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File #: 209067

November 8, 2024

VIA ELECTRONIC FILING

Rosemary Chiavetta, Secretary
Pennsylvania Public Utility Commission
Commonwealth Keystone Building
400 North Street, 2nd Floor
P.O. Box 3265
Harrisburg, PA 17105-3265

**Re: Petition of Aqua Pennsylvania Wastewater, Inc. For Approval of its Third Long-Term Infrastructure Improvement Plan
Docket No. P-2024-**

Dear Secretary Chiavetta:

Attached for filing please find the Petition of Aqua Pennsylvania Wastewater, Inc. (“Aqua”) For Approval of its Third Long-Term Infrastructure Improvement Plan (“LTIIIP”). This Third LTIIIP is for the five-year period 2025-2029 and is also being submitted pursuant to a condition set forth in the Commission’s April 25, 2024 Secretarial Letter approving the Company’s Annual Asset Optimization Plan at Docket No. M-2024-3047063.

Copies are being served on the Pennsylvania Public Utility Commission’s Bureau of Investigation and Enforcement, the statutory advocates, and all parties of record in Aqua’s most recent base rate case proceeding at Docket No. R-2024-3047824 as indicated on the Certificate of Service.

Respectfully submitted,



Michael W. Hassell

MWH/dmc
Attachment

cc: Certificate of Service

CERTIFICATE OF SERVICE

I hereby certify that a true and correct copy of the foregoing has been served upon the following persons, in the manner indicated, in accordance with the requirements of 52 PA. Code § 1.54 (relating to service by a Participant) and 52 Pa. Code § 121.4(a) (requiring service of Long Term Infrastructure Improvement Plan to be served on all parties to the utility's last base rate proceeding).

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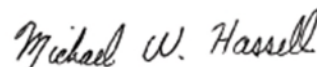
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Dated: November 8, 2024



Michael W. Hassell

**BEFORE THE
PENNSYLVANIA PUBLIC UTILITY COMMISSION**

Petition of Aqua Pennsylvania Wastewater, :
Inc. For Approval of its Third Long-Term : Docket No. P-2024-_____
Infrastructure Improvement Plan :
:

**PETITION OF AQUA PENNSYLVANIA WASTEWATER, INC. FOR
APPROVAL OF ITS THIRD LONG-TERM INFRASTRUCTURE
IMPROVEMENT PLAN**

To The Pennsylvania Public Utility Commission:

Pursuant to Act 11 of 2012 (“Act 11” or the “Act”), which amended Chapters 3, 13, and 33 of the Pennsylvania Public Utility Code (“Public Utility Code” or the “Code”), and the regulations issued by the Pennsylvania Public Utility Commission (“Commission”), 52 Pa. Code §§ 121.1, et seq., Aqua Pennsylvania Wastewater, Inc. (“Aqua” or the “Company”) hereby files this Petition seeking approval of its Third Long-Term Infrastructure Improvement Plan (“LTIIIP” or the “Plan”). The Company’s currently effective Revised LTIIIP, for the five-year period of 2020-2024, was approved on February 27, 2020.¹ This Third LTIIIP is for the five-year period 2025-2029, and is being submitted pursuant to a condition set forth in the Commission’s April 25, 2024 Secretarial Letter approving the Company’s Annual Asset Optimization Plan at Docket No. M-2024-3047063. Through this Third LTIIIP, Aqua plans to increase its collection system infrastructure spending and includes systems that were not previously included in its Distribution System Improvement Charge (“DISC”) program that were acquired under Section 1329 of the Public Utility Code, 66 Pa. C.S. § 1329 or that were non-Section 1329 acquisitions that have been included in Aqua’s most recent base rate case proceeding.

¹ As explained later in this Petition, Aqua’s current Revised LTIIIP amended and extended its Second LTIIIP.

The Company requests that the Commission approve Aqua's Third LTIP, which is attached to this Petition as **Exhibit A**.

I. INTRODUCTION

1. Aqua is a corporation organized and existing under the laws of the Commonwealth of Pennsylvania and is a wholly-owned subsidiary of Aqua Pennsylvania, Inc. ("Aqua PA"). Aqua is a public utility as defined by the Public Utility Code, 66 Pa. C.S. § 102.

2. Aqua owns and operates wastewater treatment facilities including wastewater treatment plants, pump stations, lift stations, curbstops, lateral cleanouts, service laterals, and collection and transmission systems throughout Pennsylvania serving 62,295 customers in 16 counties. Aqua owns and operates 43 wastewater collection and conveyance systems throughout Pennsylvania.

3. The names, addresses and telephone numbers of Aqua's attorneys for this filing are as follows:

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Aqua's attorneys are authorized to receive all notices and communications regarding this filing.

4. On February 14, 2012, the Governor signed into law Act 11 of 2012 (“Act 11”). Among other things, Act 11 repealed Section 1307(g) and replaced it with new provisions at 66 Pa. C.S. §§ 1350-1360, which authorized DSICs for all fixed utilities.

5. On May 11, 2012, the Commission issued its Tentative Implementation Order at Docket No. M-2012-2293611 and solicited comments and input on its proposed procedures and guidelines to implement Act 11. Aqua PA responded to the Commission’s request and filed comments to the Tentative Implementation Order on May 31, 2012.

6. On August 2, 2012, the Commission issued the Final Implementation Order establishing procedures and guidelines necessary to implement Act 11.² The Final Implementation Order adopted the requirements established in Section 1352, provided additional standards that each LTIP must meet, and gave guidance to utilities for meeting the Commission’s standards.

7. On May 31, 2013, Little Washington Wastewater Company (“LWWC”), Aqua’s predecessor,³ filed a petition for approval of a DSIC. The Company did not file a separate petition for approval of its current LTIP. Rather, LWWC attached the LTIP as an appendix to its DSIC petition.

8. On July 3, 2013, LWWC filed a letter requesting the Commission to consider the Company’s May 31, 2013 petition as seeking approval of both the proposed DSIC and LTIP.

9. That first LTIP presented the Company’s plans for infrastructure improvement for the years 2013-2017.

² Implementation of Act 11 of 2012, Docket No. M-2012-2293611, Order Entered August 2, 2012 (“Final Implementation Order”).

³ LWWC’s name subsequently was changed to Aqua Pennsylvania Wastewater, Inc. effective January 1, 2014. See Supplement No. 86 to Tariff Sewer-Pa. P.U.C. No. 1, Notification of Name Change to Aqua Pennsylvania Wastewater, Inc., Docket No. A-2013-2395509 (Dec. 17, 2013) (Secretarial Letter approving tariff supplement to implement name change).

10. On September 12, 2013, the Commission entered an Order approving LWWC's DSIC and LTIP.

11. The final Commission regulations concerning the LTIP became effective on December 20, 2014. See 52 Pa. Code §§ 121.1, et seq; 44 Pa.B. 7856.

12. Act 11 provides utilities with the ability to implement a DSIC to recover reasonable and prudent costs incurred to repair, improve, or replace certain eligible distribution property that is part of the utility's collection system. Eligible property for wastewater utilities is defined in Section 1351 of the Public Utility Code. See 66 Pa. C.S. § 1351(4). Utilities must file an LTIP with the Commission that is consistent with the provisions of Section 1352 of the statute and Section 121.3 of Title 52 of the Pennsylvania Code. See 66 Pa. C.S. § 1352(a); 52 Pa. Code § 121.3.

13. Specifically, under Section 1352(a) of the Public Utility Code and Section 121.3(a) of Title 52 of the Pennsylvania Code, the LTIP must include the following eight major elements:

- (a) Identification of the types and age of eligible property owned and operated by the utility for which it is seeking recovery under this subchapter.
- (b) An initial schedule for planned repair and replacement of eligible property.
- (c) A general description of the location of the eligible property.
- (d) A reasonable estimate of the quantity of eligible property to be improved or repaired.
- (e) Projected annual expenditures to implement the plan and measures taken to ensure the plan is cost effective.
- (f) Manner in which replacement of aging infrastructure will be accelerated and how repair, improvement or replacement will ensure and maintain adequate, efficient, safe, reliable, and reasonable service.
- (g) A workforce management and training program designed to ensure that the utility will have access to a qualified workforce to perform work in a cost-effective, safe, and reliable manner.

- (h) A description of a utility’s outreach and coordination activities with other utilities, Department of Transportation, and local governments regarding the planned maintenance/construction projects and roadways that may be impacted by the LTIIIP.
14. Aqua’s (formerly LWWC) first LTIIIP addressed each of these elements in its filing.
 15. Aqua filed its second LTIIIP on September 1, 2017 for the period 2018-2022.
 16. The Commission approved Aqua’s second LTIIIP on December 21, 2017 at Docket No. P-2017-2622818.
 17. On March 1, 2019, Aqua filed its Annual Asset Optimization Plan (“AAOP”) for 2018 at Docket No. M-2019-3008325 and concurrently filed a Petition for Waiver of Section 121.6 of the Commission’s regulations concerning the requirements of filing a petition for modification of an LTIIIP and extension of the consideration period at Docket No. P-2019-3008289.
 18. On April 25, 2019, the Commission denied Aqua’s Petition for Waiver and directed Aqua to file an Amended AAOP within five days of the Commission order.
 19. On April 30, 2019, Aqua filed its Amended AAOP with the Commission, and indicated to the Commission’s Bureau of Technical Utility Services (“TUS”) that it would file an amended LTIIIP by October 2019.
 20. The Commission approved the Amended AAOP by Secretarial Letter dated May 30, 2019.
 21. Consistent with the Commission’s approval of Aqua’s Amended AAOP, Aqua filed its Revised LTIIIP for the period 2020-2024 on October 31, 2019.
 22. The Commission approved Aqua’s Revised LTIIIP on February 27, 2020 at Docket No. P-2019-3013941.
 23. On February 29, 2024, Aqua filed its AAOP with the Commission.

24. The Commission approved the AAOP by Secretarial Letter dated April 25, 2024, noting that the Commission was approving the AAOP as filed with the understanding that Aqua shall file a new LTIP in 2024.

25. Consistent with the Commission's approval of Aqua's AAOP, Aqua files this Third LTIP for the period of 2025 through 2029.

II. AQUA'S THIRD LONG-TERM INFRASTRUCTURE IMPROVEMENT PLAN

A. BACKGROUND

26. In accordance with the Commission's Final Implementation Order and the Public Utility Code, Aqua's Third LTIP includes only collection system plant that is eligible property as defined in 66 Pa. C.S. § 1351. Final Implementation Order at 18; 66 Pa. C.S. § 1352(a). Since the Company's last LTIP filing, Aqua has cleaned and performed closed circuit television ("CCTV") inspections on 33,125 linear feet of the sanitary sewer main, repaired and replaced 62,107 linear feet of sanitary sewer mains, repaired 1,299 manholes, and made mechanical repairs and improvements to 183 pumping stations.

27. Under this Third LTIP, Aqua plans to increase its collection system infrastructure spending to about \$14.5 million per year (on average) over the course of the five-year plan. Aqua is also including systems that were not previously included in its DSIC program that were acquired under Section 1329 of the Public Utility Code, 66 Pa. C.S. § 1329 or that were non-Section 1329 acquisitions that have been included in Aqua's most recent base rate case proceeding.

28. Regarding Aqua's collection systems, the condition varies depending upon age, materials employed, and quality of the initial installation. Aqua continues to improve the condition of its collection systems by performing work required to maintain integrity and reliability. However, many systems that have been acquired were in various states of disrepair, exhibiting

aged infrastructure and significant inflow and infiltration (“I&I”) of ground and surface waters into the wastewater collection systems. These systems require further infrastructure investment.

29. A large portion of the capital to be spent in this LTIP will continue to be focused on systems that experience significant I&I. Aqua will also continue to rehabilitate its systems and concentrate on replacing pumping station control panels. In many of the Company’s acquisitions, the original control panels were not fabricated in compliance with current electrical standards, particularly arc flash standards. Aqua is replacing these pumping station control panels with panels that will meet current electrical safety standards and that will provide safe access to the Company’s operators by eliminating the need for operators to open and access the panels to operate these facilities. See Third LTIP, p. 4.

30. For the period applicable to this Third LTIP, Aqua’s primary focus in its accelerated collection system refurbishment program will be to continue the systematic investigation of those sewer systems with moderate to severe I&I, to schedule corrective measures to reduce or eliminate the I&I, and to refurbish and/or replace aged pumping facilities. See id.

B. TYPES AND AGE OF ELIGIBLE PROPERTY

31. The Company’s collection and conveyance systems vary in age and material type. Aqua has developed a Geographic Information System (“GIS”) for all of its wastewater collection systems within the Greater Pennsylvania (“GPA”) operating division and the Southeastern Pennsylvania (“SEPA”) operating divisions. The Aqua GIS system stores data on sewer mains, manholes, valves, pump stations, etc., and is updated continually as the collection system changes with the addition of new pipe and the replacement of old pipe. Aqua utilizes, among other things, the GIS to identify and rate the mains, manholes, and pump stations on a priority basis for repair and replacement.

32. The Company's Third LTIP contains tables describing Aqua's collection system inventory in terms of asset category (gravity main, force main, manhole, pump station, etc.) and includes information on material, diameter, and age. See Third LTIP pp. 5-16, Tables 1.1 – 1.6B. It is likely that some of data will remain "unknown", as occasionally data simply does not exist for older or acquired facilities. However, by implementing GIS and similar programs, procedures will be established to capture the required data as continuing investigatory and repair work proceeds.

C. SCHEDULE FOR REPAIR AND REPLACEMENT

33. Aqua's schedule for planned repair and replacement of its wastewater collection and conveyance systems is set forth on pages 17 through 18 of the Company's Third LTIP. Aqua has prioritized pumping stations and sewer main renewal/rehabilitation candidates at both a macro and micro level.

D. LOCATION OF ELIGIBLE PROPERTY

34. Aqua's wastewater systems are divided into two operating divisions: GPA and SEPA. The GPA operating division consists of seventeen (17) wastewater systems containing eighteen (18) wastewater treatment plants ("WWTPs"). The SEPA operating division serves twenty-six (26) collection and conveyance systems and twenty-two (22) WWTPs.

E. QUANTITY OF PROPERTY TO BE IMPROVED

35. The estimated property to be improved under this LTIP is described on page 21 of the Third LTIP.

36. Actual quantities of pipe replacement and manhole repairs will be determined based upon the results of engineering studies, I&I investigations and sewer main inspections.

F. PROJECTED ANNUAL EXPENDITURES AND MEASURES TO ENSURE THAT THE PLAN IS COST-EFFECTIVE

37. Aqua's projected budget for the years 2025 through 2029 is on pages 22 through 23 of its LTIP in Tables 5.1 through 5.3. Tables 5.1 through 5.3 identify, by project type, the collection system capital projects planned to be performed in the upcoming five years, as well as the anticipated expenditure by project type for each year of the five-year term of this Third LTIP.

38. Aqua will perform I&I elimination projects, including pipe replacement and manhole repair, to those portions of the collection system identified through I&I investigations and inspections. Pipe replacement will be performed utilizing trenchless sewer rehabilitation methods where possible. Trenchless techniques are capable of performing spot repairs as well as manhole-to-manhole lining. For most applications, trenchless sewer rehabilitation techniques require less installation time and therefore less bypass pumping. In addition, trenchless sewer rehabilitation techniques minimize utility conflicts, minimize restoration costs and are less disruptive to business, homeowners and traffic.

39. Through competitive bidding, Aqua is able to secure lower unit costs contracts with various utility contractors. Aqua assigns managers and inspectors to each project to ensure the quality and effectiveness of work performed. Additionally, if possible, Aqua coordinates projects with local municipalities to coincide with other utility and paving projects to reduce restoration costs and minimize customer impacts.

G. ACCELERATED REPLACEMENT

40. Aqua has continuously invested in its wastewater facilities and collection systems to ensure safe and reliable service, public health and environmental protection and intends to continue to maintain an accelerated pace for the repair and refurbishment of its collection system. For the calendar years of 2025 through 2029, Aqua plans to accelerate collection system capital

spending to approximately \$14.5 million annually (on average) for pipe repair, pump station refurbishment and I&I elimination programs. This represents an increase over the five-year average from 2019-2023 of \$6.6 million per year.

41. Further details on Aqua's acceleration plan are set forth on pages 23 through 24 of Aqua's Third LTIP.

H. WORKFORCE MANAGEMENT AND TRAINING PROGRAM

42. A description of the Company's workforce management and training program is on pages 24 through 27 of the Company's Third LTIP.

43. Aqua utilizes construction inspectors to provide numerous services during the installation of mains, service lines, pump stations, and manholes in the collection system. The inspectors are there to perform several tasks, including but not limited to: (1) monitoring the installation of lines to confirm that they are properly bedded and installed to Aqua specifications; (2) monitoring the backfill of the project for proper compaction as per Aqua specifications; (3) confirming that all materials such as pipe, fittings, backfill, concrete, etc. in the project meet Aqua specifications; and (4) observing contractor's implementation of contractor safety plans and advising contractor of any observed conditions of imminent danger. Moreover, inspectors can shut down a project until an imminent danger situation is addressed.

44. In addition, the Company requires its employees to have mandatory safety training throughout the year. Aside from the required annual training, additional training takes place, such as confined space, traffic safety, excavation/trenching, general safety hazards, and hazard communications. There are other programs that are required, but not on an annual basis, including Personal Protection Equipment ("PPE"), electrical hazard, competent person, arc flash training, and others. Further, all wastewater Distribution/Construction employees are required to wear their

PPE whenever they exit their vehicles on a jobsite. The PPE includes hard hat, safety vest, safety glasses, and steel toe shoes. The Company supplies all of this PPE.

45. To supplement Aqua's employee workforce, Aqua utilizes outside contractors for all collection system projects. Contractors are required at the Company's request to provide Aqua with their safety policy and documentation of training to their employees, including but not limited to competent person, utility damage prevention, and traffic safety. Aqua also requires contractors to follow all state, federal, and Occupational Safety and Health Administration ("OSHA") rules and regulations in the implementation of a project. Contractors also are required to fill out a Job Hazard Awareness form daily, which is designated by the contractor. Moreover, contractors must provide the PPE for their employees, including hard hat, work gloves, reflective vest of shirt, safety shoes, and safety eyewear. Furthermore, contractors are responsible for following the requirements of PA One Call, including being responsible for all PA One Call requests for their project.

46. Finally, Aqua requires all employees and contractors to report immediately any injury that takes place to an employee of either party. Aqua also requires employees and contractors to report any damage to utilities during the excavation process. The damage to utilities is recorded by Aqua, and as part of the Pennsylvania Underground Utility Line Protection Law, Aqua and its contractors are required to submit an Alleged Violation Report for all utility damage occurrences to the Commission.

I. OUTREACH AND COORDINATION ACTIVITIES WITH OTHER UTILITIES, PENNDOT, AND LOCAL GOVERNMENTS

47. Aqua has been updating its GIS to incorporate its wastewater assets. Between the months of May and October, replacement candidates are typically chosen and prioritized for refurbishment in the subsequent budget year. Each potential refurbishment project is vetted by the

Engineering Department, i.e., analyzed for feasibility of construction in the coming budget year. As part of the analysis process, Aqua collects information from PennDOT, counties, homeowners associations and municipalities as to their intentions to undertake paving and other public works projects during the budget year. Where Aqua chooses to undertake a pipe or manhole refurbishment project on a road pre-scheduled for paving, the project will be coordinated with the state, county or municipality. Aqua and the government agency will work together to insure that the design, permitting and construction of the pipe project will be completed in time to allow for the road to be paved. In some cases, where sewer main projects are large, the government agency will agree to postpone paving of its roads to the following year. Typically, when Aqua undertakes a project where paving has been pre-planned by the government agency, Aqua and its ratepayers will benefit financially through the avoidance of some level of road surface restoration, usually a half-road milling and macadam overlay.

48. Unfortunately, most municipalities do not identify their paving plans in advance of Aqua's project selection. Annual municipal budgets may not be approved until early in the budget year, resulting in paving projects not being formalized until well into the budget year. In these instances, Aqua must be proactive in identifying opportunities to coordinate pipe replacement and road paving.

III. WAIVER

49. Pursuant to 52 Pa. Code § 121.5(c), "A utility seeking to continue its DSIC mechanism after expiration of its LTIP shall file a new LTIP with the Commission at least 120 days prior to the expiration of a currently-effective LTIP." Aqua's currently effective LTIP is set to expire December 31, 2024.

50. As such, Aqua seeks a waiver of the requirement to file a new LTIIP at least 120 days prior to the expiration of its currently effective LTIIP.

IV. TARIFF CHANGES

51. Upon approval of Aqua's Third LTIIP, the Company will file a tariff supplement to remove the language on Original Pages 10.12.3 of Tariff Sewer-PA P.U.C. No. 3, which states:

The DSIC surcharge shall not be applied to bills of wastewater customers in Lower Makefield Township; this will remain effective until an amended Long-Term Infrastructure Improvement Plan (LTIIP) is filed and approved which includes Lower Makefield. Following the approval of an amended LTIIP, the DSIC surcharge shall be applicable to wastewater customers in Lower Makefield Township

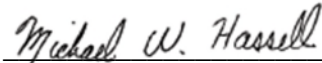
And on Original Page 10.13.3 of Tariff Sewer-PA P.U.C. No. 3, which states:

The DSIC surcharge shall not be applied to bills of wastewater customers in East Whiteland Township; this will remain effective until an amended Long-Term Infrastructure Improvement Plan (LTIIP) is filed and approved which includes East Whiteland. Following the approval of an amended LTIIP, the DSIC surcharge shall be applicable to wastewater customers in East Whiteland Township.

V. CONCLUSION

WHEREFORE, Aqua Pennsylvania Wastewater, Inc. respectfully requests that the Pennsylvania Public Utility Commission find that Aqua’s Third Long-Term Infrastructure Improvement Plan, which covers the five-year period of 2025 through 2029, contains all the necessary items identified in 66 Pa. C.S. § 1352(a) and 52 Pa. Code § 121.3(a), and addresses only eligible property, as defined by 66 Pa. C.S. § 1351, and that the Pennsylvania Public Utility Commission approve the Company’s Third Long-Term Infrastructure Improvement Plan.

Respectfully submitted,



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Dated: November 8, 2024

Counsel for Aqua Pennsylvania Wastewater,
Inc.

EXHIBIT A

AQUA PENNSYLVANIA WASTEWATER, INC.

THIRD LONG-TERM INFRASTRUCTURE IMPROVEMENT PLAN

FOR THE PERIOD 2025 - 2029

Aqua Pennsylvania Wastewater, Inc. (“Aqua” or the “Company”) is submitting this Long Term Infrastructure Improvement Plan (“LTIIIP”) in accordance with the requirements of Chapter 13 of the Public Utility Code, 66 Pa. C.S. §§ 1350-1360, Chapter 121 of Title 52 of the Pennsylvania Code, and the Pennsylvania Public Utility Commission’s (“PUC” or the “Commission”) Final Implementation Order entered on August 2, 2011, in Docket No. M-2012-2293611. The Company’s Third LTIIIP covers infrastructure investment through its established Distribution System Improvement Charge (“DSIC”). This Third LTIIIP is for the period of 2025 through 2029.

INTRODUCTION

Aqua Pennsylvania Wastewater, Inc. is the wastewater subsidiary of Aqua Pennsylvania, Inc. (“Aqua Pennsylvania”) and was formed in 1996 with the purchase of the Little Washington Drainage Company, which owned a wastewater system in East Brandywine Township, Pennsylvania. Since 1996, Aqua has grown steadily and currently owns and operates forty-three (43) wastewater collection and conveyance systems and serves 62,295 customers in sixteen (16) counties within Pennsylvania.

The Company has been organized into two operating groups within Pennsylvania, Southeastern Pennsylvania (“SEPA”) and Greater Pennsylvania (“GPA”).

- The GPA operating division serves approximately 11,219 customers in Adams, Carbon, Clarion, Clearfield, Lackawanna, Luzerne, Monroe, Pike, Schuylkill, Venango, and Wyoming counties. The GPA operating division collection and conveyance systems include approximately 345 miles of pipe, approximately 3,314 manholes, and 75 pump stations.
- The SEPA operating division serves approximately 51,076 customers in Berks, Bucks, Chester, Delaware, and Montgomery counties. The SEPA operating division collection and conveyance systems include approximately 680 miles of pipe, 15,623 manholes, and 105 pump stations.

On May 31, 2013, Aqua, then known as the Little Washington Wastewater Company (“LWWC”)¹, filed its petition for approval of a DSIC and LTIIP in accordance with Act 11 of 2012.² This petition was approved by the Commission on September 12, 2013. On September 1, 2017, Aqua filed its Petition for a Second LTIIP with the Commission, which was approved by Commission Order on December 21, 2017 at Docket No. P-2017-2622818. On October 31, 2019, Aqua filed its Petition for a Revised LTIIP with the Commission, which was approved by Commission Order on February 27, 2020, at Docket No. P-2019-3013941.

Under this Third LTIIP, Aqua plans to increase its collection system infrastructure spending to about \$14.5 million per year (on average) over the course of the 5-year plan. Aqua is also including systems that were not previously included in its DSIC program that were acquired under Section 1329 of the Public Utility Code, 66 Pa. C.S. § 1329 or that were non-Section 1329 acquisitions and have been included in Aqua’s most recent base rate case. Aqua’s annual capital investment in its wastewater collection system has been documented in its Annual Asset Optimization Plans (“AAOP”), filed with the Commission annually each October beginning in 2014. In 2019, Aqua then changed to calendar year reporting with AAOPs submitted by March 1. Aqua’s annual collection system investments per calendar year broken out by asset type for the last five years are provided in Table A, below.

¹ LWWC’s name was changed to Aqua Pennsylvania Wastewater, Inc. effective January 1, 2014. See Supplement No. 86 to Tariff Sewer-Pa. P.U.C. No. 1, Notification of Name Change to Aqua Pennsylvania Wastewater, Inc., Docket No. R-2013-2395509 (Dec. 17, 2013) (Secretarial Letter approving tariff supplement to implement name change).

² The Company did not file a separate petition for approval of its first LTIIP. Rather, Aqua attached the LTIIP, as an appendix to its DSIC petition. On July 3, 2013, LWWC filed a letter requesting the Commission to consider the Company’s May 31, 2013 petition as seeking approval of both the proposed DSIC and LTIIP.

Table A – Historic Spending by Year and Asset Type

Division	Mains	Manholes	Pump Stations	Clean & Televis	Engineering Studies	Total
GPA 2019	\$4,358,200	\$4,855,364	\$438,012	\$843,508	\$0	\$10,495,084
SEPA 2019	\$69,015	\$0	\$5,522	\$0	\$0	\$74,537
Subtotal	\$4,427,215	\$4,855,364	\$443,534	\$843,508	\$0	\$10,569,621
GPA 2020	\$868,235	\$1,381,234	\$1,491,064	\$0	\$0	\$3,740,532
SEPA 2020	\$1,055,624	\$137,191	\$329,372	\$58,110	\$0	\$1,580,297
Subtotal	\$1,923,859	\$1,518,425	\$1,820,436	\$58,110	\$0	\$5,320,829
GPA 2021	\$1,198,189	\$1,548,833	\$642,781	\$0	\$0	\$3,389,804
SEPA 2021	\$1,692,615	\$95,316	\$286,090	\$88,412	\$0	\$2,162,432
Subtotal	\$2,890,804	\$1,644,149	\$928,871	\$88,412	\$0	\$5,552,236
GPA 2022	\$1,505,542	\$212,168	\$829,299	\$0	\$158,511	\$2,705,520
SEPA 2022	\$483,696	\$73,645	\$476,436	\$0	\$0	\$1,033,777
Subtotal	\$1,989,238	\$285,813	\$1,305,735	\$0	\$158,511	\$3,739,297
GPA 2023	\$2,611,000	\$2,163,406	\$1,228,496	\$9,341	\$65,008	\$6,077,251
SEPA 2023	\$965,496	\$0	\$622,572	\$0	\$0	\$1,588,068
Subtotal	\$3,576,496	\$2,163,406	\$1,851,068	\$9,341	\$65,008	\$7,665,319
Total	\$14,807,612	\$10,467,157	\$6,349,644	\$999,371	\$223,519	\$32,847,302

Since the Company’s last LTIP filing, Aqua has cleaned and performed closed circuit television (“CCTV”) inspections on 33,125 linear feet of the sanitary sewer main, repaired and replaced 62,107 linear feet of sanitary sewer mains, repaired 1,299 manholes, and made mechanical repairs and improvements to 183 pumping stations. While Aqua continues to improve the condition of its collection systems, substantial work remains on its infrastructure for some of the recent acquisitions that exhibit substantial inflow and infiltration (“I&I”) problems, as further discussed in this document.

A significant portion of the capital to be spent in this LTIIP will continue to be focused on systems that experience significant I&I. Aqua will also continue to rehabilitate its systems such as New Garden, North Heidelberg, East Norriton, East Bradford, Cheltenham, Lower Makefield, Bunker Hill, Cove Village, Emlenton, Lake Harmony, Laurel Lakes, Mariasville, and Treasure Lake. Additionally, Aqua will continue to concentrate on replacing pumping station control panels. In many of the Company's acquisitions, the original control panels were not fabricated in compliance with current electrical standards, particularly arc flash standards. Aqua is replacing these pumping station control panels with panels that will meet current electrical safety standards and that will provide safe access to the Company's operators by eliminating the need for operators to open and access the panels to operate these facilities.

The condition of Aqua's collection systems varies depending upon age, materials employed, and quality of the initial installation. Aqua strives to maintain the collection systems by performing work required to maintain integrity and reliability; however, many of the Company's acquired systems were in various states of disrepair, exhibiting aged infrastructure and significant I&I of ground and surface waters into the wastewater collection systems.

During the period of this LTIIP, Aqua's primary focus in its accelerated collection system refurbishment program will be to continue the systematic investigation of those sewer systems with moderate to significant I&I, to schedule corrective measures to reduce or eliminate the I&I, and to refurbish and/or replace aged pumping facilities.

1 – Type and Age of Eligible Property

Aqua developed a Geographic Information System (“GIS”) for all of its wastewater collection systems. The Aqua GIS system stores data on sewer mains, manholes, valves, pump stations, etc., and is updated continually as the collection system changes with the addition of new pipe and the replacement of old pipe. Aqua utilizes, among other things, the GIS to identify and rate the mains, manholes, and pump stations on a priority basis for repair and replacement.

The following tables describe Aqua’s collection system inventory in terms of asset category (gravity main, force main, manhole, pump station, etc.) and includes information on material, diameter, and age. It is likely that some of data will remain “unknown”, as occasionally data simply does not exist for older or acquired facilities. However, by implementing GIS and similar programs, procedures will be established to capture the required data as continuing investigatory and repair work proceeds.

Types of sewer main

Gravity: Piping that conveys wastewater by gravity with access manholes placed at set intervals along the sewer pipe, at pipe intersections, and changes in pipeline direction.

Force Main: The discharge pipeline from a pumping station integral to the collection system.

Low Pressure: A sewer system designed to transport sewage by means of pressure derived from individual pumping units located on each parcel of land being served by the sewer.

Interceptor: Larger piping that conveys wastewater from collector and trunk sewer mains to wastewater treatment plants.

Table 1.1 depicts the breakdown of mains, including gravity, force main, and low pressure for all of the wastewater collection systems within the operating divisions.

Table 1.1 – Pipe Type and Quantity by Region

Type	Length (feet)	Percent of Total
SEPA Operating Division		
Gravity	3,114,643	87%
Force Main	325,456	9%
Low Pressure	51,832	1%
Interceptor	102,357	3%
Total	3,594,288	100%
GPA Operating Division		
Gravity	732,263	40%
Force Main	110,602	6%
Low Pressure	979,676	54%
Interceptor	0	0%
Total	1,822,541	100%
Total All Operating Divisions		
Gravity	3,846,906	71%
Force Main	436,059	8%
Low Pressure	1,031,508	19%
Interceptor	102,357	2%
Total	5,416,829	100%

Table 1.2 breaks down the collection system by material for all of the wastewater collection systems within the operating divisions.

Table 1.2 – Pipe Material by Region

Type	Length (feet)	Percent of Total
SEPA Operating Division		
Asbestos Cement (“AC”)	9,923	0.3%
Cast Iron (“CI”)	28,174	0.8%
Ductile Iron (“DI”)	44,958	1.3%
Galvanized (“G”)	99	0%
HD Polyethylene (“HDPE”)	12,937	0.4%
Permastrand (“P-S”)	1,239	0.03%
Polyvinyl Chloride (“PVC”)	588,929	16.4%
Reinforced Concrete (“RCP”)	6,087	0.2%
Steel (“S”)	1,069	0.03%
Terra Cotta (“TC”)	96,116	2.7%
Vitrified Clay (“VCP”)	284,529	7.9%
Unknown	2,520,191	70%
Total	3,594,288	100%
GPA Operating Division		
Asbestos Cement (“AC”)	22,601	1.2%
Cast Iron (“CI”)	6,186	0.3%
Cement (“CEM”)	29,986	1.7%
Ductile Iron (“DI”)	1,237	0.1%
HD Polyethylene (“HDPE”)	4,838	0.3%
Polyvinyl Chloride (“PVC”)	1,280,833	70.3%
Reinforced Concrete (“RCP”)	496	0.03%
Truss (“TRS”)	77,265	4.2%
Vitrified Clay (“VCP”)	59,653	3.3%
Unknown	339,445	18.6%
Total	1,822,541	100%
Total All Operating Divisions		
Asbestos Cement (“AC”)	32,524	0.6%
Cast Iron (“CI”)	34,360	0.63%
Cement (“CEM”)	29,986	0.6%
Ductile Iron (“DI”)	46,196	0.9%
Galvanized (“G”)	99	0%

Type	Length (feet)	Percent of Total
HD Polyethylene ("HDPE")	17,810	0.3%
Permastrand ("P-S")	1,239	0.02%
Polyvinyl Chloride ("PVC")	1,869,763	34.5%
Reinforced Concrete ("RCP")	6,582	0.1%
Steel ("S")	1,069	0.02%
Terra Cotta ("TC")	96,116	1.8%
Truss ("TRS")	77,265	1.4%
Vitrified Clay ("VCP")	344,182	6.4%
Unknown	2,859,636	52.8%
Total	5,416,829	100%

Tables 1.3A-C provide a breakdown of the pipe inventory by size for all of the wastewater collection systems within the operating divisions.

Table 1.3A – Pipe Diameter for SEPA Operating Division

Type	Diameter	Length (Feet)	Percent of Total
Gravity	1.5"	27	0%
	2"	234	0.01%
	3"	25	0%
	4"	141	0%
	6"	12,481	0.4%
	8"	1,305,033	41.9
	10"	71,605	2.3%
	11"	195	0.01%
	12"	61,433	2.0%
	14"	80	0%
	15"	22,314	0.7%
	16"	351	0.01%
	18"	17,104	0.6%
	20"	4,642	0.2%
	21"	3,536	0.1%
	24"	874	0.03%
	27"	3,845	0.1%
	30"	7,384	0.2%
	36"	512	0.02%
		Unknown	1,603,811
	Total	3,114,643	100%
Low Pressure	1.25"	301	0.6%
	1.5"	2,972	5.7%
	2"	25,238	48.7%
	2.5"	1,076	2.1%
	3"	11,025	21.3%
	4"	1,963	3.8%
		Unknown	9,257
	Total	51,832	100%
Force Main	1.5"	1,229	0.4%
	2"	28,046	8.6%
	2.5"	961	0.3%
	3"	13,360	4.1%
	4"	47,089	14.5%
	6"	40,940	12.6%

	8"	41,582	12.8%
	10"	5,439	1.7%
	12"	22,040	6.8%
	16"	3,794	1.2%
	Unknown	120,977	37.2%
	Total	325,457	100%
Interceptor	8"	2,897	2.8%
	10"	14,141	13.8%
	12"	15,600	15.2%
	15"	5,316	5.2%
	16"	1,600	1.6%
	18"	4,874	4.8%
	21"	3,806	3.7%
	22"	142	0.1%
	24"	1,045	1%
	27"	26	0%
	30"	539	0.5%
	33"	6,994	6.8%
	Unknown	45,376	44.3%
	Total	102,356	100%
Unknown	Total	1,779,421	
All	Total	3,594,288	

Table 1.3B – Pipe Diameter for GPA Operating Division

Type	Diameter	Length (Feet)	Percent of Total
Gravity	2"	444	0.1%
	4"	3,438	0.5%
	6"	18,304	2.5%
	8"	577,584	78.9%
	10"	42,114	5.8%
	12"	30,510	4.2%
	15"	32,775	4.5%
	18"	17,288	2.4%
	21"	496	0.1%
	24"	3,911	0.5%
	Unknown	5,399	0.7%
	Total	732,263	100%
Low Pressure	0.5"	366	0.04%
	1"	276	0.03%
	1.25"	7,569	0.8%
	1.5"	25,830	2.6%
	2"	139,100	14.2%
	2.5"	66,544	6.8%
	3"	172,958	17.7%
	4"	388,969	39.7%
	6"	36,825	3.8%
	8"	859	0.1%
	Unknown	140,380	14.3%
	Total	979,676	100%
Force Main	2"	3,849	3.5%
	3"	1,470	1.3%
	4"	42,492	38.4%
	6"	30,720	27.8%
	8"	6,824	6.2%
	10"	2,714	2.5%
Unknown	22,533	20.4%	
	Total	110,602	100%
Unknown	Total	168,312	
All	Total	1,822,541	

Table 1.3C – Total Pipe Diameter for All Operating Divisions

Type	Diameter	Length (Feet)	Percent of Total
Gravity	1.5"	27	0%
	2"	678	0.02%
	3"	25	0%
	4"	3,579	0.1%
	6"	30,785	0.8%
	8"	1,881,633	48.9%
	10"	113,719	3%
	11"	195	0.01%
	12"	91,943	2.4%
	15"	55,089	1.4%
	16"	351	0.01%
	18"	34,392	0.9%
	20"	4,642	0.1%
	21"	4,032	0.1%
	24"	4,785	0.1%
	27"	3,845	0.1%
	30"	7,384	0.2%
	36"	512	0.01%
		Unknown	1,609,210
	Total	3,846,906	100%
Low Pressure	0.5"	366	0.04%
	1"	276	0.03%
	1.25"	7,870	0.8%
	1.5"	28,802	2.8%
	2"	164,338	15.9%
	2.5"	67,620	6.6%
	3"	183,983	17.8%
	4"	390,932	37.9%
	6"	36,825	3.6%
	8"	859	0.1%
		Unknown	149,637
	Total	1,031,508	100%
Force Main	1.5"	1,229	0.3%
	2"	31,895	7.3%
	2.5"	961	0.2%
	3"	14,830	3.4%
	4"	89,581	20.5%
	6"	71,660	16.4%

	8"	48,406	11.1%
	10"	8,153	1.9%
	12"	22,040	5.1%
	16"	3,794	0.9%
	Unknown	143,510	32.9%
	Total	436,059	100%
Interceptor	8"	2,897	2.8%
	10"	14,141	13.8%
	12"	15,600	15.2%
	15"	5,316	5.2%
	16"	1,600	1.6%
	18"	4,874	4.8%
	21"	3,806	3.7%
	22"	142	0.1%
	24"	1,045	1%
	27"	26	0%
	30"	539	0.5%
	33"	6,994	6.8%
	Unknown	45,376	44.3%
	Total	102,356	100%
Unknown	Total	1,947,733	
All	Total	5,416,829	

Table 1.4 provides a breakdown of pipe age for all of the wastewater collection systems within the operating divisions.

Table 1.4 – Pipe Vintage by Region

Installation Year	Length (feet)	Percent of Total
GPA Operating Division		
1950-1975	68,500	4.3%
1976-2000	3,919	0.2%
2001-2024	290,291	15.9%
Unknown	1,459,831	80.1%
Total	1,822,541	100%
SEPA Operating Division		
1950-1975	102,117	2.8%
1976-2000	183,542	5.1%
2001-2024	187,492	5.2%
Unknown	3,121,137	86.8%
Total	3,594,288	100%
All Operating Divisions		
1950-1975	170,617	3.2%
1976-2000	187,461	3.5%
2001-2010	477,783	8.8%
Unknown	4,580,968	3.2%
Total	5,416,829	100%

Table 1.5 provides a breakdown of manholes for all of the wastewater collection systems within the operating divisions.

Table 1.5 – Manholes for All Operating Divisions

Division	Total Manholes	Percent of Total
GPA	3,314	18%
SEPA	15,623	82%
Total	18,937	100%

Tables 1.6A-B provide a breakdown of intermediate pump stations for all of the wastewater collection systems within the two operating divisions.

Table 1.6A – Pump Stations for GPA Operating Division

System	# of Pump Stations	Percent of Total	Material	Installation Year
Beech Mountain	0	0%	N/A	N/A
Blakeslee (Tobyhanna)	4	5%	Precast	2000-2010
Bunker Hill	0	0%	N/A	N/A
Cove Village	5	7%	Precast	1976-2000
Eagle Rock	30	38%	Steel/Precast/Fiberglass	1976-2014
Emlenton	0	0%	N/A	N/A
Lake Harmony	0	0%	N/A	N/A
Laurel Lakes	0	0%	N/A	N/A
Links at Gettysburg	2	3%	Precast	2000-2010
Masthope	9	12%	Precast	1976-2000
Pinecrest	6	8%	Precast	1976-2000
Rivercrest	0	0%	N/A	N/A
Thornhurst	0	0%	N/A	N/A
Treasure Lake	8	9%	Steel	1976-2019
Washington Park	0	0%	N/A	N/A
White Haven	4	5%	Precast	1951-2010
Woodloch Springs	7	10%	Precast	1976-2000
Total	75	100%		

Table 1.6B – Pump Stations for SEPA Operating Division

System	# of Pump Stations	Percent of Total	Material	Installation Year
Brandywine River	3	3%	Precast	1997
Bridlewood	1	1%	Precast	1996
Cheltenham	0	0%	N/A	N/A
Deerfield Knoll	1	1%	Precast	1980-1982
East Bradford	5	5%	Precast	1984-2006
East Brandywine (Little Washington)	1	1%	Precast	1973-1997
East Norriton	9	9%	Precast	1960-2012
East Whiteland	12	11%	Precast	1976-2018
Honeycroft	1	1%	Precast	2013
Limerick	18	17%	Cast-in-Place, Precast	1990-2015
Lower Makefield	15	14%	Precast	1964-2021
Media	2	2%	Cast-in-Place, Precast	1925-1973
New Daleville	0	0%	N/A	2005-2008
New Garden	13	12%	Precast	1968-2016
Newlin Green	0	0%	N/A	N/A
North Heidelberg	4	4%	Precast	1971-1978
Peddler's View	0	0%	N/A	N/A
Penn London	0	0%	N/A	N/A
Penn Township	7	7%	Precast	1990-2000
Penn Oaks	1	1%	Precast	1998
Plumsock	1	1%	Precast	1991
Sage Hill	1	1%	Precast	2008
Stony Creek	3	3%	Precast	2007-2013
Twin Hills	2	2%	Precast	1992-2003
Villages Valley Forge	1	1%	Precast	2010-2012
Willistown Woods	4	4%	Precast	1982-2003
Total	105	100%		

2 – Schedule for Planned Repair and Replacement of Eligible Property

Recognizing the need for continual renewal of the Company’s collection and conveyance systems to maintain quality and reliable service to its customers, Aqua has been rehabilitating and replacing system components since acquiring each of its sewer systems. Looking forward, Aqua has prioritized pumping stations and sewer main renewal/rehabilitation candidates at both a macro and micro level.

Macro Planning

At the macro level, general categories of sewer components (for example, old and broken terracotta mains, deteriorating manholes, and aging pump stations) and geographic areas within a system have been identified as areas of concern. Any sewer features fitting these criteria are considered potential candidates for near-term replacement. The macro examination also eliminates certain pipe from consideration for replacement. For example, PVC less than 20 years old and systems known to have only minor I&I issues are unlikely to need current repair and replacement.

At this level, it is useful to define the pool of “potential” candidate sewer collection system components for replacement. There are several sewer collection and conveyance categories that will be used to determine the major areas of concern. Past sewer investigations have identified pipes and manholes that require repair/replacement and systems with significant I&I issues will also be targeted for inspection and assessment. Additionally, older pump stations will be identified for evaluation and refurbishment. Systems with PVC pipe less than 20 years old that have only minor I&I issues will not be targeted for rehabilitation.

I&I analyses are performed to demonstrate the degree of excessive I&I in each sewer system tributary to the treatment works. Systematic investigations of the sewer systems will identify the presence, flow rate, and type of I&I conditions that exist in each sewer system. The systematic investigation will include the following: video inspections of pipes, estimates of average residential, industrial, commercial, and institutional wastewater flows, continuous flow monitoring, in some cases flow isolation monitoring and determination of I&I flow rates, and rainfall monitoring.

Micro Planning

At the micro level, main replacement planning addresses the priority in which specific pipes and manholes within the broader categories are replaced or rehabilitated. This requires taking into account the results of I&I elimination investigations and existing performance characteristics of the main such as cracks, sags, and other performance criteria that are to be incorporated into the GIS data.

The results of I&I investigations and main inspections will be utilized to target specific pipe segments and structures requiring rehabilitation. The schedule of repair and replacement projects are prioritized based upon environmental impact, public health, severity, and capacity needs of the area. Digging up and replacing defective sewer pipes is no longer the only solution available for eliminating I&I. Today, this method is reserved for cases in which the structural integrity of the pipe is severely degraded beyond repair, the pipe is seriously misaligned, or when other rehabilitation methods are not deemed practical or cost effective. The cost effectiveness of new trenchless or in-place rehabilitation technologies has eliminated much of the need to excavate and replace sewer piping. Sewer mains determined to require repair would be evaluated to determine the most cost-effective approach. Repair methods to be utilized for gravity sewers include slip lining with HDPE pipe and cured-in-place lining (inversion lining). If it is determined that an existing line cannot be repaired, complete replacement with PVC pipe for gravity mains is the likely approach. Bypass pumping measures are required when necessary to maintain the serviceability of the collection system.

Aqua's preferred methods of sewer rehabilitation are slip lining and cured-in-place pipe liners ("CIPP"). When slip lining, a slightly smaller diameter HDPE pipe is installed inside the existing pipe. CIPP is formed by inserting a flexible polyester or epoxy resin-filled felt tube into a pipe, which is inverted against the inner wall of the existing pipe and then allowed to cure.

3 – Location of Eligible Property and Regional Characteristics

The GPA operating division consists of seventeen (17) wastewater systems containing eighteen (18) wastewater treatment plants (“WWTPs”). In general, these systems are in “fair” to “poor” condition, with moderate to severe I&I issues and structural defects. Corrective measures are needed, including, but not limited to, I&I and structural investigation/rehabilitation and replacement of aged pump station components. Table 3.1 shows each GPA system, its location, current customer count, and acquisition date.

Table 3.1 – GPA Operating Division Systems

Name	County	Sewer Customers	Acquisition Date
Beech Mountain	Luzerne	979	May 4, 2012
Blakeslee (Tobyhanna)	Monroe	773	June 30, 2017
Bunker Hill	Wyoming	71	August 11, 2015
Cove Village	Schuylkill	162	August 5, 2009
Eagle Rock	Luzerne and Schuylkill	1,162	June 24, 2004
Emlenton	Venango & Clarion	410	December 30, 2016
Lake Harmony	Carbon	1,027	September 28, 2012
Laurel Lakes	Luzerne	202	July 1, 2005
Links at Gettysburg	Adams	278	September 1, 2004
Masthope	Pike	1,426	January 26, 2006
Pinecrest	Monroe	371	December 18, 2003
Rivercrest	Wyoming	225	June 28, 2002
Thornhurst	Lackawanna	318	August 6, 2004
Treasure Lake	Clearfield	2,264	March 1, 2013
Washington Park	Wyoming	134	March 31, 2009
White Haven	Luzerne	759	March 12, 2002
Woodloch Springs	Pike	658	December 1, 2003
TOTAL		11,219	

The SEPA operating division serves twenty-six (26) collection and conveyance systems and contains twenty-two (22) WWTPs. In general, these systems are in “fair” to “good” condition and have minor I&I issues and structural defects, with the exception of the Media system. Corrective measures are needed within the Media system, including, but not limited to, I&I, structural investigation/rehabilitation, and system component replacement. Table 3.2 shows each SEPA system, its location, current customer count, and acquisition date.

Table 3.2 – SEPA Operating Division Systems

Name	County	Sewer Customers	Acquisition Date
Brandywine River Estates	Chester	81	March 11, 1999
Bridlewood	Chester	510	December 16, 2002
Cheltenham	Montgomery	10,061	December 19, 2019
Deerfield Knoll	Chester	119	July 18, 1995
East Bradford	Chester	1,285	December 12, 2018
East Brandywine (Little Washington)	Chester	349	November 22, 1996
East Norriton	Montgomery	5,030	June 19, 2020
East Whiteland	Chester	4,019	August 12, 2022
Honeycroft	Chester	211	October 31, 2016
Limerick	Montgomery	5,966	July 25, 2018
Lower Makefield	Bucks	11,468	March 4, 2022
Media Borough	Delaware	6,770	April 5, 2001
New Daleville	Chester	110	October 30, 2008
New Garden	Chester	1,951	December 21, 2020
Newlin Green	Chester	50	August 9, 2007
North Heidelberg	Berks	272	March 30, 2023
Peddler’s View	Bucks	214	September 24, 1997
Penn London	Chester	1	September 8, 2017
Penn Township	Chester	1,053	March 28, 2014
The Greens at Penn Oaks	Chester	71	June 29, 2007
Plumsock	Chester	38	October 13, 2000

Name	County	Sewer Customers	Acquisition Date
Sage Hill	Chester	21	December 21, 2012
Stony Creek	Montgomery	246	April 30, 2010
Twin Hills	Chester	329	April 13, 2000
Village at Valley Forge	Chester & Montgomery	34	March 30, 2012
Willistown Woods	Chester	817	November 17, 1999
TOTAL		51,076	

4 – Reasonable Estimate of the Quantity of Property to be Improved

The quantities set forth in Table 4.1, below, are approximations based upon a general assessment of overall needs and historical costs. Actual quantities of pipe replacement and manhole repairs will be determined based upon the results of I&I investigations and sewer main inspections.

Table 4.1 – 2025 to 2029 Planned Capital Projects

Year	Mains (LF)	Manholes (EA)	Pump Stations (EA)
2025	40,406	36	28
2026	25,692	671	19
2027	22,421	651	25
2028	63,104	81	17
2029	52,922	1,051	24
TOTAL	204,185	2,490	113

5 – Projected Annual Expenditures and Measures to Ensure Cost-Effectiveness

As previously stated, Aqua will perform I&I elimination projects including pipe replacement and manhole repair to only those portions of the collection system identified through I&I investigations and inspections. Pipe replacement will be performed utilizing

trenchless sewer rehabilitation methods where possible. Trenchless techniques are capable of performing spot repairs as well as manhole-to-manhole lining. For most applications, trenchless sewer rehabilitation techniques require less installation time and therefore less bypass pumping. In addition, trenchless sewer rehabilitation techniques minimize utility conflicts, minimize restoration costs, and are less disruptive to business, homeowners, and traffic. Aqua is able through competitive bidding to secure lower unit costs contracts with various utility contractors. Aqua assigns supervisors and inspectors to each project to ensure the quality and effectiveness of work performed. Additionally, where practical Aqua coordinates projects with local municipalities to coincide with other utility and paving projects to reduce restoration costs and minimize customer impacts.

Tables 5.1 to 5.3 identify, by project type, the collection system capital projects planned to be performed in the upcoming five years, as well as the anticipated expenditure by project type for each year of the five-year term of this LTIP. The specified projects are subject to change based upon updated information and changes in priority that may occur during the five-year period. Cost estimates are subject to change as specific projects are designed and built.

Table 5.1 – GPA Collection System Capital Improvement Schedule

Description	2025	2026	2027	2028	2029	Total
Sewer Mains	\$3,506,900	\$2,531,900	\$2,448,900	\$4,473,900	\$7,865,900	\$20,827,500
Manholes	\$35,000	\$2,880,000	\$2,548,000	\$133,000	\$4,176,000	\$9,772,000
Pump Stations	\$1,050,000	\$1,862,000	\$4,912,000	\$485,000	\$1,984,000	\$10,293,000
Total	\$4,591,900	\$7,273,900	\$9,908,900	\$5,091,900	\$14,025,900	\$40,892,500

Table 5.2 – SEPA Collection System Capital Improvement Schedule

Description	2025	2026	2027	2028	2029	Total
Sewer Mains	\$5,562,748	\$4,132,872	\$3,197,240	\$10,187,512	\$3,129,340	\$26,209,712
Manholes	\$217,000	\$217,000	\$98,000	\$434,000	\$49,000	\$1,015,000
Pump Stations	\$1,743,000	\$585,000	\$635,000	\$703,800	\$610,028	\$4,276,628
Total	\$7,522,748	\$4,934,872	\$3,930,240	\$11,325,312	\$3,788,368	\$31,501,540

Table 5.3 – TOTAL Collection System Capital Improvement Schedule

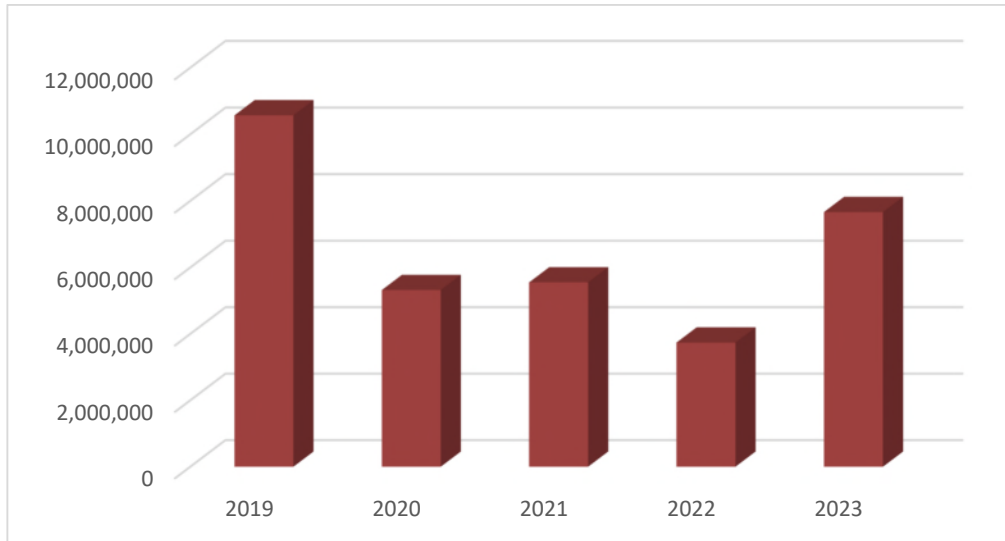
Description	2025	2026	2027	2028	2029	Total
Sewer Mains	\$9,069,648	\$6,664,772	\$5,646,140	\$14,661,412	\$10,995,240	\$47,037,212
Manholes	\$252,000	\$3,097,000	\$2,646,000	\$567,000	\$4,225,000	\$10,787,000
Pump Stations	\$2,793,000	\$2,447,000	\$5,547,000	\$1,188,800	\$2,594,028	\$14,569,828
Total	\$12,114,648	\$12,208,772	\$13,839,140	\$16,417,212	\$17,814,268	\$72,394,040

Aqua strives to meet its LTIP goals and will continue to work diligently to ensure that its targets are met. As would occur in any capital program, the Company has experienced instances where capital and projects have been required to shift from different quarters or different years based on the re-prioritization of projects or the needs of particular systems. Since Aqua’s wastewater business is much smaller in scale compared to its water business, any shifts that occur can have an impact on the dollars and quantities spent in any particular year, thus requiring more flexibility in any one given year.

6 – Acceleration Plan and Maintenance of Safe and Reliable Service

Aqua has continuously invested in its wastewater facilities and collection systems to ensure safe and reliable service, public health and environmental protection, and intends to continue to maintain the accelerated refurbishment of its collection system. For the calendar years of 2025 through 2029, Aqua plans to accelerate collection system capital spending to approximately \$14.5 million annually (on average) for pipe repair, pump station refurbishment, and I&I reduction programs. This represents an increase over the 5-year average of \$6.6 million per year during the period of 2019 – 2023.

Figure 6.1 – Aqua Collection System Capital Expenditure Chart



Refurbishment of dated and/or deteriorating assets improves the safety and reliability of the entire system while improving service to Aqua’s customers and protecting the environment. Construction methods that minimize service interruptions will be utilized to minimize impacts to customers while ensuring cost effectiveness. Serviceability of mains and pumping facilities during construction projects must be maintained at all times. This is accomplished by the project specifications, work plans, and oversight of work being performed. These standards are enforced and monitored by inspectors, operations management, and the licensed operators with additional inspection and oversight by in-house safety administration personnel. Prior to starting work within a community, information letters and door-to-door notifications will be provided to affected customers and property owner associations by Aqua employees.

7 – Workforce Management

The Commission requires a utility that utilizes a DSIC to have a workforce management and training program designed to ensure that the utility has access to a qualified workforce to perform work in a cost-effective, safe and reliable manner.

Inspectors

Aqua utilizes construction inspectors to provide numerous services during the installation of gravity and low pressure mains, service laterals, pump stations, and manholes in the collection system. The inspectors are there to perform the following tasks, as well as any other work that may be necessary:

- Monitor the installation of the lines to confirm that they are properly bedded and installed to Aqua specifications.
- Monitor the backfill of the project for proper compaction as per Aqua specifications.
- Confirm that all materials such as pipe, fittings, backfill, concrete, etc. in the project meet the Aqua specifications.
- Capture the quantities of pipe and other materials for proper record keeping, plans, etc.
- Capture the quantities of pipe and other materials, labor, etc. for accurate billing and payments.
- Document all locations of pipe, laterals, etc. for accurate mapping and recordkeeping.
- Work with residential customers to lessen the impact of the project and answer or address any issues that occur within the project.
- Work with businesses that are impacted by the project to ensure deliveries, access, and service outages do not disrupt business.
- Coordinate contractors with school districts, municipalities, and emergency services so that bus routes, trash pick-up, mail delivery, and emergency response are not impacted.
- Monitor the temporary restoration during the project to confirm that it is completed to Aqua specifications.

- Monitor the restoration required in projects to make certain they are done to state or municipal specifications and ensure that proper installation is achieved.
- Observe contractor's implementation of contractor safety plans and advise contractor of any observed conditions of imminent danger. Inspectors can shut down a project until an imminent danger situation is addressed.

Safety and Training

Aqua requires its employees in the wastewater company to have mandatory safety training throughout the year. Aside from the required annual training, there is additional training that also takes place. Examples of the required annual training are confined space, traffic safety, excavation/trenching, general safety hazards, and hazard communications. In addition, there are other programs that are required but not on an annual basis, including Personal Protection Equipment ("PPE"), electrical hazard, competent person, arc flash training, and others. In 2019, Aqua developed a training program to educate drivers and reduce the frequency of backing accidents. Driving continues to be an integral part of training. In addition to video segments, Safety Days include keynote speakers discussing driving skills and techniques. In 2022, monthly video segments were implemented along with instructor led classes on reverse driving and backing, and in 2023 the Company included spotter training. Aqua routinely sends out "Tool Box" Talks on safety topics; tripping hazards, electrical, tools, and seasonal topics such as weather, holidays, and Back to School. The Safety department also issues "Safety Alerts" previewing incidents and near misses. In addition, Aqua has instituted a "Near Miss" (Safety Learning Opportunities) initiative where hazards are identified and resolved within 30 days and this includes Near Misses of contractor employees observed by Aqua employees.

All wastewater Distribution/Construction employees are required to wear their PPE whenever they exit their vehicles on a jobsite. The PPE includes hardhat, safety vest, safety glasses, and steel toe shoes. The Company supplies all of this PPE.

Aqua requires all employees, and contractors, to report immediately any injury that takes place to an employee of either party. Aqua also requires employees and contractors to report any damage to utilities during the excavation process. As part of the Pennsylvania Underground Utility Line Protection Law ("PA One Call Law"), Aqua and its contractors are

required to submit an Alleged Violation Report for all utility damage occurrences to the Commission.

Contractors

To supplement Aqua's employee workforce, Aqua utilizes outside contractors for all collection system projects. Contractors are required at the Company's request to provide Aqua with their safety policy and documentation of training to their employees, including but not limited to competent person, utility damage prevention, and traffic safety.

Aqua requires contractors to follow all state, federal, and Occupational Safety and Health Administration ("OSHA") rules and regulations in the implementation of a project. This is required in all contract documents for construction. Aqua engages a third-party safety consultant to perform safety observations on all construction projects. Contractors are also required to fill out a Job Hazard Awareness form daily designated by the contractor.

Contractors are also required to provide the PPE for their employees, including hardhat, work gloves, reflective vest or shirt, safety shoes, and safety eyewear.

Contractors are also responsible for reporting to Aqua any injuries sustained on an Aqua project. They are also required to report any utility damage that occurs on the jobsite. As part of the PA One Call Law, the contractor is required to submit an Alleged Violation Report for all utility damage occurrences to the Commission. Contractors are responsible for following the requirements of the PA One Call Law, including being responsible for all PA One Call requests for their project.

8 – Outreach and Coordination Activities with Other Utilities, PennDOT, Homeowners Associations, and Local Governments

Aqua has been updating its GIS to incorporate its wastewater assets. Between the months of May and October, replacement candidates are typically chosen and prioritized for refurbishment in the subsequent budget year. Each potential refurbishment project is vetted by the Engineering Department (i.e., analyzed for feasibility of construction in the coming budget year). As part of the analysis process, Aqua collects information from PennDOT, counties, homeowner's associations, and municipalities as to their intentions to undertake paving and other public works projects during the budget year. Where Aqua chooses to

undertake a pipe or manhole refurbishment project on a road pre-scheduled for paving, the project will be coordinated with the state, county, or municipality. Aqua and the government agency will work together to ensure that the design, permitting, and construction of the pipe project will be completed in time to allow the road to be paved. In some cases, where sewer main projects are large, the government agency will agree to postpone paving of its roads to the following year. Typically, when Aqua undertakes a project where paving has been pre-planned by the government agency, Aqua and its rate payers will benefit financially through the avoidance of some level of road surface restoration, usually a full-lane or half-road milling and macadam overlay. Aqua also communicates with customers through social media regarding fats, oils and grease, and other items that should not be flushed into the sewer system that can harm the collection systems or treatment plants.

Unfortunately, most municipalities do not identify their paving plans in advance of Aqua's project selection. Annual municipal budgets may not be approved until early in the budget year, resulting in paving projects not being formalized until well into that year. In these instances, Aqua must be proactive in identifying opportunities to coordinate pipe replacement and road paving.

VERIFICATION

I, Michael Fili, Vice President, Capital Planning, Design & Construction of Aqua Pennsylvania, Inc., hereby state that the facts set forth in Aqua Pennsylvania Wastewater, Inc.'s Third Long Term Infrastructure Improvement Plan are true and correct to the best of my knowledge, information and belief and that I expect to be able to prove the same at a hearing held in this matter. I understand that the statements herein are made subject to the penalties of 18 Pa. C.S. § 4904 (relating to unsworn falsification to authorities).

A handwritten signature in blue ink that reads "Michael Fili". The signature is written in a cursive style and is positioned above a horizontal line.

Michael Fili
Vice President, Capital Planning, Design &
Construction
Aqua Pennsylvania Wastewater, Inc.

Dated: November 8, 2024