

PHILADELPHIA WATER DEPARTMENT  
STATEMENT 7

BEFORE THE  
PHILADELPHIA WATER, SEWER AND STORM WATER RATE BOARD

In the Matter of the Philadelphia Water Department's Proposed Change in Water, Wastewater, and Stormwater Rates and Related Charges	Fiscal Years 2024 – 2025 Rates and Charges to Become Effective September 1, 2023 and September 1, 2024
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**Direct Testimony**

**of**

**Black & Veatch Management Consulting, LLC**

**on behalf of**

**The Philadelphia Water Department**

Dated: January 2023

## TABLE OF CONTENTS

<u>I.</u>	INTRODUCTION AND QUALIFICATIONS.....	3
<u>II.</u>	PURPOSE OF TESTIMONY .....	4
<u>III.</u>	COST OF SERVICE STUDY OVERVIEW .....	6
<u>IV.</u>	MISCELLANEOUS CHARGES .....	45
<u>V.</u>	SENIOR DISCOUNT THRESHOLD.....	48
<u>VI.</u>	PROPOSED TAP RATE RIDER UPDATES.....	48
<u>VII.</u>	CONCLUSION .....	51

**I. INTRODUCTION AND QUALIFICATIONS**

**Q1. PLEASE STATE YOUR NAME AND BUSINESS AFFILIATION.**

A1. Our names are Ann Bui, Dave Jagt, and Brian Merritt. We are employed by Black & Veatch Management Consulting LLC (“Black & Veatch”), 11041 Lamar Avenue, Overland Park, Kansas. We will be presenting our collective testimony on behalf of the City of Philadelphia (the “City”) Water Department (“Water Department” or “PWD”) in this proceeding before the Philadelphia Water, Sewer and Storm Water Rate Board (“Rate Board”) as a panel. Appended to this Direct Testimony are our respective resumes of experience.

**Q2. PLEASE DESCRIBE THE FIRM OF BLACK & VEATCH MANAGEMENT CONSULTING, LLC (BLACK & VEATCH).**

A2. A firm description of Black & Veatch is provided in *Schedule BV-5*.

**Q3. PLEASE IDENTIFY THE MEMBERS OF THE BLACK & VEATCH TEAM PROVIDING TESTIMONY, PROVIDE THEIR RESPECTIVE PROJECT RESPONSIBILITIES AS WELL AS THEIR EDUCATIONAL AND PROFESSIONAL EXPERIENCE.**

A3. The Black & Veatch team members providing testimony are Ms. Ann Bui, Mr. Dave Jagt, and Mr. Brian Merritt. A summary of the team’s educational background and professional experience is provided in *Schedule BV-5*. The respective project responsibilities for team members are described below.

1 Ms. Bui is a Senior Managing Director with Black & Veatch and provided an overall  
2 technical review of the Cost of Service (“COS”) Study, the design of rate schedules, and  
3 monthly bill impacts. Mr. Jagt is a Manager with Black & Veatch and served as the senior  
4 technical lead for this study's financial and cost-of-service analysis. Mr. Merritt is a  
5 Manager with Black & Veatch and served as Project Manager for this water and wastewater  
6 COS Study.

7  
8 **II. PURPOSE OF TESTIMONY**  
9

10 **Q4. WHAT IS THE PURPOSE OF YOUR TESTIMONY IN THIS PROCEEDING?**

11 A4. The purpose of our testimony is to (1) provide an overview of the cost-of-service  
12 methodology; (2) describe the analytical approach and results of the COS Study; (3) outline  
13 the miscellaneous fee updates; (4) discuss the proposed adjustment to the senior citizen  
14 income threshold; and (5) present proposed updates to key factors used in the Tiered  
15 Assistance Program (“TAP”) Rate Rider formula.

16  
17 **Q5. PLEASE DESCRIBE THE STUDY PERIOD USED IN THE COST-OF-SERVICE**  
18 **STUDY.**

19 A5. The study period used in the COS Study is fiscal year (“FY”) 2023 to FY 2028 (the “Study  
20 Period”). The revenue and revenue requirements projections and the associated revenue  
21 adjustment projections span these six years.

22  
23 **Q6. WHAT IS THE PERIOD FOR WHICH RATES ARE BEING PROPOSED?**

24 A6. In this rate proceeding, the Water Department is proposing retail rate schedules for the  
25 following fully forecasted fiscal years (hereinafter called “Test Years”):



1. 'Test Year-1' reflects FY 2024 (ending June 30, 2024); and
2. 'Test Year-2' reflects FY 2025 (ending June 30, 2025).

The cost-of-service rates are proposed for two different test years to ensure that the Water Department can, in each year, meet all the requirements prescribed by the General Water and Wastewater Revenue Bond Ordinance of 1989 ("General Bond Ordinance") and the Philadelphia Code, Section 13-101 ("Rate Ordinance").

*The Water Department proposes rate increases that will go into effect on September 1st of each fiscal year. The Cost of Service Study and proposed rates described herein apply only to PWD's "Base Rates," which exclude revenue loss associated with providing TAP discounts and the TAP Rate Rider Surcharge ("TAP-R") revenues.*

TAP discounts and TAP-R revenues are presented separately to show the overall Water Fund cashflow derivation and to evaluate overall performance metrics as required by the General Bond Ordinance and the Rate Ordinance.

**Q7. PLEASE IDENTIFY THE SUPPORTING SCHEDULES PROVIDED WITH YOUR TESTIMONY.**

**A7. Schedule BV-1:** Summary tables relating to the comprehensive Cost of Service Study, including the projection of combined revenue and revenue requirements, customer bill impacts, and associated rate schedules for water, sanitary sewer, and stormwater service.

**Schedule BV-2:** Cost of Service Report presenting the detailed cost-of-service analysis, including projection of revenue and revenue requirements, underlying assumptions, allocation of costs to the water and wastewater systems, projection of stormwater billable units of services, supporting wholesale analyses, and rate design.

1 **Schedule BV-3:** Summary tables relating to the miscellaneous fees analysis.

2 **Schedule BV-4:** Supporting white papers outlining inflation and cost escalation pressures,  
3 detailed background on stormwater units of service projections, the miscellaneous fee  
4 study methodology with supporting work papers, and the development of the proposed  
5 senior citizen discount income threshold.

6 **Schedule BV-5:** Resumes and Black & Veatch firm description.

7  
8 **III. COST OF SERVICE STUDY OVERVIEW**

9  
10 **Q8. WAS THE COS STUDY IN THIS PROCEEDING PERFORMED CONSISTENT**  
11 **WITH GENERALLY ACCEPTED INDUSTRY GUIDELINES?**

12 A8. Yes. Black & Veatch utilized the principles and guidelines from the following industry  
13 manuals in performing its COS Study in this proceeding:

- 14 1. American Water Works Association's ("AWWA") *Principles of Water Rates,*  
15 *Fees, and Charges, Manual of Water Supply Practices M1- 7<sup>th</sup> Edition* ("M1  
16 Manual"),  
17 2. Water Environment Federation's ("WEF") *Financing and Charges for*  
18 *Wastewater Systems, Manual of Practice M27 – 4<sup>th</sup> Edition*, ("MoP 27"), and  
19 3. WEF's *User Fee Funded Stormwater Programs*.

20  
21 These manuals serve as the generally accepted industry guidelines used by rate  
22 practitioners. Furthermore, the analysis and methodology used in this COS Study are  
23 consistent with that used in analogous studies performed by Black & Veatch in support of  
24 prior PWD rate proceedings.

1 **Q9. PLEASE DESCRIBE THE VARIOUS COMPONENTS OF A COST OF SERVICE**  
2 **STUDY.**

3 A9. Consistent with the principles and guidelines in the above-referenced manuals, the COS  
4 Study, undertaken in this proceeding, consists of three parts:

- 5 1. Revenue & Revenue Requirements,
- 6 2. Cost-of-Service Analysis, and
- 7 3. Rate Design.

8  
9 The cost-of-service analysis provides the basis for designing a rate structure that allows  
10 the utility to recover costs from its customers equitably. As a part of this analysis, the  
11 costs of providing service to various customer types are matched with their associated  
12 service demands. As it is not practical to perform this matching of costs of service at an  
13 individual customer level, the cost of service is determined by customer type. The three  
14 components of the COS Study are discussed below.

15  
16 Revenue & Revenue Requirements: The first step in the COS Study, the Revenue &  
17 Revenue Requirements, establishes how much money the utility needs to meet its fiscal  
18 year operating and capital obligations; this step includes a review of operations and  
19 maintenance (“O&M”) expenses, debt service payments, funding for specific deposits  
20 and reserves, and the cost of capital improvement projects that the utility does not fund  
21 via debt or contributions from third parties.

22  
23 When the revenues generated from existing user rates and charges and other sources of  
24 revenue are insufficient to cover operating and capital costs, the utility may require one or  
25 more revenue adjustments as part of the revenue requirements analysis. The Water

1 Department has legal requirements and bond covenants that prescribe the use of receipt-  
2 based<sup>1</sup> revenue projections (i.e., “cash-basis” or “legally enacted basis”) in the revenue  
3 requirements analysis.

4  
5 Black & Veatch reviewed the revenue requirements of the Water and Wastewater Systems  
6 to determine whether system revenues are sufficient to cover all the cash expenditures for  
7 the Study Period. *Schedule BV-2: Cost of Service Report* provides additional details  
8 regarding the development of the revenue and revenue requirement projections.

9  
10 Cost-of-Service Analysis: The cost-of-service analysis begins after determining the  
11 revenue requirements for the utility over the Study Period. The cost-of-service analysis is  
12 performed for specific prospective fiscal years (or “test years”) in this rate proceeding. We  
13 use test years to illustrate the allocation of costs to customer types and the design of rate  
14 schedules to recover those costs from the various customer types.

15  
16 The term annual cost of service refers to the “net” revenue requirement (less other operating  
17 and/or non-operating revenues) that must be recovered from rates and charges. The cost-  
18 of-service analysis involves multiple levels of cost allocation, namely:

- 19 (ii) Allocation of identified costs (e.g., O&M expense debt service, reserves, cash-  
20 funded capital) to functional cost centers and then to cost components,  
21 (iii) Calculation of unit cost for each cost component, and  
22  
23  
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25 <sup>1</sup> Under this basis, revenues are recorded based on receipts received, except revenues from other governments and interest, which are accrued as earned.

1 (iv) Determination of the cost for each customer type by multiplying the unit cost of  
2 each component by the number of units of service associated with each customer  
3 type.

4  
5 *Schedule BV-2: Cost of Service Report* provides details on the cost-of-service allocations  
6 to customer types.

7  
8 Rate Design: The final step in conducting a COS Study involves developing the rate  
9 structure that allows the utility to recover its costs for a given test year. Because the Water  
10 Department uses receipts to calculate revenues, its “collection lag factor” must be  
11 evaluated. The lag factor reflects a final adjustment to the cost-of-service rates to recognize  
12 the fact that there will be a proration of billings between the existing and proposed rates  
13 during the first month following the effective date of the rate increase, as well as the fact  
14 that not all the fiscal year billings are fully collected within that fiscal year.

15  
16 *Schedule BV-2: Cost of Service Report* provides additional details on the cost-of-service  
17 rate design.

18  
19 **Q10. PLEASE SUMMARIZE THE OVERALL REVENUE REQUIREMENTS AND**  
20 **REVENUE INCREASES PROJECTED IN THE STUDY.**

21 A10. Revenue and revenue requirements are projected for the combined Water and Wastewater  
22 Systems for the two test years of FY 2024 and FY 2025 (the “Rate Period”), for which  
23 rates are proposed in this proceeding. The revenue requirements analysis indicates the need  
24 for an annual increase in revenues from the existing levels (based on FY 2023 base rates)  
25 of approximately 12.75% in FY 2024; and 8.80% in FY 2025. The annual revenue increase

1 projections for FY 2024 through FY 2028 reflect only ten (10) months of additional base  
2 rate revenues each fiscal year. Table C-1A (*Schedule BV-1*) summarizes the revenue  
3 adjustments projected for the combined Water and Wastewater Systems for the Study  
4 Period. Sections 3.3 and 6.3 in the *Cost of Service Report (Schedule BV-2)* summarize the  
5 water and wastewater revenue adjustments for their respective systems.

6  
7 The requested relief, with respect to base rate revenues, can be broken down as follows:

	<b><u>FY 2024</u></b>		<b><u>FY 2025</u></b>	
	<b>(%)</b>	<b>(\$)</b>	<b>(%)</b>	<b>(\$)</b>
Water	18.90%	45,684	9.00%	26,092
Wastewater	8.92%	34,728	8.66%	36,885
Annual Increase	12.75%	80,412	8.80%	62,977

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12  
13 In the context of the overall estimated revenues, including both revenues derived from base  
14 rates and TAP-R, the adjustments for the combined (Water and Wastewater) system, as  
15 presented in Table C-1 (*Schedule BV-1*), are as follows:

	<b><u>FY 2024</u></b>		<b><u>FY 2025</u></b>	
	<b>(%)</b>	<b>(\$000)</b>	<b>(%)</b>	<b>(\$000)</b>
Annual Increase	11.02%	72,392	8.77%	62,977

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21 The requested increases and accompanying TAP-R surcharge revenues will allow the  
22 Water Department to meet target financial metrics, as further described herein, and  
23 maintain existing levels of service through FY 2024 and FY 2025. The lower overall FY  
24 2024 adjustment, for base and TAP-R rates, for the combined (Water and Wastewater)  
25 system shows the influence of the proposed reduction of TAP-R.

1  
2 **Q11. PLEASE SUMMARIZE THE PROJECTION OF WATER AND WASTEWATER**  
3 **SYSTEM REVENUES UNDER EXISTING RATES, AND LIST THE KEY**  
4 **COMPONENTS OF THE REVENUES.**

5 A11. The total revenue projections for the Study Period for the Water and Wastewater Systems  
6 include three categories of revenues, namely, “Water and Wastewater Operating  
7 Revenues,” “Other Operating Revenues,” and “Non-Operating Income.” Table C-3  
8 (*Schedule BV-1*) presents the projection of these three categories of revenues for the Study  
9 Period.

<b>Water Sales Receipts:</b>	<b>Sanitary Sewer Service Receipts:</b>	<b>Stormwater Service Receipts:</b>
FY 2024: \$296.1 Million	FY 2024: \$284.7 Million	FY 2024: \$192.0 Million
FY 2025: \$298.7 Million	FY 2025: \$287.0 Million	FY 2025: \$192.0 Million

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14 **Q12. PLEASE BRIEFLY DESCRIBE THE PROJECTIONS OF WATER AND**  
15 **WASTEWATER SYSTEM OPERATING REVENUES UNDER EXISTING**  
16 **RATES.**

17 A12. The total **operating revenues** for the Water and Wastewater Systems include the following  
18 sources of revenue:

- 19 a. Retail Water and Sanitary Sewer Service and Quantity charges, Stormwater  
20 Management Service Charges, and Extra-Strength surcharge.
- 21 b. Wholesale contract customer water and sewer charges.

22  
23 The projection of revenues under existing rates is described in detail in the *Cost of*  
24 *Service Report (Schedule BV-2)*.

1        ***a. Retail Operating Revenues***

2        The operating revenue is projected by customer type through a two-step process.

- 3        (i)    **Projection of Gross Billings** – The first step projects water and wastewater *gross*  
4        *billings* for each fiscal year of the Study Period based upon applying the existing  
5        rate schedules for FY 2023 (effective September 1, 2023) for water, sewer, and  
6        stormwater services to a projection of the number of accounts, billed water and  
7        sewer volumes, as well as the number of accounts, billable impervious area (“IA”)  
8        and billable gross area (“GA”) associated with stormwater services. TAP  
9        discounts and TAP-R surcharge billings are excluded from the cost-of-service  
10       analysis.<sup>2</sup>
- 11       (ii)   **Application of Collection Factors** – The second step estimates the operating  
12       retail cash receipts by applying receipt factors (“collection factors”) to the  
13       corresponding gross billings.

14

15       Section 1.4.1 of the *Cost of Service Report (Schedule BV-2)* details the underlying  
16       assumptions utilized in developing the projected revenue under existing rates for retail  
17       customers.

18

19       ***b. Wholesale Operating Revenues***

20       Currently, Aqua Pennsylvania (“Aqua”) is the Water Department’s only wholesale water  
21       customer. Wholesale water revenues are projected using the estimated billed water volume  
22       estimated based on the historical three-year average for Aqua.

23

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<sup>2</sup> See discussion *infra* — response to Question 15.



1 The Water Department has ten wholesale wastewater contracts with multi-year terms for  
2 the following customers: Abington Township, Aqua Pennsylvania Wastewater, Inc.,  
3 Bucks County Water and Sewer Authority (“BCWSA”), BCWSA - Bensalem, BWSCA-  
4 Springfield, Delaware County Regional Water Authority (“DELCORA”), Lower Merion  
5 Township, Lower Moreland Township, Lower Southampton Township, and Upper Darby  
6 Township. To project revenues for wholesale customers under existing rates, Black &  
7 Veatch applied the contracted rates per the latest agreements to estimated wastewater  
8 billed volumes and loadings based on the historical three-year average for each customer.  
9 In addition, revenues under existing rates were adjusted to reflect hydraulic and  
10 hydrologic modeling, as discussed below.

11  
12 **Q13. ARE THERE ANY ADJUSTMENTS TO THE PROJECTION OF OPERATING**  
13 **REVENUE PROJECTIONS UNDER EXISTING RATES DURING THE STUDY**  
14 **PERIOD?**

15 A13. Yes. Black & Veatch adjusted the following three key areas related to the projection of  
16 operating revenues under existing rates:

- 17 (i) **Collection Factors**
- 18 (ii) **Commercial Billed Water and Sewer Only Volume**
- 19 (iii) **Wholesale Wastewater Updates**

20 These adjustments are discussed below.

21  
22 **Collection Factors** –Collection factors used in the financial plan analysis reflect the  
23 average collection factors for these periods based on historical fiscal years and represent  
24 a multi-year payment pattern. Recent year collection factors experience reflects current  
25 economic conditions, updated collections, and enforcement practices, among other

1 factors. As presented in *PWD Statement 6 (Schedule 7) – Direct Testimony of Raftelis*  
2 *Financial Consultants*, the FY 2020 to FY 2022 billing year (“BY”) collection factors are  
3 an average of 1.20% lower than long-term historical average, while billing year plus one  
4 (“BY+1”) collections are 0.76% higher. Please refer to *PWD Statement 6* for further  
5 discussion of changes in the Water Department’s collection patterns.

6  
7 To reflect changes to collection patterns, Black & Veatch utilizes the following  
8 adjustments to the projected collection factors:

- 9 • **BY Non-Stormwater Only Collection Factors** – Reduce by 1.2% to align with  
10 FY 2020 to FY 2022 average experience.
- 11 • **BY+1 Non-Stormwater Only Collection Factors** - Increase by 0.76% to align  
12 with FY 2020 to FY 2022 average experience.

13 The following collection factors are used in the financial plan analysis for the Study  
14 Period and reflect the above adjustments.

	<b>BY</b>	<b>BY +1</b>	<b>BY +2 and Beyond</b>
Non-Stormwater Only	84.65%	10.29%	2.04%
Stormwater Only	64.20%	8.99%	7.23%

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21 **Commercial Billed Water Volume** - Vicinity Energy Philadelphia (“Vicinity”),  
22 consistently a top 10 customer for PWD, is committed to building its own facility to  
23 provide process water for its steam plant operations. In FY 2021, Vicinity accounted for  
24 \$7.5 million in combined water, sewer, and stormwater revenue (0.99% of the Water  
25 Operating Fund’s total revenue). When Vicinity reduces its overall water usage, it will

1 receive limited water service along with sewer and stormwater services associated with  
2 its facilities. Black & Veatch adjusted the commercial billed volume to reflect this  
3 anticipated change in operations for Vicinity. Beginning in FY 2024, the projected  
4 commercial customer annual billed water volume reflects a reduction of 90,000 thousand  
5 cubic feet (“Mcf”), the historical three-year average for this customer at the steam plant  
6 site.

7  
8 **Wholesale Wastewater Updates**

9 Black & Veatch applied the contracted rates per the latest agreements to estimated  
10 wastewater billed volumes and loadings based on the historical three-year average for  
11 each customer to project the wholesale customer revenues under existing rates. In  
12 addition, Black & Veatch adjusted revenues under existing rates to reflect the following  
13 changes to wholesale wastewater customers agreements over the Study Period:

- 14 • Beginning in FY 2024, revenues for wholesale wastewater customers reflect an  
15 updated allocation of Long-Term Control Plan Update (“LTCPU”) costs based on  
16 the Water Department’s recently completed hydraulic and hydrologic (“H&H”)   
17 modeling.
  - 18 ○ Under the updated calculations, wholesale customers, whose current  
19 contracts include an allocation of LTCPUC costs, will be apportioned  
20 approximately 1.9% of LTCPUC costs based on each community’s revised  
21 respective share,
  - 22 ○ The updated calculation methodology is estimated to reduce wholesale  
23 wastewater revenues by approximately \$2.9 million per year under  
24 existing rates,

- 1           ○ The Water Department has informed all wholesale wastewater customers
- 2                   of the change in calculation methodology during January 2023, and
- 3           ○ The updated allocation will go into effect in FY 2024.
- 4       • DELCORA has informed the Water Department of its intent to build its own
- 5       wastewater treatment facility. They are anticipated to leave the System as a
- 6       wholesale wastewater customer beginning in FY 2028 when their agreement with
- 7       the City expires.
- 8           ○ The resulting lost revenue associated with this change is estimated at
- 9                   \$9 million per year based on the current contract rates; and
- 10          ○ This change in customer status for DELCORA is reflected in FY 2028 and
- 11          incorporated into the revenue under existing rates presented in Table C-1
- 12                   (*Schedule BV-1*).

13

14 **Q14. PLEASE BRIEFLY DESCRIBE THE PROJECTIONS OF WATER AND**

15 **WASTEWATER SYSTEM “OTHER OPERATING” AND “NON-OPERATING”**

16 **REVENUES.**

- 17 A14. The Projection of “Other Operating” and “Non-Operating” Revenues are discussed below.
- 18       a. Other Operating Revenue - Other Operating Revenue consists of penalties on
  - 19       overdue bills for retail service customers and other income from miscellaneous
  - 20       fees, fines, operating grants, permit fees, and transfers from the Debt Reserve
  - 21       Account to the Revenue Fund.
  - 22
  - 23       b. Non-operating Income – The Water Department’s Non-operating Income consists
  - 24       primarily of interest earnings on the amounts within certain funds and accounts. In
  - 25       accordance with the General Bond Ordinance, the analysis credits interest earnings

1 in the Debt Reserve Account, Revenue Fund, and Rate Stabilization Fund as  
2 revenue to the Revenue Fund. Interest Earnings in the Debt Reserve Account are  
3 first credited to the extent that they are needed to fulfill the Debt Service Reserve  
4 Requirement and then amounts in excess of fulfilling the Debt Service Reserve  
5 Requirement are permitted to be transferred to the City's General Fund (up to  
6 \$4,994,000 per annum).

7  
8 Actual annual fund valuations and interest earnings are based on a mark-to-market  
9 valuation which the City performs at the end of the fiscal year. The differential between  
10 mark-to-market and the Debt Reserve Account requirement results in either a transfer from  
11 the Water Department's Operating Fund to the Debt Reserve Account if there is a  
12 deficiency in the Debt Reserve Account or a transfer from the Debt Reserve Account to the  
13 Operating Fund if there is an excess in the Debt Reserve Account. Projected transfers from  
14 the Debt Reserve Account to the Operating Fund are included as *Other Operating Revenue*.  
15 No transfers from the Debt Reserve Account are projected during the Study Period.

16  
17 **Q15. PLEASE BRIEFLY DESCRIBE HOW THE REVENUE LOSS ASSOCIATED**  
18 **WITH THE TIERED ASSISTANCE PROGRAM ("TAP") AND ASSOCIATED**  
19 **REVENUE FROM THE TAP RATE RIDER ARE INCORPORATED INTO THE**  
20 **COST-OF-SERVICE ANALYSIS.**

21 A15. As the Rate Board is aware, there is a separate proceeding to determine surcharge rates to  
22 recover revenue loss in connection with the Tiered Assistance Program ("TAP"). For the  
23 purposes of determining Base Rates, TAP revenue loss is not included. Table C-1A: Base  
24 Rates (*Schedule BV-1*) excludes revenue loss associated with TAP discounts and revenues  
25 associated with TAP-R surcharge rates. The TAP discounts' exclusion from the Base Rates

1 analysis is also shown on Line 13 of Table C-3: Projected Revenue Under Existing Rates  
2 (*Schedule BV-1*).

3  
4 It should be noted, however, that the key financial and performance metrics apply to the  
5 overall Water Fund. As such, to determine whether these metrics are met, Black & Veatch  
6 has included a separate Table C-1B: TAP-R Surcharge Rates Excluding Base Rates  
7 (*Schedule BV-1*) to show the derivation of the overall combined cashflow in *Schedule BV-*  
8 *1*: Table C-1: Base and TAP-R Surcharge Rates (“Combined”) and to evaluate the Rate  
9 Stabilization Fund and Covenant Metrics Performance for the overall system as presented  
10 in *Schedule BV-1*: Table C-2.

11  
12 Changes to the TAP-R Formula are proposed with this filing in order to align various  
13 factors with the current COS Study as discussed later in this testimony.

14  
15 **Q16. PLEASE BRIEFLY DESCRIBE THE PROJECTIONS OF OPERATION AND**  
16 **MAINTENANCE EXPENSES FOR THE STUDY PERIOD.**

17 A16. The Water Fund’s FY 2023 budget (approved as of December 2022) is used as the  
18 beginning base budget for the projections of O&M expenses for the Study Period.-The base  
19 budget is then adjusted to reflect actual-to-budget spending factors. These adjusted  
20 expenditures serve as the basis for projecting O&M expenses for FY 2024 through  
21 FY 2028. Additional information regarding O&M adjustments is provided in Section 1.4.2  
22 of the *Cost of Service Report (Schedule BV-2)*.

1           **Summary Discussion on the FY 2023 O&M Budget Adjustment**

2           Black & Veatch used the following steps in adjusting the FY 2023 O&M Budget to reflect  
3           the actual spending levels:

- 4           • First, we evaluated the historical actual expenditures versus budgeted expenses to  
5           determine the expected spend factors for each object class, such as personal  
6           services, pension obligations, pension, benefits, purchases of services, materials  
7           and supplies, equipment, transfers, contributions, indemnities, and taxes.
- 8           • From the above analysis, we determined the average spend factors by cost  
9           classification for each division within the Water Department and City Departments  
10          (for those costs that the Water Department funds) based on the three-year average  
11          actual spending levels of FY 2020 to FY 2022.
- 12          • The spend factors were then utilized to adjust the FY 2023 approved O&M budget  
13          cost classes to a reasonable expenditure level for FY 2023, except for the following:
  - 14               ▪ The 3-year average historical spend factors for Finance Division Services,  
15               Finance Division - Stormwater Management Incentive Program and  
16               Greened Acres Retrofit Program (“SMIP/GARP”), Finance Division  
17               Services, and Operations Division Chemicals are greater than 100%;  
18               therefore, a 100% spend factor is applied to these object classes.
  - 19               ▪ FY 2023 Finance Division Transfers and City Finance Department  
20               Indemnities budgets were reduced from prior year levels. The spend factors  
21               for these object classes are calculated using the average spend for the past  
22               3 years (FY 2020 to FY 2022) compared to the FY 2023 budget. Based upon  
23               this approach, the resulting spend factors are as follows:
    - 24                       • Finance Division Transfers - 79.12%; and
    - 25                       • City Finance Department Indemnities - 68.42%.

- A 100% spend factor is applied to Pension, Pension Obligations, and Benefits to reflect FY 2023 estimated actuals as provided by City Finance.

### **Summary Discussion on the O&M Cost Projections**

The O&M expenses for each year of the Study Period are projected as follows:

Black & Veatch assumed escalation factors for the various cost categories identified in the FY 2023 budget based upon the Water Department’s historical experience and recognized cost indices; the escalation factors are applied to the projected FY 2023 expenses (for each of the respective cost categories) beginning in FY 2024. Escalation factors used in projecting the O&M expenses are discussed in Section 1.4.2 of the *Cost of Service Report (Schedule BV-2)* and further information is provided in the white paper entitled: “*Inflation and Cost Escalation Pressures*” (*Schedule BV-4:WP-1*). For object classes for which the Water Department has already developed planned budget increases for FY 2024, Black & Veatch incorporated those adjustments and applied the corresponding spend factor. For major cost categories where budgetary increases are incorporated into the projections, such as Chemicals, Black & Veatch applied escalation factors beginning in FY 2025. Power and Gas escalation factors are applied beginning in FY 2026.

As discussed in *PWD Statement 4 – Direct Testimony of Benjamin Jewell, Brendan Reilly, Linda Kramer, and Stephen Junod (the “Operations Panel”)* and *Statement 2A – Direct Testimony of Lawrence Yangalay, Lawrence Rich, and Patricia Rogalski (the “Finance Panel”)*, the Water Department is facing significant increases in operating costs. These operating costs are addressed in greater detail in the response to Questions 9-11 of *PWD Statement 4* and are a result of increases in contract and purchase costs from suppliers and



1 providers.

2  
3 *Personal Services:* The personal services costs are projected taking into consideration the  
4 following factors: (i) the actual to budget spend levels; (ii) the annual escalation factor for  
5 labor costs based on the prior average annual salary increases under the current labor agreement,  
6 (iii) the projection of Pensions, Pension Obligation, and Benefits based on the City's  
7 current projections; and (iv) additional staffing during the Study Period as projected by the  
8 Water Department.

- 9 • An annual escalation factor of 3.25% is used to project FY 2024 labor (i.e., salary)  
10 expenses based upon recent labor agreements with District Council 33 ("DC33")  
11 and District Council 47 ("DC47"). An annual escalation factor of 3.0% is applied  
12 thereafter based on the average annual increases for FY 2022 to FY 2024 as  
13 included in the DC33 labor agreement.
- 14 • Pension, pension obligation, and benefits, which are directly related to personal  
15 services expenses, were estimated based on current levels of such expenses and the  
16 growth rates reflected in the City's current projections. Pension and benefits  
17 expenses are estimated to increase from \$143.8 Million in FY 2023 to  
18 \$174.0 Million in FY 2028.
  - 19 ▪ The Water Department participates in a City-wide pension program and  
20 does not have direct control over this expense.
  - 21 ▪ PWD's portion of the overall City's pension program continues to increase  
22 and encompasses roughly 8.6% of the Water Department's annual  
23 obligations in FY 2023.
  - 24 ▪ Overall personal services expenses, pension, pension obligations, and  
25 benefits account for almost 37.8% of the total.

1           ▪ For additional information, please see *PWD Statement 2A – Direct*  
2                                   *Testimony of the Finance Panel.*

3           • Additional staffing costs in Construction & Engineering, Planning &  
4           Environmental Services, Operations, Public Affairs, and Human Resources  
5           divisions to support various activities including CIP projects control support, COA  
6           compliance, Lead and Copper Rule compliance, inspections and enforcement  
7           related to private construction activities, community engagement and governmental  
8           relations, as well as hiring and staffing initiatives; and

9           • The Water Department continues to transition staff salaries from Capital-funded to  
10           O&M-funded positions. This ongoing transition results from a prior change in City  
11           policy, requiring that capital program personnel salaries can no longer be funded  
12           via capital financing. The phased transition of salaries continues and is expected to  
13           take over ten years to complete. This shift in funding is reflected in the projected  
14           personal services costs as follows:

- 15                   ▪ In FY 2024, \$1.2 million of salary costs are planned to be shifted from  
16                                   Capital expenses to projected O&M expenses; and  
17                   ▪ By FY 2028, the total salary costs associated with the shift in funding will  
18                                   amount to nearly \$6.5 million.

19  
20           *Power and Gas Costs:* Black & Veatch utilized planned budgetary increases in power and  
21           gas costs as provided by the Water Department to estimate expenses in FY 2024. The  
22           increases in power and gas costs reflect recent increases in pricing. The resulting estimated  
23           increase in expenses is \$3.2 million in FY 2024. Please refer to *PWD Statement 4 – Direct*  
24           *Testimony of the Operations Panel* for additional discussion on recent power and gas cost  
25           increases. In conjunction with the budgetary adjustment, the following escalation factors

1 are assumed:

- 2 • Power: 0.0% in FY 2024 and FY 2025, 1.5% thereafter.
- 3 • Gas: 0.0% in FY 2024 and FY 2025, 1.5% thereafter.

4  
5 *Chemical Costs:* Black & Veatch utilized planned budgetary increases in chemical costs as  
6 provided by the Water Department to estimate expenses in FY 2024. The planned  
7 budgetary increases in chemical costs reflect PWD’s recent increases in pricing from the  
8 Water Department’s various suppliers. The resulting estimated increase in expenses is  
9 \$15.8 million in FY 2024. In conjunction with the budgetary adjustment, the following  
10 escalation factors based upon the U.S. Bureau of Labor Statistics (“BLS”) Producer Price  
11 Index (“PPI”) for Industrial Chemicals, an escalation factor of 23.82% (24-month period)  
12 is applied to chemical expenses in FY 2025, and 11.43% (36-month period) is applied  
13 thereafter. Please refer to *PWD Statement 4 – Direct Testimony of the Operations Panel*  
14 for additional discussion on recent increases in chemical costs.

15  
16 *SMIP/GARP Costs:* The Water Department proposes temporarily reducing the  
17 SMIP/GARP budget from \$25.0 million to \$20.0 million in FY 2024 and FY 2025. This  
18 reduction is intended to help manage the overall level of revenue adjustments during the  
19 two test years. At a minimum, the Water Department will need to reinstate the full budget  
20 to \$25.0 million for SMIP/GARP beginning in FY 2026. In addition, the Water  
21 Department may need to direct any future available budget from other cost centers to fully  
22 fund this program during the two test years.

23  
24 *Services:* The Water Department FY 2023 budget includes operational costs associated  
25 with contracted services including maintenance activities. Black & Veatch utilized planned

1 budgetary increases in contract services as provided by the Water Department to estimate  
2 expenses in FY 2024. This includes additional support services related to regulatory  
3 compliance, workforce development, customer assistance and outreach, staff augmentation  
4 as well as maintenance services. The resulting estimated increase in expenses is  
5 \$8.9 million in FY 2024.

6  
7 As noted in *PWD Statement 4 – Direct Testimony of the Operations Panel*, several of the  
8 Water Department’s services contracts include contractual price adjustments, which are  
9 tied to the Consumer Price Index (“CPI”) or similar indices.

10  
11 Black & Veatch applied the following escalation factors for the Study Period:

- 12 • For FY 2024, an escalation factor of 7.77% based upon the most recent 12-month  
13 period CPI for the Philadelphia Area (“CPI-PA”) was applied to budgetary  
14 adjustments to estimate FY 2024 expenses to account for inflationary increases.
- 15 • Annual escalation factors of 6.70% for FY 2025 and 4.69% for the remainder of  
16 the Study Period. These factors are based upon the 24-month and 36-month annual  
17 CPI-PA, respectively.

18  
19 *Equipment:* In addition to planned increases in equipment purchases in FY 2024, Black &  
20 Veatch also applied escalation factors to estimated FY 2023 expenses to project equipment  
21 expenses. An escalation factor of 10.12% is applied in FY 2024 based upon the most recent  
22 12-month for Construction Equipment and Machinery. Escalation factors of 9.41% is  
23 applied in FY 2025 based upon the 24-month annual PPI for Construction Equipment and  
24 Machinery, and an annual escalation factor of 6.63% is applied for FY 2026 to FY 2028  
25 based upon the 36-month annual PPI for Construction Equipment and Machinery.

1  
2 *Materials and Supplies:* Escalation factors are as described in the above insert box.

3  
4 *Indemnities:* Per discussions with the Water Department, no escalation in indemnities is  
5 assumed over the Study Period.

6  
7 *Transfers:* Transfers account for various services provided by other City Departments not  
8 included directly in the Water Fund budget. Escalation factors are as described in the above  
9 insert box.

10  
11 **Q17. PLEASE DESCRIBE THE WATER DEPARTMENT'S PROJECTED CAPITAL**  
12 **IMPROVEMENT PROGRAM OVER THE STUDY PERIOD.**

13 A17. Table C-7 (*Schedule BV-1*) summarizes the Water Department's Capital Improvement  
14 Program ("CIP") for FY 2023 through FY 2028 on an encumbrance basis. An  
15 encumbrance reflects the total cost of a given project in the year construction is scheduled  
16 to commence. Costs shown in Table C-7 (*Schedule BV-1*) reflect the estimated total costs  
17 of the various projects, which will be financed with amounts available in the Construction  
18 Fund, the annual Capital Account Deposit, amounts transferred from the Residual Fund to  
19 the Construction Fund, proceeds from the issuance and sale of revenue bonds, and  
20 proceeds from PENNVEST and WIFIA Loans. See also *PWD Statement 2A – Direct*  
21 *Testimony of the Finance Panel.*

22  
23 The allocation of CIP for the water and wastewater systems are presented in Section 3.2.3  
24 Table 3-11 and Section 6.2.3 Table 6-18 of the *Cost of Service Report (Schedule BV-2)*.

1           **Projection of CIP Costs (Table C-7)**

2           The Water Department’s CIP Budget is appropriation-based. The FY 2023 CIP costs  
3           reflect the Water Department’s adopted FY 2023 budget appropriation, and the FY 2024  
4           CIP costs reflect the proposed FY 2024 budget appropriation. The figures for FY 2025 to  
5           FY 2028 reflect the Water Department’s submitted capital program and do not include any  
6           allowance for inflation. As noted previously, the Water Department is shifting the funding  
7           source for positions from Capital to Operations. As such, Black & Veatch adjusted the  
8           Engineering and Administration portion of the CIP budget accordingly.

9  
10          The City’s funding policy directs that the Water Department’s outstanding CIP  
11          commitments may not exceed available Construction Funds in any given fiscal year.  
12          Therefore, to project the anticipated annual project encumbrances, Black & Veatch used  
13          the following approach:

- 14           • Start with the combined CIP budget for the Water and Wastewater Systems as  
15           presented on Line 10 of Table C-7 (*Schedule BV-1*).
- 16           • Reflect the previously noted transition of staff salaries (Line 1 of Table C-7).
- 17           • Apply an annual inflation allowance of 4.0% to the CIP costs beginning with  
18           FY 2025, as summarized in Line 11 of Table C-7. The inflation allowance is based  
19           upon Black & Veatch’s review of industry cost indices, including the Engineering  
20           News Record (“ENR”) Construction Cost Index and the Handy-Whitman  
21           Construction Cost Index.
- 22           • Project the anticipated roll forward of the annual budget appropriations (Line 13 of  
23           Table C-7 in *Schedule BV-1*).
- 24           • Add the contingency adjustment as shown (Line 15 of Table C-7 in *Schedule BV-*  
25           *I*). The contingency adjustment shows the removal of assumed contingencies

1 associated with the appropriation-based budget by applying an adjustment factor of  
2 85% to planned improvements, excluding Engineering and Administration,  
3 Vehicles, Water Revitalization Plan (“WRP”), and Pennsylvania Infrastructure  
4 Investment Authority (“PENNVEST”) projects

5  
6 Line 16 of Table C-7 (*Schedule BV-1*) shows the total anticipated additional encumbrances  
7 (or project commitments) made within a given fiscal year.

8  
9 To estimate the annual drawdown of the Construction Fund, Black & Veatch utilized  
10 anticipated project durations of WRP projects and PENNVEST Projects. For the remaining  
11 CIP commitments, the annual project expenses were estimated by adjusting the total annual  
12 encumbrances to account for anticipated program-level project durations as follows:

- 13 • Water Conveyance – 2 years
- 14 • Sewer Collection – 3 years
- 15 • Facilities Improvements – 5 years.

16  
17 Line 17 of Table C-7 (*Schedule BV-1*) summarizes the result of the above adjustments.

18  
19 **Q18. PLEASE DESCRIBE THE WATER DEPARTMENT’S PROPOSED CIP**  
20 **FINANCING APPROACH OVER THE STUDY PERIOD.**

21 A18. The financing approach is summarized in the Capital Improvement Flow of Funds tables.

22  
23 **Projected Capital Improvement Flow of Funds (Table C-8)**

24 Table C-8 (*Schedule BV-1*) presents the combined Capital Improvement Flow of Funds.  
25 Table 3-12 in Section 3.2.4 and Table 6-19 in Section 6.2.4 of the *Cost of Service Report*

1 (Schedule BV-2) present an estimate of the allocated flow of funds in the Construction Fund  
2 for the Water and Wastewater Systems.

- 3 • Bond Proceeds: Line 1 indicates the projected total revenue bond principal amounts  
4 to be issued from 2024 through 2028 to finance the proposed capital improvements  
5 of the Combined Water and Wastewater Systems. FY 2023 reflects the actual Series  
6 2022C Revenue Bonds issuance amount (issued in  
7 August of 2023).

**Bond Issuance Projection:**

FY 2024: \$460 Million

FY 2025: \$485 Million

FY 2026: \$555 Million

FY 2027: \$480 Million

FY 2028: \$700 Million

- 8 • Debt Service Reserve: As shown in Lines 2 through 4,  
9 in addition to funding capital construction costs, the  
10 bond issuance proceeds are also used to fund required  
11 deposits<sup>3</sup> into the Debt Reserve Account as well as  
12 pay the costs of bond issuance.

- 13 • Projected Debt Service: The debt service associated with the projected revenue  
14 bond issuances is estimated based on a 30-year amortization schedule, an annual  
15 interest rate of 5.5% for FY 2024 and FY 2025, and an annual interest rate of 6.0%  
16 for FY 2026 through FY 2028. The projected debt service for each proposed bond  
17 issue (FY 2024 through FY 2028) reflects interest-only payments for the first year  
18 of the bond amortization.

- 19 • Construction Fund: The Construction Fund is summarized on Lines 6 through 16.
  - 20 ○ Proceeds from revenue bonds are presented on Line 7.
  - 21 ○ As noted in *PWD Statement 2A – Direct Testimony of the Finance Panel*,  
22 the Water Department submitted an application to the US Environmental

23 <sup>3</sup> With the issuance of the 2022C Revenue Bonds, a series of certain amendments, referred to as “Springing  
24 Amendments,” as contained in the Twenty-First Supplemental amendment to the General Ordinance became  
25 effective. As detailed in the Water and Wastewater Revenue Bonds, Series 2022C Official Statement dated August  
9, 2022, one of the Springing Amendments allows the Water Department to issue revenue bonds without making  
deposits to the Debt Reserve Account and without having to establish series specific debt reserve subaccount. As  
such, no deposits to the Debt Reserve Account are assumed for FY 2024 to FY 2028.



1 Protection Agency (“USEPA”) Water Infrastructure Finance and  
2 Innovation Act of 2014 (“WIFIA”) program to obtain low-interest financing  
3 to support the WRP.

- 4       ▪ The anticipated matching WIFIA loan proceeds and required  
5       matching funds presented on Lines 8 and 9. Similarly, PENNVEST  
6       Loan proceeds are presented on Line 10.
- 7       ▪ As both WIFIA and PENNVEST work on a reimbursement basis,  
8       the Water Department intends to use a combination of available cash  
9       as well as the existing Commercial Paper (“CP”) Program to provide  
10      interim financing to pay contractor invoices while awaiting  
11      reimbursement from the respective entity.
- 12      ▪ While no CP debt is expected to be retired with revenue bonds, the  
13      Water Department will have to cover related interest payments on  
14      any anticipated CP use as reflected in the Debt Service Schedules  
15      presented in Table C-9 (*Schedule BV-1*).
- 16      • Cash Funding: In addition to funds from revenue bond, WIFIA and PENNVEST  
17      loan proceeds, the Water Department intends to fund a portion of the CIP utilizing  
18      cash funding via the Capital Account Deposit and Transfers from the Residual  
19      Fund.
  - 20          ○ Table C-8 Line 11 shows that approximately \$154.7 Million of Capital  
21          Account Deposits will be available during the Study Period to finance  
22          capital improvements. The capital account deposit amount for FY 2023  
23          through FY 2028 is estimated based on 1.0% of the prior year depreciated  
24          value of net plant investment (original cost less depreciation).

1           ○ Line 12 indicates that \$297.9 Million will be available from the Residual  
2           Fund as another funding source for the CIP. The Residual Fund transfers  
3           are driven by the targeted Debt Service Coverage for each respective fiscal  
4           year over the Study Period.

- 5           ● Interest Income: Interest income on annual average balances in the Construction  
6           Fund and the Debt Reserve Account are shown in Lines 13 and 28. The interest  
7           earnings in the Construction Fund, which primarily consist of bond proceeds, are  
8           not available to the Revenue Fund as a part of the overall project revenues available  
9           for meeting the annual revenue requirements of the Water Department. An interest  
10          rate of 1.0% was assumed to determine the interest income for FY 2023 through  
11          FY 2028.

12  
13 **Q19. IS THE WATER DEPARTMENT ABLE TO ADHERE TO THE CAPITAL**  
14 **FUNDING POLICY DURING THE STUDY PERIOD?**

15 A19. To meet the City’s capital funding policy, the Water Department intends to provide  
16 sufficient CIP funding (including revenue sources from current year rates, bond proceeds,  
17 other loans, and accumulated interest) so that the estimated outstanding project  
18 commitments will not exceed available funding in any given fiscal year.

19  
20 The previously discussed projection of annual project encumbrances (or project  
21 commitments) and annual expenditures (or drawdown of the Construction Fund) are  
22 summarized in Lines 17 to 22 of Table C-8 (*Schedule BV-1*). The Target Balance in Line  
23 22 represents the outstanding encumbrances for each fiscal year. Adherence to this  
24 policy, is illustrated by comparing the ending balance for the Construction Fund, as  
25 presented on Line 16, against the Target Balance shown on Line 22, which accounts for

1 new CIP Encumbrances and Project Expenses for each fiscal year excluding PENNVEST  
2 and WIFIA funded projects.

3  
4 Based upon the overall revenue and revenue requirements, including the proposed  
5 revenue adjustments, the Water Department will adhere to the policy over the Study  
6 Period.

7  
8 **Q20. WOULD YOU PLEASE SUMMARIZE THE ANNUAL DEBT SERVICE**  
9 **REQUIREMENTS OF THE WATER DEPARTMENT?**

10 A20. Table C-9 (*Schedule BV-1*) summarize the annual debt service payments for the Combined  
11 Water and Wastewater Systems. Line 1 shows the annual debt service on existing revenue  
12 bonds, while Lines 2 through 7 show the projected debt service on the proposed revenue  
13 bond issues reflected in Table C-8 (*Schedule BV-1*). The projected debt service on the  
14 proposed bonds issued in each of the years FY 2024 through FY 2028 reflects interest-only  
15 payments during the first year of the bond amortization. Line 10 shows the applicable debt  
16 service on PENNVEST Loans. Line 11 presents the applicable interest payment on the CP  
17 Program usage. As noted earlier, the CP Program is used to provide interim financing to  
18 pay contractor invoices while awaiting reimbursement. Line 12 shows the projected debt  
19 service on WIFIA loans including the WIFIA matching funding.

20  
21 **Q21. CAN YOU PLEASE SUMMARIZE THE INTEREST EARNINGS PAYMENT AND**  
22 **CAPITAL ACCOUNT DEPOSIT THAT MUST BE MET FROM WATER AND**  
23 **WASTEWATER REVENUES?**

24 A21. Yes, in addition to the aforementioned revenue requirements, there are two transfers  
25 permitted by the General Bond Ordinance that impact net revenue requirements.

1  
2 Interest Earnings Payment: The first is interest earnings paid to the City. The payment,  
3 which is made to the City's General Fund, is in the amount that does not exceed the  
4 lowest of (i) the interest earnings in the Debt Reserve Account transferred to the  
5 Operating Fund during the fiscal year or (ii) \$4,994,000. As described in the General  
6 Bond Ordinance, as amended and supplemented, this payment occurs in any fiscal year in  
7 which a balance exists in the Water Department's Operating Fund. Projected interest  
8 earnings on the Debt Service transferred to the General Fund to satisfy this ordinance  
9 requirement over the Study Period are not available to meet other system revenue  
10 requirements.

11  
12 Line 35 of Table C-1 (*Schedule BV-1*) presents an estimate of the Interest Earnings  
13 Payment for the Combined System. Table 3-13 in Section 3.4 and Table 6-20 in Section  
14 6.4 in the *Cost of Service Report (Schedule BV-2)* present an estimate of the interest  
15 earnings payment for the Water and Wastewater Systems.

16  
17 Capital Account Deposit: The second transfer is the required Capital Account Deposit.  
18 This amount is also a revenue requirement of the Water Fund. Under the General Bond  
19 Ordinance, the City covenants to make a deposit to the Capital Account of the  
20 Construction Fund in each fiscal year, in an amount not less than 1% of the total value of  
21 the net assets of the Water Department (the "Capital Account Deposit"). The amounts  
22 accumulated in the Capital Account are to be used by the Water Department to finance  
23 capital improvements to the Water and Wastewater Systems. In accordance with the Rate  
24 Board's 2018 Rate Determination, the Capital Account Deposit is held at the 1% level.

1 Line 29 of Table C-1 (*Schedule BV-1*) presents an estimate of the Capital Account  
2 Deposit for the Combined System. Table 3-13 in Section 3.4 and Table 6-20 in Section  
3 6.4 in the *Cost of Service Report (Schedule BV-2)* provide an estimate of the Capital  
4 Account Deposit for the Water and Wastewater Systems.

5  
6 **Q22. PLEASE DESCRIBE ANY FURTHER REQUIREMENTS THAT MUST BE**  
7 **ADDRESSED IN DETERMINING THE OVERALL LEVELS OF WATER AND**  
8 **WASTEWATER REVENUES NEEDED.**

9 A22. In addition to the preceding cash revenue requirements, the Water Department's annual  
10 revenues must be sufficient to satisfy the requirements prescribed by the General Bond  
11 Ordinance and Rate Ordinance. These two ordinances must be addressed in determining  
12 the overall level of water and wastewater revenues requirements.

- 13  
14 i. General Bond Ordinance Requirement: In addition to meeting cash revenue  
15 requirements (effectively O&M expenses and annual capital costs), the General Bond  
16 Ordinance requires that, during any given fiscal year, the Water Department's revenues  
17 (for both water and wastewater service combined), must be sufficient to satisfy (1) debt  
18 service coverage obligations as specified by the ordinance and (2) yield Net Revenues  
19 at least equal to 90% of the Debt Service Requirements (exclusive of debt service on  
20 subordinate bond and any transfers from the Rate Stabilization Fund) in such fiscal  
21 year; referred to as the "90% Test."

1 In the first instance, the General Bond Ordinance requires  
2 that during any given fiscal year, the Water Department  
3 must, at a minimum, impose, charge, and collect in each  
4 fiscal year such water and wastewater rents, rates, fees,  
5 and charges as shall yield net revenues which shall be

**Bond Coverage Minimum:**

Senior Debt Coverage: 1.2x

Total Coverage: 1.0x

Senior Coverage from  
Current Revenues: 0.9x

6 equal to at least 1.20 times the debt service requirements for such fiscal year (excluding  
7 the principal and interest payments in respect of Subordinated Bonds). In accordance  
8 with the General Bond Ordinance, interest due on commercial paper is considered on  
9 par with senior debt and included in the determination of senior debt service coverage.

10  
11 Line 4 in Table C-2 (*Schedule BV-1*) presents the projected Senior Debt Coverage<sup>4</sup>  
12 for the Study Period.

13  
14 In addition, in each fiscal year, water and wastewater rents, rates, fees, and charges  
15 shall yield net revenues which shall be at least equal to 1.00 times the sum of the  
16 following:

- 17 • the debt service requirements<sup>5</sup> for such fiscal year (including debt service  
18 requirements in respect of Subordinated Bonds),
- 19 • amounts required to be deposited into the Debt Reserve Account during such  
20 fiscal year,
- 21 • the principal or redemption price of and interest on General Obligation Bonds  
22 issued to fund capital expenditures of the Water and Wastewater Systems payable  
23 during such fiscal year,

24  
25 <sup>4</sup> A 1.30 senior debt service coverage ratio was approved as a reasonable target in the 2018 Rate Determination.

<sup>5</sup> In accordance with the General Bond Ordinance, interest due on commercial paper is considered on par with senior debt and included in the debt service requirement.

- 1 • debt service requirements on any interim debt payable during such fiscal year, and
- 2 • the Capital Account Deposit for such fiscal year (less any amounts transferred
- 3 from the Residual Fund to the Capital Account during such fiscal year).

4  
5 Line 5 in Table C-2 (*Schedule BV-1*) presents the projected Total Coverage for the Study  
6 Period.

7  
8 In the second instance, the General Bond Ordinance requires that the City establish rates  
9 and charges for use by the Water and Wastewater Systems sufficient to yield Net  
10 Revenues (excluding amounts transferred from the Rate Stabilization Fund into the  
11 Revenue Fund during or as of the end of, such fiscal year) at least equal to 90% of the  
12 Debt Service Requirements (excluding debt service due on any Subordinated Bonds) in  
13 such fiscal year. Line 6 in Table C-2 (*Schedule BV-1*) presents the projected Senior Debt  
14 Coverage from current revenues, also referred to as the 90% Test, for the Study Period.

15  
16 ii. Rate Ordinance Requirements: Section 13-101(4)(a) of the Philadelphia Code sets the  
17 “floor” for the amounts that rates and charges must generate to support the System. The  
18 rates and charges must yield to the City at least an amount equal to the sum of the  
19 following:

- 20 1. Operating expenses of the City in respect of the water, sewer, and stormwater  
21 systems,
- 22 2. Debt service on all obligations of the City in respect of the water, sewer, and  
23 stormwater systems,
- 24 3. In respect of water, sewer, and stormwater revenue obligations of the City, such  
25 additional amounts as will be required to comply with any rate covenant and

1 sinking fund reserve requirements approved by ordinance of the City Council  
2 in connection with the authorization or issuance of water, sewer, and  
3 stormwater revenue bonds, and

- 4 4. Proportionate charges for all services performed for the Water Department by  
5 all officers, departments, boards, or commissions of the City.

6  
7 The rates and charges projected for FY 2024 and FY 2025 do not exceed the Water  
8 Fund’s projected appropriations for the above years. In addition, Section 13-101(4)(b)  
9 of the Philadelphia Code states that the rates and charges must not exceed (“ceiling”)  
10 the total appropriations from the Water Fund and provides considerations of the  
11 elements that are to be included in the calculation of the ceiling. Line 11 in Table C-2  
12 (*Schedule BV-1*) reflects the compliance with the Rate Ordinance requirement during  
13 the Study Period.

14  
15 **Q23. PLEASE DESCRIBE HOW THE GENERAL BOND ORDINANCE COVENANTS**  
16 **ARE RECOGNIZED IN THE REVENUE REQUIREMENT PROJECTIONS.**

17 A23. The outstanding revenue bonds are combined water and wastewater bonds, thus,  
18 compliance with the debt service coverage obligations is estimated using a combined  
19 projected cash flow schedule for the Water and Wastewater Systems. In the rate filing, the  
20 Water Department is targeting the minimum senior debt service coverage of 1.20 in FY  
21 2023; senior debt service coverage of 1.25 in FY 2024 and FY 2025, and 1.30 for the  
22 remainder of the Study Period. This reflects the Water Department’s intent to increase  
23 coverage over time, generating more cash funding for capital based upon the target metrics  
24 approved in the 2018 Rate Determination, while in the interim helping to mitigate revenue  
25 adjustments. This issue is addressed in greater detail below.



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**Q24. CAN THE WATER DEPARTMENT MEETS ITS DEBT SERVICE COVERAGE OBLIGATIONS WITH THE REQUESTED RATE RELIEF?**

A24. Yes. With the inclusion of the overall additional service revenues proposed in this rate proceeding for the Combined systems, the Water Fund is projected to meet the annual debt service coverage targets, as outlined above, over the Study Period.

**Q25. ARE THERE ANY OTHER FACTORS THAT WERE CONSIDERED IN EXAMINING THE OVERALL NEED FOR AN INCREASE IN WATER AND WASTEWATER REVENUES?**

A25. Yes. The Water Department needs the requested rate relief to pay for day-to-day operating needs, support its ongoing capital improvement program, and maintain its financial position. Additionally, it is essential to meet enumerated goals and metrics related to (i) maintaining senior debt service coverage at 1.20 times or higher, (ii) meeting additional rate covenant requirements (90% Test); and (iii) maintaining at least minimally sustainable liquidity levels for FY 2024 and FY 2025.

With respect to financial policy goals, the 2018 Rate Determination approved a target Rate Stabilization Fund (“RSF”) balance of approximately \$135 million, a senior debt service coverage ratio of 1.30, funding 20% of capital improvements via current system revenues, and a target Residual Fund balance of \$15 million.

With this rate filing, the Water Department has decided to temporarily defer senior debt service coverage and cash-funded capital targets. Also, the RSF balances are projected to remain below the target balances (\$135 million) during the Rate Period even with proposed

1 revenue adjustments. A return to the targeted financial metrics in future years will be  
2 necessary to improve the Water Department's financial position, maintain reserves, help  
3 manage future emergencies and strains on the system, and fund critical capital  
4 improvements.

5  
6 As noted in the Financial Stability Plan included in *PWD Statement 2A – Direct Testimony*  
7 *of the Financial Panel*, the Water Department has historically leveraged available RSF  
8 balances to help cover costs and mitigate rate impacts; however, without the proposed  
9 revenue increases, the projected RSF balances will continue to fall below the target  
10 balance. The lack of available Rate Stabilization Fund balance will limit the Water  
11 Department's ability to: 1) address emergencies, 2) mitigate other system risks, and 3)  
12 manage future revenue adjustments. As the primary source of short-term liquidity and  
13 reserves, the Rate Stabilization Fund will need to be fully restored over time to the target  
14 balance. Further, the Water Department may need to consider increasing the RSF target  
15 balance in the future. The current target was established with the 2018 Rate Determination,  
16 prior to recent inflationary pressures and based upon the operating needs of the Water Fund  
17 at the time of the corresponding rate proceeding.

18  
19 The point of the above statement is that the proposed revenue adjustments are intended to  
20 help sustain utility operations, recognize the impacts of both escalating costs as well as  
21 increased resource needs, and to begin to move toward improved financial metrics while  
22 balancing the overall revenue adjustment and rate impacts. With minimal balances  
23 available in the RSF, there is little headroom to absorb unanticipated events.

1 The projected performance against the 90% Test requirement further illustrates the need  
2 for future revenue adjustments. Please note, that PWD will not meet the 90% Test in FY  
3 2024 or FY 2025 without rate relief. Not meeting this requirement would be a clear sign  
4 that the Water Department does not have a financially-sustainable income revenue stream  
5 to meet its operational and capital needs. Also, failing to meet the 90% Test would likely  
6 trigger a technical default. The proposed revenue adjustments are necessary, otherwise, the  
7 Water Department cannot meet its projected revenue requirements and associated financial  
8 metrics over the requested Rate Period.

9  
10 As noted in *PWD Statement 2A - Direct Testimony of the Finance Panel* and *PWD*  
11 *Statement 4 – Direct Testimony of the Operations Panel*, the Water Department has  
12 experienced significant cost increases across all major cost centers. Consequently, the  
13 Water Department had to increase its budget in FY 2023 via the mid-year transfer  
14 ordinance and projects further needed increases during the Rate Period. The requested  
15 revenue adjustments are necessary to maintain O&M activities and avoid significant delays  
16 in CIP spending, which may negatively impact the system and result in a reduced level of  
17 service for customers.

18  
19 Please refer to *PWD Statement 2A – Direct Testimony of the Finance Panel*, for further  
20 discussion of the financial metrics and overall risks.

21  
22 **Q26. WOULD YOU PLEASE SUMMARIZE THE ALIGNMENT BETWEEN THE**  
23 **PROJECTION OF REVENUES UNDER EXISTING RATES AND REVENUE**  
24 **REQUIREMENTS FOR THE STUDY PERIOD?**

1 A26. Table C-1 (*Schedule BV-1*) presents a cash flow statement of projected revenues, revenue  
2 requirements, and rate covenant requirements for the Combined System operations for the  
3 projected period of FY 2023 through FY 2028. The Water Department's current revenues  
4 are clearly inadequate to comply with General Bond Ordinance and Rate Ordinance  
5 requirements for FY 2024 and FY 2025. As indicated in Lines 4 through 9 in Table C-1,  
6 annual increases in revenue are required beginning in FY 2024 to meet the revenue  
7 requirements.

8  
9 For the proposed Rate Period, a 12.75% revenue adjustment is necessary for FY 2024,  
10 followed by an 8.80% increase in FY 2025. For this rate proceeding, the increase in these  
11 two fiscal years is proposed to be effective on September 1 of each fiscal year. As indicated  
12 in Lines 25 and 30 in Table C-1 (*Schedule BV-1*), the debt service coverage requirements  
13 discussed previously would be met with the overall proposed levels of increased revenues.  
14 Annual cash requirements for the combined Water and Wastewater Systems would also be  
15 met with the proposed increases as indicated by the positive balances shown in Line 31 of  
16 Table C-1A and Line 34 of Table C-1 (*Schedule BV-1*).

17  
18 The percentage revenue increases presented on Lines 4 to 9 of Table C-1A reflect the  
19 overall increase in the base rates. These percentage increases are slightly higher than the  
20 percentage increases presented in Lines 4 to 9 of Table C-1 since Table C-1 presents the  
21 level of increase relative to the total revenues, including TAP-R surcharge revenues.

22  
23 Table 3-13 in Section 3.4 and Table 6-20 in Section 6.4 in the *Cost of Service Report*  
24 (*Schedule BV-2*) show the projected cash flow of base rates for the Water and Wastewater  
25 Systems, broken down separately. The revenue requirements projected for FY 2024 and

1 FY 2025, respectively, for the Water and Wastewater Systems, are then used in the  
2 development of the test year annual cost of service to be allocated for each system.

3  
4 Table 3-13 shows that overall increases in revenue of 18.90% (or \$45.7 Million) in  
5 FY 2024 and 9.0% (or \$26.1 Million) in FY 2025 are proposed for the Water System. For  
6 the Wastewater System, an overall increase in revenue of 8.92% (or \$34.7 Million) in  
7 FY 2024; and 8.66% (or \$36.9 Million) in FY 2025 are proposed, as shown in Table 6-20.

8  
9 **Q27. HAS THE WATER DEPARTMENT EVALUATED ANY STORMWATER RATE**  
10 **STRUCTURE CHANGES IN ACCORDANCE WITH THE 2021 RATE**  
11 **DETERMINATION AND THE ASSOCIATED SETTLEMENT AGREEMENT?**

12 **A27.** Yes. As previously communicated to the Rate Board, the Water Department is evaluating  
13 several tiered residential rate structure options based upon ranges of gross and impervious  
14 area as well as building type. In addition, the Water Department is evaluating various  
15 scenarios for shifting the recovery of stormwater credits and the cost of SMIP/GARP grants  
16 between residential and non-residential customers.

17  
18 As a part of the aforesaid evaluation, on October 21, 2022, PWD convened a virtual  
19 Residential Customer Assistance and Services (RCAS) Committee meeting concerning  
20 residential stormwater rate structure alternatives and cost recovery options for stormwater  
21 credits and SMIP/GARP program costs. A second virtual stakeholder meeting was held on  
22 November 21, 2022. Details on each meeting, and copies of the presentations, were  
23 provided in the Department's monthly reports to the Rate Board.

1 **Q28. ARE ANY CHANGES PROPOSED TO THE WATER, SEWER, AND**  
2 **STORMWATER RATE STRUCTURE?**

3 A28. No changes are proposed to the water, sewer, and stormwater rate structure in the current  
4 rate filing. As previously noted, the discussion of revenue and revenue requirements, cost  
5 of service analysis, and resulting rates included in this testimony apply to the Water  
6 Department's "Base Rates."

7  
8 As with the 2021 general rate proceeding, PWD proposes rate increases that will go into  
9 effect on September 1st of each fiscal year. However, rates are designed based on 12  
10 months. Because the proposed revenue increase will not go into effect until September 1st  
11 of each fiscal year, the proposed rates are designed based on annualizing the 10-month  
12 period for which rates are effective. Table 3-13 in Section 3.4 and Table 6-20 in Section  
13 6.4 in the *Cost of Service Report (Schedule BV-2)* show the projected cash flow of base  
14 rates for the Water and Wastewater Systems based on annualizing the proposed revenue  
15 increases.

16  
17 **Q29. IN DESIGNING THE RETAIL WATER, SEWER, AND STORMWATER COST**  
18 **OF SERVICE RATE SCHEDULES, ARE THERE ANY ADDITIONAL FACTORS**  
19 **THAT HAVE BEEN TAKEN INTO ACCOUNT?**

20 A29. Yes. The proposed charges for water and wastewater service applicable to general service  
21 retail customers, as shown in Table 5-1 in Section 5.1 of the *Cost of Service Report* and  
22 Table 8-4 in Section 8.1 (*Schedule BV-2*), respectively, recognize that certain retail  
23 customer types, including senior citizens, charities and schools, and the Philadelphia  
24 Housing Authority ("PHA"), receive services at a discounted rate. The Water Department  
25

1 anticipates that the existing discounts (25% for senior citizens, charities, and schools and  
2 5% for the PHA) will continue to be applicable during the Rate Period.

3  
4 In designing proposed rates, the annual retail water, sanitary sewer, and stormwater costs  
5 of service determined for each customer type are adjusted to reflect that these customer  
6 types will not pay the full cost of service. Accordingly, we increase the proposed retail  
7 water, sewer, and stormwater rates to recover this cost-of-service revenue reduction due to  
8 discounts. Additionally, in the case of the non-residential stormwater class, we adjust their  
9 stormwater rates to address the discounts and recover the reduction in revenue due to the  
10 existing stormwater customer assistance program (“CAP”). Anticipated revenue reductions  
11 due to stormwater CAP are described in Section 1.4 of *Schedule BV-2: Cost of Service*  
12 *Report*.

13  
14 The cost recovery approach used for billing discounts, stormwater credits, incentives, and  
15 grant programs is outlined in *Schedule BV-4: WP-3 “Cost Recovery of Discounts, Credits,*  
16 *Grants and TAP.”* Additional details regarding these items are further discussed in Section  
17 1.4 of the *Cost of Service Report (Schedule BV-2)*.

18  
19 **Q30. HAVE THERE BEEN ANY UPDATES TO THE PARAMETERS FOR TYPICAL**  
20 **RESIDENTIAL CUSTOMER BILL COMPARISONS?**

21 A30. Yes. The typical consumption for residential customers has decreased from 500 cubic feet  
22 to 450 cubic feet of water consumption. Please see *PWD Statement 6 – Direct Testimony*  
23 *of Raftelis Financial Consultants* for more information.

**Q31. BASED UPON THE PROPOSED SCHEDULE OF RETAIL RATES, WHAT ARE THE ASSOCIATED BILL IMPACTS ON TYPICAL CUSTOMER BILLS?**

A31. Table C-4 (*Schedule BV-1*) presents a series of typical or representative combined monthly residential water, sanitary sewer, and stormwater bills under existing and proposed rates for Test Year-1 (FY 2024) and Test Year-2 (FY 2025) for the 5/8-inch meter size. Table C-5 (*Schedule BV-1*) presents a series of typical or representative combined monthly non-residential water, sanitary sewer, and stormwater bills under existing and proposed rates for Test Year-1 (FY 2024) and Test Year-2 (FY 2025) for multiple meter sizes and various parcel characteristics (i.e., GA and IA). The bill impacts for PWD’s typical residential, discount eligible senior citizen and non-residential customers are summarized in the tables below.

<b>Proposed FY 2024 - Monthly Bill Impacts<sup>6</sup></b>				
<b>Customer</b>	<b>FY 2023<sup>7</sup></b>	<b>FY 2024<sup>8</sup></b>	<b>Additional Monthly Charge</b>	<b>% Increase of Monthly Bill</b>
<b>Typical Residential<sup>9</sup></b>	\$69.31	\$77.47	\$8.16	11.8%
<b>Senior Citizen with Discount<sup>10</sup></b>	\$42.28	\$46.71	\$4.43	10.5%
<b>Non-Residential<sup>11</sup></b>	\$119.11	\$131.68	\$12.57	10.5%

<sup>6</sup> Typical Monthly Bill includes Quantity Charges, TAP Rider Surcharge, Service Charge, and Stormwater Charges.

<sup>7</sup> The FY 2023 figures reflect the existing base and current TAP-R rates, of \$1.03/Mcf for water and \$1.63/Mcf for sewer, effective September 1, 2022.

<sup>8</sup> The FY 2024 figures reflect the proposed TAP-R rates, of \$0.21/Mcf for water and \$0.34/Mcf for sewer, and the proposed FY 2024 base rates, effective September 1, 2023.

<sup>9</sup> Reflects a Typical Residential customer with a 5/8-inch meter and 450 cubic feet of water consumption.

<sup>10</sup> Reflects a Typical Discount Eligible Senior Citizen customer with a 5/8-inch meter and 300 cubic feet of water consumption. Estimated bills include the application of the Senior Citizen discount of 25%.

<sup>11</sup> Reflects a typical PWD small business customer with a 5/8-inch meter, 600 cubic feet of water consumption, and parcel with 5,500 square feet of gross area and 4,000 square feet of impervious area.



**Proposed FY 2025 - Monthly Bill<sup>12</sup>**

<b>Customer</b>	<b>FY 2024<sup>13</sup></b>	<b>FY 2025<sup>13</sup></b>	<b>Additional Monthly Charge</b>	<b>% Increase of Monthly Bill</b>
<b>Typical Residential<sup>14</sup></b>	\$77.47	\$83.92	\$6.45	8.3%
<b>Senior Citizen with Discount<sup>15</sup></b>	\$46.71	\$50.56	\$3.85	8.3%
<b>Non-Residential<sup>16</sup></b>	\$131.68	\$143.61	\$11.93	9.1%

**IV. MISCELLANEOUS CHARGES**

**Q32. ARE ANY CHANGES BEING PROPOSED TO THE WATER DEPARTMENT’S MISCELLANEOUS WATER, SEWER, AND STORMWATER CHARGES?**

A32. Yes. The Water Department is proposing to update the various miscellaneous charges contained in the following sections of PWD’s Rates and Charges:

- (i) Section 6.0 – Miscellaneous Water Charges
- (ii) Section 7.0 – Miscellaneous Sewer Charges
- (iii) Section 8.0 – Miscellaneous Plan Review and Inspection Charges

<sup>12</sup> Typical Monthly Bill includes Quantity Charges, TAP Rider Surcharge, Service Charge, and Stormwater Charges.

<sup>13</sup> The FY 2024 and FY 2025 figures reflect the proposed TAP-R rates, of \$0.21/Mcf for water and \$0.34/Mcf for sewer, and the proposed FY 2024 base rates, effective September 1, 2023 and September 1, 2024, respectively.

<sup>14</sup> Reflects a Typical Residential customer with a 5/8-inch meter and 450 cubic feet of water consumption.

<sup>15</sup> Reflects a Typical Discount Eligible Senior Citizen customer with a 5/8-inch meter and 300 cubic feet of water consumption. Estimated bills include the application of the Senior Citizen discount of 25%.

<sup>16</sup> Reflects a typical PWD small business customer with a 5/8-inch meter, 600 cubic feet of water consumption, and parcel with 5,500 square feet of gross area and 4,000 square feet of impervious area.

1 The proposed miscellaneous charges are detailed in the following tables included in  
2 *Schedule BV-3*:

- 3 • Table M-1: Summary of Miscellaneous Charges (Regular Hours)
- 4 • Table M-2: Summary of Miscellaneous Charges (Overtime Hours)

5  
6 Please refer to Section 6 of *PWD Exhibit 3* for additional information regarding the  
7 Miscellaneous Charges.

8  
9 **Q33. PLEASE BRIEFLY DESCRIBE THE APPROACH FOR DEVELOPING THE**  
10 **PROPOSED MISCELLANEOUS CHARGES.**

11 A33. As with prior miscellaneous fee updates, Black & Veatch reviewed the miscellaneous  
12 charges to determine the updated cost of service rates. The miscellaneous fees analysis was  
13 updated to reflect current cost inputs, including Labor, Equipment Materials, and  
14 Contractor Costs. The methodology used to calculate the miscellaneous fees is consistent  
15 with the methodology from prior general rate proceedings. No changes are proposed to the  
16 fees for which the calculated cost of service was in alignment with the existing charges.

17  
18 The methodology used to update the Miscellaneous Charges is outlined in *Schedule BV-4*:  
19 *WP-4 “Miscellaneous Fees Methodology,”* with supporting calculations in the appendix.

20  
21 Generally, the proposed fees were developed using the following approach:

- 22 1. For fees with a calculated cost of service less than the existing charge, the proposed  
23 fee is transitioned in FY 2024 to reflect the calculated cost of service.

- 1           2. For fees with a calculated cost of service higher than the existing charge, the  
2           proposed fees are phased-in by 40% each fiscal year or until the cost-of-service rate  
3           is achieved.
- 4           3. Proposed miscellaneous charges are rounded to the nearest five or ten dollars.

5

6           Note – No changes are proposed for fees associated with service restoration, visitations, or  
7           shut-off for TAP customers.

8

9           **Q34. IS THE WATER DEPARTMENT PROPOSING ANY NEW MISCELLANEOUS**  
10           **CHARGES?**

11           A34. Yes. The Water Department is proposing to create the following two new miscellaneous  
12           charges:

- 13           (i) Section 8.1 (a)(3) – Stormwater Final Inspection Fee – This fee is for  
14           development projects which require a final inspection to confirm compliance  
15           with the approved Post-Construction Stormwater Management Plan in  
16           accordance with Chapter 6 Section 600.9(g) of the Water Department’s  
17           Regulations.
- 18           (ii) Section 8.3 – Utility Plan Review Fee – This fee is for the required review of  
19           projects seeking connections to the Water Department’s public water and/or  
20           sewer system to confirm water and sewer availability prior to the issuance of a  
21           building permit by the Department of License & Inspections.

22

23           As these are new fees, the FY 2024 proposed miscellaneous charges are based upon the  
24           calculated fees utilizing the methodology outlined previously.



- 1 • Updated allocation of TAP costs between the water and wastewater utilities; and
- 2 • Updated system-wide collection factor utilized in determining the net amount of
- 3 under/over recovery of TAP-R revenues.

4

5 **Q37. PLEASE SUMMARIZE THE PROPOSED UPDATES TO THE ALLOCATION OF**

6 **TAP COSTS BETWEEN WATER AND WASTEWATER UTILITIES.**

7 A37. Based upon the 2021 Rate Determination, the Total TAP Costs to be recovered via the

8 Water TAP-R and Sewer TAP-R surcharge rates were allocated between the water and

9 wastewater utilities based on the proportion of the water and wastewater retail net revenue

10 requirements to the total retail net revenue requirement. This allocation, as defined in

11 Section 10.1(a)(2)(i) and (ii) of the Water Department's Rates and Charges, is currently:

- 12 a. Water TAP Cost Allocation: 40%; and
- 13 b. Sewer TAP Cost Allocation: 60%.

14

15 Based upon the COS Study developed for this proceeding, the above allocation would be

16 revised to reflect the current apportionment of retail net revenue requirements between the

17 water and wastewater utilities as follows:

- 18 a. Water TAP Cost Allocation: 42%; and
- 19 b. Sewer TAP Cost Allocation: 58%.

20

21 Additional information regarding the retail net revenue requirements is presented in

22 *Schedule BV-2.*

1 **Q38. PLEASE SUMMARIZE THE PROPOSED UPDATES TO THE SYSTEM-WIDE**  
2 **COLLECTION FACTOR UTILIZED IN THE TAP RATE RIDER**  
3 **CALCULATION.**

4 A38. The system-wide collection factor is used to adjust both the TAP Revenue Loss and the  
5 TAP-R billings (for the Most Recent Period) in calculating the net amount of over or under-  
6 collection of the TAP-R surcharge (or E-Factor), as defined in Section 10.1(b)(3) of Water  
7 Department's Rates and Charges. The system-wide collection factor for non-stormwater-  
8 only customers of 97.32% currently used in the computation of the E-Factor was adopted  
9 following the 2021 Rate Determination based on the prior COS Study.

10  
11 Per the current COS Study, the updated system-wide collection factor for non-stormwater-  
12 only customers is 96.98%. This collection factor is based on historical collection data  
13 (FY 2012 through FY 2022) and reflects the previously discussed adjustments to align with  
14 recent experience. Note – the non-stormwater-only collection factor is utilized in  
15 establishing water and sewer charges because the TAP-R surcharges are included in the  
16 overall water and sewer quantity charges. *PWD Statement 6 – Direct Testimony of Raftelis*  
17 *Financial Consultants* provides additional details regarding the derivation of the system-  
18 wide collection factor.

19  
20 **Q39. WHEN WOULD THE PROPOSED CHANGES AND UPDATES TO THE TAP**  
21 **RATE RIDER GO INTO EFFECT?**

22 A39. The changes are proposed to be incorporated into the Water Department's Rates and  
23 Charges beginning on September 1, 2023, with the proposed implementation of FY 2024  
24 rates and charges. However, the specific updates to the TAP Rate Rider, as identified  
25 above, would be implemented when the FY 2024 TAP-R Surcharge Rates are reconciled.

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**VII. CONCLUSION**

**Q40. DOES THIS COMPLETE YOUR DIRECT TESTIMONY IN THIS MATTER?**

A40. Yes, it does.

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**In the Matter of the Philadelphia Water  
Department's Proposed Change in Water,  
Wastewater and Stormwater Rates and Related  
Charges**

**Fiscal Years 2024-2025**

**Philadelphia Water Department**

**Black & Veatch Management Consulting, LLC**

**Schedule BV-1**

**Dated: January 2023**

Schedule REF #		Schedule Name
<b>BV-1 Black &amp; Veatch Schedule</b>		
1	<b>TABLE C-1</b>	COMBINED UTILITY: PROJECTED REVENUE AND REVENUE REQUIREMENTS - BASE AND TAP-R SURCHARGE RATES
3	<b>TABLE C-1A</b>	PROJECTED REVENUE AND REVENUE REQUIREMENTS - BASE RATES EXCLUDING TAP-R SURCHARGE RATES
4	<b>TABLE C-1B</b>	PROJECTED REVENUE AND REVENUE REQUIREMENTS - TAP-R SURCHARGE RATES EXCLUDING BASE RATES
5	<b>TABLE C-2</b>	COMBINED UTILITY: PROJECTED RATE STABILIZATION FUND AND COVENANTS METRICS PERFORMANCE
6	<b>TABLE C-3</b>	COMBINED UTILITY: PROJECTED RECEIPTS UNDER EXISTING RATES
7	<b>TABLE C-4</b>	COMBINED UTILITY: COMPARISON OF TYPICAL BILL FOR RESIDENTIAL CUSTOMERS UNDER EXISTING AND PROPOSED RATES
8	<b>TABLE C-5</b>	COMBINED UTILITY: COMPARISON OF EXAMPLE BILLS FOR NON-RESIDENTIAL CUSTOMERS UNDER EXISTING AND PROPOSED RATES
9	<b>TABLE C-6</b>	COMBINED UTILITY: PROJECTED OPERATION AND MAINTENANCE EXPENSE
10	<b>TABLE C-7</b>	COMBINED UTILITY: PROJECTED CAPITAL IMPROVEMENT PROGRAM
11	<b>TABLE C-8</b>	COMBINED UTILITY: PROJECTED FLOW OF FUNDS - CONSTRUCTION FUND & DEBT RESERVE ACCOUNT
12	<b>TABLE C-9</b>	COMBINED UTILITY: SUMMARY OF EXISTING AND PROPOSED DEBT SERVICE
13	<b>TABLE C-10</b>	WATER: PROPOSED RATES FOR GENERAL SERVICE
14	<b>TABLE C-11</b>	WATER: PROPOSED RATES FOR FIRE PROTECTION
15	<b>TABLE C-11A</b>	WATER: PROPOSED RATES FOR FIRE PROTECTION RESIDENTIAL PRIVATE FIRE PROTECTION
16	<b>TABLE C-12</b>	WASTEWATER: PROPOSED RATES FOR GENERAL SERVICE SANITARY SEWER
17	<b>TABLE C-13</b>	STORMWATER: PROPOSED RATES FOR RESIDENTIAL AND NON-RESIDENTIAL SERVICES

**TABLE C-1: PROJECTED REVENUE AND REVENUE REQUIREMENTS**  
**Base and TAP-R Surcharge Rates**  
**(in thousands of dollars)**

Line No.	Description	Fiscal Year Ending June 30,					
		2023	2024	2025	2026	2027	2028
<b>OPERATING REVENUE</b>							
1	Water Service - Existing Rates	299,168	301,672	304,366	307,210	306,806	306,047
2	Wastewater Service - Existing Rates	480,288	485,480	488,027	489,953	489,257	479,344
3	Total Service Revenue - Existing Rates	779,455	787,152	792,393	797,163	796,063	785,392
	Additional Service Revenue Required						
	Percent Increase						
	Months Effective						
4	FY 2024	11.02%	10	72,392	87,966	88,000	87,829
5	FY 2025	8.77%	10		62,977	77,619	77,512
6	FY 2026	12.66%	10			99,472	121,709
7	FY 2027	7.98%	10				70,520
8	FY 2028	8.98%	10				84,516
9	Total Additional Service Revenue Required	-	72,392	150,942	265,091	357,570	452,760
10	Total Water & Wastewater Service Revenue	779,455	859,544	943,335	1,062,254	1,153,634	1,238,152
	Other Income (a)						
11	Other Operating Revenue	20,247	19,226	26,661	26,719	26,694	26,668
12	Debt Reserve Account Interest Income	-	-	-	-	-	-
13	Operating Fund Interest Income	1,882	1,982	2,023	2,192	2,271	2,331
14	Rate Stabilization Interest Income	1,365	1,339	1,336	1,360	1,423	1,497
15	Total Revenues	802,949	882,092	973,356	1,092,525	1,184,022	1,268,648
<b>OPERATING EXPENSES</b>							
16	Total Operating Expenses	(564,671)	(611,326)	(654,537)	(690,172)	(720,118)	(752,972)
<b>NET REVENUES</b>							
17	Transfer From/(To) Rate Stabilization Fund	1,229	4,136	124	(5,473)	(7,318)	(7,509)
18	NET REVENUES AFTER OPERATIONS	239,507	274,902	318,943	396,880	456,586	508,167
<b>DEBT SERVICE</b>							
	Senior Debt Service						
	Revenue Bonds						
19	Outstanding Bonds	(187,747)	(185,847)	(183,090)	(183,088)	(183,091)	(166,318)
20	PENNVEST Loans	(10,935)	(12,031)	(16,329)	(23,721)	(29,283)	(32,313)
21	Projected Future Bonds	-	(21,083)	(53,880)	(92,771)	(129,341)	(175,213)
22	Commercial Paper	(900)	(900)	(900)	(900)	(900)	(900)
23	WIFIA	-	(17)	(956)	(4,812)	(8,532)	(16,153)
24	Total Senior Debt Service	(199,582)	(219,878)	(255,154)	(305,292)	(351,146)	(390,897)
25	TOTAL SENIOR DEBT SERVICE COVERAGE (L18/L24)	1.20 x	1.25 x	1.25 x	1.30 x	1.30 x	1.30 x
26	Subordinate Debt Service	-	-	-	-	-	-
27	Transfer to Escrow	-	-	-	-	-	-
28	Total Debt Service on Bonds	(199,582)	(219,878)	(255,154)	(305,292)	(351,146)	(390,897)
29	CAPITAL ACCOUNT DEPOSIT	(23,383)	(24,295)	(25,242)	(26,226)	(27,249)	(28,312)
30	TOTAL COVERAGE (L18/(L24+L26+L29))	1.07 x	1.12 x	1.13 x	1.19 x	1.20 x	1.21 x
31	End of Year Revenue Fund Balance	16,542	30,729	38,547	65,361	78,191	88,958

**TABLE C-1: PROJECTED REVENUE AND REVENUE REQUIREMENTS**  
**Base and TAP-R Surcharge Rates**  
**(in thousands of dollars)**

Line No.	Description	Fiscal Year Ending June 30,					
		2023	2024	2025	2026	2027	2028
<b>RESIDUAL FUND</b>							
32	Beginning of Year Balance	16,102	15,095	15,079	15,078	15,047	15,025
33	Interest Income	155	150	150	150	150	149
	Plus:						
34	End of Year Revenue Fund Balance	16,542	30,729	38,547	65,361	78,191	88,958
35	Deposit for Transfer to City General Fund (b)	1,945	1,999	2,026	2,084	2,149	2,192
	Less:						
36	Transfer to Construction Fund	(16,600)	(29,800)	(34,400)	(58,150)	(72,800)	(86,100)
37	Transfer to City General Fund	(1,945)	(1,999)	(2,026)	(2,084)	(2,149)	(2,192)
38	Transfer to Debt Reserve Account	(1,105)	(1,096)	(4,298)	(7,392)	(5,562)	(3,030)
39	End of Year Balance	15,095	15,079	15,078	15,047	15,025	15,002
<b>RATE STABILIZATION FUND</b>							
40	Beginning of Year Balance (c)	138,989	137,760	133,625	133,501	138,974	146,291
41	Deposit From/(To) Revenue Fund	(1,229)	(4,136)	(124)	5,473	7,318	7,509
42	End of Year Balance	137,760	133,625	133,501	138,974	146,291	153,800

- (a) Includes other operating and nonoperating income, including interest income on funds and accounts transferable to the Revenue Fund and reflects projected contra revenue credits for Affordability Program Discounts (TAP Costs).
- (b) Transfer of interest earnings from the Debt Reserve Account to the Residual Fund as shown in Line 35 to satisfy the requirements for the transfer to the City General Fund shown on Line 37.
- (c) FY 2023 beginning balance is estimated based on preliminary FY 2022 results.

**TABLE C-1A: PROJECTED REVENUE AND REVENUE REQUIREMENTS**  
**Base Rates Excluding TAP-R Surcharge**  
**(in thousands of dollars)**

Line No.	Description	Fiscal Year Ending June 30,					
		2023	2024	2025	2026	2027	2028
<b>OPERATING REVENUE</b>							
1	Water Service - Existing Rates	294,038	296,093	298,680	301,466	301,071	300,328
2	Wastewater Service - Existing Rates	472,292	476,637	478,997	480,829	480,147	470,259
3	Total Service Revenue - Existing Rates	766,330	772,731	777,677	782,295	781,218	770,587
	Additional Service Revenue Required						
	Percent						
	Months						
	Year	Increase	Effective				
4	FY 2024	12.75%	10	80,412	99,154	99,743	99,605
5	FY 2025	8.80%	10		62,977	77,619	77,512
6	FY 2026	12.70%	10			99,472	121,709
7	FY 2027	8.00%	10				70,520
8	FY 2028	9.00%	10				
9	Total Additional Service Revenue Required	-	80,412	162,131	276,834	369,346	464,504
10	Total Water & Wastewater Service Revenue	766,330	853,142	939,807	1,059,129	1,150,564	1,235,091
	Other Income (a)						
11	Other Operating Revenue	29,601	29,664	29,713	29,771	29,746	29,720
12	Debt Reserve Account Interest Income	-	-	-	-	-	-
13	Operating Fund Interest Income	1,882	1,982	2,023	2,192	2,271	2,331
14	Rate Stabilization Interest Income	1,365	1,339	1,336	1,360	1,423	1,497
15	Total Revenues	799,178	886,128	972,880	1,092,452	1,184,004	1,268,639
<b>OPERATING EXPENSES</b>							
16	Total Operating Expenses	(564,671)	(611,326)	(654,537)	(690,172)	(720,118)	(752,972)
<b>NET REVENUES</b>							
17	Transfer From/(To) Rate Stabilization Fund	5,000	100	600	(5,400)	(7,300)	(7,500)
18	NET REVENUES AFTER OPERATIONS	239,507	274,902	318,943	396,880	456,586	508,167
<b>DEBT SERVICE</b>							
	Senior Debt Service						
	Revenue Bonds						
19	Outstanding Bonds	(187,747)	(185,847)	(183,090)	(183,088)	(183,091)	(166,318)
20	PENNVEST Loans	(10,935)	(12,031)	(16,329)	(23,721)	(29,283)	(32,313)
21	Projected Future Bonds	-	(21,083)	(53,880)	(92,771)	(129,341)	(175,213)
22	Commercial Paper	(900)	(900)	(900)	(900)	(900)	(900)
23	WIFIA	-	(17)	(956)	(4,812)	(8,532)	(16,153)
24	Total Senior Debt Service	(199,582)	(219,878)	(255,154)	(305,292)	(351,146)	(390,897)
25	TOTAL SENIOR DEBT SERVICE COVERAGE (L18/L24)	1.20 x	1.25 x	1.25 x	1.30 x	1.30 x	1.30 x
26	Subordinate Debt Service	-	-	-	-	-	-
27	Transfer to Escrow	-	-	-	-	-	-
28	Total Debt Service on Bonds	(199,582)	(219,878)	(255,154)	(305,292)	(351,146)	(390,897)
29	CAPITAL ACCOUNT DEPOSIT	(23,383)	(24,295)	(25,242)	(26,226)	(27,249)	(28,312)
30	TOTAL COVERAGE (L18/(L24+L26+L29))	1.07 x	1.12 x	1.13 x	1.19 x	1.20 x	1.21 x
31	End of Year Revenue Fund Balance	16,542	30,729	38,547	65,361	78,191	88,958

(a) Includes other operating and nonoperating income, including interest income on funds and accounts transferable to the Revenue Fund.

**TABLE C-1B: PROJECTED REVENUE AND REVENUE REQUIREMENTS  
TAP-R Surcharge Rates Excluding Base Rates  
(in thousands of dollars)**

Line No.	Description	Fiscal Year Ending June 30,					
		2023	2024	2025	2026	2027	2028
<b>OPERATING REVENUE</b>							
1	Water Service - Existing Rates	5,130	5,579	5,686	5,744	5,735	5,719
2	Wastewater Service - Existing Rates	7,995	8,843	9,030	9,124	9,110	9,085
3	Total Service Revenue - Existing Rates	13,125	14,422	14,716	14,868	14,846	14,804
	Additional Service Revenue Required						
	<u>Year</u>	<u>Percent Increase</u>	<u>Months Effective</u>				
4	FY 2024	-79.32%	10	(8,020)	(11,188)	(11,743)	(11,743)
5	FY 2025	0.00%	10	-	-	-	-
6	FY 2026	0.00%	10	-	-	-	-
7	FY 2027	0.00%	10	-	-	-	-
8	FY 2028	0.00%	10	-	-	-	-
9	Total Additional Service Revenue Required	-	(8,020)	(11,188)	(11,743)	(11,776)	(11,743)
10	Total Water & Wastewater Service Revenue	13,125	6,402	3,528	3,125	3,070	3,061
	Other Income						
11	Other Operating Revenue (a)	(9,354)	(10,438)	(3,052)	(3,052)	(3,052)	(3,052)
12	Debt Reserve Account Interest Income	-	-	-	-	-	-
13	Operating Fund Interest Income	-	-	-	-	-	-
14	Rate Stabilization Interest Income	-	-	-	-	-	-
15	Total Revenues	3,771	(4,036)	476	73	18	9
<b>OPERATING EXPENSES</b>							
16	Total Operating Expenses	-	-	-	-	-	-
<b>NET REVENUES</b>							
17	Transfer From/(To) Rate Stabilization Fund (b)	(3,771)	4,036	(476)	(73)	(18)	(9)
18	NET REVENUES AFTER OPERATIONS	-	-	-	-	-	-
<b>DEBT SERVICE</b>							
	Senior Debt Service						
	Revenue Bonds						
19	Outstanding Bonds	-	-	-	-	-	-
20	PENNVEST Loans	-	-	-	-	-	-
21	Projected Future Bonds	-	-	-	-	-	-
22	Commercial Paper	-	-	-	-	-	-
23	WIFIA	-	-	-	-	-	-
24	Total Senior Debt Service	-	-	-	-	-	-
25	TOTAL SENIOR DEBT SERVICE COVERAGE (L18/L24)	NA	NA	NA	NA	NA	NA
26	Subordinate Debt Service	-	-	-	-	-	-
27	Transfer to Escrow	-	-	-	-	-	-
28	Total Debt Service on Bonds	-	-	-	-	-	-
29	CAPITAL ACCOUNT DEPOSIT	-	-	-	-	-	-
30	TOTAL COVERAGE (L18/(L24+L26+L29))	NA	NA	NA	NA	NA	NA
31	End of Year Revenue Fund Balance	-	-	-	-	-	-

(a) FY 2023 and FY 2024 reflect TAP Credits based on the proposed 2023 Annual Adjustment. FY 2025 to FY 2028 reflect proposed TAP-R revenue requirement based on the proposed 2023 Annual Adjustment.

(b) Rate Stabilization Fund transfers necessary to meet over or under recovery of TAP costs until recovery is reconciled via TAP-R reconciliation.

**TABLE C-2**  
**Base and TAP-R Surcharge Rates**  
**COMBINED SYSTEM: PROJECTED RATE STABILIZATION FUND**  
**AND COVENANTS METRICS PERFORMANCE**

Line #	Description	2023	2024	2025	2026	2027	2028
<b>Rate Stabilization Fund</b>		<i>in thousand dollars (1,000 dollars)</i>					
1	Beginning Balance: Rate Stabilization Fund (a)	138,989	137,760	133,625	133,501	138,974	146,291
2	Transfers From (To) Revenue Fund (b)	(1,229)	(4,136)	(124)	5,473	7,318	7,509
3	Year-End Rate Stabilization Fund Balance (Line 1 + Line 2)	137,760	133,625	133,501	138,974	146,291	153,800
<b>General Bond Ordinance Covenants</b>							
4	Senior Debt Coverage (c)	1.20	1.25	1.25	1.30	1.30	1.30
5	Total Debt Coverage (d)	1.07	1.12	1.13	1.19	1.20	1.21
6	90% Test - Senior Debt Coverage from Current Revenues (e)	1.19	1.23	1.24	1.30	1.30	1.30
<b>O&amp;M Actual to Budget Ratio</b>							
7	Projected O&M Budget (f)	659,216	715,819	766,086	807,071	842,689	881,564
8	O&M Actual to Budget Ratio	90.8%	91.0%	91.1%	91.3%	91.3%	91.3%
<b>Rate Ordinance Requirements</b>							
9	Projected Total Revenues	802,949	882,092	973,356	1,092,525	1,184,022	1,268,648
10	Projected Total Appropriations (g)	898,723	990,721	1,085,029	1,209,350	1,306,575	1,397,230
11	Rate Ordinance Requirement Compliance (h)	Yes	Yes	Yes	Yes	Yes	Yes
<b>Cash Funding</b>							
12	Cash Funded Capital (i)	39,983	54,095	59,642	84,376	100,049	114,412
13	Capital Improvement Program Annual Expenses	337,627	513,964	606,056	757,393	791,263	865,518
14	Cash Funded Capital Ratio (j)	11.8%	10.5%	9.8%	11.1%	12.6%	13.2%

(a) FY 2023 beginning balance is estimated based on FY 2022 preliminary financial results.

(b) See Line 17 in Table C-1.

(c) Senior Debt Coverage = (Total Revenues - Operating Expenses + Transfer From (to) Rate Stabilization) divided by Senior Debt. The General Bond Ordinance requires the minimum Senior Debt Service Coverage of 1.20.

(d) Total Debt Coverage = (Total Revenues - Operating Expenses + Rate Stabilization Transfer) divided by (Senior Debt + Subordinate Debt + Capital Account Deposit). The 1989 General Ordinance requires the minimum Total Debt Service Coverage of 1.00.

(e) Senior Debt Coverage from Current Revenues = (Total Revenues - Operating Expenses - Transfer to Rate Stabilization Fund) divided by Senior Debt. Transfers from Rate Stabilization are excluded from the Total Revenues. The General Bond Ordinance requires a minimum Senior Debt Service Coverage of 0.90 from Current Revenues.

(f) FY 2023 budget reflects the PWD adopted budget; FY 2024 through FY 2028 budget reflects annual cost escalation factors.

(g) Total Appropriation = Total O&M Budget + Senior Debt + Subordinate Debt + Transfer to Escrow + Capital Account Deposit + Transfer to Rate Stabilization Fund + Transfer to Residual Fund. Costs to service the City included as required by the General Bond Ordinance rate covenants.

(h) Rate Ordinance requires that Total Revenues not exceed Total Appropriations.

(i) Cash Funded Capital = Capital Account Deposit + Residual Transfer to Construction Fund

(j) Cash Funded Capital Ratio = Cash Funded Capital divided by Capital Improvement Program annual expenses.

**TABLE C-3: PROJECTED RECEIPTS UNDER EXISTING RATES**  
(in thousands of dollars)

Line No.	Description	Fiscal Year Ending June 30,					
		2023	2024	2025	2026	2027	2028
1	Water Sales Receipts	294,038	296,093	298,680	301,466	301,071	300,328
	Wastewater Sales Receipts						
2	Sanitary Sewer	283,305	284,667	287,015	289,265	289,037	279,644
3	Stormwater	188,987	191,970	191,982	191,564	191,109	190,615
4	Subtotal Wastewater Service Receipts	472,292	476,637	478,997	480,829	480,147	470,259
5	Total Water & Wastewater Receipts	766,330	772,731	777,677	782,295	781,218	770,587
<b>Other Income</b>							
6	Penalties	9,588	9,651	9,700	9,758	9,733	9,707
7	Miscellaneous City Revenue	2,160	2,160	2,160	2,160	2,160	2,160
8	Other	9,059	9,059	9,059	9,059	9,059	9,059
9	State & Federal Grants	567	567	567	567	567	567
10	Permits Issued by L&I	7,592	7,592	7,592	7,592	7,592	7,592
11	Miscellaneous (Procurement)	335	335	335	335	335	335
12	City & UESF Grants	300	300	300	300	300	300
13	Affordability Program Discount Cost (a)	-	-	-	-	-	-
14	Release from Debt Reserve Account (b)	-	-	-	-	-	-
15	Other Operating Revenues	29,601	29,664	29,713	29,771	29,746	29,720
<b>Interest Income</b>							
16	Interest Income on Debt Reserve Account (c)	-	-	-	-	-	-
17	Operating Fund	1,882	1,982	2,023	2,192	2,271	2,331
18	Rate Stabilization Fund	1,365	1,339	1,336	1,360	1,423	1,497
19	Total Nonoperating Income	3,247	3,321	3,359	3,552	3,694	3,828
20	Total Receipts	799,178	805,716	810,749	815,618	814,658	804,135

(a) Affordability Program Discounts represent anticipated lost revenue due to the Tiered Assistance Program (TAP).

Beginning in FY 2019, TAP Revenue Loss is recovered via the TAP Rate Rider Surcharge.

(b) Projected Release from Debt Reserve Account based on outstanding and proposed debt service payments.

(c) Excludes deposit into Residual Fund for Transfer to City General Fund.



**TABLE C-4  
COMBINED SYSTEM: COMPARISON OF TYPICAL  
BILL FOR RESIDENTIAL CUSTOMERS  
UNDER EXISTING AND PROPOSED RATES**

(1) Meter Size Inches	(2) Monthly Use Mcf	(3) FY 2023		(4) FY 2024		(5) FY 2025	
		Existing Rates \$	Proposed Rates \$	% Proposed of Existing %	Proposed Rates \$	% Proposed of FY 2024 %	
5/8	0.00	30.52	31.88	4.5	34.40	7.9	
5/8	0.20	47.76	52.14	9.2	56.42	8.2	
5/8	0.30	56.38	62.28	10.5	67.42	8.3	Typical Senior
5/8	0.40	65.00	72.40	11.4	78.42	8.3	
5/8	0.45	69.31	77.47	11.8	83.92	8.3	Typical Residential
5/8	0.50	73.62	82.54	12.1	89.44	8.4	
5/8	0.60	82.23	92.66	12.7	100.44	8.4	
5/8	0.70	90.85	102.80	13.2	111.44	8.4	
5/8	0.80	99.47	112.92	13.5	122.44	8.4	
5/8	1.70	177.04	204.10	15.3	221.50	8.5	
5/8	2.70	260.45	301.05	15.6	326.87	8.6	
5/8	3.30	309.79	358.10	15.6	388.89	8.6	

Notes:

FY 2023 figures reflect the existing base and current TAP-R rates, of \$1.03/Mcf for water and \$1.63/Mcf for sewer.  
 FY 2024 and FY 2025 figures reflect the proposed base and TAP-R rates, of \$0.21/Mcf for water and \$0.34/Mcf for sewer.  
 The FY 2024 TAP-R rates are subject to the Rate Board's Determination in the 2023 TAP-R Reconciliation Proceeding.  
 The TAP-R Rates are subject to annual reconciliation.

Typical Senior Citizen is presented prior to discount. Eligible Senior Citizen's receive a 25% discount on their total bill. The associated FY 2023, FY 2024, and FY 2025 bills would be \$42.28, \$46.71, and \$50.56, respectively.

Mcf - Thousand cubic feet

**TABLE C-5  
COMBINED SYSTEM: COMPARISON OF EXAMPLE BILLS  
FOR NON-RESIDENTIAL CUSTOMERS  
UNDER EXISTING AND PROPOSED RATES**

(1) Meter Size	(2) Monthly Use Mcf	(3) Impervious Area sf	(4) Gross Area sf	(5)	(6)	(7)	(8)	(9)
				FY 2023	FY 2024	FY 2025		
				Existing Rates	Proposed Rates	% Proposed of Existing	Proposed Rates	% Proposed of FY 2024
Inches				\$	\$	%	\$	%
5/8	0.0	1,794	2,110	40.77	42.74	4.8	46.37	8.5
5/8	0.2	1,794	2,110	58.01	63.00	8.6	68.39	8.6
5/8	0.3	1,794	2,110	66.63	73.14	9.8	79.39	8.6
5/8	0.4	1,794	2,110	75.25	83.26	10.6	90.39	8.6
5/8	0.5	4,000	5,500	110.50	121.56	10.0	132.61	9.1
5/8	0.6	4,000	5,500	119.11	131.68	10.5	143.61	9.1
5/8	0.7	4,000	5,500	127.73	141.82	11.0	154.61	9.0
5/8	0.8	26,000	38,000	428.57	460.92	7.5	507.97	10.2
5/8	1.7	26,000	38,000	506.14	552.10	9.1	607.03	9.9
5/8	2.7	4,000	5,500	297.33	340.07	14.4	370.04	8.8
5/8	3.3	4,000	5,500	346.67	397.12	14.6	432.06	8.8
5/8	11.0	7,000	11,000	1,021.27	1,173.15	14.9	1,276.51	8.8
1	1.7	7,700	7,900	269.90	302.38	12.0	329.98	9.1
1	5.0	22,500	24,000	726.58	813.02	11.9	889.15	9.4
1	8.0	7,700	7,900	789.08	903.30	14.5	983.16	8.8
1	17.0	22,500	24,000	1,713.22	1,954.10	14.1	2,129.47	9.0
2	7.6	1,063	1,250	704.84	810.46	15.0	879.79	8.6
2	16.0	22,500	24,000	1,661.16	1,890.54	13.8	2,059.74	8.9
2	33.0	66,500	80,000	3,629.34	4,110.66	13.3	4,485.67	9.1
2	100.0	7,700	7,900	8,383.48	9,683.11	15.5	10,525.91	8.7
4	30.0	7,700	7,900	2,730.78	3,133.96	14.8	3,404.61	8.6
4	170.0	10,500	12,000	13,565.46	15,615.56	15.1	16,972.96	8.7
4	330.0	26,000	38,000	25,308.97	29,071.81	14.9	31,605.25	8.7
4	500.0	140,000	160,000	39,004.58	44,659.46	14.5	48,581.95	8.8
6	150.0	10,500	12,000	12,269.79	14,113.73	15.0	15,336.96	8.7
6	500.0	41,750	45,500	37,895.92	43,483.82	14.7	47,272.61	8.7
6	1,000.0	26,000	38,000	73,748.50	84,639.88	14.8	92,007.15	8.7
6	1,500.0	140,000	160,000	111,230.51	127,521.83	14.6	138,654.15	8.7
8	750.0	10,500	12,000	55,688.42	63,917.99	14.8	69,472.87	8.7
8	1,500.0	66,500	80,000	110,469.34	126,713.47	14.7	137,750.80	8.7
8	2,000.0	26,000	38,000	145,999.13	167,528.14	14.7	182,107.06	8.7
8	3,000.0	140,000	160,000	218,581.14	250,615.09	14.7	272,469.06	8.7
10	600.0	22,500	24,000	45,237.24	51,890.35	14.7	56,396.31	8.7
10	1,700.0	41,750	45,500	124,772.89	143,133.55	14.7	155,587.84	8.7
10	3,300.0	26,000	38,000	238,691.47	273,775.61	14.7	297,611.38	8.7
10	6,000.0	140,000	160,000	432,211.48	495,514.56	14.6	538,712.38	8.7

Typical Small Business

(a) Examples with gross area less than 5,000 square feet reflect an impervious area of 85% of the gross area consistent with PWD Regulations section 304.3.

(b) The FY 2023 figures reflect the existing base and current TAP-R rates, of \$1.03/Mcf for water and \$1.63/Mcf for sewer.

(c) FY 2024 and FY 2025 figures reflect the proposed base and TAP-R rates, of \$0.21/Mcf for water and \$0.34/Mcf for sewer.

(d) The FY 2024 TAP-R rates are subject to the Rate Board's Determination in the 2023 TAP-R Reconciliation Proceeding. The TAP-R Rates are subject to annual reconciliation.

Mcf - Thousand cubic feet

sf - square feet

**TABLE C-6: PROJECTED OPERATION AND MAINTENANCE EXPENSE**  
**(in thousands of dollars)**

Line No.	Description	Fiscal Year Ending June 30,					
		2023	2024	2025	2026	2027	2028
<b>Water and Wastewater Operations</b>							
1	Personal Services	172,675	181,131	193,552	202,480	210,588	219,669
2	Pension and Benefits	143,762	149,631	158,182	163,929	168,640	174,021
3	Subtotal	316,437	330,761	351,735	366,409	379,229	393,690
<b>Purchase of Services</b>							
4	Power	17,993	19,927	19,927	20,225	20,529	20,837
5	Gas	6,934	8,250	8,250	8,374	8,500	8,627
6	SMIP/GARP	25,000	20,000	20,000	25,000	25,000	25,000
7	Other	154,813	175,489	186,030	194,610	203,591	212,990
8	Subtotal	204,740	223,665	234,207	248,210	257,619	267,454
<b>Materials and Supplies</b>							
9	Chemicals	36,926	52,679	65,227	72,682	80,990	90,247
10	Other	25,108	27,058	28,871	30,225	31,643	33,127
11	Subtotal	62,033	79,737	94,098	102,908	112,633	123,374
12	Equipment	4,292	5,842	6,392	6,816	7,268	7,749
13	Indemnities and Transfers	10,854	11,340	11,791	12,128	12,481	12,851
14	Subtotal Expenses	598,357	651,346	698,222	736,470	769,230	805,118
15	Liquidated Encumbrances	(33,686)	(40,020)	(43,686)	(46,298)	(49,112)	(52,145)
16	<b>Total Expenses</b>	<b>564,671</b>	<b>611,326</b>	<b>654,537</b>	<b>690,172</b>	<b>720,118</b>	<b>752,972</b>

**TABLE C-7: PROJECTED CAPITAL IMPROVEMENT PROGRAM**  
(in thousands of dollars)

Line No.	Description	Fiscal Year Ending June 30,					
		2023	2024	2025	2026	2027	2028
1	Engineering and Administration (a)	14,321	12,806	11,587	10,367	9,148	7,929
2	Plant Improvements	255,000	393,000	295,000	262,000	315,000	450,000
3	Distribution System Rehabilitation	123,060	157,100	240,100	135,100	128,100	120,100
4	Large Meter Replacement	5,000	5,000	5,000	5,000	5,000	5,000
5	Billing System	-	-	-	30,000	30,000	30,000
6	Storm Flood Relief	15,000	15,000	15,000	15,000	15,000	15,000
7	Reconstruction of Sewers	72,860	80,000	86,000	91,000	96,000	102,000
8	Green Infrastructure	83,000	90,000	90,000	170,000	170,000	170,000
9	Vehicles	12,000	12,000	12,000	12,000	12,000	12,000
10	Total Improvements	580,241	764,906	754,687	730,467	780,248	912,029
11	Inflation Adjustment (b)	-	-	30,188	59,239	97,425	154,916
12	Inflated Total	580,241	764,906	784,874	789,707	877,673	1,066,945
13	Rollforward Adjustments	(100,885)	82,940	56,614	36,983	(17,674)	(37,949)
14	Total Inflated Adjusted CIP Budget	479,356	847,846	841,488	826,690	859,999	1,028,995
15	Contingency Adjustment	(49,261)	(72,342)	(72,589)	(101,842)	(76,131)	(78,151)
16	Annual Encumbrances	430,095	775,504	768,900	724,848	783,868	950,844
17	Project Expenses (c)	337,627	513,964	606,056	757,393	791,263	865,518
18	Annual Net Encumbrances	92,469	261,541	162,844	(32,545)	(7,396)	85,326

(a) Reflects shift in capital related salary costs from capital to operating budget.

(b) Allowance for inflation of 4.0 percent per year after fiscal year 2024.

(c) Reflects annual drawdown of capital budget appropriations based on project durations and annual encumbrances.

**TABLE C-8: PROJECTED FLOW OF FUNDS - CONSTRUCTION FUND & DEBT RESERVE ACCOUNT**  
(in thousands of dollars)

Line No.	Description	Fiscal Year Ending June 30,					
		2023	2024	2025	2026	2027	2028
<b>Disposition of Revenue Bond Proceeds</b>							
1	Proceeds From Sale of Bonds	338,465	460,000	485,000	555,000	480,000	700,000
Transfers:							
2	Debt Reserve Account (a)	8,500	-	-	-	-	-
3	Cost of Bond Issuance (b)	1,965	2,806	2,959	3,386	4,800	7,000
4	Construction Fund (c)	328,000	457,194	482,042	551,615	475,200	693,000
5	<b>Total Issue</b>	<b>338,465</b>	<b>460,000</b>	<b>485,000</b>	<b>555,000</b>	<b>480,000</b>	<b>700,000</b>
<b>Construction Fund</b>							
6	Beginning Balance	523,680	614,573	720,294	783,571	841,574	802,171
7	Transfer From Revenue Bond Proceeds	328,000	457,194	482,042	551,615	475,200	693,000
8	WIFIA Proceeds	-	9,063	20,772	47,939	58,563	59,127
9	WIFIA Match Funding Proceeds	-	9,338	20,958	47,915	58,497	59,246
10	PENNVEST Loan Proceeds	54,874	83,354	78,438	75,465	51,373	30,493
11	Capital Account Deposit	23,383	24,295	25,242	26,226	27,249	28,312
12	Transfer from Residual Fund	16,600	29,800	34,400	58,150	72,800	86,100
13	Interest Income on Construction Fund	5,663	6,641	7,482	8,085	8,178	8,476
14	<b>Total Available</b>	<b>952,200</b>	<b>1,234,258</b>	<b>1,389,627</b>	<b>1,598,967</b>	<b>1,593,435</b>	<b>1,766,925</b>
15	<b>Net Cash Financing Required</b>	<b>337,627</b>	<b>513,964</b>	<b>606,056</b>	<b>757,393</b>	<b>791,263</b>	<b>865,518</b>
16	<b>Ending Balance</b>	<b>614,573</b>	<b>720,294</b>	<b>783,571</b>	<b>841,574</b>	<b>802,171</b>	<b>901,407</b>
<b>Capital Program Net Encumbrances</b>							
17	Beginning Balance	454,669	507,672	614,431	649,351	730,403	641,195
18	Annual Encumbrances (d)	390,629	577,611	575,956	720,354	564,519	823,998
19	Project Expenses (d)	(337,627)	(470,851)	(541,037)	(639,302)	(653,728)	(728,817)
20	<b>Ending Balance</b>	<b>507,672</b>	<b>614,431</b>	<b>649,351</b>	<b>730,403</b>	<b>641,195</b>	<b>736,375</b>
21	Allowance Commitments Prior to Bond Issue	96,268	95,993	120,059	94,087	137,333	134,146
22	<b>Target Balance</b>	<b>603,940</b>	<b>710,424</b>	<b>769,410</b>	<b>824,489</b>	<b>778,528</b>	<b>870,521</b>
<b>Debt Reserve Account</b>							
23	Beginning Balance	189,723	199,328	200,423	204,721	212,113	217,676
24	Transfer From Bond Proceeds	8,500	-	-	-	-	-
25	Transfer From Residual Fund (e)	1,105	1,096	4,298	7,392	5,562	3,030
26	Debt Reserve Account Release	-	-	-	-	-	-
27	<b>Ending Balance</b>	<b>199,328</b>	<b>200,423</b>	<b>204,721</b>	<b>212,113</b>	<b>217,676</b>	<b>220,706</b>
28	Interest Income on Debt Reserve Account	1,945	1,999	2,026	2,084	2,149	2,192

(a) Amount of Debt Reserve Account estimated based on outstanding and proposed debt service payments.

(b) Cost of bonds issuance reflects actual cost in FY 2023, assumed 0.61 percent of issue amount in FY 2024 to 2025, and assumed 1.0% of issuance in FY 2026 to FY 2028.

(c) Deposits equal proceeds from sale of bonds less transfers to Debt Reserve Account and Costs of Issuance.

(d) Excluding PENNVEST and WIFIA.

(e) Transfer from Residual Fund to provide PENNVEST share of Debt Reserve Account requirement.

**TABLE C-9: SUMMARY OF EXISTING AND PROPOSED DEBT SERVICE**  
(in thousands of dollars)

Line No.	Description	Fiscal Year Ending June 30,					
		2023	2024	2025	2026	2027	2028
<b>Revenue Bonds</b>							
1	Existing (a)	187,747	185,847	183,090	183,088	183,091	166,318
Proposed							
2	Fiscal Year 2023 (b)	-	-	-	-	-	-
3	Fiscal Year 2024 (c)		21,083	31,650	31,650	31,650	31,650
4	Fiscal Year 2025 (c)			22,229	33,371	33,371	33,371
5	Fiscal Year 2026 (d)				27,750	40,320	40,320
6	Fiscal Year 2027 (d)					24,000	34,871
7	Fiscal Year 2028 (d)						35,000
8	Total Proposed	-	21,083	53,880	92,771	129,341	175,213
9	Total Revenue Bonds	187,747	206,930	236,970	275,860	312,432	341,531
<b>PENNVEST Loans</b>							
10	PENNVEST Loans (e)	10,935	12,031	16,329	23,721	29,283	32,313
<b>Commercial Paper</b>							
11	Commercial Paper	900	900	900	900	900	900
<b>WIFIA</b>							
12	WIFIA	-	17	956	4,812	8,532	16,153
13	Total Senior Debt Service	199,582	219,878	255,154	305,292	351,146	390,897

(a) Projected debt service amounts include debt service for all Water and Wastewater Revenue Bonds and Revenue Refunding Bonds issued prior to July 1, 2022 and the Water and Wastewater Revenue Bond Series 2022c (issued in August 2022).

(b) Projected debt service for the Water and Wastewater Revenue Bond Series 2022c (issued in August 2022) included with Existing Bonds.

(c) Projected debt service amounts assume interest only payment for the first year of the bond authorization based on 5.50% interest rate; and assume issuance during the first quarter of the fiscal year.

(d) Projected debt service amounts assume interest only payment for the first year of the bond authorization based on 6.00% interest rate; and assume issuance during the first quarter of the fiscal year.

(e) Includes projected PENNVEST Loans.

**TABLE C-10  
WATER: PROPOSED RATES FOR  
GENERAL SERVICE**

**(1) (2)  
SERVICE CHARGE**

Line No.	Meter Size	FY 2024 Monthly	FY 2025 Monthly
	Inches	\$	\$
1	5/8	5.30	5.42
2	3/4	5.81	5.96
3	1	7.27	7.49
4	1-1/2	10.28	10.67
5	2	14.65	15.25
6	3	23.99	25.10
7	4	42.84	44.71
8	6	81.39	85.12
9	8	125.10	131.01
10	10	182.51	191.01
11	12	306.82	322.40

**QUANTITY CHARGE**

Line No.	Monthly Water Usage	FY 2024 Charge per Mcf	FY 2025 Charge per Mcf
		\$	\$
12	First 2 Mcf	61.14	66.42
13	Next 98 Mcf	54.93	59.72
14	Next 1,900 Mcf	42.55	46.27
15	Over 2,000 Mcf	41.40	45.03

Note: During the 2021 Rate Proceeding this was labeled Table W-18.

Mcf - Thousand cubic feet

<b>TABLE C-11 WATER: PROPOSED RATES FOR FIRE PROTECTION</b>			
<b>PRIVATE FIRE PROTECTION</b>			
<b>Line No.</b>	<b>Size of Meter or Connection</b>	<b>(1)</b>	<b>(2)</b>
		<b>FY 2024 Monthly Charge</b>	<b>FY 2025 Monthly Charge</b>
	Inches	\$	\$
1	4" or less	29.04	29.34
2	6	53.81	54.38
3	8	80.97	81.81
4	10	119.07	120.32
5	12	188.23	190.21
<b>PUBLIC FIRE PROTECTION</b>			
<b>Line No.</b>	<b>Description</b>	<b>(1)</b>	<b>(2)</b>
		<b>FY 2024 Annual Charge</b>	<b>FY 2025 Annual Charge</b>
		\$	\$
6	Standard Pressure	7,742,000	8,500,000

Note: During the 2021 Rate Proceeding this was labeled Table W-19.



<b>TABLE C-11A PROPOSED RATES FOR RESIDENTIAL FIRE PROTECTION</b>			
<b>PRIVATE FIRE PROTECTION</b>			
<b>Line No.</b>	<b>Size of Meter or Connection</b>	<b>(1)</b>	<b>(2)</b>
		<b>FY 2024 Monthly Charge</b>	<b>FY 2025 Monthly Charge</b>
	<b>Inches</b>	<b>\$</b>	<b>\$</b>
<b>Water Service Charge Including Fire Protection</b>			
1	3/4	9.47	9.65
2	1	10.93	11.18
3	1-1/2	13.94	14.36
4	2	18.31	18.94
<b>Sewer Service Charge</b>			
5	3/4	7.54	7.98
6	1	7.54	7.98
7	1-1/2	7.54	7.98
8	2	7.54	7.98

Note: During the 2021 Rate Proceeding this was labeled Table W-19A.

**TABLE C-12  
WASTEWATER: PROPOSED RATES  
FOR GENERAL SERVICE  
SANITARY SEWER**

METER BASED SERVICE CHARGE			
Line No.	Meter Size	(1)	(2)
		FY 2024	FY 2025
	Inches	Monthly Charge	Monthly Charge
		\$	\$
1	5/8	7.54	7.98
2	3/4	9.62	10.19
3	1	14.10	15.00
4	1 1/2	24.80	26.47
5	2	38.25	40.87
6	3	68.97	73.78
7	4	117.21	125.31
8	6	231.03	247.10
9	8	365.58	391.12
10	10	527.64	564.44
11	12	959.14	1,026.89

QUANTITY CHARGE			
Line No.		FY 2024 Charge per Mcf	FY 2025 Charge per Mcf
		\$	\$
12	All billable water usage	39.61	43.09
13	Groundwater Charge	13.87	15.27

SURCHARGE RATES			
Line No.		FY 2024 Charge per lb	FY 2025 Charge per lb
		\$	\$
14	BOD (excess of 250 mg/l)	0.443	0.470
15	SS (excess of 350 mg/l)	0.452	0.482

SEPTIC HAULER RATE			
Line No.		FY 2024 Charge per Mgal	FY 2025 Charge per Mgal
		\$	\$
16	Sanitary Wastewater Delivered to WPCP (a)	64.94	69.07

Notes: (a) Based on BOD and SS Loading of 9,000 mg/l.  
During the 2021 Rate Proceeding this was labeled Table WW-18.

Mcf-Thousand cubic feet  
mg/l-milligrams per liter  
Mgal - Thousand gallons  
WPCP - Water Pollution Control Plant

## TABLE C-13 STORMWATER: PROPOSED RATES FOR RESIDENTIAL AND NON-RESIDENTIAL SERVICE

RESIDENTIAL SERVICE RATES				
			(1) FY 2024 Monthly Charge	(2) FY 2025 Monthly Charge
Line No.	Description			
<b>STORMWATER MANAGEMENT SERVICE CHARGE</b>				
1	Charge Per Parcel	\$	17.09	\$ 18.96
<b>BILLING AND COLLECTION CHARGE</b>				
2	Charge Per Bill	\$	1.95	\$ 2.04

NON-RESIDENTIAL SERVICE RATES				
			(1) FY 2024 Monthly Charge	(2) FY 2025 Monthly Charge
Line No.	Description			
<b>STORMWATER MANAGEMENT SERVICE CHARGE</b>				
1	Min Charge	\$	17.09	\$ 18.96
2	GA (per 500 sf)		0.799	0.884
3	IA (per 500 sf)		5.842	6.475
<b>BILLING AND COLLECTION CHARGE</b>				
4	Charge Per Bill	\$	2.53	\$ 2.65

Note: During the 2021 Rate Proceeding this was labeled Tables SW-18A and SW-18B.

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**In the Matter of the Philadelphia Water  
Department's Proposed Change in Water,  
Wastewater and Stormwater Rates and Related  
Charges**

**Fiscal Years 2024-2025**

**Philadelphia Water Department**

**Black & Veatch Management Consulting, LLC**

**Schedule BV-2**

**Dated: January 2023**

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# Schedule BV-2: Water & Wastewater Cost of Service Report

Philadelphia Water Department

January 2023

# Table of Contents

LIST OF ACRONYMS AND DEFINED TERMS	X
<b>EXECUTIVE SUMMARY</b>	<b>ES-1</b>
<hr/>	
THE NEED FOR RATE RELIEF	ES-1
RISING COSTS	ES-2
PRESSING CAPITAL IMPROVEMENTS	ES-4
REDUCED LIQUIDITY	ES-5
CHANGING CUSTOMER BASE	ES-6
NO MORE FEDERAL COVID-19 HELP	ES-6
PROPOSED COMBINED SYSTEM ADJUSTMENTS	ES-7
WATER, SANITARY SEWER, AND STORMWATER TYPICAL BILLS UNDER PROPOSED RATES	ES-8
THE COMBINED SYSTEM OPERATING RESULTS	ES-10
MANAGING BILL IMPACTS	ES-15
CONSEQUENCES OF INADEQUATE RATE RELIEF	ES-16
<b>1.0 INTRODUCTION</b>	<b>1-1</b>
<hr/>	
1.1 PURPOSE	1-2
1.2 SCOPE OF WORK	1-2
1.3 THE PANDEMIC, SUPPLY CHAIN DISRUPTIONS, AND INFLATION	1-3
1.3.1 CHANGES IN THE CUSTOMER BASE	1-4
1.3.2 RISING COSTS	1-4
1.3.3 CAPITAL PROGRAM NEEDS	1-5
1.3.4 DECLINING RESERVE BALANCES	1-6
1.3.5 NO MORE FEDERAL COVID-19 HELP	1-6
1.3.6 POST-COVID CONCERNS AND MITIGATING ACTIONS	1-7
1.4 GENERAL ASSUMPTIONS	1-8
1.4.1 REVENUES	1-9
1.4.2 OPERATING EXPENSES	1-15
1.4.3 OTHER ADJUSTMENTS AND EXPENDITURES	1-17
1.4.4 DEBT SERVICE	1-18
1.4.5 BOND COVENANTS, TRANSFERS, AND FUND BALANCES	1-19
1.4.6 CAPITAL IMPROVEMENT PROGRAM	1-20
<b>2.0 COMBINED SYSTEM SUMMARY</b>	<b>2-1</b>
<hr/>	
2.1 COST OF SERVICE STUDY	2-1
2.2 REVENUE	2-2
2.2.1 OTHER OPERATING INCOME	2-3



2.2.2	NON-OPERATING INCOME	2-3
2.2.3	TIERED ASSISTANCE PROGRAM RATE RIDER SURCHARGE	2-3
2.3	REVENUE REQUIREMENTS	2-4
2.3.1	OPERATION AND MAINTENANCE EXPENSES	2-4
2.3.2	BOND COVENANTS, TRANSFERS, AND FUND BALANCES	2-5
2.3.3	CAPITAL IMPROVEMENTS	2-7
2.3.4	DEBT SERVICE	2-8
2.4	SOURCES AND USES OF FUNDS	2-9
2.5	SUMMARY OF REVENUE AND REVENUE REQUIREMENTS	2-12
2.6	COMPLIANCE WITH GENERAL BOND ORDINANCE AND RATE ORDINANCE REQUIREMENTS	2-16
2.7	PROPOSED RATES	2-19
2.7.1	RESIDENTIAL AND SENIOR CITIZEN TYPICAL BILLS	2-21
2.7.2	NON-RESIDENTIAL TYPICAL BILLS	2-21
<b>3.0</b>	<b>WATER SYSTEM REVENUE AND REVENUE REQUIREMENTS</b>	<b>3-1</b>
<hr/>		
3.1	WATER REVENUE	3-1
3.1.1	CUSTOMERS AND GROWTH	3-1
3.1.2	BILLED VOLUME	3-2
3.1.3	BILL TABULATION	3-3
3.1.4	WATER REVENUE	3-3
3.1.5	TIERED ASSISTANCE PROGRAM RATE RIDER SURCHARGE	3-8
3.1.6	OTHER OPERATING REVENUES	3-8
3.2	WATER REVENUE REQUIREMENTS	3-9
3.2.1	OPERATION AND MAINTENANCE EXPENSES	3-9
3.2.2	DEBT SERVICE	3-10
3.2.3	CAPITAL IMPROVEMENTS	3-11
3.2.4	CAPITAL FLOW OF FUNDS	3-12
3.3	WATER SYSTEM SUMMARY OF REVENUES AND REVENUE REQUIREMENTS	3-13
3.4	PROJECTED WATER SYSTEM OPERATING RESULTS	3-14
<b>4.0</b>	<b>WATER SYSTEM COST OF SERVICE ALLOCATIONS</b>	<b>4-1</b>
<hr/>		
4.1	GENERAL	4-1
4.2	IDENTIFICATION OF NET REVENUE REQUIREMENTS BY COST CATEGORY	4-3
4.3	COST OF SERVICE TO BE ALLOCATED	4-4
4.3.1	OVERALL WATER SYSTEM	4-4
4.3.2	WHOLESALE WATER	4-6
4.4	FUNCTIONAL COST COMPONENTS	4-7
4.5	ALLOCATION TO COST COMPONENTS	4-8
4.5.1	BASE, MAXIMUM DAY, AND MAXIMUM HOUR	4-8
4.5.2	UNITS OF SERVICE	4-9

4.6	ALLOCATION OF O&M EXPENSE	4-12
4.6.1	RETAIL	4-12
4.6.2	WHOLESALE	4-15
4.7	ALLOCATION OF NET PLANT INVESTMENT	4-16
4.7.1	RETAIL	4-16
4.7.2	WHOLESALE	4-18
4.8	ALLOCATION OF DEPRECIATION EXPENSE	4-19
4.9	WHOLESALE COST OF SERVICE ALLOCATIONS	4-21
4.10	DISTRIBUTION OF COSTS TO CUSTOMER TYPES	4-21
<b>5.0</b>	<b>WATER SYSTEM RATE DESIGN</b>	<b>5-1</b>
<hr/>		
5.1	GENERAL SERVICE	5-1
5.2	FIRE PROTECTION	5-2
<b>6.0</b>	<b>WASTEWATER SYSTEM REVENUE AND REVENUE REQUIREMENTS</b>	<b>6-1</b>
<hr/>		
6.1	WASTEWATER REVENUE	6-1
6.1.1	STORMWATER SERVICES BACKGROUND	6-1
6.1.2	CUSTOMERS AND GROWTH	6-2
6.1.3	SANITARY SEWER RETAIL BILLED VOLUME	6-4
6.1.4	WHOLESALE VOLUME, CAPACITY, AND STRENGTH LOADINGS	6-5
6.1.5	STORMWATER IMPERVIOUS AND GROSS AREAS	6-7
6.1.6	BILL TABULATION	6-10
6.1.7	WASTEWATER REVENUE	6-10
6.1.8	TIERED ASSISTANCE PROGRAM RATE RIDER SURCHARGE	6-14
6.1.9	OTHER REVENUES AND ADJUSTMENTS	6-15
6.2	WASTEWATER REVENUE REQUIREMENTS	6-15
6.2.1	OPERATION AND MAINTENANCE EXPENSES	6-15
6.2.2	DEBT SERVICE	6-16
6.2.3	CAPITAL IMPROVEMENTS	6-17
6.2.4	CAPITAL FLOW OF FUNDS	6-18
6.3	WASTEWATER SYSTEM SUMMARY OF REVENUE AND REVENUE REQUIREMENTS	6-19
6.4	PROJECTED WASTEWATER SYSTEM OPERATING RESULTS	6-20
<b>7.0</b>	<b>WASTEWATER SYSTEM OF COST OF SERVICE ALLOCATIONS</b>	<b>7-1</b>
<hr/>		
7.1	GENERAL	7-1
7.2	COSTS OF SERVICE TO BE ALLOCATED	7-1
7.2.1	OVERALL WASTEWATER SYSTEM	7-1
7.2.2	WHOLESALE WASTEWATER	7-3
7.3	FUNCTIONAL COST COMPONENTS	7-4
7.3.1	WASTEWATER SYSTEM FACILITIES	7-4

7.3.2	WASTEWATER SYSTEM DESIGN BASIS	7-4
7.3.3	UNITS OF SERVICE	7-4
7.4	ALLOCATION TO COST COMPONENTS	7-9
7.5	ALLOCATION OF O&M EXPENSE	7-9
7.5.1	RETAIL	7-9
7.5.2	WHOLESALE	7-26
7.6	ALLOCATION OF NET PLANT INVESTMENT	7-27
7.6.1	RETAIL	7-28
7.6.2	WHOLESALE	7-33
7.7	ALLOCATION OF DEPRECIATION EXPENSE	7-34
7.8	WHOLESALE COST OF SERVICE ALLOCATIONS	7-34
7.9	DISTRIBUTION OF COSTS TO CUSTOMER TYPES	7-35
7.9.1	INFILTRATION/INFLOW ADJUSTMENTS	7-35
7.9.2	FEE DISCOUNTS	7-41
7.10	STORMWATER COST OF SERVICE ALLOCATIONS	7-41
7.10.1	TEST YEAR REVENUE REQUIREMENTS	7-41
7.10.2	ALLOCATION TO CUSTOMER TYPES	7-42
<b>8.0</b>	<b>WASTEWATER SYSTEM RATE DESIGN</b>	<b>8-1</b>
<hr/>		
8.1	PROPOSED SANITARY SEWER RATES	8-1
8.2	PROPOSED STORMWATER RATES	8-4
<b>9.0</b>	<b>FINDINGS AND CONCLUSIONS</b>	<b>9-1</b>
<b>APPENDICES</b>		
<hr/>		
APPENDIX A:	ACCOUNTS AND BILLED VOLUME PER ACCOUNT	A-1
APPENDIX B:	STORMWATER CREDIT HISTORICAL DATA	B-1
APPENDIX C:	HISTORICAL RETAIL NON-STORMWATER ONLY AND STORMWATER ONLY COLLECTION FACTOR CALCULATIONS PRIOR TO ADJUSTMENTS	C-1
APPENDIX D:	ACTUAL-TO-BUDGET FACTORS	D-1
APPENDIX E:	WATER FUND HISTORICAL O&M COSTS	E-1
APPENDIX F:	O&M COST INDUSTRY INDICES DATA	F-1
APPENDIX G:	CAPITAL COST INDUSTRY INDICES	G-1
APPENDIX H:	STORMWATER TABLES	H-1
APPENDIX I:	WHOLESALE TABLES	I-1

## LIST OF TABLES

TABLE ES-1	REQUIRED BASE RATE SERVICE REVENUE ADJUSTMENTS	ES-7
TABLE ES-2	REQUIRED TOTAL SERVICE REVENUE ADJUSTMENTS	ES-8
TABLE ES-3	TYPICAL BILL IMPACTS	ES-9
TABLE ES-4	PROJECTED REVENUE AND REVENUE REQUIREMENTS: BASE RATES ONLY [SCHEDULE BV-1: TABLE C-1A]	ES-11
TABLE ES-5	PROJECTED REVENUE AND REVENUE REQUIREMENTS: TAP-R RATES ONLY [SCHEDULE BV-1: TABLE C-1B])	ES-12
TABLE ES-6	PROJECTED REVENUE AND REVENUE REQUIREMENTS: BASE RATES AND TAP-R RATES [SCHEDULE BV-1: TABLE C-1]	ES-13
TABLE ES-7	PROJECTED RATE STABILIZATION FUND AND COVENANTS METRICS PERFORMANCE: BASE RATES AND TAP-R RATES [SCHEDULE BV-1: TABLE C-2])	ES-15
TABLE 1-1	ACCOUNT GROWTH ESCALATION FACTORS BY CUSTOMER TYPE	1-10
TABLE 1-2	DEMAND ESCALATION FACTORS BY CUSTOMER TYPE	1-11
TABLE 1-3	HISTORICAL USAGE PER ACCOUNT FOR GENERAL SERVICE CUSTOMERS (5/8" METERS)	1-12
TABLE 1-4	PROJECTED COLLECTION FACTORS	1-14
TABLE 1-5	PROJECTED MISCELLANEOUS AND CONTRA REVENUES	1-14
TABLE 1-6	ACTUAL-TO-BUDGET FACTOR EXCEPTIONS	1-15
TABLE 1-7	ANNUAL ESCALATION FACTORS	1-16
TABLE 1-8	ADDITIONAL ADJUSTMENTS FOR PROJECTED OPERATING EXPENSES	1-17
TABLE 1-9	ANTICIPATED REVENUE BOND ISSUES	1-18
TABLE 2-1	PROJECTED RECEIPTS UNDER EXISTING RATES [SCHEDULE BV-1: TABLE C-3]	2-2
TABLE 2-2	O&M EXPENSE CATEGORIES	2-4
TABLE 2-3	PROJECTED OPERATION AND MAINTENANCE EXPENSE [SCHEDULE BV-1: TABLE C-6]	2-5
TABLE 2-4	WATER AND WASTEWATER FUNDS	2-5
TABLE 2-5	COMBINED SYSTEM PERFORMANCE TARGETS	2-6
TABLE 2-6	PROJECTED CAPITAL PROGRAM BUDGET AND ANNUAL EXPENDITURES [SCHEDULE BV-1: TABLE C-7]	2-7
TABLE 2-7	SUMMARY OF EXISTING AND PROPOSED DEBT SERVICE [SCHEDULE BV-1: TABLE C-9]	2-9
TABLE 2-8	PROJECTED FLOW OF FUNDS – CONSTRUCTION FUND & DEBT RESERVE ACCOUNT [SCHEDULE BV-1: TABLE C-8]	2-10
TABLE 2-9	PROJECTED REVENUE AND REVENUE REQUIREMENTS: BASE RATES ONLY [SCHEDULE BV-1: TABLE C-1A]	2-13
TABLE 2-10	PROJECTED REVENUE AND REVENUE REQUIREMENTS: TAP-R RATES ONLY [SCHEDULE BV-1: TABLE C-1B]	2-14
TABLE 2-11	PROJECTED REVENUE AND REVENUE REQUIREMENTS: BASE RATES AND TAP-R RATES [SCHEDULE BV-1: TABLE C-1]	2-15
TABLE 2-12	PROJECTED RATE STABILIZATION FUND AND COVENANTS METRICS PERFORMANCE: BASE RATES AND TAP-R RATES [SCHEDULE BV-1: TABLE C-2])	2-19
TABLE 2-13	PROPOSED FY 2024 AND 2025 GENERAL SERVICE RETAIL RATES	2-20

TABLE 2-14	COMPARISON OF TYPICAL BILL FOR RESIDENTIAL CUSTOMERS UNDER EXISTING AND PROPOSED RATES [SCHEDULE BV-1: TABLE C-4]	2-21
TABLE 2-15	COMPARISON OF TYPICAL BILL FOR NON-RESIDENTIAL CUSTOMERS UNDER EXISTING AND PROPOSED RATES [SCHEDULE BV-1: TABLE C-5]	2-23
TABLE 3-1	WATER SYSTEM CUSTOMER TYPES	3-1
TABLE 3-2	NUMBER OF CUSTOMER ACCOUNTS	3-2
TABLE 3-3	PROJECTED BILLED VOLUME	3-3
TABLE 3-4	EXISTING FY 2023 WATER RATES	3-5
TABLE 3-5	CURRENT CUSTOMER DISCOUNTS	3-5
TABLE 3-6	BILLINGS UNDER EXISTING RATES	3-6
TABLE 3-7	PROJECTED WATER RECEIPTS UNDER EXISTING RATES	3-8
TABLE 3-8	OTHER PROJECTED RECEIPTS	3-9
TABLE 3-9	PROJECTED O&M EXPENSE	3-10
TABLE 3-10	SUMMARY OF EXISTING AND PROPOSED WATER SYSTEM DEBT SERVICE	3-11
TABLE 3-11	PROJECTED WATER SYSTEM CIP	3-12
TABLE 3-12	PROJECTED FLOW OF FUNDS – WATER: CONSTRUCTION FUND & DEBT RESERVE ACCOUNT	3-13
TABLE 3-13	PROJECTED WATER SYSTEM REVENUE AND REVENUE REQUIREMENTS: BASE RATES	3-15
TABLE 4-1	TEST YEAR 1 ANNUALIZED REVENUE AND REVENUE REQUIREMENTS	4-5
TABLE 4-2	WATER ESTIMATED TEST YEAR 1 COS	4-6
TABLE 4-3	EQUIVALENT METER AND BILL RATIOS	4-9
TABLE 4-4	TEST YEAR 1 RETAIL UNITS OF SERVICE	4-11
TABLE 4-5	ALLOCATION OF TEST YEAR 1 O&M EXPENSE	4-13
TABLE 4-6	ALLOCATION OF TEST YEAR 1 NET PLANT INVESTMENT TO FUNCTIONAL COST COMPONENTS	4-17
TABLE 4-7	ALLOCATION OF TEST YEAR 1 DEPRECIATION EXPENSE	4-20
TABLE 4-8	SUMMARY OF TEST YEAR 1 COS ALLOCATED TO AQUA PA	4-21
TABLE 4-9	TEST YEAR 1 RETAIL UNIT COSTS OF SERVICE	4-22
TABLE 4-10	TEST YEAR 1 DISTRIBUTION OF COSTS OF SERVICE BY FUNCTIONAL COST COMPONENT TO CUSTOMER TYPES	4-23
TABLE 4-11	TEST YEAR 1 ADJUSTED COS	4-24
TABLE 4-12	COMPARISON OF TEST YEAR 1 COS & ADJUSTED COS WITH REVENUES UNDER EXISTING RATES	4-25
TABLE 5-1	PROPOSED FY 2024 AND FY 2025 GENERAL SERVICE WATER RATES [SCHEDULE BV-1: TABLE C-10]	5-2
TABLE 5-2	PROPOSED RATES FOR FIRE PROTECTION [SCHEDULE BV-1: TABLE C-11 AND C-11A]	5-3
TABLE 6-1	WASTEWATER SYSTEM CUSTOMER TYPES	6-3
TABLE 6-2	NUMBER OF CUSTOMER ACCOUNTS	6-3
TABLE 6-3	NUMBER OF BILLABLE PARCELS	6-4
TABLE 6-4	RETAIL BILLED VOLUMES	6-5
TABLE 6-5	PROJECTIONS FOR WHOLESALE CUSTOMER VOLUMES, CAPACITIES, AND STRENGTH LOADINGS	6-6
TABLE 6-6	FY 2023 MEAN GA AND MEAN IA	6-8

TABLE 6-7	DETERMINATION OF BILLABLE GROSS AREA	6-9
TABLE 6-8	DETERMINATION OF A BILLABLE IMPERVIOUS AREA	6-10
TABLE 6-9	EXISTING SANITARY SEWER AND STORMWATER RATES	6-11
TABLE 6-10	BILLINGS UNDER EXISTING RATES	6-12
TABLE 6-11	PROJECTED RECEIPTS UNDER EXISTING SANITARY SEWER RATES	6-13
TABLE 6-12	PROJECTED RECEIPTS UNDER EXISTING STORMWATER RATES	6-13
TABLE 6-13	PROJECTED RECEIPTS FOR WHOLESALE CONTRACT CUSTOMERS	6-14
TABLE 6-14	PROJECTED RECEIPTS UNDER EXISTING RATES	6-14
TABLE 6-15	OTHER REVENUE PROJECTED RECEIPTS	6-15
TABLE 6-16	PROJECTED O&M EXPENSES	6-16
TABLE 6-17	SUMMARY OF EXISTING AND PROPOSED DEBT SERVICE	6-17
TABLE 6-18	PROJECTED WASTEWATER SYSTEM CIP	6-18
TABLE 6-19	PROJECTED FLOW OF FUNDS – WASTEWATER: CONSTRUCTION FUND AND DEBT RESERVE ACCOUNT	6-19
TABLE 6-20	PROJECTED REVENUE AND REVENUE REQUIREMENTS: BASE RATES	6-21
TABLE 7-1	TEST YEAR 1 ANNUALIZED REVENUE AND REVENUE REQUIREMENTS	7-2
TABLE 7-2	ESTIMATED WASTEWATER SYSTEM TEST YEAR 1 COS	7-3
TABLE 7-3	TEST YEAR 1 SANITARY SEWER UNITS OF SERVICE	7-5
TABLE 7-4	TEST YEAR 1 WHOLESALE CUSTOMER UNITS OF SERVICE	7-6
TABLE 7-5	ESTIMATED AVERAGE WASTEWATER LOADINGS FOR WHOLESALE CUSTOMERS	7-8
TABLE 7-6	TEST YEAR 1 ALLOCATION OF O&M TO FUNCTIONAL COST COMPONENTS	7-10
TABLE 7-7	TEST YEAR 1 ALLOCATION OF O&M FOR THE COLLECTION SYSTEM	7-13
TABLE 7-8	TEST YEAR 1 ALLOCATION OF O&M FOR THE NORTHEAST WPC PLANT	7-14
TABLE 7-9	TEST YEAR 1 ALLOCATION OF O&M FOR THE SOUTHWEST WPC PLANT	7-17
TABLE 7-10	TEST YEAR 1 ALLOCATION OF O&M FOR THE SOUTHEAST WPC PLANT	7-21
TABLE 7-11	SUMMARY OF TEST YEAR 1 ALLOCATION OF PLANT INVESTMENT TO FUNCTIONAL COST COMPONENTS	7-28
TABLE 7-12	TEST YEAR 1 ALLOCATION OF PLANT INVESTMENT FOR THE NORTHEAST WPC PLANT	7-30
TABLE 7-13	TEST YEAR 1 ALLOCATION OF PLANT INVESTMENT FOR THE SOUTHWEST WPC PLANT	7-31
TABLE 7-14	TEST YEAR 1 ALLOCATION OF PLANT INVESTMENT FOR SOUTHEAST WPC PLANT	7-32
TABLE 7-15	SUMMARY OF TEST YEAR 1 ALLOCATED COS FOR WHOLESALE CUSTOMERS	7-34
TABLE 7-16	TEST YEAR 1 RETAIL UNIT COSTS OF SERVICE	7-37
TABLE 7-17	TEST YEAR 1 WASTEWATER RETAIL COSTS OF SERVICE	7-39
TABLE 7-18	TEST YEAR 1 WASTEWATER ADJUSTED COSTS OF SERVICE	7-40
TABLE 7-19	SUMMARY OF TEST YEAR 1 STORMWATER COSTS	7-42
TABLE 7-20	TEST YEAR 1 ESTIMATE OF GA AND IA UNIT COSTS ADJUSTED FOR CAP	7-43
TABLE 7-21	TEST YEAR 1 ESTIMATE OF CUSTOMER TYPE GA AND IA COS ADJUSTED FOR CAP	7-44
TABLE 7-22	TEST YEAR 1 ESTIMATE OF CUSTOMER TYPE GA AND IA COS RATES PRIOR TO DISCOUNT AND LAG FACTOR ADJUSTMENTS	7-44
TABLE 7-23	TEST YEAR 1 STORMWATER BILLING AND COLLECTION UNIT COSTS	7-44

TABLE 7-24	TEST YEAR 1 STORMWATER ADJUSTED COSTS OF SERVICE AFTER DISCOUNTS	7-45
TABLE 7-25	TEST YEAR 1 DISTRIBUTION OF SANITARY SEWER COS TO CUSTOMER TYPES	7-46
TABLE 7-26	TEST YEAR 1 DISTRIBUTION OF STORMWATER COS TO CUSTOMER TYPES	7-46
TABLE 8-1	TEST YEAR 1 INSIDE CITY RETAIL SERVICE UNIT COS FOR RATE DESIGN	8-2
TABLE 8-2	TEST YEAR 1 DEVELOPMENT OF COST-OF-SERVICE MONTHLY SERVICE CHARGE FOR 5/8-INCH METER CUSTOMER	8-2
TABLE 8-3	TEST YEAR 1 DEVELOPMENT OF COST-OF-SERVICE QUANTITY CHARGE FOR NORMAL STRENGTH SANITARY WASTEWATER	8-3
TABLE 8-4	PROPOSED TEST YEAR 1 (FY 2024) AND TEST YEAR 2 (FY 2025) GENERAL SERVICE SANITARY SEWER RATES [SCHEDULE BV-1: TABLE C-12]	8-4
TABLE 8-5	DEVELOPMENT OF TEST YEAR 1 STORMWATER COS RATES	8-5
TABLE 8-6	PROPOSED TEST YEAR 1 (FY 2024) AND TEST YEAR 2 (FY 2025) RESIDENTIAL STORMWATER RATES [SCHEDULE BV-1: TABLE C-13]	8-5
TABLE 8-7	PROPOSED TEST YEAR 1 (FY 2024) AND TEST YEAR 2 (FY 2025) NON-RESIDENTIAL STORMWATER RATES [SCHEDULE BV-1: TABLE C-13]	8-5

**LIST OF FIGURES**

FIGURE ES-1 FY 2024 PROJECTED INCREASES ES-2

FIGURE ES-2 CAPITAL IMPROVEMENT PROGRAM BUDGET ES-4

FIGURE ES-3 COMBINED RATE STABILIZATION AND RESIDUAL FUND BALANCE PERFORMANCE ES-6

FIGURE 1-1 15-YEAR TREND FOR CONSUMER PRICE INDEX AND FEDERAL RESERVE RATE 1-3

FIGURE 2-1 ELEMENTS OF A COS STUDY 2-1

FIGURE 2-2 GENERAL FLOW OF FUNDS 2-6

FIGURE 3-1 PROJECTING REVENUES UNDER EXISTING RATES 3-4

FIGURE 3-2 SAMPLE CALCULATION FOR APPLICATION OF COLLECTION FACTORS TO BILLINGS FOR  
DERIVATION OF RECEIPTS 3-7

FIGURE 4-1 MULTI-LAYER ALLOCATION OF COSTS 4-1

FIGURE 4-2 SEVEN ANALYTICAL STEPS FOR DETERMINING THE COST OF SERVICE 4-2

FIGURE 4-3 FUNCTIONAL COST CENTERS 4-3

FIGURE 4-4 RELATIONSHIP BETWEEN CASH-NEEDS BASIS AND UTILITY-BASIS 4-3

FIGURE 4-5 FUNCTIONAL COST COMPONENTS 4-7

FIGURE 4-6 COS STEPS 5 THROUGH 7 4-10

FIGURE 7-1 WASTEWATER COS STEPS 7-1



# List of Acronyms and Defined Terms

ACRONYM OR TERM	DEFINITION
90% Test	General Bond Ordinance requirements that specifies Net Revenues, excluding amounts transferred from the Rate Stabilization Fund into the Revenue Fund during, or as of the end of, such fiscal year, must equal to at least 90% of the Debt Service Requirements (excluding debt service on any Subordinated Bonds) payable in such fiscal year.
ACFR	Annual Comprehensive Financial Report
ADD	Average daily demand
AMI	Advanced Metering Infrastructure
Aqua PA	Aqua Pennsylvania, Inc., an Essentials Utility Company
ARPA	The American Rescue Plan Act of 2021
AWWA	American Water Works Association
Base Rates	Rate revenues that exclude revenue losses associated with providing TAP discounts and the TAP-R surcharge revenues.
Base-Extra Capacity Method	A cost allocation method that considers base costs (O&M expenses and capital costs that vary with the quantity of water at average load operations), extra capacity costs (additional costs above base costs for maximum day and maximum hour demands), customer costs (customer service, meter maintenance and reading, billing, collection, accounting), and fire protection costs (hydrants, water towers, oversized mains, pumps) to determine rates for various customer types.
Billing Year Collections	All payments associated with a given fiscal year’s billing and received within the 12 months following the beginning of the fiscal year.
Billing Year Plus 1 Collections	All payments associated with a given fiscal year’s billing and received within 13-24 months following the beginning of the fiscal year. For this Study, the billing database reflects available data from FY 2012 to FY 2022.
Billing Year Plus 2 and Beyond Collections	All payments associated with a given fiscal year’s billing and received after 24 months following the beginning of the fiscal year. For this Study, the billing database reflects available data from FY 2012 to FY 2022.
Black & Veatch	Black & Veatch Management Consulting, LLC
BOD	Biological oxygen demand
CAP	Customer Assistance Program

ACRONYM OR TERM	DEFINITION
CARES Act	The Coronavirus Aid, Relief, and Economic Security Act of 2020
CCF	Hundred cubic feet
cfs	Cubic feet per second
CIP	Capital Improvement Program
City	The City of Philadelphia
City Charter	Philadelphia Home Rule Charter
COA	Consent Order Agreement
Collection Factors	Represent the multi-year payment pattern for Billing Year, Billing Year Plus 1, and Billing Year Plus 2 and Beyond. For this Study, the billing database reflects available data from FY 2012 to FY 2022.
Combined System	The City of Philadelphia's Water and Wastewater Systems
Community Gardens	Parcels, as defined by, Section 19-1603, which receive a 100 percent discount on all stormwater management service charges once approved.
COS	Cost of Service
COVID 19	Coronavirus 19
CP	Commercial Paper
CPI	Consumer Price Index
CPI-U	Consumer Price Index for All Urban Customers
DC33	American Federation of State County and Municipal Employees District Council 33
DC37	American Federation of State County and Municipal Employees District Council 37
DELCORA	Delaware County Regional Water Authority
ENR	Engineering News Record
FPL	Federal Poverty Level
FY	Fiscal Year ending June 30
GA	Gross Area
General Bond Ordinance	The Restated General Water and Wastewater Revenue Bond Ordinance of 1989, approved by the Mayor on June 24, 1993, as supplemented and amended.
gpm	Gallons per minute
GSI	Green Stormwater Infrastructure

ACRONYM OR TERM	DEFINITION
Hand Bill	Hand-billed accounts are “H”-coded customers in the Basis2 billing system that receive surcharge and/or sewer credits. The adjustments to these accounts are made manually.
I/I	Infiltration/Inflow
IA	Impervious Area
IAR	Impervious Area Reduction
Lag Factor	Factor that recognizes the fact that there will be a proration of billings between the existing and proposed rates during the first month following the effective date of the rate increase, as well as the fact that the fiscal year billings will not be fully collected within that fiscal year.
L&I	License and Inspection
lb	Pound
LTCPU	Long-Term Control Plan Update
M1 Manual	AWWA's Principles of Water Rates, Fees, and Charges” Manual of Water Supply Practices M1, 7 <sup>th</sup> Edition. The M1 Manual is the utility industry's guidance manual for water rate-making
Mcf	Thousand cubic feet
mg/l	Milligrams per liter
MGD	Million gallons per day
MoP 27	WEF's Financing and Charges for Wastewater Systems Manual of Practice 27, 4 <sup>th</sup> Edition. This is the wastewater industry's manual for sewer rate-making.
MOU	Memorandum of Understanding
MS-4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
PENNVEST	Pennsylvania Infrastructure Investment Authority
PHA	Philadelphia Housing Authority
PHDC	Philadelphia Housing Development Corporation
PPI	Producer Price Index
PWD	The City of Philadelphia Water Department
Rate Board	The Philadelphia Water, Sewer, and Storm Water Rate Board

ACRONYM OR TERM	DEFINITION
Rate Compression Factor	Factor that recognizes impact of not receiving a full year's worth of revenues due to an effective rate implementation date that is not on the first day of the fiscal year.
Rate Ordinance	Water Rate Board Ordinance, refers to Section 13-101(4)(a) of the Philadelphia Code
R&R	Renewal and Replacement
RSF	The Rate Stabilization Fund
SMIP/GARP	Stormwater Management Incentive Program/Greened Acre Retrofit Program
sq	Square feet
SS	Suspended solids
SWMS	Stormwater management service charge
TAP	Tiered Assistance Program
TAP-R	TAP Rate Rider Surcharge Rate included with the water and sewer quantity charges
The System	The City of Philadelphia's Water and Wastewater Systems
TY	Test Year
UESF	Utility Emergency Services Fund
US	United States
Utility-Basis	Restatement of annual revenue requirements in terms of O&M, depreciation, and return on rate base.
Water Department	The City of Philadelphia Water Department
Water Fund	An accounting convention established pursuant to the Charter for accounting for the assets, liabilities, revenues, expenses, and Rate Covenant compliance for the City's water and wastewater systems. The operations of the Water Department are accounted for in the Water Fund, which is an enterprise fund of the City.
WEF	Water Environment Federation
WIFIA	Water Infrastructure Finance and Innovation Act
WRB	Water Revenue Bureau
WRP	PWD's Water Revitalization Plan

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# Executive Summary

Black & Veatch Management Consulting, LLC ("Black & Veatch") has prepared this Water and Wastewater Cost of Service Report (the "Report") on behalf of the City of Philadelphia (the "City") Water Department (the "Water Department") in connection with its application to increase rates and charges for water, sanitary sewer, and stormwater service for fiscal year ("FY") 2024 and FY 2025 (the "Rate Period"). The analyses presented herein include projected revenue and revenue requirements for fiscal year 2023 through fiscal year 2028 (the "Study Period") and the proposed rate schedules for water, sanitary sewer, and stormwater services for the Rate Period, as determined from the cost-of-service analysis.

Specifically, Black & Veatch's scope of work addresses the following elements:

- Assesses the Water and Wastewater Systems' (together, the "System" or "Combined System") ability to meet current and future anticipated financial obligations, and
- Develops a financial plan and proposes water, sanitary sewer, and stormwater rates for FY 2024 and FY 2025 sufficient to fund the Combined System's fund operations and capital financing needs.

The forecast consists of implementing annual revenue increases and leveraging available funds from the Water Department's Rate Stabilization Fund through the Rate Period. The forecast for the remainder of the Study Period consists of implementing annual revenue increases to maintain system reserves at a level to support the system's revenue requirements. Based on the assumptions detailed herein, the financing plan requires annual Combined System Service Revenue increases from Base Rates<sup>1</sup> ranging from 8.00% to 12.75% during the Study Period.

As noted above, this Report includes a cost-of-service analysis, conducted using causative cost approaches endorsed by industry-recognized manuals of practices, which produce cost of service allocations recognizing the projected customer service requirements. The proposed rates designed by Black & Veatch follow the allocated cost of service results and local policy considerations. For the analyses defined and presented herein, FY 2024 and FY 2025 serve as the fully projected test years for allocating costs to customer types and for designing the Base Rate schedules.

## **The Need for Rate Relief**

The Department is requesting rate relief because it will face an operating deficit in FY 2024 and FY 2025. Additional revenues are needed to meet significantly increasing costs in FY 2024 and FY 2025 related to the operation of the water and wastewater systems. As we all are becoming increasingly aware, inflation is widespread throughout the economy and is anticipated to continue during the coming years. PWD needs additional resources to pay increasing costs for operations, for upgrades, repairs, improvements and for maintenance activities (among other things). These increasing costs are driving the Water Department's application for increased rates.

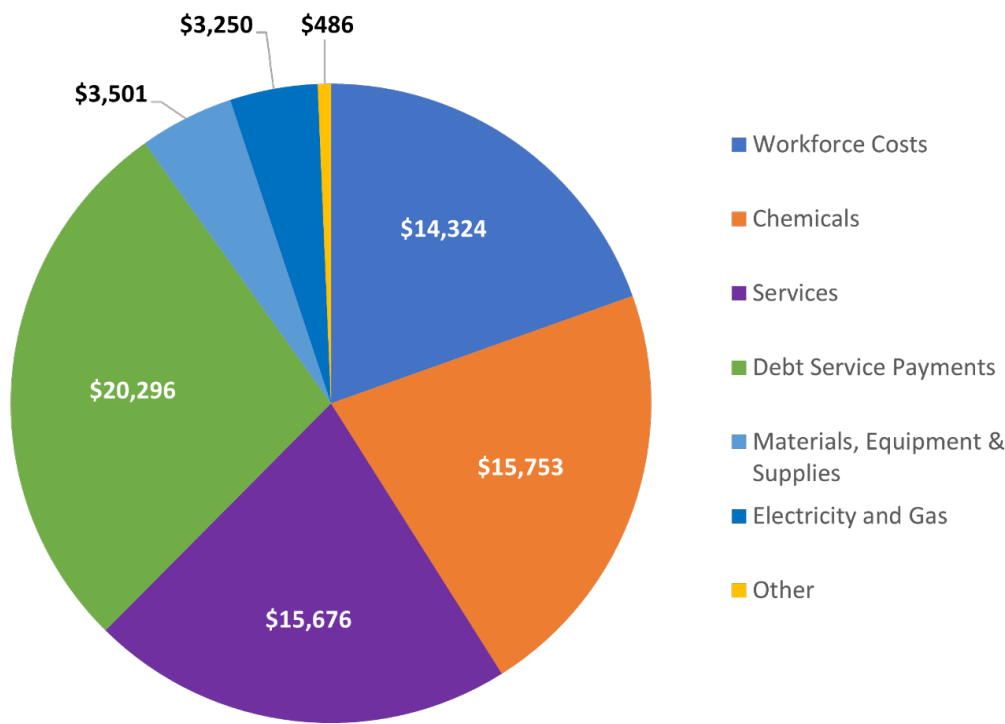
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<sup>1</sup> Excludes Tiered Assistance Program Rate Rider Surcharges.

Currently, the country is emerging from the pandemic and facing new economic realities. Pent-up demand, supply-chain disruptions, and worker shortages have prompted a climate of significantly higher inflation levels than seen in the recent past. Cost increases for operations, upgrades, repairs, maintenance, and capital improvements are the key drivers behind the Water Department’s need for rate relief. Moreover, based upon the Water Department’s recent experience, FY 2023 costs are expected to be approximately \$9 Million higher than previous projections made in January 2022. These price increases are in non-discretionary areas and directly related to the delivery of safe drinking water and achieving wastewater compliance and are expected to continue into FY 2024 and FY 2025.

The impact of these key drivers and changes in the Water Department’s customer base are described in further detail in this Report, summarized below, and shown in Figure ES-1.

**Figure ES-1 FY 2024 Projected Increases**



All figures are in \$000s

### Rising Costs

Non-discretionary operating costs include categories such as chemicals, energy, personnel, and materials and supplies. These costs are unavoidable and represent approximately 90% of operation and maintenance (“O&M”) expenses for the water system, and over 40% for the wastewater system. The Water Department’s FY 2023 budget including the approved mid-year transfer request reflects recent experience with contract and purchase price increases seen from vendors and suppliers.

## Chemicals

Both the water and wastewater system operations require the use of chemicals in treatment processes. Most chemical usage falls within water operations to ensure the safety of drinking water; use in wastewater processes tend to be limited to pH modifications and preventing pollutant releases.

The Water Department reported that FY 2023 cost-per-ton bids received from vendors for a wide range of chemicals has increased 26.7% to 141.8% over FY 2022 levels. For FY 2024, an additional \$16 Million increase is projected. In total, the cost of chemicals are estimated to increase from almost \$36.9 Million in FY 2023 to \$90.3 Million in FY 2028.

## Power and Gas

Whereas water treatment operations use a lot of chemicals, wastewater treatment process are energy intensive. Approximately 50% of the Water Department's power needs and 90% of gas needs are required for wastewater treatment.

Like chemicals, the Water Department's power and gas costs reflect received pricing increases from their suppliers. For electricity, the FY 2024 estimate of \$19.9 Million is a 10.7% increase over FY 2023. For gas, the \$8.3 Million FY 2024 estimate is a 19.0% increase compared to FY 2023. By the end of the Study Period, total energy costs are estimated to be about \$20.8 Million for power and \$8.6 Million for gas.

## Personnel

Four main areas are impacting increased personnel costs. First, the City has negotiated wage labor increases of 3.25% that will go into effect in FY 2024 per labor agreements with District Council 33 ("DC33") and District Council 47 ("DC47"), which account for the majority of Water Department staff. Second, as required by City policy, the Water Department is continuing to transition staff salaries from capital-funded to O&M-funded positions. In FY 2024, approximately \$1.2 Million of salary costs are expected to shift from capital to O&M. By FY 2028, the total salary expense moving from capital to O&M is projected to be about \$6.5 Million. The full transition from capital-funded to O&M-funded is expected to take over 10 years.

Additionally, to support activities in Construction & Engineering, Planning & Environmental Services, Operations, Public Affairs, and Human Resources, the Water Department is increasing staffing levels over the Study Period. Over the Study Period, additional staffing costs increase from \$1.7 Million in FY 2024 to \$12.5 Million in FY 2028.

Finally, pension, pension obligations, and benefits are estimated to increase from \$144 Million in FY 2023 to \$174 Million in FY 2028. The increase seen in this personnel-related category reflect the Water Department's continued growing proportionate share of the City's pension program. For FY 2023, total pension-related costs for the Water Department equal about 8.6% of its annual total obligations.

## Materials and Supplies

Materials pricing has increased throughout the country. The Water Department received FY 2023 price increase notices from its suppliers for contract items that averaged almost 43% higher than FY 2022 levels. Examples of increases for standard materials and supplies used in ongoing maintenance and



repairs include all sizes of meters (0% to 80%), valves of all sizes (62% to 103%), and all diameters of ductile iron pipe (49%).

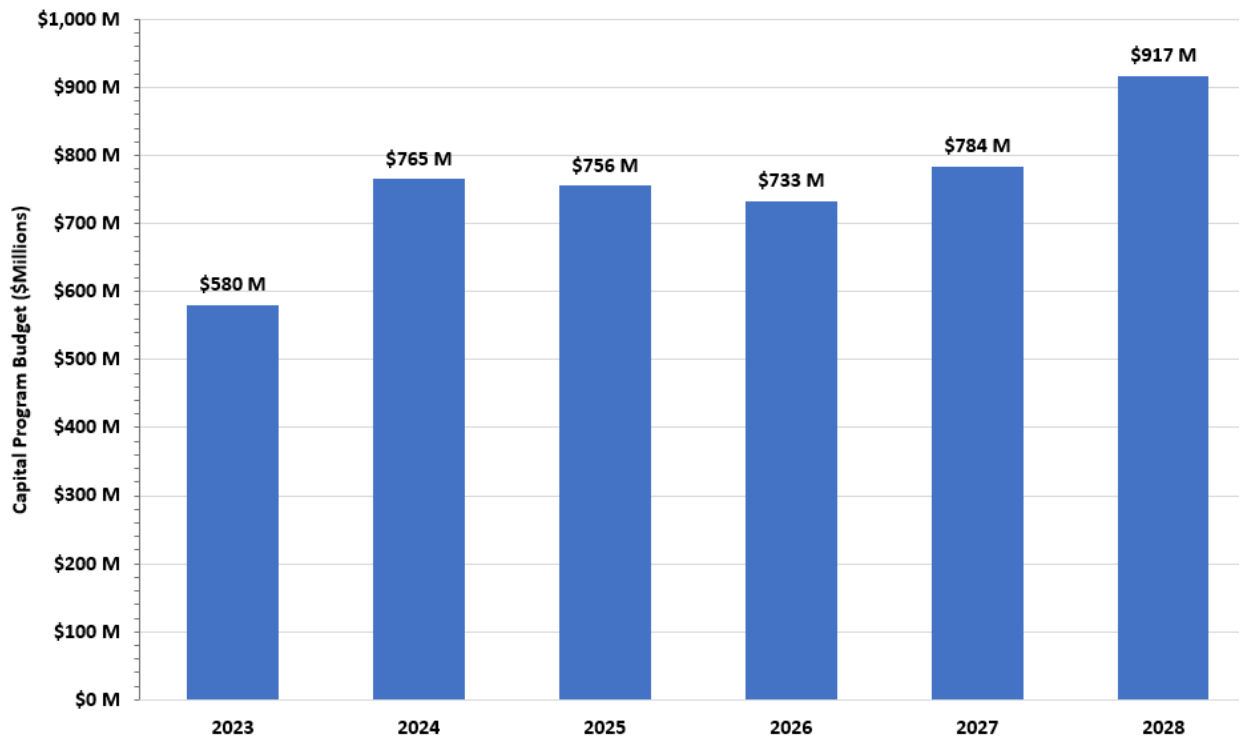
Over the Study Period, costs in this category are estimated to increase from \$25.1 Million in FY 2023 to \$33.1 Million in FY 2028.

## Pressing Capital Improvements

Similar to operating expenses, the Water Department’s Capital Improvement Program (“CIP”) budget for FY 2023 to FY 2028 has grown to accommodate inflationary pressures and represents a move from primarily rehabilitation-related efforts to (i) substantial system replacement and upgrades to major facilities to create resiliency and redundancy together with (ii) continued expansion of green infrastructure facilities to meet the City’s stormwater management requirements. The current \$4.53 Billion CIP budget for FY 2023 to FY 2028, presented in Figure ES-2 below, represents an approximate 14% increase from prior estimates of \$3.98 Billion.

The growth of the CIP also means that the Water Department’s long-term debt obligations will increase. The Water Department continues to pursue low-cost options for funding capital projects utilizing revenue bonds, Pennsylvania Infrastructure Investment Authority (“PENNVEST”) and Water Infrastructure Finance and Innovation Act (“WIFIA”) loans, and the Commercial Paper program. The Water Department’s total debt service payments for the Combined System are estimated to increase from \$199.6 Million in FY 2023 to \$390.9 Million in FY 2028.

**Figure ES-2 Capital Improvement Program Budget**



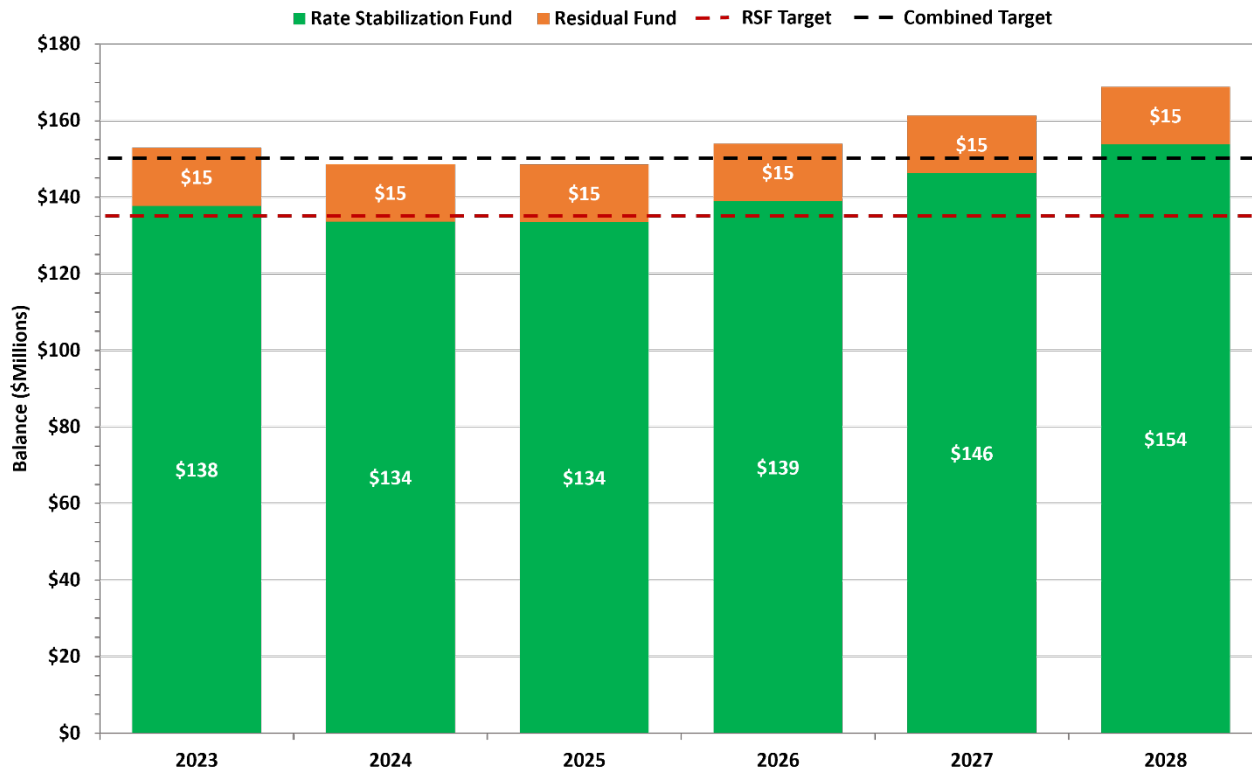
## Reduced Liquidity

PWD cannot meet working capital operational needs and address emergencies without replenishing and maintaining adequate reserves. The Water Department uses the Rate Stabilization Fund (“RSF”) as a source of short-term liquidity and for addressing emergencies, such as Hurricane Ida. With water treatment plants over 100 years old and water pollution control facilities over 70 years old, a failure at any of these plants could use a large portion of the RSF. While the Water Department did experience a shutdown at the Belmont Water Treatment Plant during Hurricane Ida, it was able to step up production at the remaining two facilities so that residents did not have to experience the same level of service disruption seen in Aqua Pennsylvania’s (“Aqua PA”) service territory. Had the City experienced a more severe service disruption, or a long period of boil water orders, the lack of adequate RSF funds would stress the Water Department’s short-term liquidity and impact day-to-day operations.

Historically, the Water Department has also used the RSF to mitigate rate impacts. While this practice is reasonable on a limited basis, it is not a sustainable solution for needed revenue increases. Use of the RSF in this manner is subject to the 90% Test, meaning that the maximum withdrawal from the RSF is 30% of that year’s Debt Service Requirement based on the minimum senior debt service coverage of 1.20. This practice is in line with best management practices which indicate that enterprise fund utilities (like PWD) should be self-supporting, and revenues should, at the very least, be managed to meet the 90% Test.

The Water Department has used RSF monies where possible to help mitigate the impact of revenue adjustments on customers in the past (when RSF balances were higher). However, based upon the current available RSF balances and withdrawals projected during the Rate Period, RSF reserves remain below the previously approved targeted levels during the Rate Period. Figure ES-3 depicts the overall fund balance performance against the combined RSF and Residual Fund target balance of \$150 Million, in accordance with the Rate Board’s decision dated July 12, 2018 (the “2018 Rate Determination”).

**Figure ES-3 Combined Rate Stabilization and Residual Fund Balance Performance**



### Changing Customer Base

Since the 2022 Special Rate Proceeding, the Water Department has been notified of changes to its customer base. Specifically, Vicinity Energy Philadelphia (“Vicinity”) is building its own water treatment facility for its steam plant operations. Vicinity is a top 10 largest water user and accounts for about 1% of the Water Department’s total revenues. Though Vicinity will be reducing its overall water usage, it still plans on receiving limited water service, along with sewer and stormwater services for its facilities. Beginning in FY 2024, the projected commercial customer annual billed water volume reflects a reduction of 90,000 thousand cubic feet (“Mcf”), the historical three-year average for this customer at the steam plant site.

The Water Department has also been notified by the Delaware County Regional Water Authority (“DELCORA”) of its intention to leave the Wastewater System as a wholesale customer beginning in FY 2028. DELCORA is building its own wastewater treatment facility and expects it to be operational by the time its contract with the Water Department expires in FY 2028. The estimated revenue loss associated with this customer is \$9 Million per year based on current contract rates.

### No More Federal COVID-19 Help

The Coronavirus Aid, Relief, and Economic Security (“CARES”) Act of 2020 and the American Rescue Plan Act (“ARPA”) of 2021 provided emergency funding for COVID-19 relief. While there is still some monies left, the amounts allocated to directly help disadvantaged customers with utilities bills in Pennsylvania is

exhausted. Without any more relief funding, especially Low-Income Household Water Assistance Program (“LIHWAP”) funding, it is crucial that the Water Department maintains rates that cover all necessary expenses. At this time, it is unclear how future revenues or customer payment patterns may be influenced by the sunseting of these programs. For example, the Water Department’s FY 2022 revenues included \$6.7 Million in payments funded by LIHWAP and \$1.5 Million funded by the Philadelphia Housing Development Corporation (“PHDC”). With no immediate additional federal funding on the horizon, customers may no longer have access to these support programs on a routine basis. This may lead to lower revenues for the Water Department in the future.

## Proposed Combined System Adjustments

Table ES-1 summarizes the overall annual revenue increases required from Base Rates during the Study Period. The rates proposed for the Water System are based on an increase of 18.9% and 9.00% in FY 2024 and FY 2025, respectively. The rates proposed for the Wastewater System are based on an increase of 8.92% in FY 2024 and 8.66% in FY 2025. The aggregate increase for the Combined System is 12.75% in FY 2024 and 8.80% in FY 2025. As discussed below, the proposed increases are needed to meet future revenue requirements, maintain/improve System infrastructure, meet targeted debt service coverage ratios, maintain fund balances and other relevant financial metrics and ordinance obligations.

**Table ES-1 Required Base Rate Service Revenue Adjustments**

ADDITIONAL BASE RATE REVENUE REQUIRED			
FISCAL YEAR	WATER	WASTEWATER	COMBINED
2024	18.90%	8.92%	12.75%
2025	9.00%	8.66%	8.80%
2026	12.51%	12.83%	12.70%
2027	9.37%	7.04%	8.00%
2028	11.62%	7.13%	9.00%

Table ES-2 summarizes the additional service revenue required for the Combined System during the Study Period in the context of overall system revenues including both Base Rates and Tiered Assistance Program (“TAP”) Rate Rider (“TAP-R”) rates<sup>2</sup>. This table summarizes the overall level of total service revenue adjustments required to meet operating and capital financing needs of the Combined System as well as all other legal and financial requirements discussed herein.

<sup>2</sup> Overall Additional Service Revenue Required reflects estimated impact of proposed FY 2024 TAP-R revenues and estimated FY 2024 TAP discounts as presented in the 2023 TAP-R Annual Adjustment Proceeding. A reduction in TAP-R rates is anticipated in FY 2024.

**Table ES-2 Required Total Service Revenue Adjustments**

ADDITIONAL SERVICE REVENUE REQUIRED	
FISCAL YEAR	COMBINED
2024	11.02%
2025	8.77%
2026	12.66%
2027	7.98%
2028	8.98%

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## Water, Sanitary Sewer, and Stormwater Typical Bills Under Proposed Rates

The cost-of-service analysis provides the basis for the design of the water and wastewater rate schedules to recover the allocated cost of service from each respective system and service (including stormwater). The proposed rates are consistent with the existing rate structure and no rate structure changes are proposed at this time.

The proposed rates will result in increased bills for most customers. The Typical Bill impacts for Residential, Senior Citizen, and Small Business Customers are shown in Table ES-3 based on the analyses conducted, the adoption of the increased water, sewer, and stormwater rates for FY 2024 and FY 2025 is recommended, as discussed further herein.




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**This Report does not address the development of the updated Tiered Assistance Program Reconciliation (TAP-R) rates as they are subject to a separate proceeding before the Rate Board. However, this Report does reference the estimated impacts related to TAP discounts and TAP-R revenues, to present overall performance of metrics against the General Bond Ordinance (defined below), the Rate Ordinance (Section 13-101, Philadelphia Code) and approved financial targets.**




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**Table ES-3 Typical Bill Impacts<sup>3</sup>**




**RESIDENTIAL CUSTOMER<sup>4</sup>**

 CURRENT		 PROPOSED FY2024		 PROPOSED FY2025	
Water	\$22.50	Water	\$27.61	Water	\$29.98
Wastewater	\$16.29	Wastewater	\$17.98	Wastewater	\$19.54
Stormwater	\$18.05	Stormwater	\$19.04	Stormwater	\$21.00
Service	\$12.47	Service	\$12.84	Service	\$13.40
<b>\$69.31</b>		<b>\$77.47</b>		<b>\$83.92</b>	
		<i>11.8% increase</i>		<i>8.3% increase</i>	

**SENIOR CITIZEN WITH DISCOUNT<sup>5</sup>**

 CURRENT		 PROPOSED FY2024		 PROPOSED FY2025	
Water	\$15.00	Water	\$18.41	Water	\$19.99
Wastewater	\$10.86	Wastewater	\$11.99	Wastewater	\$13.03
Stormwater	\$18.05	Stormwater	\$19.04	Stormwater	\$21.00
Service	\$12.47	Service	\$12.84	Service	\$13.40
Senior Discount	(-\$14.10)	Senior Discount	(-\$15.57)	Senior Discount	(-\$16.86)
<b>\$42.28</b>		<b>\$46.71</b>		<b>\$50.56</b>	
		<i>10.5% increase</i>		<i>8.3% increase</i>	

**SMALL BUSINESS CUSTOMER<sup>6</sup>**

 CURRENT		 PROPOSED FY2024		 PROPOSED FY2025	
Water	\$29.99	Water	\$36.81	Water	\$39.98
Wastewater	\$21.72	Wastewater	\$23.97	Wastewater	\$26.06
Stormwater	\$54.93	Stormwater	\$58.06	Stormwater	\$64.17
Service	\$12.47	Service	\$12.84	Service	\$13.40
<b>\$119.11</b>		<b>\$131.68</b>		<b>\$143.61</b>	
		<i>10.5% increase</i>		<i>9.1% increase</i>	

<sup>3</sup> FY 2023 figures reflect the existing base and current TAP-R rates, of \$1.03/Mcf for water and \$1.63/Mcf for sewer. FY 2024 and FY 2025 figures reflect the proposed base rates for each respective fiscal year and the proposed TAP-R rates, of \$0.21/Mcf for water and \$0.34/Mcf for sewer. The TAP-R Rates are subject to annual reconciliation under a separate parallel proceeding filed before the Rate Board.

<sup>4</sup> "Typical" residential account with 5/8" meter using 4.5 hundred cubic feet of water monthly.

<sup>5</sup> "Typical" senior citizen discounted bill account with 5/8" meter using 3 hundred cubic feet of water monthly. Bill amounts reflect a 25% discount on all fees and charges.

<sup>6</sup> "Typical" small business account with 5/8" meter using 6 hundred cubic feet of water monthly and a parcel with a gross area of 5,500 square feet and impervious area of 4,000 square feet.

## The Combined System Operating Results

Table ES-4, Table ES-5, and Table ES-6 illustrate the Combined System Projected Revenue and Revenue Requirements during the Study Period for the Base Rates excluding TAP-R Surcharge Rates, just the TAP-R Surcharge Rates, and Base Rates with TAP-R Surcharge Rates, respectively. The proposed rates, coupled with planned use of the available RSF balance in FY 2024 and FY 2025, presented in this Report allows the Combined System to meet projected revenue requirements, fulfill the bond coverage and other ordinance requirements, and maintain the target fund balance for the Residual Fund. For this analysis, an effective increase date of September 1st for each fiscal year is assumed.

Table ES-7 summarizes the Combined System performance with respect to the General Bond Ordinance Covenants and presents the projected RSF balances over the Study Period. This table also summarizes performance with respect to the Rate Ordinance requirements. The proposed rates presented in this Report are necessary (i) to meet the Combined System's projected revenue requirements, (ii) transition to targeted metrics for debt service coverage, pay-go funding and RSF balances, and (iii) meet other legal/regulatory requirements.

For the Rate Period, the Water Department is proposing revenue adjustments that will allow meeting interim senior debt coverage targets to help address customer affordability impacts.

*[This spacing is intentional]*

**Table ES-4 Projected Revenue and Revenue Requirements: Base Rates Only  
[Schedule BV-1: Table C-1A]**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Combined System (\$000s)</b>							
<b>Operating Revenues</b>							
1	Water Service - Existing Rates	294,038	296,093	298,680	301,466	301,071	300,328
2	Wastewater Service - Existing Rates	472,292	476,637	478,997	480,829	480,147	470,259
3	<b>Total Service Revenue - Existing Rates</b>	<b>766,330</b>	<b>772,731</b>	<b>777,677</b>	<b>782,295</b>	<b>781,218</b>	<b>770,587</b>
Additional Service Revenue Required							
	<u>Year</u>	<u>Percent Increase</u>	<u>Months Effective</u>				
4	FY 2024	12.75%	10	80,412	99,743	99,605	98,250
5	FY 2025	8.80%	10	62,977	77,619	77,512	76,458
6	FY 2026	12.70%	10		99,472	121,709	120,052
7	FY 2027	8.00%	10			70,520	85,228
8	FY 2028	9.00%	10				84,516
9	<b>Total Additional Service Revenue Required</b>	<b>-</b>	<b>80,412</b>	<b>162,131</b>	<b>276,834</b>	<b>369,346</b>	<b>464,504</b>
10	<b>Total Water &amp; Wastewater Service Revenue</b>	<b>766,330</b>	<b>853,142</b>	<b>939,807</b>	<b>1,059,129</b>	<b>1,150,564</b>	<b>1,235,091</b>
Other Income (a)							
11	Other Operating Revenue	29,601	29,664	29,713	29,771	29,746	29,720
12	Debt Reserve Account Interest Income	-	-	-	-	-	-
13	Operating Fund Interest Income	1,882	1,982	2,023	2,192	2,271	2,331
14	Rate Stabilization Interest Income	1,365	1,339	1,336	1,360	1,423	1,497
15	<b>Total Revenues</b>	<b>799,178</b>	<b>886,128</b>	<b>972,880</b>	<b>1,092,452</b>	<b>1,184,004</b>	<b>1,268,639</b>
<b>Operating Expenses</b>							
16	<b>Total Operating Expenses</b>	<b>(564,671)</b>	<b>(611,326)</b>	<b>(654,537)</b>	<b>(690,172)</b>	<b>(720,118)</b>	<b>(752,972)</b>
<b>Net Revenues</b>							
17	Transfer From/(To) Rate Stabilization Fund	5,000	100	600	(5,400)	(7,300)	(7,500)
18	<b>NET REVENUES AFTER OPERATIONS</b>	<b>239,507</b>	<b>274,902</b>	<b>318,943</b>	<b>396,880</b>	<b>456,586</b>	<b>508,167</b>
<b>Debt Service</b>							
<b>Senior Debt Service</b>							
19	Outstanding Bonds	(187,747)	(185,847)	(183,090)	(183,088)	(183,091)	(166,318)
20	PENNVEST Loans	(10,935)	(12,031)	(16,329)	(23,721)	(29,283)	(32,313)
21	Projected Future Bonds	-	(21,083)	(53,880)	(92,771)	(129,341)	(175,213)
22	Commercial Paper	(900)	(900)	(900)	(900)	(900)	(900)
23	WIFIA	-	(17)	(956)	(4,812)	(8,532)	(16,153)
24	<b>Total Senior Debt Service</b>	<b>(199,582)</b>	<b>(219,878)</b>	<b>(255,154)</b>	<b>(305,292)</b>	<b>(351,146)</b>	<b>(390,897)</b>
25	<b>TOTAL SENIOR DEBT SERVICE COVERAGE (L18/L24)</b>	<b>1.20 x</b>	<b>1.25 x</b>	<b>1.25 x</b>	<b>1.30 x</b>	<b>1.30 x</b>	<b>1.30 x</b>
26	Subordinate Debt Service	-	-	-	-	-	-
27	Transfer to Escrow	-	-	-	-	-	-
28	<b>Total Debt Service on Bonds</b>	<b>(199,582)</b>	<b>(219,878)</b>	<b>(255,154)</b>	<b>(305,292)</b>	<b>(351,146)</b>	<b>(390,897)</b>
29	<b>CAPITAL ACCOUNT DEPOSIT</b>	<b>(23,383)</b>	<b>(24,295)</b>	<b>(25,242)</b>	<b>(26,226)</b>	<b>(27,249)</b>	<b>(28,312)</b>
30	<b>TOTAL COVERAGE (L18/(L24+L26+L29))</b>	<b>1.07 x</b>	<b>1.12 x</b>	<b>1.13 x</b>	<b>1.19 x</b>	<b>1.20 x</b>	<b>1.21 x</b>
31	End of Year Revenue Fund Balance	16,542	30,729	38,547	65,361	78,191	88,958

(a) Includes other operating and nonoperating income, including interest income on funds and accounts transferable to the Revenue Fund.



**Table ES-5 Projected Revenue and Revenue Requirements: TAP-R Rates Only  
[Schedule BV-1: Table C-1B)]**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Combined System (\$000s)</b>							
<b>Operating Revenues</b>							
1	Water Service - Existing Rates	5,130	5,579	5,686	5,744	5,735	5,719
2	Wastewater Service - Existing Rates	7,995	8,843	9,030	9,124	9,110	9,085
3	<b>Total Service Revenue - Existing Rates</b>	<b>13,125</b>	<b>14,422</b>	<b>14,716</b>	<b>14,868</b>	<b>14,846</b>	<b>14,804</b>
Additional Service Revenue Required							
	Year	Percent Increase	Months Effective				
4	FY 2024	-79.32%	10	(8,020)	(11,188)	(11,743)	(11,743)
5	FY 2025	0.00%	10	-	-	-	-
6	FY 2026	0.00%	10	-	-	-	-
7	FY 2027	0.00%	10	-	-	-	-
8	FY 2028	0.00%	10	-	-	-	-
9	<b>Total Additional Service Revenue Required</b>	<b>-</b>	<b>(8,020)</b>	<b>(11,188)</b>	<b>(11,743)</b>	<b>(11,776)</b>	<b>(11,743)</b>
10	<b>Total Water &amp; Wastewater Service Revenue</b>	<b>13,125</b>	<b>6,402</b>	<b>3,528</b>	<b>3,125</b>	<b>3,070</b>	<b>3,061</b>
Other Income							
11	Other Operating Revenue (a)	(9,354)	(10,438)	(3,052)	(3,052)	(3,052)	(3,052)
12	Debt Reserve Account Interest Income	-	-	-	-	-	-
13	Operating Fund Interest Income	-	-	-	-	-	-
14	Rate Stabilization Interest Income	-	-	-	-	-	-
15	<b>Total Revenues</b>	<b>3,771</b>	<b>(4,036)</b>	<b>476</b>	<b>73</b>	<b>18</b>	<b>9</b>
<b>Operating Expenses</b>							
16	<b>Total Operating Expenses</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Net Revenues</b>							
17	Transfer From/(To) Rate Stabilization Fund (b)	(3,771)	4,036	(476)	(73)	(18)	(9)
18	<b>NET REVENUES AFTER OPERATIONS</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Debt Service</b>							
<b>Senior Debt Service</b>							
19	Outstanding Bonds	-	-	-	-	-	-
20	PENNVEST Loans	-	-	-	-	-	-
21	Projected Future Bonds	-	-	-	-	-	-
22	Commercial Paper	-	-	-	-	-	-
23	WIFIA	-	-	-	-	-	-
24	<b>Total Senior Debt Service</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
25	<b>TOTAL SENIOR DEBT SERVICE COVERAGE (L18/L24)</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
26	Subordinate Debt Service	-	-	-	-	-	-
27	Transfer to Escrow	-	-	-	-	-	-
28	<b>Total Debt Service on Bonds</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
29	<b>CAPITAL ACCOUNT DEPOSIT</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
30	<b>TOTAL COVERAGE (L18/(L24+L26+L29))</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
31	End of Year Revenue Fund Balance	-	-	-	-	-	-

(a) FY 2023 and FY 2024 reflect TAP Credits based on the proposed 2023 Annual Adjustment. FY 2025 to FY 2028 reflect proposed TAP-R revenue requirement based on the proposed 2023 Annual Adjustment.

(b) Rate Stabilization Fund transfers necessary to meet over or under recovery of TAP costs until recovery is reconciled via TAP-R reconciliation.

**Table ES-6 Projected Revenue and Revenue Requirements: Base Rates and TAP-R Rates  
[Schedule BV-1: Table C-1]**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Combined System (\$000s)</b>							
<b>Operating Revenues</b>							
1	Water Service - Existing Rates	299,168	301,672	304,366	307,210	306,806	306,047
2	Wastewater Service - Existing Rates	480,288	485,480	488,027	489,953	489,257	479,344
3	<b>Total Service Revenue - Existing Rates</b>	<b>779,455</b>	<b>787,152</b>	<b>792,393</b>	<b>797,163</b>	<b>796,063</b>	<b>785,392</b>
Additional Service Revenue Required							
	<u>Year</u>	<u>Percent Increase</u>	<u>Months Effective</u>				
4	FY 2024	11.02%	10	72,392	87,966	87,829	86,507
5	FY 2025	8.77%	10	62,977	77,619	77,512	76,458
6	FY 2026	12.66%	10		99,472	121,709	120,052
7	FY 2027	7.98%	10			70,520	85,228
8	FY 2028	8.98%	10				84,516
9	<b>Total Additional Service Revenue Required</b>	<b>-</b>	<b>72,392</b>	<b>150,942</b>	<b>265,091</b>	<b>357,570</b>	<b>452,760</b>
10	<b>Total Water &amp; Wastewater Service Revenue</b>	<b>779,455</b>	<b>859,544</b>	<b>943,335</b>	<b>1,062,254</b>	<b>1,153,634</b>	<b>1,238,152</b>
Other Income (a)							
11	Other Operating Revenue	20,247	19,226	26,661	26,719	26,694	26,668
12	Debt Reserve Account Interest Income	-	-	-	-	-	-
13	Operating Fund Interest Income	1,882	1,982	2,023	2,192	2,271	2,331
14	Rate Stabilization Interest Income	1,365	1,339	1,336	1,360	1,423	1,497
15	<b>Total Revenues</b>	<b>802,949</b>	<b>882,092</b>	<b>973,356</b>	<b>1,092,525</b>	<b>1,184,022</b>	<b>1,268,648</b>
<b>Operating Expenses</b>							
16	<b>Total Operating Expenses</b>	<b>(564,671)</b>	<b>(611,326)</b>	<b>(654,537)</b>	<b>(690,172)</b>	<b>(720,118)</b>	<b>(752,972)</b>
<b>Net Revenues</b>							
17	Transfer From/(To) Rate Stabilization Fund	1,229	4,136	124	(5,473)	(7,318)	(7,509)
18	<b>NET REVENUES AFTER OPERATIONS</b>	<b>239,507</b>	<b>274,902</b>	<b>318,943</b>	<b>396,880</b>	<b>456,586</b>	<b>508,167</b>
<b>Debt Service</b>							
<b>Senior Debt Service</b>							
<b>Revenue Bonds</b>							
19	Outstanding Bonds	(187,747)	(185,847)	(183,090)	(183,088)	(183,091)	(166,318)
20	PENNVEST Loans	(10,935)	(12,031)	(16,329)	(23,721)	(29,283)	(32,313)
21	Projected Future Bonds	-	(21,083)	(53,880)	(92,771)	(129,341)	(175,213)
22	Commercial Paper	(900)	(900)	(900)	(900)	(900)	(900)
23	WIFIA	-	(17)	(956)	(4,812)	(8,532)	(16,153)
24	<b>Total Senior Debt Service</b>	<b>(199,582)</b>	<b>(219,878)</b>	<b>(255,154)</b>	<b>(305,292)</b>	<b>(351,146)</b>	<b>(390,897)</b>
25	<b>TOTAL SENIOR DEBT SERVICE COVERAGE (L18/L24)</b>	<b>1.20 x</b>	<b>1.25 x</b>	<b>1.25 x</b>	<b>1.30 x</b>	<b>1.30 x</b>	<b>1.30 x</b>
26	Subordinate Debt Service	-	-	-	-	-	-
27	Transfer to Escrow	-	-	-	-	-	-
28	<b>Total Debt Service on Bonds</b>	<b>(199,582)</b>	<b>(219,878)</b>	<b>(255,154)</b>	<b>(305,292)</b>	<b>(351,146)</b>	<b>(390,897)</b>
29	<b>CAPITAL ACCOUNT DEPOSIT</b>	<b>(23,383)</b>	<b>(24,295)</b>	<b>(25,242)</b>	<b>(26,226)</b>	<b>(27,249)</b>	<b>(28,312)</b>
30	<b>TOTAL COVERAGE (L18/(L24+L26+L29))</b>	<b>1.07 x</b>	<b>1.12 x</b>	<b>1.13 x</b>	<b>1.19 x</b>	<b>1.20 x</b>	<b>1.21 x</b>
31	<b>End of Year Revenue Fund Balance</b>	<b>16,542</b>	<b>30,729</b>	<b>38,547</b>	<b>65,361</b>	<b>78,191</b>	<b>88,958</b>

**Table ES-6 Projected Revenue and Revenue Requirements: Base Rates and TAP-R Rates  
(continued)**

LINE		FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
NO.	DESCRIPTION						
<b>Combined System (\$000s)</b>							
<b>Residual Fund</b>							
32	Beginning of Year Balance	16,102	15,095	15,079	15,078	15,047	15,025
33	Interest Income	155	150	150	150	150	149
	Plus:						
34	End of Year Revenue Fund Balance	16,542	30,729	38,547	65,361	78,191	88,958
35	Deposit for Transfer to City General Fund (b)	1,945	1,999	2,026	2,084	2,149	2,192
	Less:						
36	Transfer to Construction Fund	(16,600)	(29,800)	(34,400)	(58,150)	(72,800)	(86,100)
37	Transfer to City General Fund	(1,945)	(1,999)	(2,026)	(2,084)	(2,149)	(2,192)
38	Transfer to Debt Reserve Account	(1,105)	(1,096)	(4,298)	(7,392)	(5,562)	(3,030)
39	<b>End of Year Balance</b>	<b>15,095</b>	<b>15,079</b>	<b>15,078</b>	<b>15,047</b>	<b>15,025</b>	<b>15,002</b>
<b>Rate Stabilization Fund</b>							
40	Beginning of Year Balance (c)	138,989	137,760	133,625	133,501	138,974	146,291
41	Deposit From/(To) Revenue Fund	(1,229)	(4,136)	(124)	5,473	7,318	7,509
42	<b>End of Year Balance</b>	<b>137,760</b>	<b>133,625</b>	<b>133,501</b>	<b>138,974</b>	<b>146,291</b>	<b>153,800</b>

(a) Includes other operating and nonoperating income, including interest income on funds and accounts transferable to the Revenue Fund and reflects projected contra revenue credits for Affordability Program Discounts (TAP Costs).

(b) Transfer of interest earnings from the Debt Reserve Account to the Residual Fund as shown in Line 35 to satisfy the requirements for the transfer to the City General Fund shown on Line 37.

(c) FY 2023 beginning balance is estimated based on preliminary FY 2022 results.

*[This spacing is intentional]*

**Table ES-7 Projected Rate Stabilization Fund and Covenants Metrics Performance: Base Rates and TAP-R Rates [Schedule BV-1: Table C-2]**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Rate Stabilization Fund</b>							
1	Beginning Balance: Rate Stabilization Fund (a)	\$ 138,989	\$ 137,760	\$ 133,625	\$ 133,501	\$ 138,974	\$ 146,291
2	Transfers From (To) Revenue Fund (b)	(1,229)	(4,136)	(124)	5,473	7,318	7,509
3	Year-End Rate Stabilization Fund Balance (Line 1 + Line 2)	137,760	133,625	133,501	138,974	146,291	153,800
<b>General Bond Ordinance Covenants</b>							
4	Senior Debt Coverage (c)	1.20	1.25	1.25	1.30	1.30	1.30
5	Total Debt Coverage (d)	1.07	1.12	1.13	1.19	1.20	1.21
6	90% Test - Senior Debt Coverage from Current Revenues (e)	1.19	1.23	1.24	1.30	1.30	1.30
<b>O&amp;M Actual to Budget Ratio</b>							
7	Projected O&M Budget (f)	659,216	715,819	766,086	807,071	842,689	881,564
8	O&M Actual to Budget Ratio	90.8%	91.0%	91.1%	91.3%	91.3%	91.3%
<b>Rate Ordinance Requirements</b>							
9	Projected Total Revenues	802,949	882,092	973,356	1,092,525	1,184,022	1,268,648
10	Projected Total Appropriations (g)	898,723	990,721	1,085,029	1,209,350	1,306,575	1,397,230
11	Rate Ordinance Requirement Compliance (h)	Yes	Yes	Yes	Yes	Yes	Yes
<b>Cash Funding</b>							
12	Cash Funded Capital (i)	39,983	54,095	59,642	84,376	100,049	114,412
13	Capital Improvement Program Annual Expenses	\$ 337,627	\$ 513,964	\$ 606,056	\$ 757,393	\$ 791,263	\$ 865,518
14	Cash Funded Capital Ratio (j)	11.8%	10.5%	9.8%	11.1%	12.6%	13.2%

(a) FY 2023 beginning balance is estimated based on FY 2022 preliminary financial results.

(b) See Line 17 in Table ES-6.

(c) Senior Debt Coverage = (Total Revenues - Operating Expenses + Transfer From (to) Rate Stabilization) divided by Senior Debt. The General Bond Ordinance requires the minimum Senior Debt Service Coverage of 1.20.

(d) Total Debt Coverage = (Total Revenues - Operating Expenses + Rate Stabilization Transfer) divided by (Senior Debt + Subordinate Debt + Capital Account Deposit). The 1989 General Ordinance requires the minimum Total Debt Service Coverage of 1.00.

(e) Senior Debt Coverage from Current Revenues = (Total Revenues - Operating Expenses - Transfer to Rate Stabilization Fund) divided by Senior Debt. Transfers from Rate Stabilization are excluded from the Total Revenues. The General Bond Ordinance requires a minimum Senior Debt Service Coverage of 0.90 from Current Revenues.

(f) FY 2023 budget reflects the PWD adopted budget; FY 2024 through FY 2028 budget reflects annual cost escalation factors.

(g) Total Appropriation = Total O&M Budget + Senior Debt + Subordinate Debt + Transfer to Escrow + Capital Account Deposit + Transfer to Rate Stabilization Fund + Transfer to Residual Fund. Costs to service the City included as required by the General Bond Ordinance rate covenants.

(h) Rate Ordinance requires that Total Revenues not exceed Total Appropriations.

(i) Cash Funded Capital = Capital Account Deposit + Residual Transfer to Construction Fund

(j) Cash Funded Capital Ratio = Cash Funded Capital divided by Capital Improvement Program annual expenses.

## Managing Bill Impacts

To help manage customer bill impacts and still meet financial obligations, the Water Department has proposed the following actions for the Rate Period:

1. Temporarily reduce the Stormwater Management Incentive Program/Greened Acre Retrofit Program budget by \$5 Million annually in FY 2024 and FY 2025,
2. Set rates to meet the interim senior debt service coverage requirement of 1.25x, instead of the target 1.30x approved in the 2018 Rate Determination,
3. Maintain the Rate Stabilization Fund slightly below the \$135 Million target approved in the 2018 Rate Determination, and
4. Defer the 20% cash funding target for capital projects.

## Consequences of Inadequate Rate Relief

The above discussions highlight the Water Department's current conditions. Should the proposed levels of revenue adjustments not be approved, then the Water Department will experience financial deficits in FY 2024 and FY 2025, which would impact PWD's ability to pay its bills and sustain utility services. Additionally, approval of revenue increases that are less than those proposed in this Report will necessitate cost reductions that would adversely impact service levels and the ability to meet regulatory requirements. At a minimum, reduced rate relief will result in further deferred O&M and capital activities.

The following is a list of potential risks that the Water Department may face should the proposed revenue increases not be fully approved.

1. PWD will have insufficient resources to sustain operations and to meet rising costs because post-pandemic conditions and supply chain disruptions have increased FY 2023 costs by more than \$9 Million compared to prior projections. Projected total operating costs<sup>7</sup> are \$73.3 Million higher in FY 2024 compared to FY 2023.
  - a. Vendor and supplier pricing increases in critical areas such as chemicals, power and gas, and materials and supplies are projected to grow \$21.0 Million in FY 2024 over FY 2023 levels.
  - b. FY 2023 personnel-related costs are 9.5% higher than FY 2022. FY 2024 personnel-related costs are 4.5% higher than FY 2023. These increases reflect the following:
    - i. Continued transition of capital-funded staffing to operations reflects an increase of \$1.2 Million in FY 2024 to \$6.5 Million in FY 2028.
    - ii. Additional staffing needed to support Consent Order Agreement ("COA") requirements, manage the operational and capital activities imposed by the Lead and Copper Rule, and address maintenance activities. Over the Study Period, additional staffing costs increase from \$1.7 Million in FY 2024 to \$12.5 Million in FY 2028.
    - iii. Continued growth of the Water Department's proportionate share of the City's pension program. Pension, pension obligations, and benefits are estimated to increase from \$144 Million in FY 2023 to \$174 Million in FY 2028.
2. PWD will have insufficient resources to fund capital improvements. The proposed CIP represents an increase of 14% over prior estimates.
  - a. Extending the CIP schedule out further runs the risk of increasing the occurrence of infrastructure failures and not being able to meet regulatory requirements, including those in the COA.

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<sup>7</sup> Prior to liquidated encumbrances.

- b. The Water Department continues to find low-cost financing options to fund the CIP. However, the growing CIP means that debt obligations will increase from \$199.6 Million in FY 2023 to \$390.9 Million in FY 2028.
3. The RSF would be fully depleted by the end of FY 2025 absent rate relief. There would be no financial reserves in the event of an emergency or severe weather event.
4. Also, without additional revenues and in accord of our current projections, the Water Department's performance against financial metrics and targets will likely result in the following:
  - a. The 90% Test would not be met beginning in FY 2024.
  - b. Senior Debt Service Coverage would not be met in FY 2025; and
  - c. The RSF would be well below the \$120 million minimum RSF threshold set by S&P Global Ratings in FY 2024 and FY 2025.

Faced with the required revenue increases, the Water Department along with the City have been working to expand access to customer assistance programs. TAP offers qualifying customers shelter from rate increases, as their bills are based upon their income-levels. The Water Department has been working with the Pennsylvania State government to enter into a data sharing agreement that is intended to help identify potential low-income customers and aid them in gaining access to TAP. In addition, the Water Department is proposing to increase the Senior Discount Income Threshold, which will hopefully increase access to reduced bills for eligible seniors.

In July 2022, to further protect vulnerable customers, the City:

- Raised the minimum threshold eligible for shutoff from \$150 to \$1,000;
- Removed all TAP customers and TAP applicants from eligibility for shutoff;
- Removed all customers receiving the Senior Citizen Discount from eligibility for shutoff; and
- Removed all customers the City could determine received Medicaid and/or homelessness prevention services from eligibility for shutoff.

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# 1.0 Introduction

The City of Philadelphia (“City”) owns, operates, maintains, repairs, and improves the water system (“Water System”) and wastewater system (“Wastewater System”) serving the City and 10 wholesale wastewater contract customers and one wholesale water contract customer, as a self-supporting enterprise fund utility. Collectively, the Water System and the Wastewater System are known as the “Water and Wastewater Systems,” “the System,” or the “Combined System.”

On April 17, 1951, the Philadelphia Home Rule Charter (the “Charter”) established the Philadelphia Water Department (“PWD” or the “Water Department”) as one of the City’s ten operating departments. The Water Department is responsible for the planning, construction, operation, and maintenance of the Water and Wastewater Systems; for complying with regulatory requirements; for rate setting and stakeholder engagement; budgeting and detailed cost accounting; and preparation of financial statements for the System. The City’s combined Annual Comprehensive Financial Report (“ACFR”) includes the data from the Water Department’s annual financial statements.

Section 5-800 of the Charter conveys the authority to the Water Department to operate the Water and Wastewater System. In addition, Section 5-801 authorizes the regulation of rates and charges for utility services. In November 2012, Philadelphia voters approved an amendment to the Charter to allow Philadelphia City Council (“City Council”) to establish, by ordinance, an independent ratemaking board responsible for fixing and regulating rates and charges for water, sanitary sewer, and stormwater services. Consistent with the foregoing, City Council enacted, effective January 20, 2014, Ordinance 130251-A (the “Rate Ordinance”) which created the Rate Board and prescribed certain rate-making standards.

The Water Revenue Bureau (“WRB”), which is a division within the City’s Revenue Department, is responsible for billing, collection, and customer accounting for the Water and Wastewater Systems. Functions such as customer care and delinquent enforcement are joint responsibilities of the Water Department and the WRB. The City’s Revenue Commissioner oversees the activities of the WRB. The City’s Finance Director has the ultimate oversight of the WRB.

The Water Commissioner, who is appointed by the City’s Managing Director with approval of the Mayor, leads the Water Department. In June 2019, the City appointed Mr. Randy Hayman as Water Commissioner. Mr. Hayman is an environmental attorney and prior to his appointment as Commissioner, he served as a partner at Beveridge & Diamond, and as an attorney for the District of Columbia Water and Sewer Authority and the Metropolitan St. Louis Sewer District.

Under Ordinance No. 130251-A, known as the Rate Ordinance, an amendment to the Philadelphia Code established an independent rate-making body, the Philadelphia Water, Sewer, and Storm Water Rate Board (the “Rate Board”). The Rate Board is responsible for setting and regulating rates and charges for supplying water, sewer, and stormwater services.



## 1.1 Purpose

At the direction of the Water Department, Black & Veatch Management Consulting, LLC (“Black & Veatch”) conducted a comprehensive rates, fees, and charges cost of service (“COS”) study (the “Report”). The purpose of this Report is (1) to project and examine the future operating and capital financing requirements of the utilities and the ability of existing rates to recover the requirements, and (2) to develop rates and charges to recover these revenue requirements.

In conducting these analyses and in forming an opinion of the projection of future financial operations summarized in this Report, Black & Veatch made certain assumptions on the conditions, events, and circumstances that may occur in the future. The methodology utilized in performing the analyses follows generally accepted practices for such projections. Such assumptions and methodologies are reasonable and appropriate for the purpose for which they are used. While we believe the assumptions are reasonable and the projection methodology valid, actual results may differ materially from those projected, as influenced by the conditions, events, and circumstances that occur. Such factors may include the utilities’ ability to execute the capital improvement program as scheduled and within budget, regional climate and weather conditions affecting the demand for water, discharge of wastewater flow and adverse legislative, regulatory, or legal decisions (including environmental laws and regulations) affecting the utilities’ ability to manage the system and meet water quality requirements.

## 1.2 Scope of Work

This Report presents the results of a comprehensive study of projected revenue requirements, cost of service, and proposed rates and charges for water, sanitary sewer, and stormwater service. Revenue and revenue requirements cover the Study Period beginning July 1, 2022 and ending June 30, 2028 (the “Study Period”). The analyses recognize growth patterns and water consumption patterns throughout the Water Department’s service territory. The Water Department authorized the comprehensive study to assess the Water and Wastewater Systems’ ability to meet current and future anticipated financial obligations and to develop a financing plan and proposed rates sufficient to fund operations and support capital financing needs.

The cost-of-service analysis conducted herein utilizes a cost-causative approach endorsed by the American Water Works Association’s (“AWWA”) Principles of Water Rates, Fees, and Charges Manual of Water Supply Practices M1, 7<sup>th</sup> Edition (“M1 Manual”) and Water Environment Federation’s (“WEF”) Financing and Charges for Wastewater Systems, 4<sup>th</sup> Edition, Manual of Practice (“MoP”) No. 27; as well as WEF’s User Fee Funded Stormwater Programs manual. These allocation methodologies produce cost of service allocations recognizing the projected customer service requirements for the City. Proposed rates are designed in accordance with allocated cost of service and local policy considerations.

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**As part of the Water Department’s 2023 Rate Filing (“Rate Filing”), the Water Department, Black & Veatch, and others produced several documents included as schedules and exhibits supporting the Rate Filing. This Report reflects a compilation of these documents, and cross-references to the appropriate testimony, schedules, and exhibits are noted to facilitate the review of the Rate Filing and this Report.**

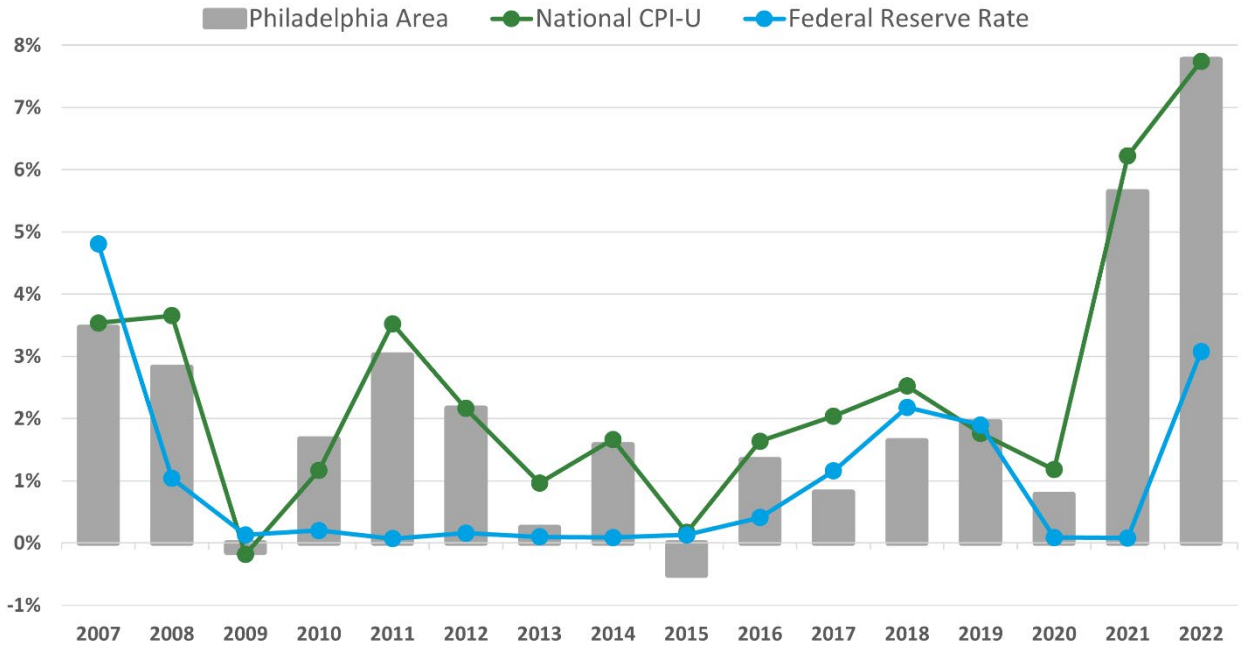
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### 1.3 The Pandemic, Supply Chain Disruptions, and Inflation

COVID-19 was an unexpected global event whose persistence has created a tsunami of issues. Like other major disruptors (World War II and the 2008 Financial Crisis), post-COVID, the US economy is experiencing pent-up demand and a supply shortfall.

As has been documented extensively in the media and experienced by everyone, COVID impacted daily lives. Post-COVID, the US is struggling with a tight labor market, supply-chain issues, and sustained higher than historic levels of inflation. Instead of being transitory, inflation rates hit a 40-year high in June 2022. The Federal Reserve raised its benchmark interest rate seven times in 2022, with more increases expected for 2023 to curb inflation. As of the date of this Report, the Federal Rate interest rate is at its highest level in 15 years. There is significant evidence that tightening monetary policy generally leads to recessions in the US. In November 2022, Fitch predicted that it expects the US to be in a mild recession by mid-2023<sup>8</sup>. Figure 1-1 illustrates the trending history between the Consumer Price Index (“CPI”) for All Urban Customers (“CPI-U”), the Philadelphia Area CPI-U, and the Federal Reserve interest rate. Figure 1-1 reflects October-to-October changes.

**Figure 1-1 15-Year Trend for Consumer Price Index and Federal Reserve Rate**



In economics, inflation is known as a “lagging” indicator, which means that it reflects changes after the macroeconomic conditions have occurred. Municipal entities, such as the Water Department, see the impacts of inflation on a delayed schedule. Anecdotal evidence indicates that this delay runs up to 18 to 24 months, which parallels the vendor bid cycle. The Water Department does not purchase chemicals or materials and supplies on the spot market. Instead, purchases in these key areas are via a bidding

<sup>8</sup> Stiffer Inflation Test Awaits U.S. Water and Sewer Utilities in 2023 - Water Finance & Management (waterfm.com)

processing that awards contracts for a set period. Consequently, pricing increases are seen annually. For capital improvement projects, the time between development of planning estimates as reflected in the CIP and received bids may be several years. Increases in the Federal Reserve lending rate is felt by the Water Department as increased borrowing costs to finance the CIP.

Throughout this Report, the projections presented reflect the fact that the COVID pandemic has significantly impacted the nation's economy and the Water Department. Quarantines, business closures, work-from-home restrictions, and health and safety requirements have stretched the Water Department's ability to maintain existing customer levels of service. The pandemic has put further pressure on the Water Department's revenues particularly in the areas of consumption, revenue collections, and shutoffs.

The following sections provide additional context on how the pandemic is still impacting the Water Department. The assumptions presented herein reflect both the observed trends and the Water Department's response to post-COVID conditions.

### **1.3.1 Changes in the Customer Base**

A reduced customer base and continued declining per account usage adds pressure on customer affordability. With the changes to a major top 10 water customer and the potential loss of a wholesale wastewater customer, the Water Department is facing reduced revenues under existing rates over the study period.

Since the 2022 Special Rate Proceeding, the Water Department has been notified of changes to its customer base. Specifically, Vicinity Energy Philadelphia ("Vicinity") is building its own water treatment facility for its steam plant operations. Vicinity is a top 10 largest water user and accounts for about 1% of the Water Department's total revenues. Though Vicinity will be reducing its overall water usage, it still plans on receiving limited water service, along with sewer and stormwater services for its other facilities. Beginning in FY 2024, the projected commercial customer annual billed water volume reflects a reduction of 90,000 thousand cubic feet ("Mcf"), the historical three-year average for this customer at the steam plant site.

Additionally, the Water Department has also been notified by the Delaware County Regional Water Authority ("DELCORA") of its intention to leave the Wastewater System as a wholesale customer beginning in FY 2028. DELCORA is building its own wastewater treatment facility and expects it to be operational by the time its contract with the Water Department expires in FY 2028. The estimated revenue loss associated with this customer is \$9 Million per year based on current contract rates.

### **1.3.2 Rising Costs**

Non-discretionary operating costs include categories such as chemicals, energy, personnel, and materials and supplies. These costs are unavoidable and represent approximately 90% of operation and maintenance ("O&M") expenses for the water system, and over 40% for the wastewater system. The Water Department's FY 2023 budget reflects recent experience with contract and purchase price increases seen from vendors and suppliers.

### **1.3.2.1 Chemicals**

Both the water and wastewater system operations require the use of chemicals in treatment processes. Most chemical usage falls within water operations to ensure the safety of drinking water; use in wastewater processes tend to be limited to pH modifications and preventing pollutant releases.

The Water Department reported that FY 2023 cost-per-ton bids received from vendors for a wide range of chemicals has increased 26.7% to 141.8% over FY 2022 levels. For FY 2024, an additional \$16 Million increase is projected.

### **1.3.2.2 Power and Gas**

Whereas water treatment operations use a lot of chemicals, wastewater treatment process are energy-intensive. Approximately 50% of the Water Department's power needs and 90% of gas needs are used by wastewater treatment.

Like chemicals, the Water Department's power and gas costs reflect received pricing increases from their suppliers. For electricity, the FY 2024 estimate of \$19.9 Million is a 10.7% increase over FY 2023. For gas, the \$8.3 Million FY 2024 estimate is a 19.0% increase compared to FY 2023.

### **1.3.2.3 Personnel**

The Water Department has agreed upon wage increases of 3.25% that will go into effect in FY 2024 per labor agreements with District Council 33 ("DC33") and District Council 47 ("DC47").

As required by City policy, the Water Department is continuing to transition staff salaries from capital-funded to O&M-funded positions. In FY 2024, approximately \$1.2 Million of salary costs are expected to shift from capital to O&M.

To support activities in Construction & Engineering, Planning & Environmental Services, Operations, Public Affairs, and Human Resources, the Water Department is increasing staffing levels over the Study Period. Over the Study Period, additional staffing costs increase from \$1.7 Million in FY 2024 to \$12.5 Million in FY 2028 (including the ongoing ramp-up in Green Stormwater Infrastructure ["GSI"] maintenance support).

### **1.3.2.4 Materials and Supplies**

Materials pricing has increased throughout the country. The Water Department received FY 2023 price increase notices from its suppliers for contract items that averaged almost 43% higher than FY 2022 levels. Examples of increases for standard materials used in ongoing maintenance and repairs include valves of all sizes (62% to 100%) and all diameters of ductile iron pipe (49%).

## **1.3.3 Capital Program Needs**

Similar to operating expenses, the Water Department's Capital Improvement Program ("CIP") budget for FY 2023 to FY 2028 has grown to accommodate inflationary pressures and represents a move from primarily rehabilitation-related efforts to substantial system replacement and upgrades to major facilities to create resiliency and redundancy as well as the continued expansion of green infrastructure facilities to meet the City's water, sewer and stormwater needs from both a regulatory and service perspective. The

current \$4.53 billion CIP budget for FY 2023 to FY 2028, represents an approximate 14% increase from prior estimates of \$3.98 billion.

The growth of the CIP also means that the Water Department's long-term debt obligations will increase. The Water Department continues to seek out low-cost options for funding projects and funding sources include revenue bonds, Pennsylvania Infrastructure Investment Authority ("PENNVEST") and Water Infrastructure Finance and Innovation Act ("WIFIA") loans, and the Commercial Paper ("CP") program. The Water Department's total debt service payments for the Combined System are estimated to increase from \$199.6 Million in FY 2023 to \$390.9 Million in FY 2028.

### **1.3.4 Declining Reserve Balances**

PWD cannot meet working capital operational needs and address emergencies without replenishing and maintaining adequate reserves. The Water Department uses the Rate Stabilization Fund ("RSF") as a source of short-term liquidity and for addressing emergencies, such as Hurricane Ida. With water treatment plants over 100 years old and water pollution control facilities over 70 years old, a failure at any of these plants could use a large portion of the RSF. While the Water Department did experience a shutdown at the Belmont Water Treatment Plant during Hurricane Ida, it was able to step up production at the remaining two facilities so that residents did not have to experience the same level of service disruption seen in Aqua Pennsylvania's ("Aqua PA") service territory. Had the City experienced a more severe service disruption, or a long period of boil water orders, the lack of adequate RSF funds would stress the Water Department's short-term liquidity and impact day-to-day operations.

Historically, the Water Department has also used the RSF to mitigate rate impacts. While this practice is reasonable on a limited basis, it is not a sustainable solution for needed revenue increases. Use of the RSF in this manner is subject to the 90% Test, meaning that the maximum withdrawal from the RSF is 30% of that year's Debt Service Requirement based on the minimum senior debt service coverage of 1.20. This practice is in line with best management practices which indicate that enterprise fund utilities (like PWD) should be self-supporting, and revenues should, at the very least, be managed to meet the 90% Test.

The Water Department has used RSF monies where possible to help mitigate the impact of revenue adjustments on customers in the past (when RSF balances were higher). However, based upon the current available RSF balances and withdrawals projected during the Rate Period, RSF reserves remain below previously approved targeted levels during the Rate Period.

### **1.3.5 No More Federal COVID-19 Help**

The Coronavirus Aid, Relief, and Economic Security ("CARES") Act of 2020 and the American Rescue Plan Act ("ARPA") of 2021 provided emergency funding for COVID-19 relief. While there is still some monies left, the amounts allocated to directly help disadvantaged customers with utilities bills in Pennsylvania is exhausted. Without any more relief funding, especially Low-Income Household Water Assistance Program ("LIHWAP") funding, it is crucial that the Water Department maintains rates that cover all necessary expenses. At this time, it is unclear how future revenues or customer payment patterns may be influenced by the sunseting of these programs. For example, the Water Department's FY 2022 revenues included \$6.7 Million in payments funded by LIHWAP and \$1.5 Million funded by the Philadelphia Housing Development Corporation ("PHDC"). With no immediate additional federal funding on the horizon,

customers may no longer have access to these support programs on a routine basis. This may lead to lower revenues for the Water Department in the future.

### 1.3.6 Post-COVID Concerns and Mitigating Actions

The level of rate relief proposed in this Report reflects the Water Department's efforts to navigate customer affordability concerns under post-pandemic conditions in the near term and working towards regaining financial stability over the longer term. The need for continued investment into the Combined System to update aging infrastructure, meet regulatory requirements, and providing the resources necessary to maintain the system also require additional revenues to meet the Water Department's mission. As discussed above, most of the Water Department's cost increases are non-discretionary in nature and critical to the operation and maintenance of the Combined System.

#### 1.3.6.1 Continuing Risks

Approval of revenue increases that are less than those proposed in this Report will necessitate cost reductions that may impact service levels and the ability to meet regulatory requirements. At a minimum, reduced rate relief will result in further deferred O&M and capital activities. The following is a list of potential risks that the Water Department may face should the proposed revenue increases not be fully approved.

- **Loss of Key Customers.** Large customers and wholesalers always present an ownership risk to the Water Department. That is, these customers are more likely to have the resources to build their own facilities and leave the System.
- **Continued Inflationary Pressures.** Rising costs because of post-pandemic conditions and supply chain disruptions have increased FY 2023 costs by more than \$9 Million compared to prior projections. Projected total operating costs<sup>9</sup> are \$73.3 Million higher in FY 2024 compared to FY 2023.
- **Workforce Cost Pressures.** The need to address workforce needs (more people) and living-wage increase will continue to be a factor into the future. It should be noted that the Water Department is one of the few Departments within the City, that is still experiencing growth in terms of the number of personnel. With this increase in headcount comes the potential for additional costs related to pension and benefits as the Water Department's allocable portion of those costs grows. The performance of the pension fund itself may require additional contributions now and in the future. These impacts are not fully captured in the projections presented herein and present a potential risk to the Water Department as actual expenses may be higher.
- **Outside COVID-19 Help is Gone.** As discussed above, LIHWAP funding is not anticipated to continue, which impacts the Water Department's revenues and requires potentially more support of the Tiered Assistance Program ("TAP").
- **Continued Reliance on Reserves.** The continued use of the RSF to reduce revenue impacts is not a sustainable rate mitigation strategy. Based upon the current available RSF balances, minimal withdrawals are projected during the Rate Period. Further, increasing the RSF target, which was

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<sup>9</sup> Prior to liquidated encumbrances.

adopted following the 2018 Rate Determination, may be necessary in future years to help provide necessary reserves in context of current costs.

### 1.3.6.2 Mitigating Measures

To help manage customer bill impacts and still meet financial obligations, the Water Department has proposed the following actions for the Rate Period:

1. Temporarily reducing the Stormwater Management Incentive Program/Greened Acre Retrofit Program budget by \$5 Million in FY 2024 and FY 2025,
2. Setting rates to meet the interim senior debt service coverage requirement of 1.25x, instead of the target 1.30x set forth under the 2018 Rate Determination,
3. Leaving the Rate Stabilization Fund slightly below the \$135 Million target under the 2018 Rate Determination, and
4. Deferring the 20% cash funding target for capital projects.

Approval of revenue increases that are less than those proposed in this Report will necessitate cost reductions that may impact service levels and the ability to meet regulatory requirements. At a minimum, reduced rate relief will result in further deferred O&M and capital activities.

Even in the face of required revenue increases, the Water Department along with the City have been working to expand access to customer assistance programs. TAP offers qualifying customers shelter from rate increases, as their bills are based upon their income-levels. The Water Department has been working with the Pennsylvania State government to enter into a data sharing agreement that is intended to help identify potential low-income customers and aid them in gaining access to TAP. In addition, the Water Department is proposing to increase the Senior Discount Income Threshold, which will hopefully increase access to reduced bills for eligible seniors.

In July 2022, to further protect vulnerable customers, the City:

- Raised the minimum threshold eligible for shutoff from \$150 to \$1,000
- Removed all TAP customers and TAP applicants from eligibility for shutoff
- Removed all customers receiving the Senior Citizen Discount from eligibility for shutoff
- Removed all customers the City could determine received Medicaid and/or homelessness prevention services from eligibility for shutoff

## 1.4 General Assumptions

The following discussion summarizes the general assumptions used to analyze projected revenues and revenue requirements for the Study Period. The assumptions presented below apply only to the development of revenue and revenue requirements related to PWD's base rates ("Base Rates"). The Base Rates exclude the TAP revenue loss and TAP Rate Rider Surcharge Rate ("TAP-R") revenues.

## 1.4.1 Revenues

- Projected FY 2023 service revenues under existing rates reflect the FY 2022 rates (effective September 1, 2021) and the current FY 2023 rates (effective September 1, 2022). Projected FY 2024 to FY 2028 service revenues reflect the current FY 2023 rates.
- From FY 2020 to FY 2022, the Water Department saw an average annual increase in retail water accounts of 0.86% while experiencing an average annual decrease in overall billed water volume of 0.48%. Customer accounts and usage are projected as follows:
  - The FY 2022 number of accounts and usage per account serve as the initial basis of projections for all customer types.
  - For FY 2023 to FY 2026, account escalation for all customer types is based upon 3-year average annual growth in the number of accounts per type for FY 2020 to FY 2022. Accounts are assumed to remain stable for the remainder of the Study Period from FY 2027 to FY 2028.
  - For FY 2023 to FY 2026, demand escalation factors for all customer types are based upon the 3-year average annual change in consumption per account for FY 2020 to FY 2022.
  - To approximate anticipated ongoing reductions in residential billed water volume, a 0.68% reduction is applied to the 5/8-inch residential customers usage per account during FY 2027 to FY 2028<sup>10</sup>; and
  - No change in demand is applied to the remaining customer types during FY 2027 to FY 2028.
- Vicinity Energy Philadelphia (“Vicinity”), consistently a top 10 customer for PWD, is currently working towards building their own facility to provide process water for their steam plant operations. In FY 2021, Vicinity amounted to \$7.5 Million in combined water, sewer, and stormwater revenue (0.99% of the Water Operating Fund’s total revenue). When Vicinity reduces its overall water usage, they will still receive some level of water service along with sewer and stormwater services associated with their facilities. Vicinity purchased an average of 1,196,135 hundred cubic feet (“CCF”) of water and an average of 1,284,116 CCF of sewer service from PWD during FY 2020 to FY 2022. To address the pending change in consumption from one of PWD’s top 10 customers, the projected FY 2024 commercial customer billed volume reflects a reduction of 90,000 Mcf and the projected FY 2024 Sewer Only billed volume is increased by 90,000 Mcf.

Table 1-1 provides the baseline number of accounts and summarizes the associated account growth escalation factors for the Study Period.

Table 1-2 provides the baseline usage per account and summarizes the associated escalation factors for the Study Period.

Table 1-3 summarizes these assumptions and reflect Black & Veatch’s review of the historical 3-Year Average change.

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<sup>10</sup> The 5/8-inch meter Residential customers have historically exhibited an annual decrease in billed usage per account since 2015. Black & Veatch assumes this trend will continue through the Study Period.



**Table 1-1 Account Growth Escalation Factors by Customer Type**

<b>CUSTOMER TYPE</b>	<b>FY 2022 ACCOUNTS [1]</b>	<b>FY 2023 TO FY 2026 [2]</b>	<b>FY 2027 TO FY 2028 [3]</b>
<b>Senior Discount</b>			
Senior Discount 5/8"	22,052	(2.04%)	0.0%
Senior Discount >5/8"	11	6.92%	0.0%
<b>Residential</b>			
Residential 5/8"	422,630	0.73%	0.0%
Residential >5/8"	12,542	12.18%	0.0%
<b>Commercial</b>			
Commercial 5/8"	28,028	(0.14%)	0.0%
Commercial > 5/8"	9,729	4.18%	0.0%
<b>Industrial</b>			
Industrial 5/8"	501	(0.85%)	0.0%
Industrial > 5/8"	556	0.36%	0.0%
<b>Public Utilities</b>			
Public Utilities 5/8"	79	2.20%	0.0%
Public Utilities >5/8"	119	6.33%	0.0%
<b>PHA</b>	5,666	(1.21%)	0.0%
<b>Charities &amp; Schools</b>	1,834	(5.35%)	0.0%
<b>Hospitals and Universities</b>	138	(30.21%)	0.0%
<b>Hand Billed</b>	232	(1.26%)	0.0%
<b>Scheduled</b>	6	25.99%	0.0%
<b>Fire Service</b>	6,837	7.28%	0.0%

Notes:

1. Initial number of accounts are based upon FY 2022, as presented in Appendix A.
2. Account Growth Escalation Factor based upon 3-year average change in accounts for FY 2020 to FY 2022, as presented in Appendix A.
3. For projection purposes, PWD's customer base is assumed to be stable during FY 2027 to FY 2028.

**Table 1-2 Demand Escalation Factors by Customer Type**

CUSTOMER TYPE	USAGE PER		
	ACCOUNT (MCF) [1]	FY 2023 TO FY 2026 [2]	FY 2027 TO FY 2028 [3]
<b>Senior Discount</b>			
Senior Discount 5/8"	5.62	0.48%	0.0%
Senior Discount >5/8"	6.94	6.72%	0.0%
<b>Residential</b>			
Residential 5/8"	6.29	(0.68%)	(0.68%)
Residential >5/8"	31.48	(7.90%)	0.0%
<b>Commercial</b>			
Commercial 5/8"	10.36	(0.60%)	0.0%
Commercial > 5/8"	141.17	(1.25%) (10.25%) – FY 2024 [4]	0.0%
<b>Industrial</b>			
Industrial 5/8"	12.67	(0.88%)	0.0%
Industrial > 5/8"	147.03	(18.27%)	0.0%
<b>Public Utilities</b>			
Public Utilities 5/8"	5.27	(14.34%)	0.0%
Public Utilities >5/8"	79.27	(1.88%)	0.0%
<b>PHA</b>	27.30	0.66%	0.0%
<b>Charities &amp; Schools</b>	74.98	0.95%	0.0%
<b>Hospitals and Universities</b>	755.76	2.32%	0.0%
<b>Hand Billed</b>	2,087.95	5.49%	0.0%
<b>Scheduled</b>	5.30	8.32%	0.0%
<b>Fire Service</b>	0.03	(73.03%)	0.0%

Notes:

1. Baseline Usage per Account uses the 1-year average usage per account for FY 2022, as presented in Appendix A.
2. Demand Escalation Factor based upon 3-year average change in usage per account for FY 2020 to FY 2022, as presented in Appendix A.
3. Demand Escalation Factor applied to reflect the ongoing reduction in overall billed volume based upon the overall long-term reduction in billed water volume.
4. Commercial > 5/8" billed volume is adjusted in FY 2024 to reflect the anticipated decrease in billed volume from Vicinity (see discussion above). A demand escalation factor of (1.25%) is applied in FY 2023, FY 2025, and FY 2026.

**Table 1-3 Historical Usage per Account for General Service Customers (5/8" Meters)**

Description	Historical (Fiscal Year)				
	2018	2019	2020	2021	2022
Annual Billed Volume Per Account (Mcf/Account)	6.54	6.42	6.42	6.40	6.29
Annual Change	(2.82%)	(1.83%)	0.00%	(0.31%)	(1.72%)
3 Year Average Change		(1.90%)	(1.56%)	(0.72%)	(0.68%)

- The wholesale water and wastewater billed volumes, and wastewater loading are estimated based on the three-year average of historical service levels.
  - Revenues for wastewater wholesale customers reflect a planned update to the allocation of Long-Term Control Plan Update (“LTCPU”) Consent Order and Agreement (“COA”) costs based upon PWD’s updated hydraulic and hydrologic (“H&H”) modeling. Under the updated calculations, wholesale customers, whose current contracts include an allocation of LTCPUC costs, will be apportioned approximately 1.9% of LTCPUC costs, based upon each community’s respective share. The updated calculation methodology is estimated to result in a reduction of wholesale wastewater revenues under existing rates of approximately \$2.9 Million. For projection purposes, this change is assumed to go into effect in FY 2024.
  - Beyond anticipated changes to wholesale wastewater allocations related to the COA, DELCORA is working towards building their own treatment facility and will no longer be a wastewater customer beginning in FY 2028 when their agreement with the City expires. The loss of this wholesale customer will lead to an estimated \$9 Million loss in revenue for the City.
- Revenue projections are based upon estimated stormwater billable Impervious Area (“IA”) and Gross Area (“GA”) square footage developed as follows:
  - Initial IA and GA stormwater billing data for the Study Period is based upon the end of FY 2022 stormwater billing data set.
  - Billing units for FY 2023 to FY 2028 are adjusted to reflect stormwater credits, resulting in reduction in billable IA and GA square footage. This reduction in square footage is primarily due to:
    1. Projected increase in IA, GA, and National Pollutant Discharge Elimination System (“NPDES”) Credits based upon the average 5-year growth in the number of parcels receiving credit and the associated average credit per parcel.
    2. IA and GA Credits resulting from Stormwater Management Incentive Program/Greened Acre Retrofit Program (SMIP/GARP) grants:
      - a. Based upon the overall annual program budget of \$25 Million for FY 2023, \$20 Million for FY 2024 – FY 2025, and \$25 Million for FY 2026 – FY 2028; and
      - b. The average grant award per drainage acre, anticipated cost escalation, and average project completion time.

- i. Average Grant Award per Drainage Acre: \$350,000
- ii. Anticipated Cost Escalation: 4.0%
- iii. Average Project Completion Time: 24 Months

- Reductions are also anticipated due to appeals and other adjustments, such as community gardens discounts.
  - Projected decreases due to appeals adjustments are based recent 5-year trends.
  - Projected community garden discounts are based upon the most recent fiscal year (FY 2022) approvals.

Appendix B presents the historical stormwater credit program information. Further explanation of the Stormwater Units of Service Projections is provided in Schedule BV-4: WP-2 “*Stormwater Units of Service.*”

- Projected revenues under existing rates reflect the anticipated cumulative receipts for the water, sanitary sewer, and stormwater services (including retail and wholesale receipts) each fiscal year. The receipts for each fiscal year are estimated based on the projected system billings and the associated projected collection factors.
  - Projected collection factors for retail Non-Stormwater Only and Stormwater Only Customers are based historical collections data for FY 2012 through FY 202211. The collection factors represent the multi-year payment pattern for the following periods:
    - Billing Year – All payments associated with a given fiscal year’s billing and received within the 12 months following the beginning of the fiscal year.
    - Billing Year Plus 1 – All payments associated with a given fiscal year’s billing and received within 13-24 months following the beginning of the fiscal year.
    - Billing Year Plus 2 and Beyond – All payments associated with a given fiscal year’s billing and received after 24 months following the beginning of the fiscal year.
  - Collection factors used in the financial plan analysis reflect the average collection factors for these periods based upon the historical fiscal years and represent the multi-year payment pattern<sup>12</sup>.
    - As presented in Appendix C, the FY 2020 to FY 2022 Billing Year collection factors are an average of 1.20% lower the long-term historical average, while Billing Year Plus 1 collections are 0.76% higher. Recent year collection factors experience reflects current economic conditions, updated collections, and enforcement, among other factors.
    - To reflect changes to collection patterns, Black & Veatch utilizes the following adjustments to the projected collection factors:

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<sup>11</sup> As provided by Raftelis. See Appendix C. Refer to Raftelis Report 4 (from PWD Statement 6: Schedule RFC-7)for additional background data regarding historic billing and collections.

<sup>12</sup> The application of collection factors to projected billings results in estimated receipts used to develop projections of anticipated fiscal year revenues.

- **Billing Year - Non-Stormwater Only Collection Factors** – Reduce by 1.2% to align with FY 2020 to FY 2022 average experience.
- **Billing Year Plus 1 - Non-Stormwater Only Collection Factors** - Increase by 0.76% to align with FY 2020 to FY 2022 average experience.

Table 1-4 presents the collection factors utilized in the financial plan analysis for FY 2023 and beyond.

**Table 1-4 Projected Collection Factors**

	Billing Year	Billing Year Plus 1	Billing Year Plus 2 and Beyond
Non-Stormwater Only	84.65%	10.29%	2.04%
Stormwater Only	64.20%	8.99%	7.23%

- Operating Fund and Rate Stabilization Fund interest earnings are estimated based on projected fund balances and 1.0% annual interest earnings rate.
- Miscellaneous and contra revenues are projected based on historical and budgeted levels as summarized in Table 1-5.

**Table 1-5 Projected Miscellaneous and Contra Revenues**

Description	Fiscal Years	Projection
<b>Penalties [1]</b>	2023 – 2028	\$9.6 Million / Year to \$9.7 Million / Year
<b>Other Miscellaneous Revenue [2]</b>	2023 – 2028	\$11.6 Million / Year
<b>State and Federal Grants [2]</b>	2023 – 2028	\$0.57 Million / Year
<b>License and Inspection Permits [2]</b>	2023 – 2028	\$7.6 Million / Year
<b>UESF Grants [3]</b>	2023 – 2028	\$0.3 Million / Year
<b>Stormwater Customer Assistance Program (CAP) [4]</b>	2023 – 2028	(\$1.0) Million / Year

Notes:

1. Reflects 1.30% of billings under existing rates based upon the average of actual penalties as a percentage of billings for FY 2020 and FY 2022.
2. FY 2023 to FY 2028 reflects the 2-year average for FY 2021 and FY 2022. Other Miscellaneous Revenue includes Miscellaneous City Revenues, Other Revenue, and Miscellaneous Revenue (Employee Benefit + Procurement).
3. Reflects FY 2023 Budget amount.
4. Stormwater CAP revenue loss is anticipated to remain constant due to the recent transition to updated stormwater billing data for non-residential customers.

- Additional service revenues reflect projected revenue increases associated with projected rate increases in FY 2024 to 2028 as necessary to meet senior debt service coverage targets and maintain the rate stabilization fund balance (see Section 1.4.5 Bond Covenants, Transfers, and Fund Balances).

### 1.4.3 Operating Expenses

For FY 2023, projected operating expenses are based:

- The Water Department’s approved FY 2023 budget (as of December 2023) and the Mid-Year transfer request; and
- Reflect the application of the actual-to-budget factors to estimate anticipated expenses.
- Actual-to-Budget factors by cost classification for each Water Department Division and City Department (whose budget costs are funded by the Water Fund) are based upon the three-year historical average of the actual-to-budget ratio from FY 2020 to FY 2022 (see Appendix D), with the following exceptions noted in Table 1-6:

**Table 1-6 Actual-to-Budget Factor Exceptions**

Department	Class(es)	Description	Actual to Budget Factor
Finance	200	Services	100% <sup>1</sup>
Finance	2XX	SMIP/GARP	100% <sup>1</sup>
Finance	800	Transfers	79.12% <sup>2</sup>
Operations	307	Chemicals	100% <sup>1</sup>
City Finance	100	Pension, Pension Obligations, and Benefits	100% <sup>3</sup>
City Finance	500	Indemnities	68.42% <sup>2</sup>

Notes:

1. Historical actual to budget factors show greater than 100% spending compared to the historical budgets, 100% actual to budget factor applied for FY 2023.
2. Adjusted spend factor to account for the changes in the budget levels during FY 2020 to FY 2022. The applied actual to budget is based upon the average spend over the past 3 years for FY 2020 to FY 2022 compared to the FY 2023 budget.
3. Reflects actual to budget factor adjustment to reflect estimated FY 2023 expense provided by City Finance.

- For FY 2024 through FY 2028, projected operating expenses are based on escalation of the FY 2023 projected operating expenses and inclusion of additional adjustments for planned increases in operating expenses.
  - Operating Expenses for FY 2024 through FY 2028 are projected by applying the annual escalation factors to the projected FY 2023 operating expenses by category as presented in Table 1-7.

**Table 1-7 Annual Escalation Factors**

Class	Description	Annual Escalation Factor				
		FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
100	Labor Costs	3.25%	3.00%	3.00%	3.00%	3.00%
191	Pension	0.20%	0.16%	0.66%	0.34%	0.34%
190	Pension Obligations	12.97%	0.00%	0.00%	0.78%	0.00%
1xx	Benefits	3.96%	4.51%	4.51%	4.33%	4.33%
220	Power	0.00%	0.00%	1.50%	1.50%	1.50%
221	Gas	0.00%	0.00%	1.50%	1.50%	1.50%
200	Services	7.77%	6.70%	4.69%	4.69%	4.69%
200	Public Property - Leases	2.79%	2.54%	1.72%	1.72%	1.72%
307	Chemical Costs	0.00%	23.82%	11.43%	11.43%	11.43%
300	Materials and Supplies	7.77%	6.70%	4.69%	4.69%	4.69%
400	Equipment	10.12%	9.41%	6.63%	6.63%	6.63%
500	Indemnities	0.00%	0.00%	0.00%	0.00%	0.00%
800	Transfers	7.77%	6.70%	4.69%	4.69%	4.69%

- The above escalation factors are based on the following:
  - **Labor Cost:** FY 2024 is based upon the recent labor agreement with District Council 33 (“DC33”). FY 2025 and thereafter is based upon the average annual increases for FY 2022 to FY 2024 as included in the DC33 labor agreement.
  - **Pension and Benefits:** The pension and benefits cost escalation factors incorporate the City’s current projected cost increases.
  - **Power and Gas Cost:** FY 2024 costs are not escalated as a planned budget increase is needed to cover additional expenses (See Section 1.4.3 for further information). FY 2026 to FY 2028 escalation factors are based upon discussions with the Water Department.
  - **Services:** FY 2024 is based upon the most recent 12-month period CPI for the Philadelphia Area. FY 2025 is based upon the 24-month annual CPI for the Philadelphia Area. FY 2026 to FY 2028 is based upon the 36-month annual CPI for the Philadelphia Area.
  - **Chemicals:** FY 2024 costs are not escalated as a planned budget adjustment is needed to cover additional expenses per recent contract bids and correspondence with suppliers (See Section 2(e) for further information). FY 2025 is based upon the 24-month period Producer Price Index (“PPI”) for Industrial Chemicals. FY 2025 to FY 2028 is based upon the 36-month annual PPI for PPI for Industrial Chemicals.
  - **Public Property – Leases:** FY 2024 is based upon PWD’s 1-year annual experience in FY 2022. FY 2025 is based upon the 2-year average annual increase per PWD’s recent experience. FY 2026 and thereafter uses the 3-year average annual increase per PWD’s recent experience.

- **Materials and Supplies:** FY 2024 is based upon the most recent 12-month period CPI for the Philadelphia Area. FY 2025 is based upon the 24-month annual period for CPI for the Philadelphia Area. FY 2026 to FY 2028 is based upon the 36-month annual CPI for the Philadelphia Area.
- **Equipment:** FY 2024 is based upon the most recent 12-month period PPI for Construction Equipment and Machinery. FY 2025 is based upon the 24-month annual PPI for Construction Equipment and Machinery. FY 2026 to FY 2028 is based upon the 36-month annual PPI for Construction Equipment and Machinery.
- **Indemnities:** No escalation factor is applied for FY 2024 through FY 2028.
- **Transfers:** FY 2024 is based upon the most recent 12-month period CPI for the Philadelphia Area. FY 2025 is based upon the 24-month annual period for CPI for the Philadelphia Area. FY 2026 to FY 2028 is based upon the 36-month annual CPI for the Philadelphia Area.

Appendix E presents the Water Department’s long-term historical O&M costs.

Appendix F provides the relevant O&M cost industry indices discussed above.

#### 1.4.4 Other Adjustments and Expenditures

Projected Operating Expenses also include adjustments as presented in Table 1-8. These adjustments reflect the application of the actual-to-budget and escalation factors associated with each expense based on the department division and class of costs.

**Table 1-8 Additional Adjustments for Projected Operating Expenses**

Class	Description	Fiscal Year(s)	Adjustment Amount	Purpose
100	Salaries & Wages	2024 to 2028	\$1.2 Million to \$6.5 Million	Shift in staffing from Capital to Operating Budget. [1]
100	Salaries & Wages	2024 to 2028	\$1.7 Million to \$10.1 Million	Planned FY 2024 additions of 70 new staff positions in Construction & Engineering, Planning & Environmental Services, Operations, Public Affairs, and Human Resources. Planned FY 2025 additions of 22 new staff positions in Operations.
100	Salaries & Wages	2026 to 2028	\$0.1 Million to \$2.4 Million	Continued addition of Regulatory Compliance staff costs related to GSI.
200	Services	2024 to 2028	\$8.9 Million to \$9.7 Million	Increased contract services and maintenance costs.
220 & 221	Power & Gas	2024 to 2028	\$3.2 Million to \$3.4 Million	Increased electricity and gas costs.
2xx	SMIP/GARP	2024 to 2025	(\$5.0 Million)	Temporary reduction in SMIP/GARP budget for the Rate Period of FY 2024 to FY 2025.
307	Chemicals	2024 to 2028	\$15.8 Million to \$27.0 Million	Increased chemical contract costs.



Class	Description	Fiscal Year(s)	Adjustment Amount	Purpose
400	Equipment	2024 to 2028	\$1.1 Million to \$1.5 Million	Increased equipment expenses.
1xx, 190, & 191	Benefits, Pension & Pension Obligations	2024 to 2028	\$1.5 Million to \$10.8 Million	Additional pension and benefits costs associated with additional staff noted above. Costs are estimated based upon the City's estimated fringe costs as a percentage of salaries (as provided).

Notes:

1. Per City Policy, Capital related staff salaries may no longer be paid using capital funds (including debt financing). PWD is transitioning capital funded positions to operations over the next 10 years.

- Liquidated encumbrances for FY 2023 thru FY 2028 are estimated as 16.11% of projected Services (Class 200) and Materials and Supplies (Class 300) expenses excluding SMIP/GARP. The projection is based on the average of the actual ratio of liquidated encumbrances to expenses for Services (Class 200) and Materials and Supplies (Class 300) experienced in FY 2020 to FY 2022. SMIP/GARP is excluded from this ratio as the budget has been fully expended.

### 1.4.5 Debt Service

- Existing debt service reflects the actual debt service schedules for the following issuances:
  - All Water and Wastewater Revenue Bonds and Revenue Refunding Bonds issued prior to July 1, 2022; and
  - Water and Wastewater Revenue Bonds Series 2022C (issued during FY 2023 in August 2022).
- Projected debt service reflects anticipated bond issues for each fiscal year of the Study Period and assumed interest rates of 5.5% in FY 2024 and FY 2025 and 6.0% thereafter; all issuances are assumed to have a 30-year tenure. Anticipated revenue bond issues are shown in Table 1-9.

**Table 1-9 Anticipated Revenue Bond Issues**

Fiscal Year	Anticipated Bond Issue	Interest Rate
2024	\$460 Million	5.5%
2025	\$485 Million	5.5%
2026	\$555 Million	6.0%
2027	\$480 Million	6.0%
2028	\$700 Million	6.0%

- Projected debt service for the anticipated revenue bond issues in FY 2024 to 2028 reflect:
  - Bond issuance in August of each fiscal year;
  - Level debt service payments with interest-only payments during the first year of the bond amortization;
  - Bond issuance cost of 0.61% in FY 2024 and FY 2025, and 1.00% each year thereafter; and

- No debt service reserve requirement<sup>13</sup>.
- Projected debt service also includes estimated debt service projections associated anticipated WIFIA loans, and associated matching fund requirements, as provided by the Water Department’s Financial Advisors<sup>14</sup>.
  - As of the writing of this report, the Water Department is currently negotiating with the USEPA to secure a WIFIA loan to further support the implementation of the Water Revitalization Plan (“WRP”).
- Projected debt service also includes using the Water Department’s CP Program<sup>15</sup> as authorized by City Council on November 19, 2020, and corresponding PENNVEST loans.
  - Beginning in FY 2022, the Water Department began to utilize the CP Program to aid in paying PENNVEST-funded projects. CP Program funding is utilized to pay contractor invoices while PENNVEST reimbursement is sought.
  - Use of the CP in conjunction with PENNVEST Project, and the resulting debt service schedules, including both CP interest and PENNVEST debt service reflect projections provided by the Water Department.
  - As PENNVEST loans require a 1:1 pledge of revenues, the CP program is limited to use for designated projects. Therefore, it is unavailable to support other capital improvements until such time that the CP funding has been repaid.

#### **1.4.6 Bond Covenants, Transfers, and Fund Balances**

- The General Bond Ordinance rate covenant requires the following:
  - Minimum senior debt service coverage of 1.20.
  - Per the General Bond Ordinance, interest due on the CP program is considered on par with senior debt and included in senior debt service coverage determination.
  - WIFA loans, if awarded, will also be parity debt.
  - Net Revenues, excluding amounts transferred from the Rate Stabilization Fund into the Revenue Fund during, or as of the end of, such fiscal year, must equal to at least 90% of the Debt Service Requirements (excluding debt service on any Subordinated Bonds) payable in such fiscal year (this is referred to herein as the “90% Test”).
  - Minimum total debt coverage of 1.00.

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<sup>13</sup> With the issuance of the 2022C Revenue Bonds, a series of certain amendments, referred to as “Springing Amendments,” as contained in the Twenty-First Supplemental amendment to the General Ordinance became effective. As detailed in the Water and Wastewater Revenue Bonds, Series 2022C Official Statement dated August 9, 2022, one of the Springing Amendments allows the Water Department to issue revenue bonds without making deposits to the Debt Reserve Account and without having to establish series specific debt reserve subaccount. As such, no deposits to the Debt Reserve Account are assumed following the issuance of the 2022C Revenue Bonds.

<sup>14</sup> PFM Financial Advisors, LLC provided the debt service projections for the future WIFIA funding, and WIFIA Match Funding.

<sup>15</sup> The Commercial Paper Program provides the Water Department the ability to temporarily fund obligations on a revolving basis, in an aggregate principal amount no greater than \$400 million at any time. All Commercial Paper Program capacity is associated with a specific PENNVEST loan, and no additional CP issue is assumed at this time.

- In accordance with the 2018 Rate Determination, the Water Department has adopted target senior debt service coverage ratio of 1.30.
  - However, during FY 2023 the Water Department is projected to maintain minimum senior debt service coverage.
  - During FY 2024 and FY 2025, the Water Department is proposing senior debt service coverage of 1.25 and 1.30 for the remainder of the Study Period.
  - This reflects the Water Department’s intent to increase coverage, generating more cash funding for capital while helping to mitigate revenue adjustments in the short term.
- Projected FY 2023 to FY 2028 Capital Account Deposits are based on the following assumptions:
  - Inflated net plant investment of 3.9% per year based on the average annual increase in net plant investment during FY 2019 and FY 2022; and
  - Annual Capital Account Deposit is based on 1.0% of the prior year projected net plant investment (original cost less depreciation).
- In accordance with the 2018 Rate Determination, the Water Department has a Rate Stabilization Fund balance target of approximately \$135 Million.
  - In FY 2027 to FY 2028 the RSF balance target is projected to grow in alignment with the annual increase in operating expenses.
- Residual Fund to Construction Fund transfers are made as available.
  - The end-of-year Residual Fund balance is maintained at \$15.0 Million for the Study Period.
- The FY 2023 beginning fund balances are based on the preliminary FY 2022 financial results.

#### **1.4.7 Capital Improvement Program**

- The projected capital program is based on the Water Department’s adopted FY 2023 CIP Budget and proposed FY 2024 through FY 2028 CIP budget.
- The Water Department’s CIP budget is an appropriation-based budget and reflects the following:
  - The budget for each respective fiscal year represents the total cost of the capital improvements expected to be let in that fiscal year;
  - The total CIP Budget does not represent expected project duration or anticipated cashflows;
  - The Water Department’s CIP budget includes projects associated with the WRP;
  - The CIP Budget includes contingencies; and
  - The CIP Budget does not include inflation.
- Based upon the City’s funding policy for capital projects, the Water Department will only contract fully funded CIP projects and must provide sufficient CIP funding so that estimated outstanding encumbrances (or project commitments) will not exceed available funding in any given fiscal year. Overall CIP funding sources, including revenue from current year rates, system revenue bond proceeds, WIFIA Loans, WIFIA matching funding (cash, PENNVEST or System Revenue Bonds),

PENNVEST loans and accumulated interest, are compared against overall project commitments less estimated capital spending.

- To evaluate CIP program funding, Black & Veatch estimated the expected encumbrances for each fiscal year of the Study Period, based upon the Water Department’s CIP Budget and adjusted to reflect the following:
  - The anticipated rollforward of annual budget appropriations;
  - The shift in positions from the Capital Fund to Operating (as previously noted in Section 1.4.3);
  - 2022 Annual inflation of 4.0% based on industry construction cost indices for FY 2025 to FY 2028 capital program costs (relevant capital cost industry indices are provided in Appendix G); and
  - Removal of contingencies by applying an adjustment factor of 85% to planned improvements for FY 2023 to FY 2028, excluding Engineering and Administration, Vehicles, WRP (including WIFIA projects) as well as PENNVEST related projects.
- To assess the overall drawdown of available CIP Funding, Black & Veatch estimated the Water Department’s CIP Funds’ drawdown based upon a projection of overall spending over the Study Period. Black & Veatch’s estimates reflect the following:
  - Anticipated project durations of WRP (including planned WIFIA funded projects) and PENNVEST Projects as provided by the Water Department.
  - Anticipated program-level project durations for the remaining improvement projects, as follows:
    - Water Conveyance – 2 years.
    - Sewer Collection – 3 years; and
    - Facilities Improvements – 5 years.

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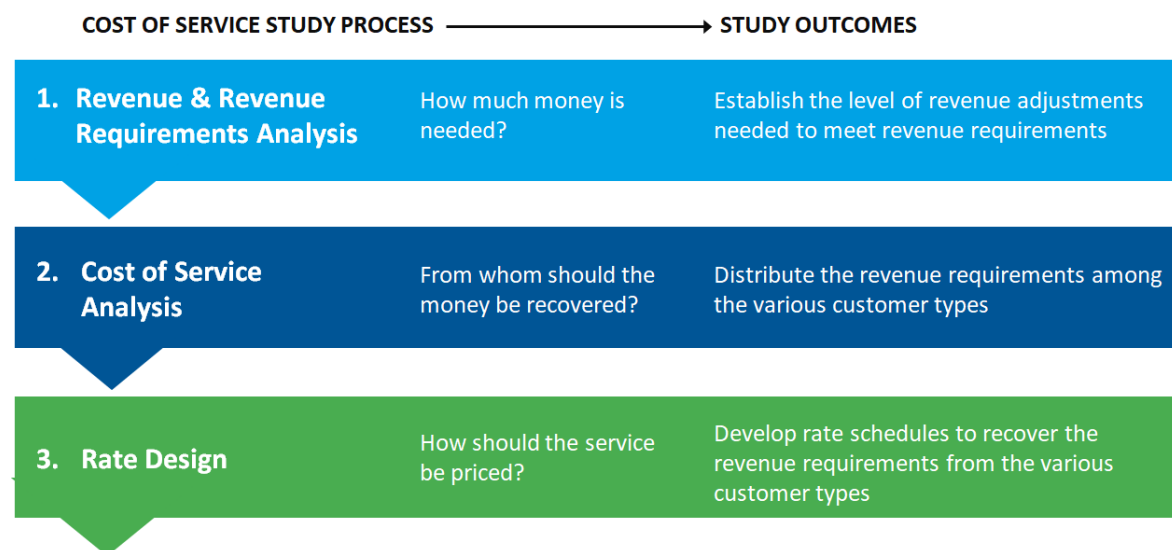
## 2.0 Combined System Summary

The Water Department is a self-supporting enterprise fund dedicated to providing high-quality water and wastewater services (which includes stormwater services) to the City’s residents and businesses. Water operations provide potable water for its residential, commercial, and industrial water demands. Wastewater operations provide sanitary sewer treatment and collection services to its residential, commercial, and industrial customers. The Water Department performs many of the City’s stormwater activities, including maintenance of the City’s 757 miles of separate storm sewers, 1,852 miles of combined sewers, and 71,825 stormwater inlets. Service to customers located outside the City is on a wholesale basis through contracts with various entities. The respective contracts for service to each wholesale customer set forth the present bases for charges.

### 2.1 Cost of Service Study

To provide these services and fulfill all its regulatory obligations, the Water Department fully funds its operations through its rates and charges imposed on its retail and wholesale customer base. Thus, the Water Department not only performs a multi-year financial plan that supports revenue sufficiency, but it also conducts retail and wholesale COS studies and goes through a rate case process which concludes with the determination by the Rate Board. A COS study serves as the foundation for establishing rates and charges. Figure 2-1 illustrates the three parts of such a study. This section presents the results for the Combined System. Specifically, it summarizes the proposed financial plan for the Combined System during the Study Period and presents the FY 2024 and FY 2025 proposed schedule of rates for water, sanitary sewer, and stormwater services.

**Figure 2-1 Elements of a COS Study**



To assist the reader with understanding potential impacts customer impacts associated with the proposed rates, typical monthly bills for select customer types are included using a range of volumes at the recommended FY 2024 and FY 2025 rates. Details regarding the COS study for the Water System and Wastewater System are presented in subsequent sections of this Report. PWD Exhibit 6 includes the full model workpapers for FY 2024 in support of the Rate Filing.

## 2.2 Revenue

Using the assumptions discussed in Section 1.4 and the details derived for the Water System and the Wastewater System presented later in this Report, Table 2-1 presents the Projected Revenues (receipts) for the Combined System. These revenues reflect the application of the billing collection factors presented in Table 1-3 to gross billings, which are the result of applying the existing rate schedules to projections of customer accounts, consumption, billed volume, and impervious and gross areas. Specifics regarding the projection of gross billings is described later in this Report.

**Table 2-1 Projected Receipts Under Existing Rates [Schedule BV-1: Table C-3]**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Combined System (\$000s)</b>							
1	Water Sales Receipts	294,038	296,093	298,680	301,466	301,071	300,328
	Wastewater Sales Receipts						
2	Sanitary Sewer	283,305	284,667	287,015	289,265	289,037	279,644
3	Stormwater	188,987	191,970	191,982	191,564	191,109	190,615
4	<b>Subtotal Wastewater Service Receipts</b>	<b>472,292</b>	<b>476,637</b>	<b>478,997</b>	<b>480,829</b>	<b>480,147</b>	<b>470,259</b>
5	<b>Total Water &amp; Wastewater Receipts</b>	<b>766,330</b>	<b>772,731</b>	<b>777,677</b>	<b>782,295</b>	<b>781,218</b>	<b>770,587</b>
<b>Other Income</b>							
6	Penalties	9,588	9,651	9,700	9,758	9,733	9,707
7	Miscellaneous City Revenue	2,160	2,160	2,160	2,160	2,160	2,160
8	Other	9,059	9,059	9,059	9,059	9,059	9,059
9	State & Federal Grants	567	567	567	567	567	567
10	Permits Issued by L&I	7,592	7,592	7,592	7,592	7,592	7,592
11	Miscellaneous (Procurement)	335	335	335	335	335	335
12	City & UESF Grants	300	300	300	300	300	300
13	Affordability Program Discount Cost (a)	-	-	-	-	-	-
14	Release from Debt Reserve Account (b)	-	-	-	-	-	-
15	<b>Other Operating Revenues</b>	<b>29,601</b>	<b>29,664</b>	<b>29,713</b>	<b>29,771</b>	<b>29,746</b>	<b>29,720</b>
<b>Interest Income</b>							
16	Interest Income on Debt Reserve Account (c)	-	-	-	-	-	-
17	Operating Fund	1,882	1,982	2,023	2,192	2,271	2,331
18	Rate Stabilization Fund	1,365	1,339	1,336	1,360	1,423	1,497
19	<b>Total Nonoperating Income</b>	<b>3,247</b>	<b>3,321</b>	<b>3,359</b>	<b>3,552</b>	<b>3,694</b>	<b>3,828</b>
20	<b>Total Receipts</b>	<b>799,178</b>	<b>805,716</b>	<b>810,749</b>	<b>815,618</b>	<b>814,658</b>	<b>804,135</b>

(a) Affordability Program Discounts represent anticipated lost revenue due to the Tiered Assistance Program (TAP).

Beginning in FY 2019, TAP Revenue Loss is recovered via the TAP Rate Rider Surcharge.

(b) Projected Release from Debt Reserve Account based on outstanding and proposed debt service payments.

(c) Excludes deposit into Residual Fund for Transfer to City General Fund.

In addition to rates and charges, the Water Department also has wholesale service contracts for water and wastewater service, provides private fire protection to certain customers who maintain private fire systems, and assesses surcharges for customers with high strength wastewater.

### **2.2.1 Other Operating Income**

The Water Department has several sources of other revenues including miscellaneous fees, City and Utility Emergency Services Fund (“UESF”) grants, License and Inspection (“L&I”) permits, penalties, and releases from the Debt Service Reserve Fund, if available. These revenues are shown on Lines 6 through 15 of Table 2-1.

### **2.2.2 Non-Operating Income**

The Water Department’s non-operating income consists primarily of interest earnings on the amounts within certain funds and accounts. In accordance with the authorizing revenue bond ordinance, the analysis credits interest earnings in the Debt Reserve Fund, Revenue Fund, and the Rate Stabilization Fund as revenue to the Revenue Fund. Interest Earnings in the Debt Reserve Fund are first credited to the extent that they are needed to fulfill the Debt Service Reserve Requirement. Once the Debt Service Reserve Requirement is met, any remaining monies, up to a maximum of \$4,994,000 is permitted to be transferred to the City’s General Fund.

Actual annual fund valuations and interest earnings are based on a mark-to-market valuation which the City performs at the end of the fiscal year. The differential between mark-to-market and the Debt Reserve Fund requirement results in:

- Either a transfer from the Operating Fund of the Water Department to the Debt Reserve Fund, if there is a deficiency in the Debt Reserve Fund, or
- A transfer from the Debt Reserve Fund to the Operating Fund of the Water Department if there is an excess in the Debt Reserve Fund.

Projected transfers from the Debt Reserve Fund to the Operating Fund are included as Other Operating Revenue.

### **2.2.3 Tiered Assistance Program Rate Rider Surcharge**

Revenue figures for the Study Period exclude current (effective as of September 1, 2022) TAP-R surcharge rates of \$1.03 per Mcf for water and \$1.63/Mcf for sanitary sewer. The Water Department established TAP in 2017 to assist low-income households at or below 150% of the Federal Poverty Level (“FPL”) and those experiencing special hardship. As part of the 2018 Rate Determination, the Rate Board approved the implementation of a TAP Rate Rider. This rider provides a mechanism to (i) timely reconcile actual TAP costs with estimated TAP-R revenues and (ii) update projected TAP costs for the next rate period. The TAP-R currently recovers the cost of providing discounts to TAP customers from Non-TAP customers and is subject to an annual reconciliation.

Reconciliation of TAP discounts and TAP-R billings is handled via a separate annual adjustment proceeding before the Rate Board. Consequently, the revenues developed in this COS study are referred to as the “Base Rate Revenues” because they do not include the impact of providing discounts to TAP customers and associated TAP-R surcharge revenues.



## 2.3 Revenue Requirements

Projections for the Water Department’s revenue requirements for the Combined System make use of the assumptions discussed in Section 1.4.

### 2.3.1 Operation and Maintenance Expenses

The O&M expenses incurred by the Water Department are necessary for the effective operation of the Combined System. Not performing timely O&M activities may result in System inefficiencies, affects the level of service provided to customers, and puts the Water Department at risk of not meeting regulatory requirements. Table 2-2 summarizes the general O&M expense categories used by the Water Department for budgeting and reporting purposes.

**Table 2-2 O&M Expense Categories**

Class	Category	Description
100	Personal Services	Expenses related to salaries, fringe benefits, pension costs, overtime, and other employee-related costs
200	Purchase of Services	Expenses related to contracts or services from outside entities, including electricity and natural gas service
300	Materials and Supplies	Miscellaneous materials and supplies, including water treatment chemicals
400	Equipment	Costs of heavy equipment, trucks, vehicles, boats, trailers, and other related items.
500	Contributions, Indemnities, and Taxes	Includes payments made by the Law Department on behalf of the Water Department for liabilities, claims and property damages. This category also includes taxes and other contributions.
800	Payments to Other Funds	O&M payment to the General Fund associated with the direct interdepartmental services provided to the Water Department by other City Departments

Estimated future O&M expenses include the additional adjustments to items identified on Table 1-8.

Table 2-3 shows the operating expenses for the Combined System incorporating the adjustments to the budgeted O&M, application of the actual-to-budget spend factors, inclusion of additional operating expenses, and adjustments for escalation as discussed in Sections 1.4.2 and 1.4.3.

To help manage required revenue adjustments from FY 2024 to FY 2025, the Water Department has temporarily reduced the Stormwater Management Incentive Program/Greened Acre Retrofit Program (“SMIP/GARP”) budget from \$25 Million to \$20 Million. The budget is anticipated to be restored in FY 2026. Given the importance of this program in supporting long-term compliance under the COA, Black & Veatch understands that the Water Department will shift available funds from other activities when available.

**Table 2-3 Projected Operation and Maintenance Expense [Schedule BV-1: Table C-6]**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Combined System (\$000s)</b>							
1	Personal Services	172,675	181,131	193,552	202,480	210,588	219,669
2	Pension and Benefits	143,762	149,631	158,182	163,929	168,640	174,021
3	<b>Subtotal</b>	<b>316,437</b>	<b>330,761</b>	<b>351,735</b>	<b>366,409</b>	<b>379,229</b>	<b>393,690</b>
Purchase of Services							
4	Power	17,993	19,927	19,927	20,225	20,529	20,837
5	Gas	6,934	8,250	8,250	8,374	8,500	8,627
6	SMIP/GARP	25,000	20,000	20,000	25,000	25,000	25,000
7	Other	154,813	175,489	186,030	194,610	203,591	212,990
8	<b>Subtotal</b>	<b>204,740</b>	<b>223,665</b>	<b>234,207</b>	<b>248,210</b>	<b>257,619</b>	<b>267,454</b>
Materials and Supplies							
9	Chemicals	36,926	52,679	65,227	72,682	80,990	90,247
10	Other	25,108	27,058	28,871	30,225	31,643	33,127
11	<b>Subtotal</b>	<b>62,033</b>	<b>79,737</b>	<b>94,098</b>	<b>102,908</b>	<b>112,633</b>	<b>123,374</b>
12	Equipment	4,292	5,842	6,392	6,816	7,268	7,749
13	Indemnities and Transfers	10,854	11,340	11,791	12,128	12,481	12,851
14	<b>Subtotal Expenses</b>	<b>598,357</b>	<b>651,346</b>	<b>698,222</b>	<b>736,470</b>	<b>769,230</b>	<b>805,118</b>
15	Liquidated Encumbrances	(33,686)	(40,020)	(43,686)	(46,298)	(49,112)	(52,145)
16	<b>Total Expenses</b>	<b>564,671</b>	<b>611,326</b>	<b>654,537</b>	<b>690,172</b>	<b>720,118</b>	<b>752,972</b>

### 2.3.2 Bond Covenants, Transfers, and Fund Balances

The Water Department primarily uses debt financing to pay for necessary capital improvement projects. The Water Department’s flow of funds is dictated by the requirements of the General Bond Ordinance. The Water System and the Wastewater System are treated as one combined utility for the purpose of revenue bond financing, pursuant to the General Bond Ordinance.

The General Bond Ordinance establishes the funds and accounts shown in Table 2-4, which are collectively known as the “Water and Wastewater Funds” or the “Water Fund.”<sup>16</sup>

**Table 2-4 Water and Wastewater Funds**

Funds and Accounts	
Revenue Fund	Rate Stabilization Fund
Sinking Fund	Construction Fund
<ul style="list-style-type: none"> <li>Debt Service Account</li> <li>Debt Reserve Account</li> <li>Charges Account</li> </ul>	<ul style="list-style-type: none"> <li>Existing Project Account</li> <li>Bond Proceeds Account</li> <li>Capital Account</li> </ul>
Subordinated Bond Fund	Residual Fund
	<ul style="list-style-type: none"> <li>Special Water Infrastructure Account</li> </ul>

<sup>16</sup> The operations of the Water Department are accounted for in the Water Fund, which is an enterprise fund of the City. The Water Fund is an accounting convention established for the purposes of accounting for the assets, liabilities, revenues, expenses of and to measure Rate Covenant compliance for, the Water and Wastewater Systems.

Revenues collected by the Water Department cascade through the Revenue Fund in the priority order shown in Figure 2-2.

**Figure 2-2 General Flow of Funds**

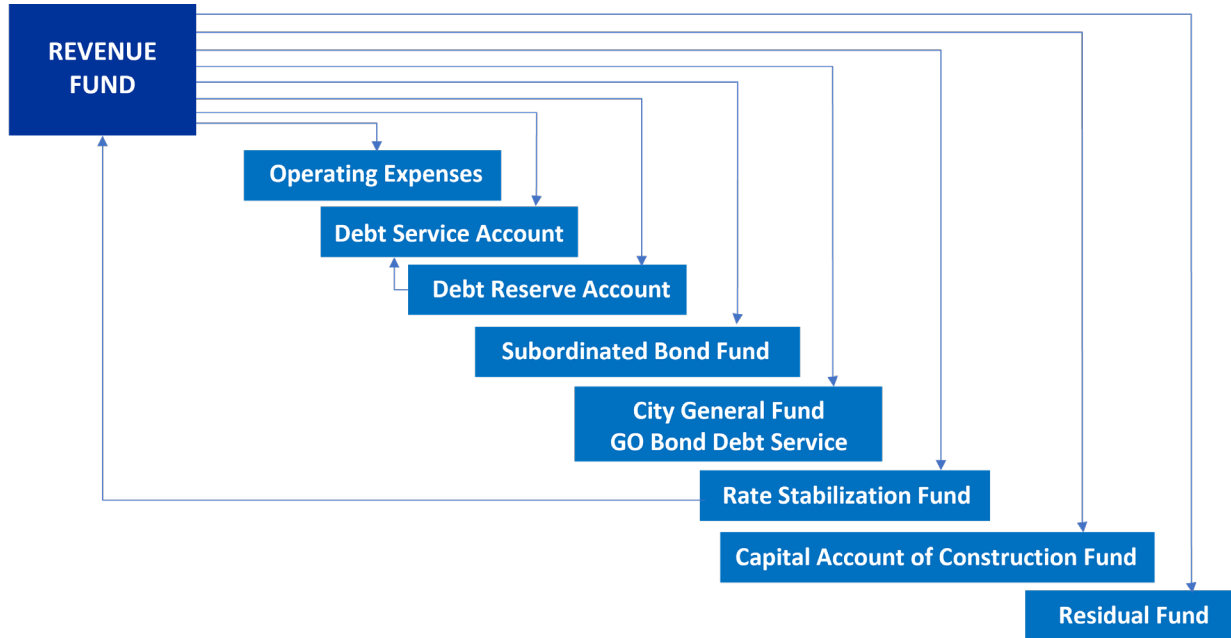


Table 2-5 summarizes the performance targets of the General Bond Ordinance and the 2018 Rate Determination described in Section 1.4.

**Table 2-5 Combined System Performance Targets**

Description	Performance Target
<b>GENERAL BOND ORDINANCE PERFORMANCE TARGETS</b>	
Debt Coverage	Minimum Senior Debt Coverage: 1.20 Senior Debt Coverage from Current Revenues: 0.90x Minimum Total Debt Coverage: 1.00x
Capital Account Deposit	1.0% of prior year net plant investment
<b>2018 RATE DETERMINATION PERFORMANCE TARGETS</b>	
Debt Coverage	Senior Debt Service Coverage 1.30x
Cash Funded Capital	20% of Annual Capital Expenditures
Rate Stabilization Fund Balance	Target of \$135 Million
Residual Fund Balance	Annual target of \$15 Million

### 2.3.3 Capital Improvements

The Water Department’s CIP reflects planned improvements to the Combined System required to meet regulatory requirements and maintain existing levels of service. The CIP includes water treatment and wastewater treatment facility improvements, distribution system rehabilitation, large meter replacement including the implementation of Advanced Metering Infrastructure (“AMI”), new billing system, storm flood relief, reconstruction of the sewer collection system, and green stormwater infrastructure.

As discussed in Section 1.4.6, the Water Department’s CIP is an appropriations-based projection that is not inflation-adjusted and contains contingencies (for projects other than WRP related, including those proposed as part of an application currently being considered by WIFIA as well as those which are funded by PENNVEST). An appropriation-based budget means that the Water Department budgets the full amount of a proposed project in the year in which it is expected to be contracted. This type of budgeting does not reflect the actual cash expenditures as the project is executed nor does it reflect the City’s capital funding policy, as previously noted. As such, the overall annual CIP encumbrances must be estimated along with project expenses and evaluated against available monies in the Construction Fund, which is discussed in Section 2.4.

The overall resulting CIP Encumbrances adjusted for inflation, carryforward, and removal of contingencies as well as the resulting project expenses, which account for program level project durations, are reflected in Table 2-6.

**Table 2-6 Projected Capital Program Budget and Annual Expenditures [Schedule BV-1: Table C-7]**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Combined System (\$000s)</b>							
1	Engineering and Administration (a)	14,321	12,806	11,587	10,367	9,148	7,929
2	Plant Improvements	255,000	393,000	295,000	262,000	315,000	450,000
3	Distribution System Rehabilitation	123,060	157,100	240,100	135,100	128,100	120,100
4	Large Meter Replacement	5,000	5,000	5,000	5,000	5,000	5,000
5	Billing System	-	-	-	30,000	30,000	30,000
6	Storm Flood Relief	15,000	15,000	15,000	15,000	15,000	15,000
7	Reconstruction of Sewers	72,860	80,000	86,000	91,000	96,000	102,000
8	Green Infrastructure	83,000	90,000	90,000	170,000	170,000	170,000
9	Vehicles	12,000	12,000	12,000	12,000	12,000	12,000
<b>10</b>	<b>Total Improvements</b>	<b>580,241</b>	<b>764,906</b>	<b>754,687</b>	<b>730,467</b>	<b>780,248</b>	<b>912,029</b>
11	Inflation Adjustment (b)	-	-	30,188	59,239	97,425	154,916
<b>12</b>	<b>Inflated Total</b>	<b>580,241</b>	<b>764,906</b>	<b>784,874</b>	<b>789,707</b>	<b>877,673</b>	<b>1,066,945</b>
13	Rollforward Adjustments	(100,885)	82,940	56,614	36,983	(17,674)	(37,949)
<b>14</b>	<b>Total Inflated Adjusted CIP Budget</b>	<b>479,356</b>	<b>847,846</b>	<b>841,488</b>	<b>826,690</b>	<b>859,999</b>	<b>1,028,995</b>
15	Contingency Adjustment	(49,261)	(72,342)	(72,589)	(101,842)	(76,131)	(78,151)
<b>16</b>	<b>Annual Encumbrances</b>	<b>430,095</b>	<b>775,504</b>	<b>768,900</b>	<b>724,848</b>	<b>783,868</b>	<b>950,844</b>
17	Project Expenses (c)	337,627	513,964	606,056	757,393	791,263	865,518
<b>18</b>	<b>Annual Net Encumbrances</b>	<b>92,469</b>	<b>261,541</b>	<b>162,844</b>	<b>(32,545)</b>	<b>(7,396)</b>	<b>85,326</b>

(a) Reflects shift in capital related salary costs from capital to operating budget.

(b) Allowance for inflation of 4.0 percent per year after fiscal year 2024.

(c) Reflects annual drawdown of capital budget appropriations based on project durations and annual encumbrances.

### 2.3.4 Debt Service

Table 2-7 summarizes the existing and proposed debt service payments during the Study Period and reflects the assumptions outlined in Section 1.4.4. For the analyses conducted herein, Black & Veatch worked with the Water Department, and the City’s financial advisors (“Financial Advisors”) to estimate anticipated bond issue sizes, interest rates for a 30-year term, and issuance costs.

The Water Department has a goal of continuing to pursue the lowest-cost financing options for the CIP. As part of this effort, the Water Department includes PENNVEST loans as a funding source. PENNVEST provides low-interest loans and grants for new construction or improvements to publicly or privately-owned drinking water, stormwater, or sewerage treatment facilities. PENNVEST loans are considered parity debt. To cover contractor costs between the time of the invoice(s) and the PENNVEST reimbursement, the Water Department leverages its CP program along with available cash funding to pay these invoices in the interim. Debt Service also includes interest on the Water Department’s CP program, which is considered part of senior debt in accordance with the General Bond Ordinance.

In addition to pursuing PENNVEST loans, the Water Department is currently negotiating with the USEPA to secure a WIFIA loan to further support the implementation of the WRP. WIFIA loans, if awarded, will be parity debt. The Water Department has proposed a master agreement that will support projects over the next several fiscal years. If approved, the WIFIA loan will provide low-interest financing for approximately 49% of select WRP-related construction costs. The Water Department expects to close the first tranche of financing in early calendar year 2023. Debt service projections associated with the pending WIFIA loans, including the matching funding requirements, were provided by the Financial Advisors.

Existing debt service requirements include all Water and Wastewater Revenue Bonds and Revenue Refunding Bonds issued prior to July 1, 2022, the Water and Wastewater Revenue Bond Series 2022C (issued during FY 2023 in August 2022), PENNVEST and CP.

As of the date of this Report, the Water Department has no subordinate debt.

**Table 2-7 Summary of Existing and Proposed Debt Service [Schedule BV-1: Table C-9]**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Combined System (\$000s)</b>							
<b>Revenue Bonds</b>							
1	Existing (a) Proposed	187,747	185,847	183,090	183,088	183,091	166,318
2	Fiscal Year 2023 (b)	-	-	-	-	-	-
3	Fiscal Year 2024 (c)		21,083	31,650	31,650	31,650	31,650
4	Fiscal Year 2025 (c)			22,229	33,371	33,371	33,371
5	Fiscal Year 2026 (d)				27,750	40,320	40,320
6	Fiscal Year 2027 (d)					24,000	34,871
7	Fiscal Year 2028 (d)						35,000
<b>8</b>	<b>Total Proposed</b>	<b>-</b>	<b>21,083</b>	<b>53,880</b>	<b>92,771</b>	<b>129,341</b>	<b>175,213</b>
<b>9</b>	<b>Total Revenue Bonds</b>	<b>187,747</b>	<b>206,930</b>	<b>236,970</b>	<b>275,860</b>	<b>312,432</b>	<b>341,531</b>
<b>PENNVEST Loans</b>							
10	PENNVEST Loans (e)	10,935	12,031	16,329	23,721	29,283	32,313
<b>Commercial Paper</b>							
11	Commercial Paper	900	900	900	900	900	900
<b>WIFIA</b>							
12	WIFIA	-	17	956	4,812	8,532	16,153
<b>13</b>	<b>Total Senior Debt Service</b>	<b>199,582</b>	<b>219,878</b>	<b>255,154</b>	<b>305,292</b>	<b>351,146</b>	<b>390,897</b>

(a) Projected debt service amounts include debt service for all Water and Wastewater Revenue Bonds and Revenue Refunding Bonds issued prior to July 1, 2022 and the Water and Wastewater Revenue Bond Series 2022c (issued in August 2022).

(b) Projected debt service for the Water and Wastewater Revenue Bond Series 2022c (issued in August 2022) included with Existing Bonds.

(c) Projected debt service amounts assume interest only payment for the first year of the bond authorization based on 5.50% interest rate; and assume issuance during the first quarter of the fiscal year.

(d) Projected debt service amounts assume interest only payment for the first year of the bond authorization based on 6.00% interest rate; and assume issuance during the first quarter of the fiscal year.

(e) Includes projected PENNVEST Loans.

## 2.4 Sources and Uses of Funds

Table 2-8 summarizes the sources and uses of funds for financing of the Combined System CIP. Line 1 of the table shows the projected total revenue bond principal amounts projected to be issued FY 2023 through FY 2028 to finance the proposed capital improvements of the Combined Water and Wastewater Systems.

As shown in Lines 2 through 4, in addition to funding capital construction costs, the bond issuance proceeds in FY 2023 are also used to fund deposits into the Debt Reserve Account as required and pay the costs of bond issuance. With the issuance of the 2022C Revenue Bonds, a series of certain amendments, referred to as “Springing Amendments,” as contained in the Twenty-First Supplemental amendment to the General Ordinance became effective. As detailed in the Water and Wastewater Revenue Bonds, Series 2022C Official Statement dated August 9, 2022, one of the Springing Amendments allows the Water Department to issue revenue bonds without making deposits to the Debt Reserve Account and without having to establish series specific debt reserve subaccount. As such, no deposits to



the Debt Reserve Account are assumed following the issuance of the 2022C Revenue Bonds. As discussed previously, the projected bond issuances are consistent with the stated issuance assumptions. Proposed bonds issued during FY 2024 to FY 2028 assume no debt service reserve requirement.

**Table 2-8 Projected Flow of Funds – Construction Fund & Debt Reserve Account**  
[Schedule BV-1: Table C-8]

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Combined System (\$000s)</b>							
<b>Disposition of Bond Proceeds</b>							
1	Proceeds From Sale of Bonds	338,465	460,000	485,000	555,000	480,000	700,000
	Transfers:	-	-	-	-	-	-
2	Debt Reserve Account (a)	8,500	-	-	-	-	-
3	Cost of Bond Issuance (b)	1,965	2,806	2,959	3,386	4,800	7,000
4	Construction Fund (c)	328,000	457,194	482,042	551,615	475,200	693,000
5	<b>Total Issue</b>	<b>338,465</b>	<b>460,000</b>	<b>485,000</b>	<b>555,000</b>	<b>480,000</b>	<b>700,000</b>
<b>Construction Fund</b>							
6	Beginning Balance	523,680	614,573	720,294	783,571	841,574	802,171
7	Transfer From Revenue Bond Proceeds	328,000	457,194	482,042	551,615	475,200	693,000
8	WIFIA Proceeds	-	9,063	20,772	47,939	58,563	59,127
9	WIFIA Match Funding Proceeds	-	9,338	20,958	47,915	58,497	59,246
10	PENNVEST Loan Proceeds	54,874	83,354	78,438	75,465	51,373	30,493
11	Capital Account Deposit	23,383	24,295	25,242	26,226	27,249	28,312
12	Transfer from Residual Fund	16,600	29,800	34,400	58,150	72,800	86,100
13	Interest Income on Construction Fund	5,663	6,641	7,482	8,085	8,178	8,476
14	<b>Total Available</b>	<b>952,200</b>	<b>1,234,258</b>	<b>1,389,627</b>	<b>1,598,967</b>	<b>1,593,435</b>	<b>1,766,925</b>
15	Net Cash Financing Required	337,627	513,964	606,056	757,393	791,263	865,518
16	<b>Ending Balance</b>	<b>614,573</b>	<b>720,294</b>	<b>783,571</b>	<b>841,574</b>	<b>802,171</b>	<b>901,407</b>
<b>Capital Program Net Encumbrances</b>							
17	Beginning Balance	454,669	507,672	614,431	649,351	730,403	641,195
18	Annual Encumbrances (d)	390,629	577,611	575,956	720,354	564,519	823,998
19	Project Expenses (d)	(337,627)	(470,851)	(541,037)	(639,302)	(653,728)	(728,817)
20	<b>Ending Balance</b>	<b>507,672</b>	<b>614,431</b>	<b>649,351</b>	<b>730,403</b>	<b>641,195</b>	<b>736,375</b>
21	Allowance Commitments Prior to Bond Issue	96,268	95,993	120,059	94,087	137,333	134,146
22	Target Balance	603,940	710,424	769,410	824,489	778,528	870,521
<b>Debt Reserve Account</b>							
23	Beginning Balance	189,723	199,328	200,423	204,721	212,113	217,676
24	Transfer From Bond Proceeds	8,500	-	-	-	-	-
25	Transfer From Residual Fund (e)	1,105	1,096	4,298	7,392	5,562	3,030
26	Debt Reserve Account Release	-	-	-	-	-	-
27	<b>Ending Balance</b>	<b>199,328</b>	<b>200,423</b>	<b>204,721</b>	<b>212,113</b>	<b>217,676</b>	<b>220,706</b>
28	Interest Income on Debt Reserve Account	1,945	1,999	2,026	2,084	2,149	2,192

(a) Amount of Debt Reserve Account estimated based on outstanding and proposed debt service payments.

(b) Cost of bonds issuance reflects actual cost in FY 2023, assumed 0.61 percent of issue amount in FY 2024 to 2025, and assumed 1.0% of issuance in FY 2026 to FY 2028.

(c) Deposits equal proceeds from sale of bonds less transfers to Debt Reserve Account and Costs of Issuance.

(d) Excluding PENNVEST and WIFIA.

(e) Transfer from Residual Fund to provide PENNVEST share of Debt Reserve Account requirement.

The Construction Fund is summarized on Lines 6 through 16, with proceeds from revenue bonds presented on Line 7, with WIFIA loan and related matching funding presented on Lines 8 and 9. PENNVEST Loan proceeds are presented on Line 10. The Capital Account Deposit and Transfer from the

Residual Fund account for most of the Water Department's cash-funded capital and are presented on Lines 11 and 12.

Under the General Ordinance, as amended by Springing Amendments contained in the Twenty-First Supplemental Ordinance, which came into effect upon the issuance of the 2022C Bonds, the annual Debt Reserve Account balance must equal the maximum future annual debt service for outstanding bonds of a series for which a Debt Reserve Requirement was specified, as well as any outstanding interest associated with the CP program. The Debt Reserve Requirement associated with PENNVEST loans is funded from the Residual Fund, as reflected on Line 25. As noted earlier, no Debt Reserve Requirements are assumed for any future revenue bond issuances at this time.

Per City funding policy, the Water Department needs to maintain sufficient funds (including revenue sources from current year rates, bond proceeds, other loans, and accumulated interest) in the Construction Fund such that outstanding project encumbrances do not exceed available funding. This is best illustrated by comparing the ending balance for the Construction Fund, as presented on Line 16, against the Target Balance shown on Line 22, which accounts for new CIP Encumbrances and Project Expenses for each fiscal year excluding PENNVEST and WIFIA funded projects. Black & Veatch projects that the Water Department will adhere to the City funding policy for the Study Period, assuming requested revenue adjustments are granted by the Rate Board.

The projected bond issuances are as discussed above and consistent with the general assumptions outlined in Section 1.4.

The General Bond Ordinance provides for two transfers: Interest Earnings Payment, which is transferred as a Deposit to the City General Fund, and the Capital Account Deposit. The Capital Account Deposit is shown on Line 11, and the Residual Fund Transfer is found on Line 12. Both the Interest Earnings Payment to the City General Fund Deposit and Capital Account Deposit are further discussed below.

The City covenants under the General Ordinance require the Water Department to make one deposit to the Capital Account as of June 20th of each fiscal year in an amount not less than one percent of the total net plant investment in water and wastewater facilities (the "Capital Account Deposit Amount"). As discussed in Section 1.4, the projected level of the annual Capital Account Deposit Amount reflects 1.0% of the projected net plant investment in water and wastewater facilities in the prior year. Black & Veatch started with the FY 2022 net plant investment and inflated it by 3.9% per year to project the FY 2023 to FY 2027 net plant investment.

Under the General Ordinance, the Water Department may make an annual payment to the City General Fund from the Residual Fund in an amount not to exceed the lower of \$4,994,000 and annual interest earnings on the Debt Reserve Account. Accordingly, the Water Department annually transfers applicable interest earnings to the Residual Fund.

Interest income on annual average balances in the Construction Fund and the Debt Reserve Account is shown in Lines 13 and 28. The interest earnings in the Construction Fund, which primarily consists of bond proceeds, are not available to the Revenue Fund as a part of the overall project revenues available for meeting the annual revenue requirements of the Water Department. An assumed interest rate of 1.0% is used to determine the interest income for FY 2023 through FY 2028.



## 2.5 Summary of Revenue and Revenue Requirements

In this section, three tables are presented to provide the statement of financial operations for the Combined System. The first, Table 2-9, is the Water Department's financial plan reflecting only Base Rates. That is, TAP discounts and TAP-R revenues are not included. Table 2-10 presents the cashflows for the TAP discounts and TAP-R revenues<sup>17</sup>. Finally, Table 2-11, combines Table 2-9 and Table 2-10 to show a cashflow for the Combined System accounting for all revenues and revenue requirements. Compliance with the requirements of the General Bond Ordinance and metrics set by the Rate Board is based on Table 2-11. For all three tables, the proposed revenue increases do not reflect any rate compression.

As indicated on Lines 4 through 9 of Table 2-9 and Table 2-11, annual increases in revenue are required beginning in FY 2024. Revenue increases presented on Lines 4 to 9 of Table 2-9 reflect the overall needed increase to the Base Rates. The resulting percentage increases on Table 2-11 are lower because the additional revenue is relative to the total service revenue including TAP-R revenues.

*[This spacing is intentional]*

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<sup>17</sup> Black & Veatch is presenting the existing FY 2023 TAP-R revenues and associated TAP discounts in alignment with calculations submitted with the 2023 TAP-R Annual Adjustment Proceeding. Table 2-10 illustrates the anticipated decrease in TAP-R rates in FY 2024. TAP-R Revenues and TAP Discounts for FY 2025 and thereafter presented the estimated TAP-R revenue requirements per the TAP-R reconciliation calculations, as FY 2025 and beyond are subject to an annual adjustment proceeding (and only FY 2024 TAP-R rates are proposed at this time).

**Table 2-9 Projected Revenue and Revenue Requirements: Base Rates Only  
[Schedule BV-1: Table C-1A]**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Combined System (\$000s)</b>							
<b>Operating Revenues</b>							
1	Water Service - Existing Rates	294,038	296,093	298,680	301,466	301,071	300,328
2	Wastewater Service - Existing Rates	472,292	476,637	478,997	480,829	480,147	470,259
3	<b>Total Service Revenue - Existing Rates</b>	<b>766,330</b>	<b>772,731</b>	<b>777,677</b>	<b>782,295</b>	<b>781,218</b>	<b>770,587</b>
Additional Service Revenue Required							
	Year	Percent Increase	Months Effective				
4	FY 2024	12.75%	10	80,412	99,154	99,743	99,605
5	FY 2025	8.80%	10		62,977	77,619	77,512
6	FY 2026	12.70%	10			99,472	121,709
7	FY 2027	8.00%	10				70,520
8	FY 2028	9.00%	10				84,516
9	<b>Total Additional Service Revenue Required</b>	<b>-</b>	<b>80,412</b>	<b>162,131</b>	<b>276,834</b>	<b>369,346</b>	<b>464,504</b>
10	<b>Total Water &amp; Wastewater Service Revenue</b>	<b>766,330</b>	<b>853,142</b>	<b>939,807</b>	<b>1,059,129</b>	<b>1,150,564</b>	<b>1,235,091</b>
Other Income (a)							
11	Other Operating Revenue	29,601	29,664	29,713	29,771	29,746	29,720
12	Debt Reserve Account Interest Income	-	-	-	-	-	-
13	Operating Fund Interest Income	1,882	1,982	2,023	2,192	2,271	2,331
14	Rate Stabilization Interest Income	1,365	1,339	1,336	1,360	1,423	1,497
15	<b>Total Revenues</b>	<b>799,178</b>	<b>886,128</b>	<b>972,880</b>	<b>1,092,452</b>	<b>1,184,004</b>	<b>1,268,639</b>
<b>Operating Expenses</b>							
16	<b>Total Operating Expenses</b>	<b>(564,671)</b>	<b>(611,326)</b>	<b>(654,537)</b>	<b>(690,172)</b>	<b>(720,118)</b>	<b>(752,972)</b>
<b>Net Revenues</b>							
17	Transfer From/(To) Rate Stabilization Fund	5,000	100	600	(5,400)	(7,300)	(7,500)
18	<b>NET REVENUES AFTER OPERATIONS</b>	<b>239,507</b>	<b>274,902</b>	<b>318,943</b>	<b>396,880</b>	<b>456,586</b>	<b>508,167</b>
<b>Debt Service</b>							
<b>Senior Debt Service</b>							
19	Outstanding Bonds	(187,747)	(185,847)	(183,090)	(183,088)	(183,091)	(166,318)
20	PENNVEST Loans	(10,935)	(12,031)	(16,329)	(23,721)	(29,283)	(32,313)
21	Projected Future Bonds	-	(21,083)	(53,880)	(92,771)	(129,341)	(175,213)
22	Commercial Paper	(900)	(900)	(900)	(900)	(900)	(900)
23	WIFIA	-	(17)	(956)	(4,812)	(8,532)	(16,153)
24	<b>Total Senior Debt Service</b>	<b>(199,582)</b>	<b>(219,878)</b>	<b>(255,154)</b>	<b>(305,292)</b>	<b>(351,146)</b>	<b>(390,897)</b>
25	<b>TOTAL SENIOR DEBT SERVICE COVERAGE (L18/L24)</b>	<b>1.20 x</b>	<b>1.25 x</b>	<b>1.25 x</b>	<b>1.30 x</b>	<b>1.30 x</b>	<b>1.30 x</b>
26	Subordinate Debt Service	-	-	-	-	-	-
27	Transfer to Escrow	-	-	-	-	-	-
28	<b>Total Debt Service on Bonds</b>	<b>(199,582)</b>	<b>(219,878)</b>	<b>(255,154)</b>	<b>(305,292)</b>	<b>(351,146)</b>	<b>(390,897)</b>
29	<b>CAPITAL ACCOUNT DEPOSIT</b>	<b>(23,383)</b>	<b>(24,295)</b>	<b>(25,242)</b>	<b>(26,226)</b>	<b>(27,249)</b>	<b>(28,312)</b>
30	<b>TOTAL COVERAGE (L18/(L24+L26+L29))</b>	<b>1.07 x</b>	<b>1.12 x</b>	<b>1.13 x</b>	<b>1.19 x</b>	<b>1.20 x</b>	<b>1.21 x</b>
31	End of Year Revenue Fund Balance	16,542	30,729	38,547	65,361	78,191	88,958

(a) Includes other operating and nonoperating income, including interest income on funds and accounts transferable to the Revenue Fund.

**Table 2-10 Projected Revenue and Revenue Requirements: TAP-R Rates Only**  
**[Schedule BV-1: Table C-1B]**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Combined System (\$000s)</b>							
<b>Operating Revenues</b>							
1	Water Service - Existing Rates	5,130	5,579	5,686	5,744	5,735	5,719
2	Wastewater Service - Existing Rates	7,995	8,843	9,030	9,124	9,110	9,085
3	<b>Total Service Revenue - Existing Rates</b>	<b>13,125</b>	<b>14,422</b>	<b>14,716</b>	<b>14,868</b>	<b>14,846</b>	<b>14,804</b>
Additional Service Revenue Required							
	Year	Percent Increase	Months Effective				
4	FY 2024	-79.32%	10	(8,020)	(11,188)	(11,743)	(11,743)
5	FY 2025	0.00%	10	-	-	-	-
6	FY 2026	0.00%	10	-	-	-	-
7	FY 2027	0.00%	10	-	-	-	-
8	FY 2028	0.00%	10	-	-	-	-
9	<b>Total Additional Service Revenue Required</b>	<b>-</b>	<b>(8,020)</b>	<b>(11,188)</b>	<b>(11,743)</b>	<b>(11,776)</b>	<b>(11,743)</b>
10	<b>Total Water &amp; Wastewater Service Revenue</b>	<b>13,125</b>	<b>6,402</b>	<b>3,528</b>	<b>3,125</b>	<b>3,070</b>	<b>3,061</b>
Other Income							
11	Other Operating Revenue (a)	(9,354)	(10,438)	(3,052)	(3,052)	(3,052)	(3,052)
12	Debt Reserve Account Interest Income	-	-	-	-	-	-
13	Operating Fund Interest Income	-	-	-	-	-	-
14	Rate Stabilization Interest Income	-	-	-	-	-	-
15	<b>Total Revenues</b>	<b>3,771</b>	<b>(4,036)</b>	<b>476</b>	<b>73</b>	<b>18</b>	<b>9</b>
<b>Operating Expenses</b>							
16	<b>Total Operating Expenses</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Net Revenues</b>							
17	Transfer From/(To) Rate Stabilization Fund (b)	(3,771)	4,036	(476)	(73)	(18)	(9)
18	<b>NET REVENUES AFTER OPERATIONS</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
<b>Debt Service</b>							
<b>Senior Debt Service</b>							
19	Outstanding Bonds	-	-	-	-	-	-
20	PENNVEST Loans	-	-	-	-	-	-
21	Projected Future Bonds	-	-	-	-	-	-
22	Commercial Paper	-	-	-	-	-	-
23	WIFIA	-	-	-	-	-	-
24	<b>Total Senior Debt Service</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
25	<b>TOTAL SENIOR DEBT SERVICE COVERAGE (L18/L24)</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
26	Subordinate Debt Service	-	-	-	-	-	-
27	Transfer to Escrow	-	-	-	-	-	-
28	<b>Total Debt Service on Bonds</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
29	<b>CAPITAL ACCOUNT DEPOSIT</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>
30	<b>TOTAL COVERAGE (L18/(L24+L26+L29))</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>	<b>NA</b>
31	End of Year Revenue Fund Balance	-	-	-	-	-	-

(a) FY 2023 and FY 2024 reflect TAP Credits based on the proposed 2023 Annual Adjustment. FY 2025 to FY 2028 reflect proposed TAP-R revenue requirement based on the proposed 2023 Annual Adjustment.

(b) Rate Stabilization Fund transfers necessary to meet over or under recovery of TAP costs until recovery is reconciled via TAP-R reconciliation.

**Table 2-11 Projected Revenue and Revenue Requirements: Base Rates and TAP-R Rates  
[Schedule BV-1: Table C-1]**

LINE		FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
NO.	DESCRIPTION						
<b>Combined System (\$000s)</b>							
<b>Operating Revenues</b>							
1	Water Service - Existing Rates	299,168	301,672	304,366	307,210	306,806	306,047
2	Wastewater Service - Existing Rates	480,288	485,480	488,027	489,953	489,257	479,344
3	<b>Total Service Revenue - Existing Rates</b>	<b>779,455</b>	<b>787,152</b>	<b>792,393</b>	<b>797,163</b>	<b>796,063</b>	<b>785,392</b>
Additional Service Revenue Required							
			Percent	Months			
	<u>Year</u>		<u>Increase</u>	<u>Effective</u>			
4	FY 2024		11.02%	10	72,392	87,966	88,000
5	FY 2025		8.77%	10	62,977	77,619	77,512
6	FY 2026		12.66%	10		99,472	121,709
7	FY 2027		7.98%	10		70,520	85,228
8	FY 2028		8.98%	10			84,516
9	<b>Total Additional Service Revenue Required</b>	<b>-</b>	<b>72,392</b>	<b>150,942</b>	<b>265,091</b>	<b>357,570</b>	<b>452,760</b>
10	<b>Total Water &amp; Wastewater Service Revenue</b>	<b>779,455</b>	<b>859,544</b>	<b>943,335</b>	<b>1,062,254</b>	<b>1,153,634</b>	<b>1,238,152</b>
Other Income (a)							
11	Other Operating Revenue	20,247	19,226	26,661	26,719	26,694	26,668
12	Debt Reserve Account Interest Income	-	-	-	-	-	-
13	Operating Fund Interest Income	1,882	1,982	2,023	2,192	2,271	2,331
14	Rate Stabilization Interest Income	1,365	1,339	1,336	1,360	1,423	1,497
15	<b>Total Revenues</b>	<b>802,949</b>	<b>882,092</b>	<b>973,356</b>	<b>1,092,525</b>	<b>1,184,022</b>	<b>1,268,648</b>
<b>Operating Expenses</b>							
16	<b>Total Operating Expenses</b>	<b>(564,671)</b>	<b>(611,326)</b>	<b>(654,537)</b>	<b>(690,172)</b>	<b>(720,118)</b>	<b>(752,972)</b>
<b>Net Revenues</b>							
17	Transfer From/(To) Rate Stabilization Fund	1,229	4,136	124	(5,473)	(7,318)	(7,509)
18	<b>NET REVENUES AFTER OPERATIONS</b>	<b>239,507</b>	<b>274,902</b>	<b>318,943</b>	<b>396,880</b>	<b>456,586</b>	<b>508,167</b>
<b>Debt Service</b>							
<b>Senior Debt Service</b>							
<b>Revenue Bonds</b>							
19	Outstanding Bonds	(187,747)	(185,847)	(183,090)	(183,088)	(183,091)	(166,318)
20	PENNVEST Loans	(10,935)	(12,031)	(16,329)	(23,721)	(29,283)	(32,313)
21	Projected Future Bonds	-	(21,083)	(53,880)	(92,771)	(129,341)	(175,213)
22	Commercial Paper	(900)	(900)	(900)	(900)	(900)	(900)
23	WIFIA	-	(17)	(956)	(4,812)	(8,532)	(16,153)
24	<b>Total Senior Debt Service</b>	<b>(199,582)</b>	<b>(219,878)</b>	<b>(255,154)</b>	<b>(305,292)</b>	<b>(351,146)</b>	<b>(390,897)</b>
25	<b>TOTAL SENIOR DEBT SERVICE COVERAGE (L18/L24)</b>	<b>1.20 x</b>	<b>1.25 x</b>	<b>1.25 x</b>	<b>1.30 x</b>	<b>1.30 x</b>	<b>1.30 x</b>
26	Subordinate Debt Service	-	-	-	-	-	-
27	Transfer to Escrow	-	-	-	-	-	-
28	<b>Total Debt Service on Bonds</b>	<b>(199,582)</b>	<b>(219,878)</b>	<b>(255,154)</b>	<b>(305,292)</b>	<b>(351,146)</b>	<b>(390,897)</b>
29	<b>CAPITAL ACCOUNT DEPOSIT</b>	<b>(23,383)</b>	<b>(24,295)</b>	<b>(25,242)</b>	<b>(26,226)</b>	<b>(27,249)</b>	<b>(28,312)</b>
30	<b>TOTAL COVERAGE (L18/(L24+L26+L29))</b>	<b>1.07 x</b>	<b>1.12 x</b>	<b>1.13 x</b>	<b>1.19 x</b>	<b>1.20 x</b>	<b>1.21 x</b>
31	<b>End of Year Revenue Fund Balance</b>	<b>16,542</b>	<b>30,729</b>	<b>38,547</b>	<b>65,361</b>	<b>78,191</b>	<b>88,958</b>

**Table 2-11 Projected Revenue and Revenue Requirements: Base Rates and TAP-R Rates (continued)**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Combined System (\$000s)</b>							
<b>Residual Fund</b>							
32	Beginning of Year Balance	16,102	15,095	15,079	15,078	15,047	15,025
33	Interest Income	155	150	150	150	150	149
Plus:							
34	End of Year Revenue Fund Balance	16,542	30,729	38,547	65,361	78,191	88,958
35	Deposit for Transfer to City General Fund (b)	1,945	1,999	2,026	2,084	2,149	2,192
Less:							
36	Transfer to Construction Fund	(16,600)	(29,800)	(34,400)	(58,150)	(72,800)	(86,100)
37	Transfer to City General Fund	(1,945)	(1,999)	(2,026)	(2,084)	(2,149)	(2,192)
38	Transfer to Debt Reserve Account	(1,105)	(1,096)	(4,298)	(7,392)	(5,562)	(3,030)
39	<b>End of Year Balance</b>	<b>15,095</b>	<b>15,079</b>	<b>15,078</b>	<b>15,047</b>	<b>15,025</b>	<b>15,002</b>
<b>Rate Stabilization Fund</b>							
40	Beginning of Year Balance (c)	138,989	137,760	133,625	133,501	138,974	146,291
41	Deposit From/(To) Revenue Fund	(1,229)	(4,136)	(124)	5,473	7,318	7,509
42	<b>End of Year Balance</b>	<b>137,760</b>	<b>133,625</b>	<b>133,501</b>	<b>138,974</b>	<b>146,291</b>	<b>153,800</b>

(a) Includes other operating and nonoperating income, including interest income on funds and accounts transferable to the Revenue Fund and reflects projected contra revenue credits for Affordability Program Discounts (TAP Costs).

(b) Transfer of interest earnings from the Debt Reserve Account to the Residual Fund as shown in Line 35 to satisfy the requirements for the transfer to the City General Fund shown on Line 37.

(c) FY 2023 beginning balance is estimated based on preliminary FY 2022 results.

For this analysis, an effective increase date of September 1 for each fiscal year is assumed. As indicated in Lines 25 and 30 on Table 2-11, the debt service coverage requirements discussed previously would be met with these overall levels of increase in revenues. Annual cash requirements for the Combined System would also be met with the proposed levels of increase, as shown on Line 31 of Table 2-9 and Table 2-11.

## 2.6 Compliance with General Bond Ordinance and Rate Ordinance Requirements

As stated in the assumptions utilized for these analyses, the Water Department must establish rates and charges to meet the financial management requirements of the General Bond Ordinance with respect to, among other things, (1) maintaining the Rate Stabilization Fund at target levels; (2) financing a portion of major annual capital improvement requirements directly from annual system revenues; (3) fulfilling rate covenant requirements; and (4) making required deposits into the Residual Fund of any monies remaining after payment of all current cash obligations to further support the Water Department's goal towards 20% capital funding from system revenues.

The 2018 Rate Determination identified the following financial policy goals: a target Rate Stabilization Fund balance of approximately \$135 Million, a 1.30 senior debt service coverage ratio, 20% cash financing of capital improvements, and maintaining a target Residual Fund balance of \$15 Million.

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**To help mitigate short term rate impacts, the Water Department has decided to temporarily defer meeting the Rate Stabilization Fund, senior debt service coverage, and cash-funded capital targets. The proposed rates and charges are derived to meet interim senior debt service coverage targets and adhere to the 90% Test.**

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In addition to the General Bond Ordinance, under Section 13-101(4)(a) of the Philadelphia Code, the Water Rate Board Ordinance (“Rate Ordinance”) sets forth the floor for the amounts that rates and charges must generate to support the Combined System. The rates and charges must yield to the City at least an amount equal to the sum of:

1. Operating expenses of the City in respect of the Water and Wastewater Systems.
2. Debt service on all obligations of the City in respect of the Water and Wastewater Systems.
3. With respect to the water, sewer and stormwater revenue obligations of the City, such additional amounts as will be required to comply with any rate covenant and sinking fund reserve requirements approved by ordinance of the City Council in connection with the authorization or issuance of water, sewer, and stormwater revenue bonds; and
4. Proportionate charges for all services performed for the Water Department by all officers, departments, boards, or commissions of the City.

Moreover, Section 13-101(4)(b) of the Philadelphia Code states that the rates and charges must not exceed (“ceiling”) the total appropriations from the Water Fund and provides considerations of the elements that are to be included in the calculation of the ceiling. The rates and charges projected for FY 2024 and FY 2025 do not exceed the Water Fund’s projected appropriations for the above years.

Lines 4 through 6 on Table 2-12 show the calculation for compliance with the General Bond Ordinance Rate Covenant. As shown on Line 25 of Table 2-11, senior debt service coverage is projected to be 1.25 in FY 2024 and FY 2025 and 1.30 for the remainder of the Study Period. This reflects the Water Department’s intent to increase coverage, generating more cash funding for capital while helping to mitigate revenue adjustments in the short term.

Line 11 in Table 2-12 reflects the compliance with the Rate Ordinance requirement over the Study Period.

While the Water Department has decided to defer the approved financial policy goals on an interim basis, a return to these metrics in future years will be necessary to improve the Water Department’s financial position, provide adequate reserves, and help manage through future emergencies and strains on the System. As shown on Line 3 of Table 2-12, while FY 2023 is projected to have an end of fiscal year balance above the target level of \$135 Million, the RSF is projected to remain below the target level in FY 2024 and FY 2025. The projected balance in FY 2023 is largely attributable to TAP-R revenues, which will in turn be reduced in the subsequent fiscal year based upon the proposed TAP-R rates.

The RSF serves as the Water Department’s primary source of short-term liquidity and reserves. The Water Department has historically leveraged available RSF balances to help cover costs and mitigate rate impacts. However, balances are essentially at or projected to be slightly below target levels for FY 2023 to

FY 2025 and the Water Department does not have the flexibility to rely upon the RSF to further mitigate any near-term revenue needs. Without the proposed revenue increases, the projected RSF balances would fall further below the target balance.

Lack of available Rate Stabilization Fund balance will limit the Water Department's ability to: 1) address emergencies, 2) mitigate other system risks, and 3) manage future revenue adjustments. Further, the RSF target balance may need to be increased in the future. The current RSF target balance was established with the 2018 Rate Determination, which was prior to recent inflationary pressures and based upon the operating needs of the Water Fund at the time of the corresponding rate proceeding.

The Water Department will need to closely monitor all aspects of financial performance, including the receipt of revenues, operation and maintenance expenses, capital program expenses and associated financing to meet the requirements of the General Bond Ordinance.

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**Without proposed increased revenues, and if all other factors remain unchanged, the RSF will be depleted by the end of FY 2025. Further, the 90% Test would not be met beginning in FY 2024. In addition, the senior debt service coverage requirements would not be met in FY 2025.**

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*[This spacing is intentional]*



**Table 2-12 Projected Rate Stabilization Fund and Covenants Metrics Performance: Base Rates and TAP-R Rates [Schedule BV-1: Table C-2]**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Rate Stabilization Fund</b>							
1	Beginning Balance: Rate Stabilization Fund (a)	\$ 138,989	\$ 137,760	\$ 133,625	\$ 133,501	\$ 138,974	\$ 146,291
2	Transfers From (To) Revenue Fund (b)	(1,229)	(4,136)	(124)	5,473	7,318	7,509
3	Year-End Rate Stabilization Fund Balance (Line 1 + Line 2)	137,760	133,625	133,501	138,974	146,291	153,800
<b>General Bond Ordinance Covenants</b>							
4	Senior Debt Coverage (c)	1.20	1.25	1.25	1.30	1.30	1.30
5	Total Debt Coverage (d)	1.07	1.12	1.13	1.19	1.20	1.21
6	90% Test - Senior Debt Coverage from Current Revenues (e)	1.19	1.23	1.24	1.30	1.30	1.30
<b>O&amp;M Actual to Budget Ratio</b>							
7	Projected O&M Budget (f)	659,216	715,819	766,086	807,071	842,689	881,564
8	O&M Actual to Budget Ratio	90.8%	91.0%	91.1%	91.3%	91.3%	91.3%
<b>Rate Ordinance Requirements</b>							
9	Projected Total Revenues	802,949	882,092	973,356	1,092,525	1,184,022	1,268,648
10	Projected Total Appropriations (g)	898,723	990,721	1,085,029	1,209,350	1,306,575	1,397,230
11	Rate Ordinance Requirement Compliance (h)	Yes	Yes	Yes	Yes	Yes	Yes
<b>Cash Funding</b>							
12	Cash Funded Capital (i)	39,983	54,095	59,642	84,376	100,049	114,412
13	Capital Improvement Program Annual Expenses	\$ 337,627	\$ 513,964	\$ 606,056	\$ 757,393	\$ 791,263	\$ 865,518
14	Cash Funded Capital Ratio (j)	11.8%	10.5%	9.8%	11.1%	12.6%	13.2%

(a) FY 2023 beginning balance is estimated based on FY 2022 preliminary financial results.

(b) See Line 17 in Table 2-11.

(c) Senior Debt Coverage = (Total Revenues - Operating Expenses + Transfer From (to) Rate Stabilization) divided by Senior Debt. The General Bond Ordinance requires the minimum Senior Debt Service Coverage of 1.20.

(d) Total Debt Coverage = (Total Revenues - Operating Expenses + Rate Stabilization Transfer) divided by (Senior Debt + Subordinate Debt + Capital Account Deposit). The 1989 General Ordinance requires the minimum Total Debt Service Coverage of 1.00.

(e) Senior Debt Coverage from Current Revenues = (Total Revenues - Operating Expenses - Transfer to Rate Stabilization Fund) divided by Senior Debt. Transfers from Rate Stabilization are excluded from the Total Revenues. The General Bond Ordinance requires a minimum Senior Debt Service Coverage of 0.90 from Current Revenues.

(f) FY 2023 budget reflects the PWD adopted budget; FY 2024 through FY 2028 budget reflects annual cost escalation factors.

(g) Total Appropriation = Total O&M Budget + Senior Debt + Subordinate Debt + Transfer to Escrow + Capital Account Deposit + Transfer to Rate Stabilization Fund + Transfer to Residual Fund. Costs to service the City included as required by the General Bond Ordinance rate covenants.

(h) Rate Ordinance requires that Total Revenues not exceed Total Appropriations.

(i) Cash Funded Capital = Capital Account Deposit + Residual Transfer to Construction Fund

(j) Cash Funded Capital Ratio = Cash Funded Capital divided by Capital Improvement Program annual expenses.

## 2.7 Proposed Rates

The proposed charges for water and wastewater service derived in this Report are applicable to General Service retail customers and recognize that certain retail customer types, including qualifying senior citizens, charities and schools, and the Philadelphia Housing Authority (“PHA”), receive services at a discounted rate. The Water Department anticipates that the existing discounts (25% for senior citizens, charities and schools, and 5% for PHA) will continue to be applicable for the entire Study Period.

In designing the proposed rates, water, sanitary sewer, and stormwater costs of service are adjusted to reflect the fact that the above customer types are served at a discount and do not pay the full cost of service. Accordingly, the proposed retail water, sewer, and stormwater rates are adjusted to recover this COS revenue reduction due to discounts. In addition, in the case of the non-residential stormwater group, we adjust their stormwater rates to address the discounts as well as to recover the reduction in revenue



due to the existing stormwater customer assistance program (“CAP”). Additional information regarding the anticipated revenue reductions due to the stormwater CAP are discussed later in this Report.

Revenue loss due to providing TAP discounts and TAP-R revenues were excluded from the analysis of Base Rates. Consequently, Table 2-13 only summarizes the proposed Base Rates for the Rate Period (FY 2024 and FY 2025). Current effective rates for FY 2023 are presented for informational purposes. Refer to Table 5-2 for proposed fire protection service charges.

**Table 2-13 Proposed FY 2024 and 2025 General Service Retail Rates**

Water				Wastewater			
Description	Existing	Proposed		Description	Existing	Proposed	
	FY 2023	FY 2024	FY 2025		FY 2023	FY 2024	FY 2025
<b>Monthly Water Service Charge (\$/bill)</b>				<b>Monthly Sanitary Sewer Service Charge (\$/bill)</b>			
<u>Meter Size (Inches)</u>				<u>Meter Size (Inches)</u>			
5/8	\$4.97	\$5.30	\$5.42	5/8	\$7.50	\$7.54	\$7.98
3/4	\$5.37	\$5.81	\$5.96	3/4	\$9.57	\$9.62	\$10.19
1	\$6.57	\$7.27	\$7.49	1	\$14.05	\$14.10	\$15.00
1-1/4	\$8.01	\$9.05	\$9.35	1-1/4	\$19.77	\$19.82	\$21.14
1-1/2	\$8.96	\$10.28	\$10.67	1-1/2	\$24.75	\$24.80	\$26.47
2	\$12.59	\$14.65	\$15.25	2	\$38.19	\$38.25	\$40.87
3	\$20.20	\$23.99	\$25.10	3	\$68.87	\$68.97	\$73.78
4	\$36.45	\$42.84	\$44.71	4	\$117.03	\$117.21	\$125.31
6	\$68.70	\$81.39	\$85.12	6	\$230.71	\$231.03	\$247.10
8	\$104.91	\$125.10	\$131.01	8	\$365.13	\$365.58	\$391.12
10	\$153.42	\$182.51	\$191.01	10	\$526.96	\$527.64	\$564.44
12	\$253.19	\$306.82	\$322.40	12	\$958.27	\$959.14	\$1,026.89
<b>Base Rate - Water Quantity Charges (\$/Mcf)</b>				<b>Base Rate - Sanitary Sewer Quantity Charges (\$/Mcf)</b>			
<u>Monthly Water Usage</u>				<u>Monthly Usage</u>			
First 2 Mcf	\$48.96	\$61.14	\$66.42	All Billable Water Usage	\$34.57	\$39.61	\$43.09
Next 98 Mcf	\$44.99	\$54.93	\$59.72	Groundwater Charge	\$12.58	\$13.87	\$15.27
Next 1,900 Mcf	\$34.85	\$42.55	\$46.27				
Over 2,000 Mcf	\$33.91	\$41.40	\$45.03				
				<b>Sanitary - Surcharge Rates (\$/lb)</b>			
				BOD (\$/lb in excess of 250 mg/l)	\$0.391	\$0.443	\$0.470
				SS (\$/lb in excess of 350 mg/l)	\$0.406	\$0.452	\$0.482
				<b>Residential Stormwater Charges</b>			
				<u>Monthly Stormwater Management Service Charge</u>			
				Charge Per Parcel	\$16.17	\$17.09	\$18.96
				<u>Monthly Billing &amp; Collection Charge</u>			
				Charge Per Bill	\$1.88	\$1.95	\$2.04
				<b>Non-Residential Stormwater Charges</b>			
				<u>Monthly Stormwater Management Service Charge</u>			
				Gross Area (\$/500 sf)	\$0.778	\$0.799	\$0.884
				Impervious Area (\$/500 sf)	\$5.492	\$5.842	\$6.475
				<u>Monthly Billing &amp; Collection Charge</u>			
				Charge Per Bill	\$2.44	\$2.53	\$2.65

Mcf - Thousand cubic feet  
 sf - square feet  
 BOD - Biochemical Oxygen Demand  
 SS - Suspended Solids  
 lb - pounds  
 mg/l - milligrams per liter

Notes:

1. All charges (existing and proposed) are effective effective September 1st of the respective Fiscal Year.
2. Non-Residential Stormwater Charges includes Condominiums.

## 2.7.1 Residential and Senior Citizen Typical Bills

Table 2-14 presents a series of typical or representative combined residential water, sanitary sewer, and stormwater monthly bills under existing and proposed rates for FY 2024 and FY 2025 for the 5/8-inch meter size. A typical PWD residential customer has a 5/8-inch meter and uses about 0.45 Mcf, or approximately 450 cubic feet, monthly. Under the proposed schedules of water, sanitary sewer, and stormwater rates for FY 2024, this customer's monthly bill would increase from \$69.31 to \$77.47, an increase of \$8.16 or about 11.8%. In FY 2025, the bill increases to \$83.92, an increase of \$6.45 over FY 2024 rates, or about 8.3%.

**Table 2-14 Comparison of Typical Bill for Residential Customers Under Existing and Proposed Rates [Schedule BV-1: Table C-4]**

METER SIZE	MONTHLY USE	FY 2023	FY 2024		FY 2025	
		EXISTING RATES	PROPOSED RATES	% PROPOSED OF EXISTING	PROPOSED RATES	% PROPOSED OF FY 2024
Inches	Mcf	\$	\$	%	\$	%
5/8	0.00	30.52	31.88	4.5	34.40	7.9
5/8	0.20	47.76	52.14	9.2	56.42	8.2
5/8	0.30	56.38	62.28	10.5	67.42	8.3
5/8	0.40	65.00	72.40	11.4	78.42	8.3
5/8	0.45	69.31	77.47	11.8	83.92	8.3
5/8	0.50	73.62	82.54	12.1	89.44	8.4
5/8	0.60	82.23	92.66	12.7	100.44	8.4
5/8	0.70	90.85	102.80	13.2	111.44	8.4
5/8	0.80	99.47	112.92	13.5	122.44	8.4
5/8	1.70	177.04	204.10	15.3	221.50	8.5
5/8	2.70	260.45	301.05	15.6	326.87	8.6
5/8	3.30	309.79	358.10	15.6	388.89	8.6

**Notes:**

FY 2023 figures reflect the existing base and current TAP-R rates, of \$1.03/Mcf for water and \$1.63/Mcf for sewer.

FY 2024 and FY 2025 figures reflect the proposed base and TAP-R rates, of \$0.21/Mcf for water and \$0.34/Mcf for sewer.

The FY 2024 TAP-R rates are subject to the Rate Board's Determination in the 2023 TAP-R Reconciliation Proceeding.

The TAP-R Rates are subject to annual reconciliation.

A typical PWD senior residential customer has a 5/8-inch meter and uses about 0.3 Mcf monthly. Under the proposed schedules of water, sanitary sewer, and stormwater rates for FY 2024, this customer's monthly bill would increase from \$56.38 to \$62.28, an increase of \$5.90 or about 10.5%. In FY 2025, the bill increases to \$67.42, an increase of \$5.14 over FY 2024 rates, or about 8.3%. Qualifying senior citizens may receive a 25% discount on their entire bill. The total monthly bills presented in Table 2-14 do not reflect this discount. The typical qualifying senior residential customer's monthly bill (based upon the previously stated billing parameters) would increase from \$42.28 to \$46.71, an increase of \$4.43 or about 10.5%. In FY 2025, the bill increases to \$50.56, an increase of \$3.85 over FY 2024 rates, or about 8.3%.

## 2.7.2 Non-Residential Typical Bills

Table 2-15 presents a series of typical or representative combined non-residential water, sanitary sewer, and stormwater monthly bills under existing and proposed rates for FY 2024 and FY 2025 for multiple meter sizes and various parcel characteristics (i.e., GA and IA). A PWD small commercial business

customer has a 5/8-inch meter and uses about 0.6 Mcf or approximately 600 cubic feet, monthly. A parcel with gross area of 5,500 square feet and impervious area of 4,000 square feet was assumed for development of the typical bill comparison.

Under the proposed schedules of water, sanitary sewer, and stormwater rates for FY 2024, this customer's monthly bill would increase from \$119.11 to \$131.68, an increase of \$12.57 or about 10.5%. In FY 2025, the bill increases to \$143.61, an increase of \$11.93 over FY 2024 rates, or about 9.1%.

*[This spacing is intentional]*

**Table 2-15 Comparison of Typical Bill for Non-Residential Customers Under Existing and Proposed Rates [Schedule BV-1: Table C-5]**

METER SIZE	MONTHLY USE	IMPERVIOUS AREA	GROSS AREA	FY 2023	FY 2024		FY 2025	
				EXISTING RATES	PROPOSED RATES	% PROPOSED OF EXISTING	PROPOSED RATES	% PROPOSED OF FY 2024
Inches	Mcf	sf	sf	\$	\$	%	\$	%
5/8	0.0	1,794	2,110	40.77	42.74	4.8	46.37	8.5
5/8	0.2	1,794	2,110	58.01	63.00	8.6	68.39	8.6
5/8	0.3	1,794	2,110	66.63	73.14	9.8	79.39	8.6
5/8	0.4	1,794	2,110	75.25	83.26	10.6	90.39	8.6
5/8	0.5	1,794	2,110	79.56	88.33	11.0	95.89	8.6
5/8	0.6	4,000	5,500	119.11	131.68	10.5	143.61	9.1
5/8	0.7	4,000	5,500	127.73	141.82	11.0	154.61	9.0
5/8	0.8	26,000	38,000	428.57	460.92	7.5	507.97	10.2
5/8	1.7	26,000	38,000	506.14	552.10	9.1	607.03	9.9
5/8	2.7	4,000	5,500	297.33	340.07	14.4	370.04	8.8
5/8	3.3	4,000	5,500	346.67	397.12	14.6	432.06	8.8
5/8	11.0	7,000	11,000	1,021.27	1,173.15	14.9	1,276.51	8.8
1	1.7	7,700	7,900	269.90	302.38	12.0	329.98	9.1
1	5.0	22,500	24,000	726.58	813.02	11.9	889.15	9.4
1	8.0	7,700	7,900	789.08	903.30	14.5	983.16	8.8
1	17.0	22,500	24,000	1,713.22	1,954.10	14.1	2,129.47	9.0
2	7.6	1,063	1,250	704.84	810.46	15.0	879.79	8.6
2	16.0	22,500	24,000	1,661.16	1,890.54	13.8	2,059.74	8.9
2	33.0	66,500	80,000	3,629.34	4,110.66	13.3	4,485.67	9.1
2	100.0	7,700	7,900	8,383.48	9,683.11	15.5	10,525.91	8.7
4	30.0	7,700	7,900	2,730.78	3,133.96	14.8	3,404.61	8.6
4	170.0	10,500	12,000	13,565.46	15,615.56	15.1	16,972.96	8.7
4	330.0	26,000	38,000	25,308.97	29,071.81	14.9	31,605.25	8.7
4	500.0	140,000	160,000	39,004.58	44,659.46	14.5	48,581.95	8.8
6	150.0	10,500	12,000	12,269.79	14,113.73	15.0	15,336.96	8.7
6	500.0	41,750	45,500	37,895.92	43,483.82	14.7	47,272.61	8.7
6	1,000.0	26,000	38,000	73,748.50	84,639.88	14.8	92,007.15	8.7
6	1,500.0	140,000	160,000	111,230.51	127,521.83	14.6	138,654.15	8.7
8	750.0	10,500	12,000	55,688.42	63,917.99	14.8	69,472.87	8.7
8	1,500.0	66,500	80,000	110,469.34	126,713.47	14.7	137,750.80	8.7
8	2,000.0	26,000	38,000	145,999.13	167,528.14	14.7	182,107.06	8.7
8	3,000.0	140,000	160,000	218,581.14	250,615.09	14.7	272,469.06	8.7
10	600.0	22,500	24,000	45,237.24	51,890.35	14.7	56,396.31	8.7
10	1,700.0	41,750	45,500	124,772.89	143,133.55	14.7	155,587.84	8.7
10	3,300.0	26,000	38,000	238,691.47	273,775.61	14.7	297,611.38	8.7
10	6,000.0	140,000	160,000	432,211.48	495,514.56	14.6	538,712.38	8.7

(a) Examples with gross area less than 5,000 square feet reflect an impervious area of 85% of the gross area consistent with PWD Regulations section 304.3.

(b) The FY 2023 figures reflect the existing base and current TAP-R rates, of \$1.03/Mcf for water and \$1.63/Mcf for sewer.

(c) FY 2024 and FY 2025 figures reflect the proposed base and TAP-R rates, of \$0.21/Mcf for water and \$0.34/Mcf for sewer.

(d) The FY 2024 TAP-R rates are subject to the Rate Board's Determination in the 2023 TAP-R Reconciliation Proceeding.

The TAP-R Rates are subject to annual reconciliation.

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# 3.0 Water System Revenue and Revenue Requirements

The major elements of the water system include three river supply intakes, three treatment plants, storage facilities and a conveyance network. Based on the 2021 U.S. Census Bureau estimate, the Water System served 1,576,251 individuals.

This section of the report focuses on the Revenue and Revenue Requirements component of the COS study for the Water System. These requirements establish how much money the Water System needs to meet its fiscal year operating and capital obligations. In the following discussion, we review O&M expenses, debt service payments, funding for specific deposits and reserves, and the cost of capital improvement projects that the Water Department does not fund via debt or contributions from third parties.

## 3.1 Water Revenue

The City’s Water System derives revenue primarily from charges for water service. During the Study Period, future levels of revenue are projected based on an analysis of historical and future system growth in terms of the number of accounts and water consumption.

### 3.1.1 Customers and Growth

Table 3-1 summarizes the Water Department’s customer account classifications. Customer types are based on a combination of service type, customer type, and installation type designations in Basis2.

**Table 3-1 Water System Customer Types**

CUSTOMER TYPES		
General Service	Other	Fire Service
- Residential	- PHA	- Public (Hydrants)
- Senior Citizens	- Charities & Schools	- Private
- Commercial	- Hospitals & Universities	Wholesale
- Industrial	- Hand Billed	
- Public Utilities	- Scheduled (Flat Rate)	

As noted above, the population served by the Water System is approximately 1,576,251 based on the 2021 Census Bureau estimate. Overall, this indicates only slight population growth within the City compared to the 2010 Census (1,526,006). As noted in Section 1.4, the Water Department saw an average annual increase in retail water accounts of 0.86% from FY 2020 to FY 2022. Customer account projections for FY 2023 to FY 2026 are based upon the number of accounts in FY 2022 and escalated by the 3-year average growth in the number accounts by type for FY 2020 to FY 2022. Accounts are assumed to remain stable thereafter. The customer accounts for the Water System over the Study Period are presented in Table 3-2.

**Table 3-2 Number of Customer Accounts**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Water System</b>							
1	Residential	439,793	444,623	449,685	455,004	455,004	455,004
2	Senior Citizens	21,614	21,174	20,743	20,321	20,321	20,321
3	Commercial	38,125	38,510	38,913	39,334	39,334	39,334
4	Industrial	1,055	1,053	1,051	1,049	1,049	1,049
5	Public Utilities	208	218	229	231	231	231
<b>6</b>	<b>Subtotal General Service</b>	<b>500,795</b>	<b>505,578</b>	<b>510,621</b>	<b>515,939</b>	<b>515,939</b>	<b>515,939</b>
7	PHA	5,597	5,529	5,462	5,396	5,396	5,396
8	Charities and Schools	1,736	1,643	1,555	1,472	1,472	1,472
9	Hospitals and Universities	96	67	47	33	33	33
10	Hand Billed	229	226	223	220	220	220
11	Scheduled (Flat Rate)	8	10	13	16	16	16
12	Private Fire Protection	7,334	7,868	8,441	9,055	9,055	9,055
<b>13</b>	<b>Subtotal Retail Customers</b>	<b>515,795</b>	<b>520,921</b>	<b>526,362</b>	<b>532,131</b>	<b>532,131</b>	<b>532,131</b>
14	Aqua Pennsylvania	1	1	1	1	1	1
<b>15</b>	<b>Total Water System</b>	<b>515,796</b>	<b>520,922</b>	<b>526,363</b>	<b>532,132</b>	<b>532,132</b>	<b>532,132</b>

### 3.1.2 Billed Volume

Section 1.4 discussed the assumptions underlying the billed volumes projections and noted that the Water Department saw an average annual decrease in overall billed water volume of 0.48%. Table 1-2 provides the baseline usage per account and summarizes the associated escalation factors for the Study Period. For all customer types, the FY 2022 usage per account serves as the initial basis for the projection of billed volume. The billed volume projections reflect the following adjustments:

- For FY 2023 to FY 2026, demand escalation factors for all customer types are based upon the 3-year average annual change in consumption per account for FY 2020 to FY 2022.
- Commercial customer water usage is adjusted to reflect the anticipated 90,000 Mcf reduction in water usage by Vicinity in FY 2024. As noted, earlier in Section 1.4, Vicinity, a top 10 customer for PWD, is working toward building their own facility to provide process water for their steam plant operations.
- To approximate anticipated ongoing reductions in residential billed water volume, a 0.68% reduction is applied to the 5/8-inch residential customers usage per account during FY 2027 to FY 2028 (see Table 1-2 for historical usage per account for Residential Service customers (5/8-inch meters)).
- No change in demand is applied to the remaining customer types during FY 2027 to FY 2028.

Table 3-3 presents the projected billed volume in Mcf for the Study Period. The bases of the projected water usage is the current number of accounts and the average usage per account based on historical demands, as presented in Appendix A.

**Table 3-3 Projected Billed Volume**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Water System (Mcf)</b>							
1	Residential	3,068,635	3,084,482	3,100,664	3,117,262	3,099,856	3,082,450
2	Senior Citizens	122,140	120,297	118,481	116,691	116,691	116,691
3	Commercial	1,701,116	1,607,139	1,642,981	1,679,866	1,679,866	1,679,866
4	Industrial	73,291	61,130	51,140	42,925	42,925	42,925
5	Public Utilities	10,243	10,623	11,064	10,827	10,827	10,827
6	<b>Subtotal General Service</b>	<b>4,975,425</b>	<b>4,883,671</b>	<b>4,924,330</b>	<b>4,967,571</b>	<b>4,950,165</b>	<b>4,932,759</b>
7	PHA	153,806	152,932	152,062	151,196	151,196	151,196
8	Charities and Schools	131,398	125,542	119,937	114,610	114,610	114,610
9	Hospitals and Universities	74,234	53,010	38,048	27,334	27,334	27,334
10	Hand Billed	504,400	525,131	546,620	568,885	568,885	568,885
11	Scheduled (Flat Rate)	46	62	88	117	117	117
12	Private Fire Protection	73	0	0	0	0	0
13	<b>Subtotal Retail Customers</b>	<b>5,839,382</b>	<b>5,740,348</b>	<b>5,781,085</b>	<b>5,829,713</b>	<b>5,812,307</b>	<b>5,794,901</b>
14	Aqua Pennsylvania	73,753	73,753	73,753	73,753	73,753	73,753
15	<b>Total Water System</b>	<b>5,913,135</b>	<b>5,814,101</b>	<b>5,854,838</b>	<b>5,903,466</b>	<b>5,886,060</b>	<b>5,868,654</b>

### 3.1.3 Bill Tabulation

In addition to analyzing the historical usage per account trends, the bill-frequency distribution (more commonly known as a bill tabulation) was also examined. Specifically, the bill tabulation presents the number of customer bills issued at different meter sizes and water usage levels for each customer type served by the utility. The bill tabulation of customer bills provides information on customer type meter distributions and usage patterns. For the analysis conducted herein, the bill tabulation results provide data on the number of accounts by meter size and how much volume passes through each block of the Water Department’s quantity charge structure.

### 3.1.4 Water Revenue

The total operating revenues for the Water Department include the following:

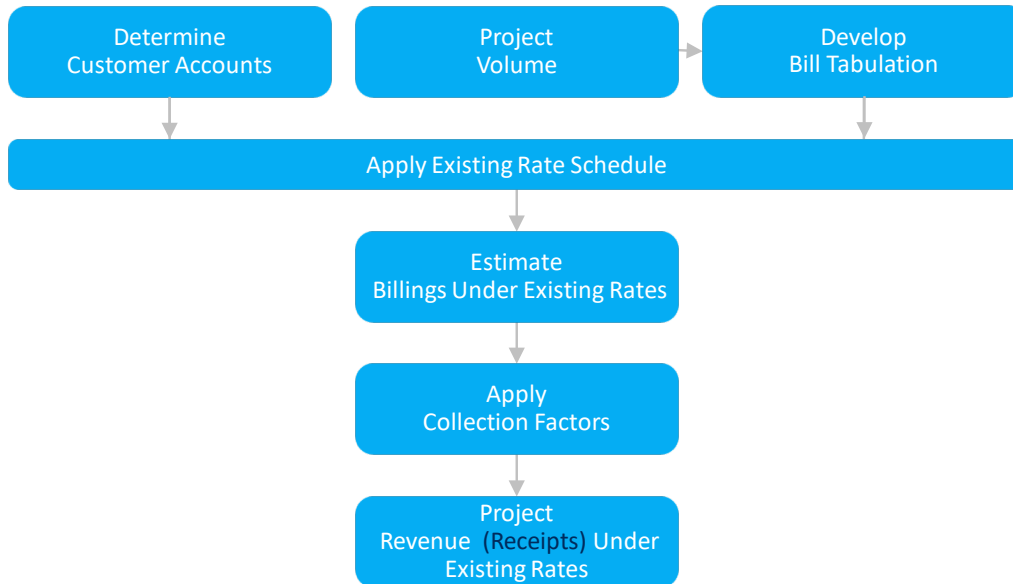
- Retail (i.e., all customers excluding wholesale) Water Service and Quantity charges;
- Private Fire Protection – A monthly charge based on meter size to recover a portion of the Water System costs related to serving certain customers with private fire systems;
- Public Fire Protection – An annual charge assessed to the City based on the annual cost of service to recover a portion of the Water System costs related to providing public fire protection; and
- Wholesale customer water charges.



### 3.1.4.1 Retail Operating Revenues

Retail operating revenues were developed following the process described below and illustrated in Figure 3-1.

**Figure 3-1 Projecting Revenues Under Existing Rates**



### 3.1.4.2 Projection of Gross Billings

To project the FY 2023 water gross billings, the FY 2022 rates (effective September 1, 2021) and current FY 2023 (effective September 1, 2022) schedules of water rates were applied to the projected FY 2023 annual water sales, number of customer accounts and bill tabulation results, to reflect the September 1, 2022 implementation of the FY 2023 rate schedule. To project FY 2024 to FY 2028 water gross billings, the FY 2023 schedule of water rates shown on Table 3-4 were applied to the projections of annual water sales, number of customer accounts, and bill tabulation results.

**Table 3-4 Existing FY 2023 Water Rates**

DESCRIPTION	WATER	PRIVATE FIRE	
		RESIDENTIAL	OTHER
<b>Monthly Water Service Charge (\$/bill)</b>			
<u>Meter Size (Inches)</u>			
5/8	\$4.97		
3/4	\$5.37	\$7.22	
1	\$6.57	\$8.42	
1-1/2	\$8.96	\$10.81	
2	\$12.59	\$14.44	
3	\$20.20		
4	\$36.45		\$22.90
6	\$68.70		\$41.63
8	\$104.91		\$61.58
10	\$153.42		\$91.13
12	\$253.19		\$136.73
<b>Base Rate - Water Quantity Charges (\$/Mcf)</b>			
<u>Monthly Water Usage</u>			
First 2 Mcf	\$48.96		
Next 98 Mcf	\$44.99		
Next 1,900 Mcf	\$34.85		
Over 2,000 Mcf	\$33.91		

Notes:

Quantity Charges presented above exclude TAP-R rates.

Where applicable, discounts were applied for eligible customer types. Table 3-5 summarizes the current discounts available.

**Table 3-5 Current Customer Discounts**

	Senior Citizens	PHA	Charities/Hospitals/Education
Discount Rate	25%	5%	25%

Applying the appropriate rates and discounts to the number of accounts and billed volumes by customer type, billings for water services under existing rates were calculated, as shown in Table 3-6.

As shown on Line 14, the projected Water System billings generated reflect combined effect of the account and volume escalation factor assumptions outlined in Section 1.4.

**Table 3-6 Billings Under Existing Rates**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Water System (\$000s)</b>							
<b>Water Non-Discount</b>							
1	Residential	\$ 172,770	\$ 175,753	\$ 176,842	\$ 177,966	\$ 177,127	\$ 176,289
2	Commercial	76,745	73,624	75,221	76,865	76,865	76,865
3	Industrial	3,201	2,724	2,300	1,952	1,952	1,952
4	Public Utilities	484	509	530	520	520	520
5	Private Fire Protection	4,042	4,358	4,684	5,034	5,034	5,034
6	Public Fire Protection	7,114	7,114	7,114	7,114	7,114	7,114
7	Wholesale	3,310	3,329	3,329	3,329	3,329	3,329
8	Other (Hand-Billed and Scheduled)	18,653	19,652	20,452	21,280	21,280	21,280
<b>9</b>	<b>Subtotal Water Non-Discount Billings</b>	<b>286,318</b>	<b>287,063</b>	<b>290,472</b>	<b>294,061</b>	<b>293,222</b>	<b>292,383</b>
<b>Water Discount</b>							
10	Residential (Senior Citizens)	5,340	5,312	5,227	5,143	5,143	5,143
11	PHA	6,731	6,771	6,730	6,689	6,689	6,689
12	Charity/Schools/Hospital/University	6,762	6,000	5,353	4,843	4,843	4,843
<b>13</b>	<b>Subtotal Water Discount Billings</b>	<b>18,833</b>	<b>18,082</b>	<b>17,309</b>	<b>16,675</b>	<b>16,675</b>	<b>16,675</b>
<b>14</b>	<b>Total Water Service Billings</b>	<b>\$ 305,151</b>	<b>\$ 305,146</b>	<b>\$ 307,782</b>	<b>\$ 310,736</b>	<b>\$ 309,897</b>	<b>\$ 309,059</b>

### 3.1.4.3 Application of Collection Factors

The second step in the process of calculating revenues involves applying receipt factors (i.e., collection factors) to the corresponding gross billings to determine the operating retail cash receipts. The historical collection factors are based on eleven fiscal years (FY 2012 through FY 2022) of billing and associated collections.

The collection factors represent the multi-year payment pattern, as described below. Table 1-3 in Section 1.4.1 presents the historical collection factors<sup>18</sup> used in the Study. Appendix C provides the data used to determine the projected collection factors used in this analysis. The collection factors represent the multi-year payment pattern as described in Section 1.4.1.

As noted in Section 1.4.1, the following adjustments to the projected collection factors are utilized based upon the Water Department’s recent experience:

- **FY 2023 Billing Year Non-Stormwater Only Collection Factors** – Reduce by 1.2% to align with FY 2020 to FY 2022 average experience.
- **FY 2024 Billing Year Non-Stormwater Only Collection Factors** – Increase by 0.76% to align with FY 2020 to FY 2022 average experience.

Figure 3-2 presents an illustration of how the billing year collection factors were applied to determine the projected revenues (receipts).

<sup>18</sup> As previously discussed in Section 1.4.1 collection factors used in the financial plan analysis reflect the average collection factors for FY 2012 through FY 2022. Collection factors do not represent all historical billings and receipts, as they are limited by available data and derived from historical collection data.

**Figure 3-2 Sample Calculation for Application of Collection Factors to Billings for Derivation of Receipts**



1. To determine the FY 2025 projected receipts for Residential customers, we use the following information:
  - a. Identify the Billing Years and Collection Factors (Table 1-4) for each Collection Period relative to the FY 2025 receipts and accounting for the billing year collection factor adjustments as applicable:
    - i. **Billing Year** is FY 2025 with a collection factor of  $85.85\% - 1.20\% = 84.65\%$
    - ii. **Billing Year Plus 1** is FY 2024 with a collection factor of  $9.53\% + 0.76\% = 10.29\%$
    - iii. **Billing Year Plus 2 and Beyond** is FY 2023 with a collection factor of  $2.04\%$
  - b. Identify Projected Billings (in \$000s) for each Collection Period from Table 3-6 (Line 1)
    - i. **Billing Year:** FY 2025 = \$176,842
    - ii. **Billing Year Plus 1:** FY 2024 = \$175,753
    - iii. **Billing Year Plus 2 and Beyond:** FY 2023 = \$172,770
2. Calculate the projected FY 2025 receipts (in \$000s) for each Collection Period:
  - a. **Billing Year receipts** =  $\$176,842 \times 84.65\% = \$149,704$
  - b. **Billing Year Plus 1 receipts** =  $\$175,753 \times 10.29\% = \$18,089$
  - c. **Billing Year Plus 2 and Beyond receipts** =  $\$172,770 \times 2.04\% = \$3,521$
3. Sum the projected FY 2025 receipts by Collection Period to arrive at the total FY 2025 receipts:  
 $\$149,704 + \$18,089 + \$3,521 = \$171,315$  (Matches Line 1 of Table 3-7 for FY 2025)

Note: Above presentation of calculated receipts reflects modeling results which varies due to rounding.

#### 3.1.4.4 Wholesale Operating Revenues

Currently, Aqua PA is the Water Department's only wholesale water customer. The Water Department's service to Aqua PA commenced in Fiscal Year 2002. Water charges for this service include a commodity charge designed to recover power and chemical costs and a fixed charge designed to recover allocated capital costs and all other allocated operation and maintenance expenses, excluding power and chemical costs.

#### 3.1.4.5 Projected Operating Revenues

Table 3-7 summarizes the projected revenues (receipts) for the Study Period.

**Table 3-7 Projected Water Receipts Under Existing Rates**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Water System (\$000s)</b>							
1	Residential	\$ 166,402	\$ 169,900	\$ 171,315	\$ 172,440	\$ 171,868	\$ 171,094
2	Senior Citizens	5,160	5,152	5,080	5,000	4,990	4,988
3	Commercial	73,498	71,664	72,820	74,312	74,514	74,548
4	Industrial	3,145	2,708	2,293	1,945	1,900	1,893
5	Public Utilities	463	489	511	505	504	504
<b>6</b>	<b>Subtotal General Customers</b>	<b>248,668</b>	<b>249,914</b>	<b>252,019</b>	<b>254,201</b>	<b>253,776</b>	<b>253,027</b>
7	Housing Authority	6,472	6,554	6,531	6,493	6,488	6,487
8	Charities and Schools	4,398	4,297	4,115	3,931	3,908	3,904
9	Hospitals and Universities	2,206	1,629	1,172	842	800	793
10	Hand Billed	17,826	18,894	19,711	20,514	20,615	20,632
11	Scheduled (Flat Rate)	3	3	5	6	6	6
<b>Fire Protection</b>							
12	Private	4,042	4,358	4,684	5,034	5,034	5,034
13	Public	7,114	7,114	7,114	7,114	7,114	7,114
<b>14</b>	<b>Subtotal Retail Customers</b>	<b>290,728</b>	<b>292,764</b>	<b>295,351</b>	<b>298,137</b>	<b>297,742</b>	<b>296,998</b>
15	Aqua Pennsylvania	3,310	3,329	3,329	3,329	3,329	3,329
<b>16</b>	<b>Total Water Sales</b>	<b>294,038</b>	<b>296,093</b>	<b>298,680</b>	<b>301,466</b>	<b>301,071</b>	<b>300,328</b>
17	Other Operating Revenues	13,558	13,554	13,584	13,617	13,607	13,596
<b>Interest Income</b>							
18	Interest Income on Debt Reserve Account (a)	-	-	-	-	-	-
19	Operating Fund	751	793	814	885	922	966
20	Rate Stabilization Fund	552	549	547	557	582	612
<b>21</b>	<b>Total Interest Income</b>	<b>1,303</b>	<b>1,341</b>	<b>1,361</b>	<b>1,442</b>	<b>1,504</b>	<b>1,578</b>
<b>22</b>	<b>Total Receipts</b>	<b>\$ 308,899</b>	<b>\$ 310,988</b>	<b>\$ 313,625</b>	<b>\$ 316,525</b>	<b>\$ 316,182</b>	<b>\$ 315,501</b>

(a) Excludes deposit into Residual Fund for Transfer to City General Fund.

### 3.1.5 Tiered Assistance Program Rate Rider Surcharge

As, previously noted, revenue figures for the Study Period exclude the current TAP-R rate of \$1.03/Mcf for water. The TAP-R currently recovers the cost of providing discounts to TAP customers from Non-TAP customers and is subject to an annual reconciliation.

### 3.1.6 Other Operating Revenues

The Water Department has several sources of other revenues including miscellaneous fees, City and UESF grants, L&I permits, penalties, and releases from the Debt Service Reserve Fund (if available). As noted above, no revenue losses associated with TAP discounts are included under Other Operating Revenues for the development of the Base Rates. Table 3-8 summarizes the other operating revenues for the Water System.

**Table 3-8 Other Projected Receipts**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Water System (\$000s)</b>							
1	Penalties	\$ 3,779	\$ 3,774	\$ 3,805	\$ 3,838	\$ 3,827	\$ 3,817
2	Miscellaneous City Revenue	719	719	719	719	719	719
3	Other	4,530	4,530	4,530	4,530	4,530	4,530
4	State & Federal Grants	567	567	567	567	567	567
5	Permits Issued by L&I	3,796	3,796	3,796	3,796	3,796	3,796
6	Miscellaneous (Procurement)	167	167	167	167	167	167
7	City & UESF Grants	0	0	0	0	0	0
8	Affordability Program Discount Cost (a)	0	0	0	0	0	0
9	Release from Debt Service Reserve (b)	0	0	0	0	0	0
<b>10</b>	<b>Total Water Other Income</b>	<b>13,558</b>	<b>13,554</b>	<b>13,584</b>	<b>13,617</b>	<b>13,607</b>	<b>13,596</b>
<b>Interest Income</b>							
11	Debt Reserve Fund (c)	0	0	0	0	0	0
12	Operating Fund	751	793	814	885	922	966
13	Rate Stabilization Fund	552	549	547	557	582	612
<b>14</b>	<b>Total Water System</b>	<b>\$ 14,861</b>	<b>\$ 14,895</b>	<b>\$ 14,944</b>	<b>\$ 15,059</b>	<b>\$ 15,110</b>	<b>\$ 15,173</b>

(a) Beginning in FY 2019, TAP Revenue Loss is recovered via the TAP Rate Rider Surcharge.

(b) Projected Release from Debt Reserve Account based on outstanding and proposed debt service payments.

(c) Excludes deposit into Residual Fund for Transfer to City General Fund.

## 3.2 Water Revenue Requirements

### 3.2.1 Operation and Maintenance Expenses

Operating expenses consist of all costs of the Water Department necessary and appropriate for the operation, maintenance, and administration of the Water System during each year. Projections of operating expenses include expenses such as personal services, purchased services including power, materials and supplies, equipment, pensions and benefits, as well as indemnities and liquidated encumbrances. Capital and reserve fund transfers required by the General Bond Ordinance are also revenue requirements, but are handled separately from O&M.

Table 3-9 summarizes the results of applying the assumptions described in Section 1.4, as well as after making budget adjustments, applying actual-to-budget factors, escalation factors, and incorporating known future O&M expenses described in Section 1.4.3.

**Table 3-9 Projected O&M Expense**

<b>LINE</b>							
<b>NO.</b>	<b>DESCRIPTION</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>
<b>Water System (\$000s)</b>							
1	Personal Services	70,056	73,289	77,655	80,391	83,222	86,151
2	Pension and Benefits	58,325	60,544	63,464	65,085	66,645	68,249
<b>3</b>	<b>Subtotal</b>	<b>128,381</b>	<b>133,833</b>	<b>141,119</b>	<b>145,475</b>	<b>149,867</b>	<b>154,400</b>
<b>Purchase of Services</b>							
4	Power	9,374	10,382	10,382	10,537	10,696	10,856
5	Gas	946	1,126	1,126	1,143	1,160	1,178
6	Other	47,072	53,583	56,750	59,360	62,091	64,949
<b>7</b>	<b>Subtotal</b>	<b>57,393</b>	<b>65,091</b>	<b>68,258</b>	<b>71,040</b>	<b>73,947</b>	<b>76,983</b>
<b>Materials and Supplies</b>							
8	Chemicals	19,343	27,595	34,168	38,073	42,425	47,274
9	Other	10,090	10,874	11,603	12,147	12,716	13,313
<b>10</b>	<b>Subtotal</b>	<b>29,433</b>	<b>38,469</b>	<b>45,770</b>	<b>50,220</b>	<b>55,141</b>	<b>60,587</b>
11	Equipment	1,942	2,604	2,849	3,038	3,240	3,454
12	Indemnities and Transfers	4,018	4,193	4,356	4,477	4,604	4,737
<b>13</b>	<b>Subtotal Expenses</b>	<b>221,167</b>	<b>244,190</b>	<b>262,352</b>	<b>274,250</b>	<b>286,798</b>	<b>300,161</b>
14	Liquidated Encumbrances	(11,722)	(14,255)	(15,790)	(16,842)	(17,985)	(19,229)
<b>15</b>	<b>Total Expenses</b>	<b>209,446</b>	<b>229,936</b>	<b>246,562</b>	<b>257,408</b>	<b>268,813</b>	<b>280,932</b>

### 3.2.2 Debt Service

As discussed earlier in this Report, the General Bond Ordinance views the Water and Wastewater Systems as one combined system for the purposes of the Rate Covenant. As a result, bond issuances are allocated between water and wastewater based on system needs.

The existing and proposed debt service were previously discussed in Sections 1.4.4 and 2.3.4 of this Report. Table 3-10 summarizes the Water System’s share of the total existing and proposed debt financing for the Water System CIP.

**Table 3-10 Summary of Existing and Proposed Water System Debt Service**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Water System (\$000s)</b>							
<b>Revenue Bonds</b>							
1	Existing (a)	\$ 66,577	\$ 72,886	\$ 71,804	\$ 71,550	\$ 71,464	\$ 67,822
	Proposed						
2	Fiscal Year 2023 (b)	-	-	-	-	-	-
3	Fiscal Year 2024 (c)		9,625	14,449	14,449	14,449	14,449
4	Fiscal Year 2025 (c)			9,625	14,449	14,449	14,449
5	Fiscal Year 2026 (d)				10,500	15,256	15,256
6	Fiscal Year 2027 (d)					9,500	13,803
7	Fiscal Year 2028 (d)						18,750
<b>8</b>	<b>Total Proposed</b>	<b>-</b>	<b>9,625</b>	<b>24,074</b>	<b>39,398</b>	<b>53,655</b>	<b>76,708</b>
<b>9</b>	<b>Total Revenue Bonds</b>	<b>66,577</b>	<b>82,511</b>	<b>95,878</b>	<b>110,948</b>	<b>125,119</b>	<b>144,530</b>
<b>PENNVEST Loans</b>							
10	PENNVEST Loans (e)	4,579	5,324	8,218	11,549	15,451	17,382
<b>Commercial Paper</b>							
11	Commercial Paper	171	314	376	389	497	900
<b>WIFIA</b>							
12	WIFIA	-	17	956	4,812	8,532	16,153
<b>13</b>	<b>Total Senior Debt Service</b>	<b>\$ 71,327</b>	<b>\$ 88,166</b>	<b>\$ 105,429</b>	<b>\$ 127,697</b>	<b>\$ 149,599</b>	<b>\$ 178,965</b>

(a) Projected debt service amounts include debt service for all Water and Wastewater Revenue Bonds and Revenue Refunding Bonds issued prior to July 1, 2022 and the Water and Wastewater Revenue Bond Series 2022c (issued in August 2022).

(b) Projected debt service for the Water and Wastewater Revenue Bond Series 2022c (issued in August 2022) included with Existing Bonds.

(c) Projected debt service amounts assume interest only payment for the first year of the bond authorization based on 5.50% interest rate; and assume issuance during the first quarter of the fiscal year.

(d) Projected debt service amounts assume interest only payment for the first year of the bond authorization based on 6.00% interest rate; and assume issuance during the first quarter of the fiscal year.

(e) Includes projected PENNVEST Loans.

### 3.2.3 Capital Improvements

The Water Department’s CIP reflects planned improvements to the Water System required to meet regulatory requirements and maintain existing levels of service. The CIP includes engineering and administrative support, improvements to the water treatment plants, distribution system rehabilitation, large meter replacement including implementation of AMI, billing system replacement and equipment vehicle purchases.

As discussed in Sections 1.4.6 and 2.3.3, Black & Veatch adjusted the Water Department’s appropriations-based CIP budget to develop the projected annual encumbrances and anticipated project expenses. Following the steps outlined in Section 1.4.6 produces the CIP shown in Table 3-11.



**Table 3-11 Projected Water System CIP**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Water System (\$000s)</b>							
1	Engineering and Administration (a)	\$ 6,588	\$ 5,891	\$ 5,330	\$ 4,769	\$ 4,208	\$ 3,647
2	Water Treatment Plant Improvements	73,479	207,565	178,281	71,935	254,854	384,531
3	Distribution System Rehabilitation	123,060	157,100	240,100	135,100	128,100	120,100
4	Large Meter Replacement	5,000	5,000	5,000	5,000	5,000	5,000
5	Billing System	0	0	0	15,000	15,000	15,000
6	Vehicles	6,000	6,000	6,000	6,000	6,000	6,000
7	<b>Total Improvements</b>	<b>214,127</b>	<b>381,555</b>	<b>434,711</b>	<b>237,804</b>	<b>413,162</b>	<b>534,279</b>
8	Inflation Adjustment (b)	0	0	17,388	19,038	51,589	90,752
9	<b>Inflated Total</b>	<b>214,127</b>	<b>381,556</b>	<b>452,100</b>	<b>256,843</b>	<b>464,752</b>	<b>625,031</b>
10	Rollforward Adjustments	(33,216)	88,958	13,142	61,040	(41,615)	(32,095)
11	<b>Total Inflated Adjusted CIP Budget</b>	<b>180,910</b>	<b>470,514</b>	<b>465,242</b>	<b>317,883</b>	<b>423,137</b>	<b>592,935</b>
12	Contingency Adjustment	(6,739)	(17,679)	(18,064)	(29,349)	(14,959)	(17,158)
13	<b>Annual Encumbrances</b>	<b>174,172</b>	<b>452,834</b>	<b>447,178</b>	<b>288,533</b>	<b>408,178</b>	<b>575,777</b>
14	Project Expenses (c)	136,725	300,115	352,471	301,488	412,029	524,108
15	<b>Annual Net Encumbrances</b>	<b>\$ 37,446</b>	<b>\$ 152,720</b>	<b>\$ 94,707</b>	<b>\$ (12,955)</b>	<b>\$ (3,851)</b>	<b>\$ 51,669</b>

(a) Reflects shift in capital related salary costs from capital to operating budget.

(b) Allowance for inflation of 4.0 percent per year after fiscal year 2024.

(c) Reflects annual drawdown of capital budget appropriations based on project durations and annual encumbrances.

### 3.2.4 Capital Flow of Funds

The Water Department meets its projected capital needs by using several sources for funding, including internally generated funds (cash) and debt. As defined by the General Bond Ordinance, the Construction Fund is where the Water Department draws funds to pay for the CIP. The Water Department may deposit bond proceeds, loan proceeds, commercial paper proceeds, and cash transfers from the Revenue Fund and the Residual Fund into the Construction Fund to pay for capital projects.

Table 3-12 presents the proposed sources and uses for the Water System CIP. As shown on Line 6, the Construction Fund has an estimated beginning balance of \$169.1 Million on July 1, 2022. Over the course of the Study Period, the Water Department anticipates issuing debt and the proceeds for these transactions are shown on Line 1. The level of debt financing increases during the Study Period as the Water Department’s CIP starts to ramp up. The Water System’s share of bond proceeds totals \$1.35 Billion during the Study Period.

Lines 8 and 9 show the anticipated WIFIA loan and related matching funding proceeds. Line 10 shows the anticipated PENNVEST loan proceeds. Line 15 shows the estimated level of total annual capital expenditures the Water Department will fund. Lines 11 and 12 show the estimated level of annual pay-go (i.e., cash-funded) the Water Department will fund.

Per the City’s updated CIP funding policy, total outstanding project encumbrances may not exceed available funds; therefore, the Target Balance on Line 22, which represents the Water Departments estimated outstanding encumbrances (or project commitments) excluding PENNVEST and WIFIA funded projects, should not exceed the ending Construction Fund balance shown on Line 16.

**Table 3-12 Projected Flow of Funds – Water: Construction Fund & Debt Reserve Account**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Water System (\$000s)</b>							
<b>Disposition of Bond Proceeds</b>							
1	Proceeds From Sale of Bonds	155,000	210,000	210,000	210,000	190,000	375,000
Transfers:							
2	Debt Reserve Account (a)	3,893	-	-	-	-	-
3	Cost of Bond Issuance (b)	900	1,281	1,281	1,281	1,900	3,750
4	Construction Fund (c)	150,208	208,719	208,719	208,719	188,100	371,250
<b>5</b>	<b>Total Issue</b>	<b>155,000</b>	<b>210,000</b>	<b>210,000</b>	<b>210,000</b>	<b>190,000</b>	<b>375,000</b>
<b>Construction Fund</b>							
6	Beginning Balance	169,140	225,505	223,797	195,078	283,244	250,597
7	Transfer From Revenue Bond Proceeds	150,208	208,719	208,719	208,719	188,100	371,250
8	WIFIA Proceeds	-	9,063	20,772	47,939	58,563	59,127
9	WIFIA Match Funding Proceeds	-	9,338	20,958	47,915	58,497	59,246
10	PENNVEST Loan Proceeds	26,647	47,625	47,625	47,625	30,493	30,493
11	Capital Account Deposit	9,072	9,426	9,794	10,176	10,573	10,985
12	Transfer from Residual Fund	5,200	12,000	13,800	24,900	30,500	40,800
13	Interest Income on Construction Fund	1,963	2,235	2,084	2,380	2,656	2,745
<b>14</b>	<b>Total Available</b>	<b>362,231</b>	<b>523,912</b>	<b>547,549</b>	<b>584,732</b>	<b>662,626</b>	<b>825,243</b>
15	Net Cash Financing Required	136,725	300,115	352,471	301,488	412,029	524,108
<b>16</b>	<b>Ending Balance</b>	<b>225,505</b>	<b>223,797</b>	<b>195,078</b>	<b>283,244</b>	<b>250,597</b>	<b>301,135</b>
<b>Capital Program Net Encumbrances</b>							
17	Beginning Balance	181,867	179,848	177,787	144,569	245,211	159,548
18	Annual Encumbrances (excluding PENNVEST & WIFIA)	134,706	254,941	254,235	284,040	188,829	448,931
19	Project Expenses (excluding PENNVEST & WIFIA)	(136,725)	(257,002)	(287,452)	(183,397)	(274,493)	(387,408)
<b>20</b>	<b>Ending Balance</b>	<b>179,848</b>	<b>177,787</b>	<b>144,569</b>	<b>245,211</b>	<b>159,548</b>	<b>221,071</b>
21	Allowance Commitments Prior to Bond Issue	42,490	42,372	47,340	31,472	74,822	61,576
22	Target Balance	222,338	220,159	191,909	276,683	234,370	282,647
<b>Debt Reserve Account</b>							
23	Beginning Balance	71,593	75,936	76,563	79,360	82,673	86,571
24	Transfer From Bond Proceeds	3,893	-	-	-	-	-
25	Transfer From Residual Fund	451	626	2,797	3,313	3,898	1,930
26	Debt Reserve Account Release	-	-	-	-	-	-
<b>27</b>	<b>Ending Balance</b>	<b>75,936</b>	<b>76,563</b>	<b>79,360</b>	<b>82,673</b>	<b>86,571</b>	<b>88,500</b>
28	Interest Income on Debt Reserve Account	738	762	780	810	846	875

(a) Amount of Debt Reserve Account estimated based on outstanding and proposed debt service payments.

(b) Cost of bonds issuance reflects actual cost in FY 2023, assumed 0.61 percent of issue amount in FY 2024 to 2025, and assumed 1.0% of issuance in FY 2026 to FY 2028.

(c) Deposits equal proceeds from sale of bonds less transfers to Debt Reserve Account and Costs of Issuance.

(d) Transfer from Residual Fund to provide PENNVEST share of Debt Reserve Account requirement.

### 3.3 Water System Summary of Revenues and Revenue Requirements

The Water System’s financial performance during the Study Period is presented in Table 3-13. As seen in Table 3-13, the Water System will need a series of revenue increases, of 18.90% in FY 2024, 9.00% in FY 2025, followed by 12.51%, 9.37%, and 11.62% over the remaining three years of the Study Period. These revenue adjustments are necessary to meet O&M, debt service, Capital Account deposit requirements, and provide additional coverage per the Rate Covenant.

Table 3-13 presents the Water System operating results for Base Rates. The proposed revenue increases in the table do not reflect any rate compression as discussed in Section 2.5.

As previously mentioned, the Water Department is addressing the reconciliation of TAP discounts and TAP-R revenues in a separate proceeding.

### **3.4 Projected Water System Operating Results**

Line 1 on Table 3-13 is the consolidated total for water retail and wholesale receipts from Table 3-7. These represent receipts under existing rates. Lines 2 through 6 present the additional revenues from proposed revenue increases. Line 9 presents other operating receipts as detailed on Table 3-8. Interest income from the Debt Reserve Account, Operating Fund, and Rate Stabilization Funds is shown on Lines 10 through 12. Line 13 summarizes the projected Total Revenues for the Water System.

Operating expenses are summarized on Lines 14 and 15. Line 15 represents the Water System's share of costs to process water treatment sludge at the wastewater treatment plants. Refer to Section 4.6.1 of this Report for further explanation of these costs.

During the Study Period, it is assumed that the Water Department will make a series of deposits to and transfers from the Rate Stabilization Fund as shown on Line 17. Line 18 presents the Net Revenues after Operations. Existing and proposed senior debt service obligations, including those related to the CP program, PENNVEST and WIFIA are shown on Lines 19 through 23. Debt service coverage on senior debt is calculated on Line 25 and indicates that coverage meets the minimum 1.20x requirement. The Capital Account deposit is on Line 29. Line 30 then shows results of the total debt service coverage requirement and indicates that total coverage requirements meet the 1.00 minimum coverage required by the General Bond Ordinance.

As established in the General Bond Ordinance and Rate Covenant, debt service coverage requirements are for the Combined System. The calculations shown in Table 3-13 are presented to demonstrate that the Water System's proposed financial plan provides sufficient resources for the Water System to be financially stable on its own.

**Table 3-13 Projected Water System Revenue and Revenue Requirements: Base Rates**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Water System (\$000s)</b>							
<b>Operating Revenues</b>							
1	Water Service - Existing Rates (a)	\$ 294,038	\$ 296,093	\$ 298,680	\$ 301,466	\$ 301,071	\$ 300,328
	Additional Service Revenue Required						
	Year	Percent Increase	Months Effective				
2	FY 2024	18.90%	10	45,684	56,451	56,902	56,762
3	FY 2025	9.00%	10	26,092	32,260	32,218	32,138
4	FY 2026	12.51%	10		39,893	48,804	48,684
5	FY 2027	9.37%	10			33,595	41,052
6	FY 2028	11.62%	10				45,438
7	<b>Total Additional Service Revenue Required</b>	-	45,684	82,542	129,130	171,520	224,074
8	<b>Total Water Service Revenue</b>	294,038	341,777	381,223	430,596	472,591	524,402
<b>Other Income (b)</b>							
9	Other Operating Revenue	13,558	13,554	13,584	13,617	13,607	13,596
10	Debt Reserve Account Interest Income	-	-	-	-	-	-
11	Operating Fund Interest Income	751	793	814	885	922	966
12	Rate Stabilization Interest Income	552	549	547	557	582	612
13	<b>Total Revenues</b>	308,899	356,672	396,167	445,656	487,702	539,576
<b>Operating Expenses</b>							
14	Water Operations	(209,446)	(229,936)	(246,562)	(257,408)	(268,813)	(280,932)
15	Water Treatment Plant Sludge (c)	(14,570)	(16,592)	(18,043)	(20,081)	(21,491)	(22,989)
16	<b>Total Operating Expenses</b>	(224,016)	(246,528)	(264,605)	(277,489)	(290,303)	(303,921)
17	Transfer From/(To) Rate Stabilization Fund	710	65	225	(2,160)	(2,920)	(3,000)
18	<b>NET REVENUES AFTER OPERATIONS</b>	85,594	110,209	131,786	166,007	194,478	232,655
<b>Debt Service</b>							
Senior Debt Service							
Revenue Bonds							
19	Outstanding Bonds	(66,577)	(72,886)	(71,804)	(71,550)	(71,464)	(67,822)
20	PENNVEST Loans	(4,579)	(5,324)	(8,218)	(11,549)	(15,451)	(17,382)
21	Projected Future Bonds	-	(9,625)	(24,074)	(39,398)	(53,655)	(76,708)
22	Commercial Paper	(171)	(314)	(376)	(389)	(497)	(900)
23	WIFIA	-	(17)	(956)	(4,812)	(8,532)	(16,153)
24	<b>Total Senior Debt Service</b>	(71,327)	(88,166)	(105,429)	(127,697)	(149,599)	(178,965)
25	<b>TOTAL SENIOR DEBT SERVICE COVERAGE (L18/L24)</b>	1.20 x	1.25 x	1.25 x	1.30 x	1.30 x	1.30 x
26	Subordinate Debt Service	-	-	-	-	-	-
27	Transfer to Escrow	-	-	-	-	-	-
28	<b>Total Debt Service on Bonds</b>	(71,327)	(88,166)	(105,429)	(127,697)	(149,599)	(178,965)
29	<b>CAPITAL ACCOUNT DEPOSIT</b>	(9,072)	(9,426)	(9,794)	(10,176)	(10,573)	(10,985)
30	<b>TOTAL COVERAGE (L18/(L24+L26+L29))</b>	1.06 x	1.13 x	1.14 x	1.20 x	1.21 x	1.22 x
31	<b>End of Year Revenue Fund Balance</b>	\$ 5,194	\$ 12,616	\$ 16,564	\$ 28,133	\$ 34,307	\$ 42,704

(a) Revenue from rates effective September 1, 2022.

(b) Includes other operating and nonoperating income, including interest income on funds and accounts transferable to the Revenue Fund.

(c) Cost to process the Water Treatment Sludge at the wastewater treatment plants based on wastewater cost of service analysis.

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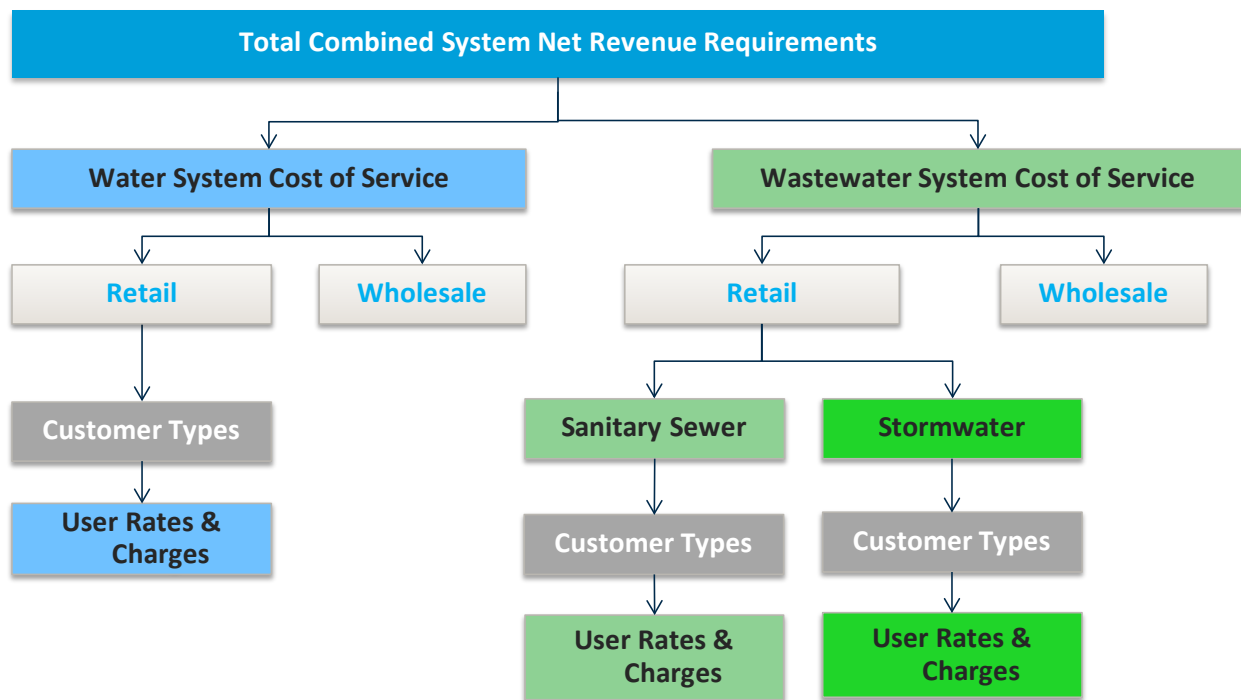
# 4.0 Water System Cost of Service Allocations

The cost-of-service analysis is the middle step of three depicted in Figure 2-1 that form the basis for how a utility sets its rates and charges. At the cost-of-service stage, we identify how different customer types are using the Water System. As such, each customer type potentially places a different level of demands on the system – requirements that the Water Department must meet. The types of demand are cost drivers and the cost-of-service step is where we develop the nexus between how the system is designed and operated and how customers are using the system.

## 4.1 General

The cost-of-service process involves a multi-level allocation, where the net revenue requirements for the Combined System are first allocated between water and wastewater, then between customer category (Retail versus Wholesale), and then finally among customer types to determine each type’s cost responsibility. This process is illustrated in Figure 4-1.

**Figure 4-1 Multi-Layer Allocation of Costs**



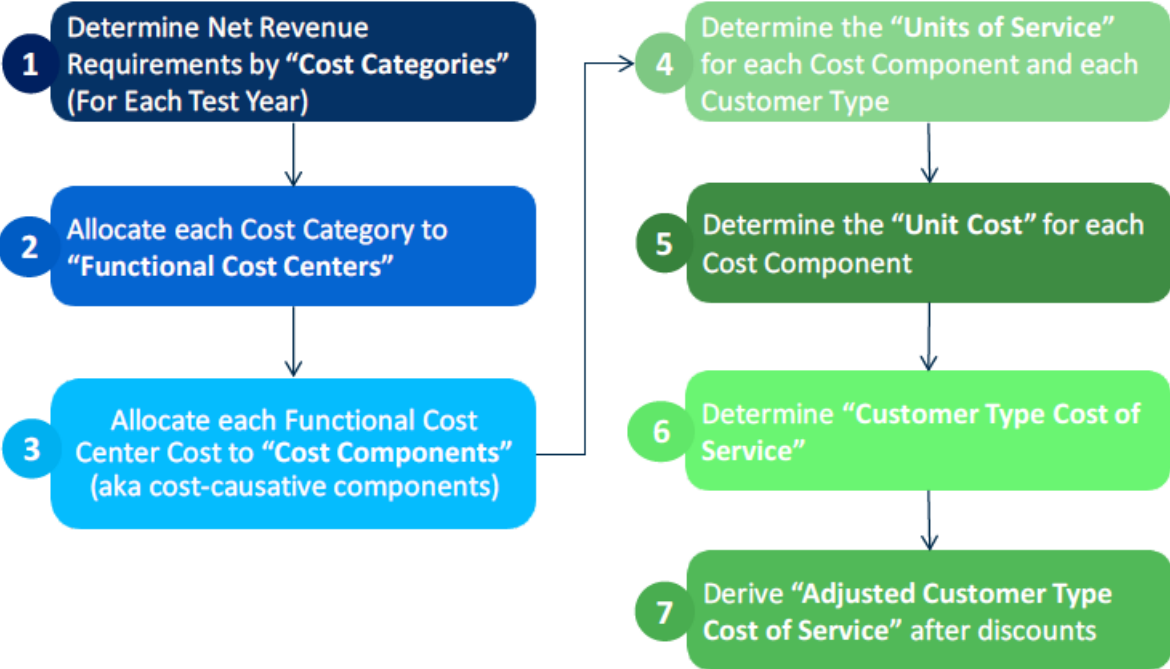
Cost of service is the process by which total net revenue requirements (O&M and capital costs) are allocated to the customer types of the system in proportion to the services received by the customer types. The process typically follows the following steps:

- Identification of net revenue requirements by cost category;

- Allocation of functional cost to appropriate cost centers;
- Allocate functional cost center costs to cost components or drivers;
- Determination of units of service by customer and by cost component;
- Development of unit cost for each cost component;
- Determine the cost of service by each customer type; and
- Apply any appropriate discounts and / or adjustments and derive the Adjusted COS by customer type.

Figure 4-2 shows the typical analytical steps performed as part of a COS study.

**Figure 4-2 Seven Analytical Steps for Determining the Cost of Service**



## 4.2 Identification of Net Revenue Requirements by Cost Category

The cash-needs revenue requirements for a utility consist mainly of O&M, debt service, and capital expenditures. These revenue requirements should be identified by cost category or center (function) as best as possible. A function represents the type of operational activity that the costs are used for such as source of supply, pumping, treatment, etc. for water systems. The operational costs can be attributable directly or indirectly to a function. Costs such as engineering, administration, finance, etc. are indirectly allocated based on other costs. The debt service and capital expenditure costs can be attributable to functions based on existing fixed asset records. Figure 4-3 illustrates the Water System cost centers examined in this Report.

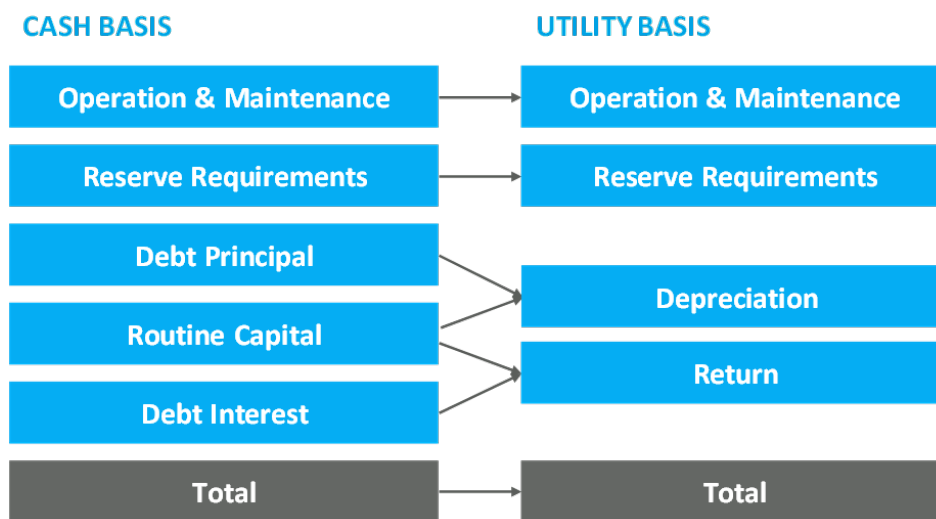
O&M, debt service and capital are cost categories used under the cash-needs approach to cost of service. Because the Water Department also provides water services to a wholesale customer, these cost categories are translated into categories used under the utility-basis approach. Under the utility-basis, the relevant cost categories are O&M, depreciation, and return on rate base. Return on rate base recognizes the recovery of return on the Water Department’s capital investment. Because the Water Department provides water service to wholesale customers (non-system owners), the Water Department is entitled to a higher rate of return from these customers. Figure 4-4 illustrates how the cash-needs basis cost categories relate to utility-basis cost categories.

**Figure 4-3 Functional Cost Centers**

### FUNCTIONAL COST CENTERS

- Water Supply
- Raw Water Pumping
- Treatment
- Treated Water Pumping
- Treated Water Storage
- Transmission & Distribution
- Water Meters
- Hydrants
- Customer Accounting & Collection
- Administration & General

**Figure 4-4 Relationship Between Cash-Needs Basis and Utility-Basis**





The process of allocating the net revenue requirements to the system’s users allows recognition of issues such as:

- Differences between service levels
- Differences in user characteristics
- Regulations and covenants that affect user rates and charges
- Nexus between charges and service demands

In the analysis described herein, the cost of the service provided serves as the allocation basis for the Test Year (“TY”) revenue requirements to the various customer types. Since the Water Department’s Rate Proposal is for two fully projected fiscal years, we are using the naming convention of “Test Year 1” to refer to FY 2024 and “Test Year 2” to refer to FY 2025. Allocations of revenue requirements to customer types account for the quantity of water used relative to peak capacity requirements placed on the system, the number and size of services to customers, proprietary interest in the system investment, and other relevant factors.

## **4.3 Cost of Service to be Allocated**

### **4.3.1 Overall Water System**

The projected annual revenue requirements for FY 2024 serve as the Test Year 1 requirements for the analyses conducted herein. The proposed rate increases will go into effect on September 1st of each respective fiscal year. However, rates are designed based upon a 12-month period. Because the proposed revenue increase will not go into effect until September 1st of each fiscal year, the proposed rates are designed based on annualizing the 10-month period for which rates are effective. Table 4-1 shows the projected Test Year 1 cash flow of base rates for the Water System based on the annualizing the proposed revenue increase.

**Table 4-1 Test Year 1 Annualized Revenue and Revenue Requirements**

LINE NO.	DESCRIPTION	FY 2024
<b>Water System (\$000s)</b>		
<b>Operating Revenues</b>		
1	Water Service - Existing Rates (a)	\$ 296,093
	Additional Service Revenue Required	
	Percent	Months
	<u>Year</u>	<u>Effective</u>
2	FY 2024	12
	18.90%	
3	<b>Total Additional Service Revenue Required</b>	<b>55,962</b>
4	<b>Total Water Service Revenue</b>	<b>352,055</b>
	Other Income (b)	
5	Other Operating Revenue	13,554
6	Debt Reserve Fund Interest Income	-
7	Operating Fund Interest Income	793
8	Rate Stabilization Interest Income	549
9	<b>Total Revenues</b>	<b>366,950</b>
<b>Operating Expenses</b>		
10	Water Operations	(229,936)
11	Water Treatment Plant Sludge (c)	(16,592)
12	<b>Total Operating Expenses</b>	<b>(246,528)</b>
13	Transfer From/(To) Rate Stabilization Fund	(10,213)
14	<b>NET REVENUES AFTER OPERATIONS</b>	<b>110,209</b>
<b>Debt Service</b>		
	Senior Debt Service	
	Revenue Bonds	
15	Outstanding Bonds	(72,886)
16	PENNVEST Loans	(5,324)
17	Projected Future Bonds	(9,625)
18	Commercial Paper	(314)
19	WIFIA	(17)
20	<b>Total Senior Debt Service</b>	<b>(88,166)</b>
21	<b>TOTAL SENIOR DEBT SERVICE COVERAGE (L14/L20)</b>	<b>1.25 x</b>
22	Subordinate Debt Service	-
23	Transfer to Escrow	-
24	<b>Total Debt Service on Bonds</b>	<b>(88,166)</b>
25	<b>CAPITAL ACCOUNT DEPOSIT</b>	<b>(9,426)</b>
26	<b>TOTAL COVERAGE (L14/(L20+L22+L25))</b>	<b>1.13 x</b>
27	<b>End of Year Revenue Fund Balance</b>	<b>\$ 12,616</b>

- (a) Revenue from rates effective September 1, 2022.
- (b) Includes other operating and nonoperating income, including interest income on funds and accounts transferable to the Revenue Fund.
- (c) Cost to process the Water Treatment Sludge at the wastewater treatment plants based on wastewater cost of service analysis.

Table 4-2 presents the cost of service to be recovered from rates for Test Year 1. The net COS recovered from water service charges is the total revenue requirements less revenues received from other sources. The TY net COS of \$352.1 Million (Column 3, Line 13), represents the total revenue requirements of \$367.0 Million (Column 3, Line 10) minus other revenues and transfers received of \$14.9 Million (Column 3, Lines 11 and 12). The cost of service to be recovered from rates consists of \$248.4 Million of net operating expenses (Column 1, Line 13) and \$103.7 Million of net capital-related costs (Column 2, Line 13).

**Table 4-2 Water Estimated Test Year 1 COS**

LINE NO.	DESCRIPTION	(1) OPERATING EXPENSE	(2) CAPITAL COSTS	(3) TOTAL
<b>Water System (\$000s)</b>				
<b>Revenue Requirements</b>				
1	Operations & Maintenance Expense	142,055		142,055
2	Direct Interdepartmental Charges	87,881		87,881
3	Water Treatment Plant Sludge	16,592		16,592
	Existing Bond Debt Service			
4	Revenue Bonds (a)		78,210	78,210
5	Subordinate Bonds		-	-
6	Proposed Bond Debt Service (b)		9,956	9,956
7	Capital Account Deposit		9,426	9,426
8	Residual Fund Deposit	9,038	3,578	12,616
9	Deposit (From)/To Rate Stabilization Fund	7,316	2,897	10,213
<b>10</b>	<b>Total</b>	<b>262,882</b>	<b>104,068</b>	<b>366,950</b>
<b>Deductions of Funds from Other Sources</b>				
11	Other Operating Revenue	(13,554)	-	(13,554)
12	Interest Income	(961)	(380)	(1,341)
<b>13</b>	<b>COST OF SERVICE TO BE DERIVED FROM RATES</b>	<b>248,368</b>	<b>103,687</b>	<b>352,055</b>

(a) Includes PENNVEST Loans.

(b) Includes Commercial Paper and WIFIA

### 4.3.2 Wholesale Water

The cost of service allocable to Aqua PA and the rates developed to recover the allocated costs, reflect consideration of the contract demands for service as set forth in the contract between Aqua PA and the City, as well as the projected annual water consumption, and the maximum day and hour demands for Aqua PA. The Water Department allocates O&M expenses to Aqua PA in the same manner as for its retail customers. The annual capital costs allocable to Aqua PA recognize annual depreciation expense and return on investment, with the allocable investment based upon the contract maximum day demands versus the design capacity of the various facilities used in the provision of service to Aqua PA. The Water Department uses original cost to allocate plant investment for determining the applicable rate base. This approach is consistent with the methodology applied in previous rate filings and is consistent with the derivation of Aqua PA's existing rates. The rate of return for service to the City's wholesale water and wastewater customers used in this COS Study is 7.5%, which is consistent with the rate of return used in the development of Aqua PA's existing rates. The specific maximum day contract demands for Aqua PA used in the COS analysis amount to 9.5 million gallons per day ("MGD") for the period of July 1, 2023 through June 30, 2025.

As established under the contract, the rates applicable to Aqua PA include a commodity or usage charge, a fixed charge, and a management fee. The commodity charge includes only the costs associated with power and chemicals and applies to Aqua PA's metered consumption. As agreed to by both the City and Aqua PA, the COS analysis limits water loss percentage applied to Aqua PA to 20%. The fixed charge includes the allocated return on investment and depreciation expense, as described above, and the

balance of O&M expenses allocated to Aqua PA, excluding power and chemical costs. The O&M expenses allocable to Aqua PA reflect the relationship of the projected annual consumption, the maximum day demands, and the maximum hour demands from Aqua PA relative to the projected annual usage or production and total maximum day and hour demands of the facilities used by Aqua PA. The management fee amounts to 10% and is applied to the sum of the usage charge and fixed charge.

## 4.4 Functional Cost Components

The costs derived in revenue requirements are incurred as a result of cost drivers placed on the system by its customers. Many utilities are designed and sized to meet the cost drivers; therefore, the operational and capital costs (depreciation and return on rate base) are linked to these cost drivers. The principal cost drivers for water are volume of water consumed, peak water demands, number of customers, and the number of fire services.

The various cost elements of water service are assigned to functional cost components as the first step in the subsequent distribution of the cost of service to the customer types. For the analyses conducted herein, the Base-Extra Capacity Method<sup>19</sup> as outlined in the AWWA M1 Manual is used. This COS allocation methodology uses base, extra-capacity, customer, and fire protection functional cost centers as listed in Figure 4-5.

**Figure 4-5 Functional Cost Components**

### COST COMPONENTS

- Wholesale (Aqua PA)
  - Base
  - Maximum Day
  - Maximum Hour
  - Meters
  - Billing & Collection
  - Fire Protection

- **Base costs** are those which vary directly with the quantity of water used, as well as those costs associated with serving customers under average load conditions without the elements necessary to meet peak demands. Base costs include purchased treatment chemicals, and other operating and capital costs of the water system associated with serving customers to the extent required for a constant, or average annual rate of use.
- **Extra capacity costs** represent those operating costs incurred due to demands in excess of average, and capital-related costs for additional plant and system capacity beyond that required for the average rate of use. Total extra capacity costs are subdivided into costs associated with maximum day and maximum hour demands.
- **Customer costs** are defined as costs that tend to vary in proportion to the number of customers connected to the system. These include meter reading, billing, collection and accounting costs, and maintenance and capital charges associated with meters and services.
- **Fire Protection costs** assigned to fire protection include operating expenses and capital costs associated with public and private fire protection.

The separation of costs of service into these principal categories provides the means of further allocating such costs to the various customer types based on the respective base, extra capacity, customer, and fire service requirements of each customer type.

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<sup>19</sup> Per the AWWA M1 Manual, the Base-Extra Capacity Method is one of the “two most widely used methods” of allocating annual cost of service to cost components. Black & Veatch employs this methodology as appropriate in other cost of service studies and it has been used for allocating the Water Department’s retail cost to the various cost components for years.

## 4.5 Allocation to Cost Components

Under Step 4 of the process, we determine units of service for each cost component and each customer type.

The Water System is comprised of various facilities, each designed and operated to fulfill a given function. To provide adequate service to its customers, the Water System must be capable of providing not only the total amount of water used but also supplying water at the maximum rates of demand.

### 4.5.1 Base, Maximum Day, and Maximum Hour

Since all customers do not exert their maximum demand for water at the same time, capacities of the various water system components are designed to meet the peak coincidental demands that all types of customers place on the system. For every water service facility on the system, there is an underlying average demand, or uniform rate of usage exerted by the customers for which the base cost component is applicable. For those facilities designed solely to meet average day demand, costs are allocated 100% to the base cost component. Extra capacity requirements associated with coincidental demands in excess of average use are further related to maximum daily (“max day”) and maximum hourly (“max hour”) demands.

For volume-related cost allocations, the first step in determining the allocation percentages is to assign system peaking factors. The base element is equal to the average daily demand (“ADD”) and assigned a value of 1.0. For the Water System, max day and max hour ratios by Water System Facilities were reviewed.

As an example of how to interpret peaking factors and their relationship with base-extra capacity, we will use for illustrative purposes, the Water System’s raw water pumping max day demand factor of 1.39 times the ADD for max day allocations. The costs associated with facilities required to meet maximum day demand are allocable to base and maximum day extra capacity as follows:

$$\text{Base} = (1.0/1.39) \times 100 = 72\%$$

$$\text{Max Day} = (1.39 - 1.0)/1.4 \times 100 = 28\%$$

These calculations indicate that the average or base use requires 72% of the capacity of facilities designed and generated to meet average day demand and the remaining 28% meets maximum day extra capacity requirements.

The Water System’s treated water delivered max hour demand factor of 2.09 times the ADD and max day demand factor of 1.30 times the ADD for max hour allocations. The costs associated with facilities required to meet maximum hour demand are allocable to base, maximum day extra capacity and maximum hour extra capacity as follows:

$$\text{Base} = (1.0/2.09) \times 100 = 48\%$$

$$\text{Max Day} = (1.3 - 1.0)/2.09 \times 100 = 14\%$$

$$\text{Max Hour} = (2.09 - 1.3)/2.09 \times 100 = 38\%$$

## 4.5.2 Units of Service

The estimated Test Year 1 value of Water System facilities is allocated to appropriate cost functions as the basis for further distribution to the various customer types.

Base costs vary with the volume of water used and distributed to customer types on that basis. Extra Capacity costs are those associated with meeting peak rates of water use and distributed to customer types based on the respective customer type capacity requirements in excess of average rates of use. The number of bills for each customer type serves as the basis for distributing customer billing requirements. Customer meter and fire protection requirements are allocated based on the number of equivalent meters. The estimated number of equivalent meters for each customer type is based on the total number of various sizes of meters serving respective types and the capacity ratio of the meters for the various sizes to the cost of 5/8-inch meters. Table 4-3 summarizes the equivalent meter ratios and billing ratios used in this Report.

**Table 4-3 Equivalent Meter and Bill Ratios**

LINE NO.	METER SIZE (INCHES)	EQUIVALENT FACTORS	
		(1) METERS CAPACITY BASIS	(2) BILLS
1	5/8	1.0	1.0
2	3/4	1.5	1.0
3	1	2.5	1.1
4	1-1/4	3.8	1.2
5	1-1/2	5.0	1.2
6	2	8.0	1.5
7	3	15.0	2.0
8	4	25.0	4.0
9	6	50.0	7.0
10	8	80.0	10.0
11	10	115.0	15.0
12	12	215.0	20.0

With respect to Fire Protection, Fire Protection Extra Capacity requirements are based on peak fire flow requirements reflected in previous COS studies and rate proceedings. The system wide fire protection demands reflect two simultaneous fires, one requiring 10,000 gallons per minute (“gpm”) fire flow demand for 10 hours and the second requiring 5,000 gpm for 8 hours. Fire protection capacity requirements are allocated between Public Fire Protection and Private Fire Protection in proportion to the relative total number of equivalent fire connections in each type.

Table 4-4 summarizes the estimated Test Year 1 units of service for the Water System’s retail customers. Estimates of test year annual water requirements, shown in Column 1, are based on the projections of total water sales developed in this Report. Column 2 presents the average daily use of all water sales. Columns 3 through 8 show the estimated maximum day and maximum hour capacity factors for each customer type, the resulting demands, and extra capacity requirements, respectively. We derived the customer type extra capacity factors based on previous COS studies and rate proceedings.

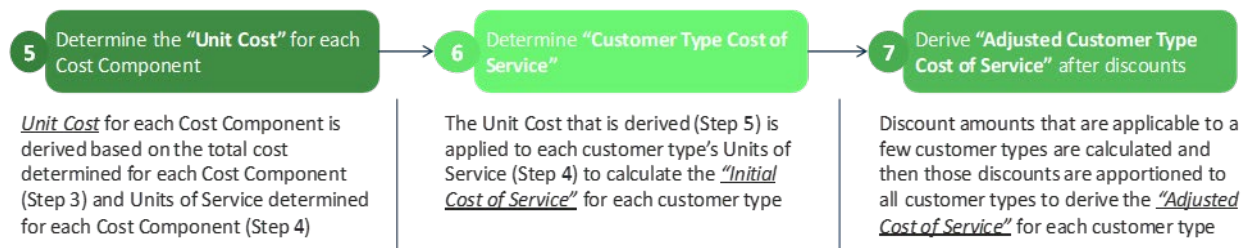
Based on our experience, we believe that the capacity factors determined in this analysis are reasonable. Generally, the peak water usage characteristics vary among the different customer types as follows:

- Residential customers place a higher peak demand on the water system than the non-residential customers. For example, the Residential customers typically would have high water usage in the morning due to shower and other morning chores and similarly may reflect a high usage in the evening when residents are usually back home from work/school, etc.
- The Senior Citizen and PHA types are projected to have usage patterns closely related to the Residential customers.
- Within the non-residential group, typically Commercial customer types and others including Charities and Schools are likely to have higher demand during business hours and very low demand during non-business hours.
- Industrial customer type usually has low peaking factors, as industrial enterprises often have very stable pattern of water usage. Industrial use is generally spread more uniformly throughout the day and hence their maximum rates of use vary less from their average day use.

To verify the reasonableness of the capacity factors, the system peak demand diversity factors were verified based on the capacity factors are within the AWWA industry acceptable range of 1.1 to 1.4.

In the following sections, we discuss the results of conducting Steps 5 through 7 of the COS process. The purpose of each of these remaining steps is outlined in Figure 4-6.

**Figure 4-6 COS Steps 5 through 7**



**Table 4-4 Test Year 1 Retail Units of Service**

LINE NO.	CUSTOMER TYPE	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
		TOTAL	AVERAGE	MAXIMUM DAY EXTRA CAPACITY		MAXIMUM HOUR EXTR CAPACITY			CUSTOMER COSTS		
		TEST YEAR	DAILY	CAPACITY	TOTAL	EXTRA	CAPACITY	TOTAL	EXTRA	METERS	BILLS
		WATER USE	WATER USE	FACTOR	CAPACITY	CAPACITY (a)	FACTOR	CAPACITY	CAPACITY (b)	Equiv. Meters	Equiv. Bills
	Mcf	Mcf/day	%	Mcf/day	Mcf/day	%	Mcf/day	Mcf/day			
		(1) / 365		(2) x (3) / 100	(4) - (2)		(2) x (6) / 100	(7) - (4)			
1	Residential	3,084,500	8,450	200	16,900	8,450	360	30,420	13,520	488,873	5,378,984
2	Senior Citizens	120,300	330	200	660	330	360	1,190	530	21,191	254,101
3	Commercial	1,607,100	4,400	180	7,920	3,520	265	11,660	3,740	142,094	585,801
4	Industrial	61,100	170	160	270	100	200	340	70	6,025	18,280
5	Public Utilities	10,600	30	160	50	20	200	60	10	1,788	4,396
<b>6</b>	<b>Total General Service</b>	<b>4,883,600</b>	<b>13,380</b>		<b>25,800</b>	<b>12,420</b>		<b>43,670</b>	<b>17,870</b>	<b>659,971</b>	<b>6,241,562</b>
7	Housing Authority	152,900	420	190	800	380	313	1,310	510	9,146	70,191
8	Charities & Schools	125,500	340	180	610	270	270	920	310	12,854	33,474
9	Hospital/University	53,000	150	180	270	120	233	350	80	1,308	2,442
10	Hand Billed	525,100	1,440	180	2,590	1,150	270	3,890	1,300	6,468	9
11	Scheduled (Flat Rate)	100	0	200	0	0	360	0	0	10	120
	<b>Fire Protection (c)</b>										
12	Public		0		800	800		2,090	1,290		
13	Private	0	0		310	310		800	490	9,641	864,791
<b>14</b>	<b>Total Retail Customers</b>	<b>5,740,200</b>	<b>15,730</b>		<b>31,180</b>	<b>15,450</b>		<b>53,030</b>	<b>21,850</b>	<b>699,398</b>	<b>7,212,589</b>

(a) Capacity in excess of average daily use.

(b) Capacity in excess of maximum day.

(c) System wide fire protection demands reflect two simultaneous fires, one requiring 10,000 gallons per minute (gpm) fire flow demand for 10 hours and the second requiring 5,000 gpm for 8 hours. These demands are allocated between standard pressure public fire service and private fire service based upon equivalent 6-inch connections for each of the two fire service classes.

Mcf - thousand cubic feet



## 4.6 Allocation of O&M Expense

### 4.6.1 Retail

Table 4-5 shows the allocation of Test Year 1 O&M expenses for the Water System to the identified functional cost components by cost center. The four key components of the Water System's portion of the Operating expenses are: (i) the O&M expense, (ii) the deposit to the Rate Stabilization Fund, (iii) the year-end Revenue Fund balance which is deposited into the Residual Fund and (iv) the cost of treating and disposing water treatment plant sludge that is discharged into the City's Wastewater System. The water treatment plant sludge expense of \$16.6 Million is shown in Line 3 of Table 4-2. A corresponding credit for this amount is shown in the wastewater COS in Table 7-2.

The projected net O&M expense for Test Year 1 is \$248.4 Million. Operation and Maintenance expense is allocated to water cost components generally in the same proportion as the plant investment and depreciation expense allocations.

The Test Year 1 O&M costs are allocated to the cost components using a two-step process.

- First, a portion of O&M costs are allocated to wholesale water contract customers.
- Then the retail portion of the total O&M (which is the total O&M expense less the proportionate share allocated to wholesale contract customers), is allocated to the cost components.

The O&M expenses that are directly allocable to Aqua PA are deducted from the total expenses shown in Column 1 of Table 4-5. The remaining expenses are allocated to the retail customer types as follows:

- Source of Supply: Raw water pumping expense, other than purchased power, is allocated 72% to Base and 28% to Maximum Day cost components. The power costs associated with raw water pumping is allocated 95% to Base and 5% to Maximum Day cost components in recognition of the operating characteristics of pumps and the demand structure of electric rates.
- Water Treatment Costs: Different expense items within the water treatment costs are allocated differently to the cost components.
  - Projected test year operating expense, exclusive of power, chemical costs, and sludge treatment and disposal costs, for the Baxter, Queen Lane, and Belmont treatment plants is allocated 72% to Base and 28% to Maximum Day Extra Capacity.
  - Chemical costs and sludge treatment and disposal costs, which generally vary directly with the quantity of water treated, are assigned 100% to the Base cost component.
  - Test year treated water pumping operating expenses, exclusive of power costs, are allocated 48% to Base, 14% to Maximum Day Extra Capacity, and 38% to Maximum Hour Extra Capacity cost components.
  - Treatment plant power costs are allocated 90% to Base, 5% to Maximum Day Extra Capacity and 5% to Maximum Hour Extra Capacity in recognition of the effect of the demand structure of electric rates.

**Table 4-5 Allocation of Test Year 1 O&M Expense**

LINE NO.	CUSTOMER TYPE	(1)	(2)	EXTRA CAPACITY		(5)	(6)	(7)	(8)
		TEST YEAR O&M EXPENSE	BASE	MAX DAY	MAX HOUR	CUSTOMER COSTS		PUBLIC FIRE PROTECTION - DIRECT	
				IN EXCESS OF BASE	IN EXCESS OF MAX DAY	METERS	BILLING	STANDARD PRESSURE	WHOLESALE DIRECT
<b>WATER SYSTEM (\$)</b>									
<b>Raw Water Pumping</b>									
1	Purchased Power	\$ 3,681,000	\$ 3,461,000	\$ 182,000					\$ 38,000
2	Purchased Gas	1,000	1,000	-					-
3	Other	5,451,000	3,865,000	1,503,000					83,000
<b>4</b>	<b>Total Raw Water Pumping</b>	<b>9,133,000</b>	<b>7,327,000</b>	<b>1,685,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>121,000</b>
<b>Purification and Treatment</b>									
Power and Pumping (a)									
5	Purchased Power	4,945,000	4,406,000	245,000	244,000				50,000
6	Purchased Gas	754,000	358,000	104,000	284,000				8,000
7	Other	10,177,000	4,810,000	1,403,000	3,808,000				156,000
<b>Treatment</b>									
8	Purchased Power	-	-	-	-				-
9	Purchased Gas	45,000	32,000	13,000	-				-
10	Chemicals	23,109,000	22,873,000						236,000
<b>Other</b>									
11	Other	48,719,000	34,541,000	13,432,000					746,000
12	Water Treatment Plant Sludge	16,592,000	16,381,000						211,000
13	Subtotal Other (b)	65,311,000	50,922,000	13,432,000	-	-	-	-	957,000
<b>14</b>	<b>Total Purification and Treatment</b>	<b>104,341,000</b>	<b>83,401,000</b>	<b>15,197,000</b>	<b>4,336,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>1,407,000</b>
<b>Transmission and Distribution</b>									
15	Mains	64,023,000	30,548,000	8,910,000	24,184,000				381,000
16	Meters	2,539,000				2,539,000			
17	Hydrants	543,000						543,000	
18	Filtered Water Storage	8,436,000	3,960,000	1,155,000	3,134,000				187,000
<b>19</b>	<b>Total Transmission and Distribution</b>	<b>\$ 75,541,000</b>	<b>\$ 34,508,000</b>	<b>\$ 10,065,000</b>	<b>\$ 27,318,000</b>	<b>\$ 2,539,000</b>	<b>\$ -</b>	<b>\$ 543,000</b>	<b>\$ 568,000</b>

**Table 4-5 Allocation of Test Year 1 O&M Expense (continued)**

LINE NO.	CUSTOMER TYPE	(1)	(2)	EXTRA CAPACITY		(5)	(6)	(7)	(8)
		TEST YEAR O&M EXPENSE	BASE	MAX DAY IN EXCESS OF BASE	MAX HOUR IN EXCESS OF MAX DAY	CUSTOMER COSTS		PUBLIC FIRE PROTECTION - DIRECT	
						METERS	BILLING	STANDARD PRESSURE	WHOLESALE DIRECT
<b>WATER SYSTEM (\$)</b>									
20	Customer Accounting and Collection	\$ 23,521,000					\$ 23,521,000		\$ -
<b>21</b>	<b>Subtotal</b>	<b>212,536,000</b>	<b>125,236,000</b>	<b>26,947,000</b>	<b>31,654,000</b>	<b>2,539,000</b>	<b>23,521,000</b>	<b>543,000</b>	<b>2,096,000</b>
22	Administrative and General	33,994,000	16,169,000	5,493,000	6,475,000	528,000	4,893,000	113,000	323,000
23	Subtotal Water Operating Expense	246,530,000	141,405,000	32,440,000	38,129,000	3,067,000	28,414,000	656,000	2,419,000
24	Residual Fund Deposit	9,038,000	5,184,000	1,189,000	1,398,000	112,000	1,042,000	24,000	89,000
25	Deposit (from) to RSF	7,316,000	4,196,000	963,000	1,132,000	91,000	843,000	19,000	72,000
<b>26</b>	<b>Total Water Operating Expense</b>	<b>262,884,000</b>	<b>150,785,000</b>	<b>34,592,000</b>	<b>40,659,000</b>	<b>3,270,000</b>	<b>30,299,000</b>	<b>699,000</b>	<b>2,580,000</b>
27	Other Operating Revenue	13,554,000	7,828,000	1,795,000	2,110,000	169,000	1,572,000	36,000	44,000
28	Non-Operating Income	961,000	551,000	126,000	149,000	12,000	111,000	3,000	9,000
<b>29</b>	<b>Total Net Operating Expense</b>	<b>\$ 248,369,000</b>	<b>\$ 142,406,000</b>	<b>\$ 32,671,000</b>	<b>\$ 38,400,000</b>	<b>\$ 3,089,000</b>	<b>\$ 28,616,000</b>	<b>\$ 660,000</b>	<b>\$ 2,527,000</b>

(a) Includes booster pumping.

(b) Includes Wastewater System cost of treating water treatment plant sludge of \$16,592,000.

- **Water Treatment Sludge Costs:** As shown in Line 12 in Table 4-5, the water treatment sludge O&M cost for FY 2024 is determined to be \$16.6 Million. This cost represents the cost of treating the water treatment plant sludge. The water treatment sludge, which is discharged into the Wastewater System, is ultimately treated in the wastewater treatment facility, and thereby becomes a wastewater treatment cost. This wastewater treatment cost is appropriately charged back to the Water System.
- **Transmission and Distribution:** Transmission and distribution test year operating expenses associated with mains and reservoirs are allocated to Base, Maximum Day Extra Capacity, and Maximum Hour Extra Capacity cost components, with factors identical to that of the Treated Water Pumping operation and maintenance expense allocation, discussed above.
- **Customer Meters and Public Fire Protection:** Meter maintenance expense is allocated 100% to the Meter component of Customer costs. Projected fire hydrant maintenance expense is allocated 100% to Direct Public Fire Protection cost component. Test year customer accounting and collection is allocated 100% to the Billing component of Customer costs.
- **Administrative and General:** Administrative and general expense is allocated to cost components in proportion to the total allocation of all other expenses to the cost components, excluding expenses for power, chemicals, and water treatment sludge.
- **Residual Fund and Rate Stabilization Fund Transfers:** The deposit into the Residual Fund (Line 24) and the deposit from the Rate Stabilization Fund (Line 25), each of which is allocable to O&M expense, are allocated to the various cost components in proportion to the allocation of the Subtotal Water Operating Expense (Line 23).
- **Net Operating Expense:** The net operating expense to be recovered from all customers through charges for water service is derived by deducting the “Other Operating Revenue” and the non-operating “Interest Income” from the total operating expense.
  - Other operating revenue (Line 27) is allocated to the various O&M cost components, in proportion to the allocation of the Subtotal Water Operating Expense (Line 23).
  - The non-operating interest income (Line 28) is allocated to the various O&M cost components, in proportion to the allocation of the Subtotal Water Operating Expense (Line 22).
  - The total net operation and maintenance expense of \$248.4 Million to be recovered from water rates is shown on Line 29.

#### 4.6.2 Wholesale

Currently, Aqua Pennsylvania is the only wholesale water customer. O&M expenses are allocated to Aqua Pennsylvania taking into considerations their projected annual usage and maximum day demands for service relative to the annual production and maximum day demand of the overall Water System, excluding costs associated with mains less than 24 inches in diameter. As shown in Column 8 of Table 4-5, a total of \$2.53 Million of Test Year 1 O&M expense has been allocated to Aqua PA.

## 4.7 Allocation of Net Plant Investment

Table 4-6 summarizes the test year investment in the Water System used in the allocation of test year capital related costs of service. The total Test Year 1 investment of \$1.79 Billion is the total original cost investment in facilities as of June 30, 2022.

### 4.7.1 Retail

The Test Year 1 plant investment is allocated to the cost components using a two-step process.

- First, a portion of the Water System plant investment costs are allocated to wholesale water customers.
- Then the retail portion of the total plant investment costs (which is the total plant investment less the proportionate share allocated to wholesale customers), are allocated to the other five cost components (Base, Extra Capacity (Max Day and Max Hour), Customer, and Public Fire Protection).

After deducting the investment directly allocable to Aqua PA, the balance of the plant investment is allocated to retail customers as follows:

- **Source of Supply (Raw Water):** The investment in the source of supply facilities shown in Lines 1 and 2 includes the Fairmont Dam and associated structures and equipment. These facilities are designed to meet average annual water supply requirements and are allocated 100% to the Base cost component.
- **Raw Water Pumping:** Lines 3 and 4 reflect investment in the Baxter, Queen Lane, and Belmont raw water intakes, buildings, structures, and raw water pumping equipment. These facilities not only supply the average annual volume needs but are also designed to meet the capacity needs of maximum day requirements. Hence, investment in these facilities is allocated 72% to Base cost component and 28% to Maximum Day Extra Capacity cost component.

**Table 4-6 Allocation of Test Year 1 Net Plant Investment to Functional Cost Components**

LINE NO.	CUSTOMER TYPE	(1)	(2)	(3) EXTRA CAPACITY		(5)	(6)	(7)
		ESTIMATED PLANT INVESTMENT	BASE	MAX DAY IN EXCESS OF BASE	MAX HOUR IN EXCESS OF MAX DAY	CUSTOMER METERS	PUBLIC FIRE PROTECTION DIRECT STANDARD PRESSURE	WHOLESALE DIRECT
<b>WATER SYSTEM (\$)</b>								
<b>Raw Water Supply and Pumping</b>								
<b>Source of Supply</b>								
1	Land	\$ 200,000	\$ 200,000					
2	Buildings and Equipment	4,218,000	4,218,000					
<b>Power and Pumping</b>								
3	Land	31,000	22,000	9,000				-
4	Buildings and Equipment	49,689,000	35,365,000	13,753,000				571,000
<b>5</b>	<b>Total Raw Water Supply and Pumping</b>	<b>54,138,000</b>	<b>39,805,000</b>	<b>13,762,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>571,000</b>
<b>Purification and Treatment</b>								
<b>Power and Pumping (a)</b>								
6	Land	71,000	34,000	10,000	26,000			1,000
7	Buildings and Equipment	92,806,000	43,801,000	12,775,000	34,677,000			1,553,000
<b>Treatment</b>								
8	Land	1,325,000	937,000	365,000				23,000
9	Buildings and Equipment	392,214,000	277,481,000	107,909,000				6,824,000
<b>10</b>	<b>Total Purification and Treatment</b>	<b>486,416,000</b>	<b>322,253,000</b>	<b>121,059,000</b>	<b>34,703,000</b>	<b>-</b>	<b>-</b>	<b>8,401,000</b>
<b>Transmission and Distribution</b>								
11	Mains	980,550,000	468,469,000	136,637,000	370,872,000			4,572,000
12	Meters	46,227,000				46,227,000		-
13	Hydrants	9,200,000					9,200,000	-
<b>Filtered Water Storage</b>								
14	Land	182,000	86,000	25,000	68,000			3,000
15	Buildings and Equipment	142,717,000	67,312,000	19,633,000	53,289,000			2,483,000
<b>16</b>	<b>Total Transmission and Distribution</b>	<b>1,178,876,000</b>	<b>535,867,000</b>	<b>156,295,000</b>	<b>424,229,000</b>	<b>46,227,000</b>	<b>9,200,000</b>	<b>7,058,000</b>
<b>17</b>	<b>Subtotal</b>	<b>1,719,430,000</b>	<b>897,925,000</b>	<b>291,116,000</b>	<b>458,932,000</b>	<b>46,227,000</b>	<b>9,200,000</b>	<b>16,030,000</b>
<b>Administrative and General (b)</b>								
18	Land	205,000	106,000	35,000	55,000	6,000	1,000	2,000
19	Buildings and Equipment	70,524,000	36,829,000	11,940,000	18,823,000	1,896,000	377,000	659,000
<b>20</b>	<b>Total Administrative and General</b>	<b>70,729,000</b>	<b>36,935,000</b>	<b>11,975,000</b>	<b>18,878,000</b>	<b>1,902,000</b>	<b>378,000</b>	<b>661,000</b>
<b>21</b>	<b>Total Water Plant Investment</b>	<b>\$ 1,790,159,000</b>	<b>\$ 934,860,000</b>	<b>\$ 303,091,000</b>	<b>\$ 477,810,000</b>	<b>\$ 48,129,000</b>	<b>\$ 9,578,000</b>	<b>\$ 16,691,000</b>

(a) Includes booster pumping

(b) Administrative and General allocated based on allocation of system investment.

- **Treated Water Pumping:** The investment in treated water pumping facilities at all three treatment plants, as well as the booster pumping stations in the distribution system, is included in Lines 6 and 7. These facilities are designed to fulfill maximum hour capacity needs in addition to meeting the Base and Maximum Day requirements. Hence, the retail portion of the plant investment costs of these facilities are allocated 48% to Base, 14% to Maximum Day Extra Capacity, and 38% to Maximum Hour Extra Capacity cost components.
- **Water Treatment:** The water purification and treatment facilities at the Baxter, Queen Lane, and Belmont treatment plants are designed to provide maximum day capacity needs. Hence, 72% of these costs are allocated to the Base cost component and 28% to the Maximum Day Extra Capacity cost component. The investment for Treatment is shown in Lines 8 and 9.
- **Transmission and Distribution:** Transmission and distribution investment, including transmission and distribution mains, and filtered water storage facilities are designed to meet maximum hour requirements of the system. Investment in these facilities is therefore allocated to Base, Maximum Day Extra Capacity, and Maximum Hour Extra Capacity cost components, with factors identical to that of the Treated Water Pumping allocation, discussed above.
- **Customer Meters and Public Fire Protection:** Investments in customer meters are entirely allocable to the Customer Meters cost component. Public fire protection service is comprised of the standard pressure fire system. Investment in public fire protection facilities is allocated 100% to the Public Fire Protection component.
- **General Plant and Equipment:** Other general plant and equipment investments are allocated to all the cost components based on the proportion of the total non-general plant and equipment component cost to the total plant investment cost.

#### 4.7.2 Wholesale

Aqua PA is allocated a share of total Water System investment in large transmission mains, defined as 24 inch and larger mains, as well as raw water and treated water storage and pumping facilities, and a share of the investment in the Baxter, Queen Lane, and Belmont treatment facilities.

The plant investment costs are allocated to Aqua PA based on the proportionate share of their contract capacity in the various facilities relative to the total design capacity of the various facilities. Aqua PA's contract capacity in the various classes of facilities is in the range of 1.15% to 1.74% of the total design capacity of the facilities.

As shown in Column 7 of Table 4-6, a total of \$16.69 Million of test year net plant investment has been allocated to Aqua PA. The associated return on investment at 7.50% is \$1,252,000.

## 4.8 Allocation of Depreciation Expense

Table 4-7 shows the estimated annual depreciation expense of the Water System and it is estimated to be \$41.7 Million for the Test Year 1. As shown on Line 14, the total depreciation expense allocated to Aqua PA is \$403,000.

The annual depreciation expense to be distributed to Water System cost components is based on the application of appropriate depreciation expense rates to the various categories of Water System facilities. The various items of depreciation expense are allocated to cost components on the same basis as the proportion of plant investment costs allocated to each of those cost components.

*[This spacing is intentional]*



**Table 4-7 Allocation of Test Year 1 Depreciation Expense**

LINE NO.	CUSTOMER TYPE	(1)	(2)	EXTRA CAPACITY		(5)	(6)	(7)
		ESTIMATED PLANT INVESTMENT	BASE	MAX DAY IN EXCESS OF BASE	MAX HOUR IN EXCESS OF MAX DAY	CUSTOMER METERS	DIRECT STANDARD PRESSURE	WHOLESALE DIRECT
<b>WATER SYSTEM (\$)</b>								
<b>Raw Water Supply and Pumping</b>								
1	Source of Supply	\$ 105,000	\$ 105,000	\$ -				
2	Power and Pumping	1,039,000	739,000	288,000				12,000
<b>3</b>	<b>Total Supply and Pumping</b>	<b>1,144,000</b>	<b>844,000</b>	<b>288,000</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>12,000</b>
<b>Purification and Treatment</b>								
4	Power and Pumping (a)	1,840,000	868,000	253,000	688,000			31,000
5	Treatment	8,983,000	6,355,000	2,472,000				156,000
<b>6</b>	<b>Total Purification and Treatment</b>	<b>10,823,000</b>	<b>7,223,000</b>	<b>2,725,000</b>	<b>688,000</b>	<b>-</b>	<b>-</b>	<b>187,000</b>
<b>Transmission and Distribution</b>								
7	Mains	18,433,000	8,807,000	2,569,000	6,971,000			86,000
8	Meters	3,236,000				3,236,000		-
9	Hydrants	230,000					230,000	-
10	Filtered Water Storage	5,638,000	2,659,000	776,000	2,105,000			98,000
<b>11</b>	<b>Total Transmission and Distribution</b>	<b>27,537,000</b>	<b>11,466,000</b>	<b>3,345,000</b>	<b>9,076,000</b>	<b>3,236,000</b>	<b>230,000</b>	<b>184,000</b>
<b>12</b>	<b>Subtotal</b>	<b>39,504,000</b>	<b>19,533,000</b>	<b>6,358,000</b>	<b>9,764,000</b>	<b>3,236,000</b>	<b>230,000</b>	<b>383,000</b>
13	Administrative and General	2,151,000	1,124,000	364,000	574,000	58,000	11,000	20,000
<b>14</b>	<b>Total Water Plant Depreciation Expense</b>	<b>\$ 41,655,000</b>	<b>\$ 20,657,000</b>	<b>\$ 6,722,000</b>	<b>\$ 10,338,000</b>	<b>\$ 3,294,000</b>	<b>\$ 241,000</b>	<b>\$ 403,000</b>

(a) Includes booster pumping

## 4.9 Wholesale Cost of Service Allocations

Table 4-8 summarizes the COS allocations for Aqua PA based on the discussions presented above.

**Table 4-8 Summary of Test Year 1 COS Allocated to Aqua PA**

LINE NO.	DESCRIPTION	(1) ALLOCATED INVESTMENT	(2) COST OF SERVICE
1	Operating Expense		\$ 2,527,000
2	Depreciation Expense		403,000
3	Return on Investment		
4	Allocated Investment	16,691,000	
5	Return @ 7.50%		1,252,000
<b>6</b>	<b>Total Allocated Cost of Service</b>		<b>\$ 4,182,000</b>

## 4.10 Distribution of Costs to Customer Types

The cost of service is distributed to customer types by applying the unit costs to the individual customer types' units of service. Applying the unit costs of service to the number of units for which the customer type is responsible produces the customer type responsibility. The costs attributable to each customer type are based on the functional cost components described in earlier in this Report. Each customer type places a burden on the system in different ways and thus the allocation of the units is representative of this burden.

Table 4-9 presents the derivation of the unit costs of service for the Retail customers. Table 4-10 summarizes the distribution of the costs to the different customer types utilizing these unit costs. The total COS for each customer type is the sum of each type's units of service multiplied by the unit costs for the functional cost component.

As discussed earlier, the Water Department provides discounts to select customers. The cost of these discounts is not directly charged to customers. Instead, these costs are reallocated to the other retail customers in proportion to their allocated COS, as shown in Columns 2 to 4 of Table 4-11. The test year adjusted COS, reflecting the reallocation of these costs, is shown in Column 5.

Table 4-12 compares the total adjusted COS for each customer type to their respective revenues under existing rates. The indicated increase or decrease in the revenue required to meet the adjusted COS is shown in Column 3.

**Table 4-9 Test Year 1 Retail Unit Costs of Service**

LINE NO.	CUSTOMER TYPE	(1)	(2)	EXTRA CAPACITY		(5)	(6)	(7)
		TOTAL ALLOCATED COST OF SERVICE	BASE	MAX DAY	MAX HOUR IN EXCESS OF MAX DAY	CUSTOMER COSTS METERS	BILLING	Direct Public Fire Protection
<b>Water System (\$)</b>								
<b>Total Retail Customer Units of Service</b>								
1	Number		5,740,200	15,450	21,850	699,398	7,212,589	
2	Units		Mcf	Mcf/day	Mcf/day	Equiv. Meters	Equiv. Bills	Total
<b>Operating Expense</b>								
3	Total Expense - \$	245,842,000	142,406,000	32,671,000	38,400,000	3,089,000	28,616,000	660,000
4	Unit Expense - \$/Unit		24.8085	2,114.6278	1,757.4371	4.4167	3.9675	
<b>Depreciation Expense</b>								
5	Total Expense - \$	41,252,000	20,657,000	6,722,000	10,338,000	3,294,000		241,000
6	Unit Expense - \$/Unit		3.5987	435.0809	473.1350	4.7098		
<b>Plant Investment</b>								
7	Total Investment - \$	1,773,468,000	934,860,000	303,091,000	477,810,000	48,129,000		9,578,000
8	Unit Investment - \$/Unit		162.8619	19,617.5405	21,867.7346	68.8149		
<b>Unit Return on Investment</b>								
9	Total Return - \$	60,362,000	31,819,000	10,316,000	16,263,000	1,638,000		326,000
10	Inside City - \$/Unit (a)		5.5432	667.7026	744.2902	2.3422		
<b>Total Unit Costs of Service</b>								
11	Inside City - \$/Unit		33.9504	3,217.4113	2,974.8623	11.4687	3.9675	

(a) Retail rate of return = Retail allocation of Return on Investment / Retail Allocation of System Plant Investment = \$60,362,000 / \$1,773,468,000 = 3.4036%  
Mcf - thousand cubic feet

**Table 4-10 Test Year 1 Distribution of Costs of Service by Functional Cost Component to Customer Types**

LINE NO.	CUSTOMER TYPE	(1)	(2)	(3) EXTRA CAPACITY		(5)	(6)	(7)
		TOTAL ALLOCATED COST OF SERVICE	BASE	MAX DAY	MAX HOUR IN EXCESS OF MAX DAY	CUSTOMER COSTS METERS	BILLING	DIRECT PUBLIC FIRE PROTECTION
<b>Water System (\$)</b>								
<b>Retail</b>								
<b>General Service</b>								
1	Senior Citizens	\$ 7,974,000	\$ 4,084,000	\$ 1,062,000	\$ 1,577,000	\$ 243,000	\$ 1,008,000	0
2	Residential	199,076,000	104,721,000	27,187,000	40,220,000	5,607,000	21,341,000	0
3	Commercial	80,967,000	54,562,000	11,325,000	11,126,000	1,630,000	2,324,000	0
4	Industrial	2,746,000	2,074,000	322,000	208,000	69,000	73,000	0
5	Public Utilities	492,000	360,000	64,000	30,000	21,000	17,000	0
<b>6</b>	<b>Subtotal General Service</b>	<b>291,255,000</b>	<b>165,801,000</b>	<b>39,960,000</b>	<b>53,161,000</b>	<b>7,570,000</b>	<b>24,763,000</b>	<b>0</b>
7	PHA	8,314,000	5,191,000	1,223,000	1,517,000	105,000	278,000	0
8	Charities & Schools	6,332,000	4,261,000	869,000	922,000	147,000	133,000	0
9	Hospitals & University	2,448,000	1,799,000	386,000	238,000	15,000	10,000	0
10	Hand Billed	25,468,000	17,827,000	3,700,000	3,867,000	74,000	-	0
11	Scheduled (Flat Rate)	3,000	3,000	-	-	-	-	0
<b>Fire Protection</b>								
12	Private	5,997,000	-	997,000	1,458,000	111,000	3,431,000	0
<b>Public</b>								
13	Standard Pressure	7,639,000	-	2,574,000	3,838,000	-	-	1,227,000
<b>14</b>	<b>Subtotal Public Fire Protection</b>	<b>7,639,000</b>	<b>-</b>	<b>2,574,000</b>	<b>3,838,000</b>	<b>-</b>	<b>-</b>	<b>1,227,000</b>
<b>15</b>	<b>Total Retail Service</b>	<b>\$ 347,456,000</b>	<b>\$ 194,882,000</b>	<b>\$ 49,709,000</b>	<b>\$ 65,001,000</b>	<b>\$ 8,022,000</b>	<b>\$ 28,615,000</b>	<b>\$ 1,227,000</b>

**Table 4-11 Test Year 1 Adjusted COS**

LINE NO.	CUSTOMER TYPE	(1)	(2)	(3)	(4)	(5)
		ALLOCATED COST OF SERVICE	DISCOUNT	COST OF SERVICE WITH DISCOUNT	RECOVERY OF DISCOUNT	ADJUSTED COST OF SERVICE
<b>Water System (\$000s)</b>						
1	Residential	\$ 199,076,000	\$ -	\$ 199,076,000	\$ 2,672,000	\$ 201,748,000
2	Senior Citizens	7,974,000	1,994,000	5,980,000	80,000	6,060,000
3	Commercial	80,967,000	-	80,967,000	1,088,000	82,055,000
4	Industrial	2,746,000	-	2,746,000	37,000	2,783,000
5	Public Utilities	492,000	-	492,000	7,000	499,000
6	PHA	8,314,000	416,000	7,898,000	106,000	8,004,000
<b>Charities, Schools, &amp; Universities</b>						
7	Charities & Schools	6,332,000	1,583,000	4,749,000	64,000	4,813,000
8	Hospital/University	2,448,000	612,000	1,836,000	25,000	1,861,000
<b>9</b>	<b>Subtotal</b>	<b>8,780,000</b>	<b>2,195,000</b>	<b>6,585,000</b>	<b>89,000</b>	<b>6,674,000</b>
10	Hand Billed	25,468,000	-	25,468,000	342,000	25,810,000
11	Scheduled (Flat Rate)	3,000	-	3,000	-	3,000
<b>Fire Protection</b>						
12	Private	5,997,000	-	5,997,000	81,000	6,078,000
	Public					
13	Standard Pressure	7,639,000	-	7,639,000	103,000	7,742,000
<b>14</b>	<b>Subtotal Public Fire Protection</b>	<b>7,639,000</b>	<b>-</b>	<b>7,639,000</b>	<b>103,000</b>	<b>7,742,000</b>
<b>15</b>	<b>Subtotal Retail Service</b>	<b>347,456,000</b>	<b>4,605,000</b>	<b>342,851,000</b>	<b>4,605,000</b>	<b>347,456,000</b>
16	Wholesale	4,600,000	-	4,600,000	-	4,600,000
<b>17</b>	<b>Total System</b>	<b>\$ 352,056,000</b>	<b>\$ 4,605,000</b>	<b>\$ 347,451,000</b>	<b>\$ 4,605,000</b>	<b>\$ 352,056,000</b>

**Table 4-12 Comparison of Test Year 1 COS and Adjusted COS with Revenues Under Existing Rates**

LINE NO.	CUSTOMER TYPE	(1)	(2)	(3)
		REVENUE UNDER EXISTING RATES	ADJUSTED COST OF SERVICE	INDICATED INCREASE (DECREASE) REQUIRED
		\$	\$	%
<b>Retail</b>				
<b>General Service</b>				
1	Senior Citizens	\$ 5,151,885	\$ 6,060,000	17.6%
2	Residential	169,900,488	201,748,000	18.7%
3	Commercial	71,663,828	82,055,000	14.5%
4	Industrial	2,708,368	2,783,000	2.8%
5	Public Utilities	489,405	499,000	2.0%
<b>6</b>	<b>Subtotal General Service</b>	<b>249,913,974</b>	<b>293,145,000</b>	<b>17.3%</b>
7	PHA	6,554,466	8,004,000	22.1%
8	Charities & Schools	4,297,017	4,813,000	12.0%
9	Hospitals & University	1,628,549	1,861,000	14.3%
10	Hand Billed	18,894,388	25,810,000	36.6%
11	Scheduled (Flat Rate)	3,379	3,000	-11.2%
<b>Fire Protection</b>				
12	Private	4,358,150	6,078,000	39.5%
	Public			
13	Standard Pressure	7,114,000	7,742,000	8.8%
<b>14</b>	<b>Subtotal</b>	<b>7,114,000</b>	<b>7,742,000</b>	<b>8.8%</b>
<b>15</b>	<b>Total Retail Service</b>	<b>292,763,923</b>	<b>347,456,000</b>	<b>18.7%</b>
16	Total Wholesale	3,329,398	4,600,000	38.2%
<b>17</b>	<b>Total System</b>	<b>\$ 296,093,321</b>	<b>\$ 352,056,000</b>	<b>18.9%</b>

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## 5.0 Water System Rate Design

The revenue requirement and COS analyses described in the preceding sections of this Report provide a basis for the review and update of a schedule of water rates that recover allocated cost of service. These studies are the results of engineering estimates, consideration of historical data and, to some extent, judgment, and experience. Judgment must enter the final choice of rates, and factors such as public reaction to the extent of changes and adjustments, previous rate levels, contractual agreements, and past local practice are recognized in making rate adjustments.

Rates should be reasonably simple in application and subject to as few misinterpretations as possible. Considerations regarding the proposed rate adjustments reflect discussions with the Water Department staff and include the above considerations and the desire of the Water Department to maintain the existing structure for the Rate Period. This Report proposes water user rates in accordance with these considerations.

The cost-of-service analysis described in the preceding section of this Report provides the basis for the design of water rate schedules to cover the allocated cost for service for the Water System.

### 5.1 General Service

The proposed charges for water service derived in this Report are applicable to General Service retail customers and recognize that certain retail customer types, including senior citizens, charities and schools, and the PHA, receive services at a discounted rate. The Water Department anticipates that the existing discounts (25% for senior citizens, charities and schools, and 5% for PHA) will continue to be applicable for the entire Study Period.

In designing the proposed rates, we adjust the retail water costs of service determined for each customer type to reflect the fact that these customer types will not pay full cost of service. Accordingly, we increase the proposed retail water, sewer, and stormwater rates to recover this cost-of-service revenue reduction due to discounts.

Additionally, the cost-of-service water rates that are designed for each Test Year require the application of a “lag factor.” The lag factor reflects a final adjustment to the cost-of-service rates to recognize the fact that there will be a proration of quantity charge billings between the existing and proposed rates during the first month following the effective date of the rate increase, as well as the fact that the fiscal year billings will not be fully collected within that fiscal year. The lag factor is calculated to recover only the anticipated receipts of the prorated revenue increase projected for the test year, recognizing the normally expected historical payment patterns. A lag factor of 1.063 is applied to the FY 2024 water COS rates.

Table 5-1 presents the proposed water rates for General Service customers applicable for Test Year 1 (FY 2024) and Test Year 2 (FY 2025). The proposed rates reflect a continuation of the existing rate structure, including a service charge which varies by meter size and a declining block quantity charge. The proposed rates designed for each fiscal year, are designed to recover the water revenue increase



indicated in Table 3-13, taking into consideration the collection factor patterns as applied to billings from current and prior fiscal years.

**Table 5-1 Proposed FY 2024 and FY 2025 General Service Water Rates [Schedule BV-1: Table C-10]**

Description	Proposed	
	FY 2024	FY 2025
<b>Monthly Water Service Charge (\$/bill)</b>		
<u>Meter Size (Inches)</u>		
5/8	\$5.30	\$5.42
3/4	\$5.81	\$5.96
1	\$7.27	\$7.49
1-1/2	\$10.28	\$10.67
2	\$14.65	\$15.25
3	\$23.99	\$25.10
4	\$42.84	\$44.71
6	\$81.39	\$85.12
8	\$125.10	\$131.01
10	\$182.51	\$191.01
12	\$306.82	\$322.40
<b>Base Rate - Water Quantity Charges (\$/Mcf)</b>		
<u>Monthly Water Usage</u>		
First 2 Mcf	\$61.14	\$66.42
Next 98 Mcf	\$54.93	\$59.72
Next 1,900 Mcf	\$42.55	\$46.27
Over 2,000 Mcf	\$41.40	\$45.03

## 5.2 Fire Protection

Table 5-2 presents the proposed rates for fire connections for Test Year 1 and Test Year 2.

**Table 5-2 Proposed Rates for Fire Protection [Schedule BV-1: Table C-11 and C-11A]**

Size of Meter or Connection	Monthly Charge (\$/bill)		Size of Meter or Connection	Monthly Charge (\$/bill)	
	FY 2024	FY 2025		FY 2024	FY 2025
<b>Private Fire Protection</b>			<b>Residential Private Fire Protection Water Service Charge w/ Fire Protection</b>		
4" or less	\$29.04	\$29.34	3/4	\$9.47	\$9.65
6	\$53.81	\$54.38	1	\$10.93	\$11.18
8	\$80.97	\$81.81	1-1/2	\$13.94	\$14.36
10	\$119.07	\$120.32	2	\$18.31	\$18.94
12	\$188.23	\$190.21	<b>Monthly Sewer Service Charge</b>		
<b>Public Fire Protection</b>			3/4	\$7.54	\$7.98
<b>Annual Charge (\$)</b>			1	\$7.54	\$7.98
			1-1/2	\$7.54	\$7.98
			2	\$7.54	\$7.98
Standard Pressure	\$7,742,000	\$8,500,000			

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## 6.0 Wastewater System Revenue and Revenue Requirements

The Wastewater System currently serves the City of Philadelphia, and parts of Bucks, Montgomery, and Delaware Counties, a service area that is over 364 square miles, with 230 square miles in suburban communities and 134 square miles in the City.

The wastewater collection system consists of approximately 3,727 miles of total collector system piping, 20 pumping stations (17 wastewater and 3 stormwater), 95,091 manholes, 25 storm relief structures, and 71,825 stormwater inlets. The collection system is approximately 55% combined sewer system comprised of 767 miles of sanitary, 757 miles of storm, and 1,852 combined sanitary/storm sewers. Sewers range in size from 8-inch diameter to 21 feet by 24 feet arch-shaped conduits primarily constructed of brick, vitrified clay, or reinforced concrete.

This section focuses on the Revenue and Revenue Requirements part of the COS study for the Wastewater System. In the following discussion, we review O&M expenses, debt service payments, funding for specific deposits and reserves, and the cost of capital improvement projects that the Water Department does not fund via debt or contributions from third parties.

### 6.1 Wastewater Revenue

The Wastewater System derives revenue primarily from charges for sanitary sewer and stormwater services. During the Study Period, future levels of sanitary sewer revenues were projected based on an analysis of historical and future system growth in terms of the number of accounts and water consumption for sewer customers. For stormwater, trends for billable parcels and estimates of billable GA and IA were examined.

#### 6.1.1 Stormwater Services Background

The Water Department has been responsible for providing stormwater services to the City of Philadelphia since its creation. Historically, stormwater costs were recovered from customers through the Water Department's rates and charges.

The Water Department fully transitioned the Stormwater Management Service Charge ("SWMS Charge") to a parcel area-based SWMS Charge, as of July 1, 2013. Prior to the transition to the parcel area-based SWMS Charge, stormwater costs were recovered from customers via a meter-based stormwater charge with the customers sanitary service fees. Under this approach, equivalent meter sizes were used as a proxy for the demand a customer places on stormwater services. While customers were charged on the same basis, water meter size (or water use) does not directly correlate to the generation of stormwater, or the demand placed on the Water Department's system and/or services. In addition, the use of equivalent meter as the basis for the stormwater charged did not capture properties without water meters, such as parking lots, which generate stormwater runoff and may place a demand on the system and/or services.

Based upon prior rate proceedings as well as discussions with City stakeholders, the Water Department undertook a process in the 1990s to develop and implement a more acceptable and technically appropriate methodology for stormwater cost recovery. The underlying change in cost recovery recognizes that stormwater costs of service are not related to sanitary service requirements, which are generally related to customers' water use, and that a more appropriate basis would be a measure of (or surrogate for) the generation of stormwater runoff. As a result of this process, the Water Department chose a methodology that considered (1) the overall area of customer properties (i.e., gross area), and (2) stormwater runoff potential, including the impervious area of the property was identified as a more appropriate basis for recovery of stormwater costs. These two elements are recognized in the two primary components which make up the SWMS Charge, namely the GA and IA charges. The parcel area-based fee is far more equitable, compared to an equivalent meter basis, as it better recognizes the generation of stormwater runoff from both pervious and impervious surfaces, associated demands placed on systems or services, and includes customers without a water meter, who previously did not contribute to cost recovery.

While this change in cost recovery approach was initially identified in the 1990s, billing data development and billing system updates to enable the use of a parcel area-based fee took several years. The Water Department began to transition customers to the current SWMS rate structure in July 2010.

In the past, it was not unusual for stormwater costs to be recovered from customers via charges based upon water or sewer system attributes (such as water meter size). However, with improved data availability and technology, recovering stormwater costs via area-based fees has become far more widely used and publicly accepted nationwide. Further, WEF's [User Fee Funded Stormwater Programs](#) manual provides guidance on the development and implementation of such stormwater fees, and recognizes the methodology employed by the Water Department as one of the five named "Property Characteristics-Based Stormwater User Fee Methods,"<sup>20</sup> which provide an equitable and defensible basis for establishing a stormwater rate structure and estimating units of service by customer class.

### **6.1.2 Customers and Growth**

Table 6-1 summarizes the Water Department's wastewater customer account classifications.

For the most part, the sanitary sewer customer types are like those for water customers, except for sewer-only accounts, groundwater accounts, and hand-billed accounts. Hand-billed accounts are "H"-coded customers in the Basis2 billing system that receive surcharge and/or sewer credits. The adjustments to these accounts are made manually.

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<sup>20</sup> See Section 5.4 of WEF's "User-Fee-Funded Stormwater Programs" Manual.

**Table 6-1 Wastewater System Customer Types**

Customer Types			
Sanitary Sewer		Stormwater	
General Service	Other	Fire Service	Residential
- Residential	- PHA	Wholesale	Condominiums
- Senior Citizens	- Charities & Schools		Non-Residential
- Commercial	- Hospitals & Universities		Note: Stormwater also recognizes discounts as applicable to elderly, PHA and charities and schools.
- Industrial	- Hand Bill		
- Public Utilities	- Scheduled (Flat Rate)		
- Sewer Only	- Surcharge		
- Groundwater			

As noted in Section 1.4, customer account projections for FY 2023 to FY 2026 are based upon the number of accounts in FY 2022 and escalated by the 3-year average growth in the number accounts by type for FY 2020 to FY 2022. Accounts are assumed to remain stable thereafter. The number of billable stormwater accounts and parcels are projected to decline during the Study period due to new community gardens. Table 6-2 and Table 6-3 present the projection for number of accounts and billable parcels during the Study Period.

**Table 6-2 Number of Customer Accounts**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Sanitary Sewer</b>							
1	Residential	437,419	442,249	447,311	452,630	452,630	452,630
2	Senior Citizens	21,594	21,154	20,723	20,301	20,301	20,301
3	Commercial	37,116	37,501	37,904	38,325	38,325	38,325
4	Industrial	1,009	1,007	1,005	1,003	1,003	1,003
5	Public Utilities	203	213	224	226	226	226
<b>6</b>	<b>Subtotal General Service</b>	<b>497,341</b>	<b>502,124</b>	<b>507,167</b>	<b>512,485</b>	<b>512,485</b>	<b>512,485</b>
7	PHA	5,596	5,528	5,461	5,395	5,395	5,395
8	Charities and Schools	1,695	1,602	1,514	1,431	1,431	1,431
9	Hospitals and University	93	64	44	30	30	30
10	Hand Billed	202	199	196	193	193	193
11	Scheduled	8	10	13	16	16	16
12	Fire Service	0	0	0	0	0	0
13	Sewer Only	63	63	63	63	63	63
14	Groundwater	5	5	5	5	5	5
<b>15</b>	<b>Subtotal Retail Customers</b>	<b>505,003</b>	<b>509,595</b>	<b>514,463</b>	<b>519,618</b>	<b>519,618</b>	<b>519,618</b>
16	Wholesale	10	10	10	10	10	10
<b>17</b>	<b>Total Sanitary Sewer</b>	<b>505,013</b>	<b>509,605</b>	<b>514,473</b>	<b>519,628</b>	<b>519,628</b>	<b>519,628</b>
<b>Stormwater</b>							
18	Residential	465,601	465,601	465,601	465,601	465,601	465,601
19	Non-Residential	77,662	77,654	77,646	77,638	77,630	77,622
20	Condominium	5,278	5,278	5,278	5,278	5,278	5,278
<b>21</b>	<b>Subtotal Stormwater</b>	<b>548,541</b>	<b>548,533</b>	<b>548,525</b>	<b>548,517</b>	<b>548,509</b>	<b>548,501</b>

**Table 6-3 Number of Billable Parcels**

Line No.	Description	Fiscal Year Ending June 30,					
		2023	2024	2025	2026	2027	2028
<b>Stormwater</b>							
<b>Residential</b>							
1	Initial Parcel Count	463,408	463,408	463,408	463,408	463,408	463,408
2	Less Residential Zero Rate <sup>1</sup>	-	-	-	-	-	-
3	Subtotal Residential	463,408	463,408	463,408	463,408	463,408	463,408
<b>Non-Residential</b>							
4	Initial Parcel Count	68,931	68,931	68,931	68,931	68,931	68,931
5	Less Non-Residential Zero Rate <sup>2</sup>	8	16	24	32	40	48
6	Subtotal Non Residential	68,923	68,915	68,907	68,899	68,891	68,883
<b>Condominium</b>							
7	Initial Parcel Count	2,282	2,282	2,282	2,282	2,282	2,282
8	Less Stormwater Appeals Adjustments	0	0	0	0	0	0
9	Subtotal Condominium	2,282	2,282	2,282	2,282	2,282	2,282
<b>10</b>	<b>TOTAL: System Billable Parcels</b>	<b>534,613</b>	<b>534,605</b>	<b>534,597</b>	<b>534,589</b>	<b>534,581</b>	<b>534,573</b>

1: Comprises Community Gardens under Residential Category

2: Comprises Community Gardens under Non-Residential Category

### 6.1.3 Sanitary Sewer Retail Billed Volume

Table 6-4 presents the projected billed volume for retail sanitary sewer customers. Section 1.4 discussed the assumptions underlying the billed volumes projections. The billed volume projections reflect the following adjustments:

- To address the pending change in water consumption and resulting sewer billed volume from Vicinity, the projected FY 2024 commercial customer billed volume reflects a reduction of 90,000 Mcf and the projected FY 2024 Sewer Only billed volume is increased by 90,000 Mcf.
- Projected FY 2028 wholesale billed volume reflects the loss of DELCORA as a wholesale customer.

**Table 6-4 Retail Billed Volumes**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Wastewater System (Mcf)</b>							
1	Residential	3,057,101	3,072,948	3,089,130	3,105,728	3,088,322	3,070,916
2	Senior Citizens	122,006	120,163	118,347	116,557	116,557	116,557
3	Commercial	1,686,269	1,592,292	1,628,134	1,665,019	1,665,019	1,665,019
4	Industrial	68,789	56,628	46,638	38,423	38,423	38,423
5	Public Utilities	10,228	10,608	11,049	10,812	10,812	10,812
<b>6</b>	<b>Subtotal General Service</b>	<b>4,944,393</b>	<b>4,852,639</b>	<b>4,893,298</b>	<b>4,936,539</b>	<b>4,919,133</b>	<b>4,901,727</b>
7	PHA	153,741	152,867	151,997	151,131	151,131	151,131
8	Charities and Schools	130,706	124,850	119,245	113,918	113,918	113,918
9	Hospitals and University	74,165	52,941	37,979	27,265	27,265	27,265
10	Hand Billed	407,188	427,919	449,408	471,673	471,673	471,673
11	Scheduled	46	62	88	117	117	117
12	Fire Service	100	100	100	100	100	100
13	Sewer Only	60,516	150,516	150,516	150,516	150,516	150,516
14	Groundwater	211,696	211,696	211,696	211,696	211,696	211,696
<b>15</b>	<b>Subtotal Retail Customers</b>	<b>5,982,551</b>	<b>5,973,590</b>	<b>6,014,327</b>	<b>6,062,955</b>	<b>6,045,549</b>	<b>6,028,143</b>
16	Wholesale	3,853,388	3,853,388	3,853,388	3,853,388	3,853,388	2,766,598
<b>17</b>	<b>Total Sanitary Sewer System</b>	<b>9,835,939</b>	<b>9,826,978</b>	<b>9,867,715</b>	<b>9,916,343</b>	<b>9,898,937</b>	<b>8,794,741</b>

### 6.1.4 Wholesale Volume, Capacity, and Strength Loadings

Table 6-5 summarizes projections of billed volume, capacity, and biological oxygen demand (“BOD”) and suspended solids (“SS”) loadings for the wholesale customers. As previously noted in Section 1.4.1, projected wastewater wholesale billed volumes and loadings are estimated based on the three-year average of historical service levels, and DELCORA is anticipated to leave the City as a customer by FY 2028.



**Table 6-5 Projections for Wholesale Customer Volumes, Capacities, and Strength Loadings**

LINE		FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
NO.	DESCRIPTION						
<b>Wastewater System</b>							
<b>Abington</b>							
1	Volume (Mcf)	91,859	91,859	91,859	91,859	91,859	91,859
2	Capacity (Mcf/day)	824	824	824	824	824	824
3	SS (1,000 lbs)	998	998	998	998	998	998
4	BOD (1,000 lbs)	1,343	1,343	1,343	1,343	1,343	1,343
<b>Bucks County (Bensalem)</b>							
5	Volume (Mcf)	150,020	150,020	150,020	150,020	150,020	150,020
6	Capacity (Mcf/day)	1,014	1,014	1,014	1,014	1,014	1,014
7	SS (1,000 lbs)	1,568	1,568	1,568	1,568	1,568	1,568
8	BOD (1,000 lbs)	1,623	1,623	1,623	1,623	1,623	1,623
<b>Bucks County</b>							
9	Volume (Mcf)	893,899	893,899	893,899	893,899	893,899	893,899
10	Capacity (Mcf/day)	6,416	6,416	6,416	6,416	6,416	6,416
11	SS (1,000 lbs)	10,541	10,541	10,541	10,541	10,541	10,541
12	BOD (1,000 lbs)	10,369	10,369	10,369	10,369	10,369	10,369
<b>Cheltenham</b>							
13	Volume (Mcf)	410,973	410,973	410,973	410,973	410,973	410,973
14	Capacity (Mcf/day)	2,743	2,743	2,743	2,743	2,743	2,743
15	SS (1,000 lbs)	3,069	3,069	3,069	3,069	3,069	3,069
16	BOD (1,000 lbs)	2,682	2,682	2,682	2,682	2,682	2,682
<b>Lower Moreland</b>							
17	Volume (Mcf)	61,845	61,845	61,845	61,845	61,845	61,845
18	Capacity (Mcf/day)	508	508	508	508	508	508
19	SS (1,000 lbs)	626	626	626	626	626	626
20	BOD (1,000 lbs)	470	470	470	470	470	470
<b>Lower Southampton</b>							
21	Volume (Mcf)	270,135	270,135	270,135	270,135	270,135	270,135
22	Capacity (Mcf/day)	1,364	1,364	1,364	1,364	1,364	1,364
23	SS (1,000 lbs)	1,964	1,964	1,964	1,964	1,964	1,964
24	BOD (1,000 lbs)	1,633	1,633	1,633	1,633	1,633	1,633
<b>DELCORA</b>							
25	Volume (Mcf)	1,086,790	1,086,790	1,086,790	1,086,790	1,086,790	0
26	Capacity (Mcf/day)	13,392	13,392	13,392	13,392	13,392	0
27	SS (1,000 lbs)	12,017	12,017	12,017	12,017	12,017	0
28	BOD (1,000 lbs)	10,202	10,202	10,202	10,202	10,202	0
<b>Lower Merion</b>							
29	Volume (Mcf)	309,643	309,643	309,643	309,643	309,643	309,643
30	Capacity (Mcf/day)	2,728	2,728	2,728	2,728	2,728	2,728
31	SS (1,000 lbs)	3,234	3,234	3,234	3,234	3,234	3,234
32	BOD (1,000 lbs)	2,760	2,760	2,760	2,760	2,760	2,760

**Table 6-5 Projections for Wholesale Customer Volumes, Capacities, and Strength Loadings (continued)**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Wastewater System</b>							
<b>Springfield (less Wyndmoor)</b>							
33	Volume (Mcf)	109,419	109,419	109,419	109,419	109,419	109,419
34	Capacity (Mcf/day)	397	397	397	397	397	397
35	SS (1,000 lbs)	2,141	2,141	2,141	2,141	2,141	2,141
36	BOD (1,000 lbs)	2,116	2,116	2,116	2,116	2,116	2,116
<b>Upper Darby</b>							
37	Volume (Mcf)	451,287	451,287	451,287	451,287	451,287	451,287
38	Capacity (Mcf/day)	3,024	3,024	3,024	3,024	3,024	3,024
39	SS (1,000 lbs)	4,392	4,392	4,392	4,392	4,392	4,392
40	BOD (1,000 lbs)	3,745	3,745	3,745	3,745	3,745	3,745
<b>Springfield (Wyndmoor)</b>							
41	Volume (Mcf)	17,518	17,518	17,518	17,518	17,518	17,518
42	Capacity (Mcf/day)	167	167	167	167	167	167
43	SS (1,000 lbs)	215	215	215	215	215	215
44	BOD (1,000 lbs)	166	166	166	166	166	166

### 6.1.5 Stormwater Impervious and Gross Areas

A stormwater units of service analysis was performed to develop estimates of the billable GA and IA units of service for the Study Period and is provided as Schedule BV-4: WP-2. The billable units of service are utilized in projecting the stormwater revenues under existing rates, as well as in developing the proposed GA and IA rates discussed later in this Report.

As discussed, in Section 1.4.1, the initial GA and IA stormwater billing data for the Study Period (beginning FY 2023) is based upon the end of FY 2022 stormwater billing data set. Table 6-6 summarizes the mean GA and IA square footage for each customer class. These values were used to project the initial GA and IA for each customer class based upon the associated number of parcels for each customer class beginning in FY 2023. Further discussion is provided in Schedule BV-4: WP-2.

Based upon the FY 2022 data set, the mean residential GA square footage has decreased slightly to 2,100 square feet compared to the mean residential GA of 2,110 square feet from prior rate proceeding. The mean residential IA has decreased slightly to 1,190 square feet as compared to the mean residential IA of 1,200 square feet from the prior rate proceeding.

**Table 6-6 FY 2023 Mean GA and Mean IA**

Line No.	Description	FY 2023 MEAN GA	FY 2023 MEAN IA
<b>Stormwater (square feet)</b>			
1	<b>All Residential Parcels</b>	<b>2,100</b>	<b>1,190</b>
<b>Non-Residential Sub-Classes</b>			
<b>Non-Discount</b>			
2	Water & Sewer	29,017	16,297
3	SW Only	9,175	2,726
<b>Discount: Senior, Education &amp; Charities</b>			
4	Water & Sewer	96,679	52,080
5	SW Only	37,581	18,413
<b>Discount: PHA</b>			
6	Water & Sewer	54,964	29,681
7	SW Only	2,737	1,000
<b>Condominiums Sub-Classes</b>			
<b>Non-Discount</b>			
8	Water & Sewer	16,148	11,324
9	SW Only	27,126	18,031
<b>Discount: Senior, Education &amp; Charities</b>			
10	Water & Sewer	44,730	23,060
11	SW Only	-	-
<b>Discount: PHA</b>			
12	Water & Sewer	9,358	6,158
13	SW Only	-	-

FY 2023 Mean GA and Mean IA is based on the end of FY 2022 stormwater billing dataset.

With this COS study, projected billable units of service reflect:

- For FY 2023 – Initial GA and IA square footage as reflected in the Water Department’s stormwater billing data as of June 2022.
- Reduction in billable GA and IA square footage as a result of credits, based upon:
  - Projected increase in Impervious Area Reduction (“IAR”) credits based upon the average 5-year growth and average IAR loss per parcel;
  - Projected increase in GA, IA, and National Pollutant Discharge Elimination System (“NPDES”) Credits based upon the average 5-year growth in the number of parcels receiving credit and the associated average credit per parcel; and
  - Credits resulting from SMIP/GARP grants:
    - Based upon the overall annual program budget of \$25 Million in FY 2023, \$20 Million in FY 2024 and FY 2025, and \$25 Million thereafter; and

- Average grant award per drainage acre, anticipated cost escalation and average project completion time.
- Reduction in billable GA and IA square footage due to appeals and other adjustments:
  - Adjustment appeals, include reductions in GA and IA billable square footage resulting from customers who seek clarification for and take exception to GA and IA billing data.
  - Other adjustments include reductions in GA and IA billable square footage resulting from a property’s designation as a “Community Garden,” which provides customers with a 100% discount on their stormwater bill and as referred to as a “Zero Rate Adjustment” in the tables below. This discount also applies to billing and collection charges associated with the subject parcel(s).

Additional information regarding the derivation of the billable GA and IA units of service, including the basis for above mentioned projections, are provided in Schedule BV-4: WP-2.

Table 6-7 summarizes the development of the billable GA for the Study Period, while Table 6-8 summarizes the development of the billable IA for the Study Period.

**Table 6-7 Determination of Billable Gross Area**

Line No.	Description	Fiscal Year Ending June 30,					
		FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Stormwater (thousand square feet)</b>							
<b>Residential</b>							
1	Initial GA	973,157	973,157	973,157	973,157	973,157	973,157
2	Less Residential Zero Rate <sup>1</sup>	0	1	1	1	2	2
3	Subtotal Residential Billable GA (sf)	973,156	973,156	973,156	973,155	973,155	973,155
<b>Non-Residential</b>							
4	Initial GA	1,427,132	1,427,132	1,427,132	1,427,132	1,427,132	1,427,132
5	Less Credits Adjustments	282,294	288,296	293,920	298,997	304,003	309,366
6	Less Stormwater Appeals	413	713	901	977	977	977
7	Less Non-Residential Zero Rate <sup>2</sup>	73	147	220	293	367	440
8	Subtotal Non Residential Billable GA (sf)	1,144,352	1,137,977	1,132,091	1,126,864	1,121,785	1,116,349
<b>Condominium</b>							
9	Initial GA	38,449	38,449	38,449	38,449	38,449	38,449
10	Less Credits Adjustments	7,436	7,595	7,743	7,876	8,008	8,150
11	Subtotal Condominium Billable GA (sf)	31,012	30,854	30,706	30,572	30,441	30,299
12	<b>TOTAL: System Billable GA (sf)</b>	<b>2,148,521</b>	<b>2,141,987</b>	<b>2,135,953</b>	<b>2,130,592</b>	<b>2,125,380</b>	<b>2,119,803</b>

1: Comprises Community Gardens under Residential Category

2: Comprises Community Gardens in the Non-Residential Category.

**Table 6-8 Determination of a Billable Impervious Area**

Line No.	Description	Fiscal Year Ending June 30,					
		FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Stormwater (thousand square feet)</b>							
<b>Residential</b>							
1	Initial IA	551,455	551,455	551,455	551,455	551,455	551,455
2	Less Residential Zero Rate <sup>1</sup>	0	0	0	0	1	1
3	Subtotal Residential Billable IA (sf)	551,455	551,455	551,455	551,455	551,454	551,454
<b>Non-Residential</b>							
4	Initial IA	718,798	718,798	718,798	718,798	718,798	718,798
5	Less Credits Adjustments	115,417	119,202	122,617	125,495	128,303	131,461
6	Less Stormwater Appeals	480	830	1,049	1,137	1,137	1,137
7	Less Non-Residential Zero Rate <sup>2</sup>	3	7	10	13	17	20
8	Subtotal Non Residential Billable IA (sf)	602,898	598,759	595,122	592,153	589,341	586,180
<b>Condominium</b>							
9	Initial IA	26,577	26,577	26,577	26,577	26,577	26,577
10	Less Credits Adjustments	5,294	5,468	5,624	5,756	5,885	6,030
11	Subtotal Condominium Billable IA (sf)	21,283	21,109	20,953	20,821	20,692	20,547
<b>12</b>	<b>TOTAL: System Billable IA (sf)</b>	<b>1,175,635</b>	<b>1,171,323</b>	<b>1,167,530</b>	<b>1,164,428</b>	<b>1,161,488</b>	<b>1,158,181</b>

1: Comprises Community Gardens under Residential Category

2: Comprises Community Gardens in the Non-Residential Category.

Revenue Under Existing Rates projections utilize the number of billable residential parcels, since residential properties are billed a uniform charge per parcel. The influence of the IA and GA billing data is more evident in the allocation of stormwater cost of service (see Section 7.10). The distribution of projected credits, appeals, and community garden adjustments are based on current distributions within the stormwater billing data.

### 6.1.6 Bill Tabulation

Similar to our process for calculating water revenues, we used the bill tabulation results generated in Section 3.1.3 for the sewer revenue calculations as well. However, it is only necessary to utilize the distribution of accounts by meter size. The billed volume distribution is not required for sanitary sewer billings since the sanitary sewer quantity charge is a uniform volume charge for all billed volume.

### 6.1.7 Wastewater Revenue

The total operating revenues for the Water Department include the following:

- Retail (i.e., all customers excluding wholesale) Sanitary Sewer Service and Quantity charges and Stormwater charges
- Additional charges for high-strength customers (surcharges)
- Wholesale wastewater charges

### 6.1.7.1 Retail Operating Revenues

In developing projections for retail operating revenues, the process described in the following paragraphs and illustrated in Figure 3-1 was followed.

### 6.1.7.2 Projection of Gross Billings

To project the FY 2023 sewer gross billings, the FY 2022 rates (effective September 1, 2021) and current FY 2023 (effective September 1, 2022) schedules of sewer rates were applied to the projected FY 2023 annual sewer billed volumes, number of customer accounts and bill tabulation results, to reflect the September 1, 2022 implementation of the FY 2023 rate schedule. For stormwater, the method is like the sanitary sewer billing projections, the FY 2022 rates (effective September 1, 2021) and current FY 2023 (effective September 1, 2022) schedules of stormwater rates are applied to the projected FY 2023 billable residential parcels and accounts, and non-residential billable GA and IA, as well as accounts.

To project the FY 2024 to FY 2028 sewer gross billings, the FY 2023 schedule of sewer rates shown Table 6-9 were applied to the projections of annual billed water volume, number of customer accounts and bill tabulation results. For stormwater, we apply the FY 2023 GA and IA rates to the projected billable residential parcels and accounts, and non-residential billable GA and IA, and the projected number of billable accounts.

**Table 6-9 Existing Sanitary Sewer and Stormwater Rates**

Sanitary Sewer		Stormwater	
<b>Monthly Sanitary Sewer Service Charge (\$/bill)</b>		<b>Residential Stormwater Charges</b>	
<u>Meter Size (Inches)</u>		<u>Monthly Stormwater Management Service Charge</u>	
5/8	\$7.50	Charge Per Parcel	\$16.17
3/4	\$9.57		
1	\$14.05	<u>Monthly Billing &amp; Collection Charge</u>	
1-1/2	\$24.75	Charge Per Bill	\$1.88
2	\$38.19	<b>Non-Residential Stormwater Charges</b>	
3	\$68.87	<u>Monthly Stormwater Management Service Charge</u>	
4	\$117.03	Gross Area (\$/500 sf)	\$0.778
6	\$230.71	Impervious Area (\$/500 sf)	\$5.492
8	\$365.13	<u>Monthly Billing &amp; Collection Charge</u>	
10	\$526.96	Charge Per Bill	\$2.44
12	\$958.27		
<b>Base Rate - Sanitary Sewer Quantity Charges (\$/Mcf)</b>		Notes:	
<u>Monthly Usage</u>		Non-Residential Stormwater Charges includes Condominiums.	
All Billable Water Usage	\$34.57	Non-Residential Stormwater Customers are	
Groundwater Charge	\$12.58	subject to a minimum Stormwater Management Service Charge	
		equal to the residential charge per parcel.	
<b>Sanitary - Surcharge Rates (\$/lb)</b>		Mcf - Thousand cubic feet	
BOD (\$/lb in excess of 250 mg/l)	\$0.391	mg/l - milligrams per liter	
SS (\$/lb in excess of 350 mg/l)	\$0.406		

Where applicable, for all customer types that are eligible for discounts, the appropriate discounts previously shown on Table 3-5 were applied. Moreover, like to our analysis for the Water System, TAP discounts and TAP-R surcharge billings are excluded from this analysis. Thus, the proposed revenue adjustments and rates developed will reflect the Base Rates for sanitary sewer and stormwater.

### 6.1.7.3 Projection of Projected Billings

Table 6-10 presents the projected billings under existing rates for the Wastewater System.

**Table 6-10 Billings Under Existing Rates**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Wastewater System (\$000s)</b>							
<b>Sewer Non-Discount</b>							
1	Residential	\$ 144,978	\$ 147,501	\$ 148,532	\$ 149,603	\$ 149,001	\$ 148,399
2	Commercial	64,559	62,126	63,441	64,796	64,796	64,796
3	Industrial	2,601	2,211	1,865	1,580	1,580	1,580
4	Public Utilities	433	455	475	467	467	467
5	Fire Protection	3	3	3	3	3	3
6	Wholesale	38,888	35,924	35,924	35,924	35,924	27,055
7	Surcharge	6,224	6,286	6,286	6,286	6,286	6,286
8	Other (Hand-Billed and Groundwater)	16,797	17,708	18,449	19,216	19,216	19,216
9	Sewer Only	2,094	5,231	5,231	5,231	5,231	5,231
<b>10</b>	<b>Subtotal Sewer Non-Discount Billings</b>	<b>276,578</b>	<b>277,445</b>	<b>280,207</b>	<b>283,107</b>	<b>282,505</b>	<b>273,034</b>
<b>Sewer Discount</b>							
11	Residential (Senior Citizens)	4,574	4,544	4,468	4,393	4,393	4,393
12	PHA	5,648	5,675	5,639	5,603	5,603	5,603
13	Charity/Schools/Hospital/University	5,910	5,220	4,639	4,182	4,182	4,182
<b>14</b>	<b>Subtotal Sewer Discount Billings</b>	<b>16,132</b>	<b>15,439</b>	<b>14,746</b>	<b>14,178</b>	<b>14,178</b>	<b>14,178</b>
<b>15</b>	<b>Subtotal Sewer Service Billings</b>	<b>292,710</b>	<b>292,884</b>	<b>294,952</b>	<b>297,285</b>	<b>296,683</b>	<b>287,212</b>
<b>Stormwater</b>							
<b>Stormwater General Service</b>							
16	Residential	93,608	94,898	94,898	94,898	94,898	94,898
17	Non Residential	92,922	93,603	93,032	92,559	92,109	91,608
<b>18</b>	<b>Subtotal Stormwater Non-Discount</b>	<b>186,530</b>	<b>188,501</b>	<b>187,930</b>	<b>187,457</b>	<b>187,007</b>	<b>186,507</b>
<b>Stormwater Discount</b>							
19	Residential (Senior Citizens)	3,454	3,501	3,501	3,501	3,501	3,501
20	PHA	2,175	2,205	2,205	2,205	2,205	2,205
21	Charity/Schools/Hospital/University	8,085	8,167	8,136	8,109	8,082	8,053
<b>22</b>	<b>Subtotal Stormwater Discount</b>	<b>13,714</b>	<b>13,874</b>	<b>13,842</b>	<b>13,815</b>	<b>13,788</b>	<b>13,759</b>
<b>23</b>	<b>Subtotal Stormwater Service Billings</b>	<b>200,244</b>	<b>202,374</b>	<b>201,772</b>	<b>201,272</b>	<b>200,796</b>	<b>200,265</b>
<b>24</b>	<b>Subtotal Wastewater Billings</b>	<b>\$ 492,953</b>	<b>\$ 495,259</b>	<b>\$ 496,724</b>	<b>\$ 498,556</b>	<b>\$ 497,479</b>	<b>\$ 487,477</b>

### 6.1.7.4 Application of Collection Factors

As shown in Figure 3-2, the second step in the process of calculating revenues involves applying receipt factors (i.e., collection factors) to the corresponding gross billings to determine the operating retail cash receipts. Table 1-4 in Section 1.4.1 presents the collection factors used in determining the revenues for sanitary sewer and stormwater in the Study.

Table 6-11 and Table 6-12 summarizes the projected revenues (receipts) during the Study Period for the Retail and Wholesale customers of the Wastewater System.

**Table 6-11 Projected Receipts Under Existing Sanitary Sewer Rates**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Sanitary Sewer (\$000s)</b>							
1	Residential	\$ 139,539	\$ 142,578	\$ 143,876	\$ 144,939	\$ 144,561	\$ 144,011
2	Senior Citizens	4,417	4,408	4,343	4,271	4,262	4,261
3	Commercial	61,915	60,458	61,416	62,649	62,815	62,842
4	Industrial	2,561	2,199	1,859	1,575	1,538	1,533
5	Public Utilities	414	438	458	454	453	453
6	Sewer Only	2,028	4,687	5,009	5,073	5,073	5,073
7	Groundwater	2,542	2,576	2,582	2,583	2,583	2,583
8	<b>Subtotal General Customers</b>	<b>213,416</b>	<b>217,343</b>	<b>219,543</b>	<b>221,543</b>	<b>221,286</b>	<b>220,756</b>
9	Housing Authority	5,436	5,496	5,473	5,439	5,434	5,434
10	Charities and Schools	3,796	3,695	3,533	3,370	3,350	3,346
11	Hospitals and University	1,993	1,465	1,052	754	716	710
12	Hand Billed	13,546	14,451	15,196	15,939	16,033	16,048
13	Scheduled	2	3	4	5	5	5
14	Fire Service	3	3	3	3	3	3
15	Contract Service	38,888	35,924	35,924	35,924	35,924	27,055
16	Surcharge	6,224	6,286	6,286	6,286	6,286	6,286
17	<b>Total Sanitary Sewer Service Receipts</b>	<b>\$ 283,305</b>	<b>\$ 284,667</b>	<b>\$ 287,015</b>	<b>\$ 289,265</b>	<b>\$ 289,037</b>	<b>\$ 279,644</b>

**Table 6-12 Projected Receipts Under Existing Stormwater Rates**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Stormwater (\$000s)</b>							
<b>Residential</b>							
1	Non Discount	\$ 89,667	\$ 91,491	\$ 91,754	\$ 91,781	\$ 91,781	\$ 91,781
2	Discount: Senior, Education & Charities	3,320	3,385	3,394	3,395	3,395	3,395
3	Discount PHA	767	782	785	785	785	785
<b>Non Residential</b>							
4	Non Discount	82,987	83,922	83,679	83,274	82,862	82,416
5	Discount: Senior, Education & Charities	7,641	7,736	7,728	7,705	7,680	7,652
6	Discount PHA	1,284	1,303	1,307	1,308	1,308	1,308
<b>Condominium</b>							
7	Non Discount	3,220	3,248	3,234	3,216	3,198	3,178
8	Discount: Senior, Education & Charities	101	102	101	100	100	99
9	Discount PHA	1	1	1	1	1	1
10	<b>Total Stormwater Receipts</b>	<b>\$ 188,987</b>	<b>\$ 191,970</b>	<b>\$ 191,982</b>	<b>\$ 191,564</b>	<b>\$ 191,109</b>	<b>\$ 190,615</b>

### 6.1.7.5 Wholesale Operating Revenues

The Water Department provides wholesale wastewater service to ten (10) suburban customers on a contractual basis. Three wholesale customers (Bensalem, Lower Merion, and Upper Darby) make capital contributions to the Water Department for their allocated share of investment in treatment and collection system facilities used in providing wastewater service to the customer. Contract rates for wastewater service apply monthly and generally consist of charges for O&M expense, applicable capital costs associated with the collection and treatment facilities used in providing the service, customer related costs, and a management fee. Cheltenham, Lower Southampton, Springfield, Abington, and Lower Moreland Townships, and DELCORA contract rates consist of charges for O&M expense and capital costs



associated with the Long-Term Control Plan Update (“LTCPU”) and COA in accordance with their contract terms. The Water Department actively manages the wholesale service agreements to recover the costs associated with the wholesale service.

As noted in Section 1.4.1 projected FY 2024 to FY 2028 wholesale customer revenues reflect a planned update to the LTCPU allocations based on PWD’s updated H&H modeling. The updated calculation methodology is estimated to result in a reduction of wholesale wastewater revenues under existing rates of approximately \$2.9 Million. In addition, FY 2028 reflects the anticipated loss of DELCCORA as a wholesale customer which will lead to an estimated \$9 Million loss in revenue for the City.

Table 6-13 presents the projected revenues under existing rates from the wholesale customers based on their respective contract terms.

**Table 6-13 Projected Receipts for Wholesale Contract Customers**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Wastewater System (\$000s)</b>							
1	Abington	\$ 1,600	\$ 1,483	\$ 1,483	\$ 1,483	\$ 1,483	\$ 1,483
2	Bucks County (Bensalem)	1,184	1,195	1,195	1,195	1,195	1,195
3	Bucks County	7,928	7,995	7,995	7,995	7,995	7,995
4	Cheltenham	4,332	4,014	4,014	4,014	4,014	4,014
5	Lower Moreland	875	803	803	803	803	803
6	Lower Southampton	4,213	4,065	4,065	4,065	4,065	4,065
7	DELCORA	11,180	8,870	8,870	8,870	8,870	0
8	Lower Merion	2,245	2,265	2,265	2,265	2,265	2,265
9	Springfield (less Wyndmoor)	2,105	1,981	1,981	1,981	1,981	1,981
10	Upper Darby	2,897	2,923	2,923	2,923	2,923	2,923
11	Springfield (Wyndmoor)	329	331	331	331	331	331
<b>12</b>	<b>Total Wastewater Wholesale</b>	<b>\$ 38,888</b>	<b>\$ 35,924</b>	<b>\$ 35,924</b>	<b>\$ 35,924</b>	<b>\$ 35,924</b>	<b>\$ 27,055</b>

### 6.1.7.6 Projected Wastewater System Operating Revenues

Table 6-14 summarizes the projected receipts for the Wastewater System during the Study Period.

**Table 6-14 Projected Receipts Under Existing Rates**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Wastewater System (\$000s)</b>							
1	Sanitary Sewer Receipts	283,305	284,667	287,015	289,265	289,037	279,644
2	Stormwater Receipts	188,987	191,970	191,982	191,564	191,109	190,615
<b>3</b>	<b>Total Wastewater Service Receipts</b>	<b>472,292</b>	<b>476,637</b>	<b>478,997</b>	<b>480,829</b>	<b>480,147</b>	<b>470,259</b>

### 6.1.8 Tiered Assistance Program Rate Rider Surcharge

The projected revenues do not include the current TAP-R rate of \$1.63/Mcf for sanitary sewer. Similar to our methodology for the Water System, the revenues developed in for the Wastewater COS analysis are referred to as the “Base Rates” (corresponding with Table 2-9) because they do not include the impact of providing discounts to TAP customers nor do they reflect the impact of TAP-R revenues.

## 6.1.9 Other Revenues and Adjustments

The Water Department has several sources of other revenues including miscellaneous fees, UESF grants, L&I permit fees, penalties, and releases from the Debt Reserve Account (if available). As noted above, no revenue losses associated with TAP discounts are included under Other Operating Revenues for the development of the Base Rates. Table 6-15 summarizes the other operating revenues for the Wastewater System.

**Table 6-15 Other Revenue Projected Receipts**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Wastewater System (\$000s)</b>							
1	Penalties	5,809	5,877	5,896	5,919	5,905	5,891
2	Miscellaneous City Revenues	1,441	1,441	1,441	1,441	1,441	1,441
3	Other	4,530	4,530	4,530	4,530	4,530	4,530
4	State & Federal Grants	-	-	-	-	-	-
5	Permits Issued by Licenses & Inspections	3,796	3,796	3,796	3,796	3,796	3,796
6	Miscellaneous (Procurement)	167	167	167	167	167	167
7	City & UESF Grants	300	300	300	300	300	300
8	Affordability Program Discount Cost (a)	-	-	-	-	-	-
9	Release from Debt Reserve Account (b)	-	-	-	-	-	-
<b>10</b>	<b>Total Wastewater Other Income</b>	<b>16,043</b>	<b>16,111</b>	<b>16,130</b>	<b>16,153</b>	<b>16,139</b>	<b>16,125</b>
<b>Interest Income</b>							
11	Debt Reserve Account (c)	-	-	-	-	-	-
12	Operating Fund	1,131	1,189	1,210	1,307	1,349	1,364
13	Rate Stabilization Fund	812	791	789	803	841	886
<b>14</b>	<b>Total Wastewater Operations</b>	<b>17,987</b>	<b>18,091</b>	<b>18,128</b>	<b>18,264</b>	<b>18,330</b>	<b>18,375</b>

(a) Beginning in FY 2019, TAP Revenue Loss is recovered via the TAP Rate Rider Surcharge.

(b) Projected Release from Debt Reserve Account based on outstanding and proposed debt service payments.

(c) Excludes deposit into Residual Fund for Transfer to City General Fund.

## 6.2 Wastewater Revenue Requirements

### 6.2.1 Operation and Maintenance Expenses

Operating expenses consist of all costs of the Water Department necessary and appropriate for the operation, maintenance, and administration of the Wastewater System during each year. Projections of operating expenses include expenses such as personal services, purchased services including power, materials and supplies, equipment, pensions and benefits, as well as indemnities and liquidated encumbrances.

Table 6-16 summarizes the projected O&M expenses reflecting the assumptions and adjustments described in Sections 1.4.2 and 1.4.3.

**Table 6-16 Projected O&M Expenses**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Wastewater System (\$000s)</b>							
1	Personal Services	102,620	107,841	115,898	122,089	127,366	133,518
2	Pension and Benefits	85,437	89,087	94,718	98,844	101,996	105,772
<b>3</b>	<b>Subtotal</b>	<b>188,056</b>	<b>196,928</b>	<b>210,616</b>	<b>220,934</b>	<b>229,362</b>	<b>239,290</b>
<b>Purchase of Services</b>							
4	Power	8,619	9,545	9,545	9,688	9,833	9,981
5	Gas	5,988	7,124	7,124	7,231	7,339	7,449
6	SMIP/GARP	25,000	20,000	20,000	25,000	25,000	25,000
7	Other	107,741	121,905	129,280	135,250	141,500	148,041
<b>8</b>	<b>Subtotal</b>	<b>147,347</b>	<b>158,574</b>	<b>165,948</b>	<b>177,169</b>	<b>183,672</b>	<b>190,471</b>
<b>Materials and Supplies</b>							
9	Chemicals	17,583	25,084	31,059	34,609	38,565	42,973
10	Other	15,018	16,184	17,269	18,079	18,927	19,814
<b>11</b>	<b>Subtotal</b>	<b>32,601</b>	<b>41,269</b>	<b>48,328</b>	<b>52,688</b>	<b>57,492</b>	<b>62,787</b>
12	Equipment	2,350	3,238	3,543	3,778	4,028	4,295
13	Indemnities and Transfers	6,836	7,147	7,436	7,651	7,877	8,114
<b>14</b>	<b>Subtotal Expenses</b>	<b>377,190</b>	<b>407,156</b>	<b>435,871</b>	<b>462,220</b>	<b>482,432</b>	<b>504,957</b>
15	Liquidated Encumbrances	(21,964)	(25,766)	(27,896)	(29,456)	(31,126)	(32,917)
<b>16</b>	<b>Total Expenses</b>	<b>355,225</b>	<b>381,390</b>	<b>407,974</b>	<b>432,764</b>	<b>451,305</b>	<b>472,040</b>

## 6.2.2 Debt Service

As discussed earlier in this Report, the General Bond Ordinance views the Water and Wastewater Systems as one combined system for the purposes of the Rate Covenant. Accordingly, bond issuances are allocated between water and wastewater based on System needs.

The existing and proposed debt service were previously discussed in Sections 1.4.4 and 2.3.4 of this Report.

Table 6-17 summarizes the Wastewater System’s share of the total existing and proposed debt financing for the Wastewater System CIP.

**Table 6-17 Summary of Existing and Proposed Debt Service**

LINE		FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
NO.	DESCRIPTION						
<b>Wastewater System (\$000s)</b>							
<b>Revenue Bonds</b>							
1	Existing (a)	\$ 121,170	\$ 112,961	\$ 111,286	\$ 111,539	\$ 111,627	\$ 98,496
	Proposed						
2	Fiscal Year 2023 (b)	-	-	-	-	-	-
3	Fiscal Year 2024 (c)		11,458	17,201	17,201	17,201	17,201
4	Fiscal Year 2025 (c)			12,604	18,921	18,921	18,921
5	Fiscal Year 2026 (d)				17,250	25,064	25,064
6	Fiscal Year 2027 (d)					14,500	21,068
7	Fiscal Year 2028 (d)						16,250
<b>8</b>	<b>Total Proposed</b>	<b>-</b>	<b>11,458</b>	<b>29,806</b>	<b>53,373</b>	<b>75,687</b>	<b>98,505</b>
<b>9</b>	<b>Total Revenue Bonds</b>	<b>121,170</b>	<b>124,419</b>	<b>141,091</b>	<b>164,911</b>	<b>187,313</b>	<b>197,001</b>
<b>PENNVEST Loans</b>							
10	PENNVEST Loans (e)	6,356	6,706	8,110	12,172	13,832	14,931
<b>Commercial Water</b>							
11	Commercial Paper	729	586	524	511	403	-
<b>WIFIA</b>							
12	WIFIA	-	-	-	-	-	-
<b>13</b>	<b>Total Debt Service</b>	<b>\$ 128,255</b>	<b>\$ 131,712</b>	<b>\$ 149,726</b>	<b>\$ 177,595</b>	<b>\$ 201,548</b>	<b>\$ 211,932</b>

(a) Projected debt service amounts include debt service for all Water and Wastewater Revenue Bonds and Revenue Refunding Bonds issued prior to July 1, 2022 and the Water and Wastewater Revenue Bond Series 2022c (issued in August 2022).

(b) Projected debt service for the Water and Wastewater Revenue Bond Series 2022c (issued in August 2022) included with Existing Bonds.

(c) Projected debt service amounts assume interest only payment for the first year of the bond authorization based on 5.50% interest rate; and assume issuance during the first quarter of the fiscal year.

(d) Projected debt service amounts assume interest only payment for the first year of the bond authorization based on 6.00% interest rate; and assume issuance during the first quarter of the fiscal year.

(e) Includes projected PENNVEST Loans.

### 6.2.3 Capital Improvements

The Water Department's CIP reflects planned improvements to the Wastewater System required to meet regulatory requirements and maintain existing levels of service. The Wastewater System CIP includes major capital projects required for implementing the LTCPU and complying with the COA. The Water Department currently estimates that executing the 25-year LTCPU program will cost about \$4.5 Billion, of which \$3.5 Billion is related to anticipated capital expenditures. The Wastewater System CIP reflects an ongoing ramp-up of COA-related projects associated with increasing compliance criteria over the life of the LTCPU.

As discussed in Sections 1.4.6 and 2.3.3, several adjustments were made to the Water Department's appropriations-based CIP budget to develop the projected anticipated annual encumbrances and project expenses. Following the steps outlined in Section 1.4.6 produces the CIP shown in Table 6-18.

**Table 6-18 Projected Wastewater System CIP**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Wastewater System (\$000s)</b>							
1	Engineering and Administration (a)	\$ 7,733	\$ 6,915	\$ 6,257	\$ 5,598	\$ 4,940	\$ 4,281
2	Water Pollution Control Plant	181,521	185,435	116,719	190,065	60,146	65,469
3	Storm Flood Relief	15,000	15,000	15,000	15,000	15,000	15,000
4	Reconstruction of Sewers	72,860	80,000	86,000	91,000	96,000	102,000
5	Green Infrastructure	83,000	90,000	90,000	170,000	170,000	170,000
6	Billing System	0	0	0	15,000	15,000	15,000
7	Vehicles	6,000	6,000	6,000	6,000	6,000	6,000
8	<b>Total Improvements</b>	<b>366,114</b>	<b>383,351</b>	<b>319,976</b>	<b>492,663</b>	<b>367,086</b>	<b>377,750</b>
9	Inflation Adjustment (b)	(0)	(0)	12,799	40,201	45,836	64,164
10	<b>Inflated Total</b>	<b>366,114</b>	<b>383,351</b>	<b>332,775</b>	<b>532,864</b>	<b>412,921</b>	<b>441,914</b>
11	Rollforward Adjustments	(67,669)	(6,018)	43,472	(24,057)	23,941	(5,854)
12	<b>Total Inflated Adjusted CIP Budget</b>	<b>298,446</b>	<b>377,332</b>	<b>376,246</b>	<b>508,807</b>	<b>436,862</b>	<b>436,060</b>
13	Contingency Adjustment	(42,522)	(54,663)	(54,525)	(72,492)	(61,172)	(60,993)
14	<b>Annual Encumbrances</b>	255,923	322,670	321,721	436,315	375,690	375,067
15	Project Expenses (c)	200,901	213,849	253,585	455,905	379,235	341,410
16	<b>Annual Net Encumbrances</b>	<b>\$ 55,022</b>	<b>\$ 108,821</b>	<b>\$ 68,137</b>	<b>\$ (19,590)</b>	<b>\$ (3,545)</b>	<b>\$ 33,658</b>

(a) Reflects shift in capital related salary costs from capital to operating budget.

(b) Allowance for inflation of 4.0 percent per year after fiscal year 2024.

(c) Reflects annual drawdown of capital budget appropriations based on project durations and annual encumbrances.

### 6.2.4 Capital Flow of Funds

The Water Department meets its projected capital needs by using several sources for funding, including internally generated funds (cash) and debt. As defined by the General Bond Ordinance, the Construction Fund is where the Water Department draws funds to pay for the CIP. The Water Department may deposit bond proceeds, loan proceeds, CP proceeds and cash transfers from the Revenue Fund and the Residual Fund into the Construction Fund to pay for capital projects.

Table 6-19 presents the proposed sources and uses for the Wastewater System CIP. As shown on Line 6, the Construction Fund has an estimated beginning balance of \$354.5 Million on July 1, 2022. Over the course of the Study Period, the Water Department anticipates issuing debt and the proceeds for these transactions are shown on Line 1. The level of debt financing increases during the Study Period as the Water Department’s CIP starts to ramp up. The Wastewater System’s bond proceeds total \$1.66 Billion during the Study Period. Lines 11 and 12 show the estimated level of annual pay-go (i.e., cash-funded) the Water Department will fund.

Per the City’s updated CIP funding policy, total outstanding project encumbrances may need exceed available funds; therefore, the Target Balance on Line 22, which represents the Water Departments estimated outstanding encumbrances (or project commitments) excluding PENNVEST and WIFIA funded projects, should not exceed the ending Construction Fund balance shown on Line 16.

**Table 6-19 Projected Flow of Funds – Wastewater: Construction Fund & Debt Reserve Account**

LINE NO.	DESCRIPTION	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
<b>Wastewater System (\$000s)</b>							
<b>Disposition of Bond Proceeds</b>							
1	Proceeds From Sale of Bonds	\$ 183,465	\$ 250,000	\$ 275,000	\$ 345,000	\$ 290,000	\$ 325,000
Transfers:							
2	Debt Reserve Account (a)	4,607	-	-	-	-	-
3	Cost of Bond Issuance (b)	1,065	1,525	1,678	2,105	2,900	3,250
4	Construction Fund (c)	177,792	248,475	273,323	342,896	287,100	321,750
<b>5</b>	<b>Total Issue</b>	<b>183,465</b>	<b>250,000</b>	<b>275,000</b>	<b>345,000</b>	<b>290,000</b>	<b>325,000</b>
<b>Construction Fund</b>							
6	Beginning Balance	354,541	389,068	496,497	588,493	558,330	551,574
7	Transfer From Revenue Bond Proceeds	177,792	248,475	273,323	342,896	287,100	321,750
8	WIFIA Proceeds	-	-	-	-	-	-
9	WIFIA Match Funding Proceeds	-	-	-	-	-	-
10	PENNVEST Loan Proceeds	28,227	35,728	30,812	27,840	20,880	-
11	Capital Account Deposit	14,310	14,868	15,448	16,051	16,677	17,327
12	Transfer from Residual Fund	11,400	17,800	20,600	33,250	42,300	45,300
13	Interest Income on Construction Fund	3,700	4,406	5,398	5,706	5,522	5,731
<b>14</b>	<b>Total Available</b>	<b>589,969</b>	<b>710,345</b>	<b>842,078</b>	<b>1,014,235</b>	<b>930,808</b>	<b>941,681</b>
15	Net Cash Financing Required	200,901	213,849	253,585	455,905	379,235	341,410
<b>16</b>	<b>Ending Balance</b>	<b>389,068</b>	<b>496,497</b>	<b>588,493</b>	<b>558,330</b>	<b>551,574</b>	<b>600,272</b>
<b>Capital Program Net Encumbrances</b>							
17	Beginning Balance	272,801	327,824	436,645	504,781	485,191	481,647
18	Annual Encumbrances (excluding PENNVEST & WIFIA)	255,923	322,670	321,721	436,315	375,690	375,067
19	Project Expenses (excluding PENNVEST & WIFIA)	(200,901)	(213,849)	(253,585)	(455,905)	(379,235)	(341,410)
<b>20</b>	<b>Ending Balance</b>	<b>327,824</b>	<b>436,645</b>	<b>504,781</b>	<b>485,191</b>	<b>481,647</b>	<b>515,304</b>
21	Allowance Commitments Prior to Bond Issue	53,778	53,620	72,719	62,615	62,511	72,570
22	Target Balance	381,602	490,265	577,501	547,806	544,158	587,874
<b>Debt Reserve Account</b>							
23	Beginning Balance	118,130	123,391	123,861	125,361	129,441	131,105
24	Transfer From Bond Proceeds	4,607	-	-	-	-	-
25	Transfer From Residual Fund	654	469	1,501	4,079	1,664	1,101
26	Debt Reserve Account Release	-	-	-	-	-	-
<b>27</b>	<b>Ending Balance</b>	<b>\$ 123,391</b>	<b>\$ 123,861</b>	<b>\$ 125,361</b>	<b>\$ 129,441</b>	<b>\$ 131,105</b>	<b>\$ 132,205</b>
28	Interest Income on Debt Reserve Account	\$ 1,208	\$ 1,236	\$ 1,246	\$ 1,274	\$ 1,303	\$ 1,317

(a) Amount of Debt Reserve Account estimated based on outstanding and proposed debt service payments.

(b) Cost of bonds issuance reflects actual cost in FY 2023, assumed 0.61 percent of issue amount in FY 2024 to 2025, and assumed 1.0% of issuance in FY 2026 to FY 2028.

(c) Deposits equal proceeds from sale of bonds less transfers to Debt Reserve Account and Costs of Issuance.

## 6.3 Wastewater System Summary of Revenue and Revenue Requirements

The Wastewater System’s estimated financial performance during the Study Period is presented in Table 6-20. As shown in the table below, the Wastewater System will need a series of revenue increases, starting at 8.92% in FY 2024, followed by increases of 8.66%, 12.83%, 7.04%, and then 7.13% for each subsequent year. These revenue adjustments are necessary to meet O&M, debt service, Capital Account deposit requirements, and provide additional coverage per the Rate Covenant.

Table 6-20 presents the Wastewater System operating results for Base Rates. The proposed revenue increases in the table do not reflect any rate compression as discussed in Section 2.5.

As previously mentioned, the Water Department is addressing the reconciliation of TAP discounts and TAP-R revenues in a separate proceeding.

## 6.4 Projected Wastewater System Operating Results

Line 1 of Table 6-20 is the consolidated total for wastewater retail and wholesale receipts from Table 6-11, Table 6-12, Table 6-13. These represent receipts under existing rates. Lines 2 through 6 present the additional revenues from proposed revenue increases. Line 9 presents other operating receipts as detailed on Lines 1 to 9 of Table 6-15. Interest income from the Debt Reserve, Operating Fund, and Rate Stabilization Funds is shown on Lines 10 through 12. Line 13 summarizes the projected Total Revenues for the Wastewater System.

Operating expenses are summarized on Lines 14 and 15. Line 15 represents the Wastewater System's share of costs to process water treatment sludge at the wastewater treatment plants. As noted in Section 3.4, a portion of the cost to process this sludge is allocated back to the Water System as well. During the Study Period, it is estimated that the Water Department will make a series of transfers from and deposits to the RSF as shown on Line 17. Line 18 presents the Net Revenues after Operations. Existing and proposed senior debt service obligations, including those related to the CP program, PENNVEST and WIFIA are shown on Lines 19 through 23. Debt service coverage on senior debt is calculated on Line 25 and indicates that coverage meets the minimum 1.20x requirement. The Capital Account deposit is on Line 29. Line 30 then shows results of the total debt service coverage requirement and indicates that total coverage requirements meet the 1.00 minimum coverage required by the General Bond Ordinance.

As established in the General Bond Ordinance and Rate Covenant, debt service coverage requirements are for the Combined System. The calculations shown in Table 6-20 are presented to demonstrate that the Wastewater System's proposed financial plan provides sufficient resources for the Wastewater System to be financially stable on its own.

**Table 6-20 Projected Revenue and Revenue Requirements: Base Rates**

LINE		FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
NO.	DESCRIPTION						
<b>Wastewater System (\$000s)</b>							
<b>Operating Revenues</b>							
1	Wastewater Service - Existing Rates (a)	\$ 472,292	\$ 476,637	\$ 478,997	\$ 480,829	\$ 480,147	\$ 470,259
	Additional Service Revenue Required						
		Percent	Months				
	Year	Increase	Effective				
2	FY 2024	8.92%	10	34,728	42,703	42,766	41,488
3	FY 2025	8.66%	10	36,885	45,359	45,295	44,320
4	FY 2026	12.83%	10		59,579	72,904	71,368
5	FY 2027	7.04%	10			36,925	44,176
6	FY 2028	7.13%	10				39,078
7	<b>Total Additional Service Revenue Required</b>	-	<b>34,728</b>	<b>79,588</b>	<b>147,704</b>	<b>197,826</b>	<b>240,429</b>
8	<b>Total Wastewater Service Revenue</b>	<b>472,292</b>	<b>511,365</b>	<b>558,585</b>	<b>628,532</b>	<b>677,973</b>	<b>710,688</b>
Other Income (b)							
9	Other Operating Revenue	16,043	16,111	16,130	16,153	16,139	16,125
10	Debt Reserve Account Interest Income	-	-	-	-	-	-
11	Operating Fund Interest Income	1,131	1,189	1,210	1,307	1,349	1,364
12	Rate Stabilization Interest Income	812	791	789	803	841	886
13	<b>Total Revenues</b>	<b>490,279</b>	<b>529,456</b>	<b>576,713</b>	<b>646,796</b>	<b>696,303</b>	<b>729,063</b>
<b>Operating Expenses</b>							
14	Wastewater Operations	(355,225)	(381,390)	(407,974)	(432,764)	(451,305)	(472,040)
15	Water Treatment Plant Sludge (c)	14,570	16,592	18,043	20,081	21,491	22,989
16	<b>Total Operating Expenses</b>	<b>(340,655)</b>	<b>(364,798)</b>	<b>(389,931)</b>	<b>(412,683)</b>	<b>(429,815)</b>	<b>(449,051)</b>
17	Transfer From/(To) Rate Stabilization Fund	4,290	35	376	(3,240)	(4,380)	(4,500)
18	<b>NET REVENUES AFTER OPERATIONS</b>	<b>153,914</b>	<b>164,693</b>	<b>187,157</b>	<b>230,873</b>	<b>262,108</b>	<b>275,512</b>
<b>Debt Service</b>							
Senior Debt Service							
Revenue Bonds							
19	Outstanding Bonds	(121,170)	(112,961)	(111,286)	(111,539)	(111,627)	(98,496)
20	PENNVEST Loans	(6,356)	(6,706)	(8,110)	(12,172)	(13,832)	(14,931)
21	Projected Future Bonds	-	(11,458)	(29,806)	(53,373)	(75,687)	(98,505)
22	Commercial Paper	(729)	(586)	(524)	(511)	(403)	-
23	WIFIA	-	-	-	-	-	-
24	<b>Total Senior Debt Service</b>	<b>(128,255)</b>	<b>(131,712)</b>	<b>(149,726)</b>	<b>(177,595)</b>	<b>(201,548)</b>	<b>(211,932)</b>
25	<b>TOTAL SENIOR DEBT SERVICE COVERAGE L18/L24)</b>	<b>1.20 x</b>	<b>1.25 x</b>	<b>1.25 x</b>	<b>1.30 x</b>	<b>1.30 x</b>	<b>1.30 x</b>
26	Subordinate Debt Service	-	-	-	-	-	-
27	Transfer to Escrow	-	-	-	-	-	-
28	<b>Total Debt Service on Bonds</b>	<b>(128,255)</b>	<b>(131,712)</b>	<b>(149,726)</b>	<b>(177,595)</b>	<b>(201,548)</b>	<b>(211,932)</b>
29	<b>CAPITAL ACCOUNT DEPOSIT</b>	<b>(14,310)</b>	<b>(14,868)</b>	<b>(15,448)</b>	<b>(16,051)</b>	<b>(16,677)</b>	<b>(17,327)</b>
30	<b>TOTAL COVERAGE (L18/(L24+L26+L29))</b>	<b>1.08 x</b>	<b>1.12 x</b>	<b>1.13 x</b>	<b>1.19 x</b>	<b>1.20 x</b>	<b>1.20 x</b>
31	<b>End of Year Revenue Fund Balance</b>	<b>\$ 11,348</b>	<b>\$ 18,113</b>	<b>\$ 21,984</b>	<b>\$ 37,228</b>	<b>\$ 43,884</b>	<b>\$ 46,253</b>

(a) Revenue from rates effective September 1, 2022.

(b) Includes other operating and nonoperating income, including interest income on funds and accounts transferable to the Revenue Fund.

(c) Cost to process the Water Treatment Sludge at the wastewater treatment plants based on wastewater cost of service analysis.



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# 7.0 Wastewater System of Cost of Service Allocations

The cost-of-service analysis is the middle step of three depicted in Figure 2-1 that forms the basis for how a utility sets its rates and charges. At the cost-of-service stage, we identify how different customer types are using the sanitary sewer and stormwater systems. As such, each customer type potentially places a different level of demands on the system – requirements that the Water Department must meet. The types of demand are cost drivers and the cost-of-service step is where we develop the nexus between how the systems are designed and operated and how customers are using the systems.

## 7.1 General

As indicated previously for the Water System, in allocating the test year COS, we apportion revenue requirements between wholesale customers and retail customer types on a utility basis, per the industry accepted guidelines provided in WEF MoP 27. The tasks illustrated in Figure 7-1 to conduct the wastewater COS analysis presented herein.

**Figure 7-1 Wastewater COS Steps**

	1. Categorize	2. Functionalize	3. Allocate	4. Distribute
<b>Wastewater Cost of Service Analytical Tasks</b>	Determine net revenue requirements by <i>cost categories</i>	Assign revenue requirements to <i>functional cost centers</i>	Allocate functional costs to <i>cost components</i>	Distribute costs to <i>customer types</i>
<b>Subcomponent Costs</b>	<ul style="list-style-type: none"> <li>O&amp;M Costs</li> <li>Capital Costs</li> </ul>	<ul style="list-style-type: none"> <li>Collection &amp; Pumping</li> <li>Water Pollution Control Plants</li> <li>Customer Costs</li> <li>Administrative &amp; General</li> </ul>	<ul style="list-style-type: none"> <li>Volume</li> <li>Capacity</li> <li>Strength (Suspended Solids &amp; BOD)</li> <li>Direct Stormwater</li> </ul>	<ul style="list-style-type: none"> <li>Residential</li> <li>Senior Citizens</li> <li>Commercial</li> <li>Industrial</li> <li>Public Utilities</li> <li>Housing Authority</li> <li>Charities / Schools</li> <li>Retail</li> <li>Infiltration/Inflow</li> <li>Contract Services</li> </ul>

## 7.2 Costs of Service to be Allocated

### 7.2.1 Overall Wastewater System

The projected annual revenue requirements for FY 2024 serve as the Test Year 1 requirements for the analyses conducted herein. The proposed rate increases will go into effect on September 1st of each respective fiscal year. However, rates are designed based upon a 12-month period. Because the proposed revenue increase will not go into effect until September 1st of each fiscal year, the proposed rates are designed based on annualizing the 10-month period for which rates are effective. Table 7-1 shows the

projected Test Year 1 cash flow of base rates for the Wastewater System based on the annualizing the proposed revenue increase.

**Table 7-1 Test Year 1 Annualized Revenue and Revenue Requirements**

LINE NO.	DESCRIPTION	FY 2024												
<b>Wastewater System (\$000s)</b>														
<b>Operating Revenues</b>														
1	Wastewater Service - Existing Rates (a) Additional Service Revenue Required	\$ 476,637												
2	<table border="0"> <tr> <td></td> <td>Percent</td> <td>Months</td> <td></td> </tr> <tr> <td><u>Year</u></td> <td><u>Increase</u></td> <td><u>Effective</u></td> <td></td> </tr> <tr> <td>FY 2024</td> <td>8.92%</td> <td>12</td> <td>42,562</td> </tr> </table>		Percent	Months		<u>Year</u>	<u>Increase</u>	<u>Effective</u>		FY 2024	8.92%	12	42,562	
	Percent	Months												
<u>Year</u>	<u>Increase</u>	<u>Effective</u>												
FY 2024	8.92%	12	42,562											
3	<b>Total Additional Service Revenue Required</b>	<b>42,562</b>												
4	<b>Total Wastewater Service Revenue</b>	<b>519,199</b>												
Other Income (b)														
5	Other Operating Revenue	16,111												
6	Debt Reserve Account Interest Income	-												
7	Operating Fund Interest Income	1,189												
8	Rate Stabilization Interest Income	791												
9	<b>Total Revenues</b>	<b>537,289</b>												
<b>Operating Expenses</b>														
10	Wastewater Operations	(381,390)												
11	Water Treatment Plant Sludge (c)	16,592												
12	<b>Total Operating Expenses</b>	<b>(364,798)</b>												
13	Transfer From/(To) Rate Stabilization Fund	(7,799)												
14	<b>NET REVENUES AFTER OPERATIONS</b>	<b>164,693</b>												
<b>Debt Service</b>														
Senior Debt Service														
Revenue Bonds														
15	Outstanding Bonds	(112,961)												
16	PENNVEST Loans	(6,706)												
17	Projected Future Bonds	(11,458)												
18	Commercial Paper	(586)												
19	WIFIA	-												
20	<b>Total Senior Debt Service</b>	<b>(131,712)</b>												
21	<b>TOTAL SENIOR DEBT SERVICE COVERAGE L14/L20)</b>	<b>1.25 x</b>												
22	Subordinate Debt Service	-												
23	Transfer to Escrow	-												
24	<b>Total Debt Service on Bonds</b>	<b>(131,712)</b>												
25	<b>CAPITAL ACCOUNT DEPOSIT</b>	<b>(14,868)</b>												
26	<b>TOTAL COVERAGE (L14/(L20+L22+L25))</b>	<b>1.12 x</b>												
27	<b>End of Year Revenue Fund Balance</b>	<b>\$ 18,113</b>												

- (a) Revenue from rates effective September 1, 2022.
- (b) Includes other operating and nonoperating income, including interest income on funds and accounts transferable to the Revenue Fund.
- (c) Cost to process the Water Treatment Sludge at the wastewater treatment plants based on wastewater cost of service analysis.

The net COS recovered from wastewater service charges is the total revenue requirements less revenues received from other sources. Table 7-2 presents the COS to be recovered from sanitary sewer and stormwater rates for Test Year 1. The TY net COS of \$519.2 Million (Column 3, Line 13), represents the total revenue requirements of \$537.3 Million (Column 3, Line 10) minus other revenues and transfers received of \$18.1 Million (Column 3, Lines 11 and 12). The COS to be recovered from rates consists of

\$369.6 Million of net operating expenses (Column 1, Line 13) and \$149.6 Million of net capital-related costs (Column 2, Line 13).

**Table 7-2 Estimated Wastewater System Test Year 1 COS**

LINE NO.	DESCRIPTION	(1) OPERATING EXPENSE	(2) CAPITAL COSTS	(3) TOTAL
<b>Wastewater System (\$000s)</b>				
<b>Revenue Requirements</b>				
1	Operations & Maintenance Expense	\$ 255,072		\$ 255,072
2	Direct Interdepartmental Charges	126,318		126,318
3	Water Treatment Plant Sludge Existing Bond Debt Service	(12,934)	(3,659)	(16,592)
4	Revenue Bonds (a)		119,668	119,668
5	Subordinate Bonds		-	-
6	Proposed Bond Debt Service (b)		12,044	12,044
7	Capital Account Deposit		14,868	14,868
8	Residual Fund Deposit	13,051	5,062	18,113
9	Deposit (From)/To Rate Stabilization Fund	5,619	2,180	7,799
<b>10</b>	<b>Total</b>	<b>387,127</b>	<b>150,163</b>	<b>537,289</b>
<b>Deductions of Funds from Other Sources</b>				
11	Other Operating Revenue	(16,111)	-	(16,111)
12	Interest Income	(1,446)	(534)	(1,980)
<b>13</b>	<b>COST OF SERVICE TO BE DERIVED FROM RATES</b>	<b>\$ 369,570</b>	<b>\$ 149,629</b>	<b>\$ 519,199</b>

(a) Includes PENNVEST Loans.

(b) Includes Commercial Paper and WIFIA

## 7.2.2 Wholesale Wastewater

The cost of service allocable to the 10 wholesale wastewater customers and the rates developed to recover these allocated costs, reflect consideration of the contract demands for service as set forth in each customer's contract with the City. Contract rates for wastewater service apply monthly and generally consist of charges for O&M expense, applicable capital costs associated with the collection and treatment facilities used in providing the service, customer related costs, and a management fee ranging from 10 to 12% applied to the sum of the unit and fixed charges.

For Test Year 1, the O&M expense of \$369.6 Million from Table 7-2 is allocated between wholesale and retail customers based on service demand characteristics. With respect to capital costs, to allocate the \$149.6 Million (Column 2, Line 13 of Table 7-2) of Capital Costs using the utility-basis approach, typically we delineate the annual Capital Costs into two components, namely, the Depreciation Expense and the Return on Investment. Under the utility-basis approach, the restatement of Capital Costs into these two components is necessary as the Water Department provides service to wholesale customers outside the City, and hence is entitled to obtaining a return on investment from those wholesale customers.

To restate the Capital Costs in terms of depreciation and return, we determine the depreciation expense for the Wastewater System and subtract this amount from the Total Capital Costs. The resulting figure corresponds to the return on investment for the Wastewater System, which is recovered from both the inside City retail and outside City wholesale customers. As noted earlier, the rate of return for service to the City's wholesale wastewater customers used in the COS Study is 7.5%, which is consistent with the rate of return used in the development of the wastewater wholesale existing rates.

## **7.3 Functional Cost Components**

The costs derived in revenue requirements are incurred as a result of cost drivers placed on the system by its customers. Many systems are designed and sized to meet the cost drivers; therefore, the operational and capital costs (depreciation and return on rate base) are linked to these cost drivers.

The various cost elements of wastewater service are assigned to functional cost components as the first step in the subsequent distribution of the cost of service to the customer types. For a wastewater system, the functional cost centers include collection system, pumping, treatment, pollutant loadings (strength), customer costs, and general administration. For the analyses conducted herein, the Design Basis COS methodology proposed in WEF MoP 27 was followed.

### **7.3.1 Wastewater System Facilities**

A wastewater system includes different facilities each designed and operated to fulfill a given function. The sewage collection system in the City of Philadelphia consists of both separate sanitary and storm sewers as well as combined sanitary and storm sewers designed to convey sanitary and stormwater flows. In addition, these conveyance systems transport a large part of these flows to one of the three wastewater treatment plants for treatment prior to discharge into the rivers.

The wastewater treatment plants consist of different facilities as well. The sizing of certain facilities, such as the sedimentation basins, is based on the average annual volume of wastewater received at the plant. The sizing of other facilities, such as the aeration basins, use the measurable pollutant, BOD, since these facilities are required to reduce this pollutant prior to discharge into the river. The sizing of other facilities is based on SS loading, another readily measurable pollutant, contained in the influent wastewater. Finally, certain other facilities, such as sludge disposal facilities, are designed to manage both BOD and SS.

### **7.3.2 Wastewater System Design Basis**

The Design Basis method uses volume, capacity, strengths, and customer. Volume represents costs incurred for the quantity of sewerage volume treated. Capacity represents costs incurred with meeting peak flows. Strengths represents costs incurred with treating and handling specific constituents in the sewer flow such as BOD, SS, nitrogen, and ammonia. Customer represents the costs associated with meter reading, billing, collecting, and accounting costs related to the provision of wastewater service.

### **7.3.3 Units of Service**

Table 7-3 summarizes the Test Year 1 units of service for the sanitary sewer customers. Table 7-4 presents the Test Year 1 units of service for the wholesale customers and Table 7-5 summarizes the estimated average wastewater loadings applied for the wholesale customer contracts.

**Table 7-3 Test Year 1 Sanitary Sewer Units of Service**

LINE NO.	CUSTOMER TYPE	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
		TY 2024 VOLUME (Mcf)	CAPACITY FLOW RATE (Mcf/day)		STRENGTH (1,000 lbs)		CUSTOMER COSTS		
			COLLECTION SYSTEM	PUMPING & TREATMENT	SUSPENDED SOLIDS	BOD	EQUIV. METERS	EQUIV. BILLS	BILLS
<b>Sanitary Sewer</b>									
1	Residential	2,919,305	31,992	11,998	54,649	53,739	477,314	5,336,266	5,306,988
2	Commercial	1,512,677	16,577	6,216	28,317	27,845	111,993	531,071	450,012
3	Industrial	53,797	590	221	1,007	990	4,114	15,100	12,084
4	Public Utilities	10,078	110	41	189	186	1,547	4,075	2,556
5	Senior Citizens	114,155	1,251	469	2,137	2,101	21,174	253,864	253,848
6	Sewer Only	142,990	1,567	588	2,677	2,632	463	1,314	756
7	Groundwater	211,696	4,640	1,450	925	132	0	0	0
8	Surcharge	0	0	0	2,152	13,842	0	0	0
9	Water Treatment Plant Sludge	292,800	3,209	1,203	27,200	0	0	0	0
10	Housing Authority	145,224	1,591	597	2,719	2,673	9,138	70,174	66,336
11	Charities & Schools	118,608	1,300	487	2,220	2,183	12,706	32,863	19,224
12	Hospital/University	50,294	551	207	942	926	1,279	2,362	768
13	Hand Billed	406,523	4,455	1,671	7,610	7,483	4,500	8,036	2,388
14	Fire Meters	95	1	0	2	2	0	0	0
15	Scheduled (Flat Rate)	59	1	0	1	1	10	120	120
<b>16</b>	<b>Subtotal Retail Service</b>	<b>5,978,300</b>	<b>67,835</b>	<b>25,148</b>	<b>132,747</b>	<b>114,735</b>	<b>644,238</b>	<b>6,255,245</b>	<b>6,115,080</b>
17	Infiltration/Inflow	12,021,600	263,487	82,340	52,496	7,499	0	0	0
<b>18</b>	<b>Total Retail Service</b>	<b>17,999,900</b>	<b>331,322</b>	<b>107,488</b>	<b>185,243</b>	<b>122,234</b>	<b>644,238</b>	<b>6,255,245</b>	<b>6,115,080</b>
<b>Contract Service</b>									
19	Sanitary	3,854,000	32,577	32,577	40,765	37,109			
20	Infiltration/Inflow	105,100	420	420	459	66			
<b>21</b>	<b>Total Contract Service</b>	<b>3,959,100</b>	<b>32,997</b>	<b>32,997</b>	<b>41,224</b>	<b>37,175</b>			
<b>22</b>	<b>Total System</b>	<b>21,959,000</b>	<b>364,319</b>	<b>140,485</b>	<b>226,467</b>	<b>159,410</b>	<b>644,238</b>	<b>6,255,245</b>	<b>6,115,080</b>

**Table 7-4 Test Year 1 Wholesale Customer Units of Service**

		NORTHEAST WPC PLANT						
LINE NO.	UNITS	ABINGTON	BENSALEM	BUCKS COUNTY	CHELTENHAM	LOWER MORELAND	LOWER SOUTHAMPTON	TOTAL NORTHEAST
<b>Wholesale Customers</b>								
<b>Volume</b>								
1	Sanitary Wastewater (Mcf)	92,000	150,000	894,000	411,000	62,000	270,000	1,879,000
2	Infiltration (Mcf)	4,500	5,600	35,100	15,000	2,800	7,500	70,500
3	<b>Total</b> (Mcf)	<b>96,500</b>	<b>155,600</b>	<b>929,100</b>	<b>426,000</b>	<b>64,800</b>	<b>277,500</b>	<b>1,949,500</b>
<b>Suspended Solids</b>								
4	Sanitary Wastewater (1,000 lbs)	998	1,568	10,541	3,069	626	1,964	18,765
5	Infiltration (1,000 lbs)	20	24	153	66	12	33	308
6	<b>Total</b> (1,000 lbs)	<b>1,018</b>	<b>1,592</b>	<b>10,694</b>	<b>3,135</b>	<b>638</b>	<b>1,997</b>	<b>19,073</b>
<b>BOD</b>								
7	Sanitary Wastewater (1,000 lbs)	1,343	1,623	10,369	2,682	470	1,633	18,120
8	Infiltration (1,000 lbs)	3	3	22	9	2	5	44
9	<b>Total</b> (1,000 lbs)	<b>1,346</b>	<b>1,626</b>	<b>10,391</b>	<b>2,691</b>	<b>472</b>	<b>1,638</b>	<b>18,164</b>
<b>Contract Maximum Units</b>								
<b>Capacity</b>								
10	Sanitary Wastewater (Mcf/day)	824	1,014	6,416	2,743	508	1,364	12,869
11	Infiltration (Mcf/day)	20	20	140	60	10	30	280
12	<b>Total</b> (Mcf/day)	<b>844</b>	<b>1,034</b>	<b>6,556</b>	<b>2,803</b>	<b>518</b>	<b>1,394</b>	<b>13,149</b>
<b>Volume</b>								
13	Sanitary Wastewater (Mcf)	217,292	299,271	1,171,123	654,370	92,714	348,409	2,783,179
14	Infiltration (Mcf)	4,500	5,600	35,100	15,000	2,800	7,500	70,500
15	<b>Total</b> (Mcf)	<b>221,792</b>	<b>304,871</b>	<b>1,206,223</b>	<b>669,370</b>	<b>95,514</b>	<b>355,909</b>	<b>2,853,679</b>
<b>Suspended Solids</b>								
16	Sanitary Wastewater (1,000 lbs)	2,481	3,734	13,400	5,635	966	6,000	32,216
17	Infiltration (1,000 lbs)	20	24	153	66	12	33	308
18	<b>Total</b> (1,000 lbs)	<b>2,501</b>	<b>3,758</b>	<b>13,553</b>	<b>5,701</b>	<b>978</b>	<b>6,033</b>	<b>32,524</b>
<b>BOD</b>								
19	Sanitary Wastewater (1,000 lbs)	2,102	5,340	13,400	4,900	729	5,500	31,971
20	Infiltration (1,000 lbs)	3	3	22	9	2	5	44
21	<b>Total</b> (1,000 lbs)	<b>2,105</b>	<b>5,343</b>	<b>13,422</b>	<b>4,909</b>	<b>731</b>	<b>5,505</b>	<b>32,015</b>

**Table 7-4 Test Year 1 Wholesale Customer Units of Service (continued)**

LINE NO.	UNITS	SOUTHWEST WPC PLANT					SOUTHEAST WPC PLANT		
		DELCORA	LOWER MERION	SPRINGFIELD (EXCLUDING WYNDMOOR)	UPPER DARBY	TOTAL SOUTHWEST	SPRINGFIELD (WYNDMOOR)	TOTAL	
<b>Wholesale Customers</b>									
<b>Volume</b>									
1	Sanitary Wastewater	(Mcf)	1,087,000	310,000	109,000	451,000	1,957,000	18,000	3,854,000
2	Infiltration	(Mcf)	0	14,900	2,200	16,600	33,700	900	105,100
3	Total	(Mcf)	1,087,000	324,900	111,200	467,600	1,990,700	18,900	3,959,100
<b>Suspended Solids</b>									
4	Sanitary Wastewater	(1,000 lbs)	12,017	3,234	2,141	4,392	21,784	215	40,765
5	Infiltration	(1,000 lbs)	0	65	10	73	148	4	460
6	Total	(1,000 lbs)	12,017	3,299	2,151	4,465	21,932	219	41,225
<b>BOD</b>									
7	Sanitary Wastewater	(1,000 lbs)	10,202	2,760	2,116	3,745	18,823	166	37,109
8	Infiltration	(1,000 lbs)	0	9	1	10	20	1	65
9	Total	(1,000 lbs)	10,202	2,769	2,117	3,755	18,843	167	37,174
<b>Contract Maximum Units</b>									
<b>Capacity</b>									
10	Sanitary Wastewater	(Mcf/day)	13,392	2,728	397	3,024	19,541	167	32,577
11	Infiltration	(Mcf/day)	0	60	10	70	140	0	420
12	Total	(Mcf/day)	13,392	2,788	407	3,094	19,681	167	32,997
<b>Volume</b>									
13	Sanitary Wastewater	(Mcf)	2,439,840	707,553	156,150	829,545	4,133,088	48,797	6,965,064
14	Infiltration	(Mcf)	0	14,900	2,200	16,600	33,700	900	105,100
15	Total	(Mcf)	2,439,840	722,453	158,350	846,145	4,166,788	49,697	7,070,164
<b>Suspended Solids</b>									
16	Sanitary Wastewater	(1,000 lbs)	19,487	7,250	3,300	7,349	37,386	200	69,802
17	Infiltration	(1,000 lbs)	0	65	10	73	148	4	460
18	Total	(1,000 lbs)	19,487	7,315	3,310	7,422	37,534	204	70,262
<b>BOD</b>									
19	Sanitary Wastewater	(1,000 lbs)	21,771	6,871	3,100	6,831	38,573	155	70,699
20	Infiltration	(1,000 lbs)	0	9	1	10	20	1	65
21	Total	(1,000 lbs)	21,771	6,880	3,101	6,841	38,593	156	70,764



**Table 7-5 Estimated Average Wastewater Loadings for Wholesale Customers**

CUSTOMER	(1) (2) WASTEWATER POLLUTANT LOADING (1,000 lbs)	
	SUSPENDED	
	SOLIDS	BOD
Abington	998	1,343
Bensalem	1,568	1,623
Bucks County	10,541	10,369
Cheltenham	3,069	2,682
DELCORA	12,017	10,202
Lower Merion	3,234	2,760
Lower Moreland	626	470
Lower Southampton	1,964	1,633
Springfield (excluding Wyndmoor)	2,141	2,116
Springfield (Wyndmoor)	215	166
Upper Darby	4,392	3,745

### 7.3.3.1 Retail Service

The units of service for the retail customer types of the Wastewater System are determined as follows:

- **Volume:** For the retail customer types, we estimate the sanitary wastewater quantities by applying a 95% return factor to the projected test year water sales from each customer type. The return factor reflects an allowance for water consumption which is not discharged into the Wastewater System. In addition, we also apportion the test year infiltration/inflow (“I/I”) in the Wastewater System to the retail customer types based upon the total projected test year flow at all three treatment plants, less the estimated annual sanitary sewage contribution from the retail customers and the total annual flow projected for the wholesale customers.
- **Collection System – Capacity:** The sanitary wastewater peak (capacity) flow rate, exclusive of I/I, for each retail customer type is estimated to be approximately four times (4 times) the average daily flow rate, computed from the annual volumes shown in Column 1 of Table 7-3. These estimated capacity requirements reflect the system-wide ratio of maximum to average sanitary wastewater flow rates. The capacity flow rate of I/I in the collection system is estimated to be eight times (8 times) the average daily flow rate. Retail customers’ I/I is largely due to leakage into sewers and direct extraneous inflows.
- **Treatment – Capacity:** The peak sanitary wastewater capacity flow rate, exclusive of I/I is estimated to be 1.5 times the average daily flow rate. The capacity flow rate of I/I at the water pollution control plants is estimated to be 2.5 times the average daily flow rate.
- **Strengths (BOD and Suspended Solids):** The estimated strength units for each customer type are shown in Columns 4 and 5 of Table 7-3. Based upon an analysis of historical data, the wastewater reaching the water pollution control plants is estimated to have a weighted average suspended solids concentration of approximately 163 milligrams per liter (“mg/l”), and a weighted average BOD concentration of approximately 118 mg/l. These weighted averages are based on estimated influent concentrations at the three treatment plants. Infiltration/ inflow is assumed to have a suspended

solids and BOD concentration of 70 mg/l and 10 mg/l, respectively. The estimates of strength units for customers with excess strength wastewater are based upon an analysis of surcharge bills.

- Additional wastewater strength loadings at the treatment plants are attributable to water plant sludge from the Belmont and Queen Lane treatment plants. An estimate of the volume and pounds of sludge from the water treatment plants has been included in the units of service shown in Table 7-3 in Line 9.
  - The retail loadings for suspended solids and BOD are determined as the difference between the total influent wastewater loadings at the plant less the sum of I&I and water plant sludge loadings for those two components respectively. The resulting retail suspended solids and BOD concentrations are 300 mg/l and 295 mg/l, respectively.
- **Customer:** Units of service applicable for the allocation of customer costs are summarized in Columns 6 to 8 of Table 7-3. The number of accounts and bills for each customer type and meter size are derived from billing information prepared by the Water Department. Equivalent meters are based upon capacity factors determined for various size meters relative to the capacity associated with a 5/8-inch meter.

### 7.3.3.2 Wholesale Customers

Table 7-4 and Table 7-5 present a summary of the test year units of service for volume, capacity, strength, and customer units of service for each of the wholesale customers. The strength units from wholesale customers are estimated for each customer based on historical measured wastewater strength loadings, as measured at the point of their discharge to the City's sewers.

## 7.4 Allocation to Cost Components

We allocate the Test Year 1 cost to the functional cost components using a two-step process.

1. First, a portion of the Wastewater System costs (O&M, depreciation, and net plant investment) are allocated to wholesale wastewater customers.
2. Then the retail portion of the remaining costs are allocated to the various wastewater cost components, including direct charges to stormwater.

## 7.5 Allocation of O&M Expense

### 7.5.1 Retail

Table 7-6 shows the allocation of Test Year 1 O&M expenses for the Wastewater System to the identified functional cost components by cost center. O&M expense is allocated to wastewater cost components generally in the same proportion as the plant investment and depreciation expense allocations.

**Table 7-6 Test Year 1 Allocation of O&M to Functional Cost Components**

LINE NO.	COST COMPONENT	(1) NET O&M	(2) LESS O&M ALLOCATED TO CONTRACT SERVICE	(3) O&M ALLOCATED TO RETAIL SERVICE	(4) LESS RETAIL O&M DEDUCTIONS: OTHER OPERATING REVENUE	(5) NET O&M TO BE ALLOCATED TO RETAIL SERVICE
<b>Wastewater System (\$000s)</b>						
<b>COLLECTION SYSTEM</b>						
	Sewer Maintenance					
1	All Customers - Capacity	\$ 84,192	\$ 799	\$ 83,393	\$ 2,808	\$ 80,585
	Inlet Cleaning					
2	Retail - Storm Capacity	19,739	-	19,739	665	19,074
	GSI Maintenance (LTCP O&M)					
3	All Customers - Capacity	44,884	196	44,688	1,505	43,183
	Neill Drive Pumping Station					
	Retail and Lower Merion					
4	Total Volume	10	2	8	-	8
5	Total Capacity	188	58	130	4	126
	Central Schuylkill Pumping Station					
	Retail and Springfield (excl. Wyndmoor)					
6	Total Volume	49	2	47	2	45
7	Total Capacity	564	10	554	19	535
	All Other Pumping Stations					
	Retail					
8	Total Volume	4,988	-	4,988	168	4,820
9	Total Capacity	21,581	-	21,581	727	20,854
<b>10</b>	<b>Total Collection Systems</b>	<b>176,195</b>	<b>1,067</b>	<b>175,128</b>	<b>5,898</b>	<b>169,230</b>
<b>WATER POLLUTION CONTROL PLANTS</b>						
	Northeast Plant:					
	Retail and Cheltenham					
11	Volume	-	-	-	-	-
12	Capacity	-	-	-	-	-
	Retail, Abington, Bensalem, Bucks County, Lower Moreland, and Lower Southampton					
13	Volume	727	166	561	19	542
14	Capacity	4,198	1,020	3,178	107	3,071
	Retail, Abington, Bensalem, Bucks County, Cheltenham, Lower Moreland, and Lower Southampton					
15	Volume	15,742	3,412	12,330	415	11,915
16	Capacity	7,728	1,766	5,962	201	5,761
17	Suspended Solids	27,951	4,865	23,086	776	22,310
18	BOD	23,717	5,474	18,243	614	17,629

**Table 7-6 Test Year 1 Allocation of O&M to Functional Cost Components (continued)**

LINE NO.	COST COMPONENT	(1)	(2)	(3)	(4)	(5)
		NET O&M	LESS O&M ALLOCATED TO CONTRACT SERVICE	O&M ALLOCATED TO RETAIL SERVICE	LESS RETAIL O&M DEDUCTIONS: OTHER OPERATING REVENUE	NET O&M TO BE ALLOCATED TO RETAIL SERVICE
<b>Wastewater System (\$000s)</b>						
<b>Southwest Plant:</b>						
Retail						
19	Volume	79	-	79	3	76
20	Capacity	646	-	646	22	624
Retail, DELCORA, Lower Merion, Springfield (Excluding Wyndmoor), and Upper Darby						
21	Volume	15,195	3,393	11,802	397	11,405
22	Capacity	6,191	2,137	4,054	137	3,917
23	Suspended Solids	19,952	5,300	14,652	493	14,159
24	BOD	13,852	4,797	9,055	305	8,750
<b>Southeast Plant:</b>						
Retail and Springfield (Wyndmoor)						
25	Volume	11,023	51	10,972	369	10,603
26	Capacity	7,623	49	7,574	255	7,319
27	Suspended Solids	13,715	88	13,627	459	13,168
28	BOD	5,002	32	4,970	167	4,803
<b>29</b>	<b>Total Water Pollution Control Plants</b>	<b>173,341</b>	<b>32,550</b>	<b>140,791</b>	<b>4,739</b>	<b>136,052</b>
<b>CUSTOMER COSTS</b>						
All Customers						
30	Equivalent Bills	33,848	228	33,620	1,132	32,488
Equivalent Meters						
31	Industrial Waste Unit	4,075	68	4,007	135	3,872
32	Other	5,187	-	5,187	175	5,012
33	Stormwater - Direct	-	-	-	-	-
34	Excess Strength Wastewater - Direct	2,008	-	2,008	68	1,940
<b>35</b>	<b>Total Customer Costs</b>	<b>45,118</b>	<b>296</b>	<b>44,822</b>	<b>1,510</b>	<b>43,312</b>
<b>36</b>	<b>Total O&amp;M</b>	<b>\$ 394,654</b>	<b>\$ 33,913</b>	<b>\$ 360,741</b>	<b>\$ 12,147</b>	<b>\$ 348,594</b>

The net O&M expenses are allocated to the retail customer types as follows:

- **Collection System:** The various functional cost centers of the wastewater collection system are designed based on different wastewater parameters. Therefore, those functional O&M expenses are allocated to respective wastewater parameter (cost component). The allocation of the operation and maintenance expense for each collection system component is presented in Table 7-7 and is summarized in Lines 1 to 10 on Table 7-6.

- **Wastewater Collection System - Sewers:** The operation and maintenance costs of the wastewater collection system sewers are shown in Line 1 of Table 7-7. These facilities are designed to carry maximum rates of wastewater flows and are allocated 100% to the capacity cost component.

We further delineate the test year collection system O&M between sanitary sewer related costs and stormwater costs. Based on an analysis of system-wide ratio of peak wet weather flows to peak dry weather flows, 60% of the sewer maintenance cost is allocated to stormwater and 40% to sanitary sewer. The rationale for using the peak flow ratio as the basis for apportioning sewer maintenance costs is that those costs would normally be incurred in proportional to the quantity of flow.

- **Wastewater Collection System – Inlet Cleaning:** The inlet cleaning related operation and maintenance expenses are shown on Line 2 of Table 7-7. These expenses are allocated 100% to the stormwater related capacity cost component.
- **GSI Maintenance (LTCP O&M):** The operation and maintenance costs of the GSI Maintenance are shown in Line 3 of Table 7-7. These facilities are designed manage maximum rates of wastewater flows and are allocated 100% to the capacity cost component.

In the same manner as the Wastewater Collection Costs, we further delineate the test year GSI Maintenance O&M between sanitary sewer related costs (40%) and stormwater costs (60%).

- **Wastewater Collection System – Pumping:** The power costs of the pumping stations located in the collection system, shown on Lines 4, 7, and 10 of Table 7-7, are allocated 85% to the volume cost component and 15% to the capacity cost component. The other operation and maintenance expense of the pumping stations located in the collection system, shown on Lines 6, 9, and 12 of Table 7-7 is allocated 100% to the capacity cost component.
- **Wastewater Treatment:** The various functional facilities of the water pollution control plants are designed to process different wastewater parameters. Therefore, those functional O&M expenses are allocated to respective wastewater parameter (cost component). The allocation of the operation and maintenance expense for each of the water pollution control plants is presented in Table 7-8, Table 7-9, and Table 7-10 and is summarized in Lines 11 to 29 on Table 7-6.
- **Volume:** Wastewater treatment related power costs are allocated 85% to the volume cost component. Water pollution control plant facilities such as primary and secondary sedimentation basins, recirculation pumping and chlorination, are designed largely based on total average flow projected for the plant. Therefore, most of the operation and maintenance expense excluding power costs, associated with these functions, is allocated largely to the volume cost component.
  - **Capacity:** Wastewater treatment related power costs are allocated 15% to the capacity cost component. Most of the operation and maintenance expenses, excluding power, which is associated with facilities such as raw wastewater pumps, preliminary treatment, and effluent pumping vary according to peak wastewater flow rates. Therefore, the O&M costs of those functions are largely allocated to the capacity functional cost component.

**Table 7-7 Test Year 1 Allocation of O&M for the Collection System**

LINE NO.	DESCRIPTION	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
		TOTAL	ALL CUSTOMERS CAPACITY	RETAIL		STORM CAPACITY	RETAIL AND LOWER MERION		RETAIL AND SPRINGFIELD (EXCLUDING WYNDMOOR)	
				VOLUME	CAPACITY		VOLUME	CAPACITY	Volume	Capacity
<b>Wastewater System (\$000s)</b>										
1	Sewer Maintenance	\$ 31,033	\$ 31,033	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
2	Inlet Cleaning	12,973	-	-	-	12,973	-	-	-	-
3	GSI Maintenance	14,144	14,144	-	-	-	-	-	-	-
<b>Pump Stations</b>										
Neill Drive										
4	Power	12	-	-	-	-	10	2	-	-
5	Gas	-	-	-	-	-	-	-	-	-
6	Other	124	-	-	-	-	-	124	-	-
Central Schuylkill										
7	Power	58	-	-	-	-	-	-	49	9
8	Gas	-	-	-	-	-	-	-	-	-
9	Other	370	-	-	-	-	-	-	-	370
All Other Pumping Stations										
10	Power	5,889	-	5,006	883	-	-	-	-	-
11	Gas	-	-	-	-	-	-	-	-	-
12	Other	14,375	-	-	14,375	-	-	-	-	-
13	<b>Total Collection System</b>	<b>\$ 78,978</b>	<b>\$ 45,177</b>	<b>\$ 5,006</b>	<b>\$ 15,258</b>	<b>\$ 12,973</b>	<b>\$ 10</b>	<b>\$ 126</b>	<b>\$ 49</b>	<b>\$ 379</b>

**Table 7-8 Test Year 1 Allocation of O&M for the Northeast WPC Plant**

LINE NO.	DESCRIPTION	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		TOTAL O&M	RETAIL, ABINGTON BENSALEM, BUCKS COUNTY, LOWER MORELAND, & LOWER SOUTHAMPTON VOLUME	CAPACITY	RETAIL, CHELTENHAM, ABINGTON BENSALEM, BUCKS COUNTY, LOWER MORELAND & LOWER SOUTHAMPTON VOLUME	CAPACITY	SUSPENDED SOLIDS	BOD
<b>Wastewater System (\$000s)</b>								
<b>Personal Services:</b>								
1	Raw Wastewater Pumping	\$ 837,978	\$ -	\$ 837,978	\$ -	\$ -	\$ -	\$ -
2	Preliminary Treatment	1,629,401	-	-	1,156,875	472,526	-	-
3	Primary Sedimentation	657,580	-	-	657,580	-	-	-
4	Aeration	2,717,609	-	-	-	-	-	2,717,609
5	Secondary Sedimentation	663,399	-	-	663,399	-	-	-
6	Recirculating Pumping	488,820	-	-	488,820	-	-	-
7	Chlorination	459,724	-	-	280,432	179,292	-	-
8	Primary Sludge Pumping	133,844	-	-	-	-	133,844	-
9	Secondary Sludge Thickening	325,880	-	-	-	-	162,940	162,940
10	Sludge Digestion	2,560,488	-	-	-	-	1,920,366	640,122
11	Sludge Holding Tanks	186,217	-	-	-	-	139,663	46,554
12	Sludge Dewatering	471,363	-	-	-	-	353,522	117,841
13	Grit and Screening Incineration	1,047,472	-	-	701,806	345,666	-	-
14	Scum and Grease Incineration	250,230	-	-	-	-	250,230	-
15	Laboratory	867,074	-	-	-	-	433,537	433,537
<b>16</b>	<b>Subtotal Personal Services</b>	<b>13,297,079</b>	<b>-</b>	<b>837,978</b>	<b>3,948,912</b>	<b>997,484</b>	<b>3,394,102</b>	<b>4,118,603</b>
<b>Purchase of Services, Materials, Supplies, and Equipment:</b>								
17	Raw Wastewater Pumping	1,520,668	-	1,520,668	-	-	-	-
18	Preliminary Treatment	2,403,032	-	-	-	2,403,032	-	-
19	Primary Sedimentation	1,126,421	-	-	1,126,421	-	-	-
20	Aeration	1,689,632	-	-	-	-	-	1,689,632
21	Secondary Sedimentation	1,295,384	-	-	1,295,384	-	-	-
22	Recirculating Pumping	488,116	-	-	488,116	-	-	-
23	Chlorination	1,970,047	-	-	1,970,047	-	-	-

**Table 7-8 Test Year 1 Allocation of O&M for the Northeast WPC Plant (continued)**

LINE NO.	DESCRIPTION	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		TOTAL O&M	RETAIL, ABINGTON BENSALEM, BUCKS COUNTY, LOWER MORELAND, & LOWER SOUTHAMPTON		RETAIL, CHELTENHAM, ABINGTON BENSALEM, BUCKS COUNTY, LOWER MORELAND & LOWER SOUTHAMPTON			
			VOLUME	CAPACITY	VOLUME	CAPACITY	SUSPENDED SOLIDS	BOD
<b>Wastewater System (\$000s)</b>								
24	Primary Sludge Pumping	206,511	-	-	-	-	206,511	-
25	Secondary Sludge Thickening	244,058	-	-	-	-	122,029	122,029
26	Sludge Digestion	3,172,753	-	-	-	-	2,379,565	793,188
27	Sludge Holding Tanks	450,568	-	-	-	-	337,926	112,642
28	Sludge Dewatering	356,700	-	-	-	-	267,525	89,175
29	Grit and Screening Incineration	1,013,779	-	-	-	1,013,779	-	-
30	Scum and Grease Incineration	281,605	-	-	-	-	281,605	-
31	Laboratory	2,177,747	-	-	-	-	1,088,874	1,088,873
<b>32</b>	<b>Subtotal Purchase of Services, Materials, Supplies &amp; Equipment</b>	<b>18,397,021</b>	<b>-</b>	<b>1,520,668</b>	<b>4,879,968</b>	<b>3,416,811</b>	<b>4,684,035</b>	<b>3,895,539</b>
<b>33</b>	<b>Subtotal All Above</b>	<b>31,694,100</b>	<b>-</b>	<b>2,358,646</b>	<b>8,828,880</b>	<b>4,414,295</b>	<b>8,078,137</b>	<b>8,014,142</b>
<b>Administrative and General:</b>								
34	Personal Services	3,421,744	-	215,637	1,016,176	256,683	873,406	1,059,842
35	Other	2,648,511	-	218,922	702,540	491,898	674,333	560,818
<b>36</b>	<b>Subtotal Administration &amp; General</b>	<b>6,070,255</b>	<b>-</b>	<b>434,559</b>	<b>1,718,716</b>	<b>748,581</b>	<b>1,547,739</b>	<b>1,620,660</b>
<b>Power Requirements:</b>								
37	Raw Wastewater Pumping	878,418	746,655	131,763	-	-	-	-
38	Preliminary Treatment	7,260	-	-	6,171	1,089	-	-
39	Primary Sedimentation	58,077	-	-	49,365	8,712	-	-
40	Aeration	4,813,150	-	-	-	-	-	4,813,150
41	Secondary Sedimentation	58,077	-	-	49,365	8,712	-	-
42	Recirculating Pumping	203,270	-	-	172,780	30,490	-	-
43	Chlorination	14,519	-	-	12,341	2,178	-	-
44	Primary Sludge Pumping	7,260	-	-	-	-	7,260	-
45	Secondary Sludge Thickening	544,474	-	-	-	-	272,237	272,237
46	Sludge Digestion	123,414	-	-	-	-	92,561	30,853
47	Sludge Dewatering	130,674	-	-	-	-	98,006	32,668
48	Grit and Screening Incineration	116,154	-	-	98,731	17,423	-	-
49	Scum and Grease Incineration	7,260	-	-	-	-	7,260	-
<b>50</b>	<b>Subtotal Power Requirements</b>	<b>6,962,007</b>	<b>746,655</b>	<b>131,763</b>	<b>388,753</b>	<b>68,604</b>	<b>477,324</b>	<b>5,148,908</b>



**Table 7-8 Test Year 1 Allocation of O&M for the Northeast WPC Plant (continued)**

LINE NO.	DESCRIPTION	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		TOTAL O&M	RETAIL, ABINGTON BENSALEM, BUCKS COUNTY, LOWER MORELAND, & LOWER SOUTHAMPTON		RETAIL, CHELTENHAM, ABINGTON BENSALEM, BUCKS COUNTY, LOWER MORELAND & LOWER SOUTHAMPTON		SUSPENDED SOLIDS BOD	
			VOLUME	CAPACITY	VOLUME	CAPACITY	SOLIDS	BOD
<b>Wastewater System (\$000s)</b>								
<b>Gas Requirements:</b>								
51	Raw Wastewater Pumping	149,684	-	149,684	-	-	-	-
52	Preliminary Treatment	236,537	-	-	-	236,537	-	-
53	Primary Sedimentation	110,877	-	-	110,877	-	-	-
54	Aeration	166,315	-	-	-	-	-	166,315
55	Secondary Sedimentation	127,508	-	-	127,508	-	-	-
56	Recirculating Pumping	48,047	-	-	48,047	-	-	-
57	Chlorination	20,327	-	-	20,327	-	-	-
58	Primary Sludge Pumping	20,327	-	-	-	-	20,327	-
59	Secondary Sludge Thickening	24,023	-	-	-	-	12,012	12,011
60	Sludge Digestion	312,303	-	-	-	-	234,227	78,076
61	Sludge Holding Tanks	44,351	-	-	-	-	33,263	11,088
62	Sludge Dewatering	35,111	-	-	-	-	26,333	8,778
63	Grit and Screening Incineration	99,789	-	-	-	99,789	-	-
64	Scum and Grease Incineration	27,719	-	-	-	-	27,719	-
65	Laboratory	214,362	-	-	-	-	107,181	107,181
<b>66</b>	<b>Subtotal Gas Requirements</b>	<b>1,637,280</b>	<b>-</b>	<b>149,684</b>	<b>306,759</b>	<b>336,326</b>	<b>461,062</b>	<b>383,449</b>
67	Sludge Disposal	12,183,099	-	-	-	-	9,137,324	3,045,775
<b>68</b>	<b>Total Northeast WPC Plant Expense</b>	<b>\$ 58,546,741</b>	<b>\$ 746,655</b>	<b>\$ 3,074,652</b>	<b>\$ 11,243,108</b>	<b>\$ 5,567,806</b>	<b>\$ 19,701,586</b>	<b>\$ 18,212,934</b>

**Table 7-9 Test Year 1 Allocation of O&M for the Southwest WPC Plant**

LINE NO.	DESCRIPTION	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		TOTAL O&M	RETAIL		RETAIL, DELCORA, LOWER MERION, SPRINGFIELD (EXCLUDING WYNDMOOR) AND UPPER DARBY			
			VOLUME	CAPACITY	VOLUME	CAPACITY	SUSPENDED SOLIDS	BOD
<b>Wastewater System (\$000s)</b>								
<b>Personal Services</b>								
1	Raw Wastewater Pumping	\$ 161,675	\$ -	\$ 161,675	\$ -	\$ -	\$ -	\$ -
2	Preliminary Treatment	2,134,108	-	-	1,557,899	576,209	-	-
3	Flocculation	388,020	-	-	388,020	-	-	-
4	Primary Sedimentation	562,628	-	-	562,628	-	-	-
5	Aeration	1,144,658	-	-	-	-	-	1,144,658
6	Secondary Sedimentation	970,049	-	-	970,049	-	-	-
7	Recirculating Pumping	362,152	-	-	362,152	-	-	-
8	Chlorination	549,694	-	-	324,319	225,375	-	-
9	Effluent Pumping	452,690	-	-	-	452,690	-	-
10	Primary Sludge Pumping	413,888	-	-	-	-	413,888	-
11	Secondary Sludge Thickening	342,751	-	-	-	-	167,948	174,803
12	Sludge Digestion	1,309,566	-	-	-	-	982,175	327,391
13	Sludge Holding Tanks	223,111	-	-	-	-	167,333	55,778
14	Sludge Dewatering	1,018,552	-	-	-	-	763,914	254,638
15	Sludge Lagoon	9,700	-	-	-	-	7,275	2,425
16	Grit and Screening Incineration	897,295	-	-	610,161	287,134	-	-
17	Scum and Grease Incineration	227,962	-	-	-	-	227,962	-
18	Laboratory	827,775	-	-	-	-	413,888	413,887
<b>19</b>	<b>Subtotal Personal Services</b>	<b>11,996,274</b>	<b>-</b>	<b>161,675</b>	<b>4,775,228</b>	<b>1,541,408</b>	<b>3,144,383</b>	<b>2,373,580</b>

**Table 7-9 Test Year 1 Allocation of O&M for the Southwest WPC Plant (continued)**

LINE NO.	DESCRIPTION	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		TOTAL O&M	RETAIL		RETAIL, DELCORA, LOWER MERION, SPRINGFIELD (EXCLUDING WYNDMOOR) AND UPPER DARBY			
			VOLUME	CAPACITY	VOLUME	CAPACITY	SUSPENDED SOLIDS	BOD
<b>Wastewater System (\$000s)</b>								
<b>Purchase of Services, Materials, Supplies, and Equipment:</b>								
20	Raw Wastewater Pumping	119,392	-	119,392	-	-	-	-
21	Preliminary Treatment	1,366,760	-	-	-	1,366,760	-	-
22	Flocculation	708,395	-	-	708,395	-	-	-
23	Primary Sedimentation	399,112	-	-	399,112	-	-	-
24	Aeration	777,757	-	-	-	-	-	777,757
25	Secondary Sedimentation	838,022	-	-	838,022	-	-	-
26	Recirculating Pumping	349,081	-	-	349,081	-	-	-
27	Chlorination	1,009,687	-	-	1,009,687	-	-	-
28	Effluent Pumping	39,797	-	-	-	39,797	-	-
29	Primary Sludge Pumping	449,143	-	-	-	-	449,143	-
30	Secondary Sludge Thickening	79,595	-	-	-	-	39,002	40,593
31	Sludge Digestion	785,432	-	-	-	-	589,074	196,358
32	Sludge Holding Tanks	277,161	-	-	-	-	207,871	69,290
33	Sludge Dewatering	1,660,408	-	-	-	-	1,245,306	415,102
34	Sludge Lagoon	15,350	-	-	-	-	11,513	3,837
35	Grit and Screening Incineration	351,355	-	-	-	351,355	-	-
36	Scum and Grease Incineration	112,570	-	-	-	-	112,570	-
37	Laboratory	897,149	-	-	-	-	448,575	448,574
<b>38</b>	<b>Subtotal Purchase of Services, Materials, Supplies &amp; Equipment</b>	<b>10,236,166</b>	<b>-</b>	<b>119,392</b>	<b>3,304,297</b>	<b>1,757,912</b>	<b>3,103,054</b>	<b>1,951,511</b>
<b>39</b>	<b>Subtotal All Above</b>	<b>22,232,440</b>	<b>-</b>	<b>281,067</b>	<b>8,079,525</b>	<b>3,299,320</b>	<b>6,247,437</b>	<b>4,325,091</b>

**Table 7-9 Test Year 1 Allocation of O&M for the Southwest WPC Plant (continued)**

LINE NO.	DESCRIPTION	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		TOTAL O&M	RETAIL		RETAIL, DELCORA, LOWER MERION, SPRINGFIELD (EXCLUDING WYNDMOOR) AND UPPER DARBY			SUSPENDED
			VOLUME	CAPACITY	VOLUME	CAPACITY	SOLIDS	BOD
<b>Wastewater System (\$000s)</b>								
<b>Administrative &amp; General</b>								
40	Personal Services	2,889,800	-	38,946	1,150,312	371,312	757,455	571,775
41	Other	1,307,100	-	15,246	421,940	224,475	396,242	249,197
<b>42</b>	<b>Subtotal Administration &amp; General</b>	<b>4,196,900</b>	<b>-</b>	<b>54,192</b>	<b>1,572,252</b>	<b>595,787</b>	<b>1,153,697</b>	<b>820,972</b>
<b>Power Requirements</b>								
43	Raw Wastewater Pumping	95,134	80,864	14,270	-	-	-	-
44	Preliminary Treatment	6,342	-	-	5,391	951	-	-
45	Flocculation	304,882	-	-	259,150	45,732	-	-
46	Primary Sedimentation	24,010	-	-	20,409	3,601	-	-
47	Aeration	2,970,445	-	-	-	-	-	2,970,445
48	Secondary Sedimentation	61,158	-	-	51,984	9,174	-	-
49	Recirculating Pumping	162,181	-	-	137,854	24,327	-	-
50	Chlorination	13,138	-	-	11,167	1,971	-	-
51	Effluent Pumping	39,866	-	-	33,886	5,980	-	-
52	Primary Sludge Pumping	3,624	-	-	-	-	3,624	-
53	Secondary Sludge Thickening	396,845	-	-	-	-	194,454	202,391
54	Sludge Digestion	92,755	-	-	-	-	69,566	23,189
55	Sludge Dewatering	67,953	-	-	-	-	50,965	16,988
56	Grit and Screening Incineration	42,130	-	-	35,811	6,319	-	-
57	Scum and Grease Incineration	6,455	-	-	-	-	6,455	-
<b>58</b>	<b>Subtotal Power Requirements</b>	<b>4,286,918</b>	<b>80,864</b>	<b>14,270</b>	<b>555,652</b>	<b>98,055</b>	<b>325,064</b>	<b>3,213,013</b>

**Table 7-9 Test Year 1 Allocation of O&M for the Southwest WPC Plant (continued)**

LINE NO.	DESCRIPTION	(1)	(2)	(3)	(4)	(5)	(6)	(7)
		TOTAL O&M	RETAIL		RETAIL, DELCORA, LOWER MERION, SPRINGFIELD (EXCLUDING WYNDMOOR) AND UPPER DARBY			SUSPENDED
			VOLUME	CAPACITY	VOLUME	CAPACITY	SOLIDS	BOD
<b>Wastewater System (\$000s)</b>								
<b>Gas Requirements</b>								
59	Raw Wastewater Pumping	38,807	-	38,807	-	-	-	-
60	Preliminary Treatment	444,246	-	-	-	444,246	-	-
61	Flocculation	230,254	-	-	230,254	-	-	-
62	Primary Sedimentation	129,726	-	-	129,726	-	-	-
63	Aeration	252,799	-	-	-	-	-	252,799
64	Secondary Sedimentation	272,387	-	-	272,387	-	-	-
65	Recirculating Pumping	113,464	-	-	113,464	-	-	-
66	Chlorination	38,807	-	-	38,807	-	-	-
67	Effluent Pumping	12,936	-	-	-	12,936	-	-
68	Primary Sludge Pumping	145,988	-	-	-	-	145,988	-
69	Secondary Sludge Thickening	25,871	-	-	-	-	12,677	13,194
70	Sludge Digestion	255,294	-	-	-	-	191,471	63,823
71	Sludge Holding Tanks	90,088	-	-	-	-	67,566	22,522
72	Sludge Dewatering	539,693	-	-	-	-	404,770	134,923
73	Sludge Lagoon	4,990	-	-	-	-	3,743	1,247
74	Grit and Screening Incineration	114,203	-	-	-	114,203	-	-
75	Scum and Grease Incineration	36,589	-	-	-	-	36,589	-
76	Laboratory	291,606	-	-	-	-	145,803	145,803
77	<b>Subtotal Gas Requirements</b>	<b>3,037,748</b>	-	<b>38,807</b>	<b>784,638</b>	<b>571,385</b>	<b>1,008,607</b>	<b>634,311</b>
78	Sludge Disposal	7,500,889	-	-	-	-	5,625,667	1,875,222
79	<b>Total Southwest WPC Plant Expense</b>	<b>\$ 41,254,895</b>	<b>\$ 80,864</b>	<b>\$ 388,336</b>	<b>\$ 10,992,067</b>	<b>\$ 4,564,547</b>	<b>\$ 14,360,472</b>	<b>\$ 10,868,609</b>

**Table 7-10 Test Year 1 Allocation of O&M for the Southeast WPC Plant**

LINE NO.	DESCRIPTION	(1)	(2) RETAIL AND SPRINGFIELD (WYNDMOOR)				(5)
		TOTAL O&M	VOLUME	CAPACITY	SUSPENDED SOLIDS		BOD
<b>Wastewater System (\$000s)</b>							
<b>Personal Services</b>							
1	Raw Wastewater Pumping	\$ 939,988	\$ -	\$ 939,988	\$ -	\$ -	
2	Preliminary Treatment	1,335,055	961,240	373,815	-	-	
3	Flocculation	408,690	408,690	-	-	-	
4	Primary Sedimentation	476,805	476,805	-	-	-	
5	Aeration	476,805	-	-	-	476,805	
6	Secondary Sedimentation	592,601	592,601	-	-	-	
7	Recirculating Pumping	286,083	286,083	-	-	-	
8	Chlorination	456,371	287,514	168,857	-	-	
9	Effluent Pumping	361,010	-	361,010	-	-	
10	Primary Sludge Pumping	381,444	-	-	381,444	-	
11	Waste Sludge Pumping	279,272	-	-	237,381	41,891	
12	Sludge Digestion	436,522	-	-	371,044	65,478	
13	Sludge Holding Tanks	271,905	-	-	231,119	40,786	
14	Sludge Dewatering	339,517	-	-	288,589	50,928	
15	Sludge Lagoon	3,234	-	-	2,749	485	
16	Grit and Screening Incineration	299,099	203,387	95,712	-	-	
17	Scum and Grease Incineration	75,987	-	-	75,987	-	
18	Scum Pumping	381,444	-	-	381,444	-	
19	Primary Sludge Transfer Pumping	197,534	-	-	197,534	-	
20	Waste Activated Sludge Xfer Pumping	183,911	-	-	156,324	27,587	
21	Laboratory	653,904	-	-	326,952	326,952	
<b>22</b>	<b>Subtotal Personal Services</b>	<b>8,837,181</b>	<b>3,216,320</b>	<b>1,939,382</b>	<b>2,650,567</b>	<b>1,030,912</b>	

**Table 7-10 Test Year 1 Allocation of O&M for the Southeast WPC Plant (continued)**

LINE NO.	DESCRIPTION	(1)	(2)	(3)	(4)	(5)
		TOTAL O&M	RETAIL AND SPRINGFIELD (WYNDMOOR)		SUSPENDED SOLIDS	BOD
			VOLUME	CAPACITY		
<b>Wastewater System (\$000s)</b>						
<b>Purchase of Services, Materials, Supplies, and Equipment:</b>						
23	Raw Wastewater Pumping	504,060	-	504,060	-	-
24	Preliminary Treatment	1,471,529	-	1,471,529	-	-
25	Flocculation	617,880	617,880	-	-	-
26	Primary Sedimentation	398,370	398,370	-	-	-
27	Aeration	617,880	-	-	-	617,880
28	Secondary Sedimentation	504,060	504,060	-	-	-
29	Recirculating Pumping	300,810	300,810	-	-	-
30	Chlorination	924,042	924,042	-	-	-
31	Effluent Pumping	260,160	-	260,160	-	-
32	Primary Sludge Pumping	471,540	-	-	471,540	-
33	Waste Sludge Pumping	300,810	-	-	255,689	45,121
34	Sludge Digestion	261,811	-	-	222,539	39,272
35	Sludge Holding Tanks	328,157	-	-	278,933	49,224
36	Sludge Dewatering	553,470	-	-	470,450	83,020
37	Sludge Lagoon	5,117	-	-	4,349	768
38	Grit and Screening Incineration	117,118	-	117,118	-	-
39	Scum and Grease Incineration	37,523	-	-	37,523	-
40	Scum Pumping	471,540	-	-	471,540	-
41	Primary Sludge Transfer Pumping	170,730	-	-	170,730	-
42	Waste Activated Sludge Xfer Pumping	162,600	-	-	138,210	24,390
43	Laboratory	658,530	-	-	329,265	329,265
<b>44</b>	<b>Subtotal Purchase of Services, Materials, Supplies &amp; Equipment</b>	<b>9,137,737</b>	<b>2,745,162</b>	<b>2,352,867</b>	<b>2,850,768</b>	<b>1,188,940</b>
<b>45</b>	<b>Subtotal All Above</b>	<b>17,974,918</b>	<b>5,961,482</b>	<b>4,292,249</b>	<b>5,501,335</b>	<b>2,219,852</b>

Table 7-10 Test Year 1 Allocation of O&M for the Southeast WPC Plant (continued)

LINE NO.	DESCRIPTION	(1)	(2)	(3)	(4)	(5)
		TOTAL O&M	RETAIL AND SPRINGFIELD (WYNDMOOR)		SUSPENDED SOLIDS	BOD
			VOLUME	CAPACITY		
<b>Wastewater System (\$000s)</b>						
<b>Administrative &amp; General</b>						
46	Personal Services	2,491,730	906,873	546,828	747,353	290,676
47	Other	996,791	299,456	256,663	310,976	129,696
48	Gas	27,881	3,011	5,288	15,820	3,762
<b>49</b>	<b>Subtotal Administration &amp; General</b>	<b>3,516,402</b>	<b>1,209,340</b>	<b>808,779</b>	<b>1,074,149</b>	<b>424,134</b>
<b>Power Requirements</b>						
50	Raw Wastewater Pumping	301,099	255,934	45,165	-	-
51	Flocculation	463,534	394,004	69,530	-	-
52	Primary Sedimentation	18,489	15,716	2,773	-	-
53	Aeration	401,465	-	-	-	401,465
54	Secondary Sedimentation	13,206	11,225	1,981	-	-
55	Recirculating Pumping	31,695	26,941	4,754	-	-
56	Chlorination	3,962	3,368	594	-	-
57	Effluent Pumping	35,656	30,308	5,348	-	-
58	Primary Sludge Pumping	1,321	-	-	1,321	-
59	Waste Sludge Pumping	3,962	-	-	3,368	594
60	Sludge Digestion	30,919	-	-	26,281	4,638
61	Sludge Dewatering	22,651	-	-	19,253	3,398
62	Grit and Screening Incineration	14,044	11,937	2,107	-	-
63	Scum and Grease Incineration	2,152	-	-	2,152	-
64	Scum Pumping	3,962	-	-	3,962	-
65	Primary Sludge Transfer Pumping	27,733	-	-	27,733	-
66	Waste Activated Sludge Xfer Pumping	14,527	-	-	12,348	2,179
<b>67</b>	<b>Subtotal Power Requirements</b>	<b>1,390,377</b>	<b>749,433</b>	<b>132,252</b>	<b>96,418</b>	<b>412,274</b>



**Table 7-10 Test Year 1 Allocation of O&M for the Southeast WPC Plant (continued)**

LINE NO.	DESCRIPTION	(1)	(2)	(3)	(4)	(5)
		TOTAL O&M	RETAIL AND SPRINGFIELD (WYNDMOOR)			SUSPENDED SOLIDS
Wastewater System (\$000s)						
<b>Gas Requirements</b>						
68	Raw Wastewater Pumping	16,306	-	16,306	-	-
69	Preliminary Treatment	47,604	-	47,604	-	-
70	Flocculation	19,988	19,988	-	-	-
71	Primary Sedimentation	12,887	12,887	-	-	-
72	Aeration	19,988	-	-	-	19,988
73	Secondary Sedimentation	16,306	16,306	-	-	-
74	Recirculating Pumping	9,731	9,731	-	-	-
75	Chlorination	3,945	3,945	-	-	-
76	Effluent Pumping	8,416	-	8,416	-	-
77	Primary Sludge Pumping	15,254	-	-	15,254	-
78	Waste Sludge Pumping	9,731	-	-	8,271	1,460
79	Sludge Digestion	85,098	-	-	72,333	12,765
80	Sludge Holding Tanks	37,656	-	-	32,008	5,648
81	Sludge Dewatering	179,898	-	-	152,913	26,985
82	Sludge Lagoon	1,663	-	-	1,414	249
83	Grit and Screening Incineration	38,068	-	38,068	-	-
84	Scum and Grease Incineration	12,197	-	-	12,197	-
85	Scum Pumping	15,254	-	-	15,254	-
86	Primary Sludge Transfer Pumping	5,523	-	-	5,523	-
87	Waste Activated Sludge Xfer Pumping	5,260	-	-	4,471	789
88	Laboratory	21,303	-	-	10,652	10,651
<b>89</b>	<b>Subtotal Gas Requirements</b>	<b>582,076</b>	<b>62,857</b>	<b>110,394</b>	<b>330,290</b>	<b>78,535</b>
90	Sludge Disposal	3,211,765	-	-	2,730,000	481,765
<b>91</b>	<b>Total Southeast WPC Plant Expense</b>	<b>\$ 26,675,538</b>	<b>\$ 7,983,112</b>	<b>\$ 5,343,674</b>	<b>\$ 9,732,192</b>	<b>\$ 3,616,560</b>

- The raw wastewater pumping facilities at the Southwest plant are not used by the wholesale contract customers whose flow is tributary to the plant. Consequently, the operation and maintenance expense of raw wastewater pumping facilities at the Southwest plant is allocated entirely to the Retail customer group.
- **Strength (BOD and Suspended Solids):** Aeration basins and oxygen, or air supply, facilities are designed principally on the basis of BOD, and the related O&M expense is assigned to the BOD functional cost component.
    - The operation and maintenance expense of sludge conditioning and disposal facilities pertains to both the suspended solids and BOD parameters and is allocated to those two cost components. The design of facilities handling only sludge from the primary sedimentation basins, such as the primary sludge pumps and scum disposal facilities, reflects the suspended solids content of the raw wastewater, and the related operating expense is therefore allocated to that cost component.
    - The O&M expense of certain other facilities handling both primary and waste activated sludge, such as digesters and sludge dewatering and composting facilities, is allocated to the suspended solids functional cost component and to the BOD functional cost component. The percentage allocation to these cost components is derived from an analysis of the relative quantities of sludge from the two sources and reflects the relative difficulty of treating waste activated sludge as compared with primary sludge. The resulting allocation percentages are 75% to the suspended solids functional cost component and 25% to the BOD functional cost component. The O&M expense of the sludge force main at the Southeast plant is allocated 85% to suspended solids and 15% to BOD functional cost components, based on design flows.
    - Some of the treatment and sludge related facilities in the Wastewater System service multiple treatment facilities. The digesters and the sludge processing and distribution facilities provide treatment and disposal of sludge from both the Southwest treatment plant and the Southeast treatment plant and provide disposal of sludge from the Northeast treatment plant. To properly recognize cost responsibility for these joint use facilities, a portion of the operations and maintenance expense associated with these facilities is allocated to the Southeast and Northeast plants.
  - **Customer:** The allocation of customer related O&M costs is summarized on Lines 30 to 35 of Table 7-6. Test year customer accounting and collection is allocated 100% to the equivalent bills component of Customer costs. Meter maintenance expense is allocated 100% to the meter component of Customer costs. The operation and maintenance costs of the Industrial Waste Unit are allocated 33% to the excess strength component and 67% to the meter component of Customer costs.
  - **Administrative and General:** Administrative and general expense is allocated to cost components in proportion to the total allocation of all other expenses to the cost components, excluding expenses for power.
  - **Residual Fund and Rate Stabilization Fund Transfers:** The deposit into the Residual Fund (Line 8 of Table 7-2) and the deposit from the Rate Stabilization Fund (Line 9 of Table 7-2), each of which is allocable O&M expense, are allocated to the various cost components in proportion to the direct O&M expense.

- **Net Operating Expense:** The net operating expense to be recovered from all customers through charges for wastewater service is derived by deducting the “Other Operating Revenue” and the non-operating “Interest Income” from the total operating expense.
  - Other revenue is allocated to the various cost components applicable to retail customers, as shown on Column 4 of Table 7-6. Since virtually all these revenues are generated from retail customers, no credit is applicable to wholesale service.
  - The non-operating interest income which is assigned to operation and maintenance expense (Line 12 of Table 7-2) is allocated in proportion to the distribution of the O&M expenses allocable to retail service (Column 3 of Table 7-6).

## 7.5.2 Wholesale

The process of allocating O&M expenses to the Wholesale customers follows the analytical steps outlined below. The tables for these steps are provided in Appendix I.

The following four categories of O&M costs are allocated to wholesale contract service customers, as applicable:

- Pumping and Treatment;
- Collection System;
- LTCPU; and
- Customer.

The following analytical steps are used to allocate the applicable O&M costs to each wholesale contract service customer:

1. Determine O&M Unit cost by cost component for each “Pumping Station” and each “Water Pollution Control (Treatment) Plant” (Appendix I: Table 13).
2. Allocate Pumping & Treatment O&M Cost to each wholesale contract service customer based on contract customer’s units of service and applicable O&M unit cost (Appendix I: Table 14 through Table 24). Only costs associated with facilities used directly by a customer are allocated to that customer.
3. Allocate Collection System O&M Cost to each wholesale contract service customer based on the allocation of applicable capital investments in sewer collection system which serves that specific contract service customer and the ratio of the total O&M expense associated with collection system maintenance to the total plant investment of the collection system (Appendix I: Table 14 through Table 24).
  - a. Sewer Maintenance O&M costs are not applicable to DELCORA contract service customer since they pump their wastewater directly to the Southwest WPCP and do not utilize the Water Department’s collection system.

4. Allocate LTCPU O&M Cost to applicable wholesale contract service customers in accordance with their contractual agreements (Appendix I: Table 14 through Table 24). Test year Green infrastructure maintenance expense is estimated based on 3.5% of the total estimated test year LTCPU investment. Wholesale customers are allocated a portion of the sewer maintenance expense on the basis of 3.5% of their respective allocated share of LTCPU investment. In lieu of recovering the annual SMIP and GARP O&M costs in the year the expenses are incurred, the Water Department allocates SMIP/GARP costs based on amortized costs determined recognizing expected project completion.
5. Allocate customer costs to the wholesale customers based on estimates of costs of billing for wastewater service, including allowances for flow and strength monitoring, bill preparation, and calibration of the flow meters.

## **7.6 Allocation of Net Plant Investment**

Table 7-11 summarizes the Test Year 1 (FY 2024) investment in the Wastewater System used in the allocation of test year capital related costs of service. The total test year investment of \$2.83 Billion is the total original cost investment in facilities as of June 30, 2022. Contributed plant investments from Federal grants on the three wastewater treatment plants are deducted in arriving at the plant investment for cost allocation and rate design purposes.

**Table 7-11 Summary of Test Year 1 Allocation of Plant Investment to Functional Cost Components**

LINE NO.	COST COMPONENT	(1)	(2)	(3)
		TOTAL DIRECT INVESTMENT	INVESTMENT ALLOCATED TO CONTRACT SERVICE	INVESTMENT ALLOCATED TO RETAIL SERVICE
<b>Wastewater System (\$)</b>				
<b>COLLECTION SYSTEM</b>				
1	Sewers-Capacity	\$ 1,823,982,000	\$ 17,991,000	\$ 1,805,991,000
2	Pumping Stations Capacity	23,225,000	252,000	22,973,000
3	LTCP Investment	291,589,000	5,599,000	285,990,000
<b>4</b>	<b>Total Collection System</b>	<b>2,138,796,000</b>	<b>23,842,000</b>	<b>2,114,954,000</b>
<b>WATER POLLUTION CONTROL PLANTS</b>				
Northeast Plant				
Retail, Abington, Bensalem, Bucks County Cheltenham, Lower Moreland, & Lower Southampton				
5	Volume	60,597,000	16,876,000	43,721,000
6	Capacity	29,663,000	6,819,000	22,844,000
7	Suspended Solids	124,572,000	23,386,000	101,186,000
8	BOD	106,410,000	26,512,000	79,898,000
<b>9</b>	<b>Total Northeast Plant</b>	<b>321,242,000</b>	<b>73,593,000</b>	<b>247,649,000</b>
Southwest Plant				
Retail, DELCORA, Lower Merion, Springfield (excluding Wyndmoor), & Upper Darby				
10	Volume	75,019,000	32,031,000	42,988,000
11	Capacity	41,969,000	7,334,000	34,635,000
12	Suspended Solids	64,118,000	18,436,000	45,682,000
13	BOD	53,154,000	26,243,000	26,911,000
<b>14</b>	<b>Total Southwest Plant</b>	<b>234,260,000</b>	<b>84,044,000</b>	<b>150,216,000</b>
Southeast Plant				
Retail & Springfield (Wyndmoor)				
15	Volume	33,139,000	301,000	32,838,000
16	Capacity	42,518,000	237,000	42,281,000
17	Suspended Solids	31,254,000	97,000	31,157,000
18	BOD	25,735,000	71,000	25,664,000
<b>19</b>	<b>Total Southeast Plant</b>	<b>132,646,000</b>	<b>706,000</b>	<b>131,940,000</b>
<b>20</b>	<b>Total Allocated Treatment Plants</b>	<b>688,148,000</b>	<b>158,343,000</b>	<b>529,805,000</b>
<b>21</b>	<b>Total Allocated System Investment</b>	<b>\$ 2,826,944,000</b>	<b>\$ 182,185,000</b>	<b>\$ 2,644,759,000</b>

(a) Plant Investment as of 6/30/2022. Includes Administration & General Costs

### 7.6.1 Retail

Similar to our treatment of O&M expenses, the net plant investment allocable to Retail customers is the difference between the net plant investment on Line 21, Column 1 on Table 7-11 and the amount allocated to Wholesale customers on Line 21, Column 2. After deducting the investment directly allocable to Wholesale customers, the balance of the plant investment is allocated to Retail customers as follows:

- **Collection System:** The various functional cost centers of the wastewater collection system are designed based on different wastewater parameters. Therefore, the net plant investment allocable to Retail customers is allocated to the respective wastewater parameter (cost component). The

allocation of net plant investment allocable to retail customers for each collection system component is summarized in Lines 1 to 4 of Table 7-11.

- **Wastewater Collection System - Sewers:** The collection system is designed to carry maximum rates of wastewater flow and as such, 100% of the collection system costs are allocated to the capacity cost component.

As the combined sewer system also conveys stormwater, the test year retail customer plant investment associated with the collection system is apportioned between sanitary sewer-related costs and stormwater-related costs. Consistent with the allocation factor presented in prior rate proceedings, 64% of the collection system retail plant investment costs were allocated to stormwater. This factor was determined based on an “inch-foot” analysis (the inch (diameter) of pipes times the number of feet of the sewer system), and then further adjusted to reflect the trenching cost savings typically associated with the construction of separate sanitary and storm sewers. As explained in prior rate proceedings, during construction, the sanitary sewer is buried deeper, and a storm sewer is placed in the same trench above the sanitary sewer. Our analysis indicates that it is reasonable to allocate 36% of the capacity of the system for conveyance of sanitary flows and 64% for stormwater drainage.

- **Wastewater Collection System - Pumping:** These facilities are designed to meet the maximum rates of wastewater flows and are allocated 100% to the capacity cost component.
- **Wastewater Collection System - Long-Term Control Plan:** The LTCPU investments reduce the maximum rates of wastewater flows and are allocated 100% to the capacity cost component.

In the same manner as the Wastewater Collection Costs, we further delineate the test year GSI investments between sanitary sewer related costs (36%) and stormwater costs (64%).

- **Wastewater Treatment:** The various functional facilities of the water pollution control plants are designed to manage different wastewater parameters including average and peak flows, BOD, and suspended solids. Hence, the treatment plant investments in each functional facility are allocated across the key wastewater parameters, as shown in Table 7-12, Table 7-13, and Table 7-14 for each of the three water pollution control plants and summarized in Lines 5 to 20 of Table 7-11.

- **Volume:** The water pollution control plant facilities such as flocculation, sedimentation basins, and recirculation pumping, are designed primarily to handle the total average flow projected for the plant. Therefore, investments in such facilities are allocated to the volume cost component.
- **Capacity:** The investment in facilities such as raw wastewater pumps, preliminary treatment, chlorine contact basins, wastewater conduits, and outfall lines varies according to peak wastewater flow rates, and therefore is allocated to the capacity functional cost component.

Wholesale customers whose flow is tributary to the plant do not use the raw wastewater pumping facilities at the Southwest plant. Consequently, the investment in raw wastewater pumping facilities at the Southwest plant is allocated entirely to the Retail customer group.

**Table 7-12 Test Year 1 Allocation of Plant Investment for the Northeast WPC Plant**

LINE NO.	DESCRIPTION	(1)	(2)	(3)	(4)	(5)	(6)
		TOTAL INVESTMENT (a)	RETAIL, ABINGTON, BENSALEM, BUCKS COUNTY, & LOWER SOUTHAMPTON CAPACITY	VOLUME	RETAIL, ABINGTON, BENSALEM, BUCKS COUNTY, CHELTENHAM, LOWER MORELAND & LOWER SOUTHAMPTON CAPACITY	SUSPENDED SOLIDS	BOD
<b>Wastewater System (\$000s)</b>							
<b>NON-WATER POLLUTION ABATEMENT PROGRAM FACILITIES</b>							
1	Primary Sedimentation Basins	\$ 5,677	\$ -	\$ 5,677	\$ -	\$ -	\$ -
2	Pumping Station	1,370	-	-	1,370	-	-
3	Aeration Facilities	18,758	-	-	-	-	18,758
4	Primary Sludge Pumps	1,259	-	-	-	1,259	-
5	Scum Ejectors	197	-	-	-	197	-
6	Effluent Conduit	-	-	-	-	-	-
7	Final Sedimentation Basins	9,873	-	9,873	-	-	-
8	Recirculation Pumps	1,777	-	1,777	-	-	-
9	Digesters	19,325	-	-	-	14,494	4,831
10	Sludge Dewatering	49,711	-	-	-	37,283	12,428
11	Frankford Grit Chamber	-	-	-	-	-	-
12	Chlorination Facilities	5,160	-	-	5,160	-	-
13	Aeration Tank No. 1	2,667	-	-	-	-	2,667
14	Sludge Thickener Building	10,569	-	-	-	5,285	5,284
15	Sludge Transfer Station	286	-	-	-	215	71
16	Loading Terminal/Barges	6,706	-	-	-	5,030	1,676
17	<b>Subtotal All Above</b>	<b>133,335</b>	<b>-</b>	<b>17,327</b>	<b>6,530</b>	<b>63,763</b>	<b>45,715</b>
<b>Administrative and General Facilities</b>							
18	Administrative and General Plant	65,581	-	-	-	-	-
19	Land	945	-	-	-	-	-
20	<b>Subtotal</b>	<b>66,526</b>	<b>1,544</b>	<b>14,406</b>	<b>5,960</b>	<b>22,921</b>	<b>21,695</b>
21	<b>Total</b>	<b>199,861</b>	<b>1,544</b>	<b>31,733</b>	<b>12,490</b>	<b>86,684</b>	<b>67,410</b>
<b>WATER POLLUTION ABATEMENT PROGRAM FACILITIES</b>							
22	New Preliminary Treatment Building	41,022	10,256	-	30,766	-	-
23	Primary Sedimentation Tanks	52,780	-	52,780	-	-	-
24	Blower Building	16,552	-	-	-	-	16,552
25	Aeration Tank No. 1	38,591	-	-	-	-	38,591
26	Chlorination Facilities	-	-	-	-	-	-
27	New Sludge Thickener Building	41,249	-	-	-	20,625	20,624
28	Effluent Conduits	2,291	-	-	2,291	-	-
29	New Final Sedimentation Tanks	25,574	-	25,574	-	-	-
30	Sludge Digestion System	34,438	-	-	-	25,829	8,609
31	Composting Facilities	-	-	-	-	-	-
32	Sludge Dewatering	26,096	-	-	-	19,572	6,524
33	Sludge Transfer Station	24,457	-	-	-	18,343	6,114
34	Loading Terminal/Barges	5,474	-	-	-	4,106	1,368
35	<b>Subtotal</b>	<b>308,524</b>	<b>10,256</b>	<b>78,354</b>	<b>33,057</b>	<b>88,475</b>	<b>98,382</b>
36	Admin. and General Facilities	47,544	1,104	10,295	4,260	16,381	15,504
37	Adjustment for Joint Use Facilities	3,435	-	-	-	2,576	859
38	<b>Total</b>	<b>359,503</b>	<b>11,360</b>	<b>88,649</b>	<b>37,317</b>	<b>107,432</b>	<b>114,745</b>
39	<b>Total Northeast WPC Plant Book Cost</b>	<b>559,364</b>	<b>12,904</b>	<b>120,382</b>	<b>49,807</b>	<b>194,116</b>	<b>182,155</b>
40	Less Federal Grants	238,122	7,825	59,785	25,223	69,544	75,745
41	<b>Adjusted Total Northeast WPC Plant</b>	<b>\$ 321,242</b>	<b>\$ 5,079</b>	<b>\$ 60,597</b>	<b>\$ 24,584</b>	<b>\$ 124,572</b>	<b>\$ 106,410</b>

(a) Plant Investment as of 6/30/2022.

**Table 7-13 Test Year 1 Allocation of Plant Investment for the Southwest WPC Plant**

LINE NO.	DESCRIPTION	(1)	(2)	(3)	(4)	(5)	(6)
		TOTAL INVESTMENT (a)	RETAIL CAPACITY	VOLUME	RETAIL, DELCORA, LOWER MERION, SPRINGFIELD (EXCLUDING WYNDMOOR), & UPPER DARBY CAPACITY	SUSPENDED SOLIDS	BOD
<b>Wastewater System (\$000s)</b>							
<b>NON-WATER POLLUTION ABATEMENT PROGRAM FACILITIES</b>							
1	Raw Wastewater Pumping Station	\$ 12,730	\$ 12,730	\$ -	\$ -	\$ -	\$ -
2	Sludge Digestion Facilities	11,863	-	-	-	8,656	3,207
3	Scum Incineration	-	-	-	-	-	-
4	Settling Tanks	35,185	-	35,185	-	-	-
5	Sludge Handling	7,397	-	-	-	5,548	1,849
6	Chlorination Facilities	1,217	-	-	1,217	-	-
7	Aeration Tanks	701	-	-	-	-	701
8	Oxygen Supply	3,637	-	-	-	-	3,637
9	Effluent Pump Station	1,566	-	-	1,566	-	-
10	Sludge Thickener Building	1,615	-	-	-	808	807
11	Composting Facilities	716	-	-	-	537	179
12	Sludge Gas Facilities	12,078	-	-	-	9,059	3,019
<b>13</b>	<b>Subtotal</b>	<b>88,705</b>	<b>12,730</b>	<b>35,185</b>	<b>2,783</b>	<b>24,608</b>	<b>13,399</b>
14	Administrative and General Facilities						
14	Administrative and General Plant	83,629					
15	Land	687					
<b>16</b>	<b>Subtotal</b>	<b>84,316</b>	<b>5,797</b>	<b>23,017</b>	<b>8,835</b>	<b>24,847</b>	<b>21,820</b>
17	Adjustment for Joint Use Facilities	(5,114)	-	-	-	(4,051)	(1,063)
<b>18</b>	<b>Total</b>	<b>167,907</b>	<b>18,527</b>	<b>58,202</b>	<b>11,618</b>	<b>45,404</b>	<b>34,156</b>
<b>WATER POLLUTION ABATEMENT PROGRAM FACILITIES</b>							
19	Influent Pumping Station	6,328	6,328	-	-	-	-
20	Preliminary Treatment Building	20,330	-	-	20,330	-	-
21	Primary Sedimentation Tanks	11,146	-	11,146	-	-	-
22	Aeration Tanks	16,416	-	-	-	-	16,416
23	Oxygen Supply System	14,118	-	-	-	-	14,118
24	Compressor Building	3,736	-	-	-	-	3,736
25	Final Tanks	29,345	-	29,345	-	-	-
26	Scum Concentration Building	1,374	-	-	-	1,374	-
27	Sludge Thickener Building	12,568	-	-	-	6,284	6,284
28	Sludge Digestion Facilities	31,156	-	-	-	22,733	8,423
29	Effluent Pumping Station	5,934	-	-	5,934	-	-
30	New Centrifuges	10,002	-	-	-	7,298	2,704
31	Composting Facilities	-	-	-	-	-	-
32	Sludge Dewatering	18,797	-	-	-	14,098	4,699
33	Sludge Gas Facilities	7,259	-	-	-	5,296	1,963
<b>34</b>	<b>Subtotal</b>	<b>188,509</b>	<b>6,328</b>	<b>40,491</b>	<b>26,264</b>	<b>57,083</b>	<b>58,343</b>
35	Admin. and Gen'l. Facilities	34,037	2,340	9,292	3,566	10,030	8,809
36	Adjust. for Joint Use Facilities	(8,788)	-	-	(455)	(6,226)	(2,107)
<b>37</b>	<b>Total</b>	<b>213,758</b>	<b>8,668</b>	<b>49,783</b>	<b>29,375</b>	<b>60,887</b>	<b>65,045</b>
<b>38</b>	<b>Total Southwest WPC Plant</b>	<b>381,665</b>	<b>27,195</b>	<b>107,985</b>	<b>40,993</b>	<b>106,291</b>	<b>99,201</b>
39	Less Federal Grants	147,405	5,152	32,966	21,067	42,173	46,047
<b>40</b>	<b>Adjusted Total Southwest WPC Plant</b>	<b>\$ 234,260</b>	<b>\$ 22,043</b>	<b>\$ 75,019</b>	<b>\$ 19,926</b>	<b>\$ 64,118</b>	<b>\$ 53,154</b>

(a) Plant Investment as of 6/30/2022.



**Table 7-14 Test Year 1 Allocation of Plant Investment for Southeast WPC Plant**

LINE NO.	DESCRIPTION	RETAIL AND SPRINGFIELD (WYNDMOOR)				
		(1) TOTAL INVESTMENT (a)	(2) VOLUME	(3) CAPACITY	(4) SUSPENDED SOLIDS	(5) BOD
<b>Wastewater System (\$000s)</b>						
<b>NON-WATER POLLUTION ABATEMENT PROGRAM FACILITIES</b>						
1	Main Pumping Station	\$ 1,108	\$ -	\$ 1,108	\$ -	\$ -
2	Grit Chambers	12,445	-	12,445	-	-
3	Outfall Line	570	-	570	-	-
4	Sludge Digestion Facilities	5,727	-	-	4,537	1,190
5	Settling Tanks & Floc. Channel	7,463	7,463	-	-	-
6	Sludge Force Main	5,022	-	-	3,767	1,255
7	<b>Subtotal</b>	<b>32,335</b>	<b>7,463</b>	<b>14,123</b>	<b>8,304</b>	<b>2,445</b>
Administrative and General Facilities						
8	Administrative and General Plant	25,979				
9	Land	156				
10	<b>Subtotal</b>	<b>26,135</b>	<b>7,042</b>	<b>8,050</b>	<b>5,184</b>	<b>5,859</b>
11	Adjustment for Joint Use Facilities	5,114	-	-	4,051	1,063
12	<b>Total</b>	<b>63,584</b>	<b>14,505</b>	<b>22,173</b>	<b>17,539</b>	<b>9,367</b>
<b>WATER POLLUTION ABATEMENT PROGRAM FACILITIES</b>						
13	Influent Pump. Stat. and Screen & Grit Chamber	21,872	-	21,872	-	-
14	Primary Sedimentation Tanks	21,183	21,183	-	-	-
15	Compressor Building	9,939	-	-	-	9,939
16	Air Supply Facilities	23,216	-	-	-	23,216
17	Final Sedimentation	26,117	26,117	-	-	-
18	Effluent Pumping Station	11,532	-	11,532	-	-
19	Effluent Conduit	11,620	-	11,620	-	-
20	Scum Concentration Facilities	2,822	-	-	2,822	-
21	Sludge Force Main	1,948	-	-	1,461	487
22	Preliminary Treatment Bldg.	3,459	-	3,459	-	-
23	Sludge Thickeners	4,667	-	-	2,334	2,333
24	Sludge Digesters	15,043	-	-	11,916	3,127
25	Sludge Disposal Facilities	4,830	-	-	3,826	1,004
26	Composting Facilities	-	-	-	-	-
27	Sludge Dewatering	9,169	-	-	6,877	2,292
28	Sludge Gas Facilities	3,504	-	-	2,776	728
29	<b>Subtotal</b>	<b>170,921</b>	<b>47,300</b>	<b>48,483</b>	<b>32,012</b>	<b>43,126</b>
30	Admin. and Gen'l. Facilities	37,167	10,014	11,448	7,372	8,333
31	Adjustment for Joint Use Facilities	5,353	-	455	3,650	1,248
32	<b>Total</b>	<b>213,441</b>	<b>57,314</b>	<b>60,386</b>	<b>43,034</b>	<b>52,707</b>
33	<b>Total Southeast WPC Plant</b>	<b>277,025</b>	<b>71,819</b>	<b>82,559</b>	<b>60,573</b>	<b>62,074</b>
34	Less Federal Grants	144,379	38,680	40,041	29,319	36,339
35	<b>Adjusted Total Southeast WPC Plant</b>	<b>\$ 132,646</b>	<b>\$ 33,139</b>	<b>\$ 42,518</b>	<b>\$ 31,254</b>	<b>\$ 25,735</b>

(a) Plant Investment as of 6/30/2022.

■ **Strength (BOD and Suspended Solids):** The aeration basins and oxygen, or air blower facilities are designed to handle BOD, and investments in these facilities are allocated to the BOD functional cost component.

- The investment in sludge conditioning and disposal facilities depends upon both the suspended solids and BOD parameters and is allocated to those two components of cost. The design of facilities handling only sludge from the primary sedimentation basins, such as the primary sludge pumps and scum disposal facilities, reflects the suspended solids content of the raw wastewater, and the related investment is therefore allocated to that cost component. The investment in facilities handling waste activated sludge, such as waste activated sludge thickeners, is allocated 50% to the suspended solids and 50% to the BOD functional cost components based upon the design loadings and degree of treatment provided.

- Likewise, the investment in other facilities such as digesters and sludge dewatering and composting facilities, that handle both primary and waste activated sludge, is allocated to the suspended solids functional cost component and to the BOD functional cost component. We determined the allocation of cost between SS and BOD based on the relative quantities of sludge generated from BOD and SS components, and the relative difficulty of treating waste activated sludge as compared with primary sludge. The resulting allocation percentages are 75% to the suspended solids functional cost component and 25% to the BOD functional cost component. The investment in the sludge force main at the Southeast plant is allocated 75% to suspended solids and 25% to BOD functional cost components, based on design flows.
- Some of the treatment and sludge related facilities in the Wastewater System service multiple treatment facilities. The digesters and the sludge processing and distribution facilities provide treatment and disposal of sludge from both the Southwest treatment plant and the Southeast treatment plant and provide disposal of sludge from the Northeast treatment plant. To properly recognize cost responsibility for these joint use facilities, a portion of the investment in both existing and expanded plant joint use facilities is allocated to the Southeast and Northeast plants.
- **General Plant and Equipment:** Other general plant and equipment includes investment allocable to all the above and is allocated to cost components in proportion to the total of the preceding items of the direct plant investment allocation to those cost components.

## 7.6.2 Wholesale

For the Wholesale customers, the various contracts typically provide for maximum short-term flow rates expressed in cubic feet per second (“cfs”), maximum average daily flow rates expressed in MGD, and maximum annual suspended solids and BOD loadings expressed in pounds (“lbs”). The COS analysis recognizes the City’s obligation to provide service to its wholesale customers through the allocation of plant investment and operating expenses. Since installed capacity is the primary concern of the contracts, the basis for wholesale customer allocations uses the relationship of the contract service requirements to the total installed capacity of the respective facilities. Only plant investment associated with facilities used directly by a customer are allocated to that customer.

As presented earlier, Table 7-4 and Table 7-5 summarize the units of service applicable to wholesale customers used in the cost-of-service analysis. In Table 7-4, the section titled “Contract Maximum Units,” is based upon the contractual rate of flow for each customer, including an allowance for I/I that can occur downstream from the wholesale customer’s discharge point into the City’s Wastewater System. To determine the contract maximum units for suspended solids and BOD, contractual strength loadings for those customers that have such provisions in their contracts were used. For those customers that do not have specific loadings in their contracts, the estimated measured strength for each customer as applied to their contract maximum daily flow rate, expressed in MGD was used. The contract maximum units serve as the basis for allocation of capital investment related costs to the wholesale customers.

Each wholesale customer is allocated a share of the Wastewater System investment in the wastewater collection system (mains, pumping, and LTCPU) and treatment facilities serving them. The plant investment costs are allocated to the wholesale customers based on the proportionate share of their contract capacity in the various facilities relative to the total design capacity of the various facilities.

Please refer to Appendix I Tables 1 through 12 for details regarding the allocation of plant investment for each wholesale customer.

## 7.7 Allocation of Depreciation Expense

The allocation of depreciation expenses for Retail and Wholesale customers follows the steps used for the allocation of plant investment described above. The annual depreciation expense to be distributed to Wastewater System cost components is based on the application of appropriate depreciation expense rates to the various categories of Wastewater System facilities. The various items of depreciation expense are allocated to cost components on the same basis as the proportion of plant investment costs allocated to each of those cost components.

## 7.8 Wholesale Cost of Service Allocations

Table 7-15 summarizes the Test Year 1 COS allocated to the wholesale customers. Specifically, the table presents the total allocated plant investment, depreciable investment, depreciation expense, return on rate base, and operation and maintenance expense for the wholesale customers. The total COS allocable to wholesale customers, for Test Year 1 is estimated at \$41.3 Million. This amount includes a return-on-investment requirement of \$5.6 Million, which reflects a 7.50% rate of return on allocated investment.

It should be noted, that six of the wholesale customers have made front-end capital contributions related to the investment in plant which provides them service. These customers include Bucks County (Bensalem), Bucks County, DELCORA, Lower Merion, Lower Southampton, and Upper Darby.

**Table 7-15 Summary of Test Year 1 Allocated COS for Wholesale Customers**

LINE NO.	CUSTOMER	(1) INVESTMENT (a)		(3)	(4)	(5)	(6)
		ALLOCATED	ALLOCATED DEPRECIABLE	O&M	DEPR'N	RETURN	ALLOCATED COST OF SERVICE
<b>Wholesale Customers (\$000S)</b>							
1	Abington	\$ 6,092	\$ 6,077	\$ 1,091	\$ 148	\$ 457	\$ 1,696
2	Bucks County (Bensalem)	10,599	10,571	1,514	(a)	(a)	1,514
3	Bucks County (b)	33,103	33,010	9,184	232	697	10,114
4	Cheltenham	17,137	17,098	2,993	409	1,285	4,687
5	DELCORA (c)	48,734	48,593	8,890	229	697	9,817
6	Lower Merion	16,672	16,628	2,536	(a)	(a)	2,536
7	Lower Moreland	3,033	3,027	603	71	227	902
8	Lower Southampton (d)	22,442	22,407	2,247	507	1,683	4,437
9	Springfield (less Wyndmoor)	6,659	6,645	1,409	159	499	2,067
10	Springfield (Wyndmoor)	1,037	1,036	239	24	78	341
11	Upper Darby	16,677	16,630	3,207	(a)	(a)	3,207
12	<b>Total</b>	<b>\$ 182,185</b>	<b>\$ 181,722</b>	<b>\$ 33,913</b>	<b>\$ 1,779</b>	<b>\$ 5,625</b>	<b>\$ 41,317</b>

(a) It is assumed that Bensalem, Lower Merion and Upper Darby contribute their entire allocated plant investment, and therefore, are not allocated any depreciation expense or return on investment.

(b) Bucks County allocated Return on Investment and Depreciation Expense based on assets in service after 6/30/2007.

(c) DELCORA allocated Return on Investment and Depreciation Expense based on assets in service after 7/1/2011.

(d) Lower Southampton phased into Return on Investment and Depreciation Expense on total rate base uniformly over 18 years starting in FY 2007.

The Water Department does not anticipate any contractual changes; as such Bucks County (Bensalem), Lower Merion and Upper Darby will continue to provide upfront annual capital contributions associated with applicable plant improvements. Therefore, there is no cost-of-service allocation of depreciation or return on rate base for these three wholesale customers.

Bucks County, DELCORA, and Lower Southampton were initially capital contribution-based customers. However, their current contracts reflect the utility basis for the recovery of allocated capital investment.

The allocation of return and depreciation, presented in Table 7-15, reflects the terms of the current contracts for these customers. The depreciation expense presented in Column 4 reflects 2% of the depreciable investment in the collection system and 2.5% of the depreciable investment in treatment and pumping facilities. The corresponding table for Test Year 2 (FY 2025) is provided as Appendix I Table 25.

## 7.9 Distribution of Costs to Customer Types

As a basis for estimating the cost of providing wastewater service to each customer type, we distribute each functional component cost among the customer types in proportion to their respective service requirements for each of those cost components.

We perform the following key steps to allocate the Sanitary Sewer Retail Capital and O&M Costs to the various customer types:

### ■ Retail: Determination of Sanitary Sewer Unit Costs of Cost Components

- The retail test year unit cost, for each of the cost components, is summarized on Table 7-16 and derived as follows:
  - Divide the operational and capital costs allocated to each cost component by the respective retail units of service.
- Derive the total Retail unit cost for each cost component as follows:
  - Total Retail Unit Cost = Operation Expense unit cost + Depreciation Expense unit cost + Inside City Return on Plant Investment unit cost.

### ■ Retail: Distribution of Sanitary Sewer Costs to Customer Types

- The Wastewater test year COS is distributed to each customer type as follows:
  - Applying the total unit cost of each cost component to the corresponding units of service of each customer type as presented on Table 7-17; and
  - Reapportioning the Pumping & Treatment related I&I Costs between Sanitary Sewer and Stormwater as shown on Table 7-18.

### 7.9.1 Infiltration/Inflow Adjustments

The cost of service allocable to I/I must be distributed among the retail service customer types. As in the case of the allocation of stormwater costs, the relative customer type responsibility for I/I cost can neither be precisely measured, nor can it be directly associated with the parameters of sanitary wastewater service.

In general, I/I due to leakage in lateral sewers of individual residences would be expected to be less than in the services of individual large commercial or industrial establishments. The greater length, due to larger lot frontage, and greater size of main sewer required for the larger customers would also contribute to potential increased I/I with the size of customer. The number of equivalent meters of each customer type, discussed previously in this report, provides a reasonable means of recognizing both numbers and relative sizes of customers and provides a measure of customer type responsibility for I/I cost.

Columns 3 and 4 of Table 7-18 reflect the redistribution of the cost of I/I to the other customer types based upon equivalent meters and volume. In accordance with the prior rate proceeding decisions, the COS and rate design for the current study reflects a 30% recovery of pumping and treatment related I/I costs through the service charge and 70% through the volume charge.

**Table 7-16 Test Year 1 Retail Unit Costs of Service**

LINE NO.	DESCRIPTION	(1) TOTAL	(2) COLLECTION SYSTEM				(3) WATER POLLUTION CONTROL PLANTS			
			(4) PUMPING STATION		(5) SANITARY SEWERS CAPACITY	(6) STORMWATER	(7) SUSPENDED SOLIDS		(8) BOD	
			(2) VOLUME	(3) CAPACITY			(6) VOLUME	(7) CAPACITY		
<b>Retail Sanitary Sewer</b>										
<b>Total Units of Service</b>										
1	Units	\$000s	Mcf	Mcf/day	Mcf/day		Mcf	Mcf/day	1,000 lbs.	1,000 lbs.
2	Quantity		17,999,900	107,488	331,322		17,999,900	107,488	185,243	122,234
<b>Operation and Maintenance Expense</b>										
3	Total Expense - \$000s	\$ 305,282	\$ 4,873	\$ 21,515	\$ 49,507	\$ 93,335	\$ 34,541	\$ 20,692	\$ 49,637	\$ 31,182
4	Unit Expense - \$/unit		0.2707	200.1609	149.4232		1.9190	192.5052	267.9568	255.1001
<b>Capital Costs</b>										
5	Total Plant Investment - \$000s	2,644,759		22,973	753,113	1,338,868	119,547	99,760	178,025	132,473
6	Unit Plant Investment - \$/unit			213.7262	2,273.0552		6.6415	928.1036	961.0349	1,083.7625
7	Depreciable Plant Investment - \$000s	2,641,583		22,973	752,459	1,337,706	119,249	99,543	177,541	132,112
8	Unit Depreciable Plant Investment - \$/unit			213.7262	2,271.0819		6.6250	926.0848	958.4221	1,080.8091
9	Depreciation Expense - \$000s	55,589		574	15,049	26,754	2,981	2,489	4,439	3,303
10	Unit Depreciation Expense - \$/unit			5.3432	45.4216		0.1656	23.1521	23.9606	27.0202
<b>Unit Return on Investment</b>										
11	Total Return - \$000s (a)	85,648		744	24,389	43,358	3,871	3,231	5,765	4,290
12	Inside City - \$/Unit (a)			6.9213	73.6106		0.2151	30.0557	31.1221	35.0965
<b>Total Unit Capital Costs</b>										
13	(Line 10 + Line 12) - \$/unit			12.2645	119.0322		0.3807	53.2078	55.0827	62.1167
<b>Total Unit Costs of Service</b>										
14	Inside City (Line 4 + Line 13) - \$/unit	\$	0.2707	\$ 212.4254	\$ 268.4554		\$ 2.2997	\$ 245.7130	\$ 323.0395	\$ 317.2168

(a) Retail rate of return = Retail allocation of Return on Investment / Retail Allocation of System Plant Investment = \$85,647,900 / \$2,644,759,000 = 3.2384 %.

**Table 7-16 Test Year 1 Retail Unit Costs of Service (continued)**

LINE NO.	DESCRIPTION	(10)	(11)	(12)	(13)	(14)	(15)
		CUSTOMER COSTS					
		METER COSTS	BILLING		INDUSTRIAL WASTE UNIT		DIRECT STORMWATER
SANITARY	STORMWATER		RETAIL CUSTOMERS	DIRECT EXTRA STRENGTH WASTEWATER			
<b>Retail Sanitary Sewer</b>							
<b>Total Units of Service</b>							
1	Units	Eq. Meters		Eq. Bills		Eq. Meters	
2	Quantity	644,238		6,255,245		644,238	
<b>Operation and Maintenance Expense</b>							
3	Total Expense - \$000s	\$ 5,012	\$ 19,951	\$ 12,537	\$ 3,872	\$ 1,940	\$ -
4	Unit Expense - \$/unit	7.7797	3.1895		6.0102		
<b>Capital Costs</b>							
5	Total Plant Investment - \$000s						
6	Unit Plant Investment - \$/unit						
7	Depreciable Plant Investment - \$						
8	Unit Depreciable Plant Investment - \$/unit						
9	Depreciation Expense - \$000s						
10	Unit Depreciation Expense - \$/unit						
<b>Unit Return on Investment</b>							
11	Total Return - \$000s						
12	Inside City - \$/Unit (a)						
<b>Total Unit Capital Costs</b>							
13	(Line 10 + Line 12) - \$/unit						
<b>Total Unit Costs of Service</b>							
14	Inside City (Line 4 + Line 13) - \$/unit	\$ 7.7797	\$ 3.1895		\$ 6.0102	\$ -	

(a) Retail rate of return = Retail allocation of Return on Investment / Retail Allocation of System Plant Investment = \$85,647,900 / \$2,644,759,000 = 3.2384 %.

**Table 7-17 Test Year 1 Wastewater Retail Costs of Service**

LINE NO.	CUSTOMER TYPE	(1)	(2) (3) (4) COLLECTION SYSTEM			(5)	(6) (7) (8) TREATMENT			(9)	(10) (11) CUSTOMER INDUSTRIAL WASTE		(12)
		ALLOCATED COST OF SERVICE	PUMPING VOLUME	PUMING CAPACITY	SEWER CAPACITY	VOLUME	CAPACITY	SUSPENDED SOLIDS	BOD	METER	BILLING & COLLECTION	SURCHARGE	METER
<b>Retail Service (\$000s)</b>													
1	Residential	\$ 79,892	\$ 790	\$ 2,549	\$ 8,588	\$ 6,714	\$ 2,948	\$ 17,654	\$ 17,047	\$ 3,713	\$ 17,020	\$ -	\$ 2,869
2	Commercial	32,405	409	1,320	4,450	3,479	1,527	9,148	8,833	871	1,694	-	673
3	Industrial	1,142	15	47	158	124	54	325	314	32	48	-	25
4	Public Utilities	229	3	9	30	23	10	61	59	12	13	-	9
5	Senior Citizens	3,303	31	100	336	263	115	690	666	165	810	-	127
6	Wastewater Only	2,768	39	125	421	329	144	865	835	4	4	-	3
7	Groundwater	2,795	57	308	1,246	487	356	299	42	-	-	-	-
8	Surcharge	7,013	-	-	-	-	-	695	4,391	-	-	1,926	-
9	Housing Authority	3,150	39	127	427	334	147	878	848	71	224	-	55
10	Charities & Schools	2,567	32	103	349	273	120	717	692	99	105	-	76
11	Hospital/University	995	14	44	148	116	51	304	294	10	8	-	8
12	Hand Billed	7,926	110	355	1,196	935	411	2,458	2,374	35	26	-	27
13	Water Treatment Plant Sludge	10,952	79	256	861	673	296	8,787	-	-	-	-	-
14	Private Fire	2	0	-	0	0	-	1	1	-	-	-	-
15	Scheduled (Flat Rate)	2	0	-	0	0	-	0	0	0	0	-	0
16	Conveyance	70,735	-	-	70,735	-	-	-	-	-	-	-	-
17	Pumping & Treatment	87,961	3,255	17,491	-	27,646	20,232	16,959	2,379	-	-	-	-
<b>18</b>	<b>Total</b>	<b>\$ 313,834</b>	<b>\$ 4,873</b>	<b>\$ 22,833</b>	<b>\$ 88,945</b>	<b>\$ 41,394</b>	<b>\$ 26,411</b>	<b>\$ 59,841</b>	<b>\$ 38,775</b>	<b>\$ 5,012</b>	<b>\$ 19,951</b>	<b>\$ 1,926</b>	<b>\$ 3,872</b>

(a) Annual Cost of Service by component for each customer type based on the customer type units of service (Table 7-3) and the total unit cost for each component (Tables 7-16).



**Table 7-18 Test Year 1 Wastewater Adjusted Costs of Service**

LINE NO.	CUSTOMER TYPE	(1)	(2) RE-ALLOCATION OF I/I (a)		(4)	(5)	(6)	(7)	(8)
		ALLOCATED COST OF SERVICE	SANITARY SEWER	STORMWATER	ADJUSTED COST OF SERVICE	DISCOUNTS	ADJUSTED COST OF SERVICE W/ DISCOUNTS	RECOVERY OF DISCOUNTS (b)	ADJUSTED COST OF SERVICE
<b>Retail Service (\$000s)</b>									
1	Residential	\$ 79,892	\$ 71,959	\$ -	\$ 151,851	\$ -	\$ 151,851	\$ 2,092	\$ 153,943
2	Commercial	32,405	32,829		65,234		65,234	899	66,132
3	Industrial	1,142	1,172		2,314		2,314	32	2,346
4	Public Utilities	229	245		474		474	7	480
5	Senior Citizens	3,303	2,896		6,199	(1,550)	4,649	64	4,713
6	Wastewater Only	2,768	2,770		5,538		5,538	76	5,614
7	Groundwater	2,795	-		2,795		2,795	39	2,833
8	Surcharge	7,013	-		7,013		7,013	97	7,109
9	Housing Authority	3,150	3,099		6,249	(312)	5,936	82	6,018
10	Charities & Schools	2,567	2,703		5,270	(1,317)	3,952	54	4,007
11	Hospital/University	995	1,011		2,006	(502)	1,505	21	1,525
12	Hand Billed	7,926	7,979		15,906		15,906	219	16,125
13	Water Treatment Plant Sludge	10,952	5,640		16,592		16,592	-	16,592
14	Private Fire	2	2		4		4	0	4
15	Scheduled	2	1		3		3	0	3
16	Conveyance	70,735	(70,735)						
17	Pumping & Treatment	87,961	(61,572)	(26,388)	-	-	-	-	-
<b>18</b>	<b>Total</b>	<b>313,834</b>	<b>-</b>	<b>(26,388)</b>	<b>287,445</b>	<b>(3,681)</b>	<b>283,764</b>	<b>3,681</b>	<b>287,445</b>
<b>Allocation of I/I</b>									
19	Sanitary Sewer	313,834		(26,388)	287,445				
20	Stormwater	-	-	26,388	26,388	-	-	-	-
<b>21</b>	<b>Total</b>	<b>\$ 313,834</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 313,834</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

(a) 70% of allocated I/I costs are recovered by sanitary sewer rates and charges. 30% of allocated I/I costs are recovered by stormwater rates and charges.

(b) Reflects current policy of recovering discounts from all customer types.

## 7.9.2 Fee Discounts

The proposed COS reflects the continuation of the current practice of providing fee discounts to the following customer types:

- Senior Citizens, and Charities and Schools customer types are billed at 75% of the general customer rate levels.
- The PHA is billed at 95% of general customer rate levels.

The revenue reduction resulting from the discounts is recovered from all inside City retail customer types to recover the total test year COS for retail customers.

Column 8 of Table 7-18 presents the adjusted COS of the inside City customer types. This adjusted COS recognizes the fee reduction due to discounts and the recovery of those discounts from all customer types.

## 7.10 Stormwater Cost of Service Allocations

Stormwater management and related costs are an integral component of the Water Department's Wastewater System costs. We have already discussed in detail the Wastewater System COS allocations between sanitary sewer and stormwater, and the associated rationale for each allocation.

### 7.10.1 Test Year Revenue Requirements

The following is a summary of the key allocation factors used in determining the stormwater revenue requirements.

- **Conveyance O&M Cost Allocation:** As discussed earlier in Section 7.5.1, 60% of the sewer collection system maintenance and GSI maintenance costs are allocated to stormwater and 40% to sanitary sewer.
- **Conveyance Capital Cost Allocation:** As discussed in Section 7.6.1, 64% of the sewer collection system capital cost is allocated to stormwater and 36% to sanitary sewer based on a cost weighted pipe capacity analysis.
- **Pumping & Treatment O&M and Capital Cost:** A portion of the retail pumping and treatment component cost is allocated to Infiltration and Inflow. Affirmed in prior rate proceedings, the Infiltration and Inflow cost is allocated 70% to sanitary sewage and 30% to stormwater services based on the ratio of average dry weather flow to average wet weather flow.
- **Customer Costs:** The allocation approach used in allocating customer costs to stormwater is consistent with the method used in the previous general rate proceeding. The customer costs are first allocated one-third to water service and two-thirds to the wastewater service (as wastewater includes sanitary sewer and stormwater). The wastewater customer costs less the metering costs are further allocated 61% to sanitary sewer and 39% to stormwater services based on the relative revenue requirement levels between the two services.

Table 7-19 presents the total FY 2024 stormwater revenue requirements. Based on the detailed technical cost allocations, the estimated FY 2024 stormwater revenue requirements are \$202.4 Million excluding stormwater Customer Assistance Program (CAP) costs.

**Table 7-19 Summary of Test Year 1 Stormwater Costs**

LINE NO.	COST COMPONENT	(1) ALLOCATED COST OF SERVICE
<b>Stormwater (\$000s)</b>		
1	Billing & Collection Costs	12,537
2	Impervious Area and Gross Area Costs <i>(Excluding CAP Costs)</i>	189,835
<b>3</b>	<b>Total</b>	<b>202,372</b>

### 7.10.2 Allocation to Customer Types

To delineate the stormwater management costs from the balance of annual wastewater costs, a multi-step cost allocation approach was used to allocate the Test Year 1 stormwater costs to various customer types. The framework we used is outlined below:

- Allocate SWMS costs (i.e., impervious area and gross area costs) presented in Table 7-20, to their respective charge components.
  - As established in the 2009 Rate Determination, the SWMS charge costs are allocated 20% to GA and 80% to IA.
  - The GA and IA costs are divided by the total GA and IA units of service to determine the System Wide Unit Costs for GA and IA. The resulting System Wide Unit Costs for GA and IA are summarized on Line 3, Table 7-20.
  - System-Wide Unit Costs for GA and IA reflect overall reductions in billable GA and IA, resulting from credits and other adjustments; therefore, the recovery of these reductions is shared by all stormwater customers as reflected in the System-Wide Units Costs for GA and IA. Refer to Schedule BV-6: WP-3 Cost Recovery Approach of various customer assistance programs (including stormwater credits).
- Distribute GA and IA costs to Residential and Non-Residential Customer Types.
  - Residential GA and IA costs of service are calculated by applying the system-wide unit costs presented in Table 7-20 to the estimated residential billable GA and IA units of service (Table 6-7 and Table 6-8).
  - The initial Non-residential GA and IA costs of service are calculated as the total GA and IA COS less residential GA and IA costs of service. The resulting Non-Residential costs are then adjusted to account for the Stormwater CAP costs, which are also assigned to 20% to GA and 80% to IA .
  - Table 7-21 shows the results of this step.
- Determine the GA and IA COS rates prior to discount and lag factor adjustments.

- Residential Monthly GA and IA Unit rates are then calculated to reflect:
    - Residential customers are billed a uniform fee per parcel based upon the mean residential IA and GA.
    - As previously noted, based upon the updated Stormwater Billing Data the mean residential GA square footage is 2,100 square feet and the mean residential IA is 1,190 square feet.
    - The System-Wide GA and IA unit costs are applied to the mean residential GA and IA respectively and then summed to calculate the resulting stormwater management service charge per parcel.
  - Non-residential customers GA and IA unit costs are calculated to account for the recovery of stormwater CAP costs (presented in Table 7-21) by dividing the Adjusted Non-Residential COS by the respective GA and IA billable units of service.
  - Table 7-22 shows the results of the above steps.
- Allocate Billing & Collection costs to Residential and Non-Residential Customers.
- Billing & Collection costs are allocated to Residential and Non-Residential customers based on the weighted number of billable accounts.
  - As with prior rate determinations, a cost weighting factor of 1.3 is assigned to calculate the billing & collection charges for non-residential accounts due to the additional time and effort needed to address billing issues and parcel data issues for non-residential class, as the charges are individually calculated for each parcel and the corresponding billing and collection unit costs.
  - The resulting monthly billing & collection unit cost by customer type are presented in Table 7-23.
- Determine “Adjusted Stormwater Cost of Service” by Customer Type after re-apportioning revenue reduction due to discounts to customer types. Table 7-24 illustrates the recovery of discounts.

The adjusted Stormwater COS determined for each retail customer type provides the basis for the design of the Stormwater Rates and Charges for the test year. Schedule BV-4: WP-2 provides additional information regarding the development of the stormwater units of service for the analysis conducted herein.

**Table 7-20 Test Year 1 Estimate of GA and IA Unit Costs Adjusted for CAP**

LINE NO.	DESCRIPTION	(1)	(2)	(3)
		GA	IA	TOTAL
		<b>20%</b>	<b>80%</b>	
1	Annual Cost of Service (\$ 1000) from GA & IA (Excluding CAP)	\$ 37,967	\$ 151,868	\$ 189,835
2	Stormwater Units of Service (500 Square Feet)	4,283,974	2,342,647	
3	System <b>Annual</b> Unit Cost (\$/500 Square Feet)	8.86	64.83	
4	System <b>Monthly</b> Unit Cost (\$/500 Square Feet)	\$ 0.739	\$ 5.402	

**Table 7-21 Test Year 1 Estimate of Customer Type GA and IA COS Adjusted for CAP**

LINE NO.	DESCRIPTION	(1)		(2)		(3)	
		GA	IA	GA	IA	TOTAL	
<b>Stormwater (\$000s)</b>							
<b>RESIDENTIAL</b>							
1	Residential Cost of Service (a)	\$ 17,251	\$ 71,499	\$ 88,750			
<b>NON-RESIDENTIAL</b>							
2	Initial Non-Residential Cost of Service (b)	20,716	80,369	101,085			
3	Adjustment for CAP (c)	200	800	1,000			
4	Adjusted Non-Residential Cost of Service	20,916	81,169	102,085			
5	Total GA & IA Cost of Service	\$ 38,167	\$ 152,668	\$ 190,835			

(a) Calculated as Residential GA and IA square footage times the GA and IA unit cost.  
 (b) Total GA and IA Cost of Service LESS Residential cost of service.  
 (c) To recover Non-residential CAP Loss from the Non-residential stormwater customer class.

**Table 7-22 Test Year 1 Estimate of Customer Type GA and IA COS Rates Prior to Discount and Lag Factor Adjustments**

Line No.	DESCRIPTION	(1) GA	(2) IA	(3) Total
<b>GA and IA Cost of Service Rates</b>				
1	Residential <b>Monthly</b> GA & IA Charge (a)	\$ 3.10	\$ 12.86	\$ 15.96
2	Non-Residential <b>Monthly</b> GA & IA Unit Cost (Adjusted for CAP)	0.746	5.456	
3	Impact of CAP on Non-Residential GA & IA Rate	\$ 0.007	\$ 0.054	

(a) Calculated based on Residential Mean GA (2,100 sf) and Mean IA (1,190 sf).

**Table 7-23 Test Year 1 Stormwater Billing and Collection Unit Costs**

LINE NO.	DESCRIPTION	UNITS	(1) TEST YEAR
1	Stormwater Billing & Collection Annual Revenue Requirements	\$	12,536,531
2	Monthly Billable Accounts: Residential	# Accounts	465,601
3	Non-Residential Cost Weighting Factor (a)		1.3
4	Weighted Monthly Billable Accounts: Non-Residential	# Accounts	107,812
5	Total Weighted Monthly Billable Accounts (Line 2+ Line 4)	# Accounts	573,413
6	Annual Billable Accounts: Residential (Line 2 x 12)	# Accounts	5,587,212
7	Weighted Annual Billable Accounts: Non-Residential (Line 4 x 12)	# Accounts	1,293,739
8	Total Weighted Annual Billable Accounts (Line 6 + Line 7)	# Accounts	6,880,951
9	Residential Billing & Collection Unit Cost per Billing Cycle	\$/Unit	1.82
10	Non-Residential Billing & Collection Unit Cost per Billing Cycle (Line 9 x Line 3)	\$/Unit	2.37

(a) A higher weighting factor is assigned to non-residential due to the additional time and effort needed to address billing issues and parcel data issues for non-residential class, as the charges are individually calculated for each parcel.

**Table 7-24 Test Year 1 Stormwater Adjusted Costs of Service After Discounts**

LINE NO.	CUSTOMER TYPE	(1)	(2)	(3)	(4)	(5)
		ALLOCATED COST OF SERVICE (a)	DISCOUNTS	ADJUSTED COST OF SERVICE WITH DISCOUNTS	RECOVERY OF DISCOUNTS ALL (b)	ADJUSTED COST OF SERVICE
<b>Stormwater (\$)</b>						
<b>Residential</b>						
1	Non-Discount	\$ 93,478,024	\$ -	\$ 93,478,024	\$ 1,851,459	\$ 95,329,483
2	Discount - Non-PHA	4,598,464	(1,149,616)	3,448,848	68,309	3,517,157
3	Discount - PHA	844,138	(42,207)	801,931	15,883	817,814
<b>Non-Residential</b>						
4	Non-Discount	88,935,983		88,935,983	1,761,498	90,697,481
5	Discount - Non-PHA	10,605,842	(2,651,460)	7,954,381	157,547	8,111,929
6	Discount - PHA	1,441,200	(72,060)	1,369,140	27,118	1,396,257
<b>Condominiums</b>						
7	Non-Discount	3,327,816		3,327,816	65,912	3,393,728
8	Discount - Non-PHA	137,583	(34,396)	103,187	2,044	105,231
9	Discount - PHA	1,002	(50)	952	19	971
10	<b>Total</b>	<b>\$ 203,370,052</b>	<b>\$ (3,949,789)</b>	<b>\$ 199,420,263</b>	<b>\$ 3,949,789</b>	<b>\$ 203,370,052</b>

Notes:

(a) Non-Residential Customer cost of service includes the cost of CAP.

(b) Reflects current policy of recovering discounts from all customer classes.

Table 7-25 and Table 7-26 compare the total adjusted COS for each customer type to their respective revenues under existing rates for sanitary sewer and stormwater, respectively. The indicated increase or decrease in the revenue required to meet the adjusted COS is shown in Column 3 of each table.

**Table 7-25 Test Year 1 Distribution of Sanitary Sewer COS to Customer Types**

LINE NO.	CUSTOMER TYPE	(1)	(2)	(3)
		REVENUE UNDER EXISTING RATES	ADJUSTED COST OF SERVICE	INDICATED INCREASE (DECREASE) REQUIRED
<b>Retail Service (\$000s)</b>				
1	Residential	142,578	153,943	8.0%
2	Commercial	60,458	66,132	9.4%
3	Industrial	2,199	2,346	6.7%
4	Public Utilities	438	480	9.7%
5	Senior Citizens	4,408	4,713	6.9%
6	Wastewater Only	4,687	5,614	19.8%
7	Groundwater	2,576	2,833	10.0%
8	Surcharge	6,286	7,109	13.1%
9	Housing Authority	5,496	6,018	9.5%
10	Charities & Schools	3,695	4,007	8.4%
11	Hospital/University	1,465	1,525	4.1%
12	Hand Billed	14,451	16,125	11.6%
13	Private Fire	3	4	6.2%
14	Scheduled	3	3	8.5%
<b>15</b>	<b>Total Retail Service</b>	<b>248,743</b>	<b>270,853</b>	<b>8.9%</b>
16	Total Wholesale	35,924	45,931	27.9%
<b>17</b>	<b>Total System</b>	<b>284,667</b>	<b>316,784</b>	<b>11.3%</b>

**Table 7-26 Test Year 1 Distribution of Stormwater COS to Customer Types**

LINE NO.	CUSTOMER TYPE	(1)	(2)	(3)
		REVENUE UNDER EXISTING RATES	ADJUSTED COST OF SERVICE	INDICATED INCREASE (DECREASE) REQUIRED
<b>Stormwater (\$000)</b>				
<b>Residential</b>				
1	Non-Discount	\$ 91,491	\$ 95,329	4.2%
2	Discount - Non-PHA	3,385	3,517	3.9%
3	Discount - PHA	782	818	4.6%
<b>Non-Residential</b>				
4	Non-Discount	83,922	90,697	8.1%
5	Discount - Non-PHA	7,736	8,112	4.9%
6	Discount - PHA	1,303	1,396	7.1%
<b>Condominiums</b>				
7	Non-Discount	3,248	3,394	4.5%
8	Discount - Non-PHA	102	105	3.6%
9	Discount - PHA	1	1	4.6%
10	Total	\$ 191,970	\$ 203,370	5.9%

## 8.0 Wastewater System Rate Design

The revenue requirement and COS analyses described in the preceding sections of this Report provide a basis for the review and update of a schedule of sanitary sewer and stormwater rates that recover allocated COS. These studies are the results of engineering estimates, consideration of historical data and, to some extent, judgment, and experience. Judgment must enter the final choice of rates, and factors such as public reaction to the extent of changes and adjustments, previous rate levels, contractual agreements, and past local practice are recognized in making rate adjustments.

Rates should be reasonably simple in application and subject to as few misinterpretations as possible. Considerations regarding the proposed rate adjustments reflect discussions with the Water Department staff and include the above considerations and the desire of the Water Department to maintain the existing structure for the Rate Period. This Report proposes sanitary sewer and stormwater user rates in accordance with these considerations.

The cost-of-service analysis described in the preceding section of this Report provides the basis for the design of sanitary sewer and stormwater rate schedules to cover the allocated cost for service for the Wastewater System.

The proposed charges for sanitary sewer service derived in this Report are applicable to General Service retail customers and recognize that certain retail customer types, including senior citizens, charities and schools, and the PHA, receive services at a discounted rate. Similarly, the proposed charges for stormwater derived in this Report are applicable to Retail Residential, Non-residential and Condominium stormwater customers and recognize these same discounts. The Water Department anticipates that the existing discounts (25% for senior citizens, charities and schools, and 5% for PHA) will continue to be applicable for the entire Study Period.

In designing the proposed rates, we adjust the wastewater costs of service determined for each customer type to reflect the fact that these customer types will not pay full COS. Accordingly, we increase the proposed retail sanitary sewer and stormwater rates to recover this cost-of-service revenue reduction due to discounts.

Similar to the situation for water rates, the cost-of-service wastewater rates that are designed for Test Year-1 requires the application of a lag factor. The lag factor is calculated to recover only the anticipated receipts of the prorated revenue increase projected for FY 2024, recognizing the normally expected historical payment patterns. A lag factor of 1.050 is applied to the FY 2024 sanitary sewer and stormwater COS rates.

### 8.1 Proposed Sanitary Sewer Rates

The proposed sanitary sewer rates are designed based on the unit costs of service developed for the cost-of-service analysis. Since the sanitary sewer quantity charges are based on the water consumption volume, the unit costs of service are adjusted to eliminate the return factor reflected in the cost-of-service analysis. Table 8-1 presents the Unit Costs of Service adjusted for the basis of rate design. Column 2 of Table 8-1 presents the Unit Costs of Service developed for the wastewater cost-of-service



analysis (Line 14 of Table 7-16). Columns 3 to 5 present the adjustment factors to account for discounts and billed water consumption. Column 6 presents the adjusted unit costs of service for rate design.

**Table 8-1 Test Year 1 Inside City Retail Service Unit COS for Rate Design**

LINE NO.	COST COMPONENT	(1) UNITS	(2) UNADJUSTED UNIT COST	(3) COS DEFICIT RECOVERY FACTOR	(4) BILLING UNITS CONVERSION FACTOR	(5) TOTAL ADJUSTMENT FACTOR	(6) ADJUSTED UNIT COST
<b>Inside City Retail Service</b>			\$/Unit				\$/Unit
<b>Collection System</b>							
<b>Pumping Station</b>							
1	Volume	Mcf	0.2707	1.0138	0.95	0.9631	0.2607
2	Capacity	Mcf/day	212.4254	1.0138	0.95	0.9631	204.5869
3	Sanitary Sewers - Capacity	Mcf/day	268.4554	1.0138	0.95	0.9631	258.5494
<b>WPC Plants</b>							
4	Volume	Mcf	2.2997	1.0138	0.95	0.9631	2.2148
5	Capacity	Mcf/day	245.7130	1.0138	0.95	0.9631	236.6462
6	Suspended Solids	1,000 lbs	323.0395	1.0138	1.00	1.0138	327.4974
7	BOD	1,000 lbs	317.2168	1.0138	1.00	1.0138	321.5944
<b>Customer Costs</b>							
8	Meter Costs	Eq. Meters	7.7797	1.0138	1.00	1.0138	7.8871
<b>Billing Costs</b>							
9	Sanitary	Eq. Bills	3.1895	1.0138	1.00	1.0138	3.2335
10	Industrial Waste Unit - Retail	Eq. Meters	6.0102	1.0138	1.00	1.0138	6.0931
11	Infiltration/Inflow - Customer Related	Eq. Meters	32.9387	1.0138	1.00	1.0138	33.3933
12	Infiltration/Inflow - Volume Related	Volume	19.2638	1.0138	0.95	0.9631	18.5530

Table 8-2 and Table 8-3 illustrate the development of the cost-of-service monthly service charge for customers with a 5/8-inch meter and the quantity charge for normal strength sanitary wastewater. Table 8-4 presents the proposed sanitary sewer rates for General Service customers applicable for Test Year 1 and Test Year 2. The proposed rates reflect a continuation of the existing rate structure, including a service charge which varies by meter size and a uniform quantity charge.

**Table 8-2 Test Year 1 Development of Cost-of-Service Monthly Service Charge for 5/8-inch Meter Customer**

LINE NO.	COST COMPONENT	(1) UNITS	(2) ADJUSTED UNIT COST (\$/unit)	(3) NUMBER OF UNITS	(4) TOTAL COST (\$)
<b>Sanitary Sewer</b>					
<b>Customer Costs</b>					
1	Meter Costs	Eq. Meter	0.6573	1.0	\$ 0.6573
2	Billing Costs	Eq. Bills	3.2335	1.0	3.2335
3	Industrial Waste Unit	Eq. Meter	0.5078	1.0	0.5078
4	Infiltration/Inflow Costs - Sanitary	Eq. Meter	2.7828	1.0	2.7828
<b>5</b>	<b>Total Service Charge (a)</b>				<b>7.1814</b>
<b>6</b>	<b>Total Service Charge - Rounded (a)</b>				<b>\$ 7.18</b>

(a) Prior to lag factor.

**Table 8-3 Test Year 1 Development of Cost-of-Service Quantity Charge for Normal Strength Sanitary Wastewater**

LINE NO.	COST COMPONENT	(1) UNITS	(2) ADJUSTED UNIT COST (\$/unit)	(3) NUMBER OF UNITS	(4) TOTAL COST (\$)
<b>Sanitary Sewer</b>					
<b>Collection System</b>					
Pumping Stations					
1	Volume	Mcf	0.2607	1.0000	\$ 0.2607
2	Capacity (a)	Mcf/day/mo.	17.0489	0.0493	0.8405
3	Sanitary Sewers: Capacity (b)	Mcf/day/mo.	21.5458	0.1316	2.8354
<b>Water Pollution Control Plants</b>					
4	Volume	Mcf	2.2148	1.0000	2.2148
5	Capacity (a)	Mcf/day/mo.	19.7205	0.0493	0.9722
6	Suspended Solids (c)	1,000 lbs	327.4974	0.0187	6.1242
7	BOD (d)	1,000 lbs	321.5944	0.0184	5.9173
<b>8</b>	<b>Total Cost per Mcf</b>				<b>19.1651</b>
9	Infiltration/Inflow Cost	Mcf	18.5530	1.0000	18.5530
<b>10</b>	<b>Total Cost + Infiltration/Inflow per Mcf (e)</b>				<b>37.7181</b>
<b>11</b>	<b>Total Cost per Mcf - Rounded (e)</b>				<b>\$ 37.72</b>

- (a) (1.0 Mcf \* 1 month/30.4 days) \* 1.5
- (b) (1.0 Mcf \* 1 month/30.4 days) \* 4.0
- (c) 1.0 Mcf @ 300 mg/l
- (d) 1.0 Mcf @ 295 mg/l
- (e) Prior to lag factor.

*[This spacing is intentional]*

**Table 8-4 Proposed Test Year 1 (FY 2024) and Test Year 2 (FY 2025) General Service Sanitary Sewer Rates [Schedule BV-1: Table C-12]**

LINE NO.	METER SIZE (inches)	(1)	(2)
		FY 2024 MONTHLY CHARGE	FY 2025 MONTHLY CHARGE
<b>METER BASED SERVICE CHARGE (\$/month)</b>			
1	5/8	7.54	7.98
2	3/4	9.62	10.19
3	1	14.10	15.00
4	1 1/2	24.80	26.47
5	2	38.25	40.87
6	3	68.97	73.78
7	4	117.21	125.31
8	6	231.03	247.10
9	8	365.58	391.12
10	10	527.64	564.44
11	12	959.14	1,026.89
LINE NO.	DESCRIPTION	FY 2024 CHARGE	FY 2025 CHARGE
<b>QUANTITY CHARGE (\$/Mcf)</b>			
12	All billable water usage	39.61	43.09
13	Groundwater Charge	13.87	15.27
<b>SURCHARGE RATES (\$/lb)</b>			
14	BOD (excess of 250 mg/l)	0.443	0.470
15	SS (excess of 350 mg/l)	0.452	0.482
<b>SEPTIC HAULER RATES (\$/1,000 gallons)</b>			
16	Sanitary Wastewater Delivered to WPCP (a)	64.94	69.07

Notes: (a) Based on BOD and SS Loading of 9,000 mg/l.

## 8.2 Proposed Stormwater Rates

Table 8-5 illustrates the development of the Test Year 1 proposed rates for stormwater service. The proposed rates include recovery of provided discounts and application of the lag factor based upon the adjusted COS presented in Table 7-24.

Table 8-6 and Table 8-7 summarize the FY 2024 and FY 2025 proposed stormwater rates for residential and non-residential customers respectively.

**Table 8-5 Development of Test Year 1 Stormwater COS Rates**

LINE NO.	SERVICE TYPE	(1)	(2)	(3)	(4)	(5)
		COST OF SERVICE RATE	DISCOUNT RECOVERY FACTOR	COST OF SERVICE RATE	LAG FACTOR ADJUSTMENT	PROPOSED RATE
<b>Stormwater (\$)</b>						
<b>Billing &amp; Collection Charge</b>						
1	Residential	\$ 1.82	1.020	\$ 1.86	1.050	\$ 1.95
2	Non-Residential	2.37	1.020	2.41	1.050	2.53
3	Condominiums	2.37	1.020	2.41	1.050	2.53
<b>IA/GA Charge</b>						
4	Residential	15.96	1.020	16.28	1.050	17.09
	Non-Residential					
5	IA Charge	5.456	1.020	5.564	1.050	5.842
6	GA Charge	0.746	1.020	0.761	1.050	0.799
	Condominiums					
7	IA Charge	5.456	1.020	5.564	1.050	5.842
8	GA Charge	\$ 0.746	1.020	\$ 0.761	1.050	\$ 0.799

Notes: Non-Residential and Condominium have the same Billing & Collection and GA/IA rate

**Table 8-6 Proposed Test Year 1 (FY 2024) and Test Year 2 (FY 2025) Residential Stormwater Rates [Schedule BV-1: Table C-13]**

LINE NO.	DESCRIPTION	(1)	(2)
		FY 2024 MONTHLY CHARGE	FY 2025 MONTHLY CHARGE
<b>Residential Stormwater Service</b>			
<b>Stormwater Mangement Service Charge (\$/month/parcel)</b>			
1	Charge Per Parcel	\$ 17.09	\$ 18.96
<b>Billing and Collection Charge (\$/bill)</b>			
2	Charge Per Bill	\$ 1.95	\$ 2.04

**Table 8-7 Proposed Test Year 1 (FY 2024) and Test Year 2 (FY 2025) Non-Residential Stormwater Rates [Schedule BV-1: Table C-13]**

LINE NO.	DESCRIPTION	(1)	(2)
		FY 2024 MONTHLY CHARGE	FY 2025 MONTHLY CHARGE
<b>Non-Residential Stormwater Service</b>			
<b>Stormwater Mangement Service Charge</b>			
1	Min Charge	\$ 17.09	\$ 18.96
2	GA (per 500 sf)	\$0.799	\$0.884
3	IA (per 500 sf)	\$5.842	\$6.475
<b>Billing and Collection Charge (\$/bill)</b>			
4	Charge Per Bill	\$2.53	\$ 2.65

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## 9.0 Findings and Conclusions

The data assessed in this Report clearly show that the Water Department's cost have been impacted by recent inflationary pressures and associated rising costs. The need for continued investment into the system to upgrade aging infrastructure, meet regulatory requirements, and providing the resources necessary to maintain the system also require additional revenues to meet the Water Department's mission. The majority of cost increases the Water Department is facing are unavoidable and involve non-discretionary spending critical to the operation and maintenance of the system. Pending changes in the Water Department's customer base put pressure on revenues along with shifting collection patterns. The combination of the above, require revenue adjustments to continue critical operations, continue to serve customers as well as meet General Bond Ordinance requirements.

Based on the analyses performed for this Report, the following findings are presented for the Rate Board's consideration:

1. Revenues under existing rates will be insufficient to fund the Combined System needs over the Rate Period and action is needed to offset anticipated reductions in revenues resulting from:
  - a. Reduction of billed water usage by Vicinity, one of the Water Department's consistent Top Ten Customers.
  - b. Changes in wholesale wastewater allocations based on updated H&H modeling; and
  - c. Shifts in system-wide collection rates.
2. In addition, the total projected expenses will exceed revenues under existing rates during the Rate Period and will require additional service revenues as recommended in this Report.
3. The Water Department is embarking on a CIP that is budgeted to invest \$4.53 Billion into the combined system between now and FY 2028. While the Water Department has made significant efforts to obtain the lowest cost financing possible (via WIFIA and PENNVEST loans), revenue bonds will still be the primary funding source for the CIP along with some cash funding. The Department needs additional revenues to adhere to the City's capital funding policy, as well as meet ongoing capital obligations and debt covenant requirements.
4. To help manage customer bill impacts, and meet the financial obligations and metrics of the Combined System the Water Department proposes the following for the Rate Period:
  - a. Temporarily reduce the SMIP/GARP budget by \$5 Million/year in FY 2024 and FY 2025.
  - b. Setting rates to meet the interim senior debt service coverage requirement of 1.25x, instead of the target 1.30 set forth under the 2018 Rate Determination.
  - c. Leaving the Rate Stabilization Fund slightly below the \$135 Million target under the 2018 Rate Determination; and
  - d. Deferring the 20% cash funding target for capital projects.

5. The Rate Stabilization Fund is projected to be below the target level during the Rate Period. As the Rate Stabilization Fund target was established in 2018, the Water Department may need to consider proposing an increase in the target level in the future, to recognize the Department's current level of operating expense and provide necessary reserve funding capacity in the event of an emergency.
6. Need for rate action is further illustrated by the Water Department's performance against the financial metrics and targets, if projections hold and rate relief is not granted:
  - a. "90% Test" – Would not be met beginning in FY 2024
  - b. Senior Debt Service Coverage – Would not be met in FY 2025
  - c. The Rate Stabilization Fund would be depleted by the end of FY 2025.
7. Moving forward, lack of sufficient rate revenues may require the Water Department to reduce the existing level of service below current levels and further delay implementation of the capital improvement program. In both instances, this may lead to a lower overall level of service for customers as well as impact overall system performance and potentially jeopardize compliance efforts.
8. Based on the above, among other factors, explained herein, it is recommended that the proposed water, sanitary sewer and stormwater rates for FY 2024 and FY 2025 be adopted to become effective September 1st of each fiscal year.

# Appendices



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**Appendix A: Accounts and Billed Volume per Account**

## Number of Accounts and Account Growth

Customer Type	Average Annual Growth			Historical Number of Accounts			
	1 Year	2 Year	3 Year	FY 2019	FY 2020	FY 2021	FY 2022
<b>Senior Citizens (Special Customer Group II)</b>							
5/8" Meter	-0.73%	-1.52%	-2.04%	23,460	22,738	22,215	22,052
> 5/8" Meter	37.50%	17.26%	6.92%	9	8	8	11
<b>General Service (Residential)</b>							
5/8" Meter	0.50%	1.30%	0.73%	413,482	411,877	420,516	422,630
> 5/8" Meter	14.41%	12.83%	12.18%	8,885	9,851	10,962	12,542
<b>General Service (Commercial)</b>							
5/8" Meter	-0.16%	0.40%	-0.14%	28,142	27,807	28,074	28,028
> 5/8" Meter	6.02%	5.55%	4.18%	8,605	8,732	9,177	9,729
<b>General Service (Industrial)</b>							
5/8" Meter	-1.57%	-0.50%	-0.85%	514	506	509	501
> 5/8" Meter	2.39%	0.73%	0.36%	550	548	543	556
<b>General Service (Public Utilities)</b>							
5/8" Meter	5.33%	4.75%	2.20%	74	72	75	79
> 5/8" Meter	12.26%	8.55%	6.33%	99	101	106	119
<b>General Service (Excluding Senior Citizens)</b>							
5/8" Meter	0.46%	1.24%	0.68%	442,212	440,262	449,174	451,238
> 5/8" Meter	10.38%	9.23%	8.15%	18,139	19,232	20,788	22,946
<b>General Service (Including Senior Citizens)</b>							
5/8" Meter	0.40%	1.11%	0.54%	465,672	463,000	471,389	473,290
> 5/8" Meter	10.39%	9.23%	8.15%	18,148	19,240	20,796	22,957
<b>PHA (Special Customer Group IV)</b>							
Charities & Schools (Special Customer Group I)	-1.29%	-2.90%	-5.35%	2,163	1,945	1,858	1,834
Hospital/University (Special Customer Group III)	-1.43%	-31.25%	-30.21%	406	292	140	138
Hand Billed	0.87%	-0.21%	-1.26%	241	233	230	232
Scheduled	20.00%	41.42%	25.99%	3	3	5	6
Fire Service	16.67%	10.43%	7.28%	5,538	5,606	5,860	6,837
<b>TOTAL</b>	<b>0.98%</b>	<b>1.49%</b>	<b>0.86%</b>	<b>498,048</b>	<b>496,034</b>	<b>505,996</b>	<b>510,960</b>

## Annual Billed Volume Per Account (Mcf/Account)

Customer Type	Average Annual Growth			Historical Usage Per Account			
	1 Year	2 Year	3 Year	FY 2019	FY 2020	FY 2021	FY 2022
<b>Senior Citizens (Special Customer Group II)</b>							
5/8" Meter	-1.75%	-0.79%	0.48%	5.54	5.71	5.72	5.62
> 5/8" Meter	-37.25%	-6.45%	6.72%	5.71	7.93	11.06	6.94
<b>General Service (Residential)</b>							
5/8" Meter	-1.72%	-1.02%	-0.68%	6.42	6.42	6.40	6.29
> 5/8" Meter	-11.20%	-7.91%	-7.90%	40.30	37.12	35.45	31.48
<b>General Service (Commercial)</b>							
5/8" Meter	4.02%	1.63%	-0.60%	10.55	10.03	9.96	10.36
> 5/8" Meter	2.60%	-3.06%	-1.25%	146.62	150.22	137.59	141.17
<b>General Service (Industrial)</b>							
5/8" Meter	6.65%	-4.35%	-0.88%	13.01	13.85	11.88	12.67
> 5/8" Meter	1.62%	-6.68%	-18.27%	269.34	168.84	144.69	147.03
<b>General Service (Public Utilities)</b>							
5/8" Meter	7.28%	-12.18%	-14.34%	8.39	6.83	4.91	5.27
> 5/8" Meter	-5.66%	-5.71%	-1.88%	83.92	89.16	84.02	79.27
<b>General Service (Excluding Senior Citizens)</b>							
5/8" Meter	-1.21%	-0.83%	-0.70%	6.69	6.66	6.63	6.55
> 5/8" Meter	-3.12%	-6.41%	-6.12%	97.92	92.50	83.64	81.03
<b>General Service (Including Senior Citizens)</b>							
5/8" Meter	-1.21%	-0.76%	-0.66%	6.64	6.61	6.59	6.51
> 5/8" Meter	-3.12%	-6.40%	-6.11%	97.88	92.46	83.61	81.00
<b>PHA (Special Customer Group IV)</b>							
Charities & Schools (Special Customer Group I)	23.04%	3.20%	0.95%	72.89	70.40	60.94	74.98
Hospital/University (Special Customer Group III)	12.93%	-1.63%	2.32%	705.56	781.00	669.24	755.76
Hand Billed	0.93%	0.74%	5.49%	1,778.52	2,057.24	2,068.80	2,087.95
Scheduled	-30.26%	-33.54%	8.32%	4.17	12.00	7.60	5.30
Fire Service	-98.25%	-86.75%	-73.03%	1.53	1.71	1.71	0.03

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**Appendix B: Stormwater Credit Historical Data**

CREDITS FOR NON SURFACE DISCHARGE ELIGIBLE PROPERTIES																	
Line #	Fiscal Year Ending June 30,	Number of Parcels	Gross Area	Impervious Area	Total Gross Credit	Total Impervious Credit	Open Space GA Credit	IA Managed Credit	GA Managed Credit	IA NPDES Credit	GA NPDES Credit	Parcel Growth/Change	Open Space GA Credit (Per Parcel)	IA Managed Credit (Avg Per parcel)	GA Managed Credit (Avg per parcel)	IA NPDES Credit (Avg per parcel)	GA NPDES Credit (Avg per parcel)
1	2013	604	223,367,443	61,793,808	84,520,414	17,965,807	67,429,822	11,563,893	10,305,605	-	-	-	111,639	19,146	17,062	-	-
2	2014	653	257,321,475	76,969,015	94,009,369	20,633,398	55,499,304	12,668,858	11,410,570	-	-	49	84,991	19,401	17,474	-	-
3	2015	670	264,384,894	83,734,431	100,305,627	25,029,525	54,712,505	13,777,050	12,373,766	-	-	17	81,660	20,563	18,468	-	-
4	2016	695	308,606,388	110,633,550	119,638,164	33,170,833	60,658,419	16,434,037	15,025,143	-	-	25	87,278	23,646	21,619	-	-
5	2017	767	348,805,332	118,146,821	138,022,843	33,920,101	72,445,173	15,539,131	14,141,507	-	-	72	94,453	20,260	18,437	-	-
6	2018	823	314,434,590	113,476,770	144,822,988	39,742,752	72,337,150	19,141,871	17,744,247	-	-	56	87,894	23,259	21,560	-	-
7	2019	782	310,134,440	115,126,357	149,679,885	41,344,307	62,542,914	16,212,413	15,425,254	-	-	(41)	79,978	20,732	19,725	-	-
8	2020	813	322,039,967	120,201,957	160,913,257	45,539,961	59,748,724	19,565,431	19,223,758	-	-	31	73,492	24,066	23,645	-	-
9	2021	881	305,691,545	120,195,540	150,962,635	47,627,283	57,891,589	22,690,285	22,031,291	-	-	68	65,711	25,755	25,007	-	-
10	2022	906	347,944,545	132,702,256	188,575,144	54,098,147	56,231,742	22,534,000	21,612,322	-	-	25	62,066	24,872	23,855	-	-
11	5-Yr Average	841	320,049,017	120,340,576	158,990,782	45,670,490	61,750,424	20,028,800	19,207,374	-	-	28	73,828	23,737	22,759	-	-
CREDITS FOR SURFACE DISCHARGE ELIGIBLE PROPERTIES																	
Line #	Fiscal Year Ending June 30,	Number of Parcels	Gross Area	Impervious Area	Total Gross Credit	Total Impervious Credit	Open Space GA Credit	IA Managed Credit	GA Managed Credit	IA NPDES Credit	GA NPDES Credit	Parcel Growth/Change	Open Space GA Credit (Per Parcel)	IA Managed Credit (Avg Per parcel)	GA Managed Credit (Avg per parcel)	IA NPDES Credit (Avg per parcel)	GA NPDES Credit (Avg per parcel)
12	2013	152	220,024,320	79,752,423	129,107,867	47,612,306	80,471,840	43,703,240	43,717,412	1,500,062	2,575,193	-	529,420	287,521	287,615	9,869	16,942
13	2014	212	272,919,261	91,624,837	170,699,769	53,693,207	114,259,551	49,493,761	49,668,409	1,580,879	2,681,653	60	538,960	233,461	234,285	7,457	12,649
14	2015	246	283,413,656	98,224,301	176,930,329	60,226,500	122,127,335	55,736,478	47,311,404	1,524,473	2,590,089	34	496,453	226,571	192,323	6,197	10,529
15	2016	273	253,507,206	84,881,856	192,946,835	61,024,331	127,568,199	58,166,690	58,101,140	250,387	428,721	27	467,283	213,065	212,825	917	1,570
16	2017	312	289,520,162	88,550,428	223,008,811	63,952,942	151,024,452	61,284,210	61,338,258	242,176	423,291	39	484,053	196,424	196,597	776	1,357
17	2018	318	331,071,935	98,430,878	227,585,196	66,195,369	149,779,130	62,881,606	62,901,801	726,596	3,097,451	6	471,004	197,741	197,804	2,285	9,740
18	2019	308	340,151,826	95,665,431	241,876,061	65,118,503	165,977,231	62,023,047	62,089,933	621,466	2,942,661	(10)	538,887	201,374	201,591	2,018	9,554
19	2020	312	330,347,932	93,855,746	236,698,310	64,145,133	161,182,489	60,896,113	61,152,874	531,051	2,759,029	4	516,611	195,180	196,003	1,702	8,843
20	2021	313	316,186,603	99,071,024	220,700,957	66,765,983	100,873,887	63,039,153	63,232,852	531,051	2,759,029	1	322,281	201,403	202,022	1,697	8,815
21	2022	315	330,769,306	117,900,742	247,940,370	72,828,442	91,530,154	69,639,017	69,547,325	17,490	45,949	2	290,572	221,076	220,785	56	146
22	5-Yr Average	313	329,705,520	100,984,764	234,960,179	67,010,686	133,868,578	63,695,787	63,784,957	485,531	2,320,824	1	427,871	203,355	203,641	1,551	7,420
CREDITS FOR PROPERTIES RECEIVING SMIP/GARP GRANTS																	
Line #	Fiscal Year Ending June 30,	Number of Parcels	Gross Area	Impervious Area	Total Gross Credit	Total Impervious Credit	Open Space GA Credit	IA Managed Credit	GA Managed Credit	IA NPDES Credit	GA NPDES Credit	Parcel Growth/Change	Open Space GA Credit (Per Parcel)	IA Managed Credit (Avg Per parcel)	GA Managed Credit (Avg per parcel)	IA NPDES Credit (Avg per parcel)	GA NPDES Credit (Avg per parcel)
23	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
24	2014	1	55,200	31,107	23,176	8,721	14,455	8,721	8,721	-	-	1	14,455	8,721	8,721	-	-
25	2015	10	6,634,034	4,522,112	2,564,644	3,813,527	1,070,554	3,778,379	1,494,090	-	-	9	107,055	377,838	149,409	-	-
26	2016	26	12,539,266	7,907,711	5,346,848	5,709,958	2,128,113	5,600,316	3,326,415	-	-	16	81,851	215,397	127,939	-	-
27	2017	50	23,040,962	13,228,000	11,342,572	9,138,988	4,724,492	8,848,391	6,516,302	-	-	24	94,490	176,968	130,326	-	-
28	2018	59	24,855,602	14,444,874	12,497,771	10,178,890	4,925,563	9,904,203	7,572,208	-	-	9	83,484	167,868	128,343	-	-
29	2019	106	35,717,801	21,226,658	19,007,315	15,138,098	6,531,348	14,759,336	12,476,267	-	-	47	61,616	139,239	117,701	-	-
30	2020	121	41,782,758	21,669,430	22,855,597	15,906,007	9,727,821	15,465,284	13,126,719	-	-	15	80,395	127,812	108,485	-	-
31	2021	133	52,164,844	28,064,938	26,831,310	17,189,958	12,412,895	16,394,454	14,450,023	-	-	12	93,330	123,267	108,647	-	-
32	2022	146	72,748,178	31,830,481	44,114,613	20,341,474	26,479,161	19,593,123	17,667,060	-	-	13	181,364	134,199	121,007	-	-
33	5-Yr Average	113	45,453,837	23,447,276	25,061,321	15,750,885	12,015,358	15,223,280	13,058,455	-	-	19	100,038	138,477	116,836	-	-

Note: The above tables summarize the historical IA, GA, and NPDES credits granted to parcels meeting eligibility requirements for Non-Surface and Surface Discharge as described under PWD Rates and Charges Section 4.5(c); Non-Surface are properties not eligible under surface discharge requirements. Credits resulting from properties that have received the award of SMIP/GARP grants are listed separately. Historical growth in the number of parcels receiving credit and average credit per parcel are not utilized in developing for SMIP/GARP projections. SMIP/GARP Projections are based upon program budget, average grant award amount per drainage acre, and estimated completion timeline.

**Appendix C: Historical Retail Non-Stormwater Only and Stormwater Only Collection Factor Calculations Prior to Adjustments**



Non-Stormwater Only Customers	Collection Factors		
	Billing Year (Payments within 12 months)	Billing Year Plus 1 (Payments w/in 13-24 months)	Billing Year Plus 2 and Beyond (Payment after 24 months)
FY 2012	84.82%	9.54%	2.85%
FY 2013	84.93%	9.70%	2.87%
FY 2014	85.28%	9.52%	2.66%
FY 2015	86.42%	8.97%	2.38%
FY 2016	87.09%	8.89%	2.07%
FY 2017	87.69%	8.64%	1.85%
FY 2018	87.12%	9.20%	1.56%
FY 2019	87.09%	9.82%	1.03%
FY 2020	85.02%	10.56%	1.08%
FY 2021	84.82%	10.49%	
FY 2022	84.13%		
<b>Average</b>	<b>85.85%</b>	<b>9.53%</b>	<b>2.04%</b>

Stormwater Only Customers	Collection Factors		
	Billing Year (Payments within 12 months)	Billing Year Plus 1 (Payments w/in 13-24 months)	Billing Year Plus 2 and Beyond (Payment after 24 months)
FY 2012	59.28%	9.15%	9.83%
FY 2013	60.91%	7.39%	9.55%
FY 2014	58.38%	6.63%	10.00%
FY 2015	59.04%	8.55%	8.65%
FY 2016	63.44%	8.94%	7.90%
FY 2017	65.90%	8.76%	5.98%
FY 2018	66.58%	8.90%	4.64%
FY 2019	68.27%	9.78%	4.06%
FY 2020	69.15%	11.32%	4.44%
FY 2021	66.40%	10.52%	
FY 2022	68.90%		
<b>Average</b>	<b>64.20%</b>	<b>8.99%</b>	<b>7.23%</b>

Source: Schedule RFC-7

**Appendix D: Actual-to-Budget Factors**

	Factor Used	Historical Average			Actual to Budget Factor			Actual O&M Expense			Budgeted O&M Expense			
		2 Year	3 Year	5 Year	2022	2021	2020	2022	2021	2020	2022	2021	2020	
<b>Human Resources and Administration</b>														
Salaries & Wages	100	96.23%	94.45%	96.23%	94.48%	95.52%	93.34%	99.99%	\$ 9,951,298	\$ 9,370,164	\$ 9,673,937	\$ 10,418,185	\$ 10,039,053	\$ 9,675,002
Services	200	65.49%	60.75%	65.49%	64.06%	59.62%	61.88%	81.61%	\$ 3,126,084	\$ 3,241,468	\$ 2,516,056	\$ 5,243,000	\$ 5,238,000	\$ 3,083,000
Materials and Supplies	300	61.21%	56.88%	61.21%	67.71%	57.53%	56.23%	73.55%	\$ 705,328	\$ 687,442	\$ 631,090	\$ 1,226,000	\$ 1,222,500	\$ 858,000
Equipment	400	39.64%	38.74%	39.64%	46.09%	28.80%	49.02%	51.18%	\$ 201,305	\$ 331,348	\$ 55,271	\$ 699,000	\$ 676,000	\$ 108,000
Indemnities	500	0.00%		0.00%	0.00%			0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 100,000
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal Human Resources and Administration</b>			79.44%	83.34%	81.87%	79.52%	79.36%	93.14%	\$ 13,984,015	\$ 13,630,422	\$ 12,876,354	\$ 17,586,185	\$ 17,175,553	\$ 13,824,002
<b>Finance</b>														
Salaries & Wages	100	81.91%	71.55%	81.91%	80.78%	72.05%	71.03%	116.72%	\$ 5,784,838	\$ 5,450,152	\$ 5,456,616	\$ 8,029,177	\$ 7,672,958	\$ 4,675,000
Services	200	100.00%	116.15%	108.27%	101.35%	112.21%	120.04%	92.91%	\$ 8,568,116	\$ 9,271,497	\$ 7,312,002	\$ 7,635,974	\$ 7,723,500	\$ 7,870,000
SMIP/GARP	2xx	100.00%	130.14%	118.55%	110.31%	80.50%	212.88%	100.00%	\$ 20,125,000	\$ 31,932,618	\$ 25,000,000	\$ 25,000,000	\$ 15,000,000	\$ 25,000,000
Materials and Supplies	300	33.22%	49.71%	33.22%	46.33%	1.26%	98.16%	5.09%	\$ 733	\$ 56,931	\$ 3,459	\$ 58,000	\$ 58,000	\$ 68,000
Equipment	400	12.20%	0.00%	12.20%	33.66%	0.00%	0.00%	34.28%	\$ -	\$ -	\$ 14,398	\$ 38,000	\$ 38,000	\$ 42,000
Indemnities	500	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	\$ -	\$ -	\$ -	\$ 10,000	\$ 10,000	\$ 10,000
Transfers	800	79.12%	72.73%	61.08%	64.75%	84.28%	65.32%	40.21%	\$ 6,489,730	\$ 7,838,707	\$ 4,423,296	\$ 7,700,000	\$ 12,000,000	\$ 11,000,000
<b>Subtotal Finance</b>			105.00%	98.63%	95.06%	84.52%	128.35%	86.74%	\$ 40,968,417	\$ 54,549,905	\$ 42,209,771	\$ 48,471,151	\$ 42,502,458	\$ 48,665,000
<b>Construction and Engineering</b>														
Salaries & Wages	100	93.55%	87.21%	93.55%	90.25%	86.11%	88.60%	113.40%	\$ 5,587,116	\$ 4,576,001	\$ 4,214,474	\$ 6,488,450	\$ 5,164,544	\$ 3,716,360
Services	200	76.46%	73.39%	76.46%	80.46%	69.87%	77.27%	85.07%	\$ 1,232,124	\$ 1,240,537	\$ 1,021,702	\$ 1,763,500	\$ 1,605,500	\$ 1,201,000
Materials and Supplies	300	35.17%	24.76%	35.17%	38.18%	25.18%	24.32%	53.04%	\$ 25,933	\$ 23,587	\$ 61,791	\$ 103,000	\$ 97,000	\$ 116,500
Equipment	400	29.97%	0.16%	29.97%	22.90%	0.00%	0.32%	82.24%	\$ -	\$ 660	\$ 193,259	\$ 206,000	\$ 206,000	\$ 235,000
Indemnities	500	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal Construction and Engineering</b>			81.14%	86.96%	84.50%	79.96%	82.58%	104.22%	\$ 6,845,173	\$ 5,840,785	\$ 5,491,226	\$ 8,560,950	\$ 7,073,044	\$ 5,268,860

**Note:** Spend factors using 3-year average highlighted yellow and exceptions are highlighted in blue.

	Factor Used	Historical Average			Actual to Budget Factor			Actual O&M Expense			Budgeted O&M Expense			
		2 Year	3 Year	5 Year	2022	2021	2020	2022	2021	2020	2022	2021	2020	
<b>Operations</b>														
Salaries & Wages	100	94.47%	92.76%	94.47%	95.20%	94.96%	90.52%	98.10%	\$ 88,799,038	\$ 82,941,746	\$ 85,482,469	\$ 93,513,321	\$ 91,633,042	\$ 87,136,263
Services	200	84.89%	85.30%	84.89%	88.75%	90.05%	80.67%	84.00%	\$ 88,611,437	\$ 81,249,860	\$ 77,776,273	\$ 98,407,422	\$ 100,715,250	\$ 92,595,300
Power	220	82.77%	81.08%	82.77%	81.65%	78.91%	83.25%	86.44%	\$ 14,915,470	\$ 15,737,655	\$ 15,046,774	\$ 18,903,000	\$ 18,903,000	\$ 17,408,000
Gas	221	80.49%	78.39%	80.49%	82.32%	81.11%	75.53%	85.20%	\$ 4,363,923	\$ 3,870,000	\$ 3,991,800	\$ 5,380,200	\$ 5,124,000	\$ 4,685,000
Materials and Supplies	300	77.58%	74.65%	77.58%	79.55%	72.90%	76.53%	83.58%	\$ 16,067,708	\$ 15,618,059	\$ 17,381,434	\$ 22,040,500	\$ 20,408,000	\$ 20,796,766
Chemicals	307	100.00%	101.60%	100.46%	99.35%	112.11%	91.10%	97.90%	\$ 29,339,822	\$ 23,842,156	\$ 22,886,203	\$ 26,171,000	\$ 26,171,000	\$ 23,378,000
Equipment	400	66.50%	62.38%	66.50%	69.80%	58.61%	78.72%	74.04%	\$ 6,010,373	\$ 1,860,257	\$ 5,098,204	\$ 10,254,500	\$ 2,363,000	\$ 6,885,434
Indemnities	500	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal Operations</b>			87.64%	88.40%	90.22%	90.33%	84.85%	90.03%	\$ 248,107,771	\$ 225,119,733	\$ 227,663,158	\$ 274,669,943	\$ 265,317,292	\$ 252,884,763
<b>Planning &amp; Environmental Services</b>														
Salaries & Wages	100	95.50%	93.58%	95.50%	95.83%	91.40%	96.20%	100.00%	\$ 19,744,663	\$ 17,273,380	\$ 16,906,060	\$ 21,602,592	\$ 17,955,633	\$ 16,906,740
Services	200	95.53%	95.13%	95.53%	95.82%	91.63%	98.75%	96.24%	\$ 15,260,309	\$ 15,957,673	\$ 17,460,836	\$ 16,654,600	\$ 16,160,000	\$ 18,142,850
Materials and Supplies	300	86.84%	85.03%	86.84%	86.60%	83.26%	86.95%	90.85%	\$ 1,477,792	\$ 1,425,909	\$ 1,405,580	\$ 1,775,000	\$ 1,640,000	\$ 1,547,200
Equipment	400	87.50%	89.31%	87.50%	74.94%	88.18%	90.49%	82.73%	\$ 479,539	\$ 470,365	\$ 333,419	\$ 543,800	\$ 519,800	\$ 403,000
Indemnities	500	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal Planning &amp; Environmental Services</b>			93.80%	95.03%	95.05%	91.09%	96.84%	97.58%	\$ 36,962,303	\$ 35,127,327	\$ 36,105,895	\$ 40,575,992	\$ 36,275,433	\$ 36,999,790
<b>Public Affairs</b>														
Salaries & Wages	100	96.25%	94.58%	96.25%	94.61%	91.86%	97.56%	99.99%	\$ 5,644,716	\$ 5,464,005	\$ 5,244,307	\$ 6,145,116	\$ 5,600,810	\$ 5,245,060
Services	200	98.42%	98.62%	98.42%	98.77%	98.98%	98.24%	98.11%	\$ 6,257,065	\$ 5,949,469	\$ 7,662,337	\$ 6,321,527	\$ 6,056,000	\$ 7,810,000
Materials and Supplies	300	58.49%	46.43%	58.49%	65.88%	46.42%	46.43%	93.49%	\$ 258,576	\$ 258,613	\$ 359,005	\$ 557,000	\$ 557,000	\$ 384,000
Equipment	400	56.68%	100.28%	56.68%	36.33%	99.06%	101.50%	7.62%	\$ 8,915	\$ 9,135	\$ 1,220	\$ 9,000	\$ 9,000	\$ 16,000
Indemnities	500	99.67%	100.00%	99.67%	97.43%	100.00%	100.00%	99.01%	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 505,000
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal Public Affairs</b>			94.65%	96.03%	95.82%	93.62%	95.74%	98.62%	\$ 12,669,272	\$ 12,181,222	\$ 13,766,869	\$ 13,532,643	\$ 12,722,810	\$ 13,960,060

**Note:** Spend factors using 3-year average highlighted yellow and exceptions are highlighted in blue.

	Factor Used	Historical Average			Actual to Budget Factor			Actual O&M Expense			Budgeted O&M Expense			
		2 Year	3 Year	5 Year	2022	2021	2020	2022	2021	2020	2022	2021	2020	
<b>Division of Technology</b>														
Salaries & Wages	100	80.22%	80.83%	80.22%	81.40%	81.33%	80.29%	78.96%	\$ 7,538,568	\$ 7,019,427	\$ 6,869,622	\$ 9,268,937	\$ 8,742,629	\$ 8,700,632
Services	200	73.81%	72.98%	73.81%	73.37%	72.04%	73.96%	75.56%	\$ 15,557,123	\$ 15,310,229	\$ 15,123,111	\$ 21,594,698	\$ 20,700,879	\$ 20,015,542
Materials and Supplies	300	70.57%	69.75%	70.57%	70.11%	77.81%	63.51%	71.96%	\$ 1,233,200	\$ 1,301,139	\$ 1,535,616	\$ 1,584,850	\$ 2,048,850	\$ 2,133,850
Equipment	400	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Indemnities	500	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal Division of Technology</b>			75.01%	75.42%	75.29%	74.98%	75.04%	76.27%	\$ 24,328,891	\$ 23,630,795	\$ 23,528,349	\$ 32,448,485	\$ 31,492,358	\$ 30,850,024
<b>Mayor's Office of Transportation &amp; Utilities and Office of Sustainability</b>														
Salaries & Wages	100	77.98%	67.54%	77.98%	86.60%	38.26%	100.00%	100.00%	\$ 85,874	\$ 202,423	\$ 202,433	\$ 224,424	\$ 202,424	\$ 202,424
Services	200	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	\$ 47,000	\$ 30,000	\$ 30,000	\$ 47,000	\$ 30,000	\$ 30,000
Materials and Supplies	300	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	400	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Indemnities	500	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal Mayor's Office of Transportation &amp; Utilities</b>			72.50%	81.18%	88.47%	48.95%	100.00%	100.00%	\$ 132,874	\$ 232,423	\$ 232,433	\$ 271,424	\$ 232,424	\$ 232,424
<b>Philadelphia Water, Sewer and Storm Water Rate Board</b>														
Salaries & Wages	100	97.18%	96.98%	97.18%	64.39%	97.66%	96.28%	97.61%	\$ 44,899	\$ 42,901	\$ 41,760	\$ 45,973	\$ 44,558	\$ 42,782
Services	200	40.33%	23.93%	40.33%	41.75%	44.09%	4.04%	73.14%	\$ 328,591	\$ 30,499	\$ 548,683	\$ 745,200	\$ 755,200	\$ 750,200
Materials and Supplies	300	0.00%		0.00%	0.00%			0.00%	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 25,000
Equipment	400	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Indemnities	500	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal Philadelphia Water, Sewer and Storm Water Rate Board</b>						47.21%	9.18%	72.18%	\$ 373,490	\$ 73,400	\$ 590,443	\$ 791,173	\$ 799,758	\$ 817,982

**Note:** Spend factors using 3-year average highlighted yellow and exceptions are highlighted in blue.

	Factor Used	Historical Average			Actual to Budget Factor			Actual O&M Expense			Budgeted O&M Expense			
		2 Year	3 Year	5 Year	2022	2021	2020	2022	2021	2020	2022	2021	2020	
<b>Public Property</b>														
Salaries & Wages	100	0.00%						\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Leases	200	99.96%	99.94%	99.96%	99.98%	99.89%	100.00%	100.00%	\$ 4,490,292	\$ 4,368,565	\$ 4,270,347	\$ 4,495,292	\$ 4,368,565	\$ 4,270,347
Materials and Supplies	300	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	400	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Indemnities	500	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal Public Property</b>			99.94%	99.96%	99.98%	99.89%	100.00%	100.00%	\$ 4,490,292	\$ 4,368,565	\$ 4,270,347	\$ 4,495,292	\$ 4,368,565	\$ 4,270,347
<b>Fleet Management</b>														
Salaries & Wages	100	82.98%	77.43%	82.98%	87.33%	77.90%	76.93%	95.37%	\$ 2,741,454	\$ 2,589,222	\$ 2,940,437	\$ 3,519,283	\$ 3,365,544	\$ 3,083,114
Services	200	74.83%	69.60%	74.83%	78.72%	70.96%	68.25%	85.29%	\$ 1,056,539	\$ 1,016,231	\$ 1,269,896	\$ 1,489,000	\$ 1,489,000	\$ 1,489,000
Materials and Supplies	300	82.37%	86.98%	82.37%	80.09%	98.02%	75.94%	73.63%	\$ 3,964,735	\$ 3,071,606	\$ 3,147,317	\$ 4,044,640	\$ 4,044,640	\$ 4,274,640
Equipment	400	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Indemnities	500	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal Fleet Management</b>			80.44%	81.34%	82.49%				\$ 7,762,728	\$ 6,677,059	\$ 7,357,650	\$ 9,052,923	\$ 8,899,184	\$ 8,846,754
<b>City Finance</b>														
Salaries & Wages	100	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Benefits	1xx	100.00%	95.13%	92.61%	93.67%	96.31%	93.88%	87.73%	\$ 63,161,240	\$ 58,250,740	\$ 57,760,775	\$ 65,582,257	\$ 62,047,800	\$ 65,839,194
Pension	191	100.00%	106.93%	106.75%	106.67%	105.28%	108.16%	106.41%	\$ 58,970,176	\$ 81,201,619	\$ 71,612,808	\$ 56,012,110	\$ 75,076,794	\$ 67,300,000
Pension Obligations	190	100.00%	108.98%	109.37%	108.12%	103.85%	120.24%	109.69%	\$ 8,541,319	\$ 4,514,537	\$ 15,686,125	\$ 8,225,032	\$ 3,754,608	\$ 14,300,000
Services	200	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Materials and Supplies	300	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	400	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Indemnities	500	68.42%	56.04%	54.74%	55.47%	78.25%	33.83%	52.13%	\$ 5,868,696	\$ 2,537,590	\$ 3,909,860	\$ 7,500,000	\$ 7,500,000	\$ 7,500,000
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal City Finance</b>			99.07%	98.04%	98.37%	99.43%	98.74%	96.15%	\$ 136,541,431	\$ 146,504,486	\$ 148,969,568	\$ 137,319,399	\$ 148,379,202	\$ 154,939,194

**Note:** Spend factors using 3-year average highlighted yellow and exceptions are highlighted in blue.

	Factor Used	Historical Average			Actual to Budget Factor			Actual O&M Expense			Budgeted O&M Expense			
		2 Year	3 Year	5 Year	2022	2021	2020	2022	2021	2020	2022	2021	2020	
<b>Revenue</b>														
Salaries & Wages	100	88.60%	86.44%	88.60%	91.82%	84.45%	88.38%	92.91%	\$ 9,070,937	\$ 9,763,255	\$ 10,102,618	\$ 10,741,609	\$ 11,047,032	\$ 10,873,116
Services	200	59.20%	40.79%	59.20%	73.69%	15.83%	65.75%	96.02%	\$ 817,369	\$ 3,395,971	\$ 4,959,294	\$ 5,165,000	\$ 5,165,000	\$ 5,165,000
Materials and Supplies	300	54.78%	63.64%	54.78%	61.74%	65.55%	61.73%	37.01%	\$ 940,371	\$ 885,451	\$ 529,102	\$ 1,434,500	\$ 1,434,500	\$ 1,429,500
Equipment	400	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Indemnities	500	0.00%		0.00%	0.00%				\$ -	\$ -	\$ -	\$ -	\$ -	\$ 5,000
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal Revenue</b>			71.09%	77.13%	83.86%	62.45%	79.59%	89.23%	\$ 10,828,677	\$ 14,044,677	\$ 15,591,014	\$ 17,341,109	\$ 17,646,532	\$ 17,472,616
<b>Procurement</b>														
Salaries & Wages	100	87.00%	95.55%	87.00%	90.10%	99.29%	91.64%	68.65%	\$ 114,475	\$ 101,275	\$ 72,282	\$ 115,290	\$ 110,515	\$ 105,285
Services	200	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Materials and Supplies	300	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	400	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Indemnities	500	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal Procurement</b>			95.55%	87.00%	90.10%	99.29%	91.64%	68.65%	\$ 114,475	\$ 101,275	\$ 72,282	\$ 115,290	\$ 110,515	\$ 105,285
<b>Law</b>														
Salaries & Wages	100	98.14%	97.34%	98.14%	97.92%	95.29%	100.00%	100.00%	\$ 3,189,335	\$ 2,570,334	\$ 2,569,445	\$ 3,346,838	\$ 2,570,334	\$ 2,569,445
Services	200	99.99%	99.99%	99.99%	93.62%	99.99%	99.99%	100.00%	\$ 691,536	\$ 691,565	\$ 691,589	\$ 691,614	\$ 691,614	\$ 691,614
Materials and Supplies	300	85.52%	80.28%	85.52%	83.01%	99.86%	60.69%	96.01%	\$ 42,950	\$ 26,104	\$ 41,295	\$ 43,010	\$ 43,010	\$ 43,010
Equipment	400	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Indemnities	500	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal Law</b>			97.64%	98.35%	96.87%	96.14%	99.49%	99.95%	\$ 3,923,821	\$ 3,288,003	\$ 3,302,329	\$ 4,081,462	\$ 3,304,958	\$ 3,304,069
<b>Total Water Fund</b>			90.69%	90.96%	91.32%	89.94%	91.46%	91.49%	\$ 548,033,630	\$ 545,370,077	\$ 542,027,687	\$ 609,313,421	\$ 596,300,086	\$ 592,441,170

**Note:** Spend factors using 3-year average highlighted yellow and exceptions are highlighted in blue.

**Appendix E: Water Fund Historical O&M Costs**



Description	Historical					
	2017	2018	2019	2020	2021	2022
<b>PWD Operating and Maintenance Expenses Summary</b>						
100 Salaries & Wages	\$ 125,010,184	\$ 132,309,261	\$ 137,155,996	\$ 149,776,460	\$ 147,364,285	\$ 158,297,211
1xx Benefits	52,651,923	56,886,859	54,912,153	57,760,775	58,250,740	63,161,240
191 Pension	55,552,438	62,666,813	64,686,954	71,612,808	81,201,619	58,970,176
190 Pension Obligations	13,362,362	14,290,585	14,170,375	15,686,125	4,514,537	8,541,319
200 Services	127,171,308	125,564,692	138,073,835	136,371,779	137,384,999	141,553,293
220 Power	18,252,847	15,002,114	13,854,363	15,046,774	15,737,655	14,915,470
221 Gas	3,176,528	3,855,757	4,652,000	3,991,800	3,870,000	4,363,923
2xx Services - Property Leases	4,042,633	4,256,817	4,265,847	4,270,347	4,368,565	4,490,292
2xx SMIP/GARP	15,000,000	26,900,000	25,000,000	25,000,000	31,932,618	20,125,000
300 Materials and Supplies	25,773,136	25,210,739	25,953,178	25,095,689	23,354,841	24,717,326
307 Chemicals	18,728,508	21,771,176	22,115,310	22,886,203	23,842,156	29,339,822
400 Equipment	2,120,160	3,094,873	4,839,384	5,695,771	2,671,765	6,700,132
500 Indemnities	7,352,313	6,779,219	3,816,246	4,409,860	3,037,590	6,368,696
800 Transfers	12,097,064	7,319,325	8,052,752	4,423,296	7,838,707	6,489,730
<b>Total PWD Operating and Maintenance Expenses Summary</b>	<b>\$ 480,291,404</b>	<b>\$ 505,908,230</b>	<b>\$ 521,548,393</b>	<b>\$ 542,027,687</b>	<b>\$ 545,370,077</b>	<b>\$ 548,033,630</b>
<b>PWD Operating and Maintenance Expenses Summary - Annual Increase</b>						
		2017 - 2018	2018 - 2019	2019 - 2020	2020 - 2021	2021 - 2022
100 Salaries & Wages			3.66%	9.20%	-1.61%	7.42%
1xx Benefits			-3.47%	5.19%	0.85%	8.43%
191 Pension			3.22%	10.71%	13.39%	-27.38%
190 Pension Obligations			-0.84%	10.70%	-71.22%	89.20%
200 Services			9.96%	-1.23%	0.74%	3.03%
220 Power			-7.65%	8.61%	4.59%	-5.22%
221 Gas			20.65%	-14.19%	-3.05%	12.76%
2xx Services - Property Leases			0.21%	0.11%	2.30%	2.79%
307 Chemicals			1.58%	3.49%	4.18%	23.06%
400 Equipment			56.37%	17.70%	-53.09%	150.78%
500 Indemnities			-43.71%	15.55%	-31.12%	109.66%
800 Transfers			10.02%	-45.07%	77.21%	-17.21%
<b>Total PWD Operating and Maintenance Expenses Summary - Annual Increase</b>			<b>3.09%</b>	<b>3.93%</b>	<b>0.62%</b>	<b>0.49%</b>
<b>PWD Operating and Maintenance Expenses Summary - 2 Year Average Increase</b>						
			2018 - 2020	2019 - 2021	2020 - 2022	
100 Salaries & Wages			6.40%	3.65%	2.81%	
1xx Benefits			0.77%	3.00%	4.57%	
191 Pension			6.90%	12.04%	-9.26%	
190 Pension Obligations			4.77%	-43.56%	-26.21%	
200 Services			4.21%	-0.25%	1.88%	
220 Power			0.15%	6.58%	-0.44%	
221 Gas			1.75%	-8.79%	4.56%	
2xx Services - Property Leases			0.16%	1.20%	2.54%	
2xx SMIP/GARP			-3.60%	13.02%	-10.28%	
300 Materials and Supplies			-0.23%	-5.14%	-0.76%	
307 Chemicals			2.53%	3.83%	13.22%	
400 Equipment			35.66%	-25.70%	8.46%	
500 Indemnities			-19.35%	-10.78%	20.17%	
800 Transfers			-22.26%	-1.34%	21.13%	
<b>Total PWD Operating and Maintenance Expenses Summary - 2 Year Average Increase</b>			<b>3.51%</b>	<b>2.26%</b>	<b>0.55%</b>	
<b>PWD Operating and Maintenance Expenses Summary - 3 Year Average Increase</b>						
100 Salaries & Wages				3.66%	4.89%	
1xx Benefits				0.79%	4.78%	
191 Pension				9.02%	-3.04%	
190 Pension Obligations				-31.89%	-15.53%	
200 Services				3.04%	0.83%	
220 Power				1.61%	2.49%	
221 Gas				0.12%	-2.11%	
2xx Services - Property Leases				0.87%	1.72%	
2xx SMIP/GARP				5.88%	-6.98%	
300 Materials and Supplies				-2.52%	-1.61%	
307 Chemicals				3.08%	9.88%	
400 Equipment				-4.78%	11.45%	
500 Indemnities				-23.48%	18.61%	
800 Transfers				2.31%	-6.94%	
<b>Total PWD Operating and Maintenance Expenses Summary - 3 Year Average Increase</b>				<b>2.54%</b>	<b>1.66%</b>	

**Appendix F: O&M Cost Industry Indices Data**

Month	Price Indices			
	Consumer Price Index All Urban Consumers Philadelphia Area	Producer Price Index Industrial Chemicals	Producer Price Index Materials for Construction	Producer Price Index Construction Equipment & Machinery
	Raw Number	Raw Number	Raw Number	Raw Number
Oct-19	258.0	252.3	250.8	233.7
Oct-20	260.0	227.7	262.5	236.7
Oct-21	274.6	332.8	311.4	257.3
Oct-22	296.0	349.1	349.2	283.4
<b>12 Month Annual Change</b>	<b>7.77%</b>	<b>4.89%</b>	<b>12.16%</b>	<b>10.12%</b>
<b>24 Month Annual Change</b>	<b>6.70%</b>	<b>23.82%</b>	<b>15.34%</b>	<b>9.41%</b>
<b>36 Month Annual Change</b>	<b>4.69%</b>	<b>11.43%</b>	<b>11.67%</b>	<b>6.63%</b>

**Notes:**

All consumer and producer price indexes are from the Bureau of Labor Statistics. References are provided below. Indexes are presented as the fiscal year average based upon the associated Water Department's fiscal year. Indexes are not seasonally adjusted.

Index	Series Id (s)	Area	Items	Base Period
CPI - All Urban Consumers - Philadelphia Area	CUURS12BSA0, CUUSS12BSA0	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD	All Items	1982-84=100

Index	Series Id	Group	Items	Base Date
PPI - Industrial Chemicals	WPU061	Chemicals and allied products	Industrial chemicals	198200
PPI - Materials for Construction	WPUID612	Intermediate demand by commodity type	Materials and components for construction	198200
PPI - Construction Machinery & Equipment	WPU112	Machinery and equipment	Construction machinery and equipment	198200

**Appendix G: Capital Cost Industry Indices**

Fiscal Year	H.W. Index Cost of Construction Pump Plant - Equipment		H.W. Index Cost of Construction Treatment Plant - Equipment		H.W. Index Cost of Construction Transmission Plant - Steel Mains		H.W. Index Cost of Construction Distribution Plant - Mains		H.W. Index Cost of Construction Distribution Plant - Meters		McGraw-Hill (ENR) Construction Cost Index	
	Raw Number	% Change	Raw Number	% Change	Raw Number	% Change	Raw Number	% Change	Raw Number	% Change	Raw Number	% Change
	2013	800	2.56%	689	2.99%	724	1.83%	698	4.33%	677	4.80%	9,424.2
2014	856	7.00%	713	3.48%	694	-4.14%	720	3.15%	688	1.62%	9,672.1	2.63%
2015	928	8.41%	736	3.23%	712	2.59%	736	2.22%	702	2.03%	9,933.1	2.70%
2016	990	6.68%	755	2.58%	697	-2.11%	747	1.49%	709	1.00%	10,166.6	2.35%
2017	1,052	6.26%	774	2.52%	723	3.73%	774	3.61%	722	1.83%	10,534.5	3.62%
2018	1,146	8.94%	797	2.97%	733	1.38%	790	2.07%	750	3.88%	10,898.1	3.45%
2019	1,261	10.03%	832	4.39%	792	8.05%	819	3.67%	765	2.00%	11,194.7	2.72%
2020	1,374	8.96%	871	4.69%	824	4.04%	847	3.42%	790	3.27%	11,371.2	1.58%
2021	1,436	4.51%	922	5.86%	845	2.55%	883	4.25%	815	3.16%	11,680.1	2.72%
2022	1,593	10.93%	1,012	9.76%	1,046	23.79%	984	11.44%	895	9.82%	12,650.1	8.30%
Avg.	-	7.35%	-	3.69%	-	2.83%	-	3.39%	-	2.53%	-	2.70%
<b>2 Yr Avg</b>												
2013	-	6.30%	-	3.60%	-	6.03%	-	5.01%	-	3.25%	-	2.61%
2014	-	4.76%	-	3.24%	-	-1.20%	-	3.74%	-	3.20%	-	2.59%
2015	-	7.70%	-	3.35%	-	-0.83%	-	2.69%	-	1.83%	-	2.66%
2016	-	7.54%	-	2.90%	-	0.22%	-	1.86%	-	1.51%	-	2.52%
2017	-	6.47%	-	2.55%	-	0.77%	-	2.55%	-	1.41%	-	2.98%
2018	-	7.59%	-	2.74%	-	2.55%	-	2.84%	-	2.85%	-	3.54%
2019	-	9.48%	-	3.68%	-	4.66%	-	2.87%	-	2.93%	-	3.09%
2020	-	9.50%	-	4.54%	-	6.03%	-	3.54%	-	2.63%	-	2.15%
2021	-	6.71%	-	5.27%	-	3.29%	-	3.83%	-	3.22%	-	2.14%
2022	-	7.67%	-	7.79%	-	12.67%	-	7.78%	-	6.44%	-	5.47%
<b>3 Yr Avg</b>												
2013	-	4.21%	-	2.97%	-	6.88%	-	4.20%	-	3.42%	-	2.90%
2014	-	6.53%	-	3.56%	-	2.52%	-	4.39%	-	2.71%	-	2.62%
2015	-	5.96%	-	3.23%	-	0.05%	-	3.23%	-	2.81%	-	2.63%
2016	-	7.36%	-	3.10%	-	-1.26%	-	2.29%	-	1.55%	-	2.56%
2017	-	7.11%	-	2.77%	-	1.37%	-	2.44%	-	1.62%	-	2.89%
2018	-	7.29%	-	2.69%	-	0.97%	-	2.39%	-	2.23%	-	3.14%
2019	-	8.40%	-	3.29%	-	4.35%	-	3.11%	-	2.57%	-	3.26%
2020	-	9.31%	-	4.01%	-	4.46%	-	3.05%	-	3.05%	-	2.58%
2021	-	7.81%	-	4.98%	-	4.85%	-	3.78%	-	2.81%	-	2.34%
2022	-	8.10%	-	6.75%	-	9.72%	-	6.31%	-	5.37%	-	4.16%
<b>5 Yr Avg</b>												
2013	-	4.56%	-	4.01%	-	5.92%	-	4.88%	-	3.43%	-	3.12%
2014	-	4.74%	-	3.03%	-	2.78%	-	2.90%	-	2.88%	-	2.56%
2015	-	5.59%	-	3.13%	-	3.73%	-	3.59%	-	2.78%	-	2.81%
2016	-	6.94%	-	3.30%	-	1.59%	-	3.37%	-	2.23%	-	2.58%
2017	-	6.17%	-	2.96%	-	0.34%	-	2.96%	-	2.25%	-	2.77%
2018	-	7.45%	-	2.96%	-	0.25%	-	2.51%	-	2.07%	-	2.95%
2019	-	8.06%	-	3.14%	-	2.68%	-	2.61%	-	2.14%	-	2.97%
2020	-	8.17%	-	3.43%	-	2.96%	-	2.85%	-	2.39%	-	2.74%
2021	-	7.72%	-	4.08%	-	3.93%	-	3.40%	-	2.83%	-	2.81%
2022	-	8.65%	-	5.51%	-	7.67%	-	4.92%	-	4.39%	-	3.73%

**Appendix H: Stormwater Tables**

## Appendix H – Table 1 Stormwater Credit Projections

Line		Fiscal Year Ending June 30,					
No.	Description	2023	2024	2025	2026	2027	2028
<b>Stormwater</b>							
<b>Parcels (#)</b>							
1	IAR Practices	553	582	612	641	670	699
2	GA/IA Management Practices <sup>1</sup>	1,250	1,279	1,308	1,337	1,366	1,395
3	SMIP/GARP	185	224	243	262	281	300
4	Subtotal	1,988	2,085	2,163	2,240	2,317	2,394
<b>Impervious Area (thousand square feet)</b>							
5	IAR Practices	4,784	5,057	5,330	5,603	5,875	6,148
6	GA/IA Management Practices <sup>1</sup>	93,060	93,930	94,799	95,669	96,538	97,408
7	SMIP/GARP	22,866	25,683	28,112	29,980	31,774	33,935
8	Subtotal	120,711	124,670	128,241	131,251	134,188	137,491
<b>Gross Area (thousand square feet)</b>							
9	IAR Practices	-	-	-	-	-	-
10	GA/IA Management Practices <sup>1</sup>	242,311	245,654	248,998	252,341	255,684	259,028
11	SMIP/GARP	47,419	50,236	52,665	54,533	56,328	58,488
12	Subtotal	289,730	295,890	301,663	306,874	312,012	317,516

Notes

1: GA/IA Management Practices Credits include Surface and Non-Surface Discharge credits for IA managed and open space.

## Appendix H – Table 2 SMIP/GARP Program – Annual Cost Estimates

Line		Fiscal Year Ending June 30,					
No.	Description	2023	2024	2025	2026	2027	2028
<b>Stormwater</b>							
1	Annual Grant Budget (a)	\$ 25,000,000	\$ 20,000,000	\$ 20,000,000	\$ 25,000,000	\$ 25,000,000	\$ 25,000,000
2	PIDC Annual Administration Fee (b)	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000	\$ 100,000
3	Service Fee % (c)	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
4	PIDC Estimated Service Fee Cost (Line 1 - Line 2) X Line 3	\$ 498,000	\$ 398,000	\$ 398,000	\$ 498,000	\$ 498,000	\$ 498,000
5	TOTAL PIDC SMIP/GARP FEE (Line 2 + Line 4)	\$ 598,000	\$ 498,000	\$ 498,000	\$ 598,000	\$ 598,000	\$ 598,000
6	Available Award Amount (Line 1 - Line 5)	\$ 24,402,000	\$ 19,502,000	\$ 19,502,000	\$ 24,402,000	\$ 24,402,000	\$ 24,402,000

Notes:

- (a) Amount available in each fiscal year for new projects after accounting for amendments to previously awarded projects.
- (b) Annual Administration Fee for SMIP/GARP Program is \$100K. Paid to PIDC each fiscal year.
- (c) Service Fee is calculated as 2% of annual grant budget less the annual administration fee paid to PIDC.

**Appendix H – Table 3 SMIP/GARP Program – Awarded Project Projections**

Line No.	Description	Fiscal Year Ending June 30,					
		2023	2024	2025	2026	2027	2028
<b>Stormwater</b>							
<b>INPUT PARAMETERS</b>							
1	SMIP/GARP Grant Budget (a)	\$ 24,402,000	\$ 19,502,000	\$ 19,502,000	\$ 24,402,000	\$ 24,402,000	\$ 24,402,000
2	\$/Drainage Acre	\$ 350,000	\$ 364,000	\$ 378,560	\$ 393,702	\$ 409,450	\$ 425,829
3	% of Award Amount	100%	100%	100%	100%	100%	100%
4	Acre conversion to square feet	43,560	43,560	43,560	43,560	43,560	43,560
<b>Stormwater GA/IA Managed Area Projections - Anticipated Awards</b>							
<b>Anticipated SMIP/ GARP Projects (b)</b>							
5	Anticipated Award Amount (Line 1 x Line 4)	\$ 24,402,000	\$ 19,502,000	\$ 19,502,000	\$ 24,402,000	\$ 24,402,000	\$ 24,402,000
6	Drainage Acres (Line 6 / Line 2)	69.7	53.6	51.5	62.0	59.6	57.3
7	Gross Area to be Managed (sf)	3,036,132	2,334,816	2,243,340	2,700,720	2,596,176	2,495,988
8	Impervious Area to be Managed (sf)	3,036,132	2,334,816	2,243,340	2,700,720	2,596,176	2,495,988
<b>Annual Totals</b>							
9	GA to be Managed (sf)	3,036,132	2,334,816	2,243,340	2,700,720	2,596,176	2,495,988
10	IA to be Managed (sf)	3,036,132	2,334,816	2,243,340	2,700,720	2,596,176	2,495,988
11	Total Drainage Acres	69.7	53.6	51.5	62.0	59.6	57.3

Notes:

- (a) See Line 6 - Appendix H - Table 2: SMIP/GARP Program - Annual Cost Estimates
- (b) Anticipated SMIP/GARP projects with an estimated award amount (\$300,000 in FY 2023 and escalated at 4% thereafter) and within 24 months average project completion time.

**Appendix H – Table 4 SMIP/GARP Program As-built & Verified Project Projections**

Line No.	Description	Fiscal Year Ending June 30,					
		2023	2024	2025	2026	2027	2028
<b>Stormwater</b>							
<b>Awarded Projects Pre-FY 2023 (a)</b>		<b>20.0</b>	<b>20.0</b>				
1	Drainage Acres	93.9	80.8				
2	Gross Area Managed (sf)	4,091,591	3,520,740				
3	Impervious Area Managed (sf)	4,091,591	3,520,740				
<b>Estimated Awarded Projects Post FY 2023</b>							
<b>Anticipated New Projects (b)</b>							
4	Drainage Acres	-	-	69.7	53.6	51.5	62.0
5	Gross Area Managed (sf)	-	-	3,036,132	2,334,816	2,243,340	2,700,720
6	Impervious Area Managed (sf)	-	-	3,036,132	2,334,816	2,243,340	2,700,720
<b>Annual Totals</b>							
7	Drainage Acres (Line 1 + Line 4)	93.9	80.8	69.7	53.6	51.5	62.0
8	Gross Area Managed (sf) (Line 2 + Line 5)	4,091,591	3,520,740	3,036,132	2,334,816	2,243,340	2,700,720
9	Impervious Area Managed (sf) (Line 3 + Line 6)	4,091,591	3,520,740	3,036,132	2,334,816	2,243,340	2,700,720
10	Cummulative Drainage Acres	93.9	174.8	244.5	298.1	349.6	411.6

Notes:

- (a) Completed Drainage Acres based upon actuals from PWD's SMIP/GARP Grant Tracking. FY2023 - FY 2024 estimated based upon projects awarded prior to FY 2023 but not yet completed/verified.
- (b) From Appendix H - Table 3: SMIP/GARP Program - Project Projections. Projects are expected to be completed and verified within 24 months.



## Appendix H – Table 5 SMIP/GARP Program Projected Credit Impacts

Line No.	Description	Fiscal Year Ending June 30,					
		2023	2024	2025	2026	2027	2028
<b>Stormwater</b>							
<b>INPUT PARAMETERS</b>							
1	% of GA and IA Credits (a)	80%	80%	80%	80%	80%	80%
<b>Annual Total Credits</b>							
2	GA Managed Credit (sf) (Line 1 X Appendix H Table 4: Line 8)	3,273,273	2,816,592	2,428,906	1,867,853	1,794,672	2,160,576
3	IA Managed Credit (sf) (Line 1 X Appendix H Table 4: Line 9)	3,273,273	2,816,592	2,428,906	1,867,853	1,794,672	2,160,576
<b>Cumulative Total Credits</b>							
4	GA Managed Credit (sf)	3,273,273	6,089,865	8,518,771	10,386,624	12,181,296	14,341,872
5	IA Managed Credit (sf)	3,273,273	6,089,865	8,518,771	10,386,624	12,181,296	14,341,872

Notes:

(a) Assumes all SMIP/GARP projects will be granted Non-Surface Discharge Credit based upon 80% of managed IA and 80% of managed GA.

## Appendix H – Table 6 Projections of Billable Parcels, Gross Area, and Impervious Area

Line No.	Customer Type	Fiscal Year Ending June 30,					
		2023	2024	2025	2026	2027	2028
<b>Stormwater</b>							
<b>Projected number of Billable Parcels</b>							
1	Residential	463,408	463,408	463,408	463,408	463,408	463,408
2	Non-Residential	68,923	68,915	68,907	68,899	68,891	68,883
3	Condominium	2,282	2,282	2,282	2,282	2,282	2,282
4	<b>Total: Number of Billable Parcels</b>	<b>534,613</b>	<b>534,605</b>	<b>534,597</b>	<b>534,589</b>	<b>534,581</b>	<b>534,573</b>
<b>Projected Billable Gross Area (thousand of square feet)</b>							
5	Residential	973,156	973,156	973,156	973,155	973,155	973,155
6	Non-Residential	1,144,352	1,137,977	1,132,091	1,126,864	1,121,785	1,116,349
7	Condominium	31,012	30,854	30,706	30,572	30,441	30,299
8	<b>Total: Billable Gross Area</b>	<b>2,148,521</b>	<b>2,141,987</b>	<b>2,135,953</b>	<b>2,130,592</b>	<b>2,125,380</b>	<b>2,119,803</b>
<b>Projected Billable Impervious Area (thousand of square feet)</b>							
9	Residential	551,455	551,455	551,455	551,455	551,454	551,454
10	Non-Residential	602,898	598,759	595,122	592,153	589,341	586,180
11	Condominium	21,283	21,109	20,953	20,821	20,692	20,547
12	<b>Total: Billable Impervious Area</b>	<b>1,175,635</b>	<b>1,171,323</b>	<b>1,167,530</b>	<b>1,164,428</b>	<b>1,161,488</b>	<b>1,158,181</b>

**Appendix H – Table 7 GA/IA Management Credit Projection Factors**

Line No.	Description	Annual Increase in Parcels	Annual Average GA Credit	Annual Average IA Credit
<b>Stormwater</b>				
<b>Credit Type- IAR</b>			<b>(sf)</b>	<b>(sf)</b>
1	Impervious Area Reduction	29		9,342
<b>Credit Type-Non Surface Discharge</b>			<b>(sf)</b>	<b>(sf)</b>
2	Area Managed	28	22,759	23,737
3	Open Space		73,828	
4	NPDES		0	
<b>Credit Type</b>			<b>(sf)</b>	<b>(sf)</b>
5	Area Managed	1	203,641	203,355
6	Open Space		427,871	
7	NPDES		7,420	1,551

Annual Increase in parcels is applied to the annual average IA and GA credit to project credits for the Study Period. Annual Increase in parcels and the annual average IA and GA credit are based on 5-year average (FY 2019-FY 2023) historical data provided by PWD.

**Appendix H – Table 8 Stormwater Projected Number of Billable Accounts**

Line No.	CUSTOMER TYPE	Fiscal Year Ending June 30,					
		2023	2024	2025	2026	2027	2028
<b>Stormwater</b>							
1	Residential	465,601	465,601	465,601	465,601	465,601	465,601
2	Non-Residential	77,662	77,654	77,646	77,638	77,630	77,622
3	Condominium	5,278	5,278	5,278	5,278	5,278	5,278
4	Total	548,541	548,533	548,525	548,517	548,509	548,501

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**Appendix I: Wholesale Tables**

**Appendix I – Table 1 Wastewater Wholesale: Water Pollution Control Plant Investment Per Unit of Capacity**

Line No.	Cost Component	(1) Direct Investment (a) \$	(2) Units of Capacity	(3) Unit Investment (a) \$
<b>Wholesale</b>				
Northeast Water Pollution Control Plant				
Retail, Abington, Bensalem, Bucks County W&SA, Lower Moreland, and Lower Southampton				
1	- Capacity	5,079,000	370 mgd = 49,470 Mcf/day	102.6683 /Mcf/day
Retail, Abington, Bensalem, Bucks County W&SA, Cheltenham, Lower Moreland, and Lower Southampton				
2	Volume	60,597,000	76,650 mg = 10,247,000 Mcf	5.9136 /Mcf
3	Capacity	24,584,000	420 mgd = 56,150 Mcf/day	437.8272 /Mcf/day
4	Suspended Solids	124,572,000	173,240,000 lbs	719.0718 /1,000 lbs
5	BOD	106,410,000	128,491,000 lbs	828.1514 /1,000 lbs
Southwest Water Pollution Control Plant				
6	Retail - Capacity	22,043,000	50 mgd = 6,684 Mcf/day	3,297.8755 /Mcf/day
Retail, DELCORA, Lower Merion, Springfield, (excluding Wyndmoor), and Upper Darby				
7	Volume	75,019,000	73,000 mg = 9,759,000 Mcf	7.6872 /Mcf
8	Capacity	19,926,000	400 mgd = 53,476 Mcf/day	372.6158 /Mcf/day
9	Suspended Solids	64,118,000	130,534,000 lbs	491.1981 /1,000 lbs
10	BOD	53,154,000	78,168,000 lbs	679.9929 /1,000 lbs
Southeast Water Pollution Control Plant				
Retail and Springfield (Wyndmoor)				
11	Volume	33,139,000	40,880 mg = 5,465,000 Mcf	6.0639 /Mcf
12	Capacity	42,518,000	224 mgd = 29,947 Mcf/day	1,419.7749 /Mcf/day
13	Suspended Solids	31,254,000	66,065,000 lbs	473.0795 /1,000 lbs
14	BOD	25,735,000	56,940,000 lbs	451.9670 /1,000 lbs

mg - million gallons  
 mgd - million gallons per day  
 Mcf - thousand cubic feet  
 Mcf/day - thousand cubic feet per day  
 lbs - pounds

**Appendix I – Table 2 Wastewater Wholesale: System Investment Allocated to Abington Township - Test Year 2024**

Line No.	Cost Component	(1)	(2)	(3)	(4)	(5)	(6)
		Units	Investment Per Unit (a)	Number of Contract Units	Infiltration/Inflow Capacity Allocation Factor	Allocated Investment (a)	Allocated Investment Rounded (a)
<b>Wholesale</b>							
<b>Treatment</b>							
1	Capacity Retail, Abington, Bensalem, Bucks County W&SA, Lower Moreland, and Lower Southampton	Mcf/day	102.6683	844	-	86,652	87,000
2	Volume Retail, Abington, Bensalem, Bucks County W&SA, Cheltenham, Lower Moreland, and Lower Southampton	Mcf	5.9136	221,792	-	1,311,589	1,312,000
3	Capacity	Mcf/day	437.8272	844	-	369,526	370,000
4	SS	1,000 lbs	719.0718	2,501	-	1,798,399	1,798,000
5	BOD	1,000 lbs	828.1514	2,105	-	1,743,259	1,743,000
6	Total Treatment					5,309,425	5,310,000
<b>Conveyance</b>							
7	Shady Lane & City Line	cfs	58,421	1.3680	1.0225	81,718	82,000
8	Pennypack & City Line	cfs	49,045	7.6940	1.0225	385,843	386,000
9	Cottman and Orville	cfs	45,328	0.4800	1.0225	22,247	22,000
10	Total Conveyance					489,808	490,000
<b>Long Term Control Plan (LTCP)</b>							
Line No.	Cost Component	System Investment		Allocation		Allocated Investment (a)	Allocated Investment Rounded (a)
		\$				\$	\$
11	LTCP Infrastructure Investment	291,589,000	-	0.10000%		291,589	292,000
12	Total Allocated System Investment					\$ 6,090,822	\$ 6,092,000

(a) Plant Investment as of 6/30/2022. Includes Administration and General costs.

cfs - cubic feet per second  
Mcf - Thousand cubic feet  
lbs - pounds

**Appendix I – Table 3 Wastewater Wholesale: System Investment Allocated to Bensalem Township - Test Year 2024**

Line No.	Cost Component	(1)	(2)	(3)	(4)	(5)	(6)
		Units	Investment Per Unit (a)	Number of Contract Units	Infiltration/Inflow Capacity Allocation Factor	Allocated Investment (a)	Allocated Investment Rounded (a)
			\$			\$	\$
<b>Wholesale</b>							
<b>Treatment</b>							
1	Capacity Retail, Abington, Bensalem, Bucks County W&SA, Lower Moreland, and Lower Southampton	Mcf/day	102.6683	1,034	-	106,159	106,000
2	Volume Retail, Abington, Bensalem, Bucks County W&SA, Cheltenham, Lower Moreland, and Lower Southampton	Mcf	5.9136	304,871	-	1,802,885	1,803,000
3	Capacity	Mcf/day	437.8272	1,034	-	452,713	453,000
4	SS	1,000 lbs	719.0718	3,758	-	2,702,272	2,702,000
5	BOD	1,000 lbs	828.1514	5,343	-	4,424,813	4,425,000
6	Total Treatment					9,488,842	9,489,000
<b>Conveyance</b>							
7	A-1	cfs	84,833	0.3700	1.02250	32,094	32,000
8	A-2	cfs	105,688	0.8800	1.02250	95,098	95,000
9	A-3	cfs	117,743	0.1200	1.02250	14,447	14,000
10	A-4	cfs	115,847	0.0800	1.02250	9,476	9,000
11	B	cfs	131,354	0.8400	1.02250	112,820	113,000
12	C	cfs	72,634	0.7500	1.02250	55,701	56,000
13	D	cfs	67,910	0.4600	1.02250	31,941	32,000
14	E	cfs	204,911	0.3800	1.02250	79,618	80,000
15	F	cfs	49,726	0.5800	1.02250	29,490	29,000
16	G-1	cfs	48,680	0.2700	1.02250	13,439	13,000
17	G-2	cfs	48,680	0.5100	1.02250	25,385	25,000
18	H	cfs	64,044	2.7200	1.02250	178,119	178,000
19	J-1	cfs	133,427	0.6760	1.02250	92,226	92,000
20	J-2	cfs	38,820	0.1610	1.02250	6,391	6,000
21	J-3	cfs	258,008	0.3830	1.02250	101,040	101,000
22	K-1	cfs	204,907	0.4300	1.02250	90,092	90,000
23	K-2	cfs	66,776	2.1300	1.02250	145,433	145,000
24	Total Conveyance					1,112,810	1,110,000
<b>Long Term Control Plan (LTCP)</b>							
Line No.	Cost Component	System Investment		Allocation		Allocated Investment (a)	Allocated Investment Rounded (a)
		\$				\$	\$
25	LTCP Infrastructure Investment	291,589,000		0.0000%		-	-
26	Total Allocated System Investment					\$ 10,601,652	\$ 10,599,000

(a) Plant Investment as of 6/30/2022. Includes Administration and General costs.

cfs - cubic feet per second  
Mcf - Thousand cubic feet  
lbs - pounds

**Appendix I – Table 4 Wastewater Wholesale: System Investment Allocated to Bucks County - Test Year 2024**

Line No.	Cost Component	(1)	(2)	(3)	(4)	(5)	(6)
		Units	Investment Per Unit (a)	Number of Contract Units	Infiltration/Inflow Capacity Allocation Factor	Allocated Investment (a)	Allocated Investment Rounded (a)
<b>Wholesale</b>							
<b>Treatment</b>							
1	Retail, Abington, Bensalem, Bucks County W&SA, Lower Moreland, and Lower Southampton Capacity	Mcf/day	102.6683	6,556	-	673,093	673,000
2	Retail, Abington, Bensalem, Bucks County W&SA, Cheltenham, Lower Moreland, and Lower Southampton Volume	Mcf	5.9136	1,206,223	-	7,133,120	7,133,000
3	Capacity	Mcf/day	437.8272	6,556	-	2,870,395	2,870,000
4	SS	1,000 lbs	719.0718	13,553	-	9,745,580	9,746,000
5	BOD	1,000 lbs	828.1514	13,422	-	11,115,448	11,115,000
6	Total Treatment					31,537,636	31,537,000
<b>Conveyance</b>							
7	Large Sewers	cfs	18,000	85.08	1.02250	1,565,897	1,566,000
8	Total Conveyance					1,565,897	1,566,000
<b>Long Term Control Plan (LTCP)</b>							
Line No.	Cost Component	System Investment		Allocation		Allocated Investment (a)	Allocated Investment Rounded (a)
		\$				\$	\$
9	LTCP Infrastructure Investment	291,589,000		0.00000%		-	-
10	Total Allocated System Investment					33,103,533	33,103,000

(a) Plant Investment as of 6/30/2022. Includes Administration and General costs.

cfs - cubic feet per second

Mcf - Thousand cubic feet

lbs - pounds



**Appendix I – Table 5 Wastewater Wholesale: System Investment Allocated to Cheltenham Township - Test Year 2024**

Line No.	Cost Component	(1)	(2)	(3)	(4)	(5)	(6)
		Units	Investment Per Unit (a)	Number of Contract Units	Infiltration/Inflow Capacity Allocation Factor	Allocated Investment (a)	Allocated Investment Rounded (a)
<b>Wholesale</b>							
<b>Treatment</b>							
1	Retail, Abington, Bensalem, Bucks County W&SA, Lower Moreland, and Lower Southampton Capacity	Mcf/day	102.6683	NA	-	-	-
2	Retail, Abington, Bensalem, Bucks County W&SA, Cheltenham, Lower Moreland, and Lower Southampton Volume	Mcf	5.9136	669,370	-	3,958,386	3,958,000
3	Capacity	Mcf/day	437.8272	2,803	-	1,227,230	1,227,000
4	SS	1,000 lbs	719.0718	5,701	-	4,099,428	4,099,000
5	BOD	1,000 lbs	828.1514	4,909	-	4,065,395	4,065,000
6	<b>Total Treatment</b>					<b>13,350,439</b>	<b>13,349,000</b>
<b>Conveyance</b>							
7	Cheltenham and Tacony Creek	cfs	15,378	29.00	1.02250	455,996	456,000
8	Bouvier Street	cfs	23,315	2.75	1.02250	65,559	66,000
9	<b>Total Conveyance</b>					<b>521,555</b>	<b>522,000</b>
<b>Long Term Control Plan (LTCP)</b>							
Line No.	Cost Component	System Investment		Allocation	Allocated Investment (a)		Allocated Investment Rounded (a)
		\$			\$		\$
10	LTCP Infrastructure Investment	291,589,000		1.12000%	3,265,797		3,266,000
11	<b>Total Allocated System Investment</b>				<b>17,137,791</b>		<b>17,137,000</b>

(a) Plant Investment as of 6/30/2022. Includes Administration and General costs.

cfs - cubic feet per second  
Mcf - Thousand cubic feet  
lbs - pounds

**Appendix I – Table 6 Wastewater Wholesale: System Investment Allocated to DELCORA - Test Year 2024**

Line No.	Cost Component	(1) Units	(2) Investment Per Unit (a) \$	(3) Number of Contract Units	(4) Allocated Investment (a) \$	(5) Allocated Investment Rounded (a) \$
<b>Wholesale</b>						
<b>Treatment</b>						
SW Treatment Plant: Retail, DELCORA, Lower Merion, Springfield, (excluding Wyndmoor), and Upper Darby						
1	Volume	Mcf	7.6872	2,439,840	18,755,538	18,756,000
2	Capacity	Mcf/day	372.6158	13,392	4,990,071	4,990,000
3	SS	1,000 lbs	491.1981	19,487	9,571,977	9,572,000
4	BOD	1,000 lbs	679.9929	21,771	<u>14,804,125</u>	<u>14,804,000</u>
5	Total Treatment				48,121,711	48,122,000
<b>Long Term Control Plan (LTCP)</b>						
Line No.	System Investment			Allocation	Allocated Investment (a) \$	Allocated Investment Rounded (a) \$
6	LTCP Infrastructure Investment	291,589,000		0.21000%	<u>612,337</u>	<u>612,000</u>
7	Total Allocated System Investment				<b>\$ 48,734,048</b>	<b>\$ 48,734,000</b>

(a) Estimated Plant Investment as of 6/30/2022. Includes Administration and General costs.

cfs - cubic feet per second  
Mcf - Thousand cubic feet  
lbs - pounds

**Appendix I – Table 7 Wastewater Wholesale: System Investment Allocated to Lower Merion Township - Test Year 2024**

Line No.	Cost Component	(1)	(2)	(3)	(4)	(5)	(6)
		Units	Investment Per Unit (a)	Number of Contract Units	Infiltration/Inflow Capacity Allocation Factor	Allocated Investment (a)	Allocated Investment Rounded (a)
<b>Wholesale</b>			\$			\$	\$
<b>Treatment</b>							
Retail, DELCORA, Lower Merion, Springfield, (excluding Wyndmoor), and Upper Darby							
1	Volume	Mcf	7.6872	722,453	-	5,553,641	5,554,000
2	Capacity	Mcf/day	372.6158	2,788	-	1,038,853	1,039,000
3	SS	1,000 lbs	491.1981	7,315	-	3,593,114	3,593,000
4	BOD	1,000 lbs	679.9929	6,880	-	4,678,351	4,678,000
5	<b>Total Treatment</b>					<b>14,863,959</b>	<b>14,864,000</b>
<b>Conveyance</b>							
6	City Avenue & 73rd Street	cfs	30,189	2.860	1.0225	88,283	88,000
7	City Avenue & 66th Street	cfs	35,407	15.880	1.0225	574,914	575,000
8	City Avenue & Overbrook Station	cfs	69,259	2.290	1.0225	162,172	162,000
9	City Avenue & 59th Street	cfs	132,481	0.330	1.0225	44,702	45,000
10	City Avenue & 54th Street	cfs	57,917	0.050	1.0225	2,961	3,000
11	City Avenue & 51st Street	cfs	60,355	8.470	1.0225	522,709	523,000
12	City Avenue & Conshohocken Avenue	cfs	103,583	0.390	1.0225	41,306	41,000
13	City Avenue & Presidential Boulevard						
13	Sewers and Meter Station	cfs	134,831	1.300	1.0225	179,224	179,000
14	Neill Drive Pump Station	cfs	143,297	1.300	1.0225	190,478	190,000
15	Barclay Building & Friends Central School						
15	Charged Inside Rates	cfs	43,227	0.052	1.0225	2,298	2,000
16	<b>Total Conveyance</b>					<b>1,809,047</b>	<b>1,808,000</b>
<b>Long Term Control Plan (LTCP):</b>							
Line No.	Cost Component	System Investment		Allocation	Allocated Investment (a)		Allocated Investment Rounded (a)
		\$			\$		\$
17	LTCP Infrastructure Investment	291,589,000		0.00000%	-		-
18	<b>Total Allocated System Investment</b>				<b>16,673,006</b>		<b>16,672,000</b>

(a) Plant Investment as of 6/30/2022. Includes Administration and General costs.

cfs - cubic feet per second

Mcf - Thousand cubic feet

lbs - pounds

**Appendix I – Table 8 Wastewater Wholesale: System Investment Allocated to Lower Moreland Township - Test Year 2024**

Line No.	Cost Component	(1)	(2)	(3)	(4)	(5)	(6)
		Units	Investment Per Unit (a)	Number of Contract Units	Infiltration/Inflow Capacity Allocation Factor	Allocated Investment (a)	Allocated Investment Rounded (a)
<b>Wholesale</b>			\$			\$	\$
<b>Treatment</b>							
1	Retail, Abington, Bensalem, Bucks County W&SA, Lower Moreland, and Lower Southampton Capacity	Mcf/day	102.6683	518	-	53,182	53,000
2	Retail, Abington, Bensalem, Bucks County W&SA, Cheltenham, Lower Moreland, and Lower Southampton Volume	Mcf	5.9136	95,514	-	564,832	565,000
3	Capacity	Mcf/day	437.8272	518	-	226,794	227,000
4	SS	1,000 lbs	719.0718	978	-	703,252	703,000
5	BOD	1,000 lbs	828.1514	731	-	605,379	605,000
6	<b>Total Treatment</b>					2,153,439	2,153,000
<b>Conveyance</b>							
7	Woodhaven Road and City Line	cfs	195,719	0.4140	1.0225	82,851	83,000
8	Erwin Street and County Line	cfs	94,589	0.0650	1.0225	6,287	6,000
9	Moreland Road and Pine Road	cfs	64,910	0.0350	1.0225	2,323	2,000
10	Pine Road and Radburn Road	cfs	66,406	0.0380	1.0225	2,580	3,000
11	Welsh Road and County Line	cfs	66,860	0.6060	1.0225	41,429	41,000
12	City Line and Red Lion	cfs	66,860	0.0170	1.0225	1,162	1,000
13	Conveyance Line	cfs	62,555	7.7960	1.0225	498,652	499,000
14	PC-30 Improvements (b)					70,102	70,000
15	<b>Total Conveyance</b>					705,386	705,000
<b>Long Term Control Plan (LTCP):</b>							
Line No.	Cost Component	System Investment		Allocation		Allocated Investment (a)	Allocated Investment Rounded (a)
		\$				\$	\$
16	LTCP Infrastructure Investment	291,589,000		0.06000%		174,953	175,000
17	<b>Total Allocated System Investment</b>					3,033,778	3,033,000

(a) Plant Investment as of 6/30/2022. Includes Administration and General costs.  
 (b) Allocated 0.15 percent of the Sewer Fund's share of the project funding (\$46,734,645).

cfs - cubic feet per second  
 Mcf - Thousand cubic feet  
 lbs - pounds

**Appendix I – Table 9 Wastewater Wholesale: System Investment Allocated to Lower Southampton Township - Test Year 2024**

Line No.	Cost Component	(1)	(2)	(3)	(4)	(5)	(6)
		Units	Investment Per Unit (a)	Number of Contract Units	Infiltration/Inflow Capacity Allocation Factor	Allocated Investment (a)	Allocated Investment Rounded (a)
<b>Wholesale</b>							
<b>Treatment</b>							
1	Retail, Abington, Bensalem, Bucks County W&SA, Lower Moreland, and Lower Southampton Capacity	Mcf/day	102.6683	1,394	-	143,120	143,000
2	Retail, Abington, Bensalem, Bucks County W&SA, Cheltenham, Lower Moreland, and Lower Southampton Volume	Mcf	5.9136	355,909	-	2,104,703	2,105,000
3	Capacity	Mcf/day	437.8272	1,394	-	610,331	610,000
4	SS	1,000 lbs	719.0718	6,033	-	4,338,160	4,338,000
5	BOD	1,000 lbs	828.1514	5,505	-	4,558,973	4,559,000
6	Total Treatment					11,755,287	11,755,000
<b>Conveyance</b>							
7	Trevoise and City Line	cfs	92,315	15.79	1.0225	1,490,451	1,490,000
8	PC-30 Improvements (b)					8,730,032	8,730,000
9	Total Conveyance					10,220,483	10,220,000
<b>Long Term Control Plan (LTCP)</b>							
Line No.	Cost Component	System Investment	Allocation	Allocated Investment (a)	Allocated Investment Rounded (a)		
		\$		\$	\$		
10	LTCP Infrastructure Investment	133,492,000	0.96317%	1,285,759	1,286,000		
11	Total Allocated System Investment			22,141,629	22,143,000		

(a) Plant Investment as of 6/30/2022. Includes Administration and General costs.  
 (b) Allocated 18.68 percent of the Sewer Fund's share of the project funding (\$4,6734,645).

cfs - cubic feet per second  
 Mcf - Thousand cubic feet  
 lbs - pounds

**Appendix I – Table 10 Wastewater Wholesale: System Investment Allocated to Springfield (excl. Wyndmoor) Township - Test Year 2024**

Line No.	Cost Component	(1)	(2)	(3)	(4)	(5)	(6)
		Units	Investment Per Unit (a)	Number of Contract Units	Infiltration/Inflow Capacity Allocation Factor	Allocated Investment (a)	Allocated Investment Rounded (a)
<b>Wholesale</b>			\$			\$	\$
<b>Treatment</b>							
Retail, DELCORA, Lower Merion, Springfield, (excluding Wyndmoor), and Upper Darby							
1	Volume	Mcf	7.6872	158,350	-	1,217,268	1,217,000
2	Capacity	Mcf/day	372.6158	407	-	151,655	152,000
3	SS	1,000 lbs	491.1981	3,310	-	1,625,866	1,626,000
4	BOD	1,000 lbs	679.9929	3,101	-	2,108,658	2,109,000
5	Total Treatment					5,103,447	5,104,000
<b>Conveyance (b)</b>							
Erdenheim and Stenton							
6	Sewers	cfs	139,780	2.00	1.0225	285,850	286,000
7	Central Schuylkill Pump Station	cfs	13,211	2.00	1.0225	27,016	27,000
8	Meter Station	ea	35,702	1.00	1.0225	36,505	37,000
9	Total					349,371	350,000
Northwestern and Stenton							
10	Sewers	cfs	139,780	2.60	1.0225	371,605	372,000
11	Central Schuylkill Pump Station	cfs	13,211	2.60	1.0225	35,121	35,000
12	Meter Station	ea	10,270	1.00	1.0225	10,501	11,000
13	Total					417,227	418,000
14	Total Conveyance					766,598	768,000
<b>Long Term Control Plan (LTCP)</b>							
Line No.	Cost Component	System Investment	Allocation			Allocated Investment (a)	Allocated Investment Rounded (a)
		\$				\$	\$
15	LTCP Infrastructure Investment	291,589,000	0.27000%			787,290	787,000
16	Total Allocated System Investment					6,657,335	6,659,000

(a) Plant Investment as of 6/30/2022. Includes Administration and General costs.

(b) Excludes connection at Northwestern and Thomas which accounts for less than one half of one percent of township flow.

cfs - cubic feet per second

Mcf - Thousand cubic feet

lbs - pounds

**Appendix I – Table 11 Wastewater Wholesale: System Investment Allocated to Springfield (Wyndmoor) Township - Test Year 2024**

Line No.	Cost Component	(1)	(2)	(3)	(4)	(5)	(6)	
		Units	Investment Per Unit (a)	Number of Contract Units	Infiltration/Inflow Capacity Allocation Factor	Allocated Investment (a)	Allocated Investment Rounded (a)	
<b>Treatment</b>								
Retail and Springfield (Wyndmoor)								
1	Volume	Mcf	6.0639	49,697	-	301,358	301,000	
2	Capacity	Mcf/day	1,419.7749	167	-	237,102	237,000	
3	SS	1,000 lbs	473.0795	204	-	96,508	97,000	
4	BOD	1,000 lbs	451.9670	156	-	70,507	71,000	
5	Total Treatment					705,475	706,000	
<b>Conveyance</b>								
6		cfs	167,854	1.93	1.0225	331,247	331,000	
7	Total Conveyance					331,247	331,000	
8	Total Allocated System Investment					1,036,722	1,037,000	

(a) Plant Investment as of 6/30/2022. Includes Administration and General costs.

cfs - cubic feet per second  
Mcf - Thousand cubic feet  
lbs - pounds

**Appendix I – Table 12 Wastewater Wholesale: System Investment Allocated to Upper Darby - Test Year 2024**

Line No.	Cost Component	(1)	(2)	(3)	(4)	(5)	(6)	
		Units	Investment Per Unit (a)	Number of Contract Units	Infiltration/Inflow Capacity Allocation Factor	Allocated Investment (a)	Allocated Investment Rounded (a)	
<b>Treatment</b>								
Retail, DELCORA, Lower Merion, Springfield, (excluding Wyndmoor), and Upper Darby								
1	Volume	Mcf	7.6872	846,145	-	6,504,486	6,504,000	
2	Capacity	Mcf/day	372.6158	3,094	-	1,152,873	1,153,000	
3	SS	1,000 lbs	491.1981	7,422	-	3,645,427	3,645,000	
4	BOD	1,000 lbs	679.9929	6,841	-	4,651,831	4,652,000	
5	Total Treatment					15,954,617	15,954,000	
<b>Conveyance</b>								
6	60th Street and Cobbs Creek Parkway	cfs	20,191	35.00	1.0225	722,585	723,000	
7	Total Conveyance					722,585	723,000	
<b>Long Term Control Plan (LTCP)</b>								
Line No.	Cost Component	System Investment		Allocation	Allocated Investment (a)		Allocated Investment Rounded (a)	
8	LTCP Infrastructure Investment	291,589,000		0.00%	-		-	
9	Total Allocated System Investment				16,677,202		16,677,000	

(a) Plant Investment as of 6/30/2022. Includes Administration and General costs.

cfs - cubic feet per second  
Mcf - Thousand cubic feet  
lbs - pounds

**Appendix I – Table 13 Wastewater Wholesale: Unit Pumping and Treatment Operation and Maintenance Expense Applicable to Contract Service**

Line No.	Cost Component	(1) Net Operating Expense \$	(2) Projected TY Units of Service	(3) Unit Operating Expense \$/Unit
<b>PUMPING STATIONS</b>				
Neill Drive Pumping Station				
Retail and Lower Merion				
1	Total Volume	10,000	61,250 Mcf	0.1633
2	Total Capacity	187,900	370 Mcf/day	507.8378
Central Schuylkill Pumping Station				
Retail and Springfield (excl. Wyndmoor)				
3	Total Volume	49,000	3,425,000 Mcf	0.0143
4	Total Capacity	564,000	22,110 Mcf/day	25.5088
<b>WATER POLLUTION CONTROL PLANTS</b>				
Northeast Plant:				
Retail and Cheltenham				
5	Volume	- NA	Mcf	-
6	Capacity	- NA	Mcf/day	-
Retail, Abington, Bensalem, Bucks County W&SA, Lower Moreland, and Lower Southampton				
7	Volume	727,000	6,656,000 Mcf	0.1092
8	Capacity	4,198,000	42,580 Mcf/day	98.5909
Retail, Abington, Bensalem, Bucks County W&SA, Cheltenham, Lower Moreland, and Lower Southampton				
9	Volume	15,742,000	8,995,000 Mcf	1.7501
10	Capacity	7,728,000	57,546 Mcf/day	134.2926
11	Suspended Solids	27,951,000	109,593 1,000 lbs	255.0440
12	BOD	23,717,000	78,699 1,000 lbs	301.3647
Southwest Plant:				
Retail, DELCORA, Lower Merion, Springfield (Excluding Wyndmoor), and Upper Darby				
13	Volume	15,195,000	8,914,000 Mcf	1.7046
14	Capacity	6,191,000	57,028 Mcf/day	108.5607
15	Suspended Solids	19,952,132	82,561 1,000 lbs	241.6653
16	BOD	13,852,000	54,411 1,000 lbs	254.5809
Southeast Plant:				
Retail and Springfield (Wyndmoor)				
17	Volume	11,023,000	4,050,000 Mcf	2.7217
18	Capacity	7,623,000	25,911 Mcf/day	294.1994
19	Suspended Solids	13,715,000	34,313 1,000 lbs	399.7027
20	BOD	5,002,000	26,300 1,000 lbs	190.1901
NA - Not Applicable				
Mcf - thousand cubic feet				
Mcf/day - thousand cubic feet per day				
lbs - pounds				



**Appendix I – Table 14 Wastewater Wholesale: Operating Expense Allocated to Abington Township - Test Year 2024**

		(1)	(2)	(3)	
<b>Collection System:</b>					
Line No.	Cost Component	Allocated Investment		Allocated Operating Expense	
		\$		\$	
1	Sewer Maintenance (a)	490,000	x	3.50%	17,150
<b>Treatment:</b>					
Line No.	Cost Component	Operating Expense Per Unit	Test Yr. No. of Units		Allocated Operating Expense
		\$			\$
NE Treatment Plants: Retail, Abington, Bensalem, Bucks County W&SA, Lower Moreland, and Lower Southampton					
2	Volume	0.1092 \$/Mcf	96,500 Mcf		10,538
3	Capacity	98.5909 \$/Mcf/day	844 Mcf/day		83,211
Retail, Abington, Bensalem, Bucks County W&SA, Cheltenham, Lower Moreland, and Lower Southampton					
4	Volume	1.7501 \$/Mcf	96,500 Mcf		168,885
5	Capacity	134.2926 \$/Mcf/day	844 Mcf/day		113,343
6	Suspended Solids	255.0440 \$/1,000 lbs	1,018 1,000 lbs		259,580
7	BOD	301.3647 \$/1,000 lbs	1,346 1,000 lbs		405,643
8	Customer Costs				<u>13,800</u>
9	Total Treatment				1,072,150
<b>Long Term Control Plan (LTCP)</b>					
Line No.	LTCP O&M Costs	System Annual Cost	Allocation		Allocated Operating Expense
		\$			\$
10	Amortization of SMIP/GARP Expenses (b)	8,401,461	0.1000%		8,401
11	LTCP O&M Costs	10,205,615	0.1000%		<u>10,206</u>
12	Total Annual Operating Expense				1,090,757
13	Total - Rounded				1,091,000

(a) Based on investment in sewers serving Abington.

(b) Reflects amortization of SMIP/GARP costs over 20 years at 5.5% long term bond interest rate.

Mcf - Thousand cubic feet  
lbs - pounds

**Appendix I – Table 15 Wastewater Wholesale: Operating Expense Allocated to Bensalem Township - Test Year 2024**

		(1)	(2)	(3)	
<b>Collection System:</b>					
Line No.	Cost Component	Allocated Investment		Allocated Operating Expense	
		\$		\$	
1	Sewer Maintenance (a)	1,110,000	x	3.50%	38,850
<b>Treatment:</b>					
Line No.	Cost Component	Operating Expense Per Unit	Test Yr. No. of Units		Allocated Operating Expense
		\$			\$
NE Treatment Plants: Retail, Abington, Bensalem, Bucks County W&SA, Lower Moreland, and Lower Southampton					
2	Volume	0.1092 \$/Mcf	155,600 Mcf		16,992
3	Capacity	98.5909 \$/Mcf/day	1,034 Mcf/day		101,943
Retail, Abington, Bensalem, Bucks County W&SA, Cheltenham, Lower Moreland, and Lower Southampton					
4	Volume	1.7501 \$/Mcf	155,600 Mcf		272,316
5	Capacity	134.2926 \$/Mcf/day	1,034 Mcf/day		138,859
6	Suspended Solids	255.0440 \$/1,000 lbs	1,592 1,000 lbs		406,012
7	BOD	301.3647 \$/1,000 lbs	1,626 1,000 lbs		489,968
8	Customer Costs				49,400
9	Total Treatment				1,514,340.00
<b>Long Term Control Plan (LTCP):</b>					
Line No.	LTCP O&M Costs	System Annual Cost	Allocation		Allocated Operating Expense
		\$			\$
10	Amortization of SMIP/GARP Expenses (b)	8,401,461	0.0000%		-
11	LTCP O&M Costs	10,205,615	0.0000%		-
12	Total				1,514,340
13	Total - Rounded				1,514,000

(a) Based on investment in sewers serving Bensalem.

Mcf - Thousand cubic feet  
lbs - pounds

**Appendix I – Table 16 Wastewater Wholesale: Operating Expense Allocated to Bucks County W&SA - Test Year 2024**

		(1)	(2)	(3)
<b>Collection System:</b>				
Line No.	Cost Component	Allocated Investment		Allocated Operating Expense
		\$		\$
1	Sewer Maintenance (a)	1,566,000	x 3.50%	54,810
<b>Treatment:</b>				
Line No.	Cost Component	Operating Expense Per Unit	Test Yr. No. of Units	Allocated Operating Expense
		\$		\$
NE Treatment Plants: Retail, Abington, Bensalem, Bucks County W&SA, Lower Moreland, and Lower Southampton				
2	Volume	0.1092 \$/Mcf	929,100 Mcf	101,458
3	Capacity	98.5909 \$/Mcf/day	6,556 Mcf/day	646,362
Retail, Abington, Bensalem, Bucks County W&SA, Cheltenham, Lower Moreland, and Lower Southampton				
4	Volume	1.7501 \$/Mcf	929,100 Mcf	1,626,018
5	Capacity	134.2926 \$/Mcf/day	6,556 Mcf/day	880,422
6	Suspended Solids	255.0440 \$/1,000 lbs	10,694 1,000 lbs	2,727,322
7	BOD	301.3647 \$/1,000 lbs	10,391 1,000 lbs	<u>3,131,514</u>
8	Customer Costs			16,200
9	Total Treatment			9,184,106.00
<b>Long Term Control Plan (LTCP):</b>				
Line No.	LTCP O&M Costs	System Annual Cost	Allocation	Allocated Operating Expense
		\$		\$
10	Amortization of SMIP/GARP Expenses (b)	8,401,461	0.0000%	-
11	LTCP O&M Costs	10,205,615	0.0000%	-
12	Total			9,184,106
13	Total - Rounded			9,184,000

(a) Based on investment in sewers serving Bucks County W&SA.

Mcf - Thousand cubic feet  
lbs - pounds

**Appendix I – Table 17 Wastewater Wholesale: Operating Expense Allocated to Cheltenham Township - Test Year 2024**

		(1)	(2)	(3)		
<b>Collection System:</b>						
Line No.	Cost Component	Allocated Investment				Allocated Operating Expense
		\$				\$
1	Sewer Maintenance (a)	522,000	x	3.50%		18,270
<b>Treatment:</b>						
Line No.	Cost Component	Operating Expense Per Unit		Test Yr. No. of Units		Allocated Operating Expense
		\$				\$
NE Treatment Plants: Retail, Abington, Bensalem, Bucks County W&SA, Lower Moreland, and Lower Southampton						
2	Volume	0.1092	\$/Mcf	NA	Mcf	-
3	Capacity	98.5909	\$/Mcf/day	NA	Mcf/day	-
Retail, Abington, Bensalem, Bucks County W&SA, Cheltenham, Lower Moreland, and Lower Southampton						
4	Volume	1.7501	\$/Mcf	426,000	Mcf	745,543
5	Capacity	134.2926	\$/Mcf/day	2,803	Mcf/day	376,422
6	Suspended Solids	255.0440	\$/1,000 lbs	3,135	1,000 lbs	799,512
7	BOD	301.3647	\$/1,000 lbs	2,691	1,000 lbs	810,986
8	Customer Costs					33,700
9	Total Treatment					2,784,433
<b>Long Term Control Plan (LTCP):</b>						
Line No.	LTCP O&M Costs	System Annual Cost		Allocation		Allocated Operating Expense
		\$				\$
10	Amortization of SMIP/GARP Expenses (b)	8,401,461		1.1200%		94,096
11	LTCP O&M	10,205,615		1.1200%		114,303
12	Total					2,992,832
13	Total - Rounded					2,993,000

(a) Based on investment in sewers serving Cheltenham.

(b) Reflects amortization of SMIP/GARP costs over 20 years at 5.5% long term bond interest rate.

Mcf - Thousand cubic feet  
lbs - pounds

**Appendix I – Table 18 Wastewater Wholesale: Operating Expense Allocated to DELCORA - Test Year 2024**

		(1)	(2)	(3)
<b>Treatment:</b>				
Line No.	Cost Component	Operating Expense Per Unit	Test Yr. No. of Units	Allocated Operating Expense
		\$		\$
SW Treatment Plant: Retail, DELCORA, Lower Merion, Springfield (Excluding Wyndmoor), and Upper Darby				
1	Volume	1.7046 \$/Mcf	1,087,000 Mcf	1,852,900
2	Capacity	108.5607 \$/Mcf/day	13,392 Mcf/day	1,453,845
3	Suspended Solids	241.6653 \$/1,000 lbs	12,017 1,000 lbs	2,903,976
4	BOD	254.5809 \$/1,000 lbs	10,202 1,000 lbs	2,597,357
5	Customer Costs			43,000
6	Total Treatment			8,851,078
<b>Long Term Control Plan (LTCP):</b>				
Line No.	LTCP O&M Costs	System Annual Cost	Allocation	Allocated Operating Expense
		\$		\$
7	Amortization of SMIP/GARP Expenses (a)	8,401,461	0.21000%	17,643
8	LTCP O&M	10,205,615	0.21000%	21,432
9	Total Annual Operating Expense			8,890,153
10	Total - Rounded			8,890,000

(a) Reflects amortization of SMIP/GARP costs over 20 years at 5.5% long term bond interest rate.

Mcf - Thousand cubic feet  
lbs - pounds

**Appendix I – Table 19 Wastewater Wholesale: Operating Expense Allocated to Lower Merion Township - Test Year 2024**

		(1)	(2)	(3)	
<b>Collection System:</b>					
Line No.	Cost Component	Allocated Investment		Allocated Operating Expense	
		\$		\$	
1	Sewer Maintenance (a)	1,808,000	x	3.50%	63,280
<b>Treatment:</b>					
Line No.	Cost Component	Operating Expense Per Unit	Test Yr. No. of Units	Allocated Operating Expense	
		\$		\$	
Neill Drive Pump Station					
Retail and Lower Merion					
2	Volume	0.1633 \$/Mcf	12,700 Mcf	2,074	
3	Capacity	507.8378 \$/Mcf/day	115 Mcf/day	58,401	
SW Treatment Plants:					
Retail, DELCORA, Lower Merion, Springfield (Excluding Wyndmoor), and Upper Darby					
4	Volume	1.7046 \$/Mcf	324,900 Mcf	553,825	
5	Capacity	108.5607 \$/Mcf/day	2,788 Mcf/day	302,667	
6	Suspended Solids	241.6653 \$/1,000 lbs	3,299 1,000 lbs	797,319	
7	BOD	254.5809 \$/1,000 lbs	2,769 1,000 lbs	704,963	
8	Customer Costs			53,900	
9	Total Treatment			2,536,429	
<b>Long Term Control Plan (LTCP):</b>					
Line No.	Cost Component	System Annual Cost	Allocation	Allocated Operating Expense	
		\$		\$	
10	Amortization of SMIP/GARP Expenses (a)	8,401,461	0.00000%	-	
11	LTCP O&M	10,205,615	0.00000%	-	
12	Total Annual Operating Expense			2,536,429	
13	Total - Rounded			2,536,000	

(a) Based on investment in sewers serving Lower Merion.

Mcf - Thousand cubic feet  
lbs - pounds

**Appendix I – Table 20 Wastewater Wholesale: Operating Expense Allocated to Lower Moreland Township - Test Year 2024**

		(1)	(2)	(3)
<b>Collection System:</b>				
Line No.	Cost Component	Allocated Investment		Allocated Operating Expense
		\$		\$
1	Sewer Maintenance (a)	705,000	x 3.50%	24,675
<b>Treatment:</b>				
Line No.	Cost Component	Operating Expense Per Unit	Test Yr. No. of Units	Allocated Operating Expense
		\$		\$
NE Treatment Plants: Retail, Abington, Bensalem, Bucks County W&SA, Lower Moreland, and Lower Southampton				
2	Volume	0.1092 \$/Mcf	64,800 Mcf	7,076
3	Capacity	98.5909 \$/Mcf/day	518 Mcf/day	51,070
Retail, Abington, Bensalem, Bucks County W&SA, Cheltenham, Lower Moreland, and Lower Southampton				
4	Volume	1.7501 \$/Mcf	64,800 Mcf	113,406
5	Capacity	134.2926 \$/Mcf/day	518 Mcf/day	69,564
6	Suspended Solids	255.0440 \$/1,000 lbs	638 1,000 lbs	162,770
7	BOD	301.3647 \$/1,000 lbs	472 1,000 lbs	142,366
8	Customer Costs			20,700
<b>Long Term Control Plan (LTCP):</b>				
Line No.	LTCP O&M Costs	System Annual Cost	Allocation	Allocated Operating Expense
		\$		\$
10	Amortization of SMIP/GARP Expenses (b)	8,401,461	0.06000%	5,041
11	LTCP O&M Costs	10,205,615	0.06000%	6,123
12	Total Annual Operating Expense			602,791
13	Total - Rounded			603,000

(a) Based on investment in sewers serving Lower Moreland.

(b) Reflects amortization of SMIP/GARP costs over 20 years at 5.5% long term bond interest rate.

Mcf - Thousand cubic feet  
lbs - pounds

**Appendix I – Table 21 Wastewater Wholesale: Operating Expense Allocated to Lower Southampton Township - Test Year 2024**

		(1)	(2)	(3)	
<b>Collection System:</b>					
Line No.	Cost Component	Allocated Investment		Allocated Operating Expense	
		\$		\$	
1	Sewer Maintenance (a)	10,220,000	x	3.50%	357,700
<b>Treatment:</b>					
Line No.	Cost Component	Operating Expense Per Unit	Test Yr. No. of Units	Allocated Operating Expense	
		\$		\$	
NE Treatment Plants: Retail, Abington, Bensalem, Bucks County W&SA, Lower Moreland, and Lower Southampton					
2	Volume	0.1092 \$/Mcf	277,500 Mcf	30,303	
3	Capacity	98.5909 \$/Mcf/day	1,394 Mcf/day	137,436	
Retail, Abington, Bensalem, Bucks County W&SA, Cheltenham, Lower Moreland, and Lower Southampton					
4	Volume	1.7501 \$/Mcf	277,500 Mcf	485,653	
5	Capacity	134.2926 \$/Mcf/day	1,394 Mcf/day	187,204	
6	Suspended Solids	255.0440 \$/1,000 lbs	1,997 1,000 lbs	509,370	
7	BOD	301.3647 \$/1,000 lbs	1,638 1,000 lbs	493,558	
8	Customer Costs			16,200	
<b>Long Term Control Plan (LTCP):</b>					
Line No.	LTCP O&M Costs	System Annual Cost	Allocation	Allocated Operating Expense	
		\$		\$	
10	Amortization of SMIP/GARP Expenses (b)	8,401,461	0.16000%	13,442	
11	LTCP O&M Costs	10,205,615	0.16000%	16,329	
12	Total Annual Operating Expense			2,247,195	
13	Total - Rounded			2,247,000	

(a) Based on investment in sewers serving Lower Southampton.

(b) Reflects amortization of SMIP/GARP costs over 20 years at 5.5% long term bond interest rate.

Mcf - Thousand cubic feet

lbs - pounds



**Appendix I – Table 22 Wastewater Wholesale: Operating Expense Allocated to Springfield (Excl. Wyndmoor) Township - Test Year 2024**

		(1)	(2)	(3)	
<b>Collection System:</b>					
Line No.	Cost Component	Allocated Investment		Allocated Operating Expense	
		\$		\$	
1	Sewer Maintenance (a)	768,000	x	3.50%	26,880
<b>Treatment:</b>					
Line No.	Cost Component	Operating Expense Per Unit	Test Yr. No. of Units	Allocated Operating Expense	
		\$		\$	
Central Schuylkill Pump Station					
Retail and Springfield (excluding Wyndmoor)					
2	Volume	0.0143 \$/Mcf	111,200 Mcf	1,590	
3	Capacity	25.5088 \$/Mcf/day	407 Mcf/day	10,382	
SW Treatment Plants:					
Retail, DELCORA, Lower Merion, Springfield (Excluding Wyndmoor), and Upper Darby					
4	Volume	1.7046 \$/Mcf	111,200 Mcf	189,552	
5	Capacity	108.5607 \$/Mcf/day	407 Mcf/day	44,184	
6	Suspended Solids	241.6653 \$/1,000 lbs	2,151 1,000 lbs	519,913	
7	BOD	254.5809 \$/1,000 lbs	2,117 1,000 lbs	538,876	
8	Customer Costs			27,200	
9	Total Treatment			1,358,577	
<b>Long Term Control Plan (LTCP):</b>					
Line No.	LTCP O&M Costs	System Annual Cost	Allocation	Allocated Operating Expense	
		\$		\$	
10	Amortization of SMIP/GARP Expenses (b)	8,401,461	0.27000%	22,684	
11	LTCP O&M Costs	10,205,615	0.27000%	27,555	
12	Total Annual Operating Expense			1,408,816	
13	Total - Rounded			1,409,000	

(a) Based on investment in sewers serving Springfield (excluding Wyndmoor).

(b) Reflects amortization of SMIP/GARP costs over 20 years at 5.5% long term bond interest rate.

Mcf - Thousand cubic feet

lbs - pounds

**Appendix I – Table 23 Wastewater Wholesale: Operating Expense Allocated to Springfield (Wyndmoor) Township - Test Year 2024**

		(1)	(2)	(3)	
<b>Collection System:</b>					
Line No.	Cost Component	Allocated Investment		Allocated Operating Expense	
		\$		\$	
1	Sewer Maintenance (a)	331,000	x	3.50%	11,585
<b>Treatment:</b>					
Line No.	Cost Component	Operating Expense Per Unit	Test Yr. No. of Units	Allocated Operating Expense	
		\$		\$	
SE Treatment Plants:					
Retail, Springfield (Wyndmoor)					
2	Volume	2.7217 \$/Mcf	18,900 Mcf	51,440	
3	Capacity	294.1994 \$/Mcf/day	167 Mcf/day	49,131	
4	Suspended Solids	399.7027 \$/1,000 lbs	219 1,000 lbs	87,574	
5	BOD	190.1901 \$/1,000 lbs	167 1,000 lbs	31,816	
6	Customer Costs			7,700	
7	Total			239,246	
8	Total - Rounded			239,000	

(a) Based on investment in sewers serving Springfield (Wyndmoor).

Mcf - Thousand cubic feet  
lbs - pounds

**Appendix I – Table 24 Wastewater Wholesale: Operating Expense Allocated to Upper Darby Township - Test Year 2024**

		(1)	(2)	(3)
<b>Collection System:</b>				
Line No.	Cost Component	Allocated Investment		Allocated Operating Expense
		\$		\$
1	Sewer Maintenance (a)	723,000	x 3.50%	25,305
<b>Treatment:</b>				
Line No.	Cost Component	Operating Expense Per Unit	Test Yr. No. of Units	Allocated Operating Expense
		\$		\$
SW Treatment Plants: Retail, DELCORA, Lower Merion, Springfield (Excluding Wyndmoor), and Upper Darby				
2	Volume	1.7046 \$/Mcf	467,600 Mcf	797,071
3	Capacity	108.5607 \$/Mcf/day	3,094 Mcf/day	335,887
4	Suspended Solids	241.6653 \$/1,000 lbs	4,465 1,000 lbs	1,079,066
5	BOD	254.5809 \$/1,000 lbs	3,755 1,000 lbs	955,843
6	Customer Costs			13,800
7	Total Treatment			3,206,972
<b>Long Term Control Plan (LTCP):</b>				
Line No.	LTCP O&M Costs	System Annual Cost	Allocation	Allocated Operating Expense
		\$		\$
8	Amortization of SMIP/GARP Expenses (b)	8,401,461	0.00000%	-
9	LTCP O&M Costs	10,205,615	0.00000%	-
10	Total Annual Operating Expense			3,206,972
11	Total - Rounded			3,207,000

(a) Based on investment in sewers serving Upper Darby.

Mcf - Thousand cubic feet  
lbs - pounds

**Appendix I – Table 25 Wastewater Wholesale: Summary of Allocated Cost of Service for Contract Customers - Test Year 2025**

LINE NO.	CUSTOMER	(1) INVESTMENT (a)		(3)	(4)	(5)	(6)
		ALLOCATED	ALLOCATED DEPRECIABLE	O&M	DEPR'N	RETURN	ALLOCATED COST OF SERVICE
<b>Wholesale Customers (\$000S)</b>							
1	Abington	\$ 6,092	\$ 6,077	\$ 1,175	\$ 148	\$ 457	\$ 1,780
2	Bucks County (Bensalem)	10,599	10,571	1,631	(a)	(a)	1,631
3	Bucks County (b)	33,103	33,010	9,918	232	697	10,848
4	Cheltenham	17,137	17,098	3,222	409	1,285	4,916
5	DELCORA (c)	48,734	48,593	9,427	229	697	10,354
6	Lower Merion	16,672	16,628	2,684	(a)	(a)	2,684
7	Lower Moreland	3,033	3,027	649	71	227	948
8	Lower Southampton (d)	22,442	22,407	2,411	507	1,683	4,601
9	Springfield (less Wyndmoor)	6,659	6,645	1,485	159	499	2,143
10	Springfield (Wyndmoor)	1,037	1,036	257	24	78	359
11	Upper Darby	16,677	16,630	3,400	(a)	(a)	3,400
12	<b>Total</b>	<b>\$ 182,185</b>	<b>\$ 181,722</b>	<b>\$ 36,259</b>	<b>\$ 1,779</b>	<b>\$ 5,625</b>	<b>\$ 43,663</b>

(a) It is assumed that Bensalem, Lower Merion and Upper Darby contribute their entire allocated plant investment, and therefore, are not allocated any depreciation expense or return on investment.

(b) Bucks County allocated Return on Investment and Depreciation Expense based on assets in service after 6/30/2007.

(c) DELCORA allocated Return on Investment and Depreciation Expense based on assets in service after 7/1/2011.

(d) Lower Southampton phased into Return on Investment and Depreciation Expense on total rate base uniformly over 18 years starting in FY 2007.

**In the Matter of the Philadelphia Water  
Department's Proposed Change in Water,  
Wastewater and Stormwater Rates and Related  
Charges**

**Fiscal Years 2024-2025**

**Philadelphia Water Department**

**Black & Veatch Management Consulting, LLC**

**Schedule BV-3**

**Dated: January 2023**

Schedule REF #		Schedule Name
<b>BV-3 Black &amp; Veatch Schedules</b>		
1	<b>TABLE M-1</b>	Summary of Miscellaneous Charges (Regular Hours)
5	<b>TABLE M-2</b>	Summary of Miscellaneous Charges (Overtime Hours)

Philadelphia Water Department

TABLE M-1- SUMMARY OF MISCELLANEOUS CHARGES (FOR WORK PERFORMED DURING BUSINESS HOURS)

#	Miscellaneous Charge Description	PWD Rates and Charges Reference	1 PWD Existing Charges	2 Calculated Charges		4 PWD Miscellaneous Charges	
				FY 2024	FY 2025	Proposed - FY 2024	Proposed - FY 2025
<b>Section 6- Miscellaneous Water Charges</b>							
1	Meter Test Charges	6.1					
	5/8"	6.1 (e)	\$210.00	\$128.99	\$133.37	\$130.00	\$140.00
	1",1.5",2"	6.1 (e)	\$280.00	\$176.02	\$182.07	\$180.00	\$190.00
	3",4",6",8",10",12"	6.1 (e)	\$640.00	\$383.43	\$395.66	\$390.00	\$400.00
	Field Tests 3" and above	6.1 (e)	\$640.00	\$383.43	\$395.66	\$390.00	\$400.00
2	Charges for Furnishing and Installation of Water Meters	6.2					
a	Setting both Meter and Meter Interface Unit (MIU)	6.2 (a)					
	5/8"	6.2 (a)	\$255.00	\$223.70	\$226.34	\$225.00	\$230.00
	3/4 RFSS	6.2 (a)	\$435.00	\$413.09	\$432.85	\$415.00	\$435.00
	1"	6.2 (a)	\$430.00	\$374.85	\$391.76	\$375.00	\$395.00
	1" RFSS	6.2 (a)	\$520.00	\$468.05	\$489.62	\$470.00	\$490.00
	1 1/2	6.2 (a)	\$805.00	\$833.18	\$873.00	\$835.00	\$875.00
	1 1/2 RFSS	6.2 (a)	\$750.00	\$784.11	\$821.48	\$785.00	\$825.00
	2"	6.2 (a)	\$905.00	\$1,006.01	\$1,054.47	\$1,010.00	\$1,055.00
	2" RFSS	6.2 (a)	\$970.00	\$1,018.53	\$1,067.62	\$1,020.00	\$1,070.00
	3" Compound	6.2 (a)	\$2,370.00	\$3,323.98	\$3,484.62	\$3,320.00	\$3,485.00
	3" Turbine	6.2 (a)	\$1,485.00	\$1,821.83	\$1,907.36	\$1,825.00	\$1,910.00
	3" Fire Series	6.2 (a)	\$3,370.00	\$3,641.01	\$3,817.50	\$3,645.00	\$3,820.00
	4" Compound	6.2 (a)	\$2,785.00	\$4,600.56	\$4,825.03	\$3,900.00	\$4,830.00
	4" Turbine	6.2 (a)	\$2,525.00	\$2,632.08	\$2,758.13	\$2,635.00	\$2,760.00
	4" Fire Series	6.2 (a)	\$3,660.00	\$4,502.57	\$4,722.14	\$4,505.00	\$4,725.00
	4" Fire Assembly	6.2 (a)	\$6,015.00	\$6,081.75	\$6,380.28	\$6,085.00	\$6,385.00
	6" Compound	6.2 (a)	\$4,815.00	\$6,440.07	\$6,756.52	\$6,445.00	\$6,760.00
	6" Turbine	6.2 (a)	\$4,065.00	\$4,952.96	\$5,195.05	\$4,955.00	\$5,200.00
	6" Fire Series	6.2 (a)	\$5,310.00	\$5,961.77	\$6,254.30	\$5,965.00	\$6,255.00
	6" Fire Assembly	6.2 (a)	\$7,915.00	\$8,689.97	\$9,118.91	\$8,690.00	\$9,120.00
	8" Turbine	6.2 (a)	\$5,445.00	\$5,883.52	\$6,172.14	\$5,885.00	\$6,175.00
	8" Fire Series	6.2 (a)	\$6,080.00	\$7,548.21	\$7,920.06	\$7,550.00	\$7,925.00
	8" Fire Assembly	6.2 (a)	\$11,135.00	\$12,281.27	\$12,889.78	\$12,285.00	\$12,890.00
	10" Turbine	6.2 (a)	\$7,785.00	\$8,538.02	\$8,959.36	\$8,540.00	\$8,960.00
	10" Fire Series	6.2 (a)	\$8,515.00	\$9,296.77	\$9,756.05	\$9,300.00	\$9,760.00
	10" Fire Assembly	6.2 (a)	\$15,300.00	\$17,744.48	\$18,626.15	\$17,745.00	\$18,630.00
	12" Turbine	6.2 (a)	\$7,900.00	\$9,041.70	\$9,488.23	\$9,045.00	\$9,490.00
	12" Fire Series	6.2 (a)	\$8,705.00	\$10,454.12	\$10,971.27	\$10,455.00	\$10,975.00
	12" Fire Assembly	6.2 (a)	\$16,170.00	\$18,901.83	\$19,841.36	\$18,905.00	\$19,845.00
b	Furnishing and Setting Meter Interface Unit (MIU)	6.2 (b)					
	5/8"	6.2 (b)	\$105.00	\$70.79	\$73.43	\$75.00	\$75.00
	3/4 RFSS	6.2 (b)	\$105.00	\$70.79	\$73.43	\$75.00	\$75.00
	1"	6.2 (b)	\$190.00	\$117.35	\$121.38	\$120.00	\$125.00
	1" RFSS	6.2 (b)	\$190.00	\$117.35	\$121.38	\$120.00	\$125.00
	1 1/2	6.2 (b)	\$190.00	\$117.35	\$121.38	\$120.00	\$125.00
	1 1/2 RFSS	6.2 (b)	\$190.00	\$117.35	\$121.38	\$120.00	\$125.00
	2"	6.2 (b)	\$190.00	\$117.35	\$121.38	\$120.00	\$125.00
	2" RFSS	6.2 (b)	\$190.00	\$117.35	\$121.38	\$120.00	\$125.00
	3" Compound	6.2 (b)	\$515.00	\$306.75	\$316.53	\$310.00	\$320.00
	3" Turbine	6.2 (b)	\$515.00	\$306.75	\$316.53	\$310.00	\$320.00

Philadelphia Water Department

TABLE M-1- SUMMARY OF MISCELLANEOUS CHARGES (FOR WORK PERFORMED DURING BUSINESS HOURS)

#	Miscellaneous Charge Description	PWD Rates and Charges Reference	1 PWD Existing Charges	2 Calculated Charges		3 PWD Miscellaneous Charges	
				FY 2024	FY 2025	Proposed - FY 2024	Proposed - FY 2025
	4" Compound	6.2 (b)	\$515.00	\$306.75	\$316.53	\$310.00	\$320.00
	4" Turbine	6.2 (b)	\$515.00	\$306.75	\$316.53	\$310.00	\$320.00
	6" Compound	6.2 (b)	\$515.00	\$306.75	\$316.53	\$310.00	\$320.00
	6" Turbine	6.2 (b)	\$515.00	\$306.75	\$316.53	\$310.00	\$320.00
	8"	6.2 (b)	\$515.00	\$306.75	\$316.53	\$310.00	\$320.00
	10"	6.2 (b)	\$515.00	\$306.75	\$316.53	\$310.00	\$320.00
3	Tampering of Meter	6.3					
	5/8" or 3/4"	6.3 (a)	\$120.00	\$70.79	\$73.43	\$80.00	\$90.00
	1", 1.5" or 2"	6.3 (a)	\$210.00	\$117.35	\$121.38	\$130.00	\$140.00
	3" and larger	6.3 (a)	\$570.00	\$306.75	\$316.53	\$340.00	\$350.00
4	Shut-Off and Restoration of Water Service	6.4					
a	Site Visit for Non-payment	6.4 (a)	\$105.00	\$70.79	\$73.43	\$75.00	\$75.00
b	Non-compliance with Notice of Defect and/or Metering Non-compliance	6.4 (b)	\$105.00	\$70.79	\$73.43	\$75.00	\$75.00
c	Restoration of Water Service	6.4 (c)					
	Operating service valve 2" and smaller service lines	6.4 (c) (1) (i)	\$105.00	\$70.79	\$73.43	\$75.00	\$75.00
	Operating service valve larger than 2" service lines	6.4 (c) (1) (ii)	\$395.00	\$354.35	\$367.87	\$355.00	\$370.00
	Obstructed curb stop, missing access box, requires excavation	6.4 (c) (2)	\$905.00	\$695.04	\$723.72	\$700.00	\$725.00
	Curb stop inoperable, requires installation of new curb stop	6.4 (c) (3)	\$950.00	\$729.25	\$760.33	\$730.00	\$765.00
	Obstructed curb stop, missing access box, requires excavation and footway paving	6.4 (c) (4)	\$905.00	\$705.13	\$734.52	\$710.00	\$735.00
	Curb stop inoperable, requires installation of new curb stop and footway paving	6.4 (c) (5)	\$950.00	\$739.34	\$771.13	\$740.00	\$775.00
	Excavation and shutoff of ferrule at the water main	6.4 (c) (6)	\$2,165.00	\$1,445.10	\$1,502.41	\$1,450.00	\$1,505.00
e	TAP Customers -Shut-off and Restoration of Water Service	6.4 (e)					
	Shut off service for non-payment; and, payment is tendered at the time of the shut-off	6.4 (e) (1)	\$12.00	NA	NA	\$12.00	\$12.00
	Restore water service after termination for non-payment or violation of service requirements	6.4 (e) (2)	\$12.00	NA	NA	\$12.00	\$12.00
5	Pumping of Properties	6.5	Actual Cost	\$147.52	\$152.24	Actual Cost	Actual Cost
6	Charges for Water Main Shutdown Service	6.6	\$225.00	\$342.23	\$355.13	\$315.00	\$360.00
7	Water Connection Charges	6.7					
b	Ferrule Connections	6.7 (b)					
	3/4"	6.7 (b) (2)	\$235.00	\$181.68	\$189.45	\$185.00	\$190.00
	1"	6.7 (b) (2)	\$255.00	\$208.46	\$218.10	\$210.00	\$220.00
	1.5"	6.7 (b) (2)	\$285.00	\$248.37	\$260.80	\$250.00	\$265.00
	2"	6.7 (b) (2)	\$340.00	\$315.58	\$332.72	\$320.00	\$335.00
c	Valve Connections	6.7 (c)					
	3" & 4"	6.7 (c) (1)	\$15,670.00	\$12,723.38	\$13,234.01	\$12,725.00	\$13,235.00
	6" & 8"	6.7 (c) (1)	\$16,010.00	\$13,586.38	\$14,157.41	\$13,590.00	\$14,160.00
	10" & 12"	6.7 (c) (1)	\$18,970.00	\$16,229.23	\$16,985.27	\$16,230.00	\$16,990.00
d	Attachment to a Transmission Main	6.7 (d)					
	3" & 4" Sleeve	6.7 (d) (2)					
	16" Main	6.7 (d) (2)	\$23,965.00	\$20,689.30	\$21,662.52	\$20,690.00	\$21,665.00
	20" Main	6.7 (d) (2)	\$25,465.00	\$22,843.21	\$23,967.21	\$22,845.00	\$23,970.00
	24" Main	6.7 (d) (2)	\$27,065.00	\$25,140.71	\$26,425.53	\$25,145.00	\$26,430.00
	30" Main	6.7 (d) (2)	\$36,740.00	\$37,325.69	\$39,463.46	\$37,330.00	\$39,465.00
	36" Main	6.7 (d) (2)	\$41,905.00	\$44,246.44	\$46,868.66	\$44,250.00	\$46,870.00



Philadelphia Water Department

TABLE M-1- SUMMARY OF MISCELLANEOUS CHARGES (FOR WORK PERFORMED DURING BUSINESS HOURS)

#	Miscellaneous Charge Description	PWD Rates and Charges Reference	1 PWD Existing Charges	2 Calculated Charges		3 PWD Miscellaneous Charges	
				FY 2024	FY 2025	Proposed - FY 2024	Proposed - FY 2025
	6" & 8" Sleeve	6.7 (d) (2)					
	16" Main	6.7 (d) (2)	\$24,165.00	\$20,904.69	\$21,892.99	\$20,905.00	\$21,895.00
	20" Main	6.7 (d) (2)	\$25,365.00	\$22,556.02	\$23,659.91	\$22,560.00	\$23,660.00
	24" Main	6.7 (d) (2)	\$27,065.00	\$25,140.71	\$26,425.53	\$25,145.00	\$26,430.00
	30" Main	6.7 (d) (2)	\$38,225.00	\$39,315.31	\$41,592.35	\$39,320.00	\$41,595.00
	36" Main	6.7 (d) (2)	\$45,325.00	\$48,831.67	\$51,774.86	\$48,835.00	\$51,775.00
	10" & 12" Sleeve	6.7 (d) (2)					
	16" Main	6.7 (d) (2)	\$24,165.00	\$20,976.49	\$21,969.82	\$20,980.00	\$21,970.00
	20" Main	6.7 (d) (2)	\$25,665.00	\$22,915.01	\$24,044.03	\$22,920.00	\$24,045.00
	24" Main	6.7 (d) (2)	\$27,165.00	\$25,140.71	\$26,425.53	\$25,145.00	\$26,430.00
	30" Main	6.7 (d) (2)	\$38,700.00	\$39,952.14	\$42,273.76	\$39,955.00	\$42,275.00
	36" Main	6.7 (d) (2)	\$47,345.00	\$51,542.59	\$54,675.54	\$51,545.00	\$54,680.00
8	Discontinuance of Water	6.8	\$100.00	\$1,343.02	\$1,409.42	\$100.00	\$100.00
9	Hydrant Permits	6.9					
	One Week	6.9 (b) (1)	\$860.00	\$1,897.08	\$1,948.79	\$1,205.00	\$1,690.00
	Six Month	6.9 (b) (2)	\$4,495.00	\$18,093.37	\$18,145.07	\$6,295.00	\$8,815.00
10	Flow Tests	6.10	\$930.00	\$566.72	\$582.32	\$570.00	\$585.00
11	Water Service Line Investigations and/or Inspections	6.11	\$90.00	\$133.56	\$138.07	\$130.00	\$140.00
<b>Section 7- Miscellaneous Sewer Charges</b>							
3	Wastewater Discharge Permit	7.3	\$1,960.00	\$4,455.99	\$4,589.67	\$2,745.00	\$3,845.00
4	Groundwater Discharge Permit	7.4	\$1,960.00	\$2,773.73	\$2,856.94	\$2,745.00	\$2,860.00
5	Manhole Pump-out Permit	7.5	\$3,845.00	\$2,863.76	\$2,949.67	\$2,865.00	\$2,950.00
6	Trucked or Hauled Wastewater Permit	7.6	\$2,355.00	\$1,559.77	\$1,606.56	\$1,560.00	\$1,610.00
7	Photographic & Video Inspection	7.7	\$275.00	\$275.00	\$275.00	\$275.00	\$275.00
<b>Section 8- Miscellaneous Stormwater Charges</b>							
1	Stormwater Plan Review Fees	8.1					
	Conceptual Stormwater Plan Approval	8.1 (a) (1)	\$1,115.00	\$1,487.23	\$1,510.84	\$1,490.00	\$1,515.00
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)	8.1 (a) (2)	\$120.00	\$217.54	\$221.94	\$170.00	\$225.00
	Utility Plan Review	New Fee 8.1 (a) (3)	NA	\$309.96	\$319.26	\$310.00	\$320.00
	Active Construction Stormwater Inspection Fee	New Fee 8.3 (a)	NA	\$370.82	\$382.59	\$375.00	\$385.00
2	Stormwater Management Fee in Lieu	8.2					
	Exemption to Water Quality Requirement	8.2 (a)	\$31.00	\$36.24	\$36.24	\$36.00	\$36.00
<b>Other- Not in the Miscellaneous Charges Section (Section 3- Rates and Charges)</b>							
1	Sewer Credit Application Fee	3.5 (c)	\$585.00	\$1,639.34	\$1,688.52	\$820.00	\$1,150.00
2	Sewer Credit Failure to Inform PWD about increase	3.5 (f)	\$275.00	\$535.90	\$551.98	\$385.00	\$540.00
<b>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>							
3	Stormwater Credit Application Fee Renewal	4.5 (f) (4)	\$200.00	\$793.05	\$816.84	\$280.00	\$395.00

**Column Notes**

- 1 From the PWD Regulations Chapter 3-Rates and Charges Effective September 1, 2022 (FY 2023 Charges)
- 2,4 Calculated charges for work performed during Water Department's regular business hours (9:00 a.m. to 4:45 p.m.) (i.e. not including overtime)  
 FY 2024 Labor costs assume an escalation of 3.25% from FY 2023 budgeted salary costs . FY 2025 labor costs assume an escalation of 3.0% from FY 2024 escalated salary costs.  
 Equipment costs based on FY 2021 FEMA rates. Since FEMA costs are a lagging indicator, annual escalation applied to project FY 2024 and FY 2025 equipment costs.  
 Material costs provided by PWD and escalated at 5% for large meters (>5/8 Inch) and 7% for all other materials each year in FY 2024 and FY 2025. Costs not escalated for small meters (5/8 Inch) as they are per the AMI contract.
- 4,5 Proposed FY 2024 -FY 2025 Miscellaneous charges.

**Row Notes**

- Section 6.2 (b) ERT material costs are excluded because ERTs are under warranty. Removed ERTs are sent to ITRON and ITRON sends a replacement.  
 The cost of ERT is built into the ITRON contract and is recovered through the meter based charges.
- Section 6.8 City Code (Chapter 19-1600 Water Sewer Rents) stipulates the Discontinuance Permit fee at \$100 (allocated \$30 for water department use and \$70 for general fund use).
- Section 7.7 Per PWD Staff the customer is billed the amount that is charged by the contractor, which is \$275.
- Section 8.1 (a) Post construction Stormwater Plan Submission is proposed to be combined in the Stormwater Plan Approval Fee.  
 Development Services Unit has proposed exploring two new fees; Utility Plan Review Fees and Active Construction Inspection Fees.

Philadelphia Water Department

TABLE M-2- SUMMARY OF MISCELLANEOUS CHARGES (FOR WORK PERFORMED DURING NON BUSINESS HOURS)

#	Miscellaneous Charge Description	PWD Rates and Charges Reference	1 PWD Existing Charges (Non Business Hours)	2 Calculated Charges		4 PWD Miscellaneous Charges	
				FY 2024	FY 2025	Proposed - FY 2024	Proposed - FY 2025
<b>Section 6- Miscellaneous Water Charges</b>							
7	Water Connection Charges						
	Ferrule Connections	6.7 (b)					
	3/4"	6.7 (b) (3)	\$255.00	\$205.72	\$214.22	\$210.00	\$215.00
	1"	6.7 (b) (3)	\$275.00	\$232.50	\$242.87	\$235.00	\$245.00
	1.5"	6.7 (b) (3)	\$310.00	\$272.41	\$285.57	\$275.00	\$290.00
	2"	6.7 (b) (3)	\$360.00	\$339.62	\$357.49	\$340.00	\$360.00
	Valve Connections	6.7 (c)					
	3" & 4"	6.7 (c) (2)	\$17,380.00	\$14,716.76	\$15,287.19	\$14,720.00	\$15,290.00
	6" & 8"	6.7 (c) (2)	\$17,720.00	\$15,579.76	\$16,210.59	\$15,580.00	\$16,215.00
	10" & 12"	6.7 (c) (2)	\$20,895.00	\$18,222.61	\$19,038.45	\$18,225.00	\$19,040.00
	Attachment to a Transmission Main	6.7 (d)					
	3" & 4" Sleeve	6.7 (d) (3)					
	16" Main	6.7 (d) (3)	\$26,100.00	\$23,181.02	\$24,229.00	\$23,185.00	\$24,230.00
	20" Main	6.7 (d) (3)	\$27,600.00	\$25,334.93	\$26,533.69	\$25,335.00	\$26,535.00
	24" Main	6.7 (d) (3)	\$29,200.00	\$27,632.43	\$28,992.01	\$27,635.00	\$28,995.00
	30" Main	6.7 (d) (3)	\$38,880.00	\$39,817.41	\$42,029.94	\$39,820.00	\$42,030.00
	36" Main	6.7 (d) (3)	\$44,040.00	\$46,738.16	\$49,435.14	\$46,740.00	\$49,440.00
	6" & 8" Sleeve						
	16" Main	6.7 (d) (3)	\$26,300.00	\$23,396.41	\$24,459.47	\$23,400.00	\$24,460.00
	20" Main	6.7 (d) (3)	\$27,500.00	\$25,047.74	\$26,226.39	\$25,050.00	\$26,230.00
	24" Main	6.7 (d) (3)	\$29,200.00	\$27,632.43	\$28,992.01	\$27,635.00	\$28,995.00
	30" Main	6.7 (d) (3)	\$40,360.00	\$41,807.03	\$44,158.83	\$41,810.00	\$44,160.00
	36" Main	6.7 (d) (3)	\$47,460.00	\$51,323.39	\$54,341.34	\$51,325.00	\$54,345.00
	10" & 12" Sleeve						
	16" Main	6.7 (d) (3)	\$26,300.00	\$23,468.21	\$24,536.30	\$23,470.00	\$24,540.00
	20" Main	6.7 (d) (3)	\$27,800.00	\$25,406.73	\$26,610.51	\$25,410.00	\$26,615.00
	24" Main	6.7 (d) (3)	\$29,300.00	\$27,632.43	\$28,992.01	\$27,635.00	\$28,995.00
	30" Main	6.7 (d) (3)	\$40,835.00	\$42,443.86	\$44,840.24	\$42,445.00	\$44,845.00
	36" Main	6.7 (d) (3)	\$49,480.00	\$54,034.31	\$57,242.02	\$54,035.00	\$57,245.00

Column Notes

- 1 From the PWD Regulations Chapter 3-Rates and Charges Effective September 1, 2022 (FY 2023 Charges)
- 2,3 Calculated charges for work performed outside of Water Department's business hours (business hours are from 9:00 a.m. to 4:45 p.m.)  
Includes overtime costs.  
FY 2024 Labor costs assume an escalation of 3.25% from FY 2023 budgeted salary costs . FY 2025 labor costs assume an escalation of 3.0% from FY 2024 escalated salary costs.  
Equipment costs based on FY 2021 FEMA rates. Since FEMA costs are a lagging indicator, annual escalation applied to project FY 2024 and FY 2025 equipment costs.  
Material costs provided by PWD and escalated at 5% for large meters (>5/8 Inch) and 7% for all other materials each year in FY 2024 and FY 2025. Costs not escalated for small meters (5/8 Inch) as they are per the AMI contract.
- 4,5 Proposed FY 2024 -FY 2025 Miscellaneous charges.

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**In the Matter of the Philadelphia Water  
Department's Proposed Change in Water,  
Wastewater and Stormwater Rates and Related  
Charges**

**Fiscal Years 2024-2025**

**Philadelphia Water Department**

**Black & Veatch Management Consulting, LLC**

**Schedule BV-4**

**Dated: January 2023**

Schedule REF #		Schedule Name
<b>BV-4 Black &amp; Veatch Schedules</b>		
1	<b>WP-1</b>	INFLATION AND COST ESCALATION PRESSURES
2	<b>WP-2</b>	STORMWATER UNITS OF SERVICE
3	<b>WP-3</b>	COST RECOVERY OF DISCOUNTS, CREDITS, GRANTS, AND TAP
4	<b>WP-4</b>	MISCELLANEOUS FEE METHODOLOGY
5	<b>WP-5</b>	SENIOR CITIZEN DISCOUNT THRESHOLD ADJUSTMENT

## **SCHEDULE BV-4: WP-1 INFLATION AND COST ESCALATION PRESSURES**

### **Background**

The nation continues to deal with the economic impact of the pandemic while struggling to achieve some semblance of “normal.” Pent-up demand, disruptions to the supply chain, and distribution logistics combined with an increasingly complex geopolitical situation continue to exacerbate the balance between supply and demand and cause inflationary price increases. The International Monetary Fund published its multi-year projection in October 2022, indicating that “Global inflation is forecast to rise from 4.7 percent in 2021 to 8.8 percent in 2022 but to decline to 6.5 percent in 2023 and to 4.1 percent by 2024”.<sup>1</sup> The reasons for inflationary increases are many and include the pandemic's ripple effects, as evidenced by labor shortages, rising energy prices, shortages in components such as computer chips, natural resources, and other key materials, and supply cost increases.

Economists predict inflationary rates will remain above historical averages in the short term. According to the U.S. Bureau of Labor Statistics (BLS), the US inflation rate increased from 5.4% to 9.1% between June 2021 and June 2022. As of October 2022, the year-over-year inflation rate change was 7.7% (October 2021 to October 2022). This level of inflation is significantly higher than the average Consumer Price Index (CPI) of 1.76% the nation has experienced during the previous 10 years.

This white paper describes the approach Black & Veatch Management Consulting, LLC (Black & Veatch) used to estimate price changes due to inflation in the context of the FY 2024 to FY 2028 financial projections as presented in Schedule BV-2: Cost of Service Report. Outside the updated financial outlook, the various price and cost escalation factors highlight ongoing cost pressures on the Philadelphia Water Department’s (PWD or Water Department) operating and capital improvement-related expenses. As with any public utility, the Water Department’s ability to absorb cost increases is predicated on both approved revenue adjustments and available financial reserves. If their funding sources are insufficient, service levels may be impeded until sufficient funding is obtained.

### **Methodology**

Well-documented, reliable, and defensible criteria are required to analyze and project utility costs and expenses. To support the Water Department in developing its financial plan, Black & Veatch uses multiple published indices to evaluate the pricing evolution of different cost elements incurred by the water, sanitary sewer, and stormwater utilities. Additionally, the impact of inflation on PWD’s service area is assessed, and broader indices provide insight into the effects of inflation on customers generally.

BLS publishes monthly data on both Consumer and Producer prices. The CPI measures the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services. The Producer Price Index (PPI) measures the average change over time in the selling prices received by domestic producers for their output. The BLS also publishes a series of consumer and producer price indices that

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<sup>1</sup> International Monetary Fund. 2022. World Economic Outlook: Countering the Cost-of-Living Crisis. Washington, DC. October.

examine specific sectors of the economy, which Black & Veatch uses to evaluate price evolution affecting public utilities more closely. Indices are available for the U.S. and various geographic areas and sectors of the economy.

The Handy-Whitman Index of Public Utility Construction Costs is a series of indices widely accepted as a data source specific to the utility industry. Black & Veatch uses this data to closely evaluate the price evolution of construction costs affecting public utilities, including PWD.

### Operations and Maintenance Cost Indices

Black & Veatch uses specific indices to aid in developing projections of future expenses. Inflationary pressures affect specific expense elements differently, and using specific criteria provides a more accurate forecast of future pricing. The BLS publishes the CPI and the PPI. Black & Veatch reviewed the following indices that are relevant to the Water Department in the development of projected Operations and Maintenance (O&M) expenses:

- Consumer Price Index
  - All Urban Consumers Philadelphia Area
  - Electricity Philadelphia Area
  - Gas Philadelphia Area
- Producer Price Index
  - Materials for Construction
  - Construction Machinery & Equipment
  - Industry Chemicals

### Capital Investment Cost Indices

Black & Veatch uses industry-specific price indices to project changes in Capital Costs. Due to the long lead times between budgeting, design, and construction of large utility projects, the pricing of capital goods can vary significantly from the budget. Inflationary pressures affect specific cost elements differently, and using specific criteria provides a more accurate way to evaluate costs incurred, replacements, and forecast future pricing. Black & Veatch uses the following price indices for Capital Costs relevant to the Water Department:

- Handy-Whitman Index Cost of Construction Pump Plant - Equipment
- Handy-Whitman Index Cost of Construction Treatment Plant - Equipment
- Handy-Whitman Index Cost of Construction Transmission Plant - Steel Mains
- Handy-Whitman Index Cost of Construction Distribution Plant - Steel Mains
- Handy-Whitman Index Cost of Construction Distribution Plant - Meters
- McGraw-Hill (ENR) Construction Cost Index

### Economic and Inflationary Trends

#### Economic Growth

Economic Growth is the increase in value of economic goods and services produced by an economy compared to a previous period and is typically measured by the Gross Domestic Product (GDP). The U.S.



economy registered 128 months of continued economic expansion, ending in March 2020.<sup>2</sup> During the initial months of the pandemic, the United States registered two consecutive quarters of negative GDP growth, one of the traditional indicators that signal a recession.

As a reaction to the global economic downturn triggered by the pandemic, governments and central banks provided aid through different programs and economic stimulus. As COVID-19 restrictions started to be lifted and economic stimulus took effect, economic output started to recover in the second half of 2020. Economic output continued to recover and remained stable through 2021 but lost momentum in 2022. During the above period, a combination of factors (including economic stimulus and increased economic output) resulted in high levels of inflation<sup>3</sup>.

## Employment

The economic environment that allowed for over 10 years of economic expansion and low inflation before COVID-19 also allowed for unprecedented low unemployment numbers, reaching a historic low of 3.5% in January and February 2020<sup>4</sup>. In contrast, unemployment reached a historical high of 14.7% in April 2020, as businesses closed as an immediate measure to contain the spread of COVID-19. This level of unemployment was the highest observed since data collection began in 1948. The unemployment rate has since declined to 3.7% as of October 2022<sup>5</sup>, and the total number of employed persons has risen above pre-pandemic levels<sup>6</sup>, despite a phenomenon dubbed “the great resignation,” when a sudden increase in the Quits Rate<sup>7</sup> became evident in 2021. Official figures also indicate more job openings in the economy (10.7 million) than available workers (5.7 million)<sup>6</sup>.

This situation appears to be putting pressure on wages, indicated by a 5.5% overall 12-month growth<sup>8</sup> in nominal terms. The unemployment rate continues to be low; however, the extent to which this may be directly causing salaries to increase is difficult to measure. This trend implies that PWD will have to continue to review its salary expense projections as markets increase competition for available workers.

## Inflation

Simply put, inflation refers to the rate of increase in prices over a specific period. Since it is generally used when describing an overall increase in prices or costs of living in a country, inflation is known as a “broad measure.” The United States experienced a long period of relatively low inflation over the past decade. During this time, inflation remained below the Federal Reserve Bank's target inflation rate of about a 2% increase per year in the PCE Price Index<sup>9</sup>.

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<sup>2</sup> National Bureau of Economic Research, Business Cycle Dating Committee Announcement June 8, 2020

<sup>3</sup> de Soyres, François, Ana Maria Santacreu, and Henry Young (2022). "Fiscal policy and excess inflation during Covid-19: a cross-country view," FEDS Notes. Washington: Board of Governors of the Federal Reserve System, July 15, 2022, <https://doi.org/10.17016/2380-7172.3083>.

<sup>4</sup> Bureau of Labor and Statistics, Series ID: LNS 14000000 Seasonally Adjusted, [www.bls.gov](http://www.bls.gov)

<sup>5</sup> U.S. Bureau of Labor Statistics, Household Data, Table A-15

<sup>6</sup> U.S. Bureau of Labor Statistics, Current Employment Statistics, Table B-1

<sup>7</sup> The Quits Rate is the number of persons voluntarily leaving their job during the entire month as a percent of total employment. U.S. Bureau of Labor Statistics

<sup>8</sup> U.S. Bureau of Labor Statistics, Current Population Survey

<sup>9</sup> U.S. Bureau of Economic Analysis, Personal Consumption Expenditures: Chain-type Price Index [PCEPI]

Due to government-imposed restrictions and voluntary decisions stemming from COVID-19, U.S. consumers significantly altered their spending patterns beginning in March 2020. This shift resulted in changes to the prices of goods and services, as consumers reduced expenditures in sectors like transportation and increased in categories related to at-home spending<sup>10</sup>. During the first year of the pandemic, inflation rates fell, registering figures below the Federal Reserve Bank's target of 2% between March 2020 and February 2021.<sup>11</sup>

However, the shift in consumption patterns impacted the demand for different products and the supply chain that brings them to consumers. As we further discuss later, this shift caused distortions in pricing of many goods and services. The consumption pattern shift affected the weighting of sectors that compose the broader indexes for tracking inflation. In this context, the analysis of industry-specific indexes takes on special importance in understanding inflation pressures for the water and wastewater industry.

The first warning sign of increasing Inflation came when the CPI reached 4.2% in April of 2021. A rate of inflation this high had not been observed since 2008. Please recall that in April 2021, higher inflation was widely expected to be a transitory event. However, that has proven not to be the case. This white paper first uses a traditional approach that analyzes 5-year average pricing trends ending at the close of the Fiscal Year in June 2022 to avoid transitory pricing variations affecting forecasting accuracy.

As a more persistent price escalation has become evident during FY 2022, we also analyze the data in 1, 2, and 3-year intervals in a separate section to assess its more immediate impact.

### Other Inflation Indicators

The effects of the COVID-19 pandemic and other geopolitical situations have affected the price of Oil, Gas, and commodities, which tend to be transferred to other products in the value chain. This situation has disrupted what had become a predictable, multi-year trend and appears to be affecting different sectors of the economy in different ways.

The following tables show national and Philadelphia-specific indicators that allow us to analyze the level of inflation potentially impacting PWD and its customers.

Table 1 shows the evolution of several consumer price indices for the Philadelphia Area and producer prices indices for sectors related to construction, machinery, and chemicals, using a 5-year average annual change for Fiscal Years 2015 to 2022. Specific to the Philadelphia-Camden-Wilmington area, the CPI (All Urban Consumers Philadelphia Area) shows changes in pricing that tended to decline between FY 2015 and FY 2018 and gradually increased between FY 2019 and FY 2022.

The realized prices for construction materials continues to increase, although there is a slight decrease in the rate of change in the producer prices for construction materials (PPI Materials for Construction) from FY 2015 to FY 2020 but a significant increase in FY 2021 and FY 2022. Construction machinery and equipment (PPI Construction Machinery & Equipment) also show a decrease in the rate of change during

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<sup>10</sup> National Bureau of Economic Research, The Digest, Inflation Measurement in the Era of COVID-19, August 2020

<sup>11</sup> Bureau of Labor and Statistics, Series ID: CUUS0000SA0 Not Seasonally Adjusted, [www.bls.gov](http://www.bls.gov)

the same period, followed by an uptick beginning in FY 2021. This trend indicates that materials pricing is affected differently than machinery and equipment.

Water and wastewater treatment require chemicals to remove pollutants and disinfect water. The pricing of chemicals (PPI Industrial Chemicals) reflected decreases from FY 2016 to FY 2020 but a noticeable increase in FY 2021 and FY 2022. Considering that this analysis uses a 5-year average, this indicates a change in pricing trends that requires further attention and analysis in the short term that requires further examination to help in developing estimates of near-term cost increases (i.e., the next 1-3 years).

**Table 1. 5-Year Average Annual Change in O&M Related Cost Indices**

	CPI All Urban Consumers Philadelphia Area	PPI Materials for Construction	PPI Construction Machinery & Equipment	PPI Industrial Chemicals	CPI Electricity Philadelphia Area	CPI Gas Philadelphia Area
2015	1.53%	2.36%	2.48%	0.65%	-0.93%	-3.43%
2016	1.15%	1.78%	2.40%	-4.83%	-1.03%	-5.03%
2017	0.91%	1.40%	1.74%	-5.55%	-1.74%	-3.47%
2018	0.82%	1.72%	1.08%	-2.65%	-1.58%	-1.79%
2019	0.92%	2.19%	1.54%	-1.93%	-2.11%	-0.15%
2020	1.11%	1.98%	1.73%	-2.29%	-1.41%	0.51%
2021	1.49%	3.69%	1.90%	2.17%	-1.44%	2.36%
2022	2.61%	7.25%	3.45%	7.36%	0.69%	5.17%

Note: 5-year average annual change is based upon changes in each respective category's fiscal year average index.

Providing water, sanitary sewer, and stormwater service to a large city requires consistent reinvestment in plants and equipment. Black & Veatch uses industry-specific indexes to monitor the evolution of pricing in the construction industry, as cities require to evaluate investment priorities, prior investments and ensure existing plant and equipment adequacy. The Handy-Whitman Index calculates the cost trends for different types of utility construction. Separate indices are published for the electric, gas, and water industries. Engineering News Record (ENR) also has a construction cost index and tracks separately 20 cities in the United States.

**Table 2. 5-year Average Annual Change<sup>1</sup> in Capital Related Cost Indices**

Fiscal Year	H.W. Index Cost of Construction Pump Plant - Equipment	H.W. Index Cost of Construction Treatment Plant - Equipment	H.W. Index Cost of Construction Transmission Plant - Steel Mains	H.W. Index Cost of Construction Distribution Plant - Mains	H.W. Index Cost of Construction Distribution Plant - Meters	McGraw-Hill (ENR) Construction Cost Index
2015	5.59%	3.13%	3.73%	3.59%	2.78%	2.81%
2016	6.94%	3.30%	1.59%	3.37%	2.23%	2.58%
2017	6.17%	2.96%	0.34%	2.96%	2.25%	2.77%
2018	7.45%	2.96%	0.25%	2.51%	2.07%	2.95%
2019	8.06%	3.14%	2.68%	2.61%	2.14%	2.97%
2020	8.17%	3.43%	2.96%	2.85%	2.39%	2.74%
2021	7.72%	4.08%	3.93%	3.40%	2.83%	2.81%
2022	8.65%	5.51%	7.67%	4.92%	4.39%	3.73%

Notes:

H.W. = Handy-Whitman

1) 5-year average annual change is based upon changes in each category's fiscal year average index.

Table 2 shows the 5-Year average annual change in construction pricing for FY 2015 to FY 2022, using several industry indices. The utility sector indices track specific components of water utility infrastructure. The McGraw-Hill (ENR) Construction Cost Index captures the overall construction cost trend as a point of reference for the construction industry. The McGraw-Hill (ENR) Construction Cost Index shows a break in previously consistent price increases in FY 2022, at about 3% from the period up until 2020. Likewise, prices in most categories have increased consistently, reflecting higher average values for FY 2022. It is important to point out that Transmission Plant - Steel Mains and Distribution Plant - Mains may be affected by a significant increase in the price of steel and requires further attention and analysis in the short term.

### Recent Inflation Change

The previous section analyzed annual, 5-year average pricing trends ending at the close of the Fiscal Year in June 2022. This analysis method avoids transitory pricing variations that may affect forecasting accuracy. However, a more pronounced price escalation has become evident during FY 2022. The United States Consumer Price Index All Urban Consumers (CPI-U) reached 9.1% for the 12 months ending June 2022 and stands at 7.7% at the close of October 2022.

Figure 1 shows the evolution of the CPI-U since 1940. A review of this historical information shows that there have been periods of similar rapid inflationary conditions, but they occurred after World War II and during the oil embargoes of the 1970s. The rapid escalation of pricing pressures and supply-chain disruptions underscore a volatile economic situation. Although there is uncertainty around how long inflation will remain above the Federal Reserve's target of 2% (average), there is agreement among forecasters that inflation rates will not decrease to target levels in the next two years<sup>12</sup>. Consequently, Black & Veatch believes that taking a closer look at the month-to-month cost changes is necessary for the past 12-month, 24-month, and 36-month periods to better assess near-term pricing trends.

<sup>12</sup> Federal Reserve Bank of Philadelphia, Third Quarter 2022 Survey of Professional Forecasters, August

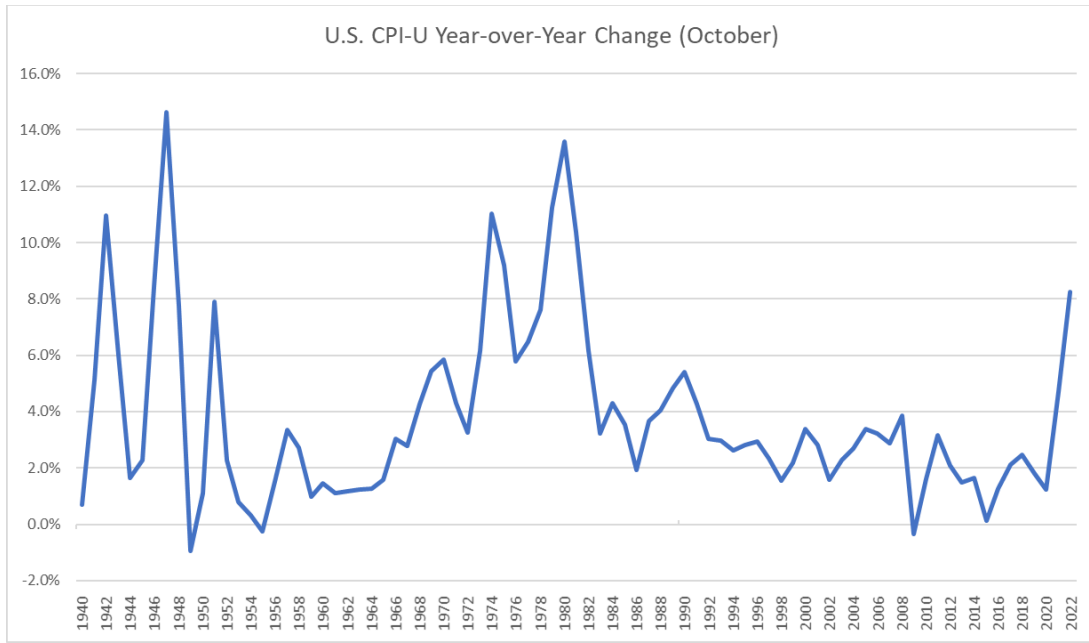


Figure 1 October Year over Year Change in National Consumer Price Index for All Urban Consumers, not seasonally adjusted  
 Source: Bureau of Labor Statistics

The rate of change in broad economic indicators leads us to analyze regional and industry-specific indicators on a shorter-term basis.

**Table 3. Evolution of O&M Cost-Related Indices**

Index	Average Annual Change <sup>1</sup>		
	12-Month	24-Month	36-Month
CPI - All Urban Consumers Philadelphia Area	7.77%	6.70%	4.69%
PPI - Commodity data for Final demand	7.97%	8.42%	5.74%
PPI - Materials for Construction	12.16%	15.34%	11.67%
PPI - Construction Machinery & Equipment	10.12%	9.41%	6.63%
PPI - Industrial Chemicals	4.89%	23.82%	11.43%
CPI - Electricity Philadelphia Area	18.67%	10.48%	6.59%
CPI - Gas Philadelphia Area	37.45%	21.46%	10.92%

1) Period Ending October 2022

Table 3 shows how the average annual pricing has increased in recent years for all indices. The CPI-U Philadelphia Area registered a 7.77% increase for the preceding 12-month period, while the PPI - Commodity data for Final demand rose 7.97% for the same period.

Significant price increases in Materials for Construction and Industrial Chemicals are evident, especially in the last 24-month period, and maintaining a lower yet still high rate of increase during the past 12 months. The cost of gas increased significantly as well, especially during the past 12 months, reflecting the higher cost experienced during the winter months.

Data for specific Indices of Capital Cost is not collected and published as often as broader indices. However, data through January 2022 shows a significant change in the cost increase rate.

**Table 4. Evolution of Capital Cost-Related Indices**

Index	Average Annual Change <sup>1</sup>		
	12-Month	24-Month	36-Month
H.W. Index Cost of Construction Pump Plant - Equipment	10.93%	7.67%	8.10%
H.W. Index Cost of Construction Treatment Plant - Equipment	9.76%	7.79%	6.75%
H.W. Index Cost of Construction Transmission Plant - Steel Mains	23.79%	12.67%	9.72%
H.W. Index Cost of Construction Distribution Plant - Mains	11.44%	7.78%	6.31%
H.W. Index Cost of Construction Distribution Plant - Meters	9.82%	6.44%	5.37%
McGraw-Hill (ENR) Construction Cost Index <sup>2</sup>	7.99%	4.98%	3.86%

H.W. = Handy-Whitman

1) Period Ending in January 2022

2) Period Ending in June 2022

Table 4 shows price changes affecting Capital Costs for utilities using the latest available data. All indicators show more significant increases as the term analyzed is shorter. As previously noted, in the longer-term analysis, the cost change of Construction Transmission Plant - Steel Mains shows a significant variation in the 12-month average annual change with a 23.79% increase in pricing, while the remaining indexes either reach or are near double-digit increases for that period.

Furthermore, while the figures shown for the Handy-Whitman Indexes are for January 2022, it is important to note that the McGraw-Hill (ENR) Construction Cost Index for June 2022 has been released, showing a 7.99% 12-month average annual change, a 4.98% 24-month average annual change, and a 3.86% 36-month average annual change in prices, indicating that pricing continued to rise through June 2022 at a higher pace than previous years.

#### Other Recent Industry Inflation Indicators

Industry-specific indicators are useful to assess the direct impact of price changes for a utility to measure the accuracy of their budgeted expenses and to forecast their future expenditures to price goods and services appropriately. Broader indices are also important to analyze, understand the impact on the utility user base, and guide future policy decisions.

Four of the indicators studied are associated with commodities, energy, manufacturing, and consumer goods. These reflect increases in the previous 12-month period that are lower than the 24-month average annual increase, while the 24-month average annual increase is larger than the 36-month average annual increase. This trend shows that the rate of increase for these categories accelerated over the past three years but may be growing slower, although still at a high pace, in the past 12 months.

The other two indicators, possibly more relevant to PWD, are related to the construction industry. These reflect increases that are larger in the previous 12-month period than in the 24-month average annual increase, and the 24-month average annual increase is larger than the 36-month average annual increase. These continue to show an increasing trend in the rate of change.

During FY 2022, several issues have become more evident as geopolitical situations, disruptions in global logistics, and other issues continue to impact the price of energy, commodities, and consumer goods.

Table 5 shows the 12-month, 24-month, and 36-month average annual price changes as tracked by several of the most commonly used Producer Price Indices published by the BLS (Appendix E). Notably, all these indices show increases well beyond the levels the U.S. population has come to expect over the last several years.

**Table 5. Evolution of Other Producer Price Indices**

Index	Average Annual Change <sup>1</sup>		
	12-Month	24-Month	36-Month
PPI - Total Mfg. Industries - US	12.52%	14.44%	8.87%
PPI - Finished Consumer Goods	12.21%	13.81%	8.25%
PPI - Commodities Finished Energy Goods	17.29%	27.79%	13.17%
PPI - All Commodities - US	10.28%	16.17%	10.12%
PPI - Construction Machinery	10.12%	9.21%	6.56%
PPI - Capital Equipment - US	8.54%	7.13%	5.07%

1) Period Ending in October 2022

### Federal Reserve Action and Inflation Projections

Due to mounting inflationary pressure, in March of 2022, the Federal Reserve Bank made its first rate increase since December 2018. This first increase raised the target rate between 0.25% - 0.50%. This increase was followed by subsequent rate increases, reaching the target range of 3.75% - 4.0% at the November 2, 2022, Federal Open Markets Committee meeting.

As stated by Federal Reserve Chair Jerome Powell, on the date of the Open Markets Committee meeting, "At some point, as I've said in the last 2 press conferences, it will become appropriate to slow the pace of increases, as we approach the level of interest rates that will be sufficiently restrictive to bring inflation down to our 2 percent goal. There is significant uncertainty around that level of interest rates. Even so, we still have some ways to go, and incoming data since our last meeting suggest that the ultimate level of interest rates will be higher than previously expected." For practical purposes, this indicates that the Federal Reserve will continue to increase the Federal Funds Target Rate and take other market actions until it deems inflationary pressure has subsided while reinforcing that it will not signal to a particular date or interest rate level.

### Impact on Interest Rates

While the Federal Funds Rate only immediately affects the short end of the yield curve (securities with shorter durations), in time, all interest rates are expected to adjust, directly affecting the cost to borrow for utilities and other bond issuers. Other funding sources, such as State Revolving Funds, are also affected. Figure 2 shows how the shorter-term treasury yields have increased from near zero to the 3.5% to 4.5% range, while the thirty-year bonds have increased from 1.5% to about 4%, showing a greater impact on short-term rates.

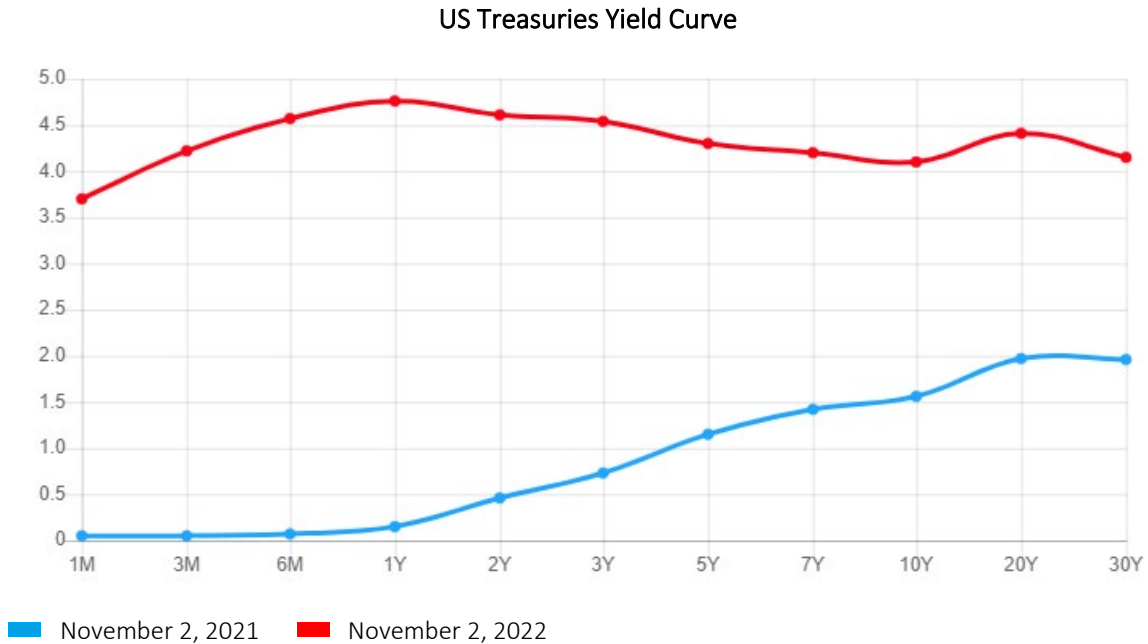


Figure 2 US Treasuries Yield Curve  
 Source: US Department of Treasury, ustreasuryyieldcurve.com

In the recent past, municipal bond yields have remained near historic lows near the 2% range, and the average yield during the past 30 years has been closer to 5%<sup>13</sup> as summarized in Table 6. Given the close relationship between inflation and interest rates, an upward trend in municipal bond yields can be expected, given recent actions by the Federal Reserve. It should be noted that an increase of 2% to 3% in interest rates on new revenue bond issues could significantly increase future debt service payments for PWD.

**Table 6. Municipal Bond Yield Statistics**

25-Year Revenue Bond Index 30-year Statistics	
<b>Maximum</b>	7.37%
<b>Minimum</b>	2.1%
<b>Average</b>	5.10%

For a water utility, which is capital-intensive, many of the costs that impact the utility are construction-related. It is important to consider that the price evolution evidenced in the PPI and Handy Whitman indexes, which focus on the water and construction sectors, show a significantly higher rate and volatility than the CPI. It is reasonable to expect these prices to continue to be affected differently than overall inflation. Moreover, the municipal procurement process creates a timing lag for capital projects. As a result, municipal agencies tend to feel the impact of price changes months or years after the general population.

<sup>13</sup> Bond Buyer Revenue Bond Index, The Bond Buyer, 25-Bond Revenue, November 3, 2022



In this case, this effect is compounded by the increase in interest rates that will affect the cost of the debt service associated with projects.

### Conclusion

The Water Department's updated financial outlook for FY 2023 to FY 2028, presented in Schedule BV-2: Cost of Service Report, highlights the need for base rate revenue increases in FY 2024 and FY 2025. Inflation and overall cost escalation pressures present immediate and long-term risks to the Water Department's operating and overall capital project expenses. Otherwise, available financial reserves may be further depleted and/or the level of service may be adversely impacted. Regardless of short-term decisions related to revenue adjustments, ongoing cost increases will necessitate future revenue adjustments to maintain service levels and meet legal and regulatory requirements.

Appendix A  
O&M Cost Indices by Fiscal Year

Fiscal Year	CPI		PPI		PPI		PPI		PPI		CPI		CPI	
	All Urban Consumers		Commodity		Materials for		Construction		Machinery &		Electricity		Gas	
	Philadelphia Area		Final Demand		Construction		Equipment		Industrial Chemicals		Philadelphia Area		Philadelphia Area	
	Raw Number	% Change	Raw Number	% Change	Raw Number	% Change	Raw Number	% Change	Raw Number	% Change	Raw Number	% Change	Raw Number	% Change
2012	236.2	2.43%	107.4	1.32%	216.1	3.55%	201.7	4.13%	321.4	8.51%	205.4	1.13%	181.2	-5.48%
2013	240.0	1.61%	109.2	1.68%	220.8	2.17%	208.5	3.37%	302.0	-6.04%	197.2	-3.99%	177.3	-2.15%
2014	242.7	1.13%	111.2	1.83%	224.7	1.77%	212.6	1.97%	294.5	-2.48%	196.4	-0.41%	177.0	-0.17%
2015	244.2	0.62%	110.6	-0.54%	228.7	1.78%	215.7	1.46%	265.2	-9.95%	193.0	-1.73%	169.7	-4.12%
2016	244.2	0.00%	110.8	0.18%	228.0	-0.31%	218.1	1.11%	231.3	-12.78%	192.9	-0.05%	148.1	-12.73%
2017	247.2	1.23%	112.9	1.90%	231.7	1.62%	219.9	0.83%	241.6	4.45%	188.1	-2.49%	151.9	2.57%
2018	250.0	1.13%	116.6	3.28%	240.5	3.80%	220.0	0.05%	264.0	9.27%	182.1	-3.19%	162.0	6.65%
2019	254.1	1.64%	118.5	1.63%	250.4	4.12%	229.5	4.32%	267.2	1.21%	176.5	-3.08%	175.7	8.46%
2020	258.0	1.53%	117.7	-0.68%	252.2	0.72%	235.0	2.40%	236.2	-11.60%	179.8	1.87%	174.1	-0.91%
2021	263.0	1.94%	126.6	7.56%	273.4	8.41%	239.6	1.96%	257.5	9.02%	179.4	-0.22%	166.4	-4.42%
2022	281.2	6.92%	141.0	11.34%	328.8	20.26%	260.5	8.72%	364.9	41.71%	194.7	8.53%	195.4	17.43%
Avg.	-	1.38%	-	1.82%	-	2.74%	-	2.10%	-	0.45%	-	-1.06%	-	-1.59%
5 Yr Avg														
2022	-	2.61%	-	4.92%	-	7.25%	-	3.45%	-	8.60%	-	0.69%	-	5.17%

Notes:

All consumer and producer price indexes are from the Bureau of Labor Statistics. Indexes are presented as the fiscal year average based upon the associated Water Department's fiscal year. Indexes are not seasonally adjusted.

Appendix B  
Capital Cost Indices by Fiscal Year

Fiscal Year	H.W. Index Cost of Construction Pump Plant - Equipment		H.W. Index Cost of Construction Treatment Plant - Equipment		H.W. Index Cost of Construction Transmission Plant - Steel Mains		H.W. Index Cost of Construction Distribution Plant - Mains		H.W. Index Cost of Construction Distribution Plant - Meters		McGraw-Hill (ENR) Construction Cost Index	
	Raw Number	% Change	Raw Number	% Change	Raw Number	% Change	Raw Number	% Change	Raw Number	% Change	Raw Number	% Change
2013	800	2.56%	689	2.99%	724	1.83%	698	4.33%	677	4.80%	9,424.2	2.56%
2014	856	7.00%	713	3.48%	694	-4.14%	720	3.15%	688	1.62%	9,672.1	2.63%
2015	928	8.41%	736	3.23%	712	2.59%	736	2.22%	702	2.03%	9,933.1	2.70%
2016	990	6.68%	755	2.58%	697	-2.11%	747	1.49%	709	1.00%	10,166.6	2.35%
2017	1,052	6.26%	774	2.52%	723	3.73%	774	3.61%	722	1.83%	10,534.5	3.62%
2018	1,146	8.94%	797	2.97%	733	1.38%	790	2.07%	750	3.88%	10,898.1	3.45%
2019	1,261	10.03%	832	4.39%	792	8.05%	819	3.67%	765	2.00%	11,194.7	2.72%
2020	1,374	8.96%	871	4.69%	824	4.04%	847	3.42%	790	3.27%	11,371.2	1.58%
2021	1,436	4.51%	922	5.86%	845	2.55%	883	4.25%	815	3.16%	11,680.1	2.72%
2022	1,593	10.93%	1,012	9.76%	1,046	23.79%	984	11.44%	895	9.82%	12,650.1	8.30%
Avg.	-	7.43%	-	4.25%	-	4.17%	-	3.97%	-	3.34%	-	3.26%
<b>5 Yr Avg</b>												
2022	-	8.65%	-	5.51%	-	7.67%	-	4.92%	-	4.39%	-	3.73%

Notes:

H.W. = Handy Whitman

The Handy Whitman Indices are a product of WRA Associates.

Values for the Mc Graw-Hill (Engineering News Record) Construction Index are as published.

Appendix C  
O&M Indices Data  
(October)

Month	CPI All Urban Consumers Philadelphia Area	PPI Commodity Data Final Demand	PPI Materials for Construction	PPI Construction Machinery & Equipment	PPI Industrial Chemicals	CPI Electricity Philadelphia Area	CPI Gas Philadelphia Area
	Raw Number	Raw Number	Raw Number	Raw Number	Raw Number	Raw Number	Raw Number
Oct-19	258.0	118.8	250.8	233.7	252.3	178.3	180.6
Oct-20	260.0	118.8	262.5	236.7	227.7	176.9	167.1
Oct-21	274.6	119.5	311.4	257.3	332.8	181.9	179.3
Oct-22	296.0	130.1	349.2	283.4	349.1	215.9	246.5
<b>12 Month Annual Change</b>	<b>7.77%</b>	<b>8.84%</b>	<b>12.16%</b>	<b>10.12%</b>	<b>4.89%</b>	<b>18.67%</b>	<b>37.45%</b>
<b>24 Month Annual Change</b>	<b>6.70%</b>	<b>4.63%</b>	<b>15.34%</b>	<b>9.41%</b>	<b>23.82%</b>	<b>10.48%</b>	<b>21.46%</b>
<b>36-Month Annual Change</b>	<b>4.69%</b>	<b>3.07%</b>	<b>11.67%</b>	<b>6.63%</b>	<b>11.43%</b>	<b>6.59%</b>	<b>10.92%</b>

**Notes:** All consumer and producer price indexes are from the Bureau of Labor Statistics. References are provided below. Indexes are not seasonally adjusted.

Index	Series Id (s)	Area	Items	Base Period
CPI - All Urban Consumers - Philadelphia Area	CUURA102SA0,CUUSA102SA0	Philadelphia-Wilmington-Atlantic City, PA-NJ-DE-MD	All Items	1982-84=100
CPI - Electricity Philadelphia Area	CUURA102SEHF01,CUUSA102SEHF01	Philadelphia-Wilmington-Atlantic City, PA-NJ-DE-MD	Electricity	1982-84=100
CPI - Gas Philadelphia Area	CUURA102SEHF02,CUUSA102SEHF02	Philadelphia-Wilmington-Atlantic City, PA-NJ-DE-MD	Utility (piped) gas service	1982-84=101

Index	Series Id	Group	Items	Base Date
PPI Commodity data for Final demand, not seasonally adjusted	WPUFD4	Final Demand	Final Demand	200911
PPI - Industrial Chemicals	WPU061	Chemicals and allied products	Industrial chemicals	198200
PPI - Materials for Construction	WPUID612	Intermediate demand by commodity type	Materials and components for construction	198200
PPI - Construction Machinery & Equipment	WPU112	Machinery and equipment	Construction machinery and equipment	198200

Appendix D  
Capital Cost Industry Indices  
(January)



Month	H.W. Index Cost					
	H.W. Index Cost of Construction Pump Plant - Equipment	H.W. Index Cost of Construction Treatment Plant - Equipment	H.W. Index Cost of Construction Transmission Plant - Steel Mains	H.W. Index Cost of Construction Distribution Plant - Mains	H.W. Index Cost of Construction Distribution Plant - Meters	McGraw-Hill (ENR) Construction Cost Index
	Raw Number	Raw Number	Raw Number	Raw Number	Raw Number	Raw Number
Jan-19	1,261	832	792	819	765	11,206
Jan-20	1,374	871	824	847	790	11,392
Jan-21	1,436	922	845	883	815	11,627
Jan-22	1,593	1,012	1,046	984	895	12,556
<b>12 Month Annual Change</b>	<b>10.93%</b>	<b>9.76%</b>	<b>23.79%</b>	<b>11.44%</b>	<b>9.82%</b>	<b>7.99%</b>
<b>24 Month Annual Change</b>	<b>7.67%</b>	<b>7.79%</b>	<b>12.67%</b>	<b>7.78%</b>	<b>6.44%</b>	<b>4.98%</b>
<b>36-Month Annual Change</b>	<b>8.10%</b>	<b>6.75%</b>	<b>9.72%</b>	<b>6.31%</b>	<b>5.37%</b>	<b>3.86%</b>

Notes:  
 H.W. = Handy Whitman  
 The Handy Whitman Indices are a product of WRA Associates. Values for the Mc Graw-Hill (Engineering News Record) Construction Index are as published.

Appendix E  
Other Producer Cost Industry Indices  
(October)

Month	PPI - Total Mfg. Industries - US	PPI - Commodities Finished Goods	PPI - Commodities Finished Energy Goods	PPI - Commodities All Commodities - US	PPI - Construction Machinery	PPI - Capital Equipment - US
	Raw Number	Raw Number	Raw Number	Raw Number	Raw Number	Raw Number
Oct-19	196.6	218.0	166.3	198.6	263.1	178.0
Oct-20	193.7	213.5	147.6	196.5	266.9	179.9
Oct-21	225.5	246.5	205.5	240.5	289.1	190.2
Oct-22	253.7	276.5	241.0	265.2	318.3	206.5
<b>12 Month Annual Change</b>	<b>12.52%</b>	<b>12.21%</b>	<b>17.29%</b>	<b>10.28%</b>	<b>10.12%</b>	<b>8.54%</b>
<b>24 Month Annual Change</b>	<b>14.44%</b>	<b>13.81%</b>	<b>27.79%</b>	<b>16.17%</b>	<b>9.21%</b>	<b>7.13%</b>
<b>36-Month Annual Change</b>	<b>8.87%</b>	<b>8.25%</b>	<b>13.17%</b>	<b>10.12%</b>	<b>6.56%</b>	<b>5.07%</b>

**Notes:** All consumer and producer price indexes are from the Bureau of Labor Statistics. References are provided below. Indexes are not seasonally adjusted.

Index	Series Id (s)	Group	Items	Base Period
PPI - Total Mfg. Industries - US	PCUOMFG--OMFG--	Total Mfg. Industries	Total Mfg. Industries	198412
PPI - Commodities Finished Goods	WPUFD49502	Final Demand	Personal Consumption Goods	198200
PPI - Commodities Finished Energy Goods	WPUFD4121	Final Demand	Finished Consumer Energy Goods	198200
PPI - Commodities All Commodities - US	WPU00000000	All Commodities	All Commodities	198200
PPI - Construction Machinery	PCU333120333120	Construction Machinery Manufacturing	Construction Machinery Manufacturing	198212
PPI - Capital Equipment - US	WPUFD41312	Final Demand	Private Capital Equipment	198200

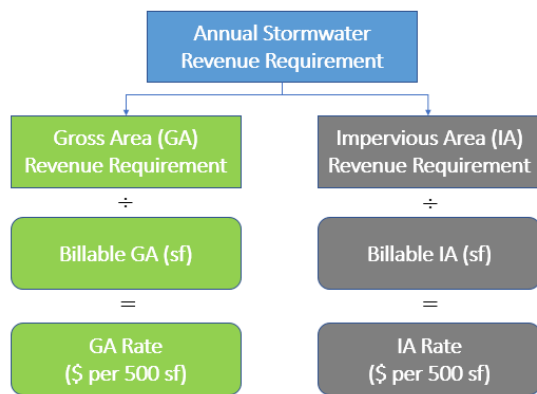
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## SCHEDULE BV-4: WP-2 STORMWATER UNITS OF SERVICE

This memorandum outlines the methodology used in developing the projections of the Billable Gross Area (GA) and Impervious Area (IA), collectively referred to as the “Stormwater Units of Service,” for the Water and Wastewater Cost of Service (COS) Study (Study) for the study period of FY 2023 through FY 2028 (Study Period).

### Introduction

The Philadelphia Water Department (PWD or the Water Department) stormwater charge is comprised of a Billing and Collection charge and the Stormwater Management Services (SWMS) charge. The Billing and Collection charge is a fixed charge per account, whereas the SWMS charge is parcel area based. The SWMS Charge consists of two components: a Gross Area Charge and an Impervious Area Charge. These two charges are calculated based on the GA and IA square footage of a property and the associated GA and IA Rates. As illustrated in Figure 1, the system-wide GA and IA rates are determined based on the estimated GA and IA revenue requirements for a given fiscal year and the billable GA and IA square footage. *The Billable GA and IA Square Footage (sf) is also referred to as “Stormwater Units of Service”.*



As part of the Study performed, the GA and IA units of service over the Study Period were estimated to support the development of the GA and IA rates for stormwater services provided under the Water Department’s wastewater utility. This memorandum explains the methods used in developing the projected billable GA and IA units of service and discusses the results of the units of service analysis.

Figure 1: Determination of GA and IA Rates

### Definitions

The following key terms are used throughout this memorandum.

1. **Gross Area (GA)** - Includes all of the property area within the legally described boundaries except streets, medians and sidewalks in the public right-of-way.
2. **Impervious Area (IA)** - Includes surfaces which are compacted or covered with material that restricts infiltration of water, including semi-pervious surfaces such as compacted clay, most conventionally hardscaped surfaces such as streets, driveways, roofs, sidewalks, parking lots, attached and detached structures, and other similar surfaces.

3. **Stormwater Management Incentives Program (SMIP)** – The Water Department’s stormwater grant program offered to non-residential property owners for stormwater retrofit projects.
4. **Green Acres Retrofit Program (GARP)** – The Water Department’s stormwater grant program offered to contractors, companies or project aggregators to build large-scale stormwater retrofit projects across multiple properties.
5. **Units of Service** – The system wide billable accounts, parcels, and GA and IA square footage.
6. **Impervious Area Managed** - Impervious area that directs runoff to surface water bodies or to approved Stormwater Management Practices (SMPs). For the purposes of PWD’s credit program, IA managed is calculated in square footage.
7. **Impervious Area Reduction (IAR)** - Impervious area that is directed to a pervious area on a property or based on the type of land cover, has characteristics similar to a pervious area.
8. **Adjustment Appeals** – PWD’s appeal program which enables customers to seek adjustments for billing inaccuracies including inaccurate parcel classification, incorrect parcel identification, residential sideyard, or for errors in the calculation of a parcel’s gross and/or impervious area.

## Purpose

The primary purpose of the stormwater units of services analysis is to develop reasonable estimates of the billable accounts, parcels and GA and IA units of service for the Study Period of FY 2023 through FY 2028. The billable units of service are utilized in projecting the stormwater revenues under existing rates, as well as in developing the proposed GA and IA rates.

## Stormwater Billing Data

The Water Department provided the historical number of accounts, parcels, impervious area and gross area used for billing the stormwater fees. Table below presents the billing data for the most recently completed fiscal year. PWD provided the Stormwater Billing Data that was developed using aerial and infrared imagery. The City-wide total billable impervious area is 1,182 million square feet (sf) and the total gross area is 2,088 million sf. An overview of that data is provided in Table 1 below.

Table 1 Fiscal Year 2022 Stormwater Billing Data by Customer Class

Line No.	Description	Billable Parcels	Billable Accounts	FY 2022 Billable Impervious Area (Square Feet)	FY 2022 Billable Gross Area (Square Feet)
1	Residential	463,408	465,601	553,417,000	974,782,000
2	Non- Residential	68,931	77,670	606,215,000	1,082,620,000
3	Condominium	2,282	5,278	21,872,000	30,749,000
4	Total	534,621	548,549	1,181,504,000	2,088,151,000

- Residential customers are currently billed a uniform charge (per parcel) based upon the mean IA and GA square footage;
  - The mean residential IA per parcel is 1,190 sf and the mean residential GA per parcel is 2,100 sf.

- Black & Veatch has utilized the average residential IA and GA for projecting billable units of service for Study Period and determining residential rates for FY 2024 and FY 2025.
- Non-Residential and Condominium customers are currently billed based on an IA charge and a GA charge per five hundred (500) square feet;
- Black & Veatch has utilized the average Non-Residential and Condominium billing data currently in place to estimate units of service for the Study Period and determining non-residential rates for FY 2024 and FY 2025.

### Adjustment Factors

The parcels/accounts, GA and IA units of service projections are impacted by the following three “Adjustment Factors”:

- a. **Adjustments for Stormwater Credits<sup>1</sup>:** Stormwater credits which are offered in the form of a reduction in GA and/or IA square footage;
- b. **Adjustments for Stormwater Appeals:** Reduction in GA and IA square footage due to customer appeals; and
- c. **Other Adjustments:** Reduction in parcels/ accounts, GA and IA due to exempt Community Gardens<sup>2</sup>.

The billable GA and IA units of service are projected taking into consideration any potential reduction or gain in billable square footage due to the above three Adjustment Factors.

### Units of Service Analysis

This section provides an overview of the methodology used in the determination of the billable GA and IA units of service for the three customer classes: *Residential, Non-Residential, and Condominium*.

#### Classification of Parcels

PWD’s Rates and Charges (Effective September 1, 2022), Section 4 defines three classes for the purposes of SWMS Charge:

- **Residential Property** - Real estate used exclusively for residential purposes with at least one and no more than four dwelling units.
- **Non-residential Property** - Real estate which cannot be classified as either residential or condominium.
- **Condominium Property** – Real estate, portions of which are designated for separate ownership, and the remainder of which is designated for common ownership by the owners of those portions.

In determining the billable unit of service, identical methodology is used for both the Non-Residential and Condominium customer classes. For presentation purposes, the discussion on the Non-Residential class also encompasses the Condominium class.

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<sup>1</sup> As per PWD Rates and Charges Section 4.5 SWMS Credits.

<sup>2</sup> As per 2016 Special Filing Rate Board Decision, PWD Rates and Charges Section 5.2 (f) and Philadelphia Code Section 19-1603.

### System-Wide Billable GA and IA Units of Service Framework

The following key steps are used in the determination of the billable GA and IA square footage, which are as follows:

- **Step 1** – Project Initial GA and IA square footage for each customer class;
- **Step 2** – Project GA and IA adjustments for each of the three adjustment factors; and
- **Step 3** – Derive the billable GA and IA square footage for each customer class by applying the adjustments to the initial GA and IA square footage.

#### Step 1 – Project Initial GA and IA

The initial GA and IA refer to the baseline GA and IA square footage prior to the application of any Adjustment Factors. The Initial GA and IA for the Residential and Non-residential classes are projected by applying the Mean GA and IA to the projected number of parcels in each of those classes.

##### *Residential Initial GA and IA*

- **Mean GA & IA:** Based on the Fiscal Year 2022 Residential GA and IA and the number of parcels, the Residential Mean GA is 2,100 sf and the Mean IA is 1,190 sf.
- **Projected Number of Parcels:** The annual number of parcels projected for the Study Period is set to equal the FY 2022 number of parcels.
- **Initial GA & IA:** The Initial GA and IA for each year of the Study Period is derived by applying the Mean GA of 2,100 sf and Mean IA of 1,190 sf to the annual number of parcels determined for each year of the Study Period.

##### *Non-Residential Initial GA and IA*

- **Mean GA & IA:** Due to the significant diversity in the types of parcels within the non-residential and Condominium customer classes, sub-groups were delineated. The Mean GA and Mean IA for FY 2023 is derived for each of the sub-groups based on the FY 2022 Mean GA and Mean IA. **Table 6-6** in Schedule BV-2: Cost of Service Report illustrates the FY 2023 Mean GA and Mean IA determined for each of the Non-residential and Condominium sub-groups.
- **Projected Number of Parcels:** The annual number of parcels projected for the Study Period is set to equal the FY 2022 number of parcels.
- **Initial GA & IA:** The Initial GA and IA for each year of the Study Period is derived by applying the FY 2023 Mean GA and Mean IA square footage of the sub-groups to the annual number of parcels determined for each year of the Study Period for each of those sub-groups.

The projection of the Initial Parcel Count, Initial GA, and Initial IA estimated for the Residential, Non-Residential, and Condominium customer classes are presented in **Section 6.1** of Schedule BV-2: Cost of Service Report.

#### Step 2 Project GA and IA Adjustments

The estimation of the potential reduction or gain in the billable GA and IA units of service involved an analysis of each of the three Adjustment Factors, namely:

- A. Adjustments for Stormwater Credits
- B. Adjustments for Stormwater Appeals



C. Other Adjustments

The approach used to estimate the impact on GA and IA units of service due to each of these three Adjustment Factors is discussed in the following sections.

A. *Adjustments for Stormwater Credits*

Stormwater fee credits, which are offered to Non-residential and Condominium properties for implementing and maintaining onsite stormwater management practices, cause a reduction in stormwater billing and ultimately stormwater revenues. To assure revenue adequacy, potential reduction in the billable GA and IA units of service due to credits need to be accounted for in designing the GA and IA rates.

Three primary types of stormwater management activities and/or programs are integral to private onsite stormwater management, each of which could result in the issuance of additional stormwater GA and IA credits during the Study Period. The three types of stormwater management activities/programs are:

1. Impervious Area Reduction (IAR) Practices
2. GA/IA Management Practices
3. SMIP/GARP Grants

The potential reduction in GA and IA credits, defined in terms of square footage, was estimated for each of these three types of activities/programs. The projections were developed based upon a review of the five-year historical data (FY 2018 through FY 2022) as provided by the Water Department, discussions with Department Stormwater Billing and Incentives Staff, and use the following approach(es):

**IAR Practices** –IAR practices refer to stormwater management practices that are typically deployed onsite by property owners to effectively reduce the impervious area square footage. IAR practices include tree canopy cover, impervious area disconnection, and down spout disconnections. The potential IA reduction during the Study Period due to these practices is estimated as follows:

$$\text{Annual Estimated Additional IAR Credits (sf)} = \text{Number of additional IAR parcels projected for the fiscal year} \times \text{Historical average IAR (sf) per parcel}$$

- *Historical average IAR (sf) per parcel* Average IAR (sf) per parcel – The average IAR per parcel, determined using that 5-year trend, was estimated at 9,342 sf.
- *Projection of Additional IAR Parcels* – The number of IAR parcels from FY 2022 was used as the baseline for projection purposes. A five-year average annual growth rate of 29 parcels per year was estimated based on the growth rate from FY 2018 to FY 2022 and used to project the number of additional IAR parcels anticipated annually over the Study Period.

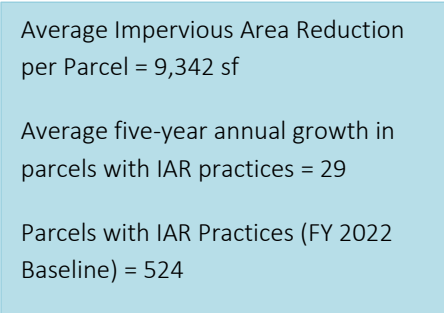


Figure 2: IAR Practices

The annual growth in parcels is multiplied by the average credit per parcel (sf) to estimate the IA credit over the Study Period. Figure 2 presents IAR practices baseline and assumptions for future projections.

**Table A-1** in the Appendix presents the historical IAR credits along with the annual growth rate and average IAR credit per parcel.

**Appendix H Table 1** in Schedule BV-2: Cost of Service Report presents the estimated number of parcels projected to receive IAR credits, and the associated reduction in Impervious Area estimated for the Study Period.

**GA/IA Management Practices** – The GA/IA Management Practices refer to stormwater management practices that are typically deployed to comply with the Water Department’s stormwater management regulations. The potential GA and IA reduction during the Study Period due to these GA/IA Management practices were estimated as follows:

*Annual Estimated Additional GA/IA Managed Credits (sf) = Number of additional GA/IA Managed parcels projected for the fiscal year x Historical Average GA/IA Managed (sf) per parcel*

- Average GA/IA Managed (sf) per parcel – The FY 2022 data was used as the baseline for the projection of GA & IA credits.
  - Parcel level data on the GA and IA credits issued in FY 2018 to FY 2022 was obtained from the Department, to determine the average square footage for GA and IA credits issued.
  - A review of the FY 2018 to FY 2022 GA/IA managed credits data revealed differences in the average GA and IA credits issued per parcel, between the “Surface Discharge” and “Non-Surface Discharge” properties, and by the type of credits issued.
    - Therefore, the average GA and IA credits were determined for the two discharge types, and by the type of credits granted historically.
  - Table 3 presents the results of the five year (FY 2018 to FY 2022) average GA and average IA credits by type (IA Managed, GA Managed, National Pollutant Discharge Elimination System [NPDES] and Open Space Credits) for the two types of stormwater discharges.

Table 2 Projection Factors for GA/IA Managed Credits

NON-SURFACE DISCHARGE CREDITS			SURFACE DISCHARGE CREDITS		
Line No.	Description	Average Per Parcel- Year End (5 yr)	Line No.	Description	Average Per Parcel- Year End (5 yr)
1	Parcel Growth	28	1	Parcel Growth	1
2	IA Managed(sf)- Average Per Parcel	23,737	2	IA Managed(sf)- Average Per Parcel	203,355
3	IA NPDES(sf)-Average Per Parcel	0	3	IA NPDES(sf)-Average Per Parcel	1,551
4	GA Managed(sf)- Average Per Parcel	22,759	4	GA Managed(sf)- Average Per Parcel	203,641
5	GA Open Space(sf)- Average Per Parcel	73,828	5	GA Open Space(sf)- Average Per Parcel	427,871
6	GA NPDES(sf)-Average Per Parcel	0	6	GA NPDES(sf)-Average Per Parcel	7,420

- Projection of Additional GA/IA Managed Parcels – As indicated in Table 3, the 5-year average for number of parcels that were issued GA/IA managed credits between FY 2018 and FY 2022 for the Non-Surface and Surface Discharge types were 28 and 1 parcel(s), respectively.
  - Discussions with the Water Department staff indicated that recent short-term drops in credit enrollment are not believed to be indicative of longer-term trends; therefore, a more reasonable assumption would be to utilize the longer-term growth in parcels receiving credit to project overall program growth, for each succeeding fiscal year of the Study Period.
  - Based on the above, the number of parcels with GA/IA managed credits at the end of FY 2022 (888 parcels for Non-Surface Discharge and 311 parcels for Surface Discharge types) was assumed to be the baseline.
  - The 5-year annual growth in parcels was used to incrementally increase the total number of parcels receiving credit each succeeding fiscal year for the Study Period.

For each stormwater discharge and credit type, the annual growth in parcels is multiplied by the average IA and GA credit per parcel (sf) to estimate the IA and GA managed credits respectively during the Study Period.

Table A-2 in the Appendix presents the historical non-surface and surface credits along with the annual growth rate and average credits awarded per parcel.

Appendix H Table 1 in Schedule BV-2: Cost of Service Report presents the estimated number of parcels projected to receive credit for the GA/IA Management Practices, and the associated square footage of GA and IA managed credits, for the Study Period.

SMIP and GARP – As defined earlier, SMIP and GARP are the two grant programs offered by the Water Department to incentivize private stormwater management. Properties that receive SMIP/GARP grants

ultimately receive stormwater credit<sup>3</sup>. Therefore, the reduction in billable GA and IA sf resulting from SMIP/GARP grants needs to be estimated for the Study Period.

The annual SMIP/GARP grant budget is \$25 million in FY 2023, \$20 million in FY 2024 and FY 2025, and then is assumed to remain at \$25 million per year throughout from FY 2026 to FY 2028. This annual budget includes program administration costs and services which amount to approximately \$600,000 in FY 2023, approximately \$500,000 each year in FY 2024 and FY 2025, and is assumed to remain at approximately \$600,000 annually from FY 2026 to FY 2028. Therefore, the budget available for reward is reduced accordingly, as summarized in **Appendix H Table 2**.

#### *Estimation of Potential GA and IA Credits*

The potential GA and IA credits resulting from the SMIP/GARP awards are estimated through a two-step approach:

- **STEP 1:** Estimate the amount of “drainage acres” that could result from the annual SMIP and GARP award amounts.
- **STEP 2:** Estimate the amount of GA and IA credits for the drainage acres deployed.

**STEP 1:** Based on a review of the completed SMIP/GARP project data as provided by the Department provided as well as discussions with the SMIP/GARP technical review team, the following assumptions were used in projecting drainage acres:

- The average grant amount awarded per drainage acre for the SMIP/ GARP projects was estimated to be \$350,000 for FY 2023.
- The average grant amount awarded per drainage acre is escalated 4-percent annually based upon anticipated increases in costs beginning in FY 2024.

Using the average award per drainage acre, the available grant award amount (which is calculated as the annual SMIP/GARP program budget less administration costs) is then translated to estimate the number of resulting drainage acres.

Then the estimated number of resulting drainage acres is translated into managed GA and IA square footage by converting acres to square feet to estimate managed area.

**STEP 2:** The GA and IA managed credits are calculated for the estimated managed area determined in Step 1, for each fiscal year, taking into account the following factors:

- SMIP/GARP projects are currently estimated to take 24 months to complete construction and begin receiving credit (from the award date); and
- Projects are assumed to be awarded credit based upon the managed impervious area (per current stormwater credit policies) at 80% for IA and 80% GA for the corresponding GA.

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<sup>3</sup> Upon the completion and verification of the Stormwater Management Practice (SMP) installation.

The total GA and IA credits for each fiscal year are then calculated as the sum of the IA credits from IAR Practices, GA and IA credits from GA/IA Management Practices and GA and IA credits estimated for the SMIP/ GARP projects.

**Appendix H Table 5** in Schedule BV-2: Cost of Service Report presents the estimated additional square footage of GA and IA managed credits, resulting from SMIP/GARP grant awards for the Study Period.

*B. Adjustments for Stormwater Appeals*

Stormwater adjustment appeals, which customers can seek for inaccurate property classification, and GA and IA data exceptions, have the potential to cause a reduction in the billable GA and IA units of service; these adjustments primarily occur for the Non-residential customer class. The potential reduction in GA and IA due to stormwater appeals, was estimated for the Study Period using the following approach.

- A review of the appeals data for FY 2017 through FY 2022 obtained from the Water Department indicates a year-to-year decrease in the number of appeals in all years except in FY 2022. The five-year average (FY 2018 to FY 2022) decrease in number of appeals was 43.
- The five-year average (FY 2018 to FY 2022) total number of parcels was used to establish a baseline estimate for the number of appeals in FY 2023; thereafter, it is estimated that during each year of the Study Period, the number of appeals will gradually decrease, as shown in Figure 3, based upon the average decrease in number of appeals.
- The five year (FY 2018 to FY 2022) average reduction in GA sf per appeal is 2,612 sf and the five-year average reduction in IA sf per appeal is 3,040 sf. These values are applied to the estimated number of appeals to determine the change in billable GA and IA units of service for each year of the Study Period.

<u>Number of Appeals</u>	
Actual	Projected
FY 2017: 332	FY 2023: 158
FY 2018: 237	FY 2024: 115
FY 2019: 216	FY 2025: 72
FY 2020: 120	FY 2026: 29
FY 2021: 99	FY 2027: 0
FY 2022: 116	FY 2028: 0

Figure 3: Stormwater Appeals

**Table A-3** in the Appendix presents the historical appeals along with the annual change in growth rate and average appeals granted per parcel.

**Table 6-7 and 6-8** in Schedule BV-2: Cost of Service Report shows the reduction in billable GA and IA for the non-residential class due to stormwater appeals.

C. Other Adjustments

**Community Gardens** – Approved community gardens (Community Gardens) receive a 100% discount on their stormwater bill. This is reflected as a reduction in billable GA and IA units of service. Therefore, the potential reduction in GA and IA due to Community Gardens applications approved is estimated for the Study Period using the following approach.

- A review of the community gardens tracking data for FY 2017 through FY 2022 provided by the Water Department indicates a year-to-year increase in the number of approved community gardens. For projection purposes, it is assumed that the number of parcels receiving the community gardens discount will continue to grow by 8 parcels per year (based upon the most recent annual increase in number of community gardens). The number of community gardens parcels estimated for the Study Period is shown in Figure 4.
- The FY 2022 average reduction in GA and IA square footage per community garden parcel is 9,216 and 431, respectively. These values are applied to the estimated number of community garden parcels to determine the reduction in billable GA and IA units of service for each year of the Study Period.

<u>Number of Community Gardens</u>	
Actual	Projected
FY 2017: 14	FY 2023: 187
FY 2018: 101	FY 2024: 195
FY 2019: 140	FY 2025: 203
FY 2020: 157	FY 2026: 211
FY 2021: 171	FY 2027: 219
FY 2022: 179	FY 2028: 227

Figure 4: Community Gardens

**Table A-4** in the Appendix presents the historical community gardens information along with the annual change in growth rate and average discount granted per parcel, as expressed in terms of IA and GA square footage.

**Tables 6-3, 6-7 and 6-8** in Schedule BV-2: Cost of Service Report present the projections of reduction in the number of parcels; the reduction in billable GA and the reduction in billable IA by customer class due to ‘Other Adjustment’ appeals.

Step 3 - Projection of Billable GA and IA Units of Service

The third and final step in the units of service analysis is to compute the final billable GA and IA units of service for each of the three customer classes. The final billable GA and IA units of service are derived by deducting the total units of service adjustments from the Initial GA and IA units of service

**Appendix H Table 6** in Schedule BV-2: Cost of Service Report presents a summary of the billable number of parcels, the billable GA, and the billable IA estimated for each customer class and for each year of the Study Period.

In summary, while the total billable IA and billable GA for Residential customer class are projected to remain relatively flat throughout the majority Study Period, the billable IA and GA for the non-residential and condominium classes are projected to decrease due to credits, appeals and other adjustments. In total:

- Billable IA is projected to decrease overall from 1,176 million square feet in FY 2023 to 1,158 million square feet by FY 2028.

Billable GA is projected to decrease from 2,149 million square feet in FY 2023 to 2,120 million square feet in FY 2028.

## APPENDIX A – HISTORICAL DATA

*Table A-1 – Historical IAR Credits (FY 2013-2022)*

Line No.	Fiscal Year Ending June 30	Total No. of Parcels	IA Loss (sf)	Parcel Growth/ Change	IA Loss Per Parcel (sf)
1	2013	255	5,097,161		19,989
2	2014	272	4,251,503	17	15,631
3	2015	324	4,559,863	52	14,074
4	2016	412	5,024,187	88	12,195
5	2017	378	4,415,022	(34)	11,680
6	2018	579	6,209,567	201	10,725
7	2019	597	6,041,082	18	10,119
8	2020	616	5,531,161	19	8,979
9	2021	649	5,372,815	33	8,279
10	2022	524	4,511,352	(125)	8,609
11	5-Yr Average	593	5,533,195	29	9,342

**Notes:**

For credit projections, 5-Year average projection factors are being used.



Table A-2 – Historical Credits for Non- Surface and Surface Discharge Eligible Properties (FY 2013-2022)

CREDITS FOR NON SURFACE DISCHARGE ELIGIBLE PROPERTIES																	
Line #	Fiscal Year Ending June 30,	Number of Parcels	Gross Area	Impervious Area	Total Gross Credit	Total						Parcel Growth/Change	Open Space				
						Impervious Credit	Open Space GA Credit	IA Managed Credit	GA Managed Credit	IA NPDES Credit	GA NPDES Credit		GA Credit (Avg Per Parcel)	IA Managed Credit (Avg Per parcel)	GA Managed Credit (Avg per parcel)	IA NPDES Credit (Avg per parcel)	GA NPDES Credit (Avg per parcel)
1	2013	604	223,367,443	61,793,808	84,520,414	17,965,807	67,429,822	11,563,893	10,305,605	-	-	111,639	19,146	17,062	-	-	
2	2014	653	257,321,475	76,969,015	94,009,369	20,633,398	55,499,304	12,668,858	11,410,570	-	-	49	84,991	19,401	17,474	-	-
3	2015	670	264,384,894	83,734,431	100,305,627	25,029,525	54,712,505	13,777,050	12,373,766	-	-	17	81,660	20,563	18,468	-	-
4	2016	695	308,606,388	110,633,550	119,638,164	33,170,833	60,658,419	16,434,037	15,025,143	-	-	25	87,278	23,646	21,619	-	-
5	2017	767	348,805,332	118,146,821	138,022,843	33,920,101	72,445,173	15,539,131	14,141,507	-	-	72	94,453	20,260	18,437	-	-
6	2018	823	314,434,590	113,476,770	144,822,988	39,742,752	72,337,150	19,141,871	17,744,247	-	-	56	87,894	23,259	21,560	-	-
7	2019	782	310,134,440	115,126,357	149,679,885	41,344,307	62,542,914	16,212,413	15,425,254	-	-	(41)	79,978	20,732	19,725	-	-
8	2020	813	322,039,967	120,201,957	160,913,257	45,539,961	59,748,724	19,565,431	19,223,758	-	-	31	73,492	24,066	23,645	-	-
9	2021	881	305,691,545	120,195,540	150,962,635	47,627,283	57,891,589	22,690,285	22,031,291	-	-	68	65,711	25,755	25,007	-	-
10	2022	906	347,944,545	132,702,256	188,575,144	54,098,147	56,231,742	22,534,000	21,612,322	-	-	25	62,066	24,872	23,855	-	-
11	5-Yr Average	841	320,049,017	120,340,576	158,990,782	45,670,490	61,750,424	20,028,800	19,207,374	-	-	28	73,828	23,737	22,759	-	-
CREDITS FOR SURFACE DISCHARGE ELIGIBLE PROPERTIES																	
Line #	Fiscal Year Ending June 30,	Number of Parcels	Gross Area	Impervious Area	Total Gross Credit	Total						Parcel Growth/Change	Open Space GA Credit (Per Parcel)	IA Managed Credit (Avg Per parcel)	GA Managed Credit (Avg per parcel)	IA NPDES Credit (Avg Per parcel)	GA NPDES Credit (Avg per parcel)
						Impervious Credit	Open Space GA Credit	IA Managed Credit	GA Managed Credit	IA NPDES Credit	GA NPDES Credit						
12	2013	152	220,024,320	79,752,423	129,107,867	47,612,306	80,471,840	43,703,240	43,717,412	1,500,062	2,575,193	529,420	287,521	287,615	9,869	16,942	
13	2014	212	272,919,261	91,624,837	170,699,769	53,693,207	114,259,551	49,493,761	49,668,409	1,580,879	2,681,653	60	538,960	233,461	234,285	7,457	12,649
14	2015	246	283,413,656	98,224,301	176,930,329	60,226,500	122,127,335	55,736,478	47,311,404	1,524,473	2,590,089	34	496,453	226,571	192,323	6,197	10,529
15	2016	273	253,507,206	84,881,856	192,946,835	61,024,331	127,568,199	58,166,690	58,101,140	250,387	428,721	27	467,283	213,065	212,825	917	1,570
16	2017	312	289,520,162	88,550,428	223,008,811	63,952,942	151,024,452	61,284,210	61,338,258	242,176	423,291	39	484,053	196,424	196,597	776	1,357
17	2018	318	331,071,935	98,430,878	227,585,196	66,195,369	149,779,130	62,881,606	62,901,801	726,596	3,097,451	6	471,004	197,741	197,804	2,285	9,740
18	2019	308	340,151,826	95,665,431	241,876,061	65,118,503	165,977,231	62,023,047	62,089,933	621,466	2,942,661	(10)	538,887	201,374	201,591	2,018	9,554
19	2020	312	330,347,932	93,855,746	236,698,310	64,145,133	161,182,489	60,896,113	61,152,874	531,051	2,759,029	4	516,611	195,180	196,003	1,702	8,843
20	2021	313	316,186,603	99,071,024	220,700,957	66,765,983	100,873,887	63,039,153	63,232,852	531,051	2,759,029	1	322,281	201,403	202,022	1,697	8,815
21	2022	315	330,769,306	117,900,742	247,940,370	72,828,442	91,530,154	69,639,017	69,547,325	17,490	45,949	2	290,572	221,076	220,785	56	146
22	5-Yr Average	313	329,705,520	100,984,764	234,960,179	67,010,686	133,868,578	63,695,787	63,784,957	485,531	2,320,824	1	427,871	203,355	203,641	1,551	7,420

Table A-3 – Historical Appeals, IA and GA Loss (FY 2013-2022)

Line No.	Fiscal Year Ending June 30	Total No. of Parcels	IA Loss (sf)	GA Loss (sf)	Parcel Reduction/ Change	IA Loss Per Parcel (sf)	GA Loss Per Parcel (sf)
	2012	793	4,617,485	5,257,906		5,820	6,630
1	2013	531	4,314,593	570,367	262	8,130	1,070
2	2014	423	1,497,566	385,468	108	3,540	910
3	2015	335	989,841	2,168,335	88	2,950	6,470
4	2016	393	1,560,294	14,863	(58)	3,970	40
5	2017	332	655,318	(151,566)	61	1,970	(460)
6	2018	237	896,103	1,292,493	95	3,780	5,450
7	2019	216	913,347	1,132,098	21	4,230	5,240
8	2020	120	419,553	424,065	96	3,500	3,530
9	2021	99	898,811	207,232	21	9,080	2,090
10	2022	116	(625,082)	(376,559)	(17)	(5,390)	(3,250)
11	5-Yr Average	158	500,546	535,866	43	3,040	2,612

Notes:

For appeals projections, 5-Year average projection factors are being used.

Table A-4 – Historical Community Gardens Parcels, IA and GA (FY 2017-2022)\*

Line No.	Fiscal Year Ending June 30	Total No. of Parcels	IA (sf)	GA (sf)	Parcel Growth/Change	IA Per Parcel (sf)	GA Per Parcel (sf)
1	2017	14	687	62,131		49	4,438
2	2018	101	65,346	1,157,491	87	647	11,460
3	2019	140	70,094	1,753,443	39	501	12,525
4	2020	157	71,228	1,786,600	17	454	11,380
5	2021	171	77,589	1,804,359	14	454	10,552
6	2022	179	77,075	1,649,623	8	431	9,216
7	Recent Year	179	77,075	1,649,623	8	431	9,216

Notes:

For community gardens projections, recent year projection factors are being used.

\*Data compiled beginning in 2017, following the rate determination in 2016 Special Rate Proceeding authorizing the Community Gardens special rate (which became effective January 1, 2017).

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## SCHEDULE BV-4: WP-3 COST RECOVERY OF DISCOUNTS, CREDITS, GRANTS, AND TAP

This memorandum outlines the cost recovery approach used for billing discounts, stormwater credits, incentives, grants, and the Tiered Assistance Program (TAP). These approaches were used in development of the Fiscal Year (FY) 2023 - FY 2028 financial plan in conjunction with the FY 2024 - FY 2025 Rate Proceeding.

Program Name	Cost Recovery Approach
Discounts	<ul style="list-style-type: none"> <li>• Proportionate recovery from all retail service types.</li> <li>• Includes discounts provided to senior citizens, the Philadelphia Housing Authority (PHA) and charities (including schools, universities, colleges, hospitals, and places used for actual religious worship).</li> </ul>
Utility Emergency Services Fund (UESF) Grants	<ul style="list-style-type: none"> <li>• Proportionate recovery from all retail service types.</li> </ul>
Tiered Assistance Program (TAP)	<ul style="list-style-type: none"> <li>• Proportionate recovery of program administration and support from all retail service types.</li> <li>• Discounts provided to TAP customers (i.e., TAP lost revenue referred to as TAP Costs in the TAP Rate Rider) recovered via the TAP Rate Rider surcharge rates, which are included in the overall water and sewer quantity charges.</li> </ul>
Stormwater Management Incentives Program (SMIP) & Greened Acre Retrofit Program (GARP) Grants	<ul style="list-style-type: none"> <li>• Recovered by Wastewater (<i>Sanitary Sewer &amp; Stormwater</i>) revenues.</li> <li>• Proportionate recovery from applicable wastewater wholesale customers<sup>1</sup> and all retail service types.</li> </ul>
Stormwater Credits	<ul style="list-style-type: none"> <li>• Recovered via <u>Stormwater</u> Revenues.</li> <li>• Proportionate recovery from <u>all</u> retail service types.</li> <li>• Includes Community Gardens.</li> </ul>
Stormwater Customer Assistance Program (CAP)	<ul style="list-style-type: none"> <li>• Recovered by <u>Non-residential service type</u> Stormwater Revenues.</li> </ul>

Notes:

1. SMIP/GARP is recovered from wastewater wholesale customers in accordance with their contract terms.

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## **SCHEDULE BV-4: WP-4 MISCELLANEOUS FEES METHODOLOGY**

This document outlines the methodology used in updating the Philadelphia Water Department (“PWD”) miscellaneous fees for the FY 2024 - FY 2025 rate proceeding (“current rate proceeding”). Under the current rate proceeding, updates to 98 existing miscellaneous fees are proposed (including 26 corresponding overtime-related fees) as noted in Schedule BV-3: Tables M-1 and M-2. The methodology for calculating cost-based miscellaneous fees is presented in Section 1 of this document. PWD is proposing two new miscellaneous fees related to tasks performed by the Development Services Unit (DSU). PWD is also proposing to consolidate two miscellaneous fees into one fee. The description of those fees is presented in Section 2 of this document. An update to the Stormwater Management Fee In Lieu is also proposed; the associated methodology is presented in Section 3.

### **1. Methodology**

The methodology used to calculate the miscellaneous fees in the current rate proceeding is consistent with the methodology utilized in calculating the fees adopted in 2021 Rate Determination, and further described in the following sections.

The water and wastewater miscellaneous fees were updated based on cost inputs provided by the PWD staff. The costs are categorized as follows and further documented in the appendix:

- i. Labor Costs
- ii. Equipment Costs
- iii. Materials Costs
- iv. Contractor Costs

The calculated charge is determined by summing all the cost inputs (as applicable) for a given miscellaneous fee. The following section further elaborates on the determination of each of the costs listed above. Appendix A provides the associated workpapers and calculations used to develop the proposed charges.

#### **1.1 Labor Costs**

The Labor costs use the average hourly rate for the staff position and the total labor hours spent on that task. The hourly rate for the position has a direct cost component and an indirect cost component.

- **Direct Cost Component:** This consists of the average hourly rate for the staff position based on the annual salary (maximum of the salary range) in the City of Philadelphia Fiscal 2023 Operating Budget and divided by 1,950 paid working hours per year for the work performed during PWD’s business hours (defined as weekdays between 9:00 a.m. and 4:45 p.m.). For work performed during non-business hours, an overtime component is added to the average hourly rate for eligible staff

“covered” under the FLSA (Fair Labor Standards Act) to determine the direct labor cost component. The annual salary for FY 2023 is escalated<sup>1</sup> to project the annual salaries for FY 2024 and FY 2025.

- Indirect Cost Component: This consists of the Fringe Rate as per the City of Philadelphia’s Fiscal 2020 Estimate of Civilian Fringe Costs as a Percentage of Salaries, applied to the direct cost component above.

The sum of the direct and indirect labor costs is used to determine the fully burdened hourly rate for a given staff position. The labor hours used in this analysis reflect the overall effort to support these specific tasks as provided by PWD. The total labor cost for a task is the sum of labor costs for all staff involved in the task.

### 1.2 Equipment Costs

The Equipment cost rates are based on the latest (2021) Federal Emergency Management Agency (“FEMA”) hourly rates published on the FEMA website and utilized City-wide for vehicle and equipment reimbursement. Since FEMA’s rates are a lagging indicator, the hourly rates are then escalated to determine the FY 2024 and FY 2025 hourly costs for equipment. The escalation factor used is the average change in the Producers Price Index for Construction Machinery and Equipment<sup>2</sup>. The equipment cost for the task is the product of the hourly rate for the specific equipment use and the total time spent on that task. The time spent on a job and the various equipment used for the task was provided by PWD. The total equipment cost for the job reflects the sum of the expenses for all the equipment used for the particular task.

### 1.3 Materials Costs

The Materials costs reflect the current materials pricing provided by PWD. Annual escalation factors<sup>3</sup> are applied to the current costs to project material costs for FY 2024 and FY 2025. The type of materials and the quantity of the materials for any given task was provided by PWD. The total material cost for the job is the sum of the expenses for all the material types used for the task.

### 1.4 Contractor Costs

The Contractor costs are incurred when the tasks are performed by non PWD personnel in the case of some miscellaneous fees. The contractor costs reflect the information provided by PWD for the most recent three years. The three-year average contractor cost is used to determine the projected contractor costs for FY 2024 and FY 2025.

## 2. New and Consolidated Miscellaneous Fees

The following new fees related to tasks performed by the Development Services Unit are introduced in the current rate proceeding:

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<sup>1</sup> FY 2024 is based upon the recent labor agreement with District Council 33 (“DC33”). FY 2025 is based upon the average annual increases for FY 2022 to FY 2024 as included in the DC33 labor agreement. The escalation factors are highlighted in Schedule BV-2: Cost of Service Report.

<sup>2</sup> The equipment cost is escalated according to the U.S. Bureau of Labor Statistics Producers Price Index for Construction Machinery and Equipment as of September 2022. FY 2023 = 9.40% (2-year average), FY 2024 = 6.67% (3-year average), and FY 2025 = 5.13% (5-year average).

<sup>3</sup> The material cost is escalated at 5.00% for large meters (>5/8 inch) and 7.00% for all other materials each year in FY 2024 and FY 2025. No escalation applied for small meters (5/8 inch) as they are per AMI contract.



- a. Utility Plan Review Fee, to recover the cost associated with DSU’s review of the proposed water and sewer connections to confirm water and sewer availability
- b. Stormwater Final Inspection Fee, to recover costs associated with DSU’s final inspection to confirm compliance with an approved Post-Construction Stormwater Management Plan

PWD is proposing to consolidate the Conceptual Stormwater Plan Approval and Post Construction Stormwater Plan Submission into a single miscellaneous fee.

The new and consolidated miscellaneous fees are calculated using the same methodology outlined in Section 1.

### 3. Stormwater Management Fee In Lieu

The Stormwater Management Fee In Lieu Exemption to Water Quality is not calculated based on the methodology outlined in Section 1. This fee is used when a developer/property owner has triggered PWD’s stormwater management requirements and demonstrates it is not feasible to construct the required stormwater management practice on their site. In lieu of on-site management, PWD would have to construct an equivalent green stormwater infrastructure (GSI) practice at another location. This fee is calculated based on the life cycle cost of a GSI Practice inclusive of construction and maintenance. The construction cost is based upon PWD’s average GSI construction costs. The maintenance costs are also based on PWD’s experience and escalated annually at a constant rate over the life of the GSI Practice. The present value of this aggregate life cycle maintenance cost and the one-time construction cost together represent the Fee In Lieu, which is expressed as a unit cost per square feet of earth disturbance. These calculations are included in Appendix A.

### 4. Summary

The mix of staff, type of equipment, and quantity of materials, as well as the task completion time, are based on the information provided by PWD. The unit costs for labor and materials are based on the FY 2023 costs provided by PWD and applying the appropriate escalation factors to determine the unit costs for FY 2024 and FY 2025. The unit costs for equipment are based on the FY 2021 FEMA rates and escalated to determine the unit costs for FY 2024 and FY 2025.

- For fees with a calculated cost of service less than the existing charge, the proposed fee in FY 2024 and FY 2025 reflects the calculated cost of service.
- For fees with a calculated cost of service higher than the existing charge, the proposed fee is transitioned to cost of service, if the variance between the cost of service charge and the existing charge is less than or equal to 40%. If the variance is greater than 40% of the existing charge, the fees are phased-in by increasing them by 40% each fiscal year (to mitigate impact to the customer) or until the cost of service is achieved. The proposed miscellaneous charges are rounded to the nearest five or ten dollars except for the Stormwater Fee-In-Lieu which is rounded to the nearest dollar.

Table M-1 presents the list of 105 (98 updated, four (4) unchanged, two (2) new, and one (1) consolidated) miscellaneous fees applicable during regular business hours, and Table M-2 presents the list of 26 updated miscellaneous fees applicable outside of regular business hours. Except for the Stormwater Management

Fee In Lieu and the TAP Customers-Shutoff and Restoration of Water Service fees, all the other fees are calculated based on the methodology described in Section 1 of this document. The two TAP related fees are based on policy decision by PWD to charge the minimum allowable bill for TAP customers. The Stormwater Management Fee In Lieu fee is based on the calculations performed by PWD and Black & Veatch as described in Section 3.

APPENDIX A

MISCELLANEOUS FEE STUDY WORKPAPERS

## Overhead Rate Calculation

Line No.	Description	Operations	Engineering
1	Division, Fringe	77.57%	77.57%
2	Indirect Divisions Allocation	0%	0%
3	Total Overhead Rate	78%	78%

Source: City of Philadelphia

Fiscal Year 2020 Estimate of Civilian and Uniformed Fringe Costs as a Percentage of Salaries

Line No.	Description	Operations	Engineering
1	Annual No. of Working Hours	1950	1950

**FY 2024 Hourly Salary and Overhead Rates**

Overhead Group		Operations										
		Water Field Cust Serv Rep	Water Field Cust Serv Rep (D&R)	Water Field Cust Serv Sup (D&R)	Crew Chief	Repair Worker	Equipment Operator (Equipment Operator 2)	Heavy Equipment Operator	Engineer 3/ WTR Engineer 1	Engineering Specialist	Engineering Aide (Engineering Aide 2)	Engineering Technician 1
1	Salary (Annual)	\$51,124	\$51,124	\$56,695	\$52,519	\$46,893	\$49,745	\$52,519	\$97,514	\$88,861	\$48,394	\$55,148
2	Salary (Hourly)	26.22	26.22	29.07	26.93	24.05	25.51	26.93	50.01	45.57	24.82	28.28
3	Division Ind Labor (Excl Overtime)	0	0	0	0	0	0	0	0	0	0	0
4	Division Ind Labor (Overtime)	13.11	13.11	14.54	0.00	12.02	12.76	13.47	0.00	0.00	12.41	14.14
5	Division Fringes	20.34	20.34	22.55	20.89	18.65	19.79	20.89	38.79	35.35	19.25	21.94
6	Indirect Division Allocation	0	0	0	0	0	0	0	0	0	0	0
7	Salary + Div Ind Labor (Excl Overtime)	26.22	26.22	29.07	26.93	24.05	25.51	26.93	50.01	45.57	24.82	28.28
8	Salary + Div Ind Labor (Overtime Premium)	39.33	39.33	43.61	26.93	36.07	38.27	40.40	50.01	45.57	37.23	42.42
9	Salary + Div Ind Labor + Fringes (Excl Overtime)	46.55	46.55	51.63	47.82	42.70	45.30	47.82	88.80	80.92	44.07	50.22
10	Salary + Div Ind Labor + Fringes (Overtime Premium)	59.66	59.66	66.16	47.82	54.73	58.05	61.29	88.80	80.92	56.48	64.36
11	Salary + Div Ind Labor + Fringes+ Ind Div Alloc (Excl Overtime)	46.55	46.55	51.63	47.82	42.70	45.30	47.82	88.80	80.92	44.07	50.22
12	Salary + Div Ind Labor + Fringes + Ind Div Alloc (Overtime Premium)	59.66	59.66	66.16	47.82	54.73	58.05	61.29	88.80	80.92	56.48	64.36

**FY 2024 Hourly Salary and Overhead Rates**

Line	Overhead Group	Operations										
		Engineer 1 (Environmental Engineer 1)	Engineer 2 (Environmental Engineer 2)	Water Engineering Projects Assistant Manager	Engineering Supervisor 2	Industrial Waste Control Supervisor	Industrial Waste Control Technician 2	Industrial Waste Control Technician 1	Grad Civil Engineer/Graduate Environmental Engineer	WTR Supervisor	Inspector	Collector Unit
1	Salary (Annual)	\$68,813	\$74,980	\$119,186	\$111,577	\$85,594	\$71,581	\$58,245	\$63,328	\$111,577	\$61,816	\$80,819
2	Salary (Hourly)	35.29	38.45	61.12	57.22	43.89	36.71	29.87	32.48	57.22	31.70	41.45
3	Division Ind Labor (Excl Overtime)	0	0	0	0	0	0	0	0	0	0	0
4	Division Ind Labor (Overtime)	0.00	0.00	0.00	0.00	0.00	18.35	14.93	0.00	28.61	15.85	0.00
5	Division Fringes	27.37	29.83	47.41	44.38	34.05	28.47	23.17	25.19	44.38	24.59	32.15
6	Indirect Division Allocation	0	0	0	0	0	0	0	0	0	0	0
7	Salary + Div Ind Labor (Excl Overtime)	35.29	38.45	61.12	57.22	43.89	36.71	29.87	32.48	57.22	31.70	41.45
8	Salary + Div Ind Labor (Overtime Premium)	35.29	38.45	61.12	57.22	43.89	55.06	44.80	32.48	85.83	47.55	41.45
9	Salary + Div Ind Labor + Fringes (Excl Overtime)	62.66	68.28	108.53	101.60	77.94	65.18	53.04	57.67	101.60	56.29	73.60
10	Salary + Div Ind Labor + Fringes (Overtime Premium)	62.66	68.28	108.53	101.60	77.94	83.54	67.97	57.67	130.21	72.14	73.60
11	Salary + Div Ind Labor + Fringes+ Ind Div Alloc (Excl Overtime)	62.66	68.28	108.53	101.60	77.94	65.18	53.04	57.67	101.60	56.29	73.60
12	Salary + Div Ind Labor + Fringes + Ind Div Alloc (Overtime Premium)	62.66	68.28	108.53	101.60	77.94	83.54	67.97	57.67	130.21	72.14	73.60

**FY 2024 Hourly Salary and Overhead Rates**

Overhead Group				Planning & Environmental Services							
Line		Electronic Tech II	Electronic Tech I	Electronic Equipment Supervisor	Environmenta l Scientist 1	Engineer 1 (Civil Engineer 1)	Administrativ e Assistant	Environmen tal Scientist Specialist	Constructio n Project Technician 2	Engineering Specialist	GIS Specialist 2
1	Salary (Annual)	\$61,816	\$53,761	\$80,819	\$58,840	\$68,813	\$58,840	\$83,508	\$61,816	\$82,666	\$74,980
2	Salary (Hourly)	31.70	27.57	41.45	30.17	35.29	30.17	42.82	31.70	42.39	38.45
3	Division Ind Labor (Excl Overtime)	0	0	0	0	0	0	0	0	0	0
4	Division Ind Labor (Overtime)	15.85	13.78	0.00	0.00	0.00	15.09	0.00	15.85	0.00	0.00
5	Division Fringes	24.59	21.39	32.15	23.41	27.37	23.41	33.22	24.59	32.88	29.83
6	Indirect Division Allocation	0	0	0	0	0	0	0	0	0	0
7	Salary + Div Ind Labor (Excl Overtime)	31.70	27.57	41.45	30.17	35.29	30.17	42.82	31.70	42.39	38.45
8	Salary + Div Ind Labor (Overtime Premium)	47.55	41.35	41.45	30.17	35.29	45.26	42.82	47.55	42.39	38.45
9	Salary + Div Ind Labor + Fringes (Excl Overtime)	56.29	48.96	73.60	53.58	62.66	53.58	76.04	56.29	75.28	68.28
10	Salary + Div Ind Labor + Fringes (Overtime Premium)	72.14	62.74	73.60	53.58	62.66	68.67	76.04	72.14	75.28	68.28
11	Salary + Div Ind Labor + Fringes+ Ind Div Alloc (Excl Overtime)	56.29	48.96	73.60	53.58	62.66	53.58	76.04	56.29	75.28	68.28
12	Salary + Div Ind Labor + Fringes + Ind Div Alloc (Overtime Premium)	72.14	62.74	73.60	53.58	62.66	68.67	76.04	72.14	75.28	68.28

**FY 2025 Hourly Salary and Overhead Rates**

Overhead Group		Operations										
Line		Water Field Cust Serv Rep	Water Field Cust Serv Rep (D&R)	Water Field Cust Serv Sup (D&R)	Crew Chief	Repair Worker	Equipment Operator (Equipment Operator 2)	Heavy Equipment Operator	Engineer 3/ WTR Engineer 1	Engineering Specialist	Engineering Aide (Engineering Aide 2)	Engineering Technician 1
1	Salary (Annual)	\$52,658	\$52,658	\$58,396	\$54,095	\$48,300	\$51,237	\$54,095	\$100,439	\$91,527	\$49,846	\$56,802
2	Salary (Hourly)	27.00	27.00	29.95	27.74	24.77	26.28	27.74	51.51	46.94	25.56	29.13
3	Division Ind Labor (Excl Overtime)	0	0	0	0	0	0	0	0	0	0	0
4	Division Ind Labor (Overtime)	13.50	13.50	14.97	0.00	12.38	13.14	13.87	0.00	0.00	12.78	14.56
5	Division Fringes	20.95	20.95	23.23	21.52	19.21	20.38	21.52	39.95	36.41	19.83	22.60
6	Indirect Division Allocation	0	0	0	0	0	0	0	0	0	0	0
7	Salary + Div Ind Labor (Excl Overtime)	27.00	27.00	29.95	27.74	24.77	26.28	27.74	51.51	46.94	25.56	29.13
8	Salary + Div Ind Labor (Overtime Premium)	40.51	40.51	44.92	27.74	37.15	39.41	41.61	51.51	46.94	38.34	43.69
9	Salary + Div Ind Labor + Fringes (Excl Overtime)	47.95	47.95	53.18	49.26	43.98	46.66	49.26	91.46	83.35	45.39	51.73
10	Salary + Div Ind Labor + Fringes (Overtime Premium)	61.45	61.45	68.15	49.26	56.37	59.80	63.13	91.46	83.35	58.17	66.29
11	Salary + Div Ind Labor + Fringes+ Ind Div Alloc (Excl Overtime)	47.95	47.95	53.18	49.26	43.98	46.66	49.26	91.46	83.35	45.39	51.73
12	Salary + Div Ind Labor + Fringes + Ind Div Alloc (Overtime Premium)	61.45	61.45	68.15	49.26	56.37	59.80	63.13	91.46	83.35	58.17	66.29



**FY 2025 Hourly Salary and Overhead Rates**

Line	Overhead Group	Operations										
		Engineer 1 (Environmental Engineer 1)	Engineer 2 (Environmental Engineer 2)	Water Engineering Projects Assistant Manager	Engineering Supervisor 2	Industrial Waste Control Supervisor	Industrial Waste Control Technician 2	Industrial Waste Control Technician 1	Grad Civil Engineer/Graduate Environmental Engineer	WTR Supervisor	Inspector	Collector Unit
1	Salary (Annual)	\$70,877	\$77,229	\$122,762	\$114,924	\$88,162	\$73,728	\$59,992	\$65,228	\$114,924	\$63,670	\$83,244
2	Salary (Hourly)	36.35	39.60	62.95	58.94	45.21	37.81	30.77	33.45	58.94	32.65	42.69
3	Division Ind Labor (Excl Overtime)	0	0	0	0	0	0	0	0	0	0	0
4	Division Ind Labor (Overtime)	0.00	0.00	0.00	0.00	0.00	18.90	15.38	0.00	29.47	16.33	0.00
5	Division Fringes	28.19	30.72	48.83	45.72	35.07	29.33	23.86	25.95	45.72	25.33	33.11
6	Indirect Division Allocation	0	0	0	0	0	0	0	0	0	0	0
7	Salary + Div Ind Labor (Excl Overtime)	36.35	39.60	62.95	58.94	45.21	37.81	30.77	33.45	58.94	32.65	42.69
8	Salary + Div Ind Labor (Overtime Premium)	36.35	39.60	62.95	58.94	45.21	56.71	46.15	33.45	88.40	48.98	42.69
9	Salary + Div Ind Labor + Fringes (Excl Overtime)	64.54	70.33	111.79	104.65	80.28	67.14	54.63	59.40	104.65	57.98	75.80
10	Salary + Div Ind Labor + Fringes (Overtime Premium)	64.54	70.33	111.79	104.65	80.28	86.04	70.01	59.40	134.12	74.31	75.80
11	Salary + Div Ind Labor + Fringes+ Ind Div Alloc (Excl Overtime)	64.54	70.33	111.79	104.65	80.28	67.14	54.63	59.40	104.65	57.98	75.80
12	Salary + Div Ind Labor + Fringes + Ind Div Alloc (Overtime Premium)	64.54	70.33	111.79	104.65	80.28	86.04	70.01	59.40	134.12	74.31	75.80

**FY 2025 Hourly Salary and Overhead Rates**

Overhead Group				Planning & Environmental Services							
Line		Electronic Tech II	Electronic Tech I	Electronic Equipment Supervisor	Environmenta l Scientist 1	Engineer 1 (Civil Engineer 1)	Administrativ e Assistant	Environmen tal Scientist Specialist	Constructio n Project Technician 2	Engineering Specialist	GIS Specialist 2
1	Salary (Annual)	\$63,670	\$55,374	\$ 83,244	\$ 60,605	\$ 70,877	\$ 60,605	\$ 86,013	\$ 63,670	\$ 85,146	\$ 77,229
2	Salary (Hourly)	32.65	28.40	42.69	31.08	36.35	31.08	44.11	32.65	43.66	39.60
3	Division Ind Labor (Excl Overtime)	0	0	0	0	0	0	0	0	0	0
4	Division Ind Labor (Overtime)	16.33	14.20	0.00	0.00	0.00	15.54	0.00	16.33	0.00	0.00
5	Division Fringes	25.33	22.03	33.11	24.11	28.19	24.11	34.22	25.33	33.87	30.72
6	Indirect Division Allocation	0	0	0	0	0	0	0	0	0	0
7	Salary + Div Ind Labor (Excl Overtime)	32.65	28.40	42.69	31.08	36.35	31.08	44.11	32.65	43.66	39.60
8	Salary + Div Ind Labor (Overtime Premium)	48.98	42.60	42.69	31.08	36.35	46.62	44.11	48.98	43.66	39.60
9	Salary + Div Ind Labor + Fringes (Excl Overtime)	57.98	50.42	75.80	55.19	64.54	55.19	78.32	57.98	77.54	70.33
10	Salary + Div Ind Labor + Fringes (Overtime Premium)	74.31	64.62	75.80	55.19	64.54	70.73	78.32	74.31	77.54	70.33
11	Salary + Div Ind Labor + Fringes+ Ind Div Alloc (Excl Overtime)	57.98	50.42	75.80	55.19	64.54	55.19	78.32	57.98	77.54	70.33
12	Salary + Div Ind Labor + Fringes + Ind Div Alloc (Overtime Premium)	74.31	64.62	75.80	55.19	64.54	70.73	78.32	74.31	77.54	70.33

**Philadelphia Water Department  
Miscellaneous Fees & Charges Model  
Equipment Rates**

1	FEMA DESCRIPTION	Truck, Backhoe	Air Compressor	Truck, Dump	Truck, Dump	Truck, Pickup	Automobile	Jackhammer	Pump	Generator	Vehicle, Small	
2	FEMA CODE	8795	8014	8725	8720	8801	8076	8518	8473	8310	8750	
3	EQUIPMENT DESCRIPTION	Backhoe	Compressor	Large Dump Truck	Small Utility Truck	Crew Truck	SUV/ Van	Jackhammer	Pump	Generator	Vehicle, Small	CCTV Truck
4	UNIT	Per Hour	Per Hour	Per Hour	Per Hour	Per Hour	Per Hour	Per Hour	Per Hour	Per Hour	Per Hour	Per Hour
5	UNESCALATED COST (2021)	\$34.04	\$36.88	\$84.27	\$52.96	\$11.75	\$20.77	\$1.90	\$12.25	\$4.95	\$6.50	\$70.25
Source 2021 FEMA Rates												
6	ESCALATED COST (FY 2023)	\$37.24	\$40.35	\$92.19	\$57.94	\$12.85	\$22.72	\$2.08	\$13.40	\$5.42	\$7.11	\$76.85
7	YEAR 1 COST (FY 2024)	\$39.72	\$43.04	\$98.34	\$61.80	\$13.71	\$24.24	\$2.22	\$14.29	\$5.78	\$7.58	\$81.98
8	YEAR 2 COST (FY 2025)	\$41.76	\$45.25	\$103.38	\$64.97	\$14.41	\$25.48	\$2.33	\$15.02	\$6.08	\$7.97	\$86.19

<b>Annual Escalation</b>		
9.40%	Budget Year	Use 2-year average
6.67%	Year 1	Use 3-year average
5.13%	Year 2	Use 5-year average

Source: BLS PPI Construction Machinery and Equipment  
Assuming annual inflation will trend down in the future years.

**Material Costs**

No.	MATERIAL DESCRIPTION	UNIT	FY 2024 COST	FY 2025 COST
1	Meter costs by meter size			
	5/8"	Each	\$152.91	\$152.91
	3/4" RFSS	Each	\$342.30	\$359.42
	1"	Each	\$257.50	\$270.38
	1" RFSS	Each	\$350.70	\$368.24
	1 1/2"	Each	\$715.83	\$751.62
	1 1/2" RFSS	Each	\$666.76	\$700.10
	2"	Each	\$888.66	\$933.09
	2" RFSS	Each	\$901.18	\$946.24
	3" Compound	Each	\$3,017.23	\$3,168.09
	3" Turbine	Each	\$1,515.08	\$1,590.83
	3" Fire Series	Each	\$3,334.26	\$3,500.97
	4" Compound	Each	\$4,293.81	\$4,508.50
	4" Turbine	Each	\$2,325.33	\$2,441.60
	4" Fire Series	Each	\$4,195.82	\$4,405.61
	4" Fire Assembly	Each	\$5,775.00	\$6,063.75
	6" Compound	Each	\$6,133.32	\$6,439.99
	6" Turbine	Each	\$4,646.21	\$4,878.52
	6" Fire Series	Each	\$5,655.02	\$5,937.77
	6" Fire Assembly	Each	\$8,383.22	\$8,802.38
	8" Turbine	Each	\$5,576.77	\$5,855.61
	8" Fire Series	Each	\$7,241.46	\$7,603.53
	8" Fire Assembly	Each	\$11,974.52	\$12,573.25
	10" Turbine	Each	\$8,231.27	\$8,642.83
	10" Fire Series	Each	\$8,990.02	\$9,439.52
	10" Fire Assembly	Each	\$17,437.73	\$18,309.62
	12" Turbine	Each	\$8,734.95	\$9,171.70
	12" Fire Series	Each	\$10,147.37	\$10,654.74
	12" Fire Assembly	Each	\$18,595.08	\$19,524.83
2	Ferrule Costs			
324005	3/4"	Each	\$25.55	\$27.34
324006	1"	Each	\$37.88	\$40.53
324008	1 1/2"	Each	\$108.75	\$116.36
324010	2"	Each	\$175.96	\$188.28
3	Adapter for Ferrule			
001301	3/4"	Each	\$16.51	\$17.67
001303	1"	Each	\$30.96	\$33.13
4	Valve costs by size			
925379	3"	Each	\$661.97	\$708.31
925381	4"	Each	\$726.58	\$777.44
925383	6"	Each	\$1,015.21	\$1,086.27
925385	8"	Each	\$1,484.76	\$1,588.69

**Material Costs**

No.	MATERIAL DESCRIPTION	UNIT	FY 2024 COST	FY 2025 COST
925387	10"	Each	\$2,214.22	\$2,369.22
925389	12"	Each	\$3,423.28	\$3,662.91
5	Sleeve costs by size			
	3"	Each	\$538.48	\$576.17
	4"	Each	\$600.23	\$642.25
	6"	Each	\$730.90	\$782.06
	8"	Each	\$1,148.75	\$1,229.16
	10"	Each	\$1,766.21	\$1,889.84
	12"	Each	\$2,261.61	\$2,419.92
6	3" or 4" Sleeve costs by Main size			
	12" X 3" or 4"	Each	\$2,649.31	\$2,834.76
	16" X 3" or 4"	Each	\$7,466.89	\$7,989.57
	20" X 3" or 4"	Each	\$9,620.80	\$10,294.26
	24" X 3" or 4"	Each	\$11,918.30	\$12,752.58
	30" X 3" or 4"	Each	\$24,103.28	\$25,790.51
	36" X 3" or 4"	Each	\$31,024.03	\$33,195.71
7	6" or 8" Sleeve costs by Main size			
	12" X 6" or 8"	Each	\$2,731.88	\$2,923.11
	16" X 6" or 8"	Each	\$7,682.28	\$8,220.04
	20" X 6" or 8"	Each	\$9,333.61	\$9,986.96
	24" X 6" or 8"	Each	\$11,918.30	\$12,752.58
	30" X 6" or 8"	Each	\$26,092.90	\$27,919.40
	36" X 6" or 8"	Each	\$35,609.26	\$38,101.91
8	10" or 12" Sleeve costs by Main size			
	12" X 10" or 12"	Each	\$3,338.56	\$3,572.26
	16" X 10" or 12"	Each	\$7,754.08	\$8,296.87
	20" X 10" or 12"	Each	\$9,692.60	\$10,371.08
	24" X 10" or 12"	Each	\$11,918.30	\$12,752.58
	30" X 10" or 12"	Each	\$26,729.73	\$28,600.81
	36" X 10" or 12"	Each	\$38,320.18	\$41,002.59
9	Ductile Iron Pipe by size			
720489	3"	Per foot	\$71.67	\$76.69
720490	4"	Per foot	\$53.41	\$57.15
720492	6"	Per foot	\$56.30	\$60.24
720494	8"	Per foot	\$80.14	\$85.75
720495	10"	Per foot	\$105.10	\$112.46
720496	12"	Per foot	\$130.53	\$139.67
10	Dressing or Couplings by size			
130540	6"	Each	\$128.76	\$137.77
130542	8"	Each	\$191.26	\$204.65
130546	10"	Each	\$224.64	\$240.36
130548	12"	Each	\$294.27	\$314.87
130569	20"	Each	\$596.67	\$638.44

**Material Costs**

No.	MATERIAL DESCRIPTION	UNIT	FY 2024 COST	FY 2025 COST
	24"	Each	\$731.18	\$782.36
11	Cap costs by size			
113234	3"	Each	\$73.19	\$78.31
113235	4"	Each	\$112.99	\$120.90
113236	6"	Each	\$172.06	\$184.10
113238	8"	Each	\$238.82	\$255.54
113240	10"	Each	\$297.89	\$318.74
113242	12"	Each	\$408.31	\$436.89
12	Band costs by size			
28053	3"	Each	\$196.84	\$210.62
28054	4"	Each	\$160.50	\$171.74
28056	6"	Each	\$212.46	\$227.33
28058	8 "	Each	\$224.96	\$240.71
28201	10 "	Each	\$299.94	\$320.94
28062	12"	Each	\$346.81	\$371.09
	Other Materials			
13	Curb Stop	Each	\$85.38	\$91.36
14	Curb Box (051019)	Each	\$51.17	\$54.75
15	Concrete Slab (4 Feet)	Each	\$802.50	\$858.68
16	Blacktop (128125)	Per Bag	\$10.09	\$10.80
17	Hydrant Permit Materials			
549100	CCL Kit	Each	\$494.85	\$529.49
	CCL Bonnet	Each	\$22.20	\$23.75
728100	Operating Nut	Each	\$54.99	\$58.84

Labor Cost Calculations

Line No.	Description	Water Field Cust Serv Rep	Water Field Cust Serv Rep (D&R)	Water Field Cust Serv Sup (D&R)	Crew Chief	Repair Worker	Equipment Operator (Equipment Operator 2)	Heavy Equipment Operator	Engineer 3/ WTR Engineer 1	Engineering Specialist	Engineering Aide (Engineering Aide 2)	Engineering Technician 1	Engineer 1 (Environmental Engineer 1)
<b>Section 6- Miscellaneous Water Charges</b>													
1	Meter Test Charges												
a	5/8"	2.25											
b	1",1.5",2"	2.00											
c	3",4",6",8",10",12"	3.00											
d	Field Tests 3" and above	3.00											
2	Charges for Furnishing and Installation of Water Meters												
a	Setting both Meter and Meter Interface Unit (MIU)												
	5/8"	1.00											
	3/4 RFSS	1.00											
	1"	2.00											
	1" RFSS	2.00											
	1 1/2	2.00											
	1 1/2 RFSS	2.00											
	2"	2.00											
	2" RFSS	2.00											
	3" Compound	3.00											
	3" Turbine	3.00											
	3" Fire Series	3.00											
	4" Compound	3.00											
	4" Turbine	3.00											
	4" Fire Series	3.00											
	4" Fire Assembly	3.00											
	6" Compound	3.00											
	6" Turbine	3.00											
	6" Fire Series	3.00											
	6" Fire Assembly	3.00											
	8" Turbine	3.00											
	8" Fire Series	3.00											
	8" Fire Assembly	3.00											
	10" Turbine	3.00											
	10" Fire Series	3.00											
	10" Fire Assembly	3.00											
	12" Turbine	3.00											
	12" Fire Series	3.00											
	12" Fire Assembly	3.00											
b	Furnishing and Setting Meter Interface Unit (MIU)												
	5/8"	1.00											
	3/4 RFSS	1.00											
	1"	2.00											
	1" RFSS	2.00											
	1 1/2	2.00											
	1 1/2 RFSS	2.00											
	2"	2.00											
	2" RFSS	2.00											
	3" Compound	3.00											
	3" Turbine	3.00											
	4" Compound	3.00											
	4" Turbine	3.00											

Labor Cost Calculations

Line No.	Description	Water Field Cust Serv Rep	Water Field Cust Serv Rep (D&R)	Water Field Cust Serv Sup (D&R)	Crew Chief	Repair Worker	Equipment Operator (Equipment Operator 2)	Heavy Equipment Operator	Engineer 3/ WTR Engineer 1	Engineering Specialist	Engineering Aide (Engineering Aide 2)	Engineering Technician 1	Engineer 1 (Environmental Engineer 1)
	6" Compound	3.00											
	6" Turbine	3.00											
	8"	3.00											
	10"	3.00											
3	Tampering of Meter												
a	5/8" or 3/4"	1.00											
b	1", 1.5" or 2"	2.00											
c	3" and larger	3.00											
4	Shut-Off and Restoration of Water Service												
a	Site Visit for Non-payment	1.00											
b	Non-compliance with Notice of Defect and/or Metering Non-compliance	1.00											
c	Operating service valve 2" and smaller service lines	1.00											
d	Operating service valve larger than 2" service lines				0.50	2.00							
e	Obstructed curb stop, missing access box, requires excavation		2.00										
f	Curb stop inoperable, requires installation of new curb stop		2.00										
g	Obstructed curb stop, missing access box, requires excavation and footway paving		2.00										
h	Curb stop inoperable, requires installation of new curb stop and footway paving		2.00										
i	Excavation and shutoff of ferrule at the water main				1.00	3.00	1.00	1.00					
5	Pumping of Properties				1.00	2.00							
6	Charges for Water Main Shutdown Service				0.50	2.00							
7	Water Connection Charges												
	Ferrule Connections												
a	3/4"				0.50	2.00							
b	1"				0.50	2.00							
c	1.5"				0.50	2.00							
d	2"				0.50	2.00							
	Valve Connections												
e	3" & 4"				1.00	3.00	1.00	1.00					
f	6" & 8"				1.00	3.00	1.00	1.00					
g	10" & 12"				1.00	3.00	1.00	1.00					
	Attachment to a Transmission Main												
	3" & 4" Sleeve												
	16" Main				1.00	3.00	1.00	1.00					
	20" Main				1.00	3.00	1.00	1.00					
	24" Main				1.00	3.00	1.00	1.00					
	30" Main				1.00	3.00	1.00	1.00					
	36" Main				1.00	3.00	1.00	1.00					
	6" & 8" Sleeve												
	16" Main				1.00	3.00	1.00	1.00					
	20" Main				1.00	3.00	1.00	1.00					
	24" Main				1.00	3.00	1.00	1.00					
	30" Main				1.00	3.00	1.00	1.00					
	36" Main				1.00	3.00	1.00	1.00					
	10" & 12" Sleeve												
	16" Main				1.00	3.00	1.00	1.00					
	20" Main				1.00	3.00	1.00	1.00					



Labor Cost Calculations

Line No.	Description	Water Field Cust Serv Rep	Water Field Cust Serv Rep (D&R)	Water Field Cust Serv Sup (D&R)	Crew Chief	Repair Worker	Equipment Operator (Equipment Operator 2)	Heavy Equipment Operator	Engineer 3/ WTR Engineer 1	Engineering Specialist	Engineering Aide (Engineering Aide 2)	Engineering Technician 1	Engineer 1 (Environmental Engineer 1)
	24" Main				1.00	3.00	1.00	1.00					
	30" Main				1.00	3.00	1.00	1.00					
	36" Main				1.00	3.00	1.00	1.00					
8	Discontinuance of Water				0.25	1.00	1.00	1.00					
9	Hydrant Permits												
a	One Week								1.00				
b	Six Month								1.00				
10	Flow Tests					2.00			1.00	1.00		1.00	
11	Water Service Line Investigations and/or Inspections				0.50	2.00							
	<b>Section 7- Miscellaneous Sewer Charges</b>												
1	Sewer Charges for Groundwater												
2	Charges for Wastewater Service												
3	Wastewater Discharge Permit												
4	Groundwater Discharge Permit												
5	Manhole Pump-out Permit												
6	Trucked or Hauled Wastewater Permit												
7	Photographic & Video Inspection												
	<b>Section 8- Miscellaneous Stormwater Charges</b>												
1	Stormwater Plan Review Fees												
a	Conceptual Stormwater Plan Approval												
b	<del>Post Construction Stormwater Plan Submission Fee</del> Removed												
c	Post Construction Stormwater Plan Approval (Additional Review Time Fee)												
d	Utility Plan Review										1.00		
e	Active Construction Stormwater Inspection Fee												
2	Stormwater Management Fee in Lieu												
a	Exemption to Water Quality Requirement												
	<b>Other- Not in the Miscellaneous Charges Section (Section 3- Rates and Charges)</b>												
1	Sewer Credit Application Fee												
2	Sewer Credit Failure to Inform PWD about increase												
	<b>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>												
3	Stormwater Credit Application Fee Renewal												

Labor Cost Calculations

Line No.	Description	Engineer 2	Water	Engineering	Industrial	Industrial	Industrial	Grad Civil	WTR	Inspector	Collector	Electronic	Electronic
		(Environm ental Engineer 2)	Engineering Projects Assistant Manager	Supervisor 2	Waste Control Supervisor	Waste Control Technician 2	Waste Control Technician 1	Engineer/Gr aduate Environment al Engineer	Supervisor		Unit	Tech II	Tech I
<b>Section 6- Miscellaneous Water Charges</b>		<b>NUMBER OF PERSONNEL</b>											
1	Meter Test Charges												
a	5/8"												
b	1",1.5",2"												
c	3",4",6",8",10",12"												
d	Field Tests 3" and above												
2	Charges for Furnishing and Installation of Water Meters												
a	Setting both Meter and Meter Interface Unit (MIU)												
	5/8"												
	3/4 RFSS												
	1"												
	1" RFSS												
	1 1/2												
	1 1/2 RFSS												
	2"												
	2" RFSS												
	3" Compound												
	3" Turbine												
	3" Fire Series												
	4" Compound												
	4" Turbine												
	4" Fire Series												
	4" Fire Assembly												
	6" Compound												
	6" Turbine												
	6" Fire Series												
	6" Fire Assembly												
	8" Turbine												
	8" Fire Series												
	8" Fire Assembly												
	10" Turbine												
	10" Fire Series												
	10" Fire Assembly												
	12" Turbine												
	12" Fire Series												
	12" Fire Assembly												
b	Furnishing and Setting Meter Interface Unit (MIU)												
	5/8"												
	3/4 RFSS												
	1"												
	1" RFSS												
	1 1/2												
	1 1/2 RFSS												
	2"												
	2" RFSS												
	3" Compound												
	3" Turbine												
	4" Compound												
	4" Turbine												

Labor Cost Calculations

Line No.	Description	Engineer 2 (Environmental Engineer 2)	Water Engineering Projects Assistant Manager	Engineering Supervisor 2	Industrial Waste Control Supervisor	Industrial Waste Control Technician 2	Industrial Waste Control Technician 1	Grad Civil Engineer/Graduate Environmental Engineer	WTR Supervisor	Inspector	Collector Unit	Electronic Tech II	Electronic Tech I
			6" Compound										
	6" Turbine												
	8"												
	10"												
3	Tampering of Meter												
a	5/8" or 3/4"												
b	1", 1.5" or 2"												
c	3" and larger												
4	Shut-Off and Restoration of Water Service												
a	Site Visit for Non-payment												
b	Non-compliance with Notice of Defect and/or Metering Non-compliance												
c	Operating service valve 2" and smaller service lines												
d	Operating service valve larger than 2" service lines												
e	Obstructed curb stop, missing access box, requires excavation												
f	Curb stop inoperable, requires installation of new curb stop												
g	Obstructed curb stop, missing access box, requires excavation and footway paving												
h	Curb stop inoperable, requires installation of new curb stop and footway paving												
i	Excavation and shutoff of ferrule at the water main												
5	Pumping of Properties												
6	Charges for Water Main Shutdown Service												
7	Water Connection Charges												
	Ferrule Connections												
a	3/4"												
b	1"												
c	1.5"												
d	2"												
	Valve Connections												
e	3" & 4"												
f	6" & 8"												
g	10" & 12"												
	Attachment to a Transmission Main												
	3" & 4" Sleeve												
	16" Main												
	20" Main												
	24" Main												
	30" Main												
	36" Main												
	6" & 8" Sleeve												
	16" Main												
	20" Main												
	24" Main												
	30" Main												
	36" Main												
	10" & 12" Sleeve												
	16" Main												
	20" Main												

Labor Cost Calculations

Line No.	Description	Engineer 2 (Environmental Engineer 2)	Water Engineering Projects Assistant Manager	Engineering Supervisor 2	Industrial Waste Control Supervisor	Industrial Waste Control Technician 2	Industrial Waste Control Technician 1	Grad Civil Engineer/Graduate Environmental Engineer	WTR Supervisor	Inspector	Collector Unit	Electronic Tech II	Electronic Tech I
			24" Main										
	30" Main												
	36" Main												
8	Discontinuance of Water												
9	Hydrant Permits												
a	One Week												
b	Six Month												
10	Flow Tests												
11	Water Service Line Investigations and/or Inspections												
<b>Section 7- Miscellaneous Sewer Charges</b>		<b>STAFF HOURS</b>											
1	Sewer Charges for Groundwater												
2	Charges for Wastewater Service												
3	Wastewater Discharge Permit	20.00	4.00	15.00	7.00	9.00							
4	Groundwater Discharge Permit	11.00	4.00	10.00	4.00	4.00							
5	Manhole Pump-out Permit	5.00	3.00	6.00	12.00	10.00							
6	Trucked or Hauled Wastewater Permit	4.00	3.00	6.00	2.00	3.00							
7	Photographic & Video Inspection												
<b>Section 8- Miscellaneous Stormwater Charges</b>													
1	Stormwater Plan Review Fees												
a	Conceptual Stormwater Plan Approval												
b	<del>Post Construction Stormwater Plan Submission Fee</del> Removed												
c	Post Construction Stormwater Plan Approval (Additional Review Time Fee)												
d	Utility Plan Review							2.00					
e	Active Construction Stormwater Inspection Fee							2.00					
2	Stormwater Management Fee in Lieu												
a	Exemption to Water Quality Requirement												
<b>Other- Not in the Miscellaneous Charges Section (Section 3- Rates and Charges)</b>													
1	Sewer Credit Application Fee	7.00	3.00	4.00	3.00	3.00							
2	Sewer Credit Failure to Inform PWD about increase	1.00	1.00	2.00	2.00	0.00							
<b>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>													
3	Stormwater Credit Application Fee Renewal												

Labor Cost Calculations		Planning & Environmental Services							Task Time (Hours)
Line No.	Description	Electronic Equipment Supervisor	Environmental Scientist 1	Engineer 1 (Civil Engineer 1)	Administrative Assistant	Environmental Scientist Specialist	Construction Project Technician 2	Engineering Specialist	
<b>Section 6- Miscellaneous Water Charges</b>									
1	Meter Test Charges								
a	5/8"								
b	1",1.5",2"								
c	3",4",6",8",10",12"								
d	Field Tests 3" and above								
2	Charges for Furnishing and Installation of Water Meters								
a	Setting both Meter and Meter Interface Unit (MIU)								
	5/8"								1.00
	3/4 RFSS								1.00
	1"								1.00
	1" RFSS								1.00
	1 1/2								1.00
	1 1/2 RFSS								1.00
	2"								1.00
	2" RFSS								1.00
	3" Compound								2.00
	3" Turbine								2.00
	3" Fire Series								2.00
	4" Compound								2.00
	4" Turbine								2.00
	4" Fire Series								2.00
	4" Fire Assembly								2.00
	6" Compound								2.00
	6" Turbine								2.00
	6" Fire Series								2.00
	6" Fire Assembly								2.00
	8" Turbine								2.00
	8" Fire Series								2.00
	8" Fire Assembly								2.00
	10" Turbine								2.00
	10" Fire Series								2.00
	10" Fire Assembly								2.00
	12" Turbine								2.00
	12" Fire Series								2.00
	12" Fire Assembly								2.00
b	Furnishing and Setting Meter Interface Unit (MIU)								
	5/8"								1.00
	3/4 RFSS								1.00
	1"								1.00
	1" RFSS								1.00
	1 1/2								1.00
	1 1/2 RFSS								1.00
	2"								1.00
	2" RFSS								1.00
	3" Compound								2.00
	3" Turbine								2.00
	4" Compound								2.00
	4" Turbine								2.00

Labor Cost Calculations

Planning & Environmental Services

Line No.	Description	Planning & Environmental Services								Task Time (Hours)
		Electronic Equipment Supervisor	Environmental Scientist 1	Engineer 1 (Civil Engineer 1)	Administrative Assistant	Environmental Scientist Specialist	Construction Project Technician 2	Engineering Specialist	GIS Specialist 2	
	6" Compound									2.00
	6" Turbine									2.00
	8"									2.00
	10"									2.00
3	Tampering of Meter									
a	5/8" or 3/4"									1.00
b	1", 1.5" or 2"									1.00
c	3" and larger									2.00
4	Shut-Off and Restoration of Water Service									
a	Site Visit for Non-payment									1.00
b	Non-compliance with Notice of Defect and/or Metering Non-compliance									1.00
c	Operating service valve 2" and smaller service lines									1.00
d	Operating service valve larger than 2" service lines									2.00
e	Obstructed curb stop, missing access box, requires excavation									4.00
f	Curb stop inoperable, requires installation of new curb stop									4.00
g	Obstructed curb stop, missing access box, requires excavation and footway paving									4.00
h	Curb stop inoperable, requires installation of new curb stop and footway paving									4.00
i	Excavation and shutoff of ferrule at the water main									3.00
5	Pumping of Properties									1.00
6	Charges for Water Main Shutdown Service									2.00
7	Water Connection Charges									
	Ferrule Connections									
a	3/4"									1.00
b	1"									1.00
c	1.5"									1.00
d	2"									1.00
	Valve Connections									
e	3" & 4"									32.00
f	6" & 8"									32.00
g	10" & 12"									32.00
	Attachment to a Transmission Main									
	3" & 4" Sleeve									
	16" Main									40.00
	20" Main									40.00
	24" Main									40.00
	30" Main									40.00
	36" Main									40.00
	6" & 8" Sleeve									
	16" Main									40.00
	20" Main									40.00
	24" Main									40.00
	30" Main									40.00
	36" Main									40.00
	10" & 12" Sleeve									
	16" Main									40.00
	20" Main									40.00

Labor Cost Calculations		Planning & Environmental Services								Task Time (Hours)
Line No.	Description	Electronic Equipment Supervisor	Environmental Scientist 1	Engineer 1 (Civil Engineer 1)	Administrative Assistant	Environmental Scientist Specialist	Construction Project Technician 2	Engineering Specialist	GIS Specialist 2	
	24" Main									40.00
	30" Main									40.00
	36" Main									40.00
8	Discontinuance of Water									4.00
9	Hydrant Permits									
a	One Week									2.00
b	Six Month									2.00
10	Flow Tests									1.50
11	Water Service Line Investigations and/or Inspections									1.00
<b>Section 7- Miscellaneous Sewer Charges</b>										
1	Sewer Charges for Groundwater									
2	Charges for Wastewater Service									
3	Wastewater Discharge Permit									
4	Groundwater Discharge Permit									
5	Manhole Pump-out Permit									
6	Trucked or Hauled Wastewater Permit									
7	Photographic & Video Inspection									
<b>Section 8- Miscellaneous Stormwater Charges</b>										
1	Stormwater Plan Review Fees									
a	Conceptual Stormwater Plan Approval				0.50	10.00				
b	<del>Post Construction Stormwater Plan Submission Fee</del> Removed									
c	Post Construction Stormwater Plan Approval (Additional Review Time Fee)				1.33			1.00		
d	Utility Plan Review							2.00		
e	Active Construction Stormwater Inspection Fee					4.00				
2	Stormwater Management Fee in Lieu									
a	Exemption to Water Quality Requirement									
<b>Other- Not in the Miscellaneous Charges Section (Section 3- Rates and Charges)</b>										
1	Sewer Credit Application Fee									
2	Sewer Credit Failure to Inform PWD about increase									
<b>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>										
3	Stormwater Credit Application Fee Renewal							6.00	5.00	

**Labor Cost Calculations**  
**FY 2024 Labor Costs (No Overtime)**

Line No.	Description	Water Field Cust Serv Rep	Water Field Cust Serv Rep (D&R)	Water Field Cust Serv Sup (D&R)	Crew Chief	Repair Worker	Equipment Operator (Equipment Operator 2)	Heavy Equipment Operator	Engineer 3/ WTR Engineer 1	Engineering Specialist	Engineering Aide (Engineering Aide 2)	Engineering Technician 1	Engineer 1 (Environmental Engineer 1)
<b>Section 6- Miscellaneous Water Charges</b>													
1	Meter Test Charges												
a	5/8"	104.75	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b	1",1.5",2"	139.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	3",4",6",8",10",12"	349.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d	Field Tests 3" and above	349.16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Charges for Furnishing and Installation of Water Meters												
a	Setting both Meter and Meter Interface Unit (MIU)												
	5/8"	46.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3/4 RFSS	46.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	93.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1" RFSS	93.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2	93.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2 RFSS	93.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	93.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2" RFSS	93.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Compound	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Turbine	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Fire Series	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Compound	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Turbine	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Fire Series	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Fire Assembly	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Compound	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Turbine	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Fire Series	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Fire Assembly	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Turbine	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Fire Series	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Fire Assembly	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Turbine	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Fire Series	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Fire Assembly	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Turbine	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Fire Series	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Fire Assembly	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b	Furnishing and Setting Meter Interface Unit (MIU)												
	5/8"	46.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3/4 RFSS	46.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	93.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1" RFSS	93.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2	93.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2 RFSS	93.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	93.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2" RFSS	93.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Compound	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Turbine	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Compound	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Turbine	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00



**Labor Cost Calculations**  
**FY 2024 Labor Costs (No Overtime)**

Line No.	Description	Water Field Cust Serv Rep	Water Field Cust Serv Rep (D&R)	Water Field Cust Serv Sup (D&R)	Crew Chief	Repair Worker	Equipment Operator (Equipment Operator 2)	Heavy Equipment Operator	Engineer 3/ WTR Engineer 1	Engineering Specialist	Engineering Aide (Engineering Aide 2)	Engineering Technician 1	Engineer 1 (Environmental Engineer 1)
	6" Compound	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Turbine	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8"	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10"	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Tampering of Meter												
a	5/8" or 3/4"	46.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
b	1", 1.5" or 2"	93.11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
c	3" and larger	279.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	Shut-Off and Restoration of Water Service												
a	Site Visit for Non-payment	46.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b	Non-compliance with Notice of Defect and/or Metering Non-compliance	46.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Operating service valve 2" and smaller service lines	46.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Operating service valve larger than 2" service lines	0.00	0.00	0.00	47.82	170.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Obstructed curb stop, missing access box, requires excavation	0.00	372.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Curb stop inoperable, requires installation of new curb stop	0.00	372.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Obstructed curb stop, missing access box, requires excavation and footway paving	0.00	372.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Curb stop inoperable, requires installation of new curb stop and footway paving	0.00	372.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Excavation and shutoff of ferrule at the water main	0.00	0.00	0.00	143.47	384.31	135.90	143.47	0.00	0.00	0.00	0.00	0.00
5	Pumping of Properties	0.00	0.00	0.00	47.82	85.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	Charges for Water Main Shutdown Service	0.00	0.00	0.00	47.82	170.81	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Water Connection Charges												
b	Ferrule Connections												
	3/4"	0.00	0.00	0.00	23.91	85.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	0.00	0.00	0.00	23.91	85.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1.5"	0.00	0.00	0.00	23.91	85.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	0.00	0.00	0.00	23.91	85.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	Valve Connections												
	3" & 4"	0.00	0.00	0.00	1530.39	4099.34	1449.55	1530.39	0.00	0.00	0.00	0.00	0.00
	6" & 8"	0.00	0.00	0.00	1530.39	4099.34	1449.55	1530.39	0.00	0.00	0.00	0.00	0.00
	10" & 12"	0.00	0.00	0.00	1530.39	4099.34	1449.55	1530.39	0.00	0.00	0.00	0.00	0.00
d	Attachment to a Transmission Main												
	3" & 4" Sleeve												
	16" Main	0.00	0.00	0.00	1912.98	5124.18	1811.94	1912.98	0.00	0.00	0.00	0.00	0.00
	20" Main	0.00	0.00	0.00	1912.98	5124.18	1811.94	1912.98	0.00	0.00	0.00	0.00	0.00
	24" Main	0.00	0.00	0.00	1912.98	5124.18	1811.94	1912.98	0.00	0.00	0.00	0.00	0.00
	30" Main	0.00	0.00	0.00	1912.98	5124.18	1811.94	1912.98	0.00	0.00	0.00	0.00	0.00
	36" Main	0.00	0.00	0.00	1912.98	5124.18	1811.94	1912.98	0.00	0.00	0.00	0.00	0.00
	6" & 8" Sleeve												
	16" Main	0.00	0.00	0.00	1,912.98	5,124.18	1,811.94	1,912.98	0.00	0.00	0.00	0.00	0.00
	20" Main	0.00	0.00	0.00	1,912.98	5,124.18	1,811.94	1,912.98	0.00	0.00	0.00	0.00	0.00
	24" Main	0.00	0.00	0.00	1,912.98	5,124.18	1,811.94	1,912.98	0.00	0.00	0.00	0.00	0.00
	30" Main	0.00	0.00	0.00	1,912.98	5,124.18	1,811.94	1,912.98	0.00	0.00	0.00	0.00	0.00
	36" Main	0.00	0.00	0.00	1,912.98	5,124.18	1,811.94	1,912.98	0.00	0.00	0.00	0.00	0.00
	10" & 12" Sleeve												
	16" Main	0.00	0.00	0.00	1,912.98	5,124.18	1,811.94	1,912.98	0.00	0.00	0.00	0.00	0.00

**Labor Cost Calculations**  
**FY 2024 Labor Costs (No Overtime)**

Line No.	Description	Water Field Cust Serv Rep	Water Field Cust Serv Rep (D&R)	Water Field Cust Serv Sup (D&R)	Crew Chief	Repair Worker	Equipment Operator (Equipment Operator 2)	Heavy Equipment Operator	Engineer 3/ WTR Engineer 1	Engineering Specialist	Engineering Aide (Engineering Aide 2)	Engineering Technician 1	Engineer 1 (Environmental Engineer 1)
	20" Main	0.00	0.00	0.00	1,912.98	5,124.18	1,811.94	1,912.98	0.00	0.00	0.00	0.00	0.00
	24" Main	0.00	0.00	0.00	1,912.98	5,124.18	1,811.94	1,912.98	0.00	0.00	0.00	0.00	0.00
	30" Main	0.00	0.00	0.00	1,912.98	5,124.18	1,811.94	1,912.98	0.00	0.00	0.00	0.00	0.00
	36" Main	0.00	0.00	0.00	1,912.98	5,124.18	1,811.94	1,912.98	0.00	0.00	0.00	0.00	0.00
9	Hydrant Permits												
	One Week	0.00	0.00	0.00	0.00	0.00	0.00	0.00	177.60	0.00	0.00	0.00	0.00
	Six Month	0.00	0.00	0.00	0.00	0.00	0.00	0.00	177.60	0.00	0.00	0.00	0.00
10	Flow Tests	0.00	0.00	0.00	0.00	128.10	0.00	0.00	133.20	121.38	0.00	75.33	
11	Water Service Line Investigations and/or Inspections	0.00	0.00	0.00	23.91	85.40	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Section 7- Miscellaneous Sewer Charges</b>												
1	Sewer Charges for Groundwater												
2	Charges for Wastewater Service												
3	Wastewater Discharge Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	Groundwater Discharge Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Manhole Pump-out Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	Trucked or Hauled Wastewater Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Photographic & Video Inspection	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>Section 8- Miscellaneous Stormwater Charges</b>												
1	Stormwater Plan Review Fees												
	Conceptual Stormwater Plan Approval	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Utility Plan Review	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	44.07	0.00	0.00
	Active Construction Stormwater Inspection Fee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Stormwater Management Fee in Lieu												
	Exemption to Water Quality Requirement	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>Other- Not in the Miscellaneous Charges Section</b>												
1	Sewer Credit Application Fee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Sewer Credit Failure to Inform PWD about increase	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>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>												
3	Stormwater Credit Application Fee Renewal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**Labor Cost Calculations**  
**FY 2024 Labor Costs (No Overtime)**

Line No.	Description	Costs (Crew Size X Task Hours X Fully Burdened Personnel Rates-Not including Overtime), \$										
		Engineer 2 (Environmental Engineer 2)	Water Engineering Projects Assistant Manager	Engineering Supervisor 2	Industrial Waste Control Supervisor	Industrial Waste Control Technician 2	Industrial Waste Control Technician 1	Grad Civil Engineer/Graduate Environmental Engineer	WTR Supervisor	Inspector	Collector Unit	Electronic Tech II
<b>Section 6- Miscellaneous Water Charges</b>												
1	Meter Test Charges											
a	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b	1",1.5",2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	3",4",6",8",10",12"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d	Field Tests 3" and above	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Charges for Furnishing and Installation of Water Meters											
a	Setting both Meter and Meter Interface Unit (MIU)											
	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3/4 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b	Furnishing and Setting Meter Interface Unit (MIU)											
	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3/4 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**Labor Cost Calculations**  
**FY 2024 Labor Costs (No Overtime)**

Line No.	Description	Costs (Crew Size X Task Hours X Fully Burdened Personnel Rates-Not including Overtime), \$												
		Engineer 2 (Environmental Engineer 2)	Water Engineering Projects Assistant Manager	Engineering Supervisor 2	Industrial Waste Control Supervisor	Industrial Waste Control Technician 2	Industrial Waste Control Technician 1	Grad Civil Engineer/Graduate Environmental Engineer	WTR Supervisor	Inspector	Collector Unit	Electronic Tech II	Electronic Tech I	
	6" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	6" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	10"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3	Tampering of Meter													
a	5/8" or 3/4"	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	1", 1.5" or 2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
c	3" and larger	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4	Shut-Off and Restoration of Water Service													
a	Site Visit for Non-payment	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	Non-compliance with Notice of Defect and/or Metering Non-compliance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Operating service valve 2" and smaller service lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Operating service valve larger than 2" service lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Obstructed curb stop, missing access box, requires excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Curb stop inoperable, requires installation of new curb stop	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Obstructed curb stop, missing access box, requires excavation and footway paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Curb stop inoperable, requires installation of new curb stop and footway paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Excavation and shutoff of ferrule at the water main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5	Pumping of Properties	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6	Charges for Water Main Shutdown Service	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7	Water Connection Charges													
b	Ferrule Connections													
	3/4"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	1.5"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
c	Valve Connections													
	3" & 4"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	6" & 8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	10" & 12"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
d	Attachment to a Transmission Main													
	3" & 4" Sleeve													
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	6" & 8" Sleeve													
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	10" & 12" Sleeve													
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

**Labor Cost Calculations**  
**FY 2024 Labor Costs (No Overtime)**

Line No.	Description	Costs (Crew Size X Task Hours X Fully Burdened Personnel Rates-Not including Overtime), \$												
		Engineer 2 (Environmental Engineer 2)	Water Engineering Projects Assistant Manager	Engineering Supervisor 2	Industrial Waste Control Supervisor	Industrial Waste Control Technician 2	Industrial Waste Control Technician 1	Grad Civil Engineer/Graduate Environmental Engineer	WTR Supervisor	Inspector	Collector Unit	Electronic Tech II	Electronic Tech I	
	20" Main	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
	24" Main	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
	30" Main	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
	36" Main	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
9	Hydrant Permits													
	One Week	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
	Six Month	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
10	Flow Tests	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
11	Water Service Line Investigations and/or Inspections	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>Section 7- Miscellaneous Sewer Charges</b>													
1	Sewer Charges for Groundwater													
2	Charges for Wastewater Service													
3	Wastewater Discharge Permit	1365.56	434.13	1524.06	545.60	586.64	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	Groundwater Discharge Permit	751.06	434.13	1016.04	311.77	260.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Manhole Pump-out Permit	341.39	325.60	609.62	935.32	651.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	Trucked or Hauled Wastewater Permit	273.11	325.60	609.62	155.89	195.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Photographic & Video Inspection	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>Section 8- Miscellaneous Stormwater Charges</b>													
1	Stormwater Plan Review Fees													
	Conceptual Stormwater Plan Approval	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
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>	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
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)	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
	Utility Plan Review	0.00	0.00	0.00	0.00	0.00	0.00	115.33	0.00	0.00	0.00	0.00	0.00	0.00
	Active Construction Stormwater Inspection Fee	0.00	0.00	0.00	0.00	0.00	0.00	115.33	0.00	0.00	0.00	0.00	0.00	0.00
2	Stormwater Management Fee in Lieu													
	Exemption to Water Quality Requirement	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>Other- Not in the Miscellaneous Charges Section</b>													
1	Sewer Credit Application Fee	477.95	325.60	406.41	233.83	195.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Sewer Credit Failure to Inform PWD about increase	68.28	108.53	203.21	155.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>													
3	Stormwater Credit Application Fee Renewal	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

**Labor Cost Calculations**  
**FY 2024 Labor Costs (No Overtime)**

Line No.	Description	Electronic Equipment Supervisor	Environmental Scientist 1	Engineer 1 (Civil Engineer 1)	Administrative Assistant	Environmental Specialist	Construction Project Technician 2	Engineering Specialist	GIS Specialist 2	Total Labor Cost
<b>Section 6- Miscellaneous Water Charges</b>										
1	Meter Test Charges									
a	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$104.75
b	1",1.5",2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$139.66
c	3",4",6",8",10",12"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$349.16
d	Field Tests 3" and above	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$349.16
2	Charges for Furnishing and Installation of Water Meters									
a	Setting both Meter and Meter Interface Unit (MIU)									
	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$46.55
	3/4 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$46.55
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$93.11
	1" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$93.11
	1 1/2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$93.11
	1 1/2 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$93.11
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$93.11
	2" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$93.11
	3" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	3" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	3" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	4" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	4" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	4" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	4" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	6" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	6" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	6" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	6" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	8" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	8" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	8" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	10" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	10" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	10" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	12" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	12" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	12" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
b	Furnishing and Setting Meter Interface Unit (MIU)									
	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$46.55
	3/4 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$46.55
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$93.11
	1" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$93.11
	1 1/2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$93.11
	1 1/2 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$93.11
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$93.11
	2" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$93.11
	3" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	3" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	4" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	4" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33

**Labor Cost Calculations**  
**FY 2024 Labor Costs (No Overtime)**

Line No.	Description	Electronic Equipment Supervisor	Environmental Scientist 1	Engineer 1 (Civil Engineer 1)	Administrative Assistant	Environmental Specialist	Construction Project Technician 2	Engineering Specialist	GIS Specialist 2	Total Labor Cost
	6" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	6" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
	10"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
3	Tampering of Meter									
a	5/8" or 3/4"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$46.55
b	1", 1.5" or 2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$93.11
c	3" and larger	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$279.33
4	Shut-Off and Restoration of Water Service									
a	Site Visit for Non-payment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$46.55
b	Non-compliance with Notice of Defect and/or Metering Non-compliance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$46.55
	Operating service valve 2" and smaller service lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$46.55
	Operating service valve larger than 2" service lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$218.63
	Obstructed curb stop, missing access box, requires excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$372.43
	Curb stop inoperable, requires installation of new curb stop	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$372.43
	Obstructed curb stop, missing access box, requires excavation and footway paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$372.43
	Curb stop inoperable, requires installation of new curb stop and footway paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$372.43
	Excavation and shutoff of ferrule at the water main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$807.16
5	Pumping of Properties	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$133.23
6	Charges for Water Main Shutdown Service	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$218.63
7	Water Connection Charges									
b	Ferrule Connections									
	3/4"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$109.32
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$109.32
	1.5"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$109.32
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$109.32
c	Valve Connections									
	3" & 4"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$8,609.67
	6" & 8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$8,609.67
	10" & 12"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$8,609.67
d	Attachment to a Transmission Main									
	3" & 4" Sleeve									
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$10,762.09
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$10,762.09
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$10,762.09
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$10,762.09
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$10,762.09
	6" & 8" Sleeve									
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$10,762.09
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$10,762.09
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$10,762.09
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$10,762.09
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$10,762.09
	10" & 12" Sleeve									
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$10,762.09

**Labor Cost Calculations**  
**FY 2024 Labor Costs (No Overtime)**

Line No.	Description	Electronic Equipment Supervisor	Environmental Scientist 1	Engineer 1 (Civil Engineer 1)	Administrative Assistant	Environmental Scientist Specialist	Construction Project Technician 2	Engineering Specialist	GIS Specialist 2	Total Labor Cost
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$10,762.09
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$10,762.09
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$10,762.09
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$10,762.09
9	Hydrant Permits									
	One Week	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$177.60
	Six Month	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$177.60
10	Flow Tests	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$458.01
11	Water Service Line Investigations and/or Inspections	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$109.32
	<b>Section 7- Miscellaneous Sewer Charges</b>									
1	Sewer Charges for Groundwater									
2	Charges for Wastewater Service									
3	Wastewater Discharge Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$4,455.99
4	Groundwater Discharge Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$2,773.73
5	Manhole Pump-out Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$2,863.76
6	Trucked or Hauled Wastewater Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$1,559.77
7	Photographic & Video Inspection	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
	<b>Section 8- Miscellaneous Stormwater Charges</b>									
1	Stormwater Plan Review Fees									
	Conceptual Stormwater Plan Approval	0.00	0.00	0.00	26.79	760.44	0.00	0.00	0.00	\$787.23
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)	0.00	0.00	0.00	71.26	0.00	0.00	75.28	0.00	\$146.54
	Utility Plan Review	0.00	0.00	0.00	0.00	0.00	0.00	150.55	0.00	\$309.96
	Active Construction Stormwater Inspection Fee	0.00	0.00	0.00	0.00	0.00	225.16	0.00	0.00	\$340.50
2	Stormwater Management Fee in Lieu									
	Exemption to Water Quality Requirement	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
	<b>Other- Not in the Miscellaneous Charges Section</b>									
1	Sewer Credit Application Fee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$1,639.34
2	Sewer Credit Failure to Inform PWD about increase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$535.90
	<b>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>									
3	Stormwater Credit Application Fee Renewal	0.00	0.00	0.00	0.00	0.00	0.00	451.66	341.39	\$793.05



**Labor Cost Calculations**  
**FY 2024 Labor Costs (Overtime)**

Line No.	Description	Water Field Cust Serv Rep	Water Field Cust Serv Rep (D&R)	Water Field Cust Serv Sup (D&R)	Crew Chief	Repair Worker	Equipment Operator (Equipment Operator 2)	Heavy Equipment Operator	Engineer 3/ WTR Engineer 1	Engineering Specialist	Engineering Aide (Engineering Aide 2)	Engineering Technician 1	Engineer 1 (Environmental Engineer 1)
<b>Section 6- Miscellaneous Water Charges</b>													
1	Meter Test Charges												
a	5/8"	134.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b	1",1.5",2"	178.99	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	3",4",6",8",10",12"	447.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d	Field Tests 3" and above	447.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Charges for Furnishing and Installation of Water Meters												
a	Setting both Meter and Meter Interface Unit (MIU)												
	5/8"	59.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3/4 RFSS	59.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	119.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1" RFSS	119.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2	119.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2 RFSS	119.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	119.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2" RFSS	119.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Compound	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Turbine	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Fire Series	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Compound	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Turbine	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Fire Series	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Fire Assembly	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Compound	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Turbine	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Fire Series	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Fire Assembly	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Turbine	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Fire Series	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Fire Assembly	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Turbine	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Fire Series	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Fire Assembly	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Turbine	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Fire Series	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Fire Assembly	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b	Furnishing and Setting Meter Interface Unit (MIU)												
	5/8"	59.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3/4 RFSS	59.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	119.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1" RFSS	119.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2	119.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2 RFSS	119.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	119.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2" RFSS	119.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Compound	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Turbine	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Compound	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Turbine	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**Labor Cost Calculations**  
**FY 2024 Labor Costs (Overtime)**

Line No.	Description	Water Field Cust Serv Rep	Water Field Cust Serv Rep (D&R)	Water Field Cust Serv Sup (D&R)	Crew Chief	Repair Worker	Equipment Operator (Equipment Operator 2)	Heavy Equipment Operator	Engineer 3/ WTR Engineer 1	Engineering Specialist	Engineering Aide (Engineering Aide 2)	Engineering Technician 1	Engineer 1 (Environmental Engineer 1)
	6" Compound	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Turbine	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8"	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10"	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Tampering of Meter												
a	5/8" or 3/4"	59.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b	1", 1.5" or 2"	119.33	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	3" and larger	357.98	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	Shut-Off and Restoration of Water Service												
a	Site Visit for Non-payment	59.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b	Non-compliance with Notice of Defect and/or Metering Non-compliance	59.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	Operating service valve 2" and smaller service lines	59.66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d	Operating service valve larger than 2" service lines	0.00	0.00	0.00	47.82	218.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
e	Obstructed curb stop, missing access box, requires excavation	0.00	477.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
f	Curb stop inoperable, requires installation of new curb stop	0.00	477.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
g	Obstructed curb stop, missing access box, requires excavation and footway paving	0.00	477.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
h	Curb stop inoperable, requires installation of new curb stop and footway paving	0.00	477.30	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
i	Excavation and shutoff of ferrule at the water main	0.00	0.00	0.00	143.47	492.53	174.16	183.87	0.00	0.00	0.00	0.00	0.00
5	Pumping of Properties	0.00	0.00	0.00	47.82	109.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	Charges for Water Main Shutdown Service	0.00	0.00	0.00	47.82	218.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Water Connection Charges												
b	Ferrule Connections												
	3/4"	0.00	0.00	0.00	23.91	109.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	0.00	0.00	0.00	23.91	109.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1.5"	0.00	0.00	0.00	23.91	109.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	0.00	0.00	0.00	23.91	109.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	Valve Connections												
	3" & 4"	0.00	0.00	0.00	1530.39	5253.63	1857.72	1961.31	0.00	0.00	0.00	0.00	0.00
	6" & 8"	0.00	0.00	0.00	1530.39	5253.63	1857.72	1961.31	0.00	0.00	0.00	0.00	0.00
	10" & 12"	0.00	0.00	0.00	1530.39	5253.63	1857.72	1961.31	0.00	0.00	0.00	0.00	0.00
d	Attachment to a Transmission Main												
	3" & 4" Sleeve												
	16" Main	0.00	0.00	0.00	1912.98	6567.04	2322.15	2451.64	0.00	0.00	0.00	0.00	0.00
	20" Main	0.00	0.00	0.00	1912.98	6567.04	2322.15	2451.64	0.00	0.00	0.00	0.00	0.00
	24" Main	0.00	0.00	0.00	1912.98	6567.04	2322.15	2451.64	0.00	0.00	0.00	0.00	0.00
	30" Main	0.00	0.00	0.00	1912.98	6567.04	2322.15	2451.64	0.00	0.00	0.00	0.00	0.00
	36" Main	0.00	0.00	0.00	1912.98	6567.04	2322.15	2451.64	0.00	0.00	0.00	0.00	0.00
	6" & 8" Sleeve												
	16" Main	0.00	0.00	0.00	1912.98	6567.04	2322.15	2451.64	0.00	0.00	0.00	0.00	0.00
	20" Main	0.00	0.00	0.00	1912.98	6567.04	2322.15	2451.64	0.00	0.00	0.00	0.00	0.00
	24" Main	0.00	0.00	0.00	1912.98	6567.04	2322.15	2451.64	0.00	0.00	0.00	0.00	0.00
	30" Main	0.00	0.00	0.00	1912.98	6567.04	2322.15	2451.64	0.00	0.00	0.00	0.00	0.00
	36" Main	0.00	0.00	0.00	1912.98	6567.04	2322.15	2451.64	0.00	0.00	0.00	0.00	0.00
	10" & 12" Sleeve												
	16" Main	0.00	0.00	0.00	1912.98	6567.04	2322.15	2451.64	0.00	0.00	0.00	0.00	0.00

**Labor Cost Calculations**  
**FY 2024 Labor Costs (Overtime)**

Line No.	Description	Water Field Cust Serv Rep	Water Field Cust Serv Rep (D&R)	Water Field Cust Serv Sup (D&R)	Crew Chief	Repair Worker	Equipment Operator (Equipment Operator 2)	Heavy Equipment Operator	Engineer 3/ WTR Engineer 1	Engineering Specialist	Engineering Aide (Engineering Aide 2)	Engineering Technician 1	Engineer 1 (Environmental Engineer 1)
	20" Main	0.00	0.00	0.00	1912.98	6567.04	2322.15	2451.64	0.00	0.00	0.00	0.00	0.00
	24" Main	0.00	0.00	0.00	1912.98	6567.04	2322.15	2451.64	0.00	0.00	0.00	0.00	0.00
	30" Main	0.00	0.00	0.00	1912.98	6567.04	2322.15	2451.64	0.00	0.00	0.00	0.00	0.00
	36" Main	0.00	0.00	0.00	1912.98	6567.04	2322.15	2451.64	0.00	0.00	0.00	0.00	0.00
8	Discontinuance of Water	0.00	0.00	0.00	47.82	218.90	232.21	245.16	0.00	0.00	0.00	0.00	0.00
9	Hydrant Permits												
	One Week	0.00	0.00	0.00	0.00	0.00	0.00	0.00	177.60	0.00	0.00	0.00	0.00
	Six Month	0.00	0.00	0.00	0.00	0.00	0.00	0.00	177.60	0.00	0.00	0.00	0.00
10	Flow Tests	0.00	0.00	0.00	0.00	164.18	0.00	0.00	133.20	121.38	0.00	96.54	0.00
11	Water Service Line Investigations and/or Inspections	0.00	0.00	0.00	23.91	109.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Section 7- Miscellaneous Sewer Charges</b>												
1	Sewer Charges for Groundwater												
2	Charges for Wastewater Service												
3	Wastewater Discharge Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	Groundwater Discharge Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Manhole Pump-out Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	Trucked or Hauled Wastewater Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Photographic & Video Inspection	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>Section 8- Miscellaneous Stormwater Charges</b>												
1	Stormwater Plan Review Fees												
	Conceptual Stormwater Plan Approval	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Utility Plan Review	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	56.48	0.00	0.00
	Active Construction Stormwater Inspection Fee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Stormwater Management Fee in Lieu												
	Exemption to Water Quality Requirement	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>Other- Not in the Miscellaneous Charges Section</b>												
1	Sewer Credit Application Fee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Sewer Credit Failure to Inform PWD about increase	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>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>												
3	Stormwater Credit Application Fee Renewal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**Labor Cost Calculations**  
**FY 2024 Labor Costs (Overtime)**

Line No.	Description	Costs (Crew Size X Task Hours X Fully Burdened Personnel Rates including Overtime)										
		Engineer 2 (Environmental Engineer 2)	Water Engineering Projects Assistant Manager	Engineering Supervisor 2	Industrial Waste Control Supervisor	Industrial Waste Control Technician 2	Industrial Waste Control Technician 1	Grad Civil Engineer/Graduate Environmental Engineer	WTR Supervisor	Inspector	Collector Unit	Electronic Tech II
<b>Section 6- Miscellaneous Water Charges</b>												
1	Meter Test Charges											
a	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b	1",1.5",2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	3",4",6",8",10",12"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d	Field Tests 3" and above	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Charges for Furnishing and Installation of Water Meters											
a	Setting both Meter and Meter Interface Unit (MIU)											
	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3/4 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b	Furnishing and Setting Meter Interface Unit (MIU)											
	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3/4 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**Labor Cost Calculations**  
**FY 2024 Labor Costs (Overtime)**

Line No.	Description	Costs (Crew Size X Task Hours X Fully Burdened Personnel Rates including Overtime)											
		Engineer 2 (Environmental Engineer 2)	Water Engineering Projects Assistant Manager	Engineering Supervisor 2	Industrial Waste Control Supervisor	Industrial Waste Control Technician 2	Industrial Waste Control Technician 1	Grad Civil Engineer/Graduate Environmental Engineer	WTR Supervisor	Inspector	Collector Unit	Electronic Tech II	Electronic Tech I
	6" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Tampering of Meter												
a	5/8" or 3/4"	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	1", 1.5" or 2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	3" and larger	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	Shut-Off and Restoration of Water Service												
a	Site Visit for Non-payment	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	Non-compliance with Notice of Defect and/or Metering Non-compliance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	Operating service valve 2" and smaller service lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d	Operating service valve larger than 2" service lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
e	Obstructed curb stop, missing access box, requires excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
f	Curb stop inoperable, requires installation of new curb stop	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
g	Obstructed curb stop, missing access box, requires excavation and footway paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
h	Curb stop inoperable, requires installation of new curb stop and footway paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
i	Excavation and shutoff of ferrule at the water main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Pumping of Properties	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	Charges for Water Main Shutdown Service	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Water Connection Charges												
b	Ferrule Connections												
	3/4"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1.5"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	Valve Connections												
	3" & 4"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" & 8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" & 12"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d	Attachment to a Transmission Main												
	3" & 4" Sleeve												
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" & 8" Sleeve												
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" & 12" Sleeve												
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**Labor Cost Calculations**  
**FY 2024 Labor Costs (Overtime)**

Line No.	Description	Costs (Crew Size X Task Hours X Fully Burdened Personnel Rates including Overtime)												
		Engineer 2 (Environmental Engineer 2)	Water Engineering Projects Assistant Manager	Engineering Supervisor 2	Industrial Waste Control Supervisor	Industrial Waste Control Technician 2	Industrial Waste Control Technician 1	Grad Civil Engineer/Graduate Environmental Engineer	WTR Supervisor	Inspector	Collector Unit	Electronic Tech II	Electronic Tech I	
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8	Discontinuance of Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
9	Hydrant Permits													
	One Week	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Six Month	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
10	Flow Tests	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11	Water Service Line Investigations and/or Inspections	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>Section 7- Miscellaneous Sewer Charges</b>													
1	Sewer Charges for Groundwater													
2	Charges for Wastewater Service													
3	Wastewater Discharge Permit	1365.56	434.13	1524.06	545.60	751.83	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4	Groundwater Discharge Permit	751.06	434.13	1016.04	311.77	334.15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5	Manhole Pump-out Permit	341.39	325.60	609.62	935.32	835.37	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6	Trucked or Hauled Wastewater Permit	273.11	325.60	609.62	155.89	250.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7	Photographic & Video Inspection	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>Section 8- Miscellaneous Stormwater Charges</b>													
1	Stormwater Plan Review Fees													
	Conceptual Stormwater Plan Approval	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Utility Plan Review	0.00	0.00	0.00	0.00	0.00	0.00	115.33	0.00	0.00	0.00	0.00	0.00	
	Active Construction Stormwater Inspection Fee	0.00	0.00	0.00	0.00	0.00	0.00	115.33	0.00	0.00	0.00	0.00	0.00	
2	Stormwater Management Fee in Lieu													
	Exemption to Water Quality Requirement	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>Other- Not in the Miscellaneous Charges Section</b>													
1	Sewer Credit Application Fee	477.95	325.60	406.41	233.83	250.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	Sewer Credit Failure to Inform PWD about increase	68.28	108.53	203.21	155.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	<b>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>													
3	Stormwater Credit Application Fee Renewal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

**Labor Cost Calculations**  
**FY 2024 Labor Costs (Overtime)**

Line No.	Description	Electronic Equipment Supervisor	Environmental Scientist 1	Engineer 1 (Civil Engineer 1)	Administrative Assistant	Environmental Scientist Specialist	Construction Project Technician 2	Engineering Specialist	GIS Specialist 2	Total Labor Cost (with Overtime)
<b>Section 6- Miscellaneous Water Charges</b>										
1	Meter Test Charges									
a	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$134.24
b	1",1.5",2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$178.99
c	3",4",6",8",10",12"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$447.47
d	Field Tests 3" and above	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$447.47
2	Charges for Furnishing and Installation of Water Meters									
a	Setting both Meter and Meter Interface Unit (MIU)									
	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$59.66
	3/4 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$59.66
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$119.33
	1" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$119.33
	1 1/2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$119.33
	1 1/2 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$119.33
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$119.33
	2" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$119.33
	3" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	3" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	3" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	4" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	4" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	4" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	4" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	6" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	6" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	6" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	6" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	8" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	8" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	8" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	10" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	10" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	10" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	12" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	12" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	12" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
b	Furnishing and Setting Meter Interface Unit (MIU)									
	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$59.66
	3/4 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$59.66
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$119.33
	1" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$119.33
	1 1/2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$119.33
	1 1/2 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$119.33
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$119.33
	2" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$119.33
	3" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	3" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	4" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	4" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98

**Labor Cost Calculations**  
**FY 2024 Labor Costs (Overtime)**

Line No.	Description	Electronic Equipment Supervisor	Environmental Scientist 1	Engineer 1 (Civil Engineer 1)	Administrative Assistant	Environmental Scientist Specialist	Construction Project Technician 2	Engineering Specialist	GIS Specialist 2	Total Labor Cost (with Overtime)
	6" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	6" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
	10"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
3	Tampering of Meter									
a	5/8" or 3/4"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$59.66
b	1", 1.5" or 2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$119.33
c	3" and larger	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$357.98
4	Shut-Off and Restoration of Water Service									
a	Site Visit for Non-payment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$59.66
b	Non-compliance with Notice of Defect and/or Metering Non-compliance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$59.66
c	Operating service valve 2" and smaller service lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$59.66
d	Operating service valve larger than 2" service lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$266.73
e	Obstructed curb stop, missing access box, requires excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$477.30
f	Curb stop inoperable, requires installation of new curb stop	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$477.30
g	Obstructed curb stop, missing access box, requires excavation and footway paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$477.30
h	Curb stop inoperable, requires installation of new curb stop and footway paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$477.30
i	Excavation and shutoff of ferrule at the water main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$994.04
5	Pumping of Properties	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$157.28
6	Charges for Water Main Shutdown Service	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$266.73
7	Water Connection Charges									
b	Ferrule Connections									
	3/4"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$133.36
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$133.36
	1.5"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$133.36
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$133.36
c	Valve Connections									
	3" & 4"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$10,603.05
	6" & 8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$10,603.05
	10" & 12"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$10,603.05
d	Attachment to a Transmission Main									
	3" & 4" Sleeve									
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,253.81
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,253.81
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,253.81
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,253.81
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,253.81
	6" & 8" Sleeve									
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,253.81
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,253.81
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,253.81
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,253.81
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,253.81
	10" & 12" Sleeve									
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,253.81



**Labor Cost Calculations**  
**FY 2024 Labor Costs (Overtime)**

Line No.	Description	Electronic Equipment Supervisor	Environmental Scientist 1	Engineer 1 (Civil Engineer 1)	Administrative Assistant	Environmental Scientist Specialist	Construction Project Technician 2	Engineering Specialist	GIS Specialist 2	Total Labor Cost (with Overtime)
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,253.81
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,253.81
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,253.81
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,253.81
8	Discontinuance of Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$744.10
9	Hydrant Permits									
	One Week	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$177.60
	Six Month	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$177.60
10	Flow Tests	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$515.29
11	Water Service Line Investigations and/or Inspections	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$133.36
	<b>Section 7- Miscellaneous Sewer Charges</b>									
1	Sewer Charges for Groundwater									
2	Charges for Wastewater Service									
3	Wastewater Discharge Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$4,621.18
4	Groundwater Discharge Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$2,847.15
5	Manhole Pump-out Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$3,047.30
6	Trucked or Hauled Wastewater Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$1,614.83
7	Photographic & Video Inspection	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
	<b>Section 8- Miscellaneous Stormwater Charges</b>									
1	Stormwater Plan Review Fees									
	Conceptual Stormwater Plan Approval	0.00	0.00	0.00	34.33	760.44	0.00	0.00	0.00	\$794.77
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)	0.00	0.00	0.00	91.33	0.00	0.00	75.28	0.00	\$166.61
	Utility Plan Review	0.00	0.00	0.00	0.00	0.00	0.00	150.55	0.00	\$322.37
	Active Construction Stormwater Inspection Fee	0.00	0.00	0.00	0.00	0.00	288.56	0.00	0.00	\$403.90
2	Stormwater Management Fee in Lieu									
	Exemption to Water Quality Requirement	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
	<b>Other- Not in the Miscellaneous Charges Section</b>									
1	Sewer Credit Application Fee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$1,694.40
2	Sewer Credit Failure to Inform PWD about increase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$535.90
	<b>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>									
3	Stormwater Credit Application Fee Renewal	0.00	0.00	0.00	0.00	0.00	0.00	451.66	341.39	\$793.05

**Labor Cost Calculations**  
**FY 2025 Labor Costs (No Overtime)**

Line No.	Description	Water Field Cust Serv Rep	Water Field Cust Serv Rep (D&R)	Water Field Cust Serv Sup (D&R)	Crew Chief	Repair Worker	Equipment Operator (Equipment Operator 2)	Heavy Equipment Operator	Engineer 3/ WTR Engineer 1	Engineering Specialist	Engineering Aide (Engineering Aide 2)	Engineering Technician 1	Engineer 1 (Environmental Engineer 1)
<b>Section 6- Miscellaneous Water Charges</b>													
1	Meter Test Charges												
a	5/8"	107.89	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b	1",1.5",2"	143.85	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	3",4",6",8",10",12"	359.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d	Field Tests 3" and above	359.63	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Charges for Furnishing and Installation of Water Meters												
a	Setting both Meter and Meter Interface Unit (MIU)												
	5/8"	47.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3/4 RFSS	47.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	95.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1" RFSS	95.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2	95.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2 RFSS	95.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	95.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2" RFSS	95.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Compound	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Turbine	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Fire Series	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Compound	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Turbine	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Fire Series	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Fire Assembly	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Compound	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Turbine	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Fire Series	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Fire Assembly	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Turbine	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Fire Series	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Fire Assembly	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Turbine	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Fire Series	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Fire Assembly	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Turbine	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Fire Series	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Fire Assembly	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b	Furnishing and Setting Meter Interface Unit (MIU)												
	5/8"	47.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3/4 RFSS	47.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	95.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1" RFSS	95.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2	95.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2 RFSS	95.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	95.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2" RFSS	95.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Compound	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Turbine	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Compound	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Turbine	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**Labor Cost Calculations**  
**FY 2025 Labor Costs (No Overtime)**

Line No.	Description	Water Field Cust Serv Rep	Water Field Cust Serv Rep (D&R)	Water Field Cust Serv Sup (D&R)	Crew Chief	Repair Worker	Equipment Operator (Equipment Operator 2)	Heavy Equipment Operator	Engineer 3/ WTR Engineer 1	Engineering Specialist	Engineering Aide (Engineering Aide 2)	Engineering Technician 1	Engineer 1 (Environmental Engineer 1)
	6" Compound	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Turbine	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8"	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10"	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Tampering of Meter												
a	5/8" or 3/4"	47.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b	1", 1.5" or 2"	95.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	3" and larger	287.71	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	Shut-Off and Restoration of Water Service												
a	Site Visit for Non-payment	47.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b	Non-compliance with Notice of Defect and/or Metering Non-compliance	47.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Operating service valve 2" and smaller service lines	47.95	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Operating service valve larger than 2" service lines	0.00	0.00	0.00	49.26	175.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Obstructed curb stop, missing access box, requires excavation	0.00	383.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Curb stop inoperable, requires installation of new curb stop	0.00	383.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Obstructed curb stop, missing access box, requires excavation and footway paving	0.00	383.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Curb stop inoperable, requires installation of new curb stop and footway paving	0.00	383.61	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Excavation and shutoff of ferrule at the water main	0.00	0.00	0.00	147.78	395.84	139.97	147.78	0.00	0.00	0.00	0.00	0.00
5	Pumping of Properties	0.00	0.00	0.00	49.26	87.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	Charges for Water Main Shutdown Service	0.00	0.00	0.00	49.26	175.93	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Water Connection Charges												
b	Ferrule Connections												
	3/4"	0.00	0.00	0.00	24.63	87.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	0.00	0.00	0.00	24.63	87.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1.5"	0.00	0.00	0.00	24.63	87.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	0.00	0.00	0.00	24.63	87.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	Valve Connections												
	3" & 4"	0.00	0.00	0.00	1576.30	4222.32	1493.04	1576.30	0.00	0.00	0.00	0.00	0.00
	6" & 8"	0.00	0.00	0.00	1576.30	4222.32	1493.04	1576.30	0.00	0.00	0.00	0.00	0.00
	10" & 12"	0.00	0.00	0.00	1576.30	4222.32	1493.04	1576.30	0.00	0.00	0.00	0.00	0.00
d	Attachment to a Transmission Main												
	3" & 4" Sleeve												
	16" Main	0.00	0.00	0.00	1970.37	5277.90	1866.30	1970.37	0.00	0.00	0.00	0.00	0.00
	20" Main	0.00	0.00	0.00	1970.37	5277.90	1866.30	1970.37	0.00	0.00	0.00	0.00	0.00
	24" Main	0.00	0.00	0.00	1970.37	5277.90	1866.30	1970.37	0.00	0.00	0.00	0.00	0.00
	30" Main	0.00	0.00	0.00	1970.37	5277.90	1866.30	1970.37	0.00	0.00	0.00	0.00	0.00
	36" Main	0.00	0.00	0.00	1970.37	5277.90	1866.30	1970.37	0.00	0.00	0.00	0.00	0.00
	6" & 8" Sleeve												
	16" Main	0.00	0.00	0.00	1,970.37	5,277.90	1,866.30	1,970.37	0.00	0.00	0.00	0.00	0.00
	20" Main	0.00	0.00	0.00	1,970.37	5,277.90	1,866.30	1,970.37	0.00	0.00	0.00	0.00	0.00
	24" Main	0.00	0.00	0.00	1,970.37	5,277.90	1,866.30	1,970.37	0.00	0.00	0.00	0.00	0.00
	30" Main	0.00	0.00	0.00	1,970.37	5,277.90	1,866.30	1,970.37	0.00	0.00	0.00	0.00	0.00
	36" Main	0.00	0.00	0.00	1,970.37	5,277.90	1,866.30	1,970.37	0.00	0.00	0.00	0.00	0.00
	10" & 12" Sleeve												
	16" Main	0.00	0.00	0.00	1,970.37	5,277.90	1,866.30	1,970.37	0.00	0.00	0.00	0.00	0.00

**Labor Cost Calculations**  
**FY 2025 Labor Costs (No Overtime)**

Line No.	Description	Water Field Cust Serv Rep	Water Field Cust Serv Rep (D&R)	Water Field Cust Serv Sup (D&R)	Crew Chief	Repair Worker	Equipment Operator (Equipment Operator 2)	Heavy Equipment Operator	Engineer 3/ WTR Engineer 1	Engineering Specialist	Engineering Aide (Engineering Aide 2)	Engineering Technician 1	Engineer 1 (Environmental Engineer 1)
	20" Main	0.00	0.00	0.00	1,970.37	5,277.90	1,866.30	1,970.37	0.00	0.00	0.00	0.00	0.00
	24" Main	0.00	0.00	0.00	1,970.37	5,277.90	1,866.30	1,970.37	0.00	0.00	0.00	0.00	0.00
	30" Main	0.00	0.00	0.00	1,970.37	5,277.90	1,866.30	1,970.37	0.00	0.00	0.00	0.00	0.00
	36" Main	0.00	0.00	0.00	1,970.37	5,277.90	1,866.30	1,970.37	0.00	0.00	0.00	0.00	0.00
8	Discontinuance of Water	0.00	0.00	0.00	49.26	175.93	186.63	197.04	0.00	0.00	0.00	0.00	0.00
9	Hydrant Permits												
	One Week	0.00	0.00	0.00	0.00	0.00	0.00	0.00	182.92	0.00	0.00	0.00	0.00
	Six Month	0.00	0.00	0.00	0.00	0.00	0.00	0.00	182.92	0.00	0.00	0.00	0.00
10	Flow Tests	0.00	0.00	0.00	0.00	131.95	0.00	0.00	137.19	125.02	0.00	77.59	0.00
11	Water Service Line Investigations and/or Inspections	0.00	0.00	0.00	24.63	87.97	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Section 7- Miscellaneous Sewer Charges</b>												
1	Sewer Charges for Groundwater												
2	Charges for Wastewater Service												
3	Wastewater Discharge Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	Groundwater Discharge Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Manhole Pump-out Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	Trucked or Hauled Wastewater Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Photographic & Video Inspection	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>Section 8- Miscellaneous Stormwater Charges</b>												
1	Stormwater Plan Review Fees												
	Conceptual Stormwater Plan Approval	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Utility Plan Review	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	45.39	0.00	0.00
	Active Construction Stormwater Inspection Fee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Stormwater Management Fee in Lieu												
	Exemption to Water Quality Requirement	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>Other- Not in the Miscellaneous Charges Section</b>												
1	Sewer Credit Application Fee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Sewer Credit Failure to Inform PWD about increase	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>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>												
3	Stormwater Credit Application Fee Renewal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**Labor Cost Calculations**  
**FY 2025 Labor Costs (No Overtime)**

Line No.	Description	Costs (Crew Size X Task Hours X Fully Burdened Personnel Rates-Not including Overtime), \$											
		Engineer 2 (Environmental Engineer 2)	Water Engineering Projects Assistant Manager	Engineering Supervisor 2	Industrial Waste Control Supervisor	Industrial Waste Control Technician 2	Industrial Waste Control Technician 1	Grad Civil Engineer/Graduate Environmental Engineer	WTR Supervisor	Inspector	Collector Unit	Electronic Tech II	Electronic Tech I
	<b>Section 6- Miscellaneous Water Charges</b>												
1	Meter Test Charges												
a	5/8"	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	1",1.5",2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	3",4",6",8",10",12"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d	Field Tests 3" and above	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Charges for Furnishing and Installation of Water Meters												
a	Setting both Meter and Meter Interface Unit (MIU)												
	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3/4 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Fire Assembly	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	Furnishing and Setting Meter Interface Unit (MIU)												
	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3/4 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**Labor Cost Calculations**  
**FY 2025 Labor Costs (No Overtime)**

Line No.	Description	Costs (Crew Size X Task Hours X Fully Burdened Personnel Rates-Not including Overtime), \$												
		Engineer 2 (Environmental Engineer 2)	Water Engineering Projects Assistant Manager	Engineering Supervisor 2	Industrial Waste Control Supervisor	Industrial Waste Control Technician 2	Industrial Waste Control Technician 1	Grad Civil Engineer/Graduate Environmental Engineer	WTR Supervisor	Inspector	Collector Unit	Electronic Tech II	Electronic Tech I	
	6" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	6" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	10"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3	Tampering of Meter													
a	5/8" or 3/4"	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	1", 1.5" or 2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
c	3" and larger	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4	Shut-Off and Restoration of Water Service													
a	Site Visit for Non-payment	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	Non-compliance with Notice of Defect and/or Metering Non-compliance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Operating service valve 2" and smaller service lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Operating service valve larger than 2" service lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Obstructed curb stop, missing access box, requires excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Curb stop inoperable, requires installation of new curb stop	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Obstructed curb stop, missing access box, requires excavation and footway paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Curb stop inoperable, requires installation of new curb stop and footway paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Excavation and shutoff of ferrule at the water main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5	Pumping of Properties	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6	Charges for Water Main Shutdown Service	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7	Water Connection Charges													
b	Ferrule Connections													
	3/4"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	1.5"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
c	Valve Connections													
	3" & 4"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	6" & 8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	10" & 12"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
d	Attachment to a Transmission Main													
	3" & 4" Sleeve													
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	6" & 8" Sleeve													
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	10" & 12" Sleeve													
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

**Labor Cost Calculations**  
**FY 2025 Labor Costs (No Overtime)**

Line No.	Description	Costs (Crew Size X Task Hours X Fully Burdened Personnel Rates-Not including Overtime), \$												
		Engineer 2 (Environmental Engineer 2)	Water Engineering Projects Assistant Manager	Engineering Supervisor 2	Industrial Waste Control Supervisor	Industrial Waste Control Technician 2	Industrial Waste Control Technician 1	Grad Civil Engineer/Graduate Environmental Engineer	WTR Supervisor	Inspector	Collector Unit	Electronic Tech II	Electronic Tech I	
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8	Discontinuation of Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
9	Hydrant Permits													
	One Week	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Six Month	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
10	Flow Tests	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11	Water Service Line Investigations and/or Inspections	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>Section 7- Miscellaneous Sewer Charges</b>													
1	Sewer Charges for Groundwater													
2	Charges for Wastewater Service													
3	Wastewater Discharge Permit	1406.53	447.15	1569.78	561.97	604.24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4	Groundwater Discharge Permit	773.59	447.15	1046.52	321.13	268.55	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5	Manhole Pump-out Permit	351.63	335.37	627.91	963.38	671.38	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6	Trucked or Hauled Wastewater Permit	281.31	335.37	627.91	160.56	201.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7	Photographic & Video Inspection	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>Section 8- Miscellaneous Stormwater Charges</b>													
1	Stormwater Plan Review Fees													
	Conceptual Stormwater Plan Approval	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Utility Plan Review	0.00	0.00	0.00	0.00	0.00	0.00	118.79	0.00	0.00	0.00	0.00	0.00	
	Active Construction Stormwater Inspection Fee	0.00	0.00	0.00	0.00	0.00	0.00	118.79	0.00	0.00	0.00	0.00	0.00	
2	Stormwater Management Fee in Lieu													
	Exemption to Water Quality Requirement	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>Other- Not in the Miscellaneous Charges Section</b>													
1	Sewer Credit Application Fee	492.28	335.37	418.61	240.84	201.41	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	Sewer Credit Failure to Inform PWD about increase	70.33	111.79	209.30	160.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	<b>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>													
3	Stormwater Credit Application Fee Renewal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	

**Labor Cost Calculations**  
**FY 2025 Labor Costs (No Overtime)**

Line No.	Description	Electronic Equipment Supervisor	Environmental Scientist 1	Engineer 1 (Civil Engineer 1)	Administrative Assistant	Environmental Specialist	Construction Project Technician 2	Engineering Specialist	GIS Specialist 2	Total Labor Cost
<b>Section 6- Miscellaneous Water Charges</b>										
1	Meter Test Charges									
a	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$107.89
b	1",1.5",2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$143.85
c	3",4",6",8",10",12"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$359.63
d	Field Tests 3" and above	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$359.63
2	Charges for Furnishing and Installation of Water Meters									
a	Setting both Meter and Meter Interface Unit (MIU)									
	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$47.95
	3/4 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$47.95
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$95.90
	1" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$95.90
	1 1/2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$95.90
	1 1/2 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$95.90
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$95.90
	2" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$95.90
	3" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	3" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	3" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	4" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	4" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	4" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	4" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	6" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	6" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	6" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	6" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	8" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	8" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	8" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	10" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	10" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	10" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	12" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	12" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	12" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
b	Furnishing and Setting Meter Interface Unit (MIU)									
	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$47.95
	3/4 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$47.95
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$95.90
	1" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$95.90
	1 1/2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$95.90
	1 1/2 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$95.90
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$95.90
	2" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$95.90
	3" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	3" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	4" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	4" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71



**Labor Cost Calculations**  
**FY 2025 Labor Costs (No Overtime)**

Line No.	Description	Electronic Equipment Supervisor	Environmental Scientist 1	Engineer 1 (Civil Engineer 1)	Administrative Assistant	Environmental Specialist	Construction Project Technician 2	Engineering Specialist	GIS Specialist 2	Total Labor Cost
	6" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	6" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
	10"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
3	Tampering of Meter									
a	5/8" or 3/4"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$47.95
b	1", 1.5" or 2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$95.90
c	3" and larger	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$287.71
4	Shut-Off and Restoration of Water Service									
a	Site Visit for Non-payment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$47.95
b	Non-compliance with Notice of Defect and/or Metering Non-compliance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$47.95
	Operating service valve 2" and smaller service lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$47.95
	Operating service valve larger than 2" service lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$225.19
	Obstructed curb stop, missing access box, requires excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$383.61
	Curb stop inoperable, requires installation of new curb stop	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$383.61
	Obstructed curb stop, missing access box, requires excavation and footway paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$383.61
	Curb stop inoperable, requires installation of new curb stop and footway paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$383.61
	Excavation and shutoff of ferrule at the water main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$831.37
5	Pumping of Properties	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$137.22
6	Charges for Water Main Shutdown Service	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$225.19
7	Water Connection Charges									
b	Ferrule Connections									
	3/4"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$112.59
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$112.59
	1.5"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$112.59
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$112.59
c	Valve Connections									
	3" & 4"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$8,867.96
	6" & 8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$8,867.96
	10" & 12"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$8,867.96
d	Attachment to a Transmission Main									
	3" & 4" Sleeve									
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$11,084.95
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$11,084.95
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$11,084.95
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$11,084.95
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$11,084.95
	6" & 8" Sleeve									
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$11,084.95
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$11,084.95
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$11,084.95
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$11,084.95
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$11,084.95
	10" & 12" Sleeve									
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$11,084.95

**Labor Cost Calculations**  
**FY 2025 Labor Costs (No Overtime)**

Line No.	Description	Labor Cost Allocation								Total Labor Cost
		Electronic Equipment Supervisor	Environmental Scientist 1	Engineer 1 (Civil Engineer 1)	Administrative Assistant	Environmental Scientist Specialist	Construction Project Technician 2	Engineering Specialist	GIS Specialist 2	
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$11,084.95
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$11,084.95
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$11,084.95
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$11,084.95
8	Discontinuance of Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$608.86
9	Hydrant Permits									
	One Week	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$182.92
	Six Month	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$182.92
10	Flow Tests	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$471.75
11	Water Service Line Investigations and/or Inspections	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$112.59
	<b>Section 7- Miscellaneous Sewer Charges</b>									
1	Sewer Charges for Groundwater									
2	Charges for Wastewater Service									
3	Wastewater Discharge Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$4,589.67
4	Groundwater Discharge Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$2,856.94
5	Manhole Pump-out Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$2,949.67
6	Trucked or Hauled Wastewater Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$1,606.56
7	Photographic & Video Inspection	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
	<b>Section 8- Miscellaneous Stormwater Charges</b>									
1	Stormwater Plan Review Fees									
	Conceptual Stormwater Plan Approval	0.00	0.00	0.00	27.59	783.25	0.00	0.00	0.00	\$810.84
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)	0.00	0.00	0.00	73.40	0.00	0.00	77.54	0.00	\$150.94
	Utility Plan Review	0.00	0.00	0.00	0.00	0.00	0.00	155.07	0.00	\$319.26
	Active Construction Stormwater Inspection Fee	0.00	0.00	0.00	0.00	0.00	231.92	0.00	0.00	\$350.71
2	Stormwater Management Fee in Lieu									
	Exemption to Water Quality Requirement	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
	<b>Other- Not in the Miscellaneous Charges Section</b>									
1	Sewer Credit Application Fee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$1,688.52
2	Sewer Credit Failure to Inform PWD about increase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$551.98
	<b>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>									
3	Stormwater Credit Application Fee Renewal	0.00	0.00	0.00	0.00	0.00	0.00	465.21	351.63	\$816.84

**Labor Cost Calculations**  
**FY 2025 Labor Costs (Overtime)**

Line No.	Description	Water Field Cust Serv Rep	Water Field Cust Serv Rep (D&R)	Water Field Cust Serv Sup (D&R)	Crew Chief	Repair Worker	Equipment Operator (Equipment Operator 2)	Heavy Equipment Operator	Engineer 3/ WTR Engineer 1	Engineering Specialist	Engineering Aide (Engineering Aide 2)	Engineering Technician 1	Engineer 1 (Environmental Engineer 1)
<b>Section 6- Miscellaneous Water Charges</b>													
1	Meter Test Charges												
a	5/8"	138.27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b	1",1.5",2"	184.36	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	3",4",6",8",10",12"	460.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d	Field Tests 3" and above	460.90	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Charges for Furnishing and Installation of Water Meters												
a	Setting both Meter and Meter Interface Unit (MIU)												
	5/8"	61.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3/4 RFSS	61.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	122.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1" RFSS	122.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2	122.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2 RFSS	122.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	122.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2" RFSS	122.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Compound	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Turbine	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Fire Series	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Compound	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Turbine	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Fire Series	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Fire Assembly	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Compound	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Turbine	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Fire Series	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Fire Assembly	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Turbine	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Fire Series	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Fire Assembly	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Turbine	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Fire Series	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Fire Assembly	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Turbine	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Fire Series	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Fire Assembly	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b	Furnishing and Setting Meter Interface Unit (MIU)												
	5/8"	61.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3/4 RFSS	61.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	122.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1" RFSS	122.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2	122.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2 RFSS	122.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	122.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2" RFSS	122.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Compound	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Turbine	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Compound	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Turbine	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**Labor Cost Calculations**  
**FY 2025 Labor Costs (Overtime)**

Line No.	Description	Water Field Cust Serv Rep	Water Field Cust Serv Rep (D&R)	Water Field Cust Serv Sup (D&R)	Crew Chief	Repair Worker	Equipment Operator (Equipment Operator 2)	Heavy Equipment Operator	Engineer 3/ WTR Engineer 1	Engineering Specialist	Engineering Aide (Engineering Aide 2)	Engineering Technician 1	Engineer 1 (Environmental Engineer 1)
	6" Compound	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Turbine	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8"	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10"	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Tampering of Meter												
a	5/8" or 3/4"	61.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b	1", 1.5" or 2"	122.91	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	3" and larger	368.72	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	Shut-Off and Restoration of Water Service												
a	Site Visit for Non-payment	61.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b	Non-compliance with Notice of Defect and/or Metering Non-compliance	61.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	Operating service valve 2" and smaller service lines	61.45	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d	Operating service valve larger than 2" service lines	0.00	0.00	0.00	49.26	225.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
e	Obstructed curb stop, missing access box, requires excavation	0.00	491.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
f	Curb stop inoperable, requires installation of new curb stop	0.00	491.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
g	Obstructed curb stop, missing access box, requires excavation and footway paving	0.00	491.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
h	Curb stop inoperable, requires installation of new curb stop and footway paving	0.00	491.62	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
i	Excavation and shutoff of ferrule at the water main	0.00	0.00	0.00	147.78	507.30	179.39	189.39	0.00	0.00	0.00	0.00	0.00
5	Pumping of Properties	0.00	0.00	0.00	49.26	112.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	Charges for Water Main Shutdown Service	0.00	0.00	0.00	49.26	225.47	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Water Connection Charges												
b	Ferrule Connections												
	3/4"	0.00	0.00	0.00	24.63	112.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	0.00	0.00	0.00	24.63	112.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1.5"	0.00	0.00	0.00	24.63	112.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	0.00	0.00	0.00	24.63	112.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	Valve Connections												
	3" & 4"	0.00	0.00	0.00	1576.30	5411.24	1913.45	2020.15	0.00	0.00	0.00	0.00	0.00
	6" & 8"	0.00	0.00	0.00	1576.30	5411.24	1913.45	2020.15	0.00	0.00	0.00	0.00	0.00
	10" & 12"	0.00	0.00	0.00	1576.30	5411.24	1913.45	2020.15	0.00	0.00	0.00	0.00	0.00
d	Attachment to a Transmission Main												
	3" & 4" Sleeve												
	16" Main	0.00	0.00	0.00	1970.37	6764.05	2391.81	2525.19	0.00	0.00	0.00	0.00	0.00
	20" Main	0.00	0.00	0.00	1970.37	6764.05	2391.81	2525.19	0.00	0.00	0.00	0.00	0.00
	24" Main	0.00	0.00	0.00	1970.37	6764.05	2391.81	2525.19	0.00	0.00	0.00	0.00	0.00
	30" Main	0.00	0.00	0.00	1970.37	6764.05	2391.81	2525.19	0.00	0.00	0.00	0.00	0.00
	36" Main	0.00	0.00	0.00	1970.37	6764.05	2391.81	2525.19	0.00	0.00	0.00	0.00	0.00
	6" & 8" Sleeve												
	16" Main	0.00	0.00	0.00	1970.37	6764.05	2391.81	2525.19	0.00	0.00	0.00	0.00	0.00
	20" Main	0.00	0.00	0.00	1970.37	6764.05	2391.81	2525.19	0.00	0.00	0.00	0.00	0.00
	24" Main	0.00	0.00	0.00	1970.37	6764.05	2391.81	2525.19	0.00	0.00	0.00	0.00	0.00
	30" Main	0.00	0.00	0.00	1970.37	6764.05	2391.81	2525.19	0.00	0.00	0.00	0.00	0.00
	36" Main	0.00	0.00	0.00	1970.37	6764.05	2391.81	2525.19	0.00	0.00	0.00	0.00	0.00
	10" & 12" Sleeve												
	16" Main	0.00	0.00	0.00	1970.37	6764.05	2391.81	2525.19	0.00	0.00	0.00	0.00	0.00

**Labor Cost Calculations**  
**FY 2025 Labor Costs (Overtime)**

Line No.	Description	Water Field Cust Serv Rep	Water Field Cust Serv Rep (D&R)	Water Field Cust Serv Sup (D&R)	Crew Chief	Repair Worker	Equipment Operator (Equipment Operator 2)	Heavy Equipment Operator	Engineer 3/ WTR Engineer 1	Engineering Specialist	Engineering Aide (Engineering Aide 2)	Engineering Technician 1	Engineer 1 (Environmental Engineer 1)
	20" Main	0.00	0.00	0.00	1970.37	6764.05	2391.81	2525.19	0.00	0.00	0.00	0.00	0.00
	24" Main	0.00	0.00	0.00	1970.37	6764.05	2391.81	2525.19	0.00	0.00	0.00	0.00	0.00
	30" Main	0.00	0.00	0.00	1970.37	6764.05	2391.81	2525.19	0.00	0.00	0.00	0.00	0.00
	36" Main	0.00	0.00	0.00	1970.37	6764.05	2391.81	2525.19	0.00	0.00	0.00	0.00	0.00
8	Discontinuance of Water	0.00	0.00	0.00	49.26	225.47	239.18	252.52	0.00	0.00	0.00	0.00	0.00
9	Hydrant Permits												
	One Week	0.00	0.00	0.00	0.00	0.00	0.00	0.00	182.92	0.00	0.00	0.00	0.00
	Six Month	0.00	0.00	0.00	0.00	0.00	0.00	0.00	182.92	0.00	0.00	0.00	0.00
10	Flow Tests	0.00	0.00	0.00	0.00	169.10	0.00	0.00	137.19	125.02	0.00	99.43	0.00
11	Water Service Line Investigations and/or Inspections	0.00	0.00	0.00	24.63	112.73	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	<b>Section 7- Miscellaneous Sewer Charges</b>												
1	Sewer Charges for Groundwater												
2	Charges for Wastewater Service												
3	Wastewater Discharge Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	Groundwater Discharge Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Manhole Pump-out Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	Trucked or Hauled Wastewater Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Photographic & Video Inspection	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>Section 8- Miscellaneous Stormwater Charges</b>												
1	Stormwater Plan Review Fees												
	Conceptual Stormwater Plan Approval	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Utility Plan Review	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	58.17	0.00	0.00
	Active Construction Stormwater Inspection Fee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Stormwater Management Fee in Lieu												
	Exemption to Water Quality Requirement	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>Other- Not in the Miscellaneous Charges Section</b>												
1	Sewer Credit Application Fee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Sewer Credit Failure to Inform PWD about increase	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>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>												
3	Stormwater Credit Application Fee Renewal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**Labor Cost Calculations**  
**FY 2025 Labor Costs (Overtime)**

Line No.	Description	Costs (Crew Size X Task Hours X Fully Burdened Personnel Rates including Overtime)										
		Engineer 2 (Environmental Engineer 2)	Water Engineering Projects Assistant Manager	Engineering Supervisor 2	Industrial Waste Control Supervisor	Industrial Waste Control Technician 2	Industrial Waste Control Technician 1	Grad Civil Engineer/Graduate Environmental Engineer	WTR Supervisor	Inspector	Collector Unit	Electronic Tech II
<b>Section 6- Miscellaneous Water Charges</b>												
1	Meter Test Charges											
a	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b	1",1.5",2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	3",4",6",8",10",12"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d	Field Tests 3" and above	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
2	Charges for Furnishing and Installation of Water Meters											
a	Setting both Meter and Meter Interface Unit (MIU)											
	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3/4 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	12" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
b	Furnishing and Setting Meter Interface Unit (MIU)											
	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3/4 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1 1/2 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	3" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	4" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**Labor Cost Calculations**  
**FY 2025 Labor Costs (Overtime)**

Line No.	Description	Costs (Crew Size X Task Hours X Fully Burdened Personnel Rates including Overtime)											
		Engineer 2 (Environmental Engineer 2)	Water Engineering Projects Assistant Manager	Engineering Supervisor 2	Industrial Waste Control Supervisor	Industrial Waste Control Technician 2	Industrial Waste Control Technician 1	Grad Civil Engineer/Graduate Environmental Engineer	WTR Supervisor	Inspector	Collector Unit	Electronic Tech II	Electronic Tech I
	6" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
3	Tampering of Meter												
a	5/8" or 3/4"	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	1", 1.5" or 2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	3" and larger	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
4	Shut-Off and Restoration of Water Service												
a	Site Visit for Non-payment	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	Non-compliance with Notice of Defect and/or Metering Non-compliance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	Operating service valve 2" and smaller service lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d	Operating service valve larger than 2" service lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
e	Obstructed curb stop, missing access box, requires excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
f	Curb stop inoperable, requires installation of new curb stop	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
g	Obstructed curb stop, missing access box, requires excavation and footway paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
h	Curb stop inoperable, requires installation of new curb stop and footway paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
i	Excavation and shutoff of ferrule at the water main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
5	Pumping of Properties	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
6	Charges for Water Main Shutdown Service	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
7	Water Connection Charges												
b	Ferrule Connections												
	3/4"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	1.5"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
c	Valve Connections												
	3" & 4"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" & 8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" & 12"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
d	Attachment to a Transmission Main												
	3" & 4" Sleeve												
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	6" & 8" Sleeve												
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	10" & 12" Sleeve												
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00

**Labor Cost Calculations**  
**FY 2025 Labor Costs (Overtime)**

Line No.	Description	Costs (Crew Size X Task Hours X Fully Burdened Personnel Rates including Overtime)												
		Engineer 2 (Environmental Engineer 2)	Water Engineering Projects Assistant Manager	Engineering Supervisor 2	Industrial Waste Control Supervisor	Industrial Waste Control Technician 2	Industrial Waste Control Technician 1	Grad Civil Engineer/Graduate Environmental Engineer	WTR Supervisor	Inspector	Collector Unit	Electronic Tech II	Electronic Tech I	
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
8	Discontinuance of Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
9	Hydrant Permits													
	One Week	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Six Month	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
10	Flow Tests	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11	Water Service Line Investigations and/or Inspections	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>Section 7- Miscellaneous Sewer Charges</b>													
1	Sewer Charges for Groundwater													
2	Charges for Wastewater Service													
3	Wastewater Discharge Permit	1406.53	447.15	1569.78	561.97	774.39	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
4	Groundwater Discharge Permit	773.59	447.15	1046.52	321.13	344.17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
5	Manhole Pump-out Permit	351.63	335.37	627.91	963.38	860.43	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6	Trucked or Hauled Wastewater Permit	281.31	335.37	627.91	160.56	258.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7	Photographic & Video Inspection	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>Section 8- Miscellaneous Stormwater Charges</b>													
1	Stormwater Plan Review Fees													
	Conceptual Stormwater Plan Approval	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	Utility Plan Review	0.00	0.00	0.00	0.00	0.00	0.00	118.79	0.00	0.00	0.00	0.00	0.00	
	Active Construction Stormwater Inspection Fee	0.00	0.00	0.00	0.00	0.00	0.00	118.79	0.00	0.00	0.00	0.00	0.00	
2	Stormwater Management Fee in Lieu													
	Exemption to Water Quality Requirement	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>Other- Not in the Miscellaneous Charges Section</b>													
1	Sewer Credit Application Fee	492.28	335.37	418.61	240.84	258.13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	Sewer Credit Failure to Inform PWD about increase	70.33	111.79	209.30	160.56	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
	<b>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>													
3	Stormwater Credit Application Fee Renewal	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	



**Labor Cost Calculations**  
**FY 2025 Labor Costs (Overtime)**

Line No.	Description	Electronic Equipment Supervisor	Environmental Scientist 1	Engineer 1 (Civil Engineer 1)	Administrative Assistant	Environmental Scientist Specialist	Construction Project Technician 2	Engineering Specialist	GIS Specialist 2	Total Labor Cost (with Overtime)
<b>Section 6- Miscellaneous Water Charges</b>										
1	Meter Test Charges									
a	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$138.27
b	1",1.5",2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$184.36
c	3",4",6",8",10",12"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$460.90
d	Field Tests 3" and above	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$460.90
2	Charges for Furnishing and Installation of Water Meters									
a	Setting both Meter and Meter Interface Unit (MIU)									
	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$61.45
	3/4 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$61.45
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$122.91
	1" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$122.91
	1 1/2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$122.91
	1 1/2 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$122.91
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$122.91
	2" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$122.91
	3" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	3" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	3" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	4" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	4" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	4" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	4" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	6" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	6" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	6" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	6" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	8" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	8" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	8" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	10" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	10" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	10" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	12" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	12" Fire Series	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	12" Fire Assembly	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
b	Furnishing and Setting Meter Interface Unit (MIU)									
	5/8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$61.45
	3/4 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$61.45
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$122.91
	1" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$122.91
	1 1/2	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$122.91
	1 1/2 RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$122.91
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$122.91
	2" RFSS	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$122.91
	3" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	3" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	4" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	4" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72

**Labor Cost Calculations**  
**FY 2025 Labor Costs (Overtime)**

Line No.	Description	Electronic Equipment Supervisor	Environmental Scientist 1	Engineer 1 (Civil Engineer 1)	Administrative Assistant	Environmental Scientist Specialist	Construction Project Technician 2	Engineering Specialist	GIS Specialist 2	Total Labor Cost (with Overtime)
	6" Compound	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	6" Turbine	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
	10"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
3	Tampering of Meter									
a	5/8" or 3/4"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$61.45
b	1", 1.5" or 2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$122.91
c	3" and larger	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$368.72
4	Shut-Off and Restoration of Water Service									
a	Site Visit for Non-payment	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$61.45
b	Non-compliance with Notice of Defect and/or Metering Non-compliance	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$61.45
c	Operating service valve 2" and smaller service lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$61.45
d	Operating service valve larger than 2" service lines	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$274.73
e	Obstructed curb stop, missing access box, requires excavation	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$491.62
f	Curb stop inoperable, requires installation of new curb stop	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$491.62
g	Obstructed curb stop, missing access box, requires excavation and footway paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$491.62
h	Curb stop inoperable, requires installation of new curb stop and footway paving	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$491.62
i	Excavation and shutoff of ferrule at the water main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$1,023.86
5	Pumping of Properties	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$161.99
6	Charges for Water Main Shutdown Service	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$274.73
7	Water Connection Charges									
b	Ferrule Connections									
	3/4"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$137.36
	1"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$137.36
	1.5"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$137.36
	2"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$137.36
c	Valve Connections									
	3" & 4"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$10,921.14
	6" & 8"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$10,921.14
	10" & 12"	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$10,921.14
d	Attachment to a Transmission Main									
	3" & 4" Sleeve									
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,651.43
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,651.43
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,651.43
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,651.43
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,651.43
	6" & 8" Sleeve									
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,651.43
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,651.43
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,651.43
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,651.43
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,651.43
	10" & 12" Sleeve									
	16" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,651.43

**Labor Cost Calculations**  
**FY 2025 Labor Costs (Overtime)**

Line No.	Description	Labor Cost Categories								Total Labor Cost (with Overtime)
		Electronic Equipment Supervisor	Environmental Scientist 1	Engineer 1 (Civil Engineer 1)	Administrative Assistant	Environmental Scientist Specialist	Construction Project Technician 2	Engineering Specialist	GIS Specialist 2	
	20" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,651.43
	24" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,651.43
	30" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,651.43
	36" Main	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$13,651.43
8	Discontinuance of Water	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$766.43
9	Hydrant Permits									
	One Week	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$182.92
	Six Month	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$182.92
10	Flow Tests	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$530.75
11	Water Service Line Investigations and/or Inspections	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$137.36
	<b>Section 7- Miscellaneous Sewer Charges</b>									
1	Sewer Charges for Groundwater									
2	Charges for Wastewater Service									
3	Wastewater Discharge Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$4,759.81
4	Groundwater Discharge Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$2,932.56
5	Manhole Pump-out Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$3,138.72
6	Trucked or Hauled Wastewater Permit	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$1,663.27
7	Photographic & Video Inspection	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
	<b>Section 8- Miscellaneous Stormwater Charges</b>									
1	Stormwater Plan Review Fees									
	Conceptual Stormwater Plan Approval	0.00	0.00	0.00	35.36	783.25	0.00	0.00	0.00	\$818.61
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)	0.00	0.00	0.00	94.07	0.00	0.00	77.54	0.00	\$171.60
	Utility Plan Review	0.00	0.00	0.00	0.00	0.00	0.00	155.07	0.00	\$332.04
	Active Construction Stormwater Inspection Fee	0.00	0.00	0.00	0.00	0.00	297.22	0.00	0.00	\$416.02
2	Stormwater Management Fee in Lieu									
	Exemption to Water Quality Requirement	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$0.00
	<b>Other- Not in the Miscellaneous Charges Section</b>									
1	Sewer Credit Application Fee	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$1,745.23
2	Sewer Credit Failure to Inform PWD about increase	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	\$551.98
	<b>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>									
3	Stormwater Credit Application Fee Renewal	0.00	0.00	0.00	0.00	0.00	0.00	465.21	351.63	\$816.84

Equipment Cost Calculations

Line No.	Description	Backhoe	Compressor	Large Dump Truck	Small Utility Truck	Crew Truck	SUV/ Van	Jackhammer	Pump	Generator	Vehicle, Small	CCTV Truck	Task Time (Hours)
<b>Section 6- Miscellaneous Water Charges</b>													
1	Meter Test Charges												
a	5/8"						1.00						1.00
b	1",1.5",2"						1.00						1.50
c	3",4",6",8",10",12"					1.00							2.50
d	Field Tests 3" and above					1.00							2.50
2	Charges for Furnishing and Installation of Water Meters												
a	Setting both Meter and Meter Interface Unit (MIU)												
	5/8"						1.00						1.00
	3/4 RFSS						1.00						1.00
	1"						1.00						1.00
	1" RFSS						1.00						1.00
	1 1/2						1.00						1.00
	1 1/2 RFSS						1.00						1.00
	2"						1.00						1.00
	2" RFSS						1.00						1.00
	3" Compound					1.00							2.00
	3" Turbine					1.00							2.00
	3" Fire Series					1.00							2.00
	4" Compound					1.00							2.00
	4" Turbine					1.00							2.00
	4" Fire Series					1.00							2.00
	4" Fire Assembly					1.00							2.00
	6" Compound					1.00							2.00
	6" Turbine					1.00							2.00
	6" Fire Series					1.00							2.00
	6" Fire Assembly					1.00							2.00
	8" Turbine					1.00							2.00
	8" Fire Series					1.00							2.00
	8" Fire Assembly					1.00							2.00
	10" Turbine					1.00							2.00
	10" Fire Series					1.00							2.00
	10" Fire Assembly					1.00							2.00
	12" Turbine					1.00							2.00
	12" Fire Series					1.00							2.00
	12" Fire Assembly					1.00							2.00
b	Furnishing and Setting Meter Interface Unit (MIU)												
	5/8"						1.00						1.00
	3/4 RFSS						1.00						1.00
	1"						1.00						1.00
	1" RFSS						1.00						1.00
	1 1/2						1.00						1.00
	1 1/2 RFSS						1.00						1.00
	2"						1.00						1.00
	2" RFSS						1.00						1.00
	3" Compound					1.00							2.00
	3" Turbine					1.00							2.00
	4" Compound					1.00							2.00
	4" Turbine					1.00							2.00
	6" Compound					1.00							2.00
	6" Turbine					1.00							2.00
	8"					1.00							2.00
	10"					1.00							2.00
3	Tampering of Meter												
a	5/8" or 3/4"						1.00						1.00

Equipment Cost Calculations

Line No.	Description	Backhoe	Compressor	Large Dump Truck	Small Utility Truck	Crew Truck	SUV/ Van	Jackhammer	Pump	Generator	Vehicle, Small	CCTV Truck	Task Time (Hours)
b	1", 1.5" or 2"						1.00						1.00
c	3" and larger					1.00							2.00
4	<b>Shut-Off and Restoration of Water Service</b>												
a	Site Visit for Non-payment						1.00						1.00
b	Non-compliance with Notice of Defect and/or Metering Non-compliance						1.00						1.00
c	Operating service valve 2" and smaller service lines						1.00						1.00
d	Operating service valve larger than 2" service lines				1.00		0.25						2.00
e	Obstructed curb stop, missing access box, requires excavation				1.00		0.25						4.00
f	Curb stop inoperable, requires installation of new curb stop				1.00		0.25						4.00
g	Obstructed curb stop, missing access box, requires excavation and footway paving				1.00		0.25						4.00
h	Curb stop inoperable, requires installation of new curb stop and footway paving				1.00		0.25						4.00
i	Excavation and shutoff of ferrule at the water main	1.00		1.00	1.00		0.25						3.00
5	Pumping of Properties								1.00				1.00
6	Charges for Water Main Shutdown Service				1.00								2.00
7	<b>Water Connection Charges</b>												
b	<b>Ferrule Connections</b>												
	3/4"						1.25						1.00
	1"						1.25						1.00
	1.5"						1.25						1.00
	2"						1.25						1.00
c	<b>Valve Connections</b>												
	3" & 4"	1.00				1.00	0.25						32.00
	6" & 8"	1.00				1.00	0.25						32.00
	10" & 12"	1.00				1.00	0.25						32.00
d	<b>Attachment to a Transmission Main</b>												
	<b>3" &amp; 4" Sleeve</b>												
	16" Main	1.00				1.00	0.25						40.00
	20" Main	1.00				1.00	0.25						40.00
	24" Main	1.00				1.00	0.25						40.00
	30" Main	1.00				1.00	0.25						40.00
	36" Main	1.00				1.00	0.25						40.00
	<b>6" &amp; 8" Sleeve</b>												
	16" Main	1.00				1.00	0.25						40.00
	20" Main	1.00				1.00	0.25						40.00
	24" Main	1.00				1.00	0.25						40.00
	30" Main	1.00				1.00	0.25						40.00
	36" Main	1.00				1.00	0.25						40.00
	<b>10" &amp; 12" Sleeve</b>												
	16" Main	1.00				1.00	0.25						40.00
	20" Main	1.00				1.00	0.25						40.00
	24" Main	1.00				1.00	0.25						40.00
	30" Main	1.00				1.00	0.25						40.00
	36" Main	1.00				1.00	0.25						40.00
8	Discontinuance of Water	1.00				1.00							4.00
9	<b>Hydrant Permits</b>												
a	One Week				1.00								2.00
b	Six Month				1.00								2.00
10	Flow Tests						1.00						1.50
11	Water Service Line Investigations and/or Inspections						1.00						1.00
	<b>Section 7 - Miscellaneous Sewer Charges</b>												
1	Sewer Charges for Groundwater												
2	Charges for Wastewater Service												
3	Wastewater Discharge Permit												0.00
4	Groundwater Discharge Permit												0.00
5	Manhole Pump-out Permit												0.00

**Equipment Cost Calculations**

Line No.	Description											Task Time (Hours)		
		Backhoe	Compressor	Large Dump Truck	Small Utility Truck	Crew Truck	SUV/ Van	Jackhammer	Pump	Generator	Vehicle, Small		CCTV Truck	
6	Trucked or Hauled Wastewater Permit													0.00
7	Photographic & Video Inspection													0.00
<b>Section 8- Miscellaneous Stormwater Charges</b>														
1	Stormwater Plan Review Fees													
	Conceptual Stormwater Plan Approval													0.00
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>													0.00
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)													0.00
	Utility Plan Review													0.00
	Active Construction Stormwater Inspection Fee										4.00			0.00
2	Stormwater Management Fee in Lieu													
	Exemption to Water Quality Requirement													0.00
<b>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>														
1	Sewer Credit Application Fee													0.00
2	Sewer Credit Failure to Inform PWD about increase													0.00

**Equipment Cost Calculations  
FY 2024 Equipment Costs**

Line No.	Description	Costs (No. of Equipment X Task Hours X Equipment Rates)											Total
		Backhoe	Compressor	Large Dump Truck	Small Utility Truck	Crew Truck	SUV/ Van	Jackhammer	Pump	Generator	Vehicle, Small	CCTV Truck	
<b>Section 6- Miscellaneous Water Charges</b>													
1	Meter Test Charges												
	5/8"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	1",1.5",2"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$36.36	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$36.36
	3",4",6",8",10",12"	\$0.00	\$0.00	\$0.00	\$0.00	\$34.28	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$34.28
	Field Tests 3" and above	\$0.00	\$0.00	\$0.00	\$0.00	\$34.28	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$34.28
2	Charges for Furnishing and Installation of Water Meters												
a	Setting both Meter and ERT												
	5/8"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	3/4 RFSS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	1"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	1" RFSS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	1 1/2	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	1 1/2 RFSS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	2"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	2" RFSS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	3" Compound	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	3" Turbine	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	3" Fire Series	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	4" Compound	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	4" Turbine	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	4" Fire Series	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	4" Fire Assembly	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	6" Compound	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	6" Turbine	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	6" Fire Series	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	6" Fire Assembly	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	8" Turbine	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	8" Fire Series	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	8" Fire Assembly	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	10" Turbine	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	10" Fire Series	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	10" Fire Assembly	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	12" Turbine	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	12" Fire Series	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	12" Fire Assembly	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
b	Furnishing and Setting Meter Interface Unit (MIU)												
	5/8"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	3/4 RFSS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	1"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	1" RFSS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	1 1/2	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	1 1/2 RFSS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	2"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	2" RFSS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	3" Compound	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	3" Turbine	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	4" Compound	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	4" Turbine	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	6" Compound	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	6" Turbine	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	8"	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
	10"	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
3	Tampering of Meter												

**Equipment Cost Calculations**  
**FY 2024 Equipment Costs**

Line No.	Description	Costs (No. of Equipment X Task Hours X Equipment Rates)										Total	
		Backhoe	Compressor	Large Dump Truck	Small Utility Truck	Crew Truck	SUV/ Van	Jackhammer	Pump	Generator	Vehicle, Small		CCTV Truck
	5/8" or 3/4"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	1", 1.5" or 2"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	3" and larger	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$27.42
4	<b>Shut-Off and Restoration of Water Service</b>												
a	Site Visit for Non-payment	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	Non-compliance with Notice of Defect and/or Metering Non-compliance	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	Operating service valve 2" and smaller service lines	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	Operating service valve larger than 2" service lines	\$0.00	\$0.00	\$0.00	\$123.60	\$0.00	\$12.12	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$135.72
	Obstructed curb stop, missing access box, requires excavation	\$0.00	\$0.00	\$0.00	\$247.20	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$271.44
	Curb stop inoperable, requires installation of new curb stop	\$0.00	\$0.00	\$0.00	\$247.20	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$271.44
	Obstructed curb stop, missing access box, requires excavation and footway paving	\$0.00	\$0.00	\$0.00	\$247.20	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$271.44
	Curb stop inoperable, requires installation of new curb stop and footway paving	\$0.00	\$0.00	\$0.00	\$247.20	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$271.44
	Excavation and shutoff of ferrule at the water main	\$119.16	\$0.00	\$295.02	\$185.40	\$0.00	\$18.18	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$617.76
5	Pumping of Properties	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$14.29	\$0.00	\$0.00	\$0.00	\$14.29
6	Charges for Water Main Shutdown Service	\$0.00	\$0.00	\$0.00	\$123.60	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$123.60
7	<b>Water Connection Charges</b>												
b	<b>Ferrule Connections</b>												
	3/4"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.30	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.30
	1"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.30	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.30
	1.5"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.30	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.30
	2"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.30	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.30
c	<b>Valve Connections</b>												
	3" & 4"	\$1,271.04	\$0.00	\$0.00	\$0.00	\$438.72	\$193.92	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,903.68
	6" & 8"	\$1,271.04	\$0.00	\$0.00	\$0.00	\$438.72	\$193.92	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,903.68
	10" & 12"	\$1,271.04	\$0.00	\$0.00	\$0.00	\$438.72	\$193.92	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$1,903.68
d	<b>Attachment to a Transmission Main</b>												
	<b>3" &amp; 4" Sleeve</b>												
	16" Main	\$1,588.80	\$0.00	\$0.00	\$0.00	\$548.40	\$242.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,379.60
	20" Main	\$1,588.80	\$0.00	\$0.00	\$0.00	\$548.40	\$242.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,379.60
	24" Main	\$1,588.80	\$0.00	\$0.00	\$0.00	\$548.40	\$242.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,379.60
	30" Main	\$1,588.80	\$0.00	\$0.00	\$0.00	\$548.40	\$242.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,379.60
	36" Main	\$1,588.80	\$0.00	\$0.00	\$0.00	\$548.40	\$242.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,379.60
	<b>6" &amp; 8" Sleeve</b>												
	16" Main	\$1,588.80	\$0.00	\$0.00	\$0.00	\$548.40	\$242.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,379.60
	20" Main	\$1,588.80	\$0.00	\$0.00	\$0.00	\$548.40	\$242.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,379.60
	24" Main	\$1,588.80	\$0.00	\$0.00	\$0.00	\$548.40	\$242.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,379.60
	30" Main	\$1,588.80	\$0.00	\$0.00	\$0.00	\$548.40	\$242.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,379.60
	36" Main	\$1,588.80	\$0.00	\$0.00	\$0.00	\$548.40	\$242.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,379.60
	<b>10" &amp; 12" Sleeve</b>												
	16" Main	\$1,588.80	\$0.00	\$0.00	\$0.00	\$548.40	\$242.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,379.60
	20" Main	\$1,588.80	\$0.00	\$0.00	\$0.00	\$548.40	\$242.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,379.60
	24" Main	\$1,588.80	\$0.00	\$0.00	\$0.00	\$548.40	\$242.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,379.60
	30" Main	\$1,588.80	\$0.00	\$0.00	\$0.00	\$548.40	\$242.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,379.60
	36" Main	\$1,588.80	\$0.00	\$0.00	\$0.00	\$548.40	\$242.40	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,379.60
8	Discontinuance of Water	\$158.88	\$0.00	\$0.00	\$0.00	\$54.84	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$213.72
9	<b>Hydrant Permits</b>												
	One Week	\$0.00	\$0.00	\$0.00	\$123.60	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$123.60
	Six Month	\$0.00	\$0.00	\$0.00	\$123.60	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$123.60
10	Flow Tests	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$36.36	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$36.36
11	Water Service Line Investigations and/or Inspections	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$24.24
	<b>Section 7 - Miscellaneous Sewer Charges</b>												
1	<b>Sewer Charges for Groundwater</b>												
2	<b>Charges for Wastewater Service</b>												
3	Wastewater Discharge Permit	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00



**Equipment Cost Calculations  
FY 2024 Equipment Costs**

Line No.	Description	Costs (No. of Equipment X Task Hours X Equipment Rates)											Total	
		Backhoe	Compressor	Large Dump Truck	Small Utility Truck	Crew Truck	SUV/ Van	Jackhammer	Pump	Generator	Vehicle, Small	CCTV Truck		
4	Groundwater Discharge Permit	\$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
5	Manhole Pump-out Permit	\$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
6	Trucked or Hauled Wastewater Permit	\$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
7	Photographic & Video Inspection	\$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>Section 8- Miscellaneous Stormwater Charges</b>														
1	Stormwater Plan Review Fees													
	Conceptual Stormwater Plan Approval	\$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
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>	\$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
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)	\$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
	Utility Plan Review	\$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
	Active Construction Stormwater Inspection Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$30.32	\$0.00	\$0.00	\$30.32
2	Stormwater Management Fee in Lieu													
	Exemption to Water Quality Requirement	\$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>Other- Not in the Miscellaneous Charges Section</b>														
1	Sewer Credit Application Fee	\$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
2	Sewer Credit Failure to Inform PWD about increase	\$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

**Equipment Cost Calculations  
FY 2025 Equipment Costs**

Line No.	Description	Costs (No. of Equipment X Task Hours X Equipment Rates)											Total
		Backhoe	Compressor	Large Dump Truck	Small Utility Truck	Crew Truck	SUV/ Van	Jackhammer	Pump	Generator	Vehicle, Small	CCTV Truck	
<b>Section 6- Miscellaneous Water Charges</b>													
1	Meter Test Charges												
	5/8"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	1",1.5",2"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$38.22	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$38.22
	3",4",6",8",10",12"	\$0.00	\$0.00	\$0.00	\$0.00	\$36.03	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$36.03
	Field Tests 3" and above	\$0.00	\$0.00	\$0.00	\$0.00	\$36.03	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$36.03
2	Charges for Furnishing and Installation of Water Meters												
a	Setting both Meter and ERT												
	5/8"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	3/4 RFSS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	1"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	1" RFSS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	1 1/2	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	1 1/2 RFSS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	2"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	2" RFSS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	3" Compound	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	3" Turbine	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	3" Fire Series	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	4" Compound	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	4" Turbine	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	4" Fire Series	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	4" Fire Assembly	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	6" Compound	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	6" Turbine	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	6" Fire Series	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	6" Fire Assembly	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	8" Turbine	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	8" Fire Series	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	8" Fire Assembly	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	10" Turbine	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	10" Fire Series	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	10" Fire Assembly	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	12" Turbine	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	12" Fire Series	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	12" Fire Assembly	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
b	Furnishing and Setting Meter Interface Unit (MIU)												
	5/8"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	3/4 RFSS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	1"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	1" RFSS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	1 1/2	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	1 1/2 RFSS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	2"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	2" RFSS	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	3" Compound	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	3" Turbine	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	4" Compound	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	4" Turbine	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	6" Compound	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	6" Turbine	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	8"	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
	10"	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
3	Tampering of Meter												

**Equipment Cost Calculations  
FY 2025 Equipment Costs**

Line No.	Description	Costs (No. of Equipment X Task Hours X Equipment Rates)										Total	
		Backhoe	Compressor	Large Dump Truck	Small Utility Truck	Crew Truck	SUV/ Van	Jackhammer	Pump	Generator	Vehicle, Small		CCTV Truck
	5/8" or 3/4"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	1", 1.5" or 2"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	3" and larger	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$28.82
4	<b>Shut-Off and Restoration of Water Service</b>												
a	Site Visit for Non-payment	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	Non-compliance with Notice of Defect and/or Metering Non-compliance	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	Operating service valve 2" and smaller service lines	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	Operating service valve larger than 2" service lines	\$0.00	\$0.00	\$0.00	\$129.94	\$0.00	\$12.74	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$142.68
	Obstructed curb stop, missing access box, requires excavation	\$0.00	\$0.00	\$0.00	\$259.88	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$285.36
	Curb stop inoperable, requires installation of new curb stop	\$0.00	\$0.00	\$0.00	\$259.88	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$285.36
	Obstructed curb stop, missing access box, requires excavation and footway paving	\$0.00	\$0.00	\$0.00	\$259.88	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$285.36
	Curb stop inoperable, requires installation of new curb stop and footway paving	\$0.00	\$0.00	\$0.00	\$259.88	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$285.36
	Excavation and shutoff of ferrule at the water main	\$125.28	\$0.00	\$310.14	\$194.91	\$0.00	\$19.11	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$649.44
5	Pumping of Properties	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$15.02	\$0.00	\$0.00	\$0.00	\$15.02
6	Charges for Water Main Shutdown Service	\$0.00	\$0.00	\$0.00	\$129.94	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$129.94
7	<b>Water Connection Charges</b>												
b	<b>Ferrule Connections</b>												
	3/4"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$31.85	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$31.85
	1"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$31.85	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$31.85
	1.5"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$31.85	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$31.85
	2"	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$31.85	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$31.85
c	<b>Valve Connections</b>												
	3" & 4"	\$1,336.32	\$0.00	\$0.00	\$0.00	\$461.12	\$203.84	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,001.28
	6" & 8"	\$1,336.32	\$0.00	\$0.00	\$0.00	\$461.12	\$203.84	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,001.28
	10" & 12"	\$1,336.32	\$0.00	\$0.00	\$0.00	\$461.12	\$203.84	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,001.28
d	<b>Attachment to a Transmission Main</b>												
	<b>3" &amp; 4" Sleeve</b>												
	16" Main	\$1,670.40	\$0.00	\$0.00	\$0.00	\$576.40	\$254.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,501.60
	20" Main	\$1,670.40	\$0.00	\$0.00	\$0.00	\$576.40	\$254.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,501.60
	24" Main	\$1,670.40	\$0.00	\$0.00	\$0.00	\$576.40	\$254.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,501.60
	30" Main	\$1,670.40	\$0.00	\$0.00	\$0.00	\$576.40	\$254.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,501.60
	36" Main	\$1,670.40	\$0.00	\$0.00	\$0.00	\$576.40	\$254.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,501.60
	<b>6" &amp; 8" Sleeve</b>												
	16" Main	\$1,670.40	\$0.00	\$0.00	\$0.00	\$576.40	\$254.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,501.60
	20" Main	\$1,670.40	\$0.00	\$0.00	\$0.00	\$576.40	\$254.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,501.60
	24" Main	\$1,670.40	\$0.00	\$0.00	\$0.00	\$576.40	\$254.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,501.60
	30" Main	\$1,670.40	\$0.00	\$0.00	\$0.00	\$576.40	\$254.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,501.60
	36" Main	\$1,670.40	\$0.00	\$0.00	\$0.00	\$576.40	\$254.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,501.60
	<b>10" &amp; 12" Sleeve</b>												
	16" Main	\$1,670.40	\$0.00	\$0.00	\$0.00	\$576.40	\$254.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,501.60
	20" Main	\$1,670.40	\$0.00	\$0.00	\$0.00	\$576.40	\$254.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,501.60
	24" Main	\$1,670.40	\$0.00	\$0.00	\$0.00	\$576.40	\$254.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,501.60
	30" Main	\$1,670.40	\$0.00	\$0.00	\$0.00	\$576.40	\$254.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,501.60
	36" Main	\$1,670.40	\$0.00	\$0.00	\$0.00	\$576.40	\$254.80	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2,501.60
8	Discontinuance of Water	\$167.04	\$0.00	\$0.00	\$0.00	\$57.64	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$224.68
9	<b>Hydrant Permits</b>												
	One Week	\$0.00	\$0.00	\$0.00	\$129.94	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$129.94
	Six Month	\$0.00	\$0.00	\$0.00	\$129.94	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$129.94
10	Flow Tests	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$38.22	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$38.22
11	Water Service Line Investigations and/or Inspections	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$25.48
	<b>Section 7 - Miscellaneous Sewer Charges</b>												
1	<b>Sewer Charges for Groundwater</b>												
2	<b>Charges for Wastewater Service</b>												
3	Wastewater Discharge Permit	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

**Equipment Cost Calculations  
FY 2025 Equipment Costs**

Line No.	Description	Costs (No. of Equipment X Task Hours X Equipment Rates)											Total	
		Backhoe	Compressor	Large Dump Truck	Small Utility Truck	Crew Truck	SUV/ Van	Jackhammer	Pump	Generator	Vehicle, Small	CCTV Truck		
4	Groundwater Discharge Permit	\$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
5	Manhole Pump-out Permit	\$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
6	Trucked or Hauled Wastewater Permit	\$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
7	Photographic & Video Inspection	\$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>Section 8- Miscellaneous Stormwater Charges</b>														
1	Stormwater Plan Review Fees													
	Conceptual Stormwater Plan Approval	\$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
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>	\$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
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)	\$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
	Utility Plan Review	\$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
	Active Construction Stormwater Inspection Fee	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$31.88	\$0.00	\$31.88	
2	Stormwater Management Fee in Lieu													
	Exemption to Water Quality Requirement	\$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>Other- Not in the Miscellaneous Charges Section</b>														
1	Sewer Credit Application Fee	\$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
2	Sewer Credit Failure to Inform PWD about increase	\$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

Material Cost Calculations

Line No.	Description	Quantity of Materials Used										
		Meter	Curb Box	Curb Stop	Ferrule	Adapter	Valve	Sleeve	Caps	Bands	Temp Paving (Blacktop Bag)	Street Restoration
<b>Section 6- Miscellaneous Water Charges</b>												
1	Meter Test Charges											
a	5/8"											
b	1",1.5",2"											
c	3",4",6",8",10",12"											
d	Field Tests 3" and above											
2	Charges for Furnishing and Installation of Water Meters											
a	Setting both Meter and Meter Interface Unit (MIU)											
	5/8"	1.00										
	3/4 RFSS	1.00										
	1"	1.00										
	1" RFSS	1.00										
	1 1/2	1.00										
	1 1/2 RFSS	1.00										
	2"	1.00										
	2" RFSS	1.00										
	3" Compound	1.00										
	3" Turbine	1.00										
	3" Fire Series	1.00										
	4" Compound	1.00										
	4" Turbine	1.00										
	4" Fire Series	1.00										
	4" Fire Assembly	1.00										
	6" Compound	1.00										
	6" Turbine	1.00										
	6" Fire Series	1.00										
	6" Fire Assembly	1.00										
	8" Turbine	1.00										
	8" Fire Series	1.00										
	8" Fire Assembly	1.00										
	10" Turbine	1.00										
	10" Fire Series	1.00										
	10" Fire Assembly	1.00										
	12" Turbine	1.00										
	12" Fire Series	1.00										
	12" Fire Assembly	1.00										
b	Furnishing and Setting Meter Interface Unit (MIU)											
	5/8"											
	3/4 RFSS											
	1"											
	1" RFSS											
	1 1/2											
	1 1/2 RFSS											
	2"											
	2" RFSS											
	3" Compound											
	3" Turbine											
	4" Compound											
	4" Turbine											
	6" Compound											
	6" Turbine											

Material Cost Calculations

Line No.	Description	Quantity of Materials Used											Contractor Costs	
		Meter	Curb Box	Curb Stop	Ferrule	Adapter	Valve	Sleeve	Caps	Bands	Temp Paving (Blacktop Bag)	Street Restoration		
	8"													
	10"													
3	Tampering of Meter													
a	5/8" or 3/4"													
b	1", 1.5" or 2"													
c	3" and larger													
4	Shut-Off and Restoration of Water Service													
a	Site Visit for Non-payment													
b	Non-compliance with Notice of Defect and/or Metering Non-compliance													
	<b>Restoration of Water Service</b>													
c	Operating service valve 2" and smaller service lines													
d	Operating service valve larger than 2" service lines													
e	Obstructed curb stop, missing access box, requires excavation		1.00											
f	Curb stop inoperable, requires installation of new curb stop			1.00										
g	Obstructed curb stop, missing access box, requires excavation and footway paving		1.00								1.00			
h	Curb stop inoperable, requires installation of new curb stop and footway paving			1.00							1.00			
i	Excavation and shutoff of ferrule at the water main										2.00			
5	Pumping of Properties													
6	Charges for Water Main Shutdown Service													
7	Water Connection Charges													
b	Ferrule Connections													
	3/4"				1.00	1.00								
	1"				1.00	1.00								
	1.5"				1.00	1.00								
	2"				1.00	1.00								
c	Valve Connections													
	3" & 4"						1.00	1.00			8.00	1.00		
	6" & 8"						1.00	1.00			8.00	1.00		
	10" & 12"						1.00	1.00			8.00	1.00		
d	Attachment to a Transmission Main													
	3" & 4" Sleeve													
	16" Main							1.00			8.00			
	20" Main							1.00			8.00			
	24" Main							1.00			8.00			
	30" Main							1.00			8.00			
	36" Main							1.00			8.00			
	6" & 8" Sleeve													
	16" Main							1.00			8.00			
	20" Main							1.00			8.00			
	24" Main							1.00			8.00			
	30" Main							1.00			8.00			
	36" Main							1.00			8.00			
	10" & 12" Sleeve													
	16" Main							1.00			8.00			
	20" Main							1.00			8.00			
	24" Main							1.00			8.00			
	30" Main							1.00			8.00			
	36" Main							1.00			8.00			

**Material Cost Calculations**

Line No.	Description	Quantity of Materials Used											Contractor Costs
		Meter	Curb Box	Curb Stop	Ferrule	Adapter	Valve	Sleeve	Caps	Bands	Temp Paving (Blacktop Bag)	Street Restoration	
8	Discontinuance of Water								1.00	1.00	8.00		
9	Hydrant Permits												
	One Week												
	Six Month												
10	Flow Tests												
11	Water Service Line Investigations and/or Inspections												
	<b>Section 7- Miscellaneous Sewer Charges</b>												
1	Sewer Charges for Groundwater												
2	Charges for Wastewater Service												
3	Wastewater Discharge Permit												
4	Groundwater Discharge Permit												
5	Manhole Pump-out Permit												
6	Trucked or Hauled Wastewater Permit												
7	Photographic & Video Inspection												1.00
	<b>Section 8- Miscellaneous Stormwater Charges</b>												
1	Stormwater Plan Review Fees												
	Conceptual Stormwater Plan Approval												1.00
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>												
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)												1.00
	Utility Plan Review												
	Active Construction Stormwater Inspection Fee												1.00
2	Stormwater Management Fee in Lieu												
	Exemption to Water Quality Requirement												
	<b>Other- Not in the Miscellaneous Charges Section (Section 3- Rates and Charges)</b>												
1	Sewer Credit Application Fee												
2	Sewer Credit Failure to Inform PWD about increase												
3	Stormwater Credit Application Fee Renewal												

**Material Cost Calculations**

Line No.	Description	Material Cost Calculations			
		CCL Kit	CCL Bonnet	Operating Nut	Hydrant Water Usage
<b>Section 6- Miscellaneous Water Charges</b>					
1	Meter Test Charges				
a	5/8"				
b	1",1.5",2"				
c	3",4",6",8",10",12"				
d	Field Tests 3" and above				
2	Charges for Furnishing and Installation of Water Meters				
a	Setting both Meter and Meter Interface Unit (MIU)				
	5/8"				
	3/4 RFSS				
	1"				
	1" RFSS				
	1 1/2				
	1 1/2 RFSS				
	2"				
	2" RFSS				
	3" Compound				
	3" Turbine				
	3" Fire Series				
	4" Compound				
	4" Turbine				
	4" Fire Series				
	4" Fire Assembly				
	6" Compound				
	6" Turbine				
	6" Fire Series				
	6" Fire Assembly				
	8" Turbine				
	8" Fire Series				
	8" Fire Assembly				
	10" Turbine				
	10" Fire Series				
	10" Fire Assembly				
	12" Turbine				
	12" Fire Series				
	12" Fire Assembly				
b	Furnishing and Setting Meter Interface Unit (MIU)				
	5/8"				
	3/4 RFSS				
	1"				
	1" RFSS				
	1 1/2				
	1 1/2 RFSS				
	2"				
	2" RFSS				
	3" Compound				
	3" Turbine				
	4" Compound				
	4" Turbine				
	6" Compound				
	6" Turbine				



**Material Cost Calculations**

Line No.	Description				
		CCL Kit	CCL Bonnet	Operating Nut	Hydrant Water Usage
	8"				
	10"				
3	<b>Tampering of Meter</b>				
a	5/8" or 3/4"				
b	1", 1.5" or 2"				
c	3" and larger				
4	<b>Shut-Off and Restoration of Water Service</b>				
a	Site Visit for Non-payment				
b	Non-compliance with Notice of Defect and/or Metering Non-compliance				
	<b>Restoration of Water Service</b>				
c	Operating service valve 2" and smaller service lines				
d	Operating service valve larger than 2" service lines				
e	Obstructed curb stop, missing access box, requires excavation				
f	Curb stop inoperable, requires installation of new curb stop				
g	Obstructed curb stop, missing access box, requires excavation and footway paving				
h	Curb stop inoperable, requires installation of new curb stop and footway paving				
i	Excavation and shutoff of ferrule at the water main				
5	<b>Pumping of Properties</b>				
6	<b>Charges for Water Main Shutdown Service</b>				
7	<b>Water Connection Charges</b>				
b	<b>Ferrule Connections</b>				
	3/4"				
	1"				
	1.5"				
	2"				
c	<b>Valve Connections</b>				
	3" & 4"				
	6" & 8"				
	10" & 12"				
d	<b>Attachment to a Transmission Main</b>				
	<b>3" &amp; 4" Sleeve</b>				
	16" Main				
	20" Main				
	24" Main				
	30" Main				
	36" Main				
	<b>6" &amp; 8" Sleeve</b>				
	16" Main				
	20" Main				
	24" Main				
	30" Main				
	36" Main				
	<b>10" &amp; 12" Sleeve</b>				
	16" Main				
	20" Main				
	24" Main				
	30" Main				
	36" Main				

**Material Cost Calculations**

Line No.	Description				
		CCL Kit	CCL Bonnet	Operating Nut	Hydrant Water Usage
8	Discontinuance of Water				
9	Hydrant Permits				
	One Week	1.00	1.00	1.00	22.46
	Six Month	1.00	1.00	1.00	462.03
10	Flow Tests				1.47
11	Water Service Line Investigations and/or Inspections				
<b>Section 7- Miscellaneous Sewer Charges</b>					
1	Sewer Charges for Groundwater				
2	Charges for Wastewater Service				
3	Wastewater Discharge Permit				
4	Groundwater Discharge Permit				
5	Manhole Pump-out Permit				
6	Trucked or Hauled Wastewater Permit				
7	Photographic & Video Inspection				
<b>Section 8- Miscellaneous Stormwater Charges</b>					
1	Stormwater Plan Review Fees				
	Conceptual Stormwater Plan Approval				
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>				
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)				
	Utility Plan Review				
	Active Construction Stormwater Inspection Fee				
2	Stormwater Management Fee in Lieu				
	Exemption to Water Quality Requirement				
<b>Other- Not in the Miscellaneous Charges Section (Section 3- Rates and Charges)</b>					
1	Sewer Credit Application Fee				
2	Sewer Credit Failure to Inform PWD about increase				
3	Stormwater Credit Application Fee Renewal				

**Material Cost Calculations**

**FY 2024 Material Costs**

Line No.	Description	Cost of Materials Used											
		Meter	Curb Box	Curb Stop	Ferrule	Adapter	Valve	Sleeve	Caps	Bands	Temp Paving (Blacktop Bag)	Street Restoration	Contractor Costs
	<b>Section 6- Miscellaneous Water Charges</b>												
1	Meter Test Charges												
a	5/8"												
b	1",1.5",2"												
c	3",4",6",8",10",12"												
d	Field Tests 3" and above												
2	Charges for Furnishing and Installation of Water Meters												
a	Setting both Meter and Meter Interface Unit (MIU)												
	5/8"	\$152.91											
	3/4 RFSS	\$342.30											
	1"	\$257.50											
	1" RFSS	\$350.70											
	1 1/2	\$715.83											
	1 1/2 RFSS	\$666.76											
	2"	\$888.66											
	2" RFSS	\$901.18											
	3" Compound	\$3,017.23											
	3" Turbine	\$1,515.08											
	3" Fire Series	\$3,334.26											
	4" Compound	\$4,293.81											
	4" Turbine	\$2,325.33											
	4" Fire Series	\$4,195.82											
	4" Fire Assembly	\$5,775.00											
	6" Compound	\$6,133.32											
	6" Turbine	\$4,646.21											
	6" Fire Series	\$5,655.02											
	6" Fire Assembly	\$8,383.22											
	8" Turbine	\$5,576.77											
	8" Fire Series	\$7,241.46											
	8" Fire Assembly	\$11,974.52											
	10" Turbine	\$8,231.27											
	10" Fire Series	\$8,990.02											
	10" Fire Assembly	\$17,437.73											
	12" Turbine	\$8,734.95											
	12" Fire Series	\$10,147.37											
	12" Fire Assembly	\$18,595.08											
b	Furnishing and Setting Meter Interface Unit (MIU)												
	5/8"												
	3/4 RFSS												
	1"												
	1" RFSS												
	1 1/2												
	1 1/2 RFSS												
	2"												
	2" RFSS												
	3" Compound												
	3" Turbine												
	4" Compound												
	4" Turbine												
	6" Compound												

**Material Cost Calculations**

**FY 2024 Material Costs**

Line No.	Description	Cost of Materials Used											
		Meter	Curb Box	Curb Stop	Ferrule	Adapter	Valve	Sleeve	Caps	Bands	Temp Paving (Blacktop Bag)	Street Restoration	Contractor Costs
	6" Turbine												
	8"												
	10"												
3	Tampering of Meter												
a	5/8" or 3/4"												
b	1", 1.5" or 2"												
c	3" and larger												
4	Shut-Off and Restoration of Water Service												
a	Site Visit for Non-payment												
b	Non-compliance with Notice of Defect and/or Metering Non-compliance												
c	Operating service valve 2" and smaller service lines												
d	Operating service valve larger than 2" service lines												
e	Obstructed curb stop, missing access box, requires excavation		\$51.17										
f	Curb stop inoperable, requires installation of new curb stop			\$85.38									
g	Obstructed curb stop, missing access box, requires excavation and footway paving		\$51.17								\$10.09		
h	Curb stop inoperable, requires installation of new curb stop and footway paving			\$85.38							\$10.09		
i	Excavation and shutoff of ferrule at the water main										\$20.18		
5	Pumping of Properties												
6	Charges for Water Main Shutdown Service												
7	Water Connection Charges												
b	Ferrule Connections												
	3/4"				\$25.55	\$16.51							
	1"				\$37.88	\$30.96							
	1.5"				\$108.75								
	2"				\$175.96								
c	Valve Connections												
	3" & 4"						\$726.58	\$600.23			\$80.72	\$802.50	
	6" & 8"						\$1,249.99	\$939.83			\$80.72	\$802.50	
	10" & 12"						\$2,818.75	\$2,013.91			\$80.72	\$802.50	
d	Attachment to a Transmission Main												
	3" & 4" Sleeve												
	16" Main							\$7,466.89			\$80.72	\$0.00	
	20" Main							\$9,620.80			\$80.72	\$0.00	
	24" Main							\$11,918.30			\$80.72	\$0.00	
	30" Main							\$24,103.28			\$80.72	\$0.00	
	36" Main							\$31,024.03			\$80.72	\$0.00	
	6" & 8" Sleeve												
	16" Main							\$7,682.28			\$80.72	\$0.00	
	20" Main							\$9,333.61			\$80.72	\$0.00	
	24" Main							\$11,918.30			\$80.72	\$0.00	
	30" Main							\$26,092.90			\$80.72	\$0.00	
	36" Main							\$35,609.26			\$80.72	\$0.00	
	10" & 12" Sleeve												
	16" Main							\$7,754.08			\$80.72	\$0.00	
	20" Main							\$9,692.60			\$80.72	\$0.00	
	24" Main							\$11,918.30			\$80.72	\$0.00	
	30" Main							\$26,729.73			\$80.72	\$0.00	

**Material Cost Calculations**

**FY 2024 Material Costs**

Line No.	Description	Cost of Materials Used											
		Meter	Curb Box	Curb Stop	Ferrule	Adapter	Valve	Sleeve	Caps	Bands	Temp Paving (Blacktop Bag)	Street Restoration	Contractor Costs
	36" Main							\$38,320.18			\$80.72	\$0.00	
8	Discontinuance of Water								\$217.21	\$240.25	\$80.72	\$0.00	
9	Hydrant Permits												
	One Week												
	Six Month												
10	Flow Tests												
11	Water Service Line Investigations and/or Inspections												
	<b>Section 7- Miscellaneous Sewer Charges</b>												
1	Sewer Charges for Groundwater												
2	Charges for Wastewater Service												
3	Wastewater Discharge Permit												
4	Groundwater Discharge Permit												
5	Manhole Pump-out Permit												
6	Trucked or Hauled Wastewater Permit												
7	Photographic & Video Inspection												\$275.00
	<b>Section 8- Miscellaneous Stormwater Charges</b>												
1	Stormwater Plan Review Fees												
	Conceptual Stormwater Plan Approval												\$700.00
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>												
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)												\$71.00
	Utility Plan Review												
	Active Construction Stormwater Inspection Fee												
2	Stormwater Management Fee in Lieu												
	Exemption to Water Quality Requirement												
	<b>Other- Not in the Miscellaneous Charges Section (Section 3- Rates and Charges)</b>												
1	Sewer Credit Application Fee												
2	Sewer Credit Failure to Inform PWD about increase												
	<b>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>												
3	Stormwater Credit Application Fee Renewal												

**Material Cost Calculations**

**FY 2024 Material Costs**

Line No.	Description					Total Materials Cost
		CCL Kit	CCL Bonnet	Operating Nut	Hydrant Water Usage	
	<b>Section 6- Miscellaneous Water Charges</b>					
1	Meter Test Charges					
a	5/8"					\$0.00
b	1",1.5",2"					\$0.00
c	3",4",6",8",10",12"					\$0.00
d	Field Tests 3" and above					\$0.00
2	Charges for Furnishing and Installation of Water Meters					
a	Setting both Meter and Meter Interface Unit (MIU)					
	5/8"					\$152.91
	3/4 RFSS					\$342.30
	1"					\$257.50
	1" RFSS					\$350.70
	1 1/2					\$715.83
	1 1/2 RFSS					\$666.76
	2"					\$888.66
	2" RFSS					\$901.18
	3" Compound					\$3,017.23
	3" Turbine					\$1,515.08
	3" Fire Series					\$3,334.26
	4" Compound					\$4,293.81
	4" Turbine					\$2,325.33
	4" Fire Series					\$4,195.82
	4" Fire Assembly					\$5,775.00
	6" Compound					\$6,133.32
	6" Turbine					\$4,646.21
	6" Fire Series					\$5,655.02
	6" Fire Assembly					\$8,383.22
	8" Turbine					\$5,576.77
	8" Fire Series					\$7,241.46
	8" Fire Assembly					\$11,974.52
	10" Turbine					\$8,231.27
	10" Fire Series					\$8,990.02
	10" Fire Assembly					\$17,437.73
	12" Turbine					\$8,734.95
	12" Fire Series					\$10,147.37
	12" Fire Assembly					\$18,595.08
b	Furnishing and Setting Meter Interface Unit (MIU)					
	5/8"					\$0.00
	3/4 RFSS					\$0.00
	1"					\$0.00
	1" RFSS					\$0.00
	1 1/2					\$0.00
	1 1/2 RFSS					\$0.00
	2"					\$0.00
	2" RFSS					\$0.00
	3" Compound					\$0.00
	3" Turbine					\$0.00
	4" Compound					\$0.00
	4" Turbine					\$0.00
	6" Compound					\$0.00

**Material Cost Calculations**

**FY 2024 Material Costs**

Line No.	Description	CCL Kit	CCL Bonnet	Operating Nut	Hydrant Water Usage	Total Materials Cost
	6" Turbine					\$0.00
	8"					\$0.00
	10"					\$0.00
3	Tampering of Meter					
a	5/8" or 3/4"					\$0.00
b	1", 1.5" or 2"					\$0.00
c	3" and larger					\$0.00
4	Shut-Off and Restoration of Water Service					
a	Site Visit for Non-payment					\$0.00
b	Non-compliance with Notice of Defect and/or Metering Non-compliance					\$0.00
c	Operating service valve 2" and smaller service lines					\$0.00
d	Operating service valve larger than 2" service lines					\$0.00
e	Obstructed curb stop, missing access box, requires excavation					\$51.17
f	Curb stop inoperable, requires installation of new curb stop					\$85.38
g	Obstructed curb stop, missing access box, requires excavation and footway paving					\$61.26
h	Curb stop inoperable, requires installation of new curb stop and footway paving					\$95.47
i	Excavation and shutoff of ferrule at the water main					\$20.18
5	Pumping of Properties					\$0.00
6	Charges for Water Main Shutdown Service					\$0.00
7	Water Connection Charges					
b	Ferrule Connections					
	3/4"					\$42.06
	1"					\$68.84
	1.5"					\$108.75
	2"					\$175.96
c	Valve Connections					
	3" & 4"					\$2,210.03
	6" & 8"					\$3,073.03
	10" & 12"					\$5,715.88
d	Attachment to a Transmission Main					
	3" & 4" Sleeve					
	16" Main					\$7,547.61
	20" Main					\$9,701.52
	24" Main					\$11,999.02
	30" Main					\$24,184.00
	36" Main					\$31,104.75
	6" & 8" Sleeve					
	16" Main					\$7,763.00
	20" Main					\$9,414.33
	24" Main					\$11,999.02
	30" Main					\$26,173.62
	36" Main					\$35,689.98
	10" & 12" Sleeve					
	16" Main					\$7,834.80
	20" Main					\$9,773.32
	24" Main					\$11,999.02
	30" Main					\$26,810.45

**Material Cost Calculations**

**FY 2024 Material Costs**

Line No.	Description					Total Materials Cost
		CCL Kit	CCL Bonnet	Operating Nut	Hydrant Water Usage	
	36" Main					\$38,400.90
8	Discontinuance of Water					\$538.18
9	Hydrant Permits					
	One Week	\$494.85	\$22.20	\$54.99	\$1,023.85	\$1,595.89
	Six Month	\$494.85	\$22.20	\$54.99	\$17,220.13	\$17,792.17
10	Flow Tests				\$72.35	\$72.35
11	Water Service Line Investigations and/or Inspections					\$0.00
	<b>Section 7- Miscellaneous Sewer Charges</b>					
1	Sewer Charges for Groundwater					
2	Charges for Wastewater Service					
3	Wastewater Discharge Permit					\$0.00
4	Groundwater Discharge Permit					\$0.00
5	Manhole Pump-out Permit					\$0.00
6	Trucked or Hauled Wastewater Permit					\$0.00
7	Photographic & Video Inspection					\$275.00
	<b>Section 8- Miscellaneous Stormwater Charges</b>					
1	Stormwater Plan Review Fees					
	Conceptual Stormwater Plan Approval					\$700.00
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>					\$0.00
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)					\$71.00
	Utility Plan Review					\$0.00
	Active Construction Stormwater Inspection Fee					\$0.00
2	Stormwater Management Fee in Lieu					
	Exemption to Water Quality Requirement					\$0.00
	<b>Other- Not in the Miscellaneous Charges Section (Section 3- Rates and Charges)</b>					
1	Sewer Credit Application Fee					\$0.00
2	Sewer Credit Failure to Inform PWD about increase					\$0.00
	<b>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>					
3	Stormwater Credit Application Fee Renewal					\$0.00



**Material Cost Calculations**

**FY 2025 Material Costs**

Line No.	Description	Cost of Materials Used											
		Meter	Curb Box	Curb Stop	Ferrule	Adapter	Valve	Sleeve	Caps	Bands	Temp Paving (Blacktop Bag)	Street Restoration	Contractor Costs
	<b>Section 6- Miscellaneous Water Charges</b>												
1	Meter Test Charges												
a	5/8"												
b	1",1.5",2"												
c	3",4",6",8",10",12"												
d	Field Tests 3" and above												
2	Charges for Furnishing and Installation of Water Meters												
a	Setting both Meter and Meter Interface Unit (MIU)												
	5/8"	\$152.91											
	3/4 RFSS	\$359.42											
	1"	\$270.38											
	1" RFSS	\$368.24											
	1 1/2	\$751.62											
	1 1/2 RFSS	\$700.10											
	2"	\$933.09											
	2" RFSS	\$946.24											
	3" Compound	\$3,168.09											
	3" Turbine	\$1,590.83											
	3" Fire Series	\$3,500.97											
	4" Compound	\$4,508.50											
	4" Turbine	\$2,441.60											
	4" Fire Series	\$4,405.61											
	4" Fire Assembly	\$6,063.75											
	6" Compound	\$6,439.99											
	6" Turbine	\$4,878.52											
	6" Fire Series	\$5,937.77											
	6" Fire Assembly	\$8,802.38											
	8" Turbine	\$5,855.61											
	8" Fire Series	\$7,603.53											
	8" Fire Assembly	\$12,573.25											
	10" Turbine	\$8,642.83											
	10" Fire Series	\$9,439.52											
	10" Fire Assembly	\$18,309.62											
	12" Turbine	\$9,171.70											
	12" Fire Series	\$10,654.74											
	12" Fire Assembly	\$19,524.83											
b	Furnishing and Setting Meter Interface Unit (MIU)												
	5/8"												
	3/4 RFSS												
	1"												
	1" RFSS												
	1 1/2												
	1 1/2 RFSS												
	2"												
	2" RFSS												
	3" Compound												
	3" Turbine												
	4" Compound												
	4" Turbine												
	6" Compound												

**Material Cost Calculations**  
**FY 2025 Material Costs**

Line No.	Description	Cost of Materials Used											
		Meter	Curb Box	Curb Stop	Ferrule	Adapter	Valve	Sleeve	Caps	Bands	Temp Paving (Blacktop Bag)	Street Restoration	Contractor Costs
	6" Turbine												
	8"												
	10"												
3	Tampering of Meter												
a	5/8" or 3/4"												
b	1", 1.5" or 2"												
c	3" and larger												
4	Shut-Off and Restoration of Water Service												
a	Site Visit for Non-payment												
b	Non-compliance with Notice of Defect and/or Metering Non-compliance												
c	Operating service valve 2" and smaller service lines												
d	Operating service valve larger than 2" service lines												
e	Obstructed curb stop, missing access box, requires excavation		\$54.75										
f	Curb stop inoperable, requires installation of new curb stop			\$91.36									
g	Obstructed curb stop, missing access box, requires excavation and footway paving		\$54.75							\$10.80			
h	Curb stop inoperable, requires installation of new curb stop and footway paving			\$91.36						\$10.80			
i	Excavation and shutoff of ferrule at the water main									\$21.60			
5	Pumping of Properties												
6	Charges for Water Main Shutdown Service												
7	Water Connection Charges												
b	Ferrule Connections												
	3/4"				\$27.34	\$17.67							
	1"				\$40.53	\$33.13							
	1.5"				\$116.36								
	2"				\$188.28								
c	Valve Connections												
	3" & 4"						\$777.44	\$642.25		\$86.40	\$858.68		
	6" & 8"						\$1,337.48	\$1,005.61		\$86.40	\$858.68		
	10" & 12"						\$3,016.07	\$2,154.88		\$86.40	\$858.68		
d	Attachment to a Transmission Main												
	3" & 4" Sleeve												
	16" Main							\$7,989.57		\$86.40	\$0.00		
	20" Main							\$10,294.26		\$86.40	\$0.00		
	24" Main							\$12,752.58		\$86.40	\$0.00		
	30" Main							\$25,790.51		\$86.40	\$0.00		
	36" Main							\$33,195.71		\$86.40	\$0.00		
	6" & 8" Sleeve												
	16" Main							\$8,220.04		\$86.40	\$0.00		
	20" Main							\$9,986.96		\$86.40	\$0.00		
	24" Main							\$12,752.58		\$86.40	\$0.00		
	30" Main							\$27,919.40		\$86.40	\$0.00		
	36" Main							\$38,101.91		\$86.40	\$0.00		
	10" & 12" Sleeve												
	16" Main							\$8,296.87		\$86.40	\$0.00		
	20" Main							\$10,371.08		\$86.40	\$0.00		
	24" Main							\$12,752.58		\$86.40	\$0.00		
	30" Main							\$28,600.81		\$86.40	\$0.00		

**Material Cost Calculations**

**FY 2025 Material Costs**

Line No.	Description	Cost of Materials Used											
		Meter	Curb Box	Curb Stop	Ferrule	Adapter	Valve	Sleeve	Caps	Bands	Temp Paving (Blacktop Bag)	Street Restoration	Contractor Costs
	36" Main							\$41,002.59			\$86.40	\$0.00	
8	Discontinuance of Water								\$232.41	\$257.07	\$86.40	\$0.00	
9	Hydrant Permits												
	One Week												
	Six Month												
10	Flow Tests												
11	Water Service Line Investigations and/or Inspections												
	<b>Section 7- Miscellaneous Sewer Charges</b>												
1	Sewer Charges for Groundwater												
2	Charges for Wastewater Service												
3	Wastewater Discharge Permit												
4	Groundwater Discharge Permit												
5	Manhole Pump-out Permit												
6	Trucked or Hauled Wastewater Permit												
7	Photographic & Video Inspection												\$275.00
	<b>Section 8- Miscellaneous Stormwater Charges</b>												
1	Stormwater Plan Review Fees												
	Conceptual Stormwater Plan Approval												\$700.00
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>												
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)												\$71.00
	Utility Plan Review												
	Active Construction Stormwater Inspection Fee												
2	Stormwater Management Fee in Lieu												
	Exemption to Water Quality Requirement												
	<b>Other- Not in the Miscellaneous Charges Section (Section 3- Rates and Charges)</b>												
1	Sewer Credit Application Fee												
2	Sewer Credit Failure to Inform PWD about increase												
	<b>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>												
3	Stormwater Credit Application Fee Renewal												

**Material Cost Calculations**

**FY 2025 Material Costs**

Line No.	Description					Total Materials Cost
		CCL Kit	CCL Bonnet	Operating Nut	Hydrant Water Usage	
	<b>Section 6- Miscellaneous Water Charges</b>					
1	Meter Test Charges					
a	5/8"					\$0.00
b	1",1.5",2"					\$0.00
c	3",4",6",8",10",12"					\$0.00
d	Field Tests 3" and above					\$0.00
2	Charges for Furnishing and Installation of Water Meters					
a	Setting both Meter and Meter Interface Unit (MIU)					
	5/8"					\$152.91
	3/4 RFSS					\$359.42
	1"					\$270.38
	1" RFSS					\$368.24
	1 1/2					\$751.62
	1 1/2 RFSS					\$700.10
	2"					\$933.09
	2" RFSS					\$946.24
	3" Compound					\$3,168.09
	3" Turbine					\$1,590.83
	3" Fire Series					\$3,500.97
	4" Compound					\$4,508.50
	4" Turbine					\$2,441.60
	4" Fire Series					\$4,405.61
	4" Fire Assembly					\$6,063.75
	6" Compound					\$6,439.99
	6" Turbine					\$4,878.52
	6" Fire Series					\$5,937.77
	6" Fire Assembly					\$8,802.38
	8" Turbine					\$5,855.61
	8" Fire Series					\$7,603.53
	8" Fire Assembly					\$12,573.25
	10" Turbine					\$8,642.83
	10" Fire Series					\$9,439.52
	10" Fire Assembly					\$18,309.62
	12" Turbine					\$9,171.70
	12" Fire Series					\$10,654.74
	12" Fire Assembly					\$19,524.83
b	Furnishing and Setting Meter Interface Unit (MIU)					
	5/8"					\$0.00
	3/4 RFSS					\$0.00
	1"					\$0.00
	1" RFSS					\$0.00
	1 1/2					\$0.00
	1 1/2 RFSS					\$0.00
	2"					\$0.00
	2" RFSS					\$0.00
	3" Compound					\$0.00
	3" Turbine					\$0.00
	4" Compound					\$0.00
	4" Turbine					\$0.00
	6" Compound					\$0.00

**Material Cost Calculations**

**FY 2025 Material Costs**

Line No.	Description	CCL Kit	CCL Bonnet	Operating Nut	Hydrant Water Usage	Total Materials Cost
	6" Turbine					\$0.00
	8"					\$0.00
	10"					\$0.00
3	Tampering of Meter					
a	5/8" or 3/4"					\$0.00
b	1", 1.5" or 2"					\$0.00
c	3" and larger					\$0.00
4	Shut-Off and Restoration of Water Service					
a	Site Visit for Non-payment					\$0.00
b	Non-compliance with Notice of Defect and/or Metering Non-compliance					\$0.00
c	Operating service valve 2" and smaller service lines					\$0.00
d	Operating service valve larger than 2" service lines					\$0.00
e	Obstructed curb stop, missing access box, requires excavation					\$54.75
f	Curb stop inoperable, requires installation of new curb stop					\$91.36
g	Obstructed curb stop, missing access box, requires excavation and footway paving					\$65.55
h	Curb stop inoperable, requires installation of new curb stop and footway paving					\$102.16
i	Excavation and shutoff of ferrule at the water main					\$21.60
5	Pumping of Properties					\$0.00
6	Charges for Water Main Shutdown Service					\$0.00
7	Water Connection Charges					
b	Ferrule Connections					
	3/4"					\$45.01
	1"					\$73.66
	1.5"					\$116.36
	2"					\$188.28
c	Valve Connections					
	3" & 4"					\$2,364.77
	6" & 8"					\$3,288.17
	10" & 12"					\$6,116.03
d	Attachment to a Transmission Main					
	3" & 4" Sleeve					
	16" Main					\$8,075.97
	20" Main					\$10,380.66
	24" Main					\$12,838.98
	30" Main					\$25,876.91
	36" Main					\$33,282.11
	6" & 8" Sleeve					
	16" Main					\$8,306.44
	20" Main					\$10,073.36
	24" Main					\$12,838.98
	30" Main					\$28,005.80
	36" Main					\$38,188.31
	10" & 12" Sleeve					
	16" Main					\$8,383.27
	20" Main					\$10,457.48
	24" Main					\$12,838.98
	30" Main					\$28,687.21

**Material Cost Calculations**

**FY 2025 Material Costs**

Line No.	Description	CCL Kit	CCL Bonnet	Operating Nut	Hydrant Water Usage	Total Materials Cost
	36" Main					\$41,088.99
8	Discontinuance of Water					\$575.89
9	Hydrant Permits					
	One Week	\$529.49	\$23.75	\$58.84	\$1,023.85	\$1,635.93
	Six Month	\$529.49	\$23.75	\$58.84	\$17,220.13	\$17,832.21
10	Flow Tests				\$72.35	\$72.35
11	Water Service Line Investigations and/or Inspections					\$0.00
	<b>Section 7- Miscellaneous Sewer Charges</b>					
1	Sewer Charges for Groundwater					
2	Charges for Wastewater Service					
3	Wastewater Discharge Permit					\$0.00
4	Groundwater Discharge Permit					\$0.00
5	Manhole Pump-out Permit					\$0.00
6	Trucked or Hauled Wastewater Permit					\$0.00
7	Photographic & Video Inspection					\$275.00
	<b>Section 8- Miscellaneous Stormwater Charges</b>					
1	Stormwater Plan Review Fees					
	Conceptual Stormwater Plan Approval					\$700.00
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>					\$0.00
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)					\$71.00
	Utility Plan Review					\$0.00
	Active Construction Stormwater Inspection Fee					\$0.00
2	Stormwater Management Fee in Lieu					
	Exemption to Water Quality Requirement					\$0.00
	<b>Other- Not in the Miscellaneous Charges Section (Section 3- Rates and Charges)</b>					
1	Sewer Credit Application Fee					\$0.00
2	Sewer Credit Failure to Inform PWD about increase					\$0.00
	<b>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>					
3	Stormwater Credit Application Fee Renewal					\$0.00

**FY 2024 Fee Calculation (No Overtime)**

Line No.	Description	Costs			
		Labor (No Overtime)	Equipment	Material/ Contractor	Total Cost (No Overtime)
<b>Section 6- Miscellaneous Water Charges</b>					
1	Meter Test Charges				
	5/8"	\$104.75	\$24.24	\$0.00	\$128.99
	1",1.5",2"	\$139.66	\$36.36	\$0.00	\$176.02
	3",4",6",8",10",12"	\$349.16	\$34.28	\$0.00	\$383.43
	Field Tests 3" and above	\$349.16	\$34.28	\$0.00	\$383.43
2	Charges for Furnishing and Installation of Water Meters				
a	Setting both Meter and ERT				
	5/8"	\$46.55	\$24.24	\$152.91	\$223.70
	3/4 RFSS	\$46.55	\$24.24	\$342.30	\$413.09
	1"	\$93.11	\$24.24	\$257.50	\$374.85
	1" RFSS	\$93.11	\$24.24	\$350.70	\$468.05
	1 1/2	\$93.11	\$24.24	\$715.83	\$833.18
	1 1/2 RFSS	\$93.11	\$24.24	\$666.76	\$784.11
	2"	\$93.11	\$24.24	\$888.66	\$1,006.01
	2" RFSS	\$93.11	\$24.24	\$901.18	\$1,018.53
	3" Compound	\$279.33	\$27.42	\$3,017.23	\$3,323.98
	3" Turbine	\$279.33	\$27.42	\$1,515.08	\$1,821.83
	3" Fire Series	\$279.33	\$27.42	\$3,334.26	\$3,641.01
	4" Compound	\$279.33	\$27.42	\$4,293.81	\$4,600.56
	4" Turbine	\$279.33	\$27.42	\$2,325.33	\$2,632.08
	4" Fire Series	\$279.33	\$27.42	\$4,195.82	\$4,502.57
	4" Fire Assembly	\$279.33	\$27.42	\$5,775.00	\$6,081.75
	6" Compound	\$279.33	\$27.42	\$6,133.32	\$6,440.07
	6" Turbine	\$279.33	\$27.42	\$4,646.21	\$4,952.96
	6" Fire Series	\$279.33	\$27.42	\$5,655.02	\$5,961.77
	6" Fire Assembly	\$279.33	\$27.42	\$8,383.22	\$8,689.97
	8" Turbine	\$279.33	\$27.42	\$5,576.77	\$5,883.52
	8" Fire Series	\$279.33	\$27.42	\$7,241.46	\$7,548.21
	8" Fire Assembly	\$279.33	\$27.42	\$11,974.52	\$12,281.27
	10" Turbine	\$279.33	\$27.42	\$8,231.27	\$8,538.02
	10" Fire Series	\$279.33	\$27.42	\$8,990.02	\$9,296.77
	10" Fire Assembly	\$279.33	\$27.42	\$17,437.73	\$17,744.48
	12" Turbine	\$279.33	\$27.42	\$8,734.95	\$9,041.70
	12" Fire Series	\$279.33	\$27.42	\$10,147.37	\$10,454.12

**FY 2024 Fee Calculation (No Overtime)**

Line No.	Description	Costs			
		Labor (No Overtime)	Equipment	Material/ Contractor	Total Cost (No Overtime)
	12" Fire Assembly	\$279.33	\$27.42	\$18,595.08	\$18,901.83
b	Furnishing and Setting ERT				
	5/8"	\$46.55	\$24.24	\$0.00	\$70.79
	3/4 RFSS	\$46.55	\$24.24	\$0.00	\$70.79
	1"	\$93.11	\$24.24	\$0.00	\$117.35
	1" RFSS	\$93.11	\$24.24	\$0.00	\$117.35
	1 1/2	\$93.11	\$24.24	\$0.00	\$117.35
	1 1/2 RFSS	\$93.11	\$24.24	\$0.00	\$117.35
	2"	\$93.11	\$24.24	\$0.00	\$117.35
	2" RFSS	\$93.11	\$24.24	\$0.00	\$117.35
	3" Compound	\$279.33	\$27.42	\$0.00	\$306.75
	3" Turbine	\$279.33	\$27.42	\$0.00	\$306.75
	4" Compound	\$279.33	\$27.42	\$0.00	\$306.75
	4" Turbine	\$279.33	\$27.42	\$0.00	\$306.75
	6" Compound	\$279.33	\$27.42	\$0.00	\$306.75
	6" Turbine	\$279.33	\$27.42	\$0.00	\$306.75
	8"	\$279.33	\$27.42	\$0.00	\$306.75
	10"	\$279.33	\$27.42	\$0.00	\$306.75
3	Tampering of Meter				
	5/8" or 3/4"	\$46.55	\$24.24	\$0.00	\$70.79
	1", 1.5" or 2"	\$93.11	\$24.24	\$0.00	\$117.35
	3" and larger	\$279.33	\$27.42	\$0.00	\$306.75
4	Shut-Off and Restoration of Water Service				
a	Site Visit for Non-payment	\$46.55	\$24.24	\$0.00	\$70.79
	Non-compliance with Notice of Defect and/or Metering Non-compliance	\$46.55	\$24.24	\$0.00	\$70.79
	Operating service valve 2" and smaller service lines	\$46.55	\$24.24	\$0.00	\$70.79
	Operating service valve larger than 2" service lines	\$218.63	\$135.72	\$0.00	\$354.35
	Obstructed curb stop, missing access box, requires excavation	\$372.43	\$271.44	\$51.17	\$695.04
	Curb stop inoperable, requires installation of new curb stop	\$372.43	\$271.44	\$85.38	\$729.25
	Obstructed curb stop, missing access box, requires excavation and footway paving	\$372.43	\$271.44	\$61.26	\$705.13
	Curb stop inoperable, requires installation of new curb stop and footway paving	\$372.43	\$271.44	\$95.47	\$739.34
	Excavation and shutoff of ferrule at the water main	\$807.16	\$617.76	\$20.18	\$1,445.10



**FY 2024 Fee Calculation (No Overtime)**

Line No.	Description	Costs			
		Labor (No Overtime)	Equipment	Material/ Contractor	Total Cost (No Overtime)
5	Pumping of Properties	\$133.23	\$14.29	\$0.00	\$147.52
6	Charges for Water Main Shutdown Service	\$218.63	\$123.60	\$0.00	\$342.23
7	Water Connection Charges				
b	Ferrule Connections				
	3/4"	\$109.32	\$30.30	\$42.06	\$181.68
	1"	\$109.32	\$30.30	\$68.84	\$208.46
	1.5"	\$109.32	\$30.30	\$108.75	\$248.37
	2"	\$109.32	\$30.30	\$175.96	\$315.58
c	Valve Connections				
	3" & 4"	\$8,609.67	\$1,903.68	\$2,210.03	\$12,723.38
	6" & 8"	\$8,609.67	\$1,903.68	\$3,073.03	\$13,586.38
	10" & 12"	\$8,609.67	\$1,903.68	\$5,715.88	\$16,229.23
d	Attachment to a Transmission Main				
	3" & 4" Sleeve				
	16" Main	\$10,762.09	\$2,379.60	\$7,547.61	\$20,689.30
	20" Main	\$10,762.09	\$2,379.60	\$9,701.52	\$22,843.21
	24" Main	\$10,762.09	\$2,379.60	\$11,999.02	\$25,140.71
	30" Main	\$10,762.09	\$2,379.60	\$24,184.00	\$37,325.69
	36" Main	\$10,762.09	\$2,379.60	\$31,104.75	\$44,246.44
	6" & 8" Sleeve				
	16" Main	\$10,762.09	\$2,379.60	\$7,763.00	\$20,904.69
	20" Main	\$10,762.09	\$2,379.60	\$9,414.33	\$22,556.02
	24" Main	\$10,762.09	\$2,379.60	\$11,999.02	\$25,140.71
	30" Main	\$10,762.09	\$2,379.60	\$26,173.62	\$39,315.31
	36" Main	\$10,762.09	\$2,379.60	\$35,689.98	\$48,831.67
	10" & 12" Sleeve				
	16" Main	\$10,762.09	\$2,379.60	\$7,834.80	\$20,976.49
	20" Main	\$10,762.09	\$2,379.60	\$9,773.32	\$22,915.01
	24" Main	\$10,762.09	\$2,379.60	\$11,999.02	\$25,140.71
	30" Main	\$10,762.09	\$2,379.60	\$26,810.45	\$39,952.14
	36" Main	\$10,762.09	\$2,379.60	\$38,400.90	\$51,542.59
8	Discontinuance of Water	\$591.12	\$213.72	\$538.18	\$1,343.02
9	Hydrant Permits				
	One Week	\$177.60	\$123.60	\$1,595.89	\$1,897.08
	Six Month	\$177.60	\$123.60	\$17,792.17	\$18,093.37

**FY 2024 Fee Calculation (No Overtime)**

Line No.	Description	Costs			
		Labor (No Overtime)	Equipment	Material/ Contractor	Total Cost (No Overtime)
10	Flow Tests	\$458.01	\$36.36	\$72.35	\$566.72
11	Water Service Line Investigations and/or Inspections	\$109.32	\$24.24	\$0.00	\$133.56
<b>Section 7- Miscellaneous Sewer Charges</b>					
1	Sewer Charges for Groundwater				TBD-Rate Study
2	Charges for Wastewater Service				TBD-Rate Study
3	Wastewater Discharge Permit	\$4,455.99	\$0.00	\$0.00	\$4,455.99
4	Groundwater Discharge Permit	\$2,773.73	\$0.00	\$0.00	\$2,773.73
5	Manhole Pump-out Permit	\$2,863.76	\$0.00	\$0.00	\$2,863.76
6	Trucked or Hauled Wastewater Permit	\$1,559.77	\$0.00	\$0.00	\$1,559.77
7	Photographic & Video Inspection	\$0.00	\$0.00	\$275.00	\$275.00
<b>Section 8- Miscellaneous Stormwater Charges</b>					
1	Stormwater Plan Review Fees				
	Conceptual Stormwater Plan Approval	\$787.23	\$0.00	\$700.00	\$1,487.23
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>	\$0.00	\$0.00	\$0.00	\$0.00
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)	\$146.54	\$0.00	\$71.00	\$217.54
	Utility Plan Review	\$309.96	\$0.00	\$0.00	\$309.96
	Active Construction Stormwater Inspection Fee	\$340.50	\$30.32	\$0.00	\$370.82
2	Stormwater Management Fee in Lieu				
	Exemption to Water Quality Requirement	\$0.00	\$0.00	\$0.00	\$0.00
<b>Other- Not in the Miscellaneous Charges Section (Section 3- Rates and Charges)</b>					
1	Sewer Credit Application Fee	\$1,639.34	\$0.00	\$0.00	\$1,639.34
2	Sewer Credit Failure to Inform PWD about increase	\$535.90	\$0.00	\$0.00	\$535.90
<b>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>					
3	Stormwater Credit Application Fee Renewal	\$793.05	\$0.00	\$0.00	\$793.05

**FY 2024 Fee Calculation (Overtime)**

Line No.	Description	Costs			Total Cost (Overtime)
		Labor (With Overtime)	Equipment	Material	
<b>Section 6- Miscellaneous Water Charges</b>					
1	Meter Test Charges				
	5/8"	\$134.24	\$24.24	\$0.00	\$158.48
	1",1.5",2"	\$178.99	\$36.36	\$0.00	\$215.35
	3",4",6",8",10",12"	\$447.47	\$34.28	\$0.00	\$481.75
	Field Tests 3" and above	\$447.47	\$34.28	\$0.00	\$481.75
2	Charges for Furnishing and Installation of Water Meters				
a	Setting both Meter and ERT				
	5/8"	\$59.66	\$24.24	\$152.91	\$236.81
	3/4 RFSS	\$59.66	\$24.24	\$342.30	\$426.20
	1"	\$119.33	\$24.24	\$257.50	\$401.07
	1" RFSS	\$119.33	\$24.24	\$350.70	\$494.27
	1 1/2	\$119.33	\$24.24	\$715.83	\$859.40
	1 1/2 RFSS	\$119.33	\$24.24	\$666.76	\$810.33
	2"	\$119.33	\$24.24	\$888.66	\$1,032.23
	2" RFSS	\$119.33	\$24.24	\$901.18	\$1,044.75
	3" Compound	\$357.98	\$27.42	\$3,017.23	\$3,402.63
	3" Turbine	\$357.98	\$27.42	\$1,515.08	\$1,900.48
	3" Fire Series	\$357.98	\$27.42	\$3,334.26	\$3,719.66
	4" Compound	\$357.98	\$27.42	\$4,293.81	\$4,679.21
	4" Turbine	\$357.98	\$27.42	\$2,325.33	\$2,710.73
	4" Fire Series	\$357.98	\$27.42	\$4,195.82	\$4,581.22
	4" Fire Assembly	\$357.98	\$27.42	\$5,775.00	\$6,160.40
	6" Compound	\$357.98	\$27.42	\$6,133.32	\$6,518.72
	6" Turbine	\$357.98	\$27.42	\$4,646.21	\$5,031.61
	6" Fire Series	\$357.98	\$27.42	\$5,655.02	\$6,040.42
	6" Fire Assembly	\$357.98	\$27.42	\$8,383.22	\$8,768.62
	8" Turbine	\$357.98	\$27.42	\$5,576.77	\$5,962.17
	8" Fire Series	\$357.98	\$27.42	\$7,241.46	\$7,626.86
	8" Fire Assembly	\$357.98	\$27.42	\$11,974.52	\$12,359.92
	10" Turbine	\$357.98	\$27.42	\$8,231.27	\$8,616.67
	10" Fire Series	\$357.98	\$27.42	\$8,990.02	\$9,375.42
	10" Fire Assembly	\$357.98	\$27.42	\$17,437.73	\$17,823.13
	12" Turbine	\$357.98	\$27.42	\$8,734.95	\$9,120.35
	12" Fire Series	\$357.98	\$27.42	\$10,147.37	\$10,532.77

**FY 2024 Fee Calculation (Overtime)**

Line No.	Description	Costs			
		Labor (With Overtime)	Equipment	Material	Total Cost (Overtime)
	12" Fire Assembly	\$357.98	\$27.42	\$18,595.08	\$18,980.48
b	Furnishing and Setting ERT				
	5/8"	\$59.66	\$24.24	\$0.00	\$83.90
	3/4 RFSS	\$59.66	\$24.24	\$0.00	\$83.90
	1"	\$119.33	\$24.24	\$0.00	\$143.57
	1" RFSS	\$119.33	\$24.24	\$0.00	\$143.57
	1 1/2	\$119.33	\$24.24	\$0.00	\$143.57
	1 1/2 RFSS	\$119.33	\$24.24	\$0.00	\$143.57
	2"	\$119.33	\$24.24	\$0.00	\$143.57
	2" RFSS	\$119.33	\$24.24	\$0.00	\$143.57
	3" Compound	\$357.98	\$27.42	\$0.00	\$385.40
	3" Turbine	\$357.98	\$27.42	\$0.00	\$385.40
	4" Compound	\$357.98	\$27.42	\$0.00	\$385.40
	4" Turbine	\$357.98	\$27.42	\$0.00	\$385.40
	6" Compound	\$357.98	\$27.42	\$0.00	\$385.40
	6" Turbine	\$357.98	\$27.42	\$0.00	\$385.40
	8"	\$357.98	\$27.42	\$0.00	\$385.40
	10"	\$357.98	\$27.42	\$0.00	\$385.40
3	Tampering of Meter				
	3" and larger	\$357.98	\$27.42	\$0.00	\$385.40
4	Shut-Off and Restoration of Water Service				
	Site Visit for Non-payment	\$59.66	\$24.24	\$0.00	\$83.90
	Operating service valve 2" and smaller service lines	\$59.66	\$24.24	\$0.00	\$83.90
	Operating service valve larger than 2" service lines	\$266.73	\$135.72	\$0.00	\$402.45
	Obstructed curb stop, missing access box, requires excavation	\$477.30	\$271.44	\$51.17	\$799.91
	Curb stop inoperable, requires installation of new curb stop	\$477.30	\$271.44	\$85.38	\$834.12
	Obstructed curb stop, missing access box, requires excavation and footway paving	\$477.30	\$271.44	\$61.26	\$810.00
	Curb stop inoperable, requires installation of new curb stop and footway paving	\$477.30	\$271.44	\$95.47	\$844.21
	Excavation and shutoff of ferrule at the water main	\$994.04	\$617.76	\$20.18	\$1,631.98
6	Charges for Water Main Shutdown Service	\$266.73	\$123.60	\$0.00	\$390.33
7	Water Connection Charges				
b	Ferrule Connections				
	3/4"	\$133.36	\$30.30	\$42.06	\$205.72

**FY 2024 Fee Calculation (Overtime)**

Line No.	Description	Costs			
		Labor (With Overtime)	Equipment	Material	Total Cost (Overtime)
	1"	\$133.36	\$30.30	\$68.84	\$232.50
	1.5"	\$133.36	\$30.30	\$108.75	\$272.41
	2"	\$133.36	\$30.30	\$175.96	\$339.62
c	Valve Connections				
	3" & 4"	\$10,603.05	\$1,903.68	\$2,210.03	\$14,716.76
	6" & 8"	\$10,603.05	\$1,903.68	\$3,073.03	\$15,579.76
	10" & 12"	\$10,603.05	\$1,903.68	\$5,715.88	\$18,222.61
d	Attachment to a Transmission Main				
	3" & 4" Sleeve				
	16" Main	\$13,253.81	\$2,379.60	\$7,547.61	\$23,181.02
	20" Main	\$13,253.81	\$2,379.60	\$9,701.52	\$25,334.93
	24" Main	\$13,253.81	\$2,379.60	\$11,999.02	\$27,632.43
	30" Main	\$13,253.81	\$2,379.60	\$24,184.00	\$39,817.41
	36" Main	\$13,253.81	\$2,379.60	\$31,104.75	\$46,738.16
	6" & 8" Sleeve				
	16" Main	\$13,253.81	\$2,379.60	\$7,763.00	\$23,396.41
	20" Main	\$13,253.81	\$2,379.60	\$9,414.33	\$25,047.74
	24" Main	\$13,253.81	\$2,379.60	\$11,999.02	\$27,632.43
	30" Main	\$13,253.81	\$2,379.60	\$26,173.62	\$41,807.03
	36" Main	\$13,253.81	\$2,379.60	\$35,689.98	\$51,323.39
	10" & 12" Sleeve				
	16" Main	\$13,253.81	\$2,379.60	\$7,834.80	\$23,468.21
	20" Main	\$13,253.81	\$2,379.60	\$9,773.32	\$25,406.73
	24" Main	\$13,253.81	\$2,379.60	\$11,999.02	\$27,632.43
	30" Main	\$13,253.81	\$2,379.60	\$26,810.45	\$42,443.86
	36" Main	\$13,253.81	\$2,379.60	\$38,400.90	\$54,034.31
9	Hydrant Permits				
	One Week	\$177.60	\$123.60	\$1,595.89	\$1,897.08
	Six Month	\$177.60	\$123.60	\$17,792.17	\$18,093.37
10	Flow Tests	\$515.29	\$36.36	\$72.35	\$624.00
11	Water Service Line Investigations and/or Inspections	\$133.36	\$24.24	\$0.00	\$157.60
<b>Section 7- Miscellaneous Sewer Charges</b>					
3	Wastewater Discharge Permit	\$4,621.18	\$0.00	\$0.00	\$4,621.18
4	Groundwater Discharge Permit	\$2,847.15	\$0.00	\$0.00	\$2,847.15
5	Manhole Pump-out Permit	\$3,047.30	\$0.00	\$0.00	\$3,047.30

**FY 2024 Fee Calculation (Overtime)**

Line No.	Description	Costs			
		Labor (With Overtime)	Equipment	Material	Total Cost (Overtime)
6	Trucked or Hauled Wastewater Permit	\$1,614.83	\$0.00	\$0.00	\$1,614.83
7	Photographic & Video Inspection	\$0.00	\$0.00	\$275.00	\$275.00
<b>Section 8- Miscellaneous Stormwater Charges</b>					
1	Stormwater Plan Review Fees				
	Conceptual Stormwater Plan Approval	\$794.77	\$0.00	\$700.00	\$1,494.77
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>	\$0.00	\$0.00	\$0.00	\$0.00
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)	\$166.61	\$0.00	\$71.00	\$237.61
	Utility Plan Review	\$322.37	\$0.00	\$0.00	\$322.37
	Active Construction Stormwater Inspection Fee	\$403.90	\$30.32	\$0.00	\$434.22
2	Stormwater Management Fee in Lieu				
	Exemption to Water Quality Requirement	\$0.00	\$0.00	\$0.00	\$0.00
<b>Other- Not in the Miscellaneous Charges Section</b>					
1	Sewer Credit Application Fee	\$1,694.40	\$0.00	\$0.00	\$1,694.40
2	Sewer Credit Failure to Inform PWD about increase	\$535.90	\$0.00	\$0.00	\$535.90
3	Stormwater Credit Application Fee Renewal	\$793.05	\$0.00	\$0.00	\$793.05

**FY 2025 Fee Calculation (No Overtime)**

Line No.	Description	Costs			
		Labor (No Overtime)	Equipment	Material/ Contractor	Total Cost (No Overtime)
<b>Section 6- Miscellaneous Water Charges</b>					
1	Meter Test Charges				
	5/8"	\$107.89	\$25.48	\$0.00	\$133.37
	1",1.5",2"	\$143.85	\$38.22	\$0.00	\$182.07
	3",4",6",8",10",12"	\$359.63	\$36.03	\$0.00	\$395.66
	Field Tests 3" and above	\$359.63	\$36.03	\$0.00	\$395.66
2	Charges for Furnishing and Installation of Water Meters				
a	Setting both Meter and ERT				
	5/8"	\$47.95	\$25.48	\$152.91	\$226.34
	3/4 RFSS	\$47.95	\$25.48	\$359.42	\$432.85
	1"	\$95.90	\$25.48	\$270.38	\$391.76
	1" RFSS	\$95.90	\$25.48	\$368.24	\$489.62
	1 1/2	\$95.90	\$25.48	\$751.62	\$873.00
	1 1/2 RFSS	\$95.90	\$25.48	\$700.10	\$821.48
	2"	\$95.90	\$25.48	\$933.09	\$1,054.47
	2" RFSS	\$95.90	\$25.48	\$946.24	\$1,067.62
	3" Compound	\$287.71	\$28.82	\$3,168.09	\$3,484.62
	3" Turbine	\$287.71	\$28.82	\$1,590.83	\$1,907.36
	3" Fire Series	\$287.71	\$28.82	\$3,500.97	\$3,817.50
	4" Compound	\$287.71	\$28.82	\$4,508.50	\$4,825.03
	4" Turbine	\$287.71	\$28.82	\$2,441.60	\$2,758.13
	4" Fire Series	\$287.71	\$28.82	\$4,405.61	\$4,722.14
	4" Fire Assembly	\$287.71	\$28.82	\$6,063.75	\$6,380.28
	6" Compound	\$287.71	\$28.82	\$6,439.99	\$6,756.52
	6" Turbine	\$287.71	\$28.82	\$4,878.52	\$5,195.05
	6" Fire Series	\$287.71	\$28.82	\$5,937.77	\$6,254.30
	6" Fire Assembly	\$287.71	\$28.82	\$8,802.38	\$9,118.91
	8" Turbine	\$287.71	\$28.82	\$5,855.61	\$6,172.14
	8" Fire Series	\$287.71	\$28.82	\$7,603.53	\$7,920.06
	8" Fire Assembly	\$287.71	\$28.82	\$12,573.25	\$12,889.78
	10" Turbine	\$287.71	\$28.82	\$8,642.83	\$8,959.36
	10" Fire Series	\$287.71	\$28.82	\$9,439.52	\$9,756.05
	10" Fire Assembly	\$287.71	\$28.82	\$18,309.62	\$18,626.15
	12" Turbine	\$287.71	\$28.82	\$9,171.70	\$9,488.23
	12" Fire Series	\$287.71	\$28.82	\$10,654.74	\$10,971.27

**FY 2025 Fee Calculation (No Overtime)**

Line No.	Description	Costs			
		Labor (No Overtime)	Equipment	Material/ Contractor	Total Cost (No Overtime)
	12" Fire Assembly	\$287.71	\$28.82	\$19,524.83	\$19,841.36
b	Furnishing and Setting ERT				
	5/8"	\$47.95	\$25.48	\$0.00	\$73.43
	3/4 RFSS	\$47.95	\$25.48	\$0.00	\$73.43
	1"	\$95.90	\$25.48	\$0.00	\$121.38
	1" RFSS	\$95.90	\$25.48	\$0.00	\$121.38
	1 1/2	\$95.90	\$25.48	\$0.00	\$121.38
	1 1/2 RFSS	\$95.90	\$25.48	\$0.00	\$121.38
	2"	\$95.90	\$25.48	\$0.00	\$121.38
	2" RFSS	\$95.90	\$25.48	\$0.00	\$121.38
	3" Compound	\$287.71	\$28.82	\$0.00	\$316.53
	3" Turbine	\$287.71	\$28.82	\$0.00	\$316.53
	4" Compound	\$287.71	\$28.82	\$0.00	\$316.53
	4" Turbine	\$287.71	\$28.82	\$0.00	\$316.53
	6" Compound	\$287.71	\$28.82	\$0.00	\$316.53
	6" Turbine	\$287.71	\$28.82	\$0.00	\$316.53
	8"	\$287.71	\$28.82	\$0.00	\$316.53
	10"	\$287.71	\$28.82	\$0.00	\$316.53
3	Tampering of Meter				
	5/8" or 3/4"	\$47.95	\$25.48	\$0.00	\$73.43
	1", 1.5" or 2"	\$95.90	\$25.48	\$0.00	\$121.38
	3" and larger	\$287.71	\$28.82	\$0.00	\$316.53
4	Shut-Off and Restoration of Water Service				
a	Site Visit for Non-payment	\$47.95	\$25.48	\$0.00	\$73.43
	Non-compliance with Notice of Defect and/or Metering Non-compliance	\$47.95	\$25.48	\$0.00	\$73.43
	Operating service valve 2" and smaller service lines	\$47.95	\$25.48	\$0.00	\$73.43
	Operating service valve larger than 2" service lines	\$225.19	\$142.68	\$0.00	\$367.87
	Obstructed curb stop, missing access box, requires excavation	\$383.61	\$285.36	\$54.75	\$723.72
	Curb stop inoperable, requires installation of new curb stop	\$383.61	\$285.36	\$91.36	\$760.33
	Obstructed curb stop, missing access box, requires excavation and footway paving	\$383.61	\$285.36	\$65.55	\$734.52
	Curb stop inoperable, requires installation of new curb stop and footway paving	\$383.61	\$285.36	\$102.16	\$771.13
	Excavation and shutoff of ferrule at the water main	\$831.37	\$649.44	\$21.60	\$1,502.41



**FY 2025 Fee Calculation (No Overtime)**

Line No.	Description	Costs			
		Labor (No Overtime)	Equipment	Material/ Contractor	Total Cost (No Overtime)
5	Pumping of Properties	\$137.22	\$15.02	\$0.00	\$152.24
6	Charges for Water Main Shutdown Service	\$225.19	\$129.94	\$0.00	\$355.13
7	Water Connection Charges				
b	Ferrule Connections				
	3/4"	\$112.59	\$31.85	\$45.01	\$189.45
	1"	\$112.59	\$31.85	\$73.66	\$218.10
	1.5"	\$112.59	\$31.85	\$116.36	\$260.80
	2"	\$112.59	\$31.85	\$188.28	\$332.72
c	Valve Connections				
	3" & 4"	\$8,867.96	\$2,001.28	\$2,364.77	\$13,234.01
	6" & 8"	\$8,867.96	\$2,001.28	\$3,288.17	\$14,157.41
	10" & 12"	\$8,867.96	\$2,001.28	\$6,116.03	\$16,985.27
d	Attachment to a Transmission Main				
	3" & 4" Sleeve				
	16" Main	\$11,084.95	\$2,501.60	\$8,075.97	\$21,662.52
	20" Main	\$11,084.95	\$2,501.60	\$10,380.66	\$23,967.21
	24" Main	\$11,084.95	\$2,501.60	\$12,838.98	\$26,425.53
	30" Main	\$11,084.95	\$2,501.60	\$25,876.91	\$39,463.46
	36" Main	\$11,084.95	\$2,501.60	\$33,282.11	\$46,868.66
	6" & 8" Sleeve				
	16" Main	\$11,084.95	\$2,501.60	\$8,306.44	\$21,892.99
	20" Main	\$11,084.95	\$2,501.60	\$10,073.36	\$23,659.91
	24" Main	\$11,084.95	\$2,501.60	\$12,838.98	\$26,425.53
	30" Main	\$11,084.95	\$2,501.60	\$28,005.80	\$41,592.35
	36" Main	\$11,084.95	\$2,501.60	\$38,188.31	\$51,774.86
	10" & 12" Sleeve				
	16" Main	\$11,084.95	\$2,501.60	\$8,383.27	\$21,969.82
	20" Main	\$11,084.95	\$2,501.60	\$10,457.48	\$24,044.03
	24" Main	\$11,084.95	\$2,501.60	\$12,838.98	\$26,425.53
	30" Main	\$11,084.95	\$2,501.60	\$28,687.21	\$42,273.76
	36" Main	\$11,084.95	\$2,501.60	\$41,088.99	\$54,675.54
8	Discontinuance of Water	\$608.86	\$224.68	\$575.89	\$1,409.42
9	Hydrant Permits				
	One Week	\$182.92	\$129.94	\$1,635.93	\$1,948.79
	Six Month	\$182.92	\$129.94	\$17,832.21	\$18,145.07

**FY 2025 Fee Calculation (No Overtime)**

Line No.	Description	Costs			
		Labor (No Overtime)	Equipment	Material/ Contractor	Total Cost (No Overtime)
10	Flow Tests	\$471.75	\$38.22	\$72.35	\$582.32
11	Water Service Line Investigations and/or Inspections	\$112.59	\$25.48	\$0.00	\$138.07
<b>Section 7- Miscellaneous Sewer Charges</b>					
3	Wastewater Discharge Permit	\$4,589.67	\$0.00	\$0.00	\$4,589.67
4	Groundwater Discharge Permit	\$2,856.94	\$0.00	\$0.00	\$2,856.94
5	Manhole Pump-out Permit	\$2,949.67	\$0.00	\$0.00	\$2,949.67
6	Trucked or Hauled Wastewater Permit	\$1,606.56	\$0.00	\$0.00	\$1,606.56
7	Photographic & Video Inspection	\$0.00	\$0.00	\$275.00	\$275.00
<b>Section 8- Miscellaneous Stormwater Charges</b>					
1	Stormwater Plan Review Fees				
	Conceptual Stormwater Plan Approval	\$810.84	\$0.00	\$700.00	\$1,510.84
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>	\$0.00	\$0.00	\$0.00	\$0.00
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)	\$150.94	\$0.00	\$71.00	\$221.94
	Utility Plan Review	\$319.26	\$0.00	\$0.00	\$319.26
	Active Construction Stormwater Inspection Fee	\$350.71	\$31.88	\$0.00	\$382.59
2	Stormwater Management Fee in Lieu				
	Exemption to Water Quality Requirement	\$0.00	\$0.00	\$0.00	\$0.00
<b>Other- Not in the Miscellaneous Charges Section (Section 3- Rates and Charges)</b>					
1	Sewer Credit Application Fee	\$1,688.52	\$0.00	\$0.00	\$1,688.52
2	Sewer Credit Failure to Inform PWD about increase	\$551.98	\$0.00	\$0.00	\$551.98
<b>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>					
3	Stormwater Credit Application Fee Renewal	\$816.84	\$0.00	\$0.00	\$816.84

**FY 2025 Fee Calculation (Overtime)**

Line No.	Description	Costs			
		Labor (With Overtime)	Equipment	Material	Total Cost (Overtime)
<b>Section 6- Miscellaneous Water Charges</b>					
1	Meter Test Charges				
	3",4",6",8",10",12"	\$460.90	\$36.03	\$0.00	\$496.92
	Field Tests 3" and above	\$460.90	\$36.03	\$0.00	\$496.92
2	Charges for Furnishing and Installation of Water Meters				
a	Setting both Meter and ERT				
	5/8"	\$61.45	\$25.48	\$152.91	\$239.84
	3/4 RFSS	\$61.45	\$25.48	\$359.42	\$446.35
	1"	\$122.91	\$25.48	\$270.38	\$418.77
	1" RFSS	\$122.91	\$25.48	\$368.24	\$516.63
	1 1/2	\$122.91	\$25.48	\$751.62	\$900.01
	1 1/2 RFSS	\$122.91	\$25.48	\$700.10	\$848.49
	2"	\$122.91	\$25.48	\$933.09	\$1,081.48
	2" RFSS	\$122.91	\$25.48	\$946.24	\$1,094.63
	3" Compound	\$368.72	\$28.82	\$3,168.09	\$3,565.63
	3" Turbine	\$368.72	\$28.82	\$1,590.83	\$1,988.37
	3" Fire Series	\$368.72	\$28.82	\$3,500.97	\$3,898.51
	4" Compound	\$368.72	\$28.82	\$4,508.50	\$4,906.04
	4" Turbine	\$368.72	\$28.82	\$2,441.60	\$2,839.14
	4" Fire Series	\$368.72	\$28.82	\$4,405.61	\$4,803.15
	4" Fire Assembly	\$368.72	\$28.82	\$6,063.75	\$6,461.29
	6" Compound	\$368.72	\$28.82	\$6,439.99	\$6,837.53
	6" Turbine	\$368.72	\$28.82	\$4,878.52	\$5,276.06
	6" Fire Series	\$368.72	\$28.82	\$5,937.77	\$6,335.31
	6" Fire Assembly	\$368.72	\$28.82	\$8,802.38	\$9,199.92
	8" Turbine	\$368.72	\$28.82	\$5,855.61	\$6,253.15
	8" Fire Series	\$368.72	\$28.82	\$7,603.53	\$8,001.07
	8" Fire Assembly	\$368.72	\$28.82	\$12,573.25	\$12,970.79
	10" Turbine	\$368.72	\$28.82	\$8,642.83	\$9,040.37
	10" Fire Series	\$368.72	\$28.82	\$9,439.52	\$9,837.06
	10" Fire Assembly	\$368.72	\$28.82	\$18,309.62	\$18,707.16
	12" Turbine	\$368.72	\$28.82	\$9,171.70	\$9,569.24
	12" Fire Series	\$368.72	\$28.82	\$10,654.74	\$11,052.28
	12" Fire Assembly	\$368.72	\$28.82	\$19,524.83	\$19,922.37
b	Furnishing and Setting ERT				

**FY 2025 Fee Calculation (Overtime)**

Line No.	Description	Costs			
		Labor (With Overtime)	Equipment	Material	Total Cost (Overtime)
	5/8"	\$61.45	\$25.48	\$0.00	\$86.93
	3/4 RFSS	\$61.45	\$25.48	\$0.00	\$86.93
	1"	\$122.91	\$25.48	\$0.00	\$148.39
	1" RFSS	\$122.91	\$25.48	\$0.00	\$148.39
	1 1/2	\$122.91	\$25.48	\$0.00	\$148.39
	1 1/2 RFSS	\$122.91	\$25.48	\$0.00	\$148.39
	2"	\$122.91	\$25.48	\$0.00	\$148.39
	2" RFSS	\$122.91	\$25.48	\$0.00	\$148.39
	3" Compound	\$368.72	\$28.82	\$0.00	\$397.54
	3" Turbine	\$368.72	\$28.82	\$0.00	\$397.54
	4" Compound	\$368.72	\$28.82	\$0.00	\$397.54
	4" Turbine	\$368.72	\$28.82	\$0.00	\$397.54
	6" Compound	\$368.72	\$28.82	\$0.00	\$397.54
	6" Turbine	\$368.72	\$28.82	\$0.00	\$397.54
	8"	\$368.72	\$28.82	\$0.00	\$397.54
	10"	\$368.72	\$28.82	\$0.00	\$397.54
3	Tampering of Meter				
	3" and larger	\$368.72	\$28.82	\$0.00	\$397.54
4	Shut-Off and Restoration of Water Service				
	Site Visit for Non-payment	\$61.45	\$25.48	\$0.00	\$86.93
b	Non-compliance with Notice of Defect and/or Metering Non-compliance	\$61.45	\$25.48	\$0.00	\$86.93
	Operating service valve 2" and smaller service lines	\$61.45	\$25.48	\$0.00	\$86.93
	Operating service valve larger than 2" service lines	\$274.73	\$142.68	\$0.00	\$417.41
	Obstructed curb stop, missing access box, requires excavation	\$491.62	\$285.36	\$54.75	\$831.73
	Curb stop inoperable, requires installation of new curb stop	\$491.62	\$285.36	\$91.36	\$868.34
	Obstructed curb stop, missing access box, requires excavation and footway paving	\$491.62	\$285.36	\$65.55	\$842.53
	Curb stop inoperable, requires installation of new curb stop and footway paving	\$491.62	\$285.36	\$102.16	\$879.14
	Excavation and shutoff of ferrule at the water main	\$1,023.86	\$649.44	\$21.60	\$1,694.90
6	Charges for Water Main Shutdown Service	\$274.73	\$129.94	\$0.00	\$404.67
7	Water Connection Charges				
b	Ferrule Connections				
	3/4"	\$137.36	\$31.85	\$45.01	\$214.22

**FY 2025 Fee Calculation (Overtime)**

Line No.	Description	Costs			
		Labor (With Overtime)	Equipment	Material	Total Cost (Overtime)
	1"	\$137.36	\$31.85	\$73.66	\$242.87
	1.5"	\$137.36	\$31.85	\$116.36	\$285.57
	2"	\$137.36	\$31.85	\$188.28	\$357.49
c	Valve Connections				
	3" & 4"	\$10,921.14	\$2,001.28	\$2,364.77	\$15,287.19
	6" & 8"	\$10,921.14	\$2,001.28	\$3,288.17	\$16,210.59
	10" & 12"	\$10,921.14	\$2,001.28	\$6,116.03	\$19,038.45
d	Attachment to a Transmission Main				
	3" & 4" Sleeve				
	16" Main	\$13,651.43	\$2,501.60	\$8,075.97	\$24,229.00
	20" Main	\$13,651.43	\$2,501.60	\$10,380.66	\$26,533.69
	24" Main	\$13,651.43	\$2,501.60	\$12,838.98	\$28,992.01
	30" Main	\$13,651.43	\$2,501.60	\$25,876.91	\$42,029.94
	36" Main	\$13,651.43	\$2,501.60	\$33,282.11	\$49,435.14
	6" & 8" Sleeve				
	16" Main	\$13,651.43	\$2,501.60	\$8,306.44	\$24,459.47
	20" Main	\$13,651.43	\$2,501.60	\$10,073.36	\$26,226.39
	24" Main	\$13,651.43	\$2,501.60	\$12,838.98	\$28,992.01
	30" Main	\$13,651.43	\$2,501.60	\$28,005.80	\$44,158.83
	36" Main	\$13,651.43	\$2,501.60	\$38,188.31	\$54,341.34
	10" & 12" Sleeve				
	16" Main	\$13,651.43	\$2,501.60	\$8,383.27	\$24,536.30
	20" Main	\$13,651.43	\$2,501.60	\$10,457.48	\$26,610.51
	24" Main	\$13,651.43	\$2,501.60	\$12,838.98	\$28,992.01
	30" Main	\$13,651.43	\$2,501.60	\$28,687.21	\$44,840.24
	36" Main	\$13,651.43	\$2,501.60	\$41,088.99	\$57,242.02
9	Hydrant Permits				
	One Week	\$182.92	\$129.94	\$1,635.93	\$1,948.79
	Six Month	\$182.92	\$129.94	\$17,832.21	\$18,145.07
10	Flow Tests	\$530.75	\$38.22	\$72.35	\$641.32
11	Water Service Line Investigations and/or Inspections	\$137.36	\$25.48	\$0.00	\$162.84
<b>Section 7- Miscellaneous Sewer Charges</b>					
3	Wastewater Discharge Permit	\$4,759.81	\$0.00	\$0.00	\$4,759.81
4	Groundwater Discharge Permit	\$2,932.56	\$0.00	\$0.00	\$2,932.56
5	Manhole Pump-out Permit	\$3,138.72	\$0.00	\$0.00	\$3,138.72

**FY 2025 Fee Calculation (Overtime)**

Line No.	Description	Costs			
		Labor (With Overtime)	Equipment	Material	Total Cost (Overtime)
6	Trucked or Hauled Wastewater Permit	\$1,663.27	\$0.00	\$0.00	\$1,663.27
7	Photographic & Video Inspection	\$0.00	\$0.00	\$275.00	\$275.00
<b>Section 8- Miscellaneous Stormwater Charges</b>					
1	Stormwater Plan Review Fees				
	Conceptual Stormwater Plan Approval	\$818.61	\$0.00	\$700.00	\$1,518.61
	<del>Post Construction Stormwater Plan Submission Fee Removed</del>	\$0.00	\$0.00	\$0.00	\$0.00
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)	\$171.60	\$0.00	\$71.00	\$242.60
	Utility Plan Review	\$332.04	\$0.00	\$0.00	\$332.04
	Active Construction Stormwater Inspection Fee	\$416.02	\$31.88	\$0.00	\$447.90
2	Stormwater Management Fee in Lieu				
	Exemption to Water Quality Requirement	\$0.00	\$0.00	\$0.00	\$0.00
<b>Other- Not in the Miscellaneous Charges Section</b>					
1	Sewer Credit Application Fee	\$1,745.23	\$0.00	\$0.00	\$1,745.23
2	Sewer Credit Failure to Inform PWD about increase	\$551.98	\$0.00	\$0.00	\$551.98
3	Stormwater Credit Application Fee Renewal	\$816.84	\$0.00	\$0.00	\$816.84

Philadelphia Water Department

Increase	Decrease
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TABLE M-1- SUMMARY OF MISCELLANEOUS CHARGES (FOR WORK PERFORMED DURING BUSINESS HOURS)

#	Miscellaneous Charge Description	PWD Rates and Charges Reference	1 PWD Existing Charges	2 Calculated Charges		3 PWD Miscellaneous Charges		6 Variance between Existing and Proposed - FY 2024	7 % Variance between Existing and Proposed - FY 2024
				FY 2024	FY 2025	4 Proposed - FY 2024	5 Proposed - FY 2025		
<b>Section 6- Miscellaneous Water Charges</b>									
1	Meter Test Charges	6.1							
	5/8"	6.1 (e)	\$210.00	\$128.99	\$133.37	\$130.00	\$140.00	(\$80.00)	-38%
	1",1.5",2"	6.1 (e)	\$280.00	\$176.02	\$182.07	\$180.00	\$190.00	(\$100.00)	-36%
	3",4",6",8",10",12"	6.1 (e)	\$640.00	\$383.43	\$395.66	\$390.00	\$400.00	(\$250.00)	-39.1%
	Field Tests 3" and above	6.1 (e)	\$640.00	\$383.43	\$395.66	\$390.00	\$400.00	(\$250.00)	-39.1%
2	Charges for Furnishing and Installation of Water Meters	6.2							
a	Setting both Meter and Meter Interface Unit (MIU)	6.2 (a)							
	5/8"	6.2 (a)	\$255.00	\$223.70	\$226.34	\$225.00	\$230.00	(\$30.00)	-11.8%
	3/4 RFSS	6.2 (a)	\$435.00	\$413.09	\$432.85	\$415.00	\$435.00	(\$20.00)	-4.6%
	1"	6.2 (a)	\$430.00	\$374.85	\$391.76	\$375.00	\$395.00	(\$55.00)	-12.8%
	1" RFSS	6.2 (a)	\$520.00	\$468.05	\$489.62	\$470.00	\$490.00	(\$50.00)	-9.6%
	1 1/2	6.2 (a)	\$805.00	\$833.18	\$873.00	\$835.00	\$875.00	\$30.00	3.7%
	1 1/2 RFSS	6.2 (a)	\$750.00	\$784.11	\$821.48	\$785.00	\$825.00	\$35.00	4.7%
	2"	6.2 (a)	\$905.00	\$1,006.01	\$1,054.47	\$1,010.00	\$1,055.00	\$105.00	11.6%
	2" RFSS	6.2 (a)	\$970.00	\$1,018.53	\$1,067.62	\$1,020.00	\$1,070.00	\$50.00	5.2%
	3" Compound	6.2 (a)	\$2,370.00	\$3,323.98	\$3,484.62	\$3,320.00	\$3,485.00	\$950.00	40.1%
	3" Turbine	6.2 (a)	\$1,485.00	\$1,821.83	\$1,907.36	\$1,825.00	\$1,910.00	\$340.00	22.9%
	3" Fire Series	6.2 (a)	\$3,370.00	\$3,641.01	\$3,817.50	\$3,645.00	\$3,820.00	\$275.00	8.2%
	4" Compound	6.2 (a)	\$2,785.00	\$4,600.56	\$4,825.03	\$3,900.00	\$4,830.00	\$1,115.00	40.0%
	4" Turbine	6.2 (a)	\$2,525.00	\$2,632.08	\$2,758.13	\$2,635.00	\$2,760.00	\$110.00	4.4%
	4" Fire Series	6.2 (a)	\$3,660.00	\$4,502.57	\$4,722.14	\$4,505.00	\$4,725.00	\$845.00	23.1%
	4" Fire Assembly	6.2 (a)	\$6,015.00	\$6,081.75	\$6,380.28	\$6,085.00	\$6,385.00	\$70.00	1.2%
	6" Compound	6.2 (a)	\$4,815.00	\$6,440.07	\$6,756.52	\$6,445.00	\$6,760.00	\$1,630.00	33.9%
	6" Turbine	6.2 (a)	\$4,065.00	\$4,952.96	\$5,195.05	\$4,955.00	\$5,200.00	\$890.00	21.9%
	6" Fire Series	6.2 (a)	\$5,310.00	\$5,961.77	\$6,254.30	\$5,965.00	\$6,255.00	\$655.00	12.3%
	6" Fire Assembly	6.2 (a)	\$7,915.00	\$8,689.97	\$9,118.91	\$8,690.00	\$9,120.00	\$775.00	9.8%
	8" Turbine	6.2 (a)	\$5,445.00	\$5,883.52	\$6,172.14	\$5,885.00	\$6,175.00	\$440.00	8.1%
	8" Fire Series	6.2 (a)	\$6,080.00	\$7,548.21	\$7,920.06	\$7,550.00	\$7,925.00	\$1,470.00	24.2%
	8" Fire Assembly	6.2 (a)	\$11,135.00	\$12,281.27	\$12,889.78	\$12,285.00	\$12,890.00	\$1,150.00	10.3%
	10" Turbine	6.2 (a)	\$7,785.00	\$8,538.02	\$8,959.36	\$8,540.00	\$8,960.00	\$755.00	9.7%
	10" Fire Series	6.2 (a)	\$8,515.00	\$9,296.77	\$9,756.05	\$9,300.00	\$9,760.00	\$785.00	9.2%
	10" Fire Assembly	6.2 (a)	\$15,300.00	\$17,744.48	\$18,626.15	\$17,745.00	\$18,630.00	\$2,445.00	16.0%
	12" Turbine	6.2 (a)	\$7,900.00	\$9,041.70	\$9,488.23	\$9,045.00	\$9,490.00	\$1,145.00	14.5%
	12" Fire Series	6.2 (a)	\$8,705.00	\$10,454.12	\$10,971.27	\$10,455.00	\$10,975.00	\$1,750.00	20.1%
	12" Fire Assembly	6.2 (a)	\$16,170.00	\$18,901.83	\$19,841.36	\$18,905.00	\$19,845.00	\$2,735.00	16.9%
b	Furnishing and Setting Meter Interface Unit (MIU)	6.2 (b)							
	5/8"	6.2 (b)	\$105.00	\$70.79	\$73.43	\$75.00	\$75.00	(\$30.00)	-29%
	3/4 RFSS	6.2 (b)	\$105.00	\$70.79	\$73.43	\$75.00	\$75.00	(\$30.00)	-29%
	1"	6.2 (b)	\$190.00	\$117.35	\$121.38	\$120.00	\$125.00	(\$70.00)	-36.8%
	1" RFSS	6.2 (b)	\$190.00	\$117.35	\$121.38	\$120.00	\$125.00	(\$70.00)	-36.8%
	1 1/2	6.2 (b)	\$190.00	\$117.35	\$121.38	\$120.00	\$125.00	(\$70.00)	-36.8%
	1 1/2 RFSS	6.2 (b)	\$190.00	\$117.35	\$121.38	\$120.00	\$125.00	(\$70.00)	-36.8%
	2"	6.2 (b)	\$190.00	\$117.35	\$121.38	\$120.00	\$125.00	(\$70.00)	-36.8%
	2" RFSS	6.2 (b)	\$190.00	\$117.35	\$121.38	\$120.00	\$125.00	(\$70.00)	-36.8%
	3" Compound	6.2 (b)	\$515.00	\$306.75	\$316.53	\$310.00	\$320.00	(\$205.00)	-39.8%
	3" Turbine	6.2 (b)	\$515.00	\$306.75	\$316.53	\$310.00	\$320.00	(\$205.00)	-39.8%
	4" Compound	6.2 (b)	\$515.00	\$306.75	\$316.53	\$310.00	\$320.00	(\$205.00)	-39.8%
	4" Turbine	6.2 (b)	\$515.00	\$306.75	\$316.53	\$310.00	\$320.00	(\$205.00)	-39.8%
	6" Compound	6.2 (b)	\$515.00	\$306.75	\$316.53	\$310.00	\$320.00	(\$205.00)	-39.8%
	6" Turbine	6.2 (b)	\$515.00	\$306.75	\$316.53	\$310.00	\$320.00	(\$205.00)	-39.8%
	8"	6.2 (b)	\$515.00	\$306.75	\$316.53	\$310.00	\$320.00	(\$205.00)	-39.8%
	10"	6.2 (b)	\$515.00	\$306.75	\$316.53	\$310.00	\$320.00	(\$205.00)	-39.8%
3	Tampering of Meter	6.3							
	5/8" or 3/4"	6.3 (a)	\$120.00	\$70.79	\$73.43	\$80.00	\$90.00	(\$40.00)	-33%
	1", 1.5" or 2"	6.3 (a)	\$210.00	\$117.35	\$121.38	\$130.00	\$140.00	(\$80.00)	-38%
	3" and larger	6.3 (a)	\$570.00	\$306.75	\$316.53	\$340.00	\$350.00	(\$230.00)	-40.4%

Philadelphia Water Department				Increase	Decrease				
TABLE M-1- SUMMARY OF MISCELLANEOUS CHARGES (FOR WORK PERFORMED DURING BUSINESS HOURS)									
#	Miscellaneous Charge Description	PWD Rates and Charges Reference	1 PWD Existing Charges	2 Calculated Charges		3 PWD Miscellaneous Charges		6 Variance between Existing and Proposed - FY 2024	7 % Variance between Existing and Proposed - FY 2024
				FY 2024	FY 2025	Proposed - FY 2024	Proposed - FY 2025		
4	Shut-Off and Restoration of Water Service	6.4							
a	Site Visit for Non-payment	6.4 (a)	\$105.00	\$70.79	\$73.43	\$75.00	\$75.00	(\$30.00)	-28.6%
b	Non-compliance with Notice of Defect and/or Metering Non-compliance	6.4 (b)	\$105.00	\$70.79	\$73.43	\$75.00	\$75.00	(\$30.00)	-28.6%
c	Restoration of Water Service	6.4 (c)							
	Operating service valve 2" and smaller service lines	6.4 (c) (1) (i)	\$105.00	\$70.79	\$73.43	\$75.00	\$75.00	(\$30.00)	-28.6%
	Operating service valve larger than 2" service lines	6.4 (c) (1) (ii)	\$395.00	\$354.35	\$367.87	\$355.00	\$370.00	(\$40.00)	-10.1%
	Obstructed curb stop, missing access box, requires excavation	6.4 (c) (2)	\$905.00	\$695.04	\$723.72	\$700.00	\$725.00	(\$205.00)	-22.7%
	curb stop inoperable, requires installation of new curb stop	6.4 (c) (3)	\$950.00	\$729.25	\$760.33	\$730.00	\$765.00	(\$220.00)	-23.2%
	Obstructed curb stop, missing access box, requires excavation and footway paving	6.4 (c) (4)	\$905.00	\$705.13	\$734.52	\$710.00	\$735.00	(\$195.00)	-21.5%
	Curb stop inoperable, requires installation of new curb stop and footway paving	6.4 (c) (5)	\$950.00	\$739.34	\$771.13	\$740.00	\$775.00	(\$210.00)	-22.1%
	Excavation and shutoff of ferrule at the water main	6.4 (c) (6)	\$2,165.00	\$1,445.10	\$1,502.41	\$1,450.00	\$1,505.00	(\$715.00)	-33.0%
e	TAP Customers -Shut-off and Restoration of Water Service	6.4 (e)							
	Shut off service for non-payment; and, payment is tendered at the time of the shut-off	6.4 (e) (1)	\$12.00	NA	NA	\$12.00	\$12.00	NA	NA
	Restore water service after termination for non-payment or violation of service requirements	6.4 (e) (2)	\$12.00	NA	NA	\$12.00	\$12.00	NA	NA
5	Pumping of Properties	6.5	Actual Cost	\$147.52	\$152.24	Actual Cost	Actual Cost		
6	Charges for Water Main Shutdown Service	6.6	\$225.00	\$342.23	\$355.13	\$315.00	\$360.00	\$90.00	40.0%
7	Water Connection Charges	6.7							
b	Ferrule Connections	6.7 (b)							
	3/4"	6.7 (b) (2)	\$235.00	\$181.68	\$189.45	\$185.00	\$190.00	(\$50.00)	-21.3%
	1"	6.7 (b) (2)	\$255.00	\$208.46	\$218.10	\$210.00	\$220.00	(\$45.00)	-17.6%
	1.5"	6.7 (b) (2)	\$285.00	\$248.37	\$260.80	\$250.00	\$265.00	(\$35.00)	-12.3%
	2"	6.7 (b) (2)	\$340.00	\$315.58	\$332.72	\$320.00	\$335.00	(\$20.00)	-5.9%
c	Valve Connections	6.7 (c)							
	3" & 4"	6.7 (c) (1)	\$15,670.00	\$12,723.38	\$13,234.01	\$12,725.00	\$13,235.00	(\$2,945.00)	-18.8%
	6" & 8"	6.7 (c) (1)	\$16,010.00	\$13,586.38	\$14,157.41	\$13,590.00	\$14,160.00	(\$2,420.00)	-15.1%
	10" & 12"	6.7 (c) (1)	\$18,970.00	\$16,229.23	\$16,985.27	\$16,230.00	\$16,990.00	(\$2,740.00)	-14.4%
d	Attachment to a Transmission Main	6.7 (d)							
	3" & 4" Sleeve	6.7 (d) (2)							
	16" Main	6.7 (d) (2)	\$23,965.00	\$20,689.30	\$21,662.52	\$20,690.00	\$21,665.00	(\$3,275.00)	-13.7%
	20" Main	6.7 (d) (2)	\$25,465.00	\$22,843.21	\$23,967.21	\$22,845.00	\$23,970.00	(\$2,620.00)	-10.3%
	24" Main	6.7 (d) (2)	\$27,065.00	\$25,140.71	\$26,425.53	\$25,145.00	\$26,430.00	(\$1,920.00)	-7.1%
	30" Main	6.7 (d) (2)	\$36,740.00	\$37,325.69	\$39,463.46	\$37,330.00	\$39,465.00	\$590.00	1.6%
	36" Main	6.7 (d) (2)	\$41,905.00	\$44,246.44	\$46,868.66	\$44,250.00	\$46,870.00	\$2,345.00	5.6%
	6" & 8" Sleeve	6.7 (d) (2)							
	16" Main	6.7 (d) (2)	\$24,165.00	\$20,904.69	\$21,892.99	\$20,905.00	\$21,895.00	(\$3,260.00)	-13.5%
	20" Main	6.7 (d) (2)	\$25,365.00	\$22,556.02	\$23,659.91	\$22,560.00	\$23,660.00	(\$2,805.00)	-11.1%
	24" Main	6.7 (d) (2)	\$27,065.00	\$25,140.71	\$26,425.53	\$25,145.00	\$26,430.00	(\$1,920.00)	-7.1%
	30" Main	6.7 (d) (2)	\$38,225.00	\$39,315.31	\$41,592.35	\$39,320.00	\$41,595.00	\$1,095.00	2.9%
	36" Main	6.7 (d) (2)	\$45,325.00	\$48,831.67	\$51,774.86	\$48,835.00	\$51,775.00	\$3,510.00	7.7%
	10" & 12" Sleeve	6.7 (d) (2)							
	16" Main	6.7 (d) (2)	\$24,165.00	\$20,976.49	\$21,969.82	\$20,980.00	\$21,970.00	(\$3,185.00)	-13.2%
	20" Main	6.7 (d) (2)	\$25,665.00	\$22,915.01	\$24,044.03	\$22,920.00	\$24,045.00	(\$2,745.00)	-10.7%
	24" Main	6.7 (d) (2)	\$27,165.00	\$25,140.71	\$26,425.53	\$25,145.00	\$26,430.00	(\$2,020.00)	-7.4%
	30" Main	6.7 (d) (2)	\$38,700.00	\$39,952.14	\$42,273.76	\$39,955.00	\$42,275.00	\$1,255.00	3.2%
	36" Main	6.7 (d) (2)	\$47,345.00	\$51,542.59	\$54,675.54	\$51,545.00	\$54,680.00	\$4,200.00	8.9%
8	Discontinuance of Water	6.8	\$100.00	\$1,343.02	\$1,409.42	\$100.00	\$100.00	\$0.00	0.0%
9	Hydrant Permits	6.9							
	One Week	6.9 (b) (1)	\$860.00	\$1,897.08	\$1,948.79	\$1,205.00	\$1,690.00	\$345.00	40.1%
	Six Month	6.9 (b) (2)	\$4,495.00	\$18,093.37	\$18,145.07	\$6,295.00	\$8,815.00	\$1,800.00	40.0%
10	Flow Tests	6.10	\$930.00	\$566.72	\$582.32	\$570.00	\$585.00	(\$360.00)	-38.7%
11	Water Service Line Investigations and/or Inspections	6.11	\$90.00	\$133.56	\$138.07	\$130.00	\$140.00	\$40.00	44%
<b>Section 7- Miscellaneous Sewer Charges</b>									



Philadelphia Water Department								Increase	Decrease
TABLE M-1- SUMMARY OF MISCELLANEOUS CHARGES (FOR WORK PERFORMED DURING BUSINESS HOURS)									
#	Miscellaneous Charge Description	PWD Rates and Charges Reference	1 PWD Existing Charges	2 Calculated Charges		3 PWD Miscellaneous Charges		6 Variance between Existing and Proposed - FY 2024	7 % Variance between Existing and Proposed - FY 2024
				FY 2024	FY 2025	4 Proposed - FY 2024	5 Proposed - FY 2025		
3	Wastewater Discharge Permit	7.3	\$1,960.00	\$4,455.99	\$4,589.67	\$2,745.00	\$3,845.00	\$785.00	40%
4	Groundwater Discharge Permit	7.4	\$1,960.00	\$2,773.73	\$2,856.94	\$2,745.00	\$2,860.00	\$785.00	40%
5	Manhole Pump-out Permit	7.5	\$3,845.00	\$2,863.76	\$2,949.67	\$2,865.00	\$2,950.00	(\$980.00)	-25%
6	Trucked or Hauled Wastewater Permit	7.6	\$2,355.00	\$1,559.77	\$1,606.56	\$1,560.00	\$1,610.00	(\$795.00)	-34%
7	Photographic & Video Inspection	7.7	\$275.00	\$275.00	\$275.00	\$275.00	\$275.00	\$0.00	0%
<b>Section 8- Miscellaneous Stormwater Charges</b>									
1	Stormwater Plan Review Fees	8.1							
	Conceptual Stormwater Plan Approval	8.1 (a) (1)	\$1,115.00	\$1,487.23	\$1,510.84	\$1,490.00	\$1,515.00	\$375.00	33.6%
	Post Construction Stormwater Plan Approval (Additional Review Time Fee)	8.1 (a) (2)	\$120.00	\$217.54	\$221.94	\$170.00	\$225.00	\$50.00	41.7%
	Utility Plan Review	New Fee 8.1 (a) (3)	NA	\$309.96	\$319.26	\$310.00	\$320.00	NA	NA
	Active Construction Stormwater Inspection Fee	New Fee 8.3 (a)	NA	\$370.82	\$382.59	\$375.00	\$385.00	NA	NA
2	Stormwater Management Fee in Lieu	8.2							
	Exemption to Water Quality Requirement	8.2 (a)	\$31.00	\$36.24	\$36.24	\$36.00	\$36.00	\$5.00	16.1%
<b>Other- Not in the Miscellaneous Charges Section (Section 3- Rates and Charges)</b>									
1	Sewer Credit Application Fee	3.5 (c)	\$585.00	\$1,639.34	\$1,688.52	\$820.00	\$1,150.00	\$235.00	40%
2	Sewer Credit Failure to Inform PWD about increase	3.5 (f)	\$275.00	\$535.90	\$551.98	\$385.00	\$540.00	\$110.00	40%
<b>Other- Not in the Miscellaneous Charges Section (Section 4- Rates and Charges)</b>									
3	Stormwater Credit Application Fee Renewal	4.5 (f) (4)	\$200.00	\$793.05	\$816.84	\$280.00	\$395.00	\$80.00	40%

**Column Notes**

- 1 From the PWD Regulations Chapter 3-Rates and Charges Effective September 1, 2022 (FY 2023 Charges)
- 2,4 Calculated charges for work performed during Water Department's regular business hours (9:00 a.m. to 4:45 p.m.) (i.e. not including overtime)  
FY 2024 Labor costs assume an escalation of 3.25% from FY 2023 budgeted salary costs . FY 2025 labor costs assume an escalation of 3.0% from FY 2024 escalated salary costs.  
Equipment costs based on FY 2021 FEMA rates. Since FEMA costs are a lagging indicator, annual escalation applied to project FY 2024 and FY 2025 equipment costs.  
Material costs provided by PWD and escalated at 5% for large meters (>5/8 Inch) and 7% for all other materials each year in FY 2024 and FY 2025. Costs not escalated for small meters (5/8 Inch) as they are per the AMI contract.
- 4,5 Proposed FY 2024 -FY 2025 Miscellaneous charges.
- 6,7 Variance between existing and proposed Miscellaneous Charges. Blue shaded cells indicate an increase and red cells indicate a decreases.

**Row Notes**

- Section 6.2 (b) ERT material costs are excluded because ERTs are under warranty. Removed ERTs are sent to ITRON and ITRON sends a replacement.  
The cost of ERT is built into the ITRON contract and is recovered through the meter based charges.
- Section 6.8 City Code (Chapter 19-1600 Water Sewer Rents) stipulates the Discontinuance Permit fee at \$100 (allocated \$30 for water department use and \$70 for general fund use).
- Section 7.7 Per PWD Staff the customer is billed the amount that is charged by the contractor, which is \$275.
- Section 8.1 (a) Post construction Stormwater Plan Submission is proposed to be combined in the Stormwater Plan Approval Fee.  
Development Services Unit has proposed exploring two new fees; Utility Plan Review Fees and Active Construction Inspection Fees.

Philadelphia Water Department

TABLE M-2- SUMMARY OF MISCELLANEOUS CHARGES (FOR WORK PERFORMED DURING NON BUSINESS HOURS)

								Increase	Decrease
#	Miscellaneous Charge Description	PWD Rates and Charges Reference	1 PWD Existing Charges (Non Business Hours)	2 Calculated Charges		4 PWD Miscellaneous Charges		6 Variance between Existing and Proposed - FY 2024	7 % Variance between Existing and Proposed - FY 2024
				FY 2024	FY 2025	Proposed - FY 2024	Proposed - FY 2025		
<b>Section 6- Miscellaneous Water Charges</b>									
7	Water Connection Charges								
	Ferrule Connections	6.7 (b)							
	3/4"	6.7 (b) (3)	\$255.00	\$205.72	\$214.22	\$210.00	\$215.00	(\$45.00)	-17.6%
	1"	6.7 (b) (3)	\$275.00	\$232.50	\$242.87	\$235.00	\$245.00	(\$40.00)	-14.5%
	1.5"	6.7 (b) (3)	\$310.00	\$272.41	\$285.57	\$275.00	\$290.00	(\$35.00)	-11.3%
	2"	6.7 (b) (3)	\$360.00	\$339.62	\$357.49	\$340.00	\$360.00	(\$20.00)	-5.6%
	Valve Connections	6.7 (c)							
	3" & 4"	6.7 (c) (2)	\$17,380.00	\$14,716.76	\$15,287.19	\$14,720.00	\$15,290.00	(\$2,660.00)	-15.3%
	6" & 8"	6.7 (c) (2)	\$17,720.00	\$15,579.76	\$16,210.59	\$15,580.00	\$16,215.00	(\$2,140.00)	-12.1%
	10" & 12"	6.7 (c) (2)	\$20,895.00	\$18,222.61	\$19,038.45	\$18,225.00	\$19,040.00	(\$2,670.00)	-12.8%
	Attachment to a Transmission Main	6.7 (d)							
	3" & 4" Sleeve	6.7 (d) (3)							
	16" Main	6.7 (d) (3)	\$26,100.00	\$23,181.02	\$24,229.00	\$23,185.00	\$24,230.00	(\$2,915.00)	-11.2%
	20" Main	6.7 (d) (3)	\$27,600.00	\$25,334.93	\$26,533.69	\$25,335.00	\$26,535.00	(\$2,265.00)	-8.2%
	24" Main	6.7 (d) (3)	\$29,200.00	\$27,632.43	\$28,992.01	\$27,635.00	\$28,995.00	(\$1,565.00)	-5.4%
	30" Main	6.7 (d) (3)	\$38,880.00	\$39,817.41	\$42,029.94	\$39,820.00	\$42,030.00	\$940.00	2.4%
	36" Main	6.7 (d) (3)	\$44,040.00	\$46,738.16	\$49,435.14	\$46,740.00	\$49,440.00	\$2,700.00	6.1%
	6" & 8" Sleeve								
	16" Main	6.7 (d) (3)	\$26,300.00	\$23,396.41	\$24,459.47	\$23,400.00	\$24,460.00	(\$2,900.00)	-11.0%
	20" Main	6.7 (d) (3)	\$27,500.00	\$25,047.74	\$26,226.39	\$25,050.00	\$26,230.00	(\$2,450.00)	-8.9%
	24" Main	6.7 (d) (3)	\$29,200.00	\$27,632.43	\$28,992.01	\$27,635.00	\$28,995.00	(\$1,565.00)	-5.4%
	30" Main	6.7 (d) (3)	\$40,360.00	\$41,807.03	\$44,158.83	\$41,810.00	\$44,160.00	\$1,450.00	3.6%
	36" Main	6.7 (d) (3)	\$47,460.00	\$51,323.39	\$54,341.34	\$51,325.00	\$54,345.00	\$3,865.00	8.1%
	10" & 12" Sleeve								
	16" Main	6.7 (d) (3)	\$26,300.00	\$23,468.21	\$24,536.30	\$23,470.00	\$24,540.00	(\$2,830.00)	-10.8%
	20" Main	6.7 (d) (3)	\$27,800.00	\$25,406.73	\$26,610.51	\$25,410.00	\$26,615.00	(\$2,390.00)	-8.6%
	24" Main	6.7 (d) (3)	\$29,300.00	\$27,632.43	\$28,992.01	\$27,635.00	\$28,995.00	(\$1,665.00)	-5.7%
	30" Main	6.7 (d) (3)	\$40,835.00	\$42,443.86	\$44,840.24	\$42,445.00	\$44,845.00	\$1,610.00	3.9%
	36" Main	6.7 (d) (3)	\$49,480.00	\$54,034.31	\$57,242.02	\$54,035.00	\$57,245.00	\$4,555.00	9.2%

Column Notes

- 1 From the PWD Regulations Chapter 3-Rates and Charges Effective September 1, 2022 (FY 2023 Charges)
- 2,3 Calculated charges for work performed outside of Water Department's business hours (business hours are from 9:00 a.m. to 4:45 p.m.)  
Includes overtime costs.  
FY 2024 Labor costs assume an escalation of 3.25% from FY 2023 budgeted salary costs . FY 2025 labor costs assume an escalation of 3.0% from FY 2024 escalated salary costs.  
Equipment costs based on FY 2021 FEMA rates. Since FEMA costs are a lagging indicator, annual escalation applied to project FY 2024 and FY 2025 equipment costs.  
Material costs provided by PWD and escalated at 5% for large meters (>5/8 Inch) and 7% for all other materials each year in FY 2024 and FY 2025. Costs not escalated for small meters (5/8 Inch) as they are per the AMI contract.
- 4,5 Proposed FY 2024 -FY 2025 Miscellaneous charges.
- 6,7 Variance between existing and proposed Miscellaneous Charges. Blue shaded cells indicate an increase and red cells indicate a decreases.

PWD Fee-in-Lieu Cost of Service Calculation

**INPUTS**

Inputs	Description
40	- Yrs. of Cashflow Consideration
2022	- Year of Fee-in-Lieu Payment
3.0%	- PV Factor
2022	- PY Year
43,560	- Impervious Area (IA) - SF
\$606,516	- FY22 Average Design and Construction Cost (DCC) - \$/Drainage Acre
\$19,810	- FY22 Average Maintenance Cost - \$/Acre
4.0%	- Maintenance Escalation Factor - %

**CALCULATION**

Year	Design and Construction Cost (DCC)	PV of DCC Cost	Maintenance Cost	PV of Maintenance Cost	Total PV Cost	FIL Rate PV Cost
					1,578,508	\$ 36.24
2022	606,516	606,516	-	-		
2023	-	-	20,602	20,002		
2024	-	-	21,426	20,197		
2025	-	-	22,284	20,393		
2026	-	-	23,175	20,591		
2027	-	-	24,102	20,791		
2028	-	-	25,066	20,992		
2029	-	-	26,069	21,196		
2030	-	-	27,111	21,402		
2031	-	-	28,196	21,610		
2032	-	-	29,324	21,820		
2033	-	-	30,497	22,031		
2034	-	-	31,716	22,245		
2035	-	-	32,985	22,461		
2036	-	-	34,305	22,679		
2037	-	-	35,677	22,900		
2038	-	-	37,104	23,122		
2039	-	-	38,588	23,346		
2040	-	-	40,131	23,573		
2041	-	-	41,737	23,802		
2042	-	-	43,406	24,033		
2043	-	-	45,142	24,266		
2044	-	-	46,948	24,502		
2045	-	-	48,826	24,740		
2046	-	-	50,779	24,980		
2047	-	-	52,810	25,222		
2048	-	-	54,923	25,467		
2049	-	-	57,120	25,715		
2050	-	-	59,404	25,964		
2051	-	-	61,780	26,216		
2052	-	-	64,252	26,471		
2053	-	-	66,822	26,728		
2054	-	-	69,495	26,987		
2055	-	-	72,274	27,249		
2056	-	-	75,165	27,514		
2057	-	-	78,172	27,781		
2058	-	-	81,299	28,051		
2059	-	-	84,551	28,323		
2060	-	-	87,933	28,598		
2061	-	-	91,450	28,876		
2062	-	-	95,108	29,156		
2063	-	-	-	-		

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## **SCHEDULE BV-4: WP-5 SENIOR CITIZEN INCOME THRESHOLD ADJUSTMENT**

This document provides the approach for the determination of income threshold for the senior citizens discount per the Code of General Ordinances of the City of Philadelphia (the Philadelphia Code) and also as reflected in the Philadelphia Water Department’s (PWD or the Water Department) Rates and Charges.

### **Background**

The senior citizen discount is codified in the Philadelphia Code Chapter 19-1900. Section 19-1901 of the Philadelphia Code defines an “Eligible Senior Citizen” as follows:

*“A residential customer of record of the Water Department age sixty-five (65) or older residing in the City of Philadelphia whose gross annual household income does not exceed as set forth below;*

*An amount not to exceed fourteen thousand (\$14,000) dollars, except as adjusted to reflect the net change in the Consumer Price Index (All Urban Consumers (CPI-U) for Philadelphia (All Items)), such adjustment to occur from time to time at the discretion of the Water Commissioner, but no less often than at each general residential customer rate determination.”*

### **Methodology**

Per the Philadelphia Code, Black & Veatch Management Consulting, LLC (Black & Veatch) has evaluated the senior citizen income discount threshold for inclusion in the current rate proceeding. Described below is the calculation methodology followed to determine the appropriate threshold level.

### **Baseline Income Threshold**

The baseline income threshold for senior citizen discount utilized was \$14,000 in fiscal year (FY) 1987, the year Section 19-1901, as amended, went into effect. Each year thereafter, this amount was escalated, as described in the paragraph below. Per the FY 2022 - FY 2023 Rate Determination (the Rate Determination), the current senior citizen income threshold, as stated in Section 5.2(b)(1)(iii) of the Water Department’s Rates and Charges (Effective September 1, 2022), is \$33,300.

### **Escalation Factor**

The escalation factor is determined using the Consumer Price Index (CPI) data obtained from the Bureau of Labor Statistics (BLS) website. The report generated from the BLS website is for item and regional indices as specified in the ordinance above. The report specifications are:

CPI-All Urban Consumers (Current Series) Original Data Value Not Seasonally Adjusted Area: Philadelphia-Wilmington-Atlantic City, PA-NJ All Items Base Period: 1982-84=100 Years: 2012 to 2022
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We use the index for August to determine the escalation factor applied to the baseline income threshold because it is the latest month for which data is available to update the threshold at the time of this analysis prior to the next rate filing.

### Calculation of New Income Threshold

Black & Veatch calculated the new income threshold for senior citizen discounts by escalating the baseline income threshold with the escalation factor determined above. The calculated amount calculated is rounded up to the nearest \$100.

For purposes of income threshold projections in future years, Black & Veatch recommends projecting the escalation factor as the average annual change in the CPI over the most recent two years. The most recent CPI Escalation Factor is multiplied by the average change in CPI to calculate the projected escalation factors. Following the same process, as used in the current proceeding, we would then determine the new threshold for senior citizen discount by escalating the baseline threshold (i.e., \$14,000) by the resulting escalation factors. The amount calculated is then rounded up to the nearest \$100.

### Results

The tables that follow present the results of the senior citizen discount income threshold calculations.

Table 1 presents the escalation factors, calculated income thresholds, and annual change in CPI from FY 1987 through FY 2022.

Table 1 Senior Citizen Discount – Income Threshold Calculation

Fiscal Year	CPI Reference Date	CPI Value	CPI Escalation Factor	CPI Adjusted Income	Annual Change in CPI Adjusted Income
1986	Aug 1985	109.300			
1987	Aug 1986	111.800	1.00	\$ 14,000.00	
1988	Aug 1987	118.400	1.06	\$ 14,826.48	5.90%
1989	Aug 1988	123.900	1.11	\$ 15,515.21	4.65%
1990	Aug 1989	129.100	1.15	\$ 16,166.37	4.20%
1991	Aug 1990	137.300	1.23	\$ 17,193.20	6.35%
1992	Aug 1991	143.300	1.28	\$ 17,944.54	4.37%
1993	Aug 1992	148.000	1.32	\$ 18,533.09	3.28%
1994	Aug 1993	150.600	1.35	\$ 18,858.68	1.76%
1995	Aug 1994	155.700	1.39	\$ 19,497.32	3.39%
1996	Aug 1995	159.600	1.43	\$ 19,985.69	2.50%
1997	Aug 1996	163.600	1.46	\$ 20,486.58	2.51%
1998	Aug 1997	166.800	1.49	\$ 20,887.30	1.96%
1999	Aug 1998	168.600	1.51	\$ 21,112.70	1.08%
2000	Aug 1999	173.100	1.55	\$ 21,676.21	2.67%
2001	Aug 2000	177.500	1.59	\$ 22,227.19	2.54%
2002	Aug 2001	182.800	1.64	\$ 22,890.88	2.99%
2003	Aug 2002	188.300	1.68	\$ 23,579.61	3.01%
2004	Aug 2003	191.100	1.71	\$ 23,930.23	1.49%
2005	Aug 2004	199.100	1.78	\$ 24,932.02	4.19%
2006	Aug 2005	206.600	1.85	\$ 25,871.20	3.77%
2007	Aug 2006	216.400	1.94	\$ 27,098.39	4.74%
2008	Aug 2007	218.692	1.96	\$ 27,385.40	1.06%
2009	Aug 2008	228.337	2.04	\$ 28,593.18	4.41%
2010	Aug 2009	226.039	2.02	\$ 28,305.42	-1.01%
2011	Aug 2010	228.500	2.04	\$ 28,613.60	1.09%
2012	Aug 2011	236.196	2.11	\$ 29,577.32	3.37%
2013	Aug 2012	239.557	2.14	\$ 29,998.19	1.42%
2014	Aug 2013	242.128	2.17	\$ 30,320.14	1.07%
2015	Aug 2014	245.303	2.19	\$ 30,717.73	1.31%
2016	Aug 2015	244.519	2.19	\$ 30,619.55	-0.32%
2017	Aug 2016	245.386	2.19	\$ 30,728.12	0.35%
2018	Aug 2017	248.919	2.23	\$ 31,170.54	1.44%
2019	Aug 2018	253.085	2.26	\$ 31,692.22	1.67%
2020	Aug 2019	258.877	2.32	\$ 32,417.51	2.29%
2021	Aug 2020	259.965	2.33	\$ 32,553.76	0.42%
2022	Aug 2021	272.044	2.43	\$ 34,066.33	4.65%
2023	Aug 2022	294.130	2.63	\$ 36,832.02	8.12%

Notes: CPI Adjusted Income for FY 1987 and CPI Indices as per the Philadelphia Code.

Table 2 presents the average change in CPI over the most recent 5-year, 10-year, 15-year, and 20-year timeframes.

**Table 2 Average Annual Change in CPI**

Description	Average Annual Change
5-Year Average	3.43%
10-Year Average	2.10%
15-Year Average	2.02%
20-Year Average	2.28%

Table 3 presents the projected senior citizen income thresholds using the 5-year average escalation factor.

**Table 3 Projections for Senior Citizen Income Threshold**

Fiscal Year	Annual CPI Income Change	CPI Escalation Factor Used	Projected CPI Adjusted Income	Projected Income Threshold for PWD Use
			<b>Current Threshold</b>	<b>\$33,300</b>
2024	3.43%	2.72	\$38,095	\$38,100
2025	3.43%	2.81	\$39,402	\$39,500

*Notes: CPI Escalation Factor used is based on the 5-year average change in CPI*

Based upon the senior citizen income threshold of \$14,000 established by the Philadelphia Code for FY 1987 and the projected adjustments per CPI, Black & Veatch recommends that the senior income threshold be adjusted to \$38,800 in FY 2024 in conjunction with the upcoming rate proceeding for the requested rate period of FY 2024 to FY 2025.



**In the Matter of the Philadelphia Water  
Department's Proposed Change in Water,  
Wastewater and Stormwater Rates and Related  
Charges**

**Fiscal Years 2024-2025**

**Philadelphia Water Department**

**Black & Veatch Management Consulting, LLC**

**Schedule BV-5**

**Dated: January 2023**

# Company Description

Black & Veatch Holding Company is a leading, global engineering, construction and consulting company specializing in infrastructure development in the fields of energy, water and information. Our Mission sets the bar high—*Building a World of Difference*<sup>®</sup>. We live up to this ideal by delivering reliable and innovative infrastructure solutions to our client's most complex challenges, helping to improve and sustain the quality of life around the world.

Founded in 1915, Black & Veatch is an employee-owned company based in Overland Park, Kansas that has approximately 11,000 professionals operating out of more than 110 offices worldwide. Through this network of collaboratively connected offices, we have served our clients—many of whom we have provided services to for decades. We value long lasting relationships and believe that rapport enables superior customer service and support.

## **BLACK & VEATCH MANAGEMENT CONSULTING, LLC**

Black & Veatch Management Consulting, LLC is a wholly-owned subsidiary of Black & Veatch Holding Company that brings together more than 200 professionals. These professionals include experienced industry executives, senior analysts and technology experts from across the electric, water, oil, natural gas and technology industries. This experience—combined with seamless access to the company's world-class engineering, procurement, construction and operations capabilities, experienced senior executives, economists, senior policy experts and regulatory officials, engineers and internationally respected subject-matter experts—makes Black & Veatch uniquely qualified to assist clients with their most complex challenges.

Black & Veatch's diverse consulting service offerings span financial, process, and technology solutions, and many of our experienced professionals possess cross functional skills including asset management, cost of service/rate design, business process / work flow analysis, and implementation services.

# Black & Veatch Team Resumes

# Ann Bui

## Senior Managing Director

Ms. Bui serves as a Senior Managing Director with Black & Veatch's Global Advisory business. Besides providing clients with strategic financial management strategies, her responsibilities include driving growth and innovation to utilities in the areas of financial and advisory planning, climate solutions, resiliency and sustainability issues, and asset integrity.

Ann has more than 30 years of experience with clients in North and South America, Europe, and Asia gained through more than 475 engagements, providing financial and business planning services for public and investor-owned utilities of all sizes. Her recent assignments have focused on reducing carbon footprints for energy-intensive activities, water insecurity, addressing affordability and assistance program needs, and developing innovative approaches for structuring alternative delivery projects using private and public financing instruments.

She has prepared financial feasibility reports supporting more than \$15 billion of revenue bond sales, \$8 billion in state revolving fund loans, and over \$1 billion of grant applications.

Ms. Bui has completed due diligence engagements for entities of many internationally well-established companies such as KKR, Macquarie Capital, Credit Suisse, Morgan Stanley, J.P. Morgan, Goldman Sachs, Bank of America Merrill Lynch, Rothschild, Canada Pension Plan Investment Board, Barclays, Fiera Infrastructure, Alma Global, and PGGM. Her work on due diligence efforts have supported the successful buy-side/sell-side of water and wastewater assets totaling over \$10 billion.

Over the past two decades, Ms. Bui has provided expert witness testimony in front of the California Public Utilities Commission, the Indiana Utilities Regulatory Commission, the Idaho Public Utilities Commission, and the Kentucky Public Service Commission. She has served as an expert witness in front of utility rate commissions for such clients as the Philadelphia Water Department and Washington Suburban Sanitary Commission. She has also provided expert witness testimony supporting rate litigation matters for the City of San Diego, CA, Greater Cincinnati Water Works, City of Baton Rouge, LA, City of Atlanta, GA, and the City of Holland, MI.

An active proponent of advancing the water industry, Ms. Bui is a long-standing member of several industry associations. She is a past Chair of the American Water Works Association (AWWA) Finance, Accounting, and Management Controls

### EDUCATION

Masters, Business Administration, Finance, University of California – Davis, 1995

MS, Chemical Engineering, University of California Los Angeles, 1989

BS, Chemical Engineering, University of British Columbia, 1986, Canada

### YEARS EXPERIENCE

33

### PROFESSIONAL REGISTRATION

License, Engineer-In-Training, #XE094654, California, 1995

### PROFESSIONAL ASSOCIATIONS

AWWA

Past Chair - AWWA's Finance, Accounting & Management Controls Committee

Member – AWWA's Rates & Charges

WEF

NACWA's Utility Management Committee

### RELEVANT EXPERTISE

Financial & Management Consulting Services; Debt Issuance Support; Elasticity Studies; Cost of Service & Rate Design; Institutional & Organizational Studies; Alternative Financing; Valuations/M&A

Committee and is involved with AWWA's Rates and Charges Committee, the National Association of Clean Water Agency's Utility Management Committee, and with the Water Environment Federation (WEF).

Ann serves as an author, editor, and peer reviewer for many of the rate-making industry's manuals of practice, including AWWA's M1 – Principles of Water Rates, Fees and Charges, the current update to M1, the current update of WEF's Manual of Practice 27, Financing and Charges for Wastewater Systems, and WEF's User-Fee Funded Stormwater Program. She is the lead author and editor of AWWA's book ***Financial Management for Water Utilities: Principles of Finance, Accounting and Management Controls***. Presently, Ann is the Chair for the update to AWWA's M29 – Water Utility Capital Financing.

## REPRESENTATIVE EXPERIENCE

### Veolia Water (formerly SUEZ Water) | Customer Class Load Studies and Cost of Service Rate Case Filings | 2022 –Present

**Project Director.** Ms. Bui serves as the Project Director and lead expert witness supporting Black & Veatch's cost of service engagements with Veolia Water (VW). Currently, the team is actively developing the cost-of-service and rate design sections for General Rate Case filings in the states of Idaho, New York, and Delaware. For each filing, a customer class load study is being conducted to support customer class peaking factors. With the New York filing, Black & Veatch is also examining the low-income assistance program that will support the VWNY's low-income rate. Black & Veatch is providing VW with expert witness testimony and post-filing support as well.

*City of Los Angeles Bureau of Sanitation, CA | Various Wastewater and Stormwater Rate Services | 2008-2009, 2011-2012, 2015, 2022-Ongoing*

**Project Director.** Black & Veatch has provided financial and rate consulting services to the City of Los Angeles (City) since the 1970s. Ms. Bui has worked with the City of Los Angeles, Bureau of Sanitation (LASAN) in a variety of positions since 2008. Currently, she is the Project Director for Black & Veatch's engagement with LASAN to evaluate rate structure alternatives pertaining to the City's Clean Water Program. This restructuring work involves extensive public outreach and engagement since it has been over a decade since the last cost-of-service study.

Since 2008, Ms. Bui and her team has assisted LASAN with the following services:

- Provided funding strategies to support the City's submittal of three Enhanced Watershed Management Permits (EWMPs). The EWMP outlines a strategy to address watershed activities to comply with MS4 requirements.
- Reviewed stormwater fees and alternative funding sources for the stormwater program. Consideration was given to the need and appropriate basis for stormwater quality-based charges. A financial planning and rate design model was developed for City staff to annually evaluate the financial status of the storm water program. The model is designed to provide future budget estimates, evaluate alternative revenues, revenue requirements, flow of funds analyses, and show the effect of any changes on existing and alternative rate designs.
- Updated LASAN's Sewerage Generation Factors (SGF). The SGF are the basis for sewage facilities charges imposed on new development or renovation of existing facilities. The SGF consist of a volumetric and two strength components. The analysis included research of the existing SGF, a mass balance, field surveys and benchmarking to similar utilities. In addition, we incorporated the effects of water conservation measures enacted by the City of Los Angeles into the analysis.

- Reconciled LASAN's Contract Agency section service charges. LASAN entered into agreement with 29 surrounding agencies to provide wastewater services. The reconciliation required updates of O&M and capital costs, flow and strength characteristics, cost allocations, and facilities charges.

#### **Philadelphia Water Department, PA | Water, Wastewater and Stormwater Cost of Service Studies | 2003 – 2006; 2017-Present**

**Project Director.** Ms. Bui has worked with the City of Philadelphia since 2003 and currently serves as the Project Director for Black & Veatch's multi-utility cost of service work with the PWD. Comprehensive services performed include grant, loans, and revenue bond financing, the first municipal rate rider for the tiered customer assistance program, development of an impervious area-based stormwater fee, revenue audits, and expert witness testimony.

#### **Washington Suburban Sanitary Commission, MD | Comprehensive Water and Wastewater Rate Study | 2016-2022**

**Project Director.** Ms. Bui is the project director responsible for Black & Veatch's engagement with WSSC Water. Since 2016, we have completed numerous assignments with WSSC Water, including conducting a comprehensive water and wastewater rate study, analysis and development of a new overhead cost allocation methodology, creation of miscellaneous fees, and provided litigation support to WSSC on rate-setting matters in front of the Maryland PSC.

#### **Sewerage and Water Board of New Orleans, LA | Operations Reports, Comprehensive Financial Planning & Cost of Service Studies & Customer Assistance Program | 2017-Present**

**Project Director.** Ms. Bui serves as the Project Director for Black & Veatch's ongoing engagement for SWBNO. Our work for SWBNO has been on a continual basis for over 50 years. Services provided include the annual report on operations for water, wastewater, and storm drainage utilities, including evaluation of management, operations, financing and compliance with bond covenants; engineering bond reports; rate studies, and the development of SWBNO's first comprehensive customer assistance program.

#### **Charleston Water Systems, SC | Comprehensive Financial Planning and Cost of Service Studies | 2015-2020; 2022-Present**

**Project Director.** Ms. Bui serves as the Project Director supporting Black & Veatch's comprehensive financial services to the Charleston Water Systems. We have provided revenue bond, rate design and other financial service to the Charleston Water Service for several decades. The comprehensive water and wastewater rate study and rate schedules were last updated in 2021 and are scheduled for a full update in 2023. In addition, contracts with wholesale customers were reviewed and updated. Current work includes asset valuation for specific parts of the water system that are being considered for purchase by an existing customer and the development of leachate surcharges.

### Midwestern & Eastern US - Water, Wastewater, Stormwater, Solid Waste, Gas & Hydroelectric Utility Enterprise Financial Planning, Rate & Cost-of-Service Studies, System Development Charges, Indirect Cost Allocations, & Business Planning Activities

- Jasper, AL
- Veolia Water, DE
- Florida Governmental Utility Authority, FL
- JEA, FL
- Miami-Dade Water and Sewer Department, FL
- North Miami, FL
- Surfside, FL
- Atlanta, GA
- Cedar Falls, IA
- Bloomington Department of Utilities, IN
- Aurora, IL
- Highland, IL
- Thorn Creek Basin Sanitary District, IL
- El Dorado, KS
- Johnson County Wastewater, KS
- Kansas City Board of Public Utilities, KS
- Leavenworth, KS
- Topeka, KS
- Unified Government of Wyandotte County, KS
- WaterOne, KS
- Louisville Water Company, KY
- Northern Kentucky Water District, KY
- Warren County, KY
- Baton Rouge, LA
- Parish of East Baton Rouge, LA
- Shreveport, LA
- Sewerage and Water Board of New Orleans, LA
- Washington Suburban Sanitary Commission, MD
- Detroit, MI
- Grand Rapids, MI
- Great Lakes Water Authority, MI
- Holland, MI
- Rochester Hills, MI
- Wyoming, MI
- Kansas City, MO
- St Louis Water Division, MO
- High Point, NC
- Raleigh, NC
- Clayton, NC
- Johnston County, NC
- Winston-Salem, NC
- Lincoln, NE
- Norfolk, NE
- New Jersey American Water, NJ
- Suez Water, NY
- Veolia Water, NY
- Columbus, OH
- Dayton, OH
- Greater Cincinnati Water Works, OH
- Mason, OH
- Metropolitan Sewer District of Hamilton County, OH
- Broken Arrow Municipal Authority, OK
- Tulsa, OK
- Tulsa Municipal Utility Authority, OK
- Alleghany County Sanitary Authority, PA
- Philadelphia Water Department, PA
- Philadelphia Gas Works, PA
- Beaufort-Jasper Water and Sewer Authority, SC
- Charleston, SC
- Charleston Water System, SC
- Columbia, SC
- Renewable Water Resources, SC
- Woodruff Roebuck Water District, SC
- Arlington, TX
- Gulf Coast Water Authority, TX
- Hudson Oaks, TX
- Lower Colorado River Authority, TX
- North Texas Municipal Water Authority, TX
- San Antonio Water System, TX
- Taylor, TX
- Norfolk, VA
- Hydro One, Canada
- National Water Commission, Jamaica
- Palmas Del Mar Utilities, PR
- Puerto Rico Aqueduct and Sewer Authority, PR

**Western US - Water, Wastewater, Stormwater, & Solid Waste Utility Enterprise Financial Planning, Rate & Cost-of-Service Studies, Indirect Cost Allocations, Management Audits /Organizational Assessment Studies, & Business Planning Activities**

- Flagstaff, AZ
- Glendale, AZ
- Phoenix, AZ
- Tucson, AZ
- Scottsdale, AZ
- Antioch, CA
- Atascadero Mutual Water Company, CA
- Banning, CA
- Burbank, CA
- California American Water, CA
- California State University, Channel Islands, CA
- Cambria Community Services District, CA
- Camrosa Water District, CA
- Central Contra Costa Sanitation District, CA
- Chino Hills, CA
- County of San Bernardino, CA
- County of San Diego, CA
- Cucamonga Valley Water District, CA
- Downey, CA
- Dublin San Ramon Service District, CA
- Encinitas Wastewater Authority, CA
- Escondido, CA
- Fountain Valley, CA
- Golden States Water Company, CA
- Goleta Water District, CA
- Helix Water District, CA
- Indio Water Authority, CA
- Santa Monica, CA
- Los Angeles Bureau of Sanitation
- LA DWP, CA
- Leucadia Water District, CA
- Lomita, CA
- Long Beach, CA
- Lynwood, CA
- Manhattan Beach, CA
- Marin Municipal Water District, CA
- Menlo Park, CA
- Metropolitan Water District of Southern California
- Napa, CA
- Newport Beach, CA
- Oakland, CA
- Olivehain Municipal Water District, CA
- Ontario, CA
- Orange, CA
- Oxnard, CA
- Padre Dam Municipal Water District, CA
- Palo Alto, CA
- Patterson, CA
- Pico Rivera, CA
- Ponomo, CA
- Port Hueneme, CA
- Port of San Diego, CA
- Rancho California Water District, CA
- Riverside Public Utilities, CA
- San Clemente, CA
- San Diego, CA
- San Joaquin County, CA
- San Jose, CA
- San Juan Capistrano, CA
- Santa Ana, CA
- Santa Clara, CA
- Santa Ynez River Water Conservation District, CA
- Simi Valley, CA
- Soledad, CA
- Soquel Creek Water District, CA
- South Gate, CA
- Sweetwater Authority, CA
- Western Municipal Water District, CA
- Westminster, CA
- Vallecitos Water District, CA
- Vallejo Flood Control District, CA
- Yuba City, CA
- Cherry Hills Sanitation District, CO
- Parker Water and Sanitation District, CO
- Southeastern Colorado Water Conservancy District, CO
- Waste Management Inc., CO
- Veolia Water, ID
- Las Campanas Water & Sewer Cooperative, NM
- Henderson, NV
- Las Vegas, NV
- Salem, OR
- Tacoma, WA
- Guam Waterworks Authority



## PUBLICATIONS & PRESENTATIONS

“The Conundrum of Water Affordability. What’s at Stake,” Lead story, Water Finance & Management, February 2021.

“Customer-centricity for Utilities” Zyprme Webinar, October 29, 2020.

“Can’t Pay; Won’t Pay: COVID Implications for Water Utility Funding” Water Online, September 16, 2020

“How Much is it Worth? An Overview of Valuing Water Utilities” Journal AWWA, August 2020.

“Municipal Water and Privatization” Bank of America Merrill Lynch Water Investors Conference, December 2019

“Water Reuse Cost Allocations and Pricing” Journal AWWA, November 2019.

“A Smoother Road to AMI: Leveraging applicable lessons from the Power Industry” Journal AWWA, September 2017.

“What is a World-Class Utility and How Does Yours Become One?” Water Online, July 25, 2017

“Where are We Heading Next? Strategic Directions in the Water Industry”, presented at the Conference of Infrastructure Financing Agencies, Federal Policy Meeting in Washington, D.C., April 2017.

“What’s in Your Wallet? Ways to Address Aging Infrastructure and Lack of Money.” Annual Utility Management Conference. June 2016

“No More Sacred Cows”, published in Journal AWWA, January 2016.

“Business Risks to the Capital Financing Process”, published in AWWA’s Opflow magazine, September 2015.

“Securing Solid Revenues Streams for Water Utilities is Crucial for Financial Resilience”, published in Breaking Energy, September 10, 2015.

“Revenues and Expenses and Ratios, Oh My! A Finance Primer for Non-Finance Professionals”, presented at the Annual Utility Management Conference in Glendale, Ariz., March 2013.

Bui, Ann T., Editor, Financial Management for Water Utilities: Principles of Finance, Accounting and Management Controls, 2012, published by AWWA, Denver, Colo.

“Checks and Balances: An Overview of the New Financial Management for Water Utilities Handbook”, presented at the Annual AWWA Conference in Dallas, Tex., June 2012.

“Introduction to Financial Planning” presented at the Pacific Northwest Section of the Clean Water Association Winter Short Course University, Portland, Oreg., February 2010.

“Money Makes the World Go ‘Round: An Overview of the New Financial Management for Water Utilities Handbook,” presented at the Annual AWWA Conference in San Diego, Calif., June 2009.

“Key Performance Indicators” presented at the Annual AWWA Conference in San Diego, Calif., June 2009.

“Everything You Ever Wanted to Know About Finance Management but were Afraid to Ask: An Overview of the New Financial Management for Water Utilities Manual”, presented at the Annual AWWA Conference in Atlanta, Ga., June 2008.

“Alternative Funding Sources” presented at the Regional Water Authority Conference in Rancho Cordova, Calif., April 2007.

“Financial Benchmarks” presented at the Annual AWWA Conference in San Francisco, Calif., June 2005.

“Maximize Debt Market Options – Minimize Revenue Adjustments” presented at the Kentucky/Tennessee AWWA/WEF Conference in Nashville, Tenn., August 2004.

“Quantification and Reduction of Risk from Hazardous Air Emissions - Keynote address,” presented at the AIChE Annual Conference in San Francisco, Calif., November 1994.

# Dave Jagt

## Manager, Consulting

Mr. Jagt, a Manager with Black & Veatch Management Consulting, LLC., has over 30 years of experience, spanning a variety of projects, including utility revenue forecasting, estimation and projection of revenue requirements, financial planning and rate design, capital improvement program review and financing, computer rate modeling, fixed-asset record keeping and present worth analyses. Dave also has experience with civil engineering projects, such as hydraulic design, computer hydraulic modeling, structural design, building plan review, and preparation of specifications and bid documents.

### EDUCATION

BS, Civil Engineering, Virginia Polytech Inst St U, 1987

### YEARS EXPERIENCE

35

### EXPERTISE

Bond Feasibility; Computer Modeling; Financial Planning; Fixed Asset Recordkeeping; Rate Design

### REPRESENTATIVE EXPERIENCE

#### Philadelphia Water Department; Water and Wastewater Financial Rate Study; Philadelphia, Pennsylvania; 2007-Present

**Project Manager/Task Lead.** Mr. Jagt has performed comprehensive studies of revenue requirements, costs of service and rates for water and wastewater utilities. The cost of service studies involved allocation of costs of service and determination of charges for 10 municipal wholesale wastewater customers and two wholesale water customers in accordance with the terms of wholesale service contractual agreements with these customers. He assisted with the development of the Tiered Assistance Program Rate Rider Surcharge (TAP-R), a rate rider concept to recover costs related to the PWD's Tiered Customer Assistance Program (TAP), and supported the TAP-R reconciliation. He assisted with contract negotiations with municipal wholesale customers, including the development of exceedance charges. He assisted with issuance of revenue bonds, including preparation of required engineering and financial feasibility studies, presentations before bond rating agencies and preparation of official statements.

Mr. Jagt has participated in enhancements to stormwater cost allocation and rate methodologies and the impacts of the alternative rates on various representative customers. The City's evolving geographic information system network and new billing system facilitated the establishment of stormwater charges based upon the customer's impervious and gross property area.

Mr. Jagt served as a task lead for the Water Department's Alternative Rate Structure study, which consisted of a review of the existing water and stormwater rate structures, supporting policies and programs, as well as an evaluation of a potential rider for pension expenses. The study also included discussions with various stakeholders and prior rate proceeding participants to gather feedback on potential alternatives. A report was issued to the Rate Board in the Fall of 2019.

#### City of Norfolk Department of Utilities, Norfolk, Virginia | Water Utility Wholesale Contract True-up Calculations | 1995–2003 and 2010–2023

**Project Manager/Project Advisor.** Mr. Jagt managed and assisted with the preparation of biennial rate projections and revenue true-up calculations during the period of 1995 to 2003 and 2010 to 2023 for Norfolk's wholesale water contracts with the City of Virginia Beach and the U.S. Navy. A Black & Veatch-developed computer model facilitated the comparisons of adopted rates (using budget projections) with recalculated rates (using actual

costs) to determine amounts of revenue to be reserved for use by the annual audit and to meet the contract-specified two-year, or biennial true-up, periods.

As stipulated by the contracts, adopted wholesale rates were based on budget projections and specified formulas recognizing the utility basis of cost allocations. The true-up comparisons revealed actual costs of wholesale service based on audited financial results.

### **City of Columbia, South Carolina – Department of Utilities & Engineering | Water, Sewer and Stormwater Rate Study | 2017 - 2021**

**Water and Sewer Study Task Lead.** Mr. Jagt assisted with the comprehensive study of water and sewer utility rates for FY 2018, FY 2019, FY 2020, and FY 2021. The study covered multi-year projections of revenue and revenue requirements, cost of service by customer class, design rate schedules of rates for the sale of water to retail and wholesale service customers, and sewer service. Additionally, Mr. Jagt provided support to the City during public sessions related to educating and informing existing stakeholders about the City's FY 2018 water and sewer financial plan and rates.

### **Harford County; Comprehensive Revenue Analysis and Rate Study; Harford County, Maryland; 2019-2020**

**Task Leader.** Mr. Jagt was a task leader for a water/sewer Operating Fund revenue reconciliation and a comprehensive financial planning study (FY 2021 – FY 2025) for the County. The five-year financial plan involved the projection of revenue and revenue requirements, cash flow analysis, and recommendations on a series of annual revenue adjustments for the Operating Fund. In addition, the study involved a review of the County's system development charge and basic wholesale water municipality rate.

### **DC Water; Financial Plan Model and Construction Cost Model Development; Washington DC, District of Columbia; 2019-2020**

**Technical Advisor.** Mr. Jagt assisted the development of an Excel-based Water/Sewer Financial Plan model for DC Water's Operations group. The objective of this project is to provide a robust yet user-friendly model that could help the leadership within DC Water Operations assess the financial impact of any potential changes in operating and capital expenditure assumptions and revenue assumptions.

### **City of Norfolk; Bond Issuance Assistance; Norfolk, Virginia; 1993–2020**

**Project Manager/Project Advisor.** Mr. Jagt managed and assisted with Black & Veatch's evaluations of the Norfolk Department of Utilities' ability to issue water revenue bonds (Series 1993, 1995, 1998, 2001, 2010, 2012, 2013, 2014, 2015, and 2018). The studies, excluding the Series 2018 bonds, included a formal review of system facilities for sound operating conditions, current regulatory compliance, sufficient treated and raw water capacity, and adequate staffing. All studies included a detailed review and projection of all revenue requirements including operation and maintenance expense, recurring capital, existing debt service, cost of new debt, maintenance of required reserve funds, Payment in Lieu of Taxes (PILOT), transfers to General Fund, and anticipated major capital improvements was also performed. In addition, Mr. Jagt assisted with Black & Veatch's evaluations of the Norfolk Department of Utilities water refunding bonds (2012, 2015, 2017, and 2020).

### **Key West, Florida | Wholesale Wastewater Rates Assessment and Contract Review | 2016**

**Task Leader.** Mr. Jagt was a task leader for a cost of service analysis for wholesale wastewater service and assisted with a review of the existing wholesale wastewater services agreement and drafting an updated wholesale wastewater agreement. This study included an assessment and analysis of the existing wholesale wastewater rate furnished to the US Navy, the development of a proposed wholesale wastewater rate for Key Haven, a new

service territory that was acquired and operated by the Florida Key Aqueduct Authority (FKAA), and an update of the existing Navy Wholesale Wastewater Agreement.

### **City of Wilmington, Delaware | Water, Wastewater, Stormwater Utility Annual Financial Planning and Rate Study | 2016**

**Technical Advisor.** As Technical Advisor, Mr. Jagt assisted with the rate support efforts for the wholesale wastewater treatment rates. The study involved assisting with the development of a presentation of the wholesale wastewater treatment cost of service analysis methodology and results and assisting with providing responses to the wholesale customer queries regarding the proposed cost of service rates.

### **Harford County, Maryland | Comprehensive Utility Revenue Rate Study | 2015**

**Task Leader.** Mr. Jagt was a task leader for a comprehensive water/sewer utility revenue study for Harford County. This comprehensive study included eight (8) interrelated work items comprising of 13 tasks. The work items included Operating and Capital Funding Analysis; Infrastructure Reinvestment Forecasting; Billing Period Modification Analysis; Labor Resource Analysis; Connection Fee Study; Electronic Bill Payment Investigation; Rate Benchmarking; and Rate Seminar. The objective of this comprehensive revenue study is to prepare a six-year financial plan incorporating the financial results from all of the other work items, to determine the magnitude of annual revenue adjustments required during the six-year study period, and its impact on rates. Mr. Jagt was the task lead for the Operating and Capital Funding Analysis and Connection Fee Study work items.

### **Pittsburgh Water and Sewer Authority, Pittsburgh | Stormwater Management and Rate Structure Project | 2012**

**Consultant.** Mr. Jagt assisted with the development of stormwater cost allocation analysis, financial planning, user fee funding options evaluation and Equivalent Residential Unit (ERU) rate development as part of the stormwater utility feasibility evaluation. The study included concept development, development of combined sewer cost allocation methodology for debt service and O&M costs, analysis of annual stormwater revenue requirements and funding options and the development of stormwater Equivalent Residential Unit (ERU) rates.

### **Philadelphia Water Department | Stormwater Implementation Services, City of Philadelphia, Pennsylvania | 2009–2011**

**Consultant.** Mr. Jagt provided assistance with the implementation of Philadelphia Water Department's parcel area based stormwater charges. The implementation assistance included reviewing the Credit and Appeals manual, frequently asked questions documents, and parcel fact sheets, which were provided to non-residential customers as part of the public outreach program. The parcel area based stormwater charge bill is to go live on July 1, 2010.

### **Henrico County, Richmond, VA | Stormwater Utility Study | 2011**

**Consultant.** Mr. Jagt performed the stormwater financial planning, and funding options evaluation. The study included program review and level of service alternatives evaluation, financial planning and funding options analysis, impervious area analysis and rate structure evaluation. The study also included a preliminary review of credits program, appeals process and billing options evaluation.

### **Public Utilities Department, Chesapeake, Va. | Water Revenue Bond Feasibility Study | 2010**

**Project Manager.** Mr. Jagt managed Black & Veatch's evaluation of the ability of the City of Chesapeake to issue \$36.4 million in water and sewer revenue bonds, Series 2010. The project included conducting site inspections of water and sewer system facilities to evaluate their adequacy to provide utility service, projection of revenue

requirements and revenues; cash flow financial planning analyses; evaluation of adequate working capital balances; and debt service coverage analyses, including system maximum and annual debt ratios.

Mr. Jagt also participated in the bond working group for official statement and agreement of trust reviews and in developing presentations to bond rating agencies. He prepared a final engineering report included in the bond issue's official statement.

### City of Dallas, Texas | Stormwater Fee Study | 2009–2010

**Task Leader.** Mr. Jagt assisted with the effort to update the stormwater user fee program for the City of Dallas. He led the financial planning and cost of service analyses. The study involved the following key tasks:

- *Financial Planning:* Developed stormwater revenue requirements for a multi-year financial plan utilizing an Excel based model. Revenue requirements developed served as the basis for the Utility's FY 2009 budget.
- *Parcel Data Analysis:* Involved an extensive parcel data analysis of the City's parcel data received from Dallas County along with billing data received from the new billing system (SAP Pay1) and the previous billing system (CIABS). Analysis also provided an estimation of the runoff coefficient for parcels. A review of the billing mechanism and procedures for ongoing maintenance were reviewed as well as an update of parcel impervious data.
- *User Fee Methodology:* Reviewed various stormwater user fee billing methodologies and alternative rate structures. Defined a methodology based on impervious area for residential, and runoff coefficient based impervious area for the non-residential parcels.
- *Rate Schedule:* Defined a rate schedule with a five-tiered rate structure for the residential parcels and an individually computed fee for commercial parcels. Unimproved (vacant) land parcels saw an increase applicable to the level of uncapped/capped gross area square footage.

### Water Revenue Bureau, City of Philadelphia, Pennsylvania | Utility Billing Appeals Process Optimization | 2009

**Consultant.** Mr. Jagt assisted in conducting a Utility Billing Appeals Process Optimization study for the Water Revenue Bureau (WRB). The purpose of the study was to do a comprehensive review of the existing billing dispute/appeals and hearing process to facilitate better alignment of business processes with Philadelphia Water Department (PWD) regulations; and to streamline policies, staffing, and workflow to enhance the overall operations for meeting desired service levels. The key elements of the study included the following:

- Formation of a WRB Advisory Group;
- Review of existing business processes and workflow, and policies and regulations;
- Gap analysis on processes, technology, policy, and staffing issues/constraints;
- Optimization of business workflow and technology utilization;
- Staffing and workload analysis to determine staffing needs;
- Development of recommendations for requisite policy changes; and
- Development of procedures to integrate the stormwater utility billing appeals with the water/sewer appeals processes.

### Department of Utilities, Lynchburg, Va. | Water and Wastewater Financial Planning Model, Water Wholesale Cost-of-Service Study, and CSO Compliance Report Certification | 2006–2007

**Project Manager.** Mr. Jagt managed Black & Veatch’s effort to develop financial planning models that would allow the City to conduct water and wastewater utility financial planning and rate analyses. The models allowed the City staff to analyze historical customer account and billed volumes, revenues and revenue requirements; develop projections of customer accounts and billed volumes, revenue under existing rates and revenue requirements; prepare cash-based flow of funds statements for each utility; develop financial plans for each utility; and calculate test year rates necessary to provide the net revenue requirements of each utility as established by the financial plans.

In addition, Black & Veatch assisted the City in conducting a cost-of-service water rate study for purposes of developing the cost of service and rates for the City’s wholesale water service to the Counties of Amherst, Bedford and Campbell. Black & Veatch determined revenue requirements and units of service; evaluated revenue requirement basis and cost allocation methodologies; allocated revenue requirements to functional cost components; distributed functional cost component costs to customer classes; determined proposed rates for wholesale service; and assisted with the development of a wholesale service water rate agreement.

Black & Veatch also reviewed and certified the City-prepared Annual CSO Compliance Report. Black & Veatch checked the accuracy of the current year data on each of the provided schedules. The City’s Annual CSO Compliance Report also includes verification that the annual residential wastewater bill based on 700 cubic feet per month is greater than or equal to 1.25 percent of median household income to ensure that enough funds are being spent on wastewater projects.

### Department of Utilities, Chesapeake, Va. | Comprehensive Water and Wastewater Rate Study | 2005–2006

**Project Manager.** Mr. Jagt managed Black & Veatch’s comprehensive analysis of the City’s water and wastewater rates. The study includes the development of a 10-year financial plan for water and wastewater separately and combined, cost of service for the identified test year and cost-of-service rate design to equitably recover costs from customers based on their identified service requirements. Black & Veatch also developed a sophisticated financial planning and rate model for the City.

#### SELECTED PUBLICATIONS

Co-Authored and Presented technical presentation entitled, “Rate Rider Mechanisms – An Effective and Efficient Cost Recovery Tool for Water and Wastewater Utilities,” at the 2021 Utility Management Conference in Atlanta, GA., August 2021.

Co-presented paper entitled, “Sustainable Wet Weather Funding Can Be Achieved by Developing Multi-Objective Stormwater Utility Programs,” at WEFTEC 2014 in New Orleans, La., September 2014.

Presented technical presentation entitled, “Building Financial Resiliency: The Critical Role of Establishing and Adhering to Financial Performance Metrics,” at the 2014 Tri-Association Conference in Ocean City, MD., August 2014.

Coauthored paper on “Fairfax County, Virginia OWM’s Approach to Sewer Utility Financial and Operational Planning,” Presented at Chesapeake Water Environment Association and The Water and Waste Operations Association of Maryland, Delaware and District of Columbia 30th Joint Annual Conference, Ocean City, Md., July 1999.

Coauthored paper on “A Combined Water and Wastewater Utility Approach to Meeting Increasing Costs While Operating Efficiently” presented to WEF/AWWA Joint Conference in March 1999.

Coauthored paper on “Useful Marketing Strategies Necessary for Bond Issue Preparedness,” Presented to Chesapeake AWWA in September 1998. and 1998 Annual VA Section AWWA Conference, Roanoke, Va., October 1998.

Coauthored paper entitled, “Fairfax County, Virginia OWM’s Approach to Sewer Utility Financial & Operational Planning,” presented at Annual WEFTEC “96”, in Dallas, Texas, October 1996.

Co-presented paper entitled, “Norfolk’s Use of Computer Models During Water Sales Contract Negotiations,” at AWWA’s 1995 Computer Conference in Norfolk, Va., April 1995.

Coauthored article entitled, “Long Range and Short Range Planning: Fairfax County OWM’s Approach to Today’s Decision Making,” published in Virginia Review, September/October 1994.



# Brian Merritt

## Manager, Consulting

Civil/water resources project management professional with over 20 years of experience in the engineering and consulting industry. Extensive experience in project management, stormwater fee implementation and development, cost of service, financial planning and rate design, engineering design, permitting, public outreach, program evaluations and planning, and funding strategy implementation.

### REPRESENTATIVE EXPERIENCE

#### Philadelphia Water Department, City of Philadelphia, Pennsylvania | Financial Planning and Cost of Service Study | 2019-Present

**Project Manager.** Mr. Merritt serves as Black & Veatch's Project Manager for the Water Department's Cost of Service Consulting contract. He recently supported the Department in their 2022 Special and Annual TAP Reconciliation Proceedings providing expert witness testimony and helping to address interrogatories. Mr. Merritt served as project manager for the Water Department's Alternative Rate Structure study, which consisted of a review of the existing water and stormwater rate structures, supporting policies and programs, as well as an evaluation of a potential rider for pension expenses. The study's current focus is on the evaluation of potential alternative stormwater rate structures for residential customers. Current work includes the financial planning, stormwater cost of service analysis, and rate study update for the Philadelphia Water Department (PWD). The study involves a six-year financial planning, cost of service analysis, cost allocation analysis, policy issues review, rate design, and rate case support.

#### City of Delray Beach, Florida | Stormwater Rate Study | 2022 - present

**Project Manager.** Mr. Merritt is managing Black & Veatch's currently ongoing comprehensive Stormwater Utility Rate. The City of Delray Beach has had the same stormwater rate in place since 2006. During this time, overall operating expenses and capital needs have continued to grow. The City's underlying stormwater billing data and the supporting billing system requires a refresh to improve and maintain the validity of the City's cost recovery approach. The City has identified over \$380 million in stormwater related capital improvements that are needed over the next 30 years to help combat rising sea levels, reduce flooding, improve water quality and meet regulatory requirements. To support this, the study includes the development of a detailed stormwater financial and rate model, to project O&M expenses and estimate capital financing needs, identify necessary revenue adjustments and evaluate performance against financial metrics over a multi-year horizon. Black & Veatch, with supporting team members, also helped the City to update the impervious surface data in GIS, which serves as the basis for their stormwater fee assessments. As the City's stormwater utility policies have been in place for well over two decades, Black & Veatch also lead the City through a detailed policy review to evaluate alternative rate structures, update their credit and appeals programs, and refine their enabling stormwater utility ordinance. Study recommendations were provided to staff in late 2022, with discussion with City leadership as well as public outreach engagement anticipated in early 2023.

### EDUCATION

MS, Civil & Environmental Engineering, Lehigh University, 2007

BS, Civil & Environmental Engineering, Lehigh University, 2000

### YEARS EXPERIENCE

20

### EXPERTISE

Stormwater Fee and Utility Implementation; Stormwater Management; Strategic Planning; Hydraulics; Hydrology; Green Infrastructure Planning and Design; Credit Program Development; Rate Structure Analysis and Design; Stormwater Financial Planning; Public Outreach and Stakeholder Engagement; Stormwater Needs Assessments.

### **City of Hoboken, New Jersey | Stormwater Utility Feasibility Study | 2022- Present**

**Project Manager.** Mr. Merritt serves as Black & Veatch's Project Manager for a Stormwater Utility Feasibility Study for the City of Hoboken, New Jersey. The project involves a review of the City's current stormwater management program, identification of program improvements and level of service enhancements, as well as capital improvements needs. Work also includes impervious area development, customer classification, rate structure development, policy development including credits. Work is currently ongoing with recommendations anticipated to be provided to City leadership in late-2022 along with anticipated planned public outreach and education efforts.

### **Metropolitan Sewer District of Greater Cincinnati (MSD) | Wet Weather Impervious Surface Charge Feasibility Study | 2021**

**Project Support.** Mr. Merritt provided project support in a study to evaluate the feasibility of implementing a new wet weather fee by bifurcating costs currently recovered by the Metropolitan Sewer District under its sewer rates. Mr. Merritt aided in the rate structure development and the evaluation of available data sources (including impervious area and property assessment data), to help identify potential rate structure options and associated policies.

### **City of Newark, New Jersey | Stormwater and Sewer Rate Study | 2020-2021**

**Project Support.** Mr. Merritt served as project manager to City of Newark, New Jersey's Department of Water and Sewer Utilities' Stormwater and Sewer Rate Study. The primary objective of the study was to evaluate the impact of the implementation of a stormwater fee on Newark's sewer rates and to evaluate customer bill impacts ahead of further consideration by City leadership. City staff and administration were presented with the results of both analysis in 2021.

### **City of Myrtle Beach, South Carolina | Stormwater Management Fee and Level of Service Analysis Rate Study | 2020-2021**

**Project Manager.** Mr. Merritt served as Black & Veatch's project manager, as a subconsultant to W.K. Dickson, working with the City of Myrtle Beach to complete a comprehensive review of their stormwater rates. Work included the creation of stormwater financial and rate model, projecting detailed revenue requirements, modeling the impact of the level of service alternatives, developing capital financing mix, identifying the City's fiscal position and required financial metrics. Anticipated system-wide revenue increases were developed along with the associated rate schedules to support the increase in the City's stormwater operational and capital program needs to address growth, climate change and water quality issues. City leadership approved the request revenue adjustment in the Spring of 2021.

### **New Jersey Future, Trenton, NJ | On-call Stormwater Utility Expert Support Services | 2019-2020**

**Project Manager.** Mr. Merritt worked with NJ Future to develop the New Jersey Stormwater Utility Resource Center, providing technical input and guidance, narrative development as well as content review. He assisted in on-call service support, providing assistance and feedback to NJ Future staff on stormwater utility related policy matters. Mr. Merritt, along with other Black & Veatch staff, conducted stormwater utility training sessions for NJ Future staff, municipal staff and advocacy organizations.

### **Hannibal Board of Public Works | Stormwater Utility Feasibility Study; Hannibal, MO | 2017-2019**

**Project Support.** Assisted in the evaluation of impervious area data. Drafted policy regarding stormwater roles and responsibilities for the City, BPW and private property owners.

### **Unified Government of Wyandotte County and Kansas City, Kansas | Stormwater Feasibility Study | 2017-Present**

**Project Support.** Assisted in the development and evaluation of an impervious area-based stormwater user fee for the Unified Government of Wyandotte County and Kansas City, Kansas (UG). Work includes the review of available data sources, evaluation of stormwater rate structures, development of stormwater customers classifications, establishing stormwater units of service as well as the development of credit and appeals policies.

### **City of Norfolk Department of Utilities, Norfolk, Virginia | Water Utility Wholesale Contract True-up Calculations | 2019**

**Project Support.** Mr. Merritt aided in the preparation of biennial revenue true-up calculations for Norfolk's wholesale water contract with the City of Virginia Beach for the periods of FY 2018 and FY 2019. As stipulated by the contract, adopted wholesale rates were based on budget projections and specified formulas recognizing the utility basis of cost allocations. The true-up comparisons revealed actual costs of wholesale service based on audited financial results. Mr. Merritt supported the review of updated fixed asset listings to update utility basis cost allocations, revisions to demand based allocations, updates to annual O&M expenses, as well as review of billing and revenue adjustments.

### **Metropolitan St. Louis Sewer District (MSD), St. Louis, Missouri | Rate Consultant to MSD Rate Commission | 2019**

**Project Support.** Black & Veatch has served as a rate consultant to MSD's Rate Commission the last two rate cycles. MSD establishes rates through a thorough stakeholder engagement process, whereby a broad cross section of stakeholders serve as a Rate Commission to evaluate MSD's Rate Proposal, supporting documentation, and testimony. In response to a request made by the Rate Commission, Mr. Merritt supported the Black & Veatch team in the development of wastewater rate comparisons of MSD's wastewater rates and rate structure to those of selected peer utilities across the country. This work included a review of industry trends, as well as the costs of wastewater collection and treatment, underlying infrastructure needs, regulatory requirements, revenue sources, rate structures as well as resulting customer rates and bill impacts.

### **City of Takoma Park, Maryland | Stormwater Rate Study | 2018-2019**

**Project Manager.** Mr. Merritt worked with the City of Takoma Park, Maryland to complete a review of their stormwater billing information and associated stormwater rates. The City had not holistically re-evaluated its stormwater rate structure since its initial implementation in the late 1990s and had recently obtained updated impervious area data (i.e. planimetric data). Mr. Merritt worked with the City to assess the impacts of the updated data set on the existing rate structure and identify potential rate adjustments needed to maintain revenue sufficiency for the stormwater program. In addition, alternative rate structures were developed to help improve the public understanding and improve the overall equity of the stormwater rate structure. The City adopted a tiered residential rate structure and updated the baseline billing unit from an equivalent residential unit (ERU) basis to a unit area basis, using 500 square feet of impervious area as the base billing unit.

### **City of Jonesboro, Arkansas | Stormwater Feasibility Study | 2018-2019**

**Project Support.** Mr. Merritt has been assisting in the evaluation of a dedicated stormwater fee for the City of Jonesboro, Arkansas. This involves the evaluation of policies related to stormwater revenue requirements, impervious area development, customer classification, rate structure development, billing and enforcement as well as credit and appeals. Work also includes establishing stormwater units of service and analyzing the

operations, capital and other costs to determine the revenue requirements. The funding approach is currently under consideration by City staff and leadership.

#### **Unified Government of Wyandotte County and Kansas City, Kansas | Stormwater Feasibility Study | 2018-2019**

**Project Support.** Mr. Merritt has been assisting in the development and evaluation of an impervious area based stormwater user fee for the Unified Government of Wyandotte County and Kansas City, Kansas (UG). UG currently charges all customer a flat fee for stormwater services. Work includes the review of available data sources, evaluation of stormwater rate structures, development of stormwater customers classifications, establishing stormwater units of service as well as the development of credit and appeals policies. Other areas of work have included the development of updates stormwater revenue requirements including an assessment of operation and maintenance, capital improvement and capital financing need. As of March 2019, the impervious area based stormwater fee is still under development, with recommendations expected to be delivered to the UG Board of Commissioners by mid-2019.

#### **City of Columbia, South Carolina – Department of Utilities & Engineering | Stormwater Bond Feasibility Study | 2018**

**Project Support.** Mr. Merritt worked with the City of Columbia, South Carolina to perform a five-year financial feasibility analysis of the City's Stormwater System operating results associated with the issuance of Stormwater System Revenue Bonds. The analysis included a forecast of revenues and revenue requirements, to determine the financial feasibility of the City issuing the Series 2018 Bonds.

#### **City of Newark, New Jersey | Stormwater Utility Feasibility Study | 2017-2019**

**Project Support.** Mr. Merritt has been assisting in the evaluation of a stormwater utility for the City of Newark, New Jersey. The project involves a review of the City's current stormwater management program, identification of program improvements and level of service enhancements, as well as capital improvements needs. Part of the evaluation includes the allocation of combined sewer related costs between sewer and stormwater revenue requirements. Work also includes impervious area development, customer classification, rate structure development, policy development including credits, appeals, as well as billing and enforcement. Work is currently ongoing with recommendations were provided to City leadership in Mid-2019 along with anticipated planned public outreach and education efforts.

#### **City of Newark, Delaware | Stormwater Utility Implementation | 2016-2018**

**Project Support.** Mr. Merritt has been assisting in the development and implementation of a stormwater utility for the City of Newark, Delaware. This involves the evaluation of policies related to stormwater revenue requirements, impervious area development, customer classification, rate structure development, billing and enforcement as well as credit and appeals. Work also includes establishing stormwater units of service and analyzing the operations, capital and other costs to determine the revenue requirements. During 2017, Mr. Merritt assisted with the implementation phase of the project helping the City with the finalization of customer service processes including credit and appeals, billing integration and parcel account mapping. The City began billing for stormwater in January 2018.

#### **City of Cincinnati, Ohio – Stormwater Management Utility | Stormwater Rate Study | 2016-2018**

**Project Manager.** Mr. Merritt has been working with the City of Cincinnati Ohio's Stormwater Management Utility (SMU) to complete a comprehensive review of their stormwater rates. Current work includes the evaluation of projected revenue requirements and anticipated system-wide revenue increases due to the anticipated need for

a large capital program to rehabilitate and/or replace components of the City's Barrier Dam as well as other critical stormwater infrastructure. Additional costs associated with NPDES MS4 Phase II permit requirements, increased operation and maintenance costs, were also evaluated. A financial plan report was delivered to staff in and City Council ultimately adopted updated stormwater rates to support the revenue requirements of SMU.

### **Philadelphia Water Department, City of Philadelphia, Pennsylvania | Financial Planning and Cost of Service Study | 2017-2018**

**Project Manager.** Mr. Merritt supported the financial planning, stormwater cost of service analysis, and rate study update for the Philadelphia Water Department (PWD). The study involved a six-year financial planning, cost of service analysis, cost allocation analysis, policy issues review, rate design, and rate case support. Mr. Merritt aided in the development of the financial plan, cost of service analysis including: sewer cost of service, system-wide billing units estimates, stormwater cost allocation, user fee methodology, credit, incentive and customer assistance program cost recovery. Mr. Merritt worked with the project team to develop a rate rider concept to recover costs related to the PWD's Tiered Customer Assistance Program (TAP). Mr. Merritt led the stakeholder engagement support services provided under this contract. Mr. Merritt also helped with drafting testimony for the rate proceedings.

### **City of Columbia, South Carolina – Department of Utilities & Engineering | Water, Sewer and Stormwater Rate Study | 2017**

**Stormwater Task Lead.** Mr. Merritt assisted with a water, sewer and stormwater rate study for the City of Columbia, South Carolina's Department of Utilities & Engineering. Mr. Merritt led the stormwater portion of the study. Project work included: development of a multi-year financial plan, revenue and revenue requirements review, stormwater rate structure alternatives analysis, development of financial metrics, review of capital program needs and financing. The project included the development of a Stormwater Rate Study report and presentation of the Rate Study findings and recommendations to City Council. Based upon the study's findings, the City adopted a series (i.e. multi-year) stormwater rate increases.

### **City of Havre de Grace, Maryland | Water and Sewer Rate Study | 2016-2017**

**Project Manager.** Mr. Merritt served as project manager for the City of Havre de Grace, Maryland's comprehensive review of their current water and sewer rates. The project integrated an asset renewal forecast with the rate study and development of alternative funding mechanisms (such as an asset reinvestment charge) to alleviate the current deficit fiscal position and adequately fund water and sewer operations and capital program obligations. Work also included: Preparation of a reasonable estimate of repair and renewal forecast for all of the water system treatment, storage, transmission, and distribution assets; Development a five-year financial plan for the water/sewer enterprise fund to assure financial self-sufficiency; Review of the existing rate structure and design rate schedules to enable a defensible recovery of fixed and variable costs of the water and sewer utilities; and presentation of the Rate Study findings and recommendations to the Water and Sewer Rate Commission and to the City Administration and Council.

### **Philadelphia Water Department, City of Philadelphia, Pennsylvania | Stormwater Cost of Service and Rate Study | 2015-2016**

**Project Support.** Mr. Merritt supported the stormwater cost of service analysis, and rate study update for the Philadelphia Water Department. The study involved a six-year financial planning, cost allocation analysis, stormwater fee policy issues review, rate design, and rate case support. Mr. Merritt aided in the development of stormwater related analysis including: sewer cost of service, system-wide billing units estimates, stormwater cost

allocation, user fee methodology, credit, incentive and customer assistance program cost recovery. Mr. Merritt helped with drafting testimony for the rate proceedings.

### **Pittsburgh Water and Sewer Authority, Pittsburgh | Stormwater Management and Rate Structure Project | 2015-2019**

**Project Manager.** Mr. Merritt is currently serving as Project Manager for Black & Veatch's portions of the Pittsburgh Water and Sewer Authority's (PWSA) Stormwater User Fee Development and Implementation project. Phase 2 builds from work previously conducted in 2012, and is intended to take the decisions and recommendations developed during Phase I- Feasibility Study up to the development of a draft ordinance for consideration by Pittsburgh City Council. Project work includes updates to the stormwater cost allocation analysis, financial planning, user fee funding and rate structure finalization. Mr. Merritt is providing technical advice and input into PWSA's public outreach efforts.

### **South Fayette Township, Allegheny County, Pennsylvania | Stormwater Program Needs Assessment | 2015**

**Project Manager,** while with a former employer, assisting South Fayette Township in a comprehensive needs assessment of their existing stormwater program. The goal of the project was to define an enhanced program that meets the future needs and priorities of the community while addressing operation and maintenance, infrastructure replacement, and MS4 compliance responsibilities. All of the main streams, which run through the Township, are impaired. Impairments include acid mine drainage, nutrients, PCBs, and sediments. Actions to address these pollutants must be considered as part of the next MS4 permit cycle. A stormwater needs assessment committee was conveyed to gain public input into which program areas needed the most attention and to develop a five-year plan on which to evaluate funding options.

### **White Township, Indiana County, Pennsylvania | Stormwater Assessment Feasibility Study | 2014-2015**

**Project Manager,** while with a former employer, assisting White Township in a program evaluation process that could result in the implementation of a stormwater user fee in the Township. This fee would be used to support enhancements to the Township's stormwater management program with resources directed to meet community-wide goals and needs. The project was intended to provide the Township with sufficient information on the viability of implementing a stormwater user fee, prior to investing in full implementation. Responsible for program evaluation and planning, billing system and data evaluation, impervious area data analysis, parcel and account review, rate structure development, initial rate estimates, public/Board of Commissioners presentations as well as overall project and client management. White Township implemented their stormwater fee in early 2016.

### **Radnor Township, Montgomery County, Pennsylvania | Stormwater Program and Fee Implementation | 2012-2013**

**Project Manager,** while with a former employer, for the evaluation and development of an updated stormwater management program and funding mechanism for Radnor Township, PA. Led project team working with the Township personnel to develop a dedicated funding source to help meet the community's goals for infrastructure maintenance, flood mitigation, and green infrastructure. Services included stormwater program assessment and level of services analysis, financial analysis, data and master account file development, stakeholder meeting facilitation, rate evaluation, rate structure and ordinance development. Radnor convened a stormwater advisory committee to provide input into key policy issues such as the stormwater program needs, level of service considerations, the overall program plan, rate structure, credit and incentive program options and public education requirements. Assisted the Township with appeals policy development, billing system implementation



support, customer service training, draft credit program development, and public education efforts. The stormwater user fee was approved by the Radnor Board of Commissioners in September 2013.

### **City of Meadville, Crawford County, Pennsylvania | Stormwater Program and Fee Implementation Project | 2012-2013**

**Project Manager**, while with a former employer, for the evaluation and development of an updated stormwater management program for the City of Meadville, PA. Assessed the current stormwater program with the goal of establishing a functioning stormwater funding mechanism that fully accounts for the City’s stormwater program costs. Tasks included a review of the City’s current level of service, evaluation of the stormwater program’s organizational structure, future needs assessment, current cost estimation, facilitation of Citizen’s Advisory Groups, ordinance development, credit and appeals policy and program development, customer service training, management of public outreach and education activities as well as GIS and billing database development. Two separate Citizen’s Advisory Groups were convened, one to provide input on the initial stormwater fee policies and the second to help develop a detailed stormwater credit and appeals program to enhance the equity of the fee and provide incentives to private property owners to better manage stormwater on-site. The Meadville stormwater fee was approved by their City Council in November 2012 and the first bills were processed in 2013.

### **SELECTED PUBLICATIONS AND PRESENTATIONS**

#### **Presentations – Stormwater Utilities**

- Co-presented, “Stormwater Utility Reboot: The Need to Maintain Equity in Stormwater Cost Recovery,” StormCon, September 2022.
- “Road to Resiliency: Integrated Stormwater Management Planning and Funding,” NJ Future, May 2015
- New Jersey Watershed Institute Stormwater Seminar, June 2019
- Government Finance Officers Association of Pennsylvania, April 2015
- Villanova University Guest Lecturer – Sustainability & Science, 2014
- St Joseph’s University Stormwater Workshop, 2014
- Villanova University Stormwater Symposium, 2013
- 3 Rivers Wet Weather, 2013
- Erie County GIS Workshop, 2013
- PA Northwest City Manager’s Meeting, 2012

#### **Presentations – Affordability**

- Co-Authored “Rate Rider Mechanisms – An Effective and Efficient Cost Recovery Tool for Water and Wastewater Utilities,” 2021 Utility Management Conference in Atlanta, GA., August 2021.
- Philadelphia Water’s Tiered Assistance Program (TAP) Cost Recovery & Financial Safeguards, AWWA/WEF Affordability Symposium, August 2018

#### **Publications**

*“Sustainable Stormwater Programs and Financing”*, Pennsylvania Borough News, October 2014