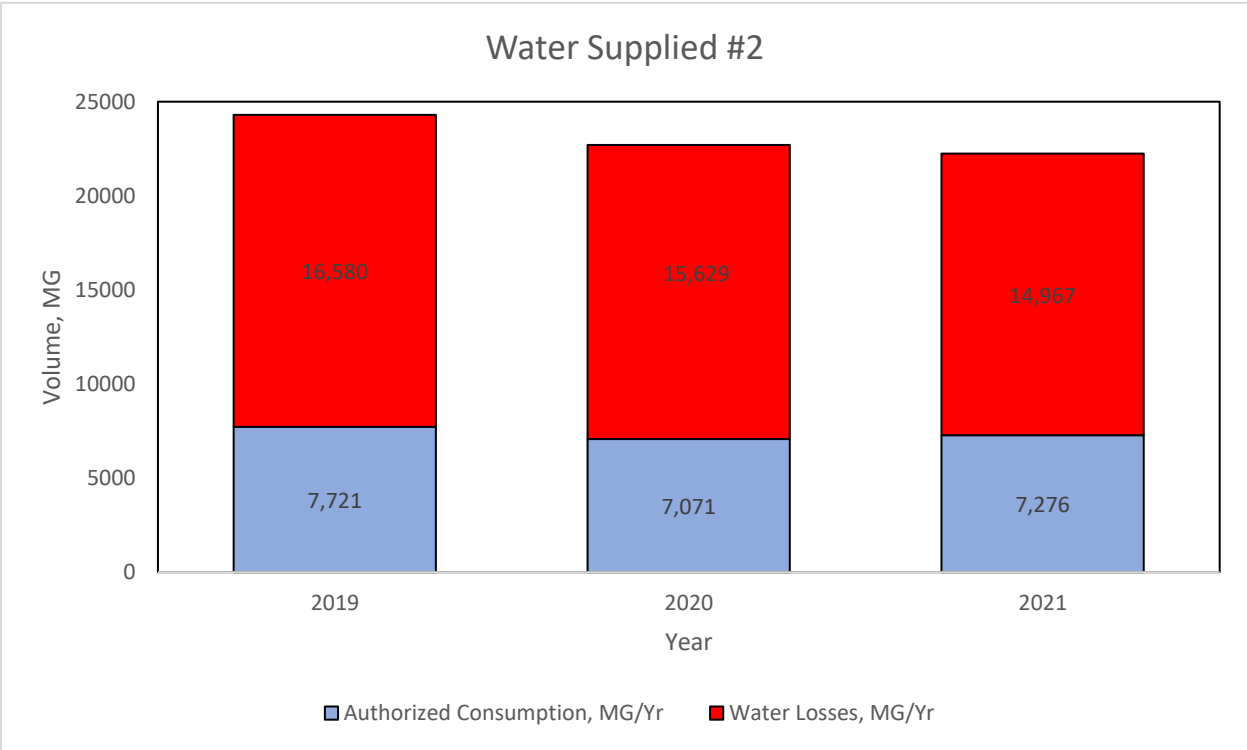
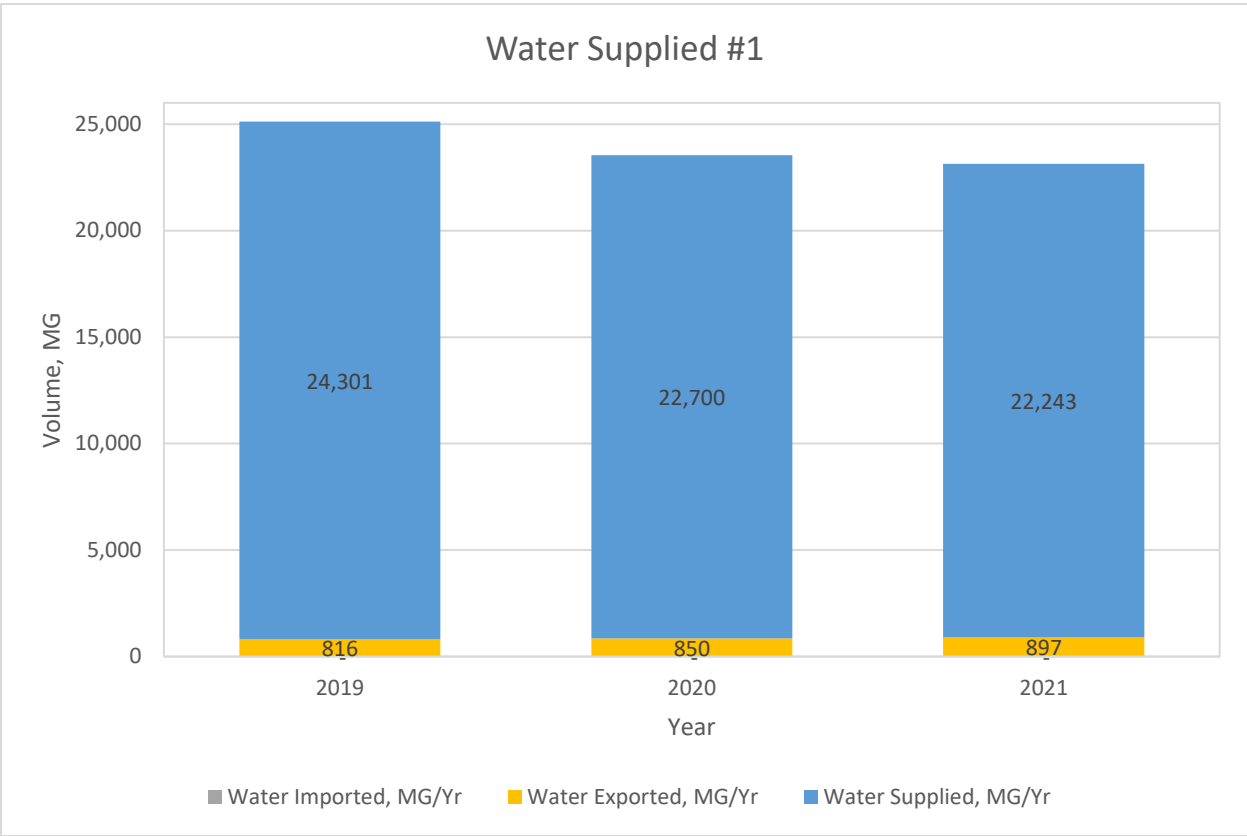
# 2021 Water Audit Validity Evaluation (WAVE) Report

## Background

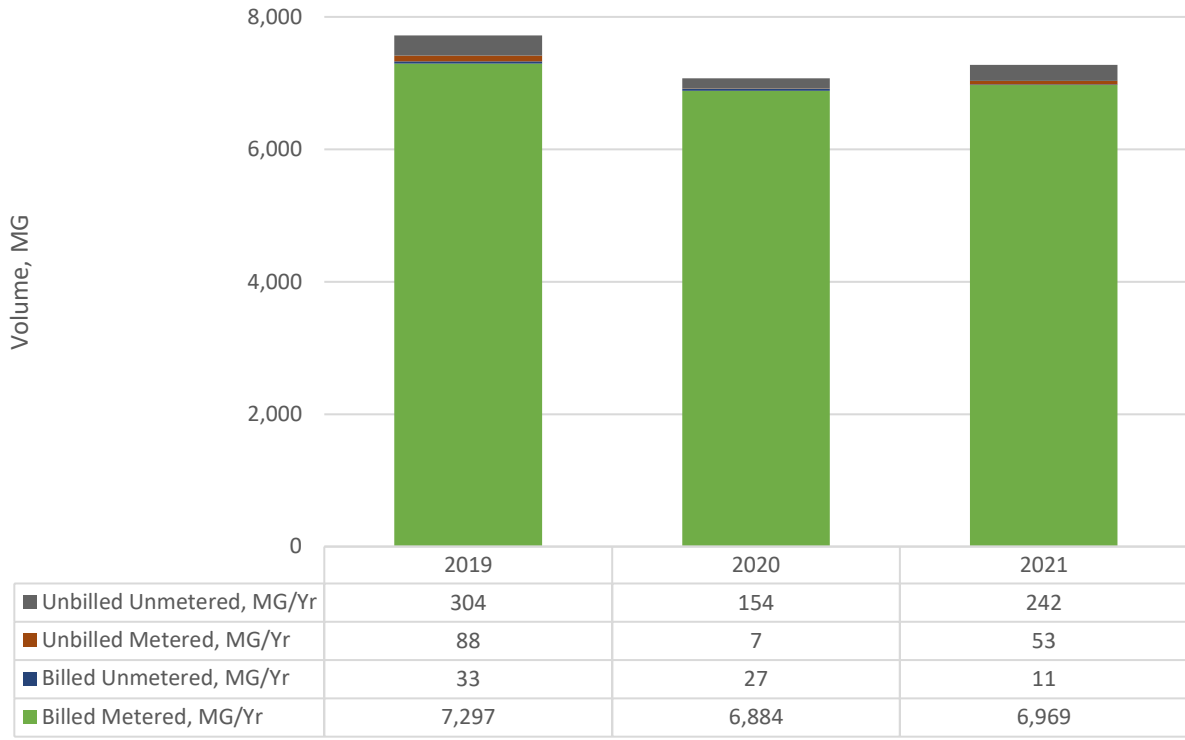
Since 2019, the Pennsylvania Utility Commission has required the PWSA to complete an annual water audit to quantify and track water losses within the water distribution system and identify areas for improved efficiency and cost recovery. The intent of the WAVE Report is to both reflect upon the past and look toward the future. *Data Visualization* compares our water audit results for 2019, 2020 and 2021. *Potential Improvements* contains action items that will either improve the Data Validity Score, which thereby increases the reliability of our results, or directly address the PWSA's water loss issues.

## Data Visualization

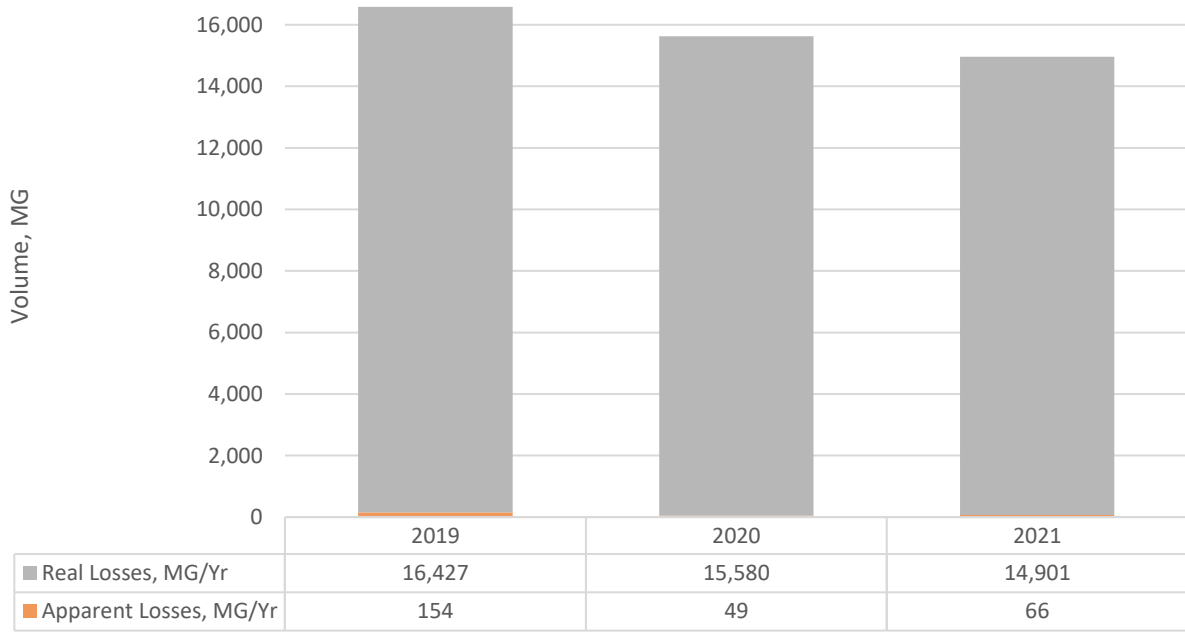
| Water Audit Results Data Table                          |            |            |            |
|---|------------|------------|------------|
| Item  | 2019       | 2020       | 2021       |
| Volume From Own Sources, MG/Yr                          | 24,631     | 23,550     | 23,140     |
| Water Imported, MG/Yr                                   | -          | -          | -          |
| Water Exported, MG/Yr                                   | 816        | 850        | 897        |
| Water Supplied, MG/Yr                                   | 24,301     | 22,700     | 22,243     |
| Billed Metered, MG/Yr                                   | 7,297      | 6,884      | 6,969      |
| Billed Unmetered, MG/Yr                                 | 33         | 27         | 11         |
| Unbilled Metered, MG/Yr                                 | 88         | 7          | 53         |
| Unbilled Unmetered, MG/Yr                               | 304        | 154        | 242        |
| Authorized Consumption, MG/Yr                           | 7,721      | 7,071      | 7,276      |
| Systematic Data Handling Errors, MG/Yr                  | 18         | 17         | 17         |
| Customer Metering Inaccuracies, MG/Yr                   | 75         | 15         | 31         |
| Unauthorized Consumption, MG/Yr                         | 61         | 17         | 17         |
| Apparent Losses, MG/Yr                                  | 154        | 49         | 66         |
| Real Losses, MG/Yr                                      | 16,427     | 15,580     | 14,901     |
| Water Losses, MG/Yr                                     | 16,580     | 15,629     | 14,967     |
| Non-Revenue Water, MG/Yr                                | 16,972     | 15,789     | 15,262     |
| Length of Mains, Miles                                  | 963        | 963        | 964        |
| Number of Active and Inactive Service Connections, Each | 81,363     | 81,996     | 83,641     |
| Service Connection Density, Connection/Mile of Main     | 85         | 85         | 87         |
| Average Length of Customer Service Line, Ft             | 48         | 48         | 48         |
| Average Operating Pressure                              | 60         | 60         | 60         |
| Total Annual Cost of Operating Water System, \$/Yr      | 39,228,487 | 63,620,012 | 73,988,317 |
| Customer Retail Unit Cost, \$/tgal                      | 24         | 24         | 25         |
| Variable Product Cost, \$/MG                            | 346        | 324        | 312        |
| Water Audit Data Validity Score, # out of 100           | 69         | 70         | 70         |
| Value of Non-Revenue Water, \$/Yr                       | 9,332,794  | 6,304,839  | 6,304,892  |

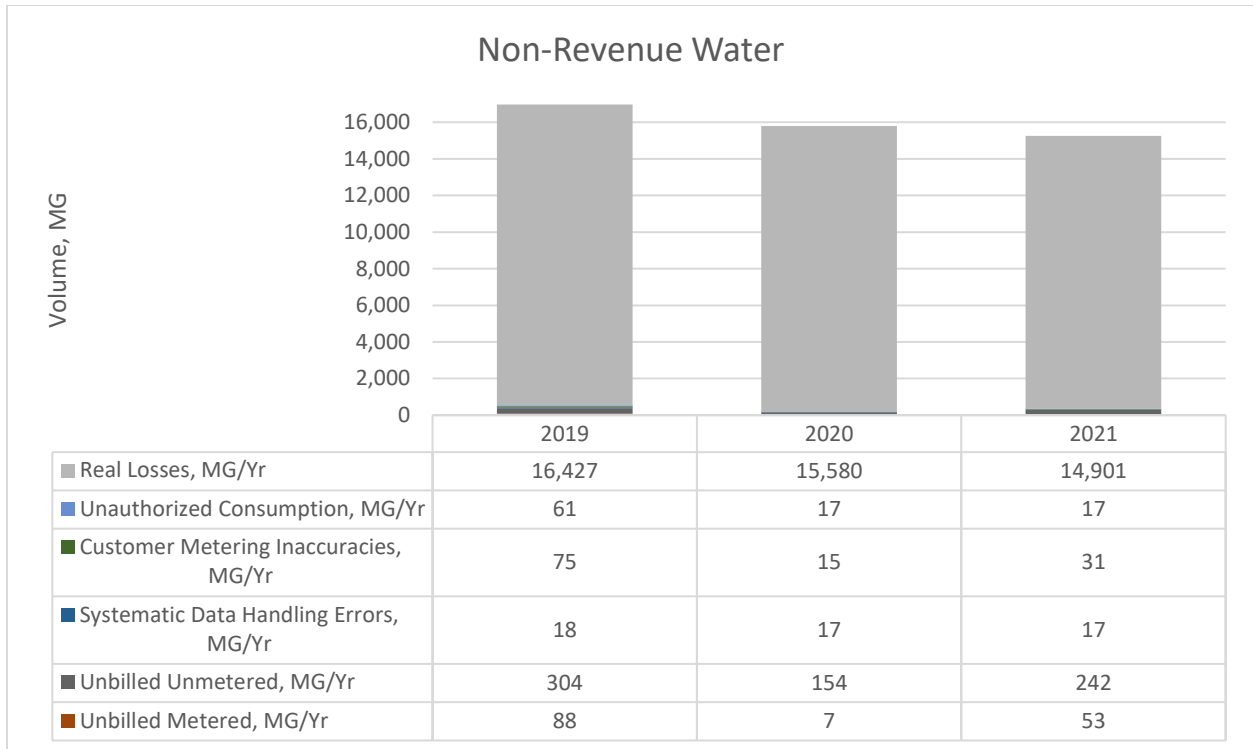


### Authorized Consumption



### Water Losses





Please see below for comments on notable fluctuations in the water audit results:

- **Volume from Own Sources**
  - 2019: Derived from the Filter Effluent Meters (Jan 2019 to April 2019) and System Delivery Meters (April 2019 to December 2020)
  - 2020: Derived solely from the System Delivery Meters, which no longer includes water losses associated with the uncovered Highland Reservoir No. 1
- **Unbilled Metered**
  - 2019: Majority of flow was associated with orthophosphate flushing program. In hindsight, these volumes would have been better classified as Unbilled Unmetered.
  - 2020: No significant orthophosphate flushing conducted
- **Unbilled Unmetered**
  - 2019: Estimated via the default allowance of 1.25% of Water Supplied
  - 2020: The AWWA issued a newer version of the Water Audit Spreadsheet, which reduced the default allotment from 1.25% to 0.25% of Water Supplied. The PWSA added known usage (e.g. reservoir draining, emergency filter backwash, rising main inspection and disinfection) to the 0.25% default percentage for unknown usage (fire flow volume, flushing flow, hydrant flow testing).
- **Apparent Losses**
  - 2019: Value generated by the spreadsheet by multiplying 0.25% default value by Water Supplied
  - 2020: Value generated by the spreadsheet by multiplying 0.25% default value by Authorized Consumption

- Annual Operation Cost
  - 2019: The calculation consisted of the following items: Salaries, Benefits, Materials, Equipment, Insurance, Fees, Administrative, Depreciation and Debt Service.
  - 2020: The calculation was expanded to include the following items: Equipment, Operating Contracts, Urgent Water Repairs, Repairs & Maintenance, Surface Restoration, Testing, Inventory Expense, Freight/Postage, Equipment Rental, Professional Services, Office Supplies, Grounds and Maintenance Supplies, Travel and Training, Utility Expenses. In addition, the calculation included a more comprehensive assessment of salaries for water-related costs.
  - 2021: The calculation included a more comprehensive assessment of utility expense.
- Value of Non-Revenue Water
  - 2019: The prior version of the AWWA water audit calculated the value of Apparent Losses via the Variable Production Cost.
  - 2020: The current version of the AWWA water audit calculates the value of Apparent Losses via the Customer Retail Unit Cost.

## *Potential Improvements*

### Action Items to Improve Data Validity Score

- 1) Implement an annual program to electronically calibrate and in-situ accuracy test our wholesale water meters
  - a) AWWA Definitions
    - i) In-situ flow accuracy test: a test process that confirms the flow measuring accuracy of the primary device (the flowmeter), in its installed location, using an independent reference volume.
    - ii) Electronic calibration: a process that checks for error in the metering secondary device(s) and/or the tertiary device(s).
  - b) Refer to the Water Exported tab of the Calculation Spreadsheet for a breakdown of the meters, including the Location ID, Customer Number, Customer Name, Meter Size, Usage Billed and Dollars Billed.
  - c) Refer to the Water Exported section of the Interactive Data Grading tab within the water audit to determine impacts to our data validity score.
  - d) Explore the efficacy of annual meter replacement (exchange) to promote meter accuracy and track variations.
  - e) Example Calculation:
    - i) Water Supplied to Bulk Water Customers x Estimated Meter Inaccuracies = Unaccounted For Water within Water Exported  
(1) 897,074,000 gallons per year x 0.25% = 2,242,685 gallons
    - ii) Unaccounted For Water within Water Exported x Variable Production Cost = Value  
(1) 2.242MG x \$311.81/MG = \$699.29
  - f) Timeline: 5-10 years
- 2) Revise each wholesale customer agreement to include annual meter accuracy testing and electronic calibration

- i) Limiting Question: Are meter accuracy testing or electronic calibration requirements stipulated in the water purchase agreement?
    - ii) No
      - (1) Data Validity Grade = 3 out of 10
    - iii) No, but meter accuracy testing and/or electronic calibration is conducted upon request of the importing utility
      - (1) Data Validity Grade = 5 out of 10
    - iv) Yes, and stipulated as less frequent than annual
      - (1) Data Validity Grade = 6 out of 10
    - v) Yes, and stipulated frequency as annual
      - (1) Data Validity Grade = 9 out of 10
    - vi) Yes, and stipulated as more frequent than annual
      - (1) Data Validity Grade = 10 out of 10
  - b) Need to determine if existing wholesale customer agreements contain language on meter accuracy testing, electronic calibration, and/or replacement. Additional need confirmation on expiration dates and locations/accessibility of agreements.
  - c) Implementation Timeline: 5-10 Years
- 3) Update the annual consumption estimates for our flat-rate accounts
  - a) Current Estimates:
    - i) Single Family Accounts = 36,000 gal/yr = 99 gal/day
    - ii) Two Family Accounts = 72,000 gal/yr = 197 gal/day
    - iii) Three Family Accounts = 240,000 gal/yr = 296 gal/day
  - b) Limiting Question: Methodology to quantify consumption for unmetered accounts?
    - i) Guesstimated
      - (1) Data Validity Grade = 1 out of 10
    - ii) Estimated based on assumptions of consumption by customer characteristics (i.e. customer type or meter size) – *CURRENT SELECTION*
      - (1) Data Validity Grade = 2 out of 10
    - iii) Extrapolated from similar customer groups in the utility’s metered population, but limited is sample sizes
      - (1) Data Validity Grade = 5 out of 10
    - iv) Estimated for each unmetered customer OR derived from representative statistical samples of the system
      - (1) Data Validity Grade = 10 out of 10
  - c) We understand that the number of flat rate accounts decreases every year, with the intention of completely removing them from our system. In order to improve upon our data validity grade, we need to improve upon the manner in which we calculate the estimated annual usage. Since our intention is to eliminate this type of billing structure, it may not be worth the effort to re-vamp the manner in which we calculate the estimated annual usage.
- 4) Revise written policy to clearly articulate the accounts which are exempt from billing
  - a) Limiting Question: Does the water utility policy articulate which accounts are exempt from billing?
    - i) No
      - (1) Data Validity Grade = 2 out of 10

- ii) Policy broadly addresses and there exists a collective understanding – *CURRENT SELECTION*
      - (1) Data Validity Grade = 4 out of 10
    - iii) Policy includes specific exemptions
      - (1) Data Validity Grade = 10 out of 10
  - b) Confirm existence of written policy for unbilled accounts.
  - c) Refer to the Unbilled Metered tab of the Calculation Spreadsheet for a breakdown of the “W\_NO BILL RATE” accounts. Provide additional detail to confirm that each Location ID is associated with a PWSA property.
  - d) Need confirmation that all PWSA services are metered and have MXU.
- 5) Create methodology to estimate losses from Systematic Data Handling Errors
- a) Recommend to toggle through the available choices within the Interactive Data Grading tab on the Water Audit spreadsheet
  - b) The current method of accepting the 0.25% default rate automatically assigns a data validity grade of 3 out of 10.
- 6) Obtain a third-party review of PWSA’s water audit
- a) The Reviewer shall have expert knowledge in the AWWA’s M33 and M36 methodologies.
    - i) M36 Water Audits and Loss Control Programs, Fourth Edition
      - (1) <https://www.awwa.org/Store/Product-Details/productId/51439782>
    - ii) M33 Flowmeters in Water Supply, Third Edition
      - (1) <https://www.awwa.org/Store/M33-Flowmeters-in-Water-Supply-Third-Edition/ProductDetail/69279701>
- 7) Create methodology to estimate losses from Unauthorized Consumption
- a) The PWSA currently calculates the Unauthorized Consumption by multiplying the Billed Authorized Consumption by the default percentage of 0.25%. However, this option results in an automatic data validity grade of 3 out of 10.
  - b) Please toggle through the available choices within the Interactive Data Grading tab on the Water Audit spreadsheet to correlate the impact that each action has on the data validity grade.
- 8) Implement a program to confirm that dividing pressure gate valves are fully closed once every three years
- a) Limiting Question AOP.1: Which best describes checks on the boundary integrity for the system’s pressure zone(s)?
    - i) Normally-closed boundary valves between zones have never been confirmed to be fully closed
    - ii) Normally-closed boundary valves between zones have been confirmed to be fully closed more than 3 years ago – *CURRENT SELECTION*
      - (1) Data Validity Grade = 8 out of 10
    - iii) Normally-closed boundary valves between zones have been confirmed within the past 3 years to be fully closed
      - (1) Data Validity Grade = 10 out of 10
    - iv) Not applicable, the system operates as a single pressure zone
  - b) In addition to increasing our data validity score, this action item would also accomplish the following:
    - i) Minimize breaks from higher hydraulic grade line (HGLs) zones affecting pressure on lower HGL zones

- ii) Assist our understanding on water flowpath within our distribution system
- 9) Implement an annual program to in-situ flow accuracy test the system delivery meters
  - a) AWWA Definitions
    - i) In-situ flow accuracy test: a test process that confirms the flow measuring accuracy of the primary device (the flowmeter), in its installed location, using an independent reference volume.
    - b) Confirm whether in-situ flow testing is even possible with our current meter assemblies. If not, incorporate within our ongoing improvement WRP Projects.
    - c) Example Calculation:
      - i) Water Supplied via System Delivery Meters x Estimated Meter Inaccuracies = Unaccounted For Water within Water Supplied  
(1) 23,140.06 million gallons per year x 0.25% = 57.85 million gallons
      - ii) Unaccounted For Water within Water Exported x Variable Production Cost = Value  
(1) 57.85 MG x \$311.81/MG = \$18,038.26
    - d) Timeline: 5-10 years

#### Action Items to Address Water Losses

- 1) Create an annual Water Main Abandonment program
  - a) Primary benefit is the reduction of water losses
  - b) Focus on sub-standard water mains (e.g. 4", 6") located in high-pressure districts (i.e. static pressures > 100 psi)
  - c) May require the relocation of services, but would primarily focus on underutilized mains
  - d) Secondary benefits are the reduction in liability for future breaks and thwarting potential usage by future developments
- 2) Revise hydrant-related work orders within Spry Mobile to allow for volume estimation
  - a) Applicable Work Orders
    - i) Hydrant Flow Test
      - (1) Ensure that "Runtime, min" and "Flow, gpm" are required fields
    - ii) Hydrant Inspection and Flushing
      - (1) Require usage of Fire Hydrant Meter with manual input into Spry Mobile
        - (a) Recordall Turbo Series Meter: Model 450 Fire Hydrant Meter, 3"
  - b) Coordinate with Metabase to ensure that the work orders can be compiled with the following minimum columns:
    - i) Work Order ID, Recorded Date, Runtime, Flow
- 3) Coordinate with the Pittsburgh Bureau of Fire to facilitate the estimation of unbilled unmetered consumption
  - a) Obtain data on the number of recorded fires, and their associated alarm rating
  - b) Obtain data on their training program and associated water usage
  - c) Coordinate to ensure that their hydrant testing program is routed through our over-the-counter permit process
  - d) Inquire whether their fire trucks have meters
- 4) Install meters on all compliance related connections
  - a) Examples: Orthophosphate Analyzers, Chlorine Residual Analyzers, Sampling Taps
  - b) WTP Utility Water is currently unmetered and could account for up to 1 MGD.



- 5) Re-assess our methodology to calculate the Average Operating Pressure
  - a) The current methodology consists of averaging the pressures at approximately 63,000 nodes within our OpenFlows WaterGEMS hydraulic model.
  - b) Confirm if the hydraulic model is updated with recorded pressures observed during hydrant flow testing.
  - c) Confirm if the nodes are evenly disbursed throughout our distribution system, or if a weighted calculation methodology should be utilized.
  - d) Determine if calculations consider daytime and nighttime pressure variations.
- 6) Identify all applicable long-run marginal costs and incorporate into the Variable Production Cost
  - a) Examples of long-run marginal costs
    - i) Accelerated wear and tear on dynamic equipment (e.g. pumps)
    - ii) Payouts for damage claims from main and service lien breaks, if paid by utility
    - iii) Full cost pricing that includes all lifecycle costs and externalities
- 7) Create targeted District Metered Areas (DMA)
  - a) “Water Loss Control Training Session for the Pittsburgh Water and Sewer Authority” by Kunkel Water Efficiency Consulting
  - b) Powerpoint: N:\Projects\Water Audit
    - i) Page 58
  - c) DMAs measure leakage rates and can flag emerging leakage
  - d) District Metering project is planned for 2025+ but is dependent upon having working flow meters at pump stations and tanks/reservoirs first.
- 8) Create Pressure Management Areas (PMA)
  - a) “Water Loss Control Training Session for the Pittsburgh Water and Sewer Authority” by Kunkel Water Efficiency Consulting
  - b) Powerpoint: N:\Projects\Water Audit
    - i) Page 81
  - c) Two types
    - i) Fixed Outlet Control: a pressure reducing valve reduces the inlet pressure to a set outlet pressure and maintains this pressure at the outlet despite pressure changes within the PMA
    - ii) Flow Based Dynamic Modulation Control: a controlling device is used in conjunction with the PRV and controls the pilot on the PRV, which regulates pressure in response to flow changes
- 9) Allocate all water-specific expenses to “325 – Water Operations”
  - a) This change would facilitate the calculation of water expenses and sewer expenses.
  - b) Most effected would be Department Code “930 – Engineering”, but would also impact other department codes to a lesser extent
- 10) Implement program to field validate the water system features
  - a) Examples of features: valve boxes, water manholes, fire hydrants, fire hydrant valves, curb stops, curb boxes, meter crocks, meter vaults, meters
  - b) The PWSA currently has one (1) engineering technician that is actively field validating our system. Best case scenario, we estimate that we are field validating less than 5% of our system each year.
  - c) Field verify the existing service line features in Millvale Borough, including the meter locations and curb box locations

## **XI. OTHER DATA**

XI.6. Provide a corporate history (include the dates of original incorporation, subsequent mergers, or acquisitions, or both). Indicate all counties and cities and other governmental subdivisions to which service is provided, including service areas outside the state, and the total population in the area served.

### **RESPONSE:**

Please see below.

### **PWSA Corporate History**

The Authority is a body corporate and politic organized and existing under the Act pursuant to Resolution No. 36 of the Council of the City of Pittsburgh (the "City"), duly enacted on February 6, 1984, approved by the Mayor on February 8, 1984, and effective February 16, 1984. The Secretary of the Commonwealth of Pennsylvania approved the Authority's Articles of Incorporation and issued a Certificate of Incorporation on February 17, 1984. Articles of Amendment were approved and a Certificate of Amendment was issued by the Pennsylvania Department of State on December 11, 1989, to include, among authorized projects, low head dams and facilities for generating surplus electric power. Articles of Amendment were approved and a Certificate of Amendment was issued by the Pennsylvania Department of State on May 9, 2008, to extend the term of existence of the Authority to May 21, 2045. Articles of Amendment were approved and a Certificate of Amendment was issued by the Pennsylvania Department of State on March 19, 2020, to extend the term of existence of the Authority to March 19, 2070 and to include storm water systems.

Under its Articles of Incorporation, the Authority is specifically authorized to acquire, hold, construct, finance, improve, maintain, operate, own and lease, either as lessor or lessee, projects of the following kinds and character: sewers, sewer systems or parts thereof, waterworks, water supply works, and water distribution systems, storm water systems, low head dams and facilities for generating surplus power.

The System provides water to approximately 75,000 customers or 84% of the total population in the geographic boundaries of the City. The Authority provides wastewater collection and transmission service to almost the entire City, estimated at 301,000 residents. The System does not include wastewater treatment facilities; such facilities are the responsibility of Allegheny County Sanitary Authority ("ALCOSAN"), a separate and distinct legal entity.

The Authority operates and maintains a 117 million gallon per day (MGD) rapid sand type water treatment plant, a 21 MGD microfiltration plant, approximately 964 miles of water mains, over 32,000 valves and fire hydrants, 1 raw water pump station, 10 finished water pump stations, 4 in-ground reservoirs, 10 storage tanks, approximately 1,220 miles of sanitary, storm and

**XI. OTHER DATA**

combined sewers, 29,500 manholes, 25,000 catch basins and inlets, 98 combined sewer overflow outfalls, 185 storm outfalls, and four wastewater pump stations.