

PHILADELPHIA WATER DEPARTMENT  
STATEMENT NO. 3 FORMAL NOTICE

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	Special Rate Filing: Reconciliation Proceeding for Fiscal Year 2023 Base Rates
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**Direct Testimony**

**of**

**Black & Veatch Management Consulting, LLC**

**on behalf of**

**The Philadelphia Water Department**

Dated: February 2022

## TABLE OF CONTENTS

<b>I.</b>	<b>INTRODUCTION AND QUALIFICATIONS.....</b>	<b>3</b>
<b>II.</b>	<b>PURPOSE OF TESTIMONY .....</b>	<b>4</b>
<b>III.</b>	<b>RECONCILIATION .....</b>	<b>6</b>
<b>IV.</b>	<b>FEDERAL STIMULUS FUNDING ADJUSTMENT .....</b>	<b>8</b>
<b>V.</b>	<b>FY 2021 FINANCIAL PERFORMANCE ADJUSTMENT .....</b>	<b>9</b>
<b>VI.</b>	<b>UPDATED FINANCIAL PROJECTIONS .....</b>	<b>13</b>
<b>VII.</b>	<b>PROPOSED RATES AND CHARGES.....</b>	<b>18</b>
<b>VIII.</b>	<b>CONCLUSION .....</b>	<b>20</b>

**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.

**Q2. ON WHOSE BEHALF ARE YOU TESTIFYING IN THIS PROCEEDING?**

A2. We will be testifying on behalf of the City of Philadelphia (the “City”) Water Department (“Water Department” or “PWD”) and presenting our collective testimony in this proceeding as a panel.

**Q3. PLEASE STATE YOUR RESPECTIVE PROJECT RESPONSIBILITIES, EDUCATIONAL BACKGROUND, AND PROFESSIONAL EXPERIENCE.**

A3. A summary of the panel members' educational background and professional experience is provided in Schedule BV-6. The respective project responsibilities for team members are described below.

Ms. Bui is a Managing Director with Black & Veatch and provided the overall technical review of the financial projections, proposed rates, and monthly bill impacts. Mr. Jagt is a Manager with Black & Veatch and served as the senior technical lead for all the financial and rate analyses for this Study. Mr. Merritt is a Manager with Black & Veatch and served as Project Manager for this Study.

**Q4. HAVE YOU PREVIOUSLY TESTIFIED ON BEHALF OF THE WATER DEPARTMENT BEFORE?**

A4. Yes. The Black & Veatch team provided testimony and developed the Cost of Service (COS) Study utilized in the 2021 General Rate Proceeding (“2021 Rate Proceeding”) before the Philadelphia Water, Sewer and Storm Water Rate Board (“Rate Board”). We have also testified in previous PWD rate proceedings, as detailed in our resumes of experience.

**II. PURPOSE OF TESTIMONY**

**Q5. WHAT IS THE PURPOSE OF YOUR TESTIMONY?**

A5. The purpose of this testimony is to provide Black & Veatch’s recommendations concerning the reconciliation (adjustment) of rates and charges for FY 2023. As a part of the Settlement<sup>1</sup> in the 2021 General Rate Proceeding (“Settlement”) approved in the Rate Board’s 2021 Rate Determination<sup>2</sup> (“2021 Rate Determination”), the Water Department is required to initiate a special rate proceeding. In this special rate proceeding, PWD is to propose a reconciliation of (or adjustment to) approved rates and charges to become effective in Fiscal Year 2023 (“FY 2023”) under certain limited circumstances, based on two potential adjustments. The first potential adjustment is related to PWD’s direct receipt of certain Federal Stimulus Funding during the period July 1, 2021, through December 31, 2021 (the “Federal Stimulus Adjustment”). The second potential adjustment is related to the Water Department’s FY 2021 financial performance, i.e., based on available rate

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<sup>1</sup> <https://www.phila.gov/media/20210505154832/Joint-Petition-for-Partial-Settlement.pdf>

<sup>2</sup> <https://www.phila.gov/media/20210618105014/2021-General-Rate-Determination-as-filed-with-Records-Dept-20210616.pdf>

1 stabilization fund balance measured against a “minimum threshold” that was not defined  
2 in 2021 Settlement negotiations (the “FY 2021 Financial Performance Adjustment”).<sup>3</sup>  
3

4 As explained below, Black & Veatch believes that no reduction in FY 2023 rates and  
5 charges is warranted related to either the Federal Stimulus Adjustment or the FY 2021  
6 Financial Performance Adjustment. This recommendation is based on a plain reading of  
7 the terms and conditions of the Settlement. As a part of this testimony, we will also provide  
8 an overview of the current financial condition of the Department and identify risks that  
9 should be considered when evaluating any potential adjustments to the FY 2023 rates  
10 authorized by the Rate Board’s 2021 Rate Determination.  
11

12 **Q6. WHAT IS THE RATE PERIOD SUBJECT TO THIS SPECIAL PROCEEDING?**

13 A6. For the Special Rate Proceeding, the previously authorized retail rate schedules, scheduled  
14 to become effective in FY 2023 on September 1, 2022, are subject to a potential downward  
15 adjustment per the Settlement.  
16

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

19 A7. **Schedule BV-1:** Reconciliation Adjustment Calculation Methodology.

20 **Schedule BV-2:** FY 2023 Rate Schedules<sup>4</sup>.

21 **Schedule BV-3:** Summary tables reflecting typical customer bill impacts.

22 **Schedule BV-4:** Updated Financial Plan Report for FY 2022 to FY 2027.  
23

24 <sup>3</sup> To the extent necessary and appropriate, the 2021 Settlement, the 2021 Rate Determination, as well as the  
record of the 2021 General Rate Proceeding are incorporated into the Department’s filing regarding the proposed  
reconciliation.

25 <sup>4</sup> Under the Department’s proposed reconciliation, these rate schedules are unchanged from those approved  
for FY 2023 by the 2021 Rate Determination.

**Schedule BV-5:** White Paper regarding inflationary and cost escalation pressures.

**Schedule BV-6:** Black & Veatch team resumes.

### III. RECONCILIATION

**Q8. PLEASE IDENTIFY THE TWO POTENTIAL ADJUSTMENTS RELATED TO THE FY 2023 BASE RATE INCREMENTAL INCREASE.**

A8. The 2021 Rate Determination states that *“the \$34.110 million FY 2023 Base Rate Incremental Increase is subject to the two potential adjustments relating to (1) receipt of federal stimulus funding and (2) changes in FY 2021 financial performance...”*

More specifically, it provides that the FY 2023 Base Rate Incremental Increase is subject to a *“reduction on a dollar-for-dollar basis”* for the following potential adjustments if:

1. Federal Stimulus Funding – received by PWD between July 1, 2021, and December 31, 2021, is “above the threshold amount of \$2 million;” and/or
2. End of FY 2021 Reserves in the Rate Stabilization Fund (“RSF”) – are “above a threshold amount to be determined” in this proceeding.

In addition, the 2021 Rate Determination directs that any *“reconciliation/adjustment cannot lower the FY 2023 Base Rate Incremental Increase below zero dollars.”*<sup>5</sup>

The Joint Petition for Partial Settlement (“Joint Petition”), agreed to by the signatory parties and approved in the 2021 Rate Determination, provides that the Settlement is a “black box” settlement wherein the *“parties do not specifically identify adjustments to*

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<sup>5</sup> See, 2021 Rate Determination at page 15.

1 *projected revenues and expenses.”*<sup>6</sup> In other words, the parties made no specific  
2 adjustments regarding revenues, operating expenses, capital financing, including debt  
3 service and cash financing of capital, required transfers, other expenditures, or performance  
4 metrics for FY 2022 or FY 2023.

5  
6 Based on the “black box” settlement approach, the adjustments by which the FY 2023 Base  
7 Rate Incremental Increase can be reconciled (changed) are limited to the two potential  
8 adjustments defined in the Settlement and approved in the 2021 Rate Determination.

9  
10 **Q9. HAVE YOU DEVELOPED A METHODOLOGY FOR CALCULATING THE**  
11 **TWO POTENTIAL ADJUSTMENTS TO THE FY 2023 BASE RATE**  
12 **INCREMENTAL INCREASE?**

13 A9. Yes. Black & Veatch developed a simple calculation methodology aligned with the 2021  
14 Rate Determination and the associated Joint Petition. Our approach is provided in Schedule  
15 BV-1: Reconciliation Adjustment Calculation Methodology.

16  
17 The methodology shows how to reflect the two potential adjustments in the context of  
18 Table C-1A from the Settlement Term Sheet. It outlines a simplified calculation to  
19 determine the adjustments and final FY 2023 Base Rate Incremental Increase. We have  
20 also prepared an electronic workbook, which can be used to calculate a proposed  
21 adjustment for evaluation by the Rate Board, if any.

22  
23 As explained below, we also recommend that any proposed adjustment(s) to the FY 2023  
24 Base Rate Incremental Increase be considered in light of the Water Department’s updated

25  

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<sup>6</sup> See, Joint Petition at page 3.

financial plan projections that affirm financial performance against key legal and other financial metrics for FY 2023.

**IV. FEDERAL STIMULUS FUNDING ADJUSTMENT**

**Q10. WAS ANY FEDERAL STIMULUS FUNDING RECEIVED BY THE WATER DEPARTMENT BETWEEN JULY 1, 2021, AND DECEMBER 31, 2021 THAT WOULD BE SUBJECT TO RECONCILIATION UNDER THE TERMS OF THE SETTLEMENT?**

A10. No. As noted in PWD Statement 1, Direct Testimony of Melissa La Buda, the Water Department did not receive stimulus funding above the threshold amount of \$2 million during the period from July 1, 2021, to December 31, 2021 (“Receipt Period”).<sup>7</sup>

**Q11. WHAT ADJUSTMENT HAS THE WATER DEPARTMENT PROPOSED WITH RESPECT TO FEDERAL STIMULUS FUNDING?**

A11. No adjustment is proposed for Federal Stimulus Funding by the Water Department based on the terms of the Settlement and 2021 Rate Determination.

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<sup>7</sup> See, PWD Statement 1 at pages 8-9, question 13.



**V. FY 2021 FINANCIAL PERFORMANCE ADJUSTMENT**

**Q12. PLEASE DESCRIBE A FRAMEWORK FOR THE FY 2021 FINANCIAL PERFORMANCE ADJUSTMENT BASED UPON THE TERMS AND CONDITIONS OF THE SETTLEMENT.**

A12. Under the Settlement, an adjustment based on the Water Department's FY 2021 Financial Performance would only be warranted if the Rate Stabilization Fund balance at the end of FY 2021 is above a "minimum threshold" to be determined in this proceeding. An analysis to establish a reasonable minimum threshold is set forth in PWD Statements 1 and 2 (using the current RSF target balance of \$135 million).

**Q13. WHAT IS THE CURRENT RATE STABILIZATION FUND BALANCE TARGET?**

A13. The Rate Stabilization Fund balance target remains at \$135 million; this same target amount was acknowledged as reasonable in the Rate Board's 2018 Determination<sup>8</sup>.

The importance of this target is described in Ms. La Buda's testimony and further discussed by the Water Department's Financial Advisors, Ms. Katherine Clupper of PFM, and Mr. Peter Nissen of Acacia Financial Group, Inc. in their testimony as provided in PWD Statement 2.

As noted in Ms. La Buda's testimony, the previously established target Rate Stabilization Fund balance of \$135 million should serve as the minimum threshold by which reserves in the Rate Stabilization Fund at the end of FY 2021 are measured. In other words, only

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<sup>8</sup> See 2018 Determination at 37-38. <https://www.phila.gov/media/20180713144736/2018-RATE-DETERMINATION-TIMESTAMPED.pdf>

1 amounts above \$135 million should be considered available to potentially reduce the  
2 FY 2023 incremental base rate increase contemplated in the 2021 Settlement.

3  
4 As further noted in Ms. La Buda's Testimony<sup>9</sup>, credit rating agency S&P Global Ratings  
5 ("S&P") indicated that if the Water Department were to "*deplete the RSF below the*  
6 *targeted \$120 million indicated in its current projections . . . we [S&P] would likely lower*  
7 *the rating.*"<sup>10</sup>

8  
9 Based upon S&P's indication that the Water Department will likely be at risk of a  
10 downgrade should the Rate Stabilization Fund fall below \$120 million, Black & Veatch  
11 has treated the \$120 million Rate Stabilization Fund balance as an absolute minimum for  
12 our review and the development of our recommendations in this Special Rate Proceeding.  
13 Further, this minimum balance is also contemplated in Black & Veatch's updated financial  
14 projections for FY 2022 to FY 2027, as discussed further in Section VI of our direct  
15 testimony.

16  
17 **Q14. WHAT IS THE END OF FY 2021 RATE STABILIZATION FUND BALANCE?**

18 A14. As noted in PWD Statement 1, Direct Testimony of Melissa La Buda, the Water  
19 Department's end of FY 2021 Rate Stabilization Fund Balance is approximately \$124.66  
20 million.<sup>11</sup>

21  
22  
23  
24  
25 <sup>9</sup> See PWD Statement 1 at pages 14-15, question 21.

<sup>10</sup> See Schedule ML-3 (Rating Agency Reports), S&P Report (September 17, 2021) at 3.

<sup>11</sup> See PWD Statement 1 Schedule ML-2 at 18.

**Q15. WHAT ADJUSTMENT HAS THE DEPARTMENT PROPOSED BASED ON FY 2021 FINANCIAL PERFORMANCE (AS MEASURED BY RESERVES AVAILABLE IN THE RATE STABILIZATION FUND)?**

A15. No adjustment is proposed based on FY 2021 financial performance. Given the analysis in PWD Statements 1 and 2, the minimum threshold for the RSF is reasonably set at \$135 million. As the end of FY 2021 Rate Stabilization Fund balance is \$124.66 million, the target balance remains \$135 million, and the absolute minimum balance is \$120 million. In this context, Black & Veatch maintains that no adjustment can reasonably be made to the FY 2023 Incremental Base Rate Increase of \$34.110 million.

**Q16. ARE THERE ADDITIONAL CONSIDERATIONS THAT SUPPORT YOUR RECOMMENDATION?**

A16. As discussed in PWD Statement 1, several potential risks exist that further demonstrate the need to maintain the Rate Stabilization Fund balance at this time and not subject the Water Department to any planned or potential reductions in FY 2022 or FY 2023.

Continued reliance on the Rate Stabilization Fund provides no protection against the risk and challenges described in PWD Statement 1 and this testimony, including escalating costs (due to both planned and inflationary impacts such as labor costs and chemical costs), increasing regulatory requirements, navigating the ongoing pandemic, and responding to natural disasters and other emergencies. Further use of the Rate Stabilization Fund may potentially draw the balance below \$120 million and expose the Department to the following risks:

- Possibly trigger a downgrade to the Water Department's credit ratings;

- Likely require higher rates in the future to cover increasing costs and replenish the Rate Stabilization Fund balance to the target level; and
- Potentially constrain the ability of the Water Department to meet its obligations promptly or address future emergencies.

To place the above potential risks in terms of a real-world event, take for example, the impacts resulting from the remnants of Hurricane Ida. As noted in PWD Statement 1 Schedule ML-2, the Water Department estimates nearly \$10 million in damages occurred due to the storm and subsequent flooding. While emergencies can be expected, if funding is unavailable and/or other sources of revenue are unable to cover these costs, the Water Department would need to use the Rate Stabilization Fund balances. As extreme weather events become more frequent, the City can expect to see similar events in the future. Events like Ida provide real-world examples of the Water Department's ongoing need for liquidity.

**Q17. IN TOTAL, WHAT ADJUSTMENTS HAS THE WATER DEPARTMENT PROPOSED TO THE FY 2023 INCREMENTAL BASE RATE INCREASE OF \$34.110 MILLION, BASED UPON THE PROVISIONS OF THE SETTLEMENT AGREEMENT AND THE RATE DETERMINATION?**

A17. As previously noted, the Water Department received no (i.e., zero) Federal Stimulus Funding between July 1, 2021, and December 31, 2021. As of the end of FY 2021, there are no funds in the Rate Stabilization Fund above the \$135 million threshold. Therefore, no adjustments to the FY 2023 Base Rate Incremental Increase (\$34.110 million) are warranted.

**Q18. ARE THERE ANY OTHER FACTORS THAT YOU BELIEVE THE RATE BOARD SHOULD CONSIDER IN THIS PROCEEDING?**

A18. Yes. As discussed in the next section, Black & Veatch has developed updated financial projections that we believe corroborate the need for the full \$34.110 million in incremental base rate revenue in FY 2023. Black & Veatch recommends the Rate Board consider the Water Department's current financial position when evaluating any potential adjustment(s), the most recent rating agency reports, as well as the testimony of Ms. La Buda.

**VI. UPDATED FINANCIAL PROJECTIONS**

**Q19. IS THE WATER DEPARTMENT'S MOST RECENT FINANCIAL PLAN RELEVANT TO THIS PROCEEDING?**

A19. Yes. The Department's financial plan for FY 2023 and future years is pertinent to the decision in this case. The contemplated adjustments to FY 2023 Base Rate Incremental Increase should not be considered in a vacuum. Operating at the margin presents a significant risk to the Water Department and impacts PWD's financial stability and customer levels of service. The PWD financial plan is prepared annually to incorporate changed financial circumstances and provide reasonable projections for the future. The financial plan is a key document to test the reasonableness of adjustments made in this proceeding with respect to FY 2023.

Please note that Black & Veatch developed updated financial plan projections in conjunction with the Water Department's Five-Year Plan. Black & Veatch is not proposing revised revenue adjustments or updated rates for FY 2023 based upon this recent analysis.

1 Black & Veatch's updated financial plan projections are provided in *Schedule BV-4:*  
2 *Updated Financial Plan Report for FY 2022 to FY 2027.*

3  
4  
5  
6 **Q20. WHAT PERIOD DOES THE UPDATED FINANCIAL PLAN COVER?**

7 A20. Black & Veatch's updated projections cover the period of FY 2022 through FY 2027  
8 ("Study Period").  
9

10 **Q21. DOES THE UPDATED FINANCIAL PLAN INCLUDE RECENT DATA AND**  
11 **INFORMATION REGARDING WATER FUND REVENUES AND EXPENSES?**

12 A21. Yes. Black & Veatch developed a complete update to the Revenue and Revenue  
13 Requirements for the Study Period. The basis for this analysis is similar to the one  
14 developed for the FY 2021 Rate Proceeding. It takes into account more current data and  
15 information regarding the Water Department's revenues as well as anticipated expenses  
16 related to operations and maintenance ("O&M"), debt service payments, funding for  
17 specific deposits and reserves, and the overall cost of financing the Water Department's  
18 capital improvement program ("CIP") from known and anticipated funding sources.  
19

20 The information cited in our updated analysis and the basis for our projections is further  
21 discussed in Schedule BV-4. In addition, Black & Veatch reviewed and updated our  
22 assumptions associated with the analysis, including customer growth, billed water and  
23 sewer volume, stormwater billing units, collection factors, miscellaneous revenues, actual  
24 to budget factors, cost escalation factors, etc.<sup>12</sup>  
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<sup>12</sup> Schedule BV-4 (Updated Financial Plan Report for FY 2022 to FY 2027) at pages 1-2 to 1-14, Section 1.3.

**Q22. PLEASE IDENTIFY THE KEY INDICATORS AND METRICS IN THE  
UPDATED FINANCIAL PLAN.**

A22. Taking into consideration the updated revenue and revenue requirement data, the Water Department will still require the full amount of the FY 2023 incremental base rate revenue adjustment to meet required financial metrics, including the minimum allowable Senior Debt Service Coverage requirement of 1.2x, Total Cover of 1.0x and Senior Coverage from Current Revenues of 0.9X.

In addition, FY 2023 expenses may require an additional withdrawal from the Rate Stabilization Fund, which would bring the projected end of FY 2023 Rate Stabilization Fund Balances to \$120.6 million, which is slightly above the level that may trigger a rating downgrade. In addition, note that in the Financial Advisor's testimony (see PWD Statement 2), they have indicated that the rating agencies retain the right to adjust the ratings at their discretion and that a rating downgrade is not strictly and solely a possibility as a result of breaching this \$120 million threshold. The Financial Advisors have indicated that the ratings are opinions of the rating agencies based upon multiple factors and that merely approaching the \$120 million threshold with a negative financial trajectory could still yield rating consequences.

Given that the Water Department is likely to operate on minimal requirements for FY 2022 and FY 2023 and reserves in the Rate Stabilization Fund are projected to be below the targeted threshold of \$135 million, the full FY 2023 Incremental Base Rate Revenue (\$34.110 million) will be needed to cover expenses and meet legally required financial metrics.

**Q23. BASED UPON THE UPDATED FINANCIAL PLAN, WOULD A REDUCTION IN THE FY 2023 INCREMENTAL BASE RATE INCREASE PRESENT SIGNIFICANT FINANCIAL RISK FOR THE WATER DEPARTMENT?**

A23. Yes, as stated above (response to Question 16) and explained in PWD Statements 1 and 2, reducing the FY 2023 Incremental Base Rate Increase below the previously authorized \$34.110 million presents a serious risk to the Water Department. Also, as noted above, we believe that such an adjustment would be inconsistent with the Settlement terms and conditions.

As further discussed in PWD Statement 1, the Water Department is facing regulatory, policy, operational, and revenue pressures that can impact costs and revenues in both the short and near term. As discussed in Schedule BV-4, among other factors, the Water Department expects:

- Continued increases in regulatory requirements associated with the City's Municipal Separate Storm Sewer System (MS4) permit requirements, and the new Lead and Copper Rule. All of which will require additional personnel, contracted services, and capital investments to address.
- Ongoing ramp-up in Consent Order and Agreement (COA) staffing.
- Increased personnel costs related to negotiated labor agreements, including salary increases of 2.5% in FY 2022 and 3.25% in FY 2023 and FY 2024.
- Increased pension costs related to both increased number of staff and increased salaries.



1 As previously noted, there is a significant upside risk to operating expenses related to  
2 required increases in operating costs to meet regulatory requirements and ongoing  
3 inflationary pressures on wages, contracted services, materials, chemicals, etc.

4  
5 As described in *Schedule BV-5: Inflation and Cost Escalation Pressures*, recent Consumer  
6 Price Index (CPI) and Producer Price Index (PPI) data indicate inflation rates are at levels  
7 not seen since the 1970s. The Federal Reserve no longer views inflation as transitory and  
8 notes that higher inflation can be expected overall. All of the CPI and PPI factors typically  
9 reviewed by Black & Veatch in developing financial plan projections indicate higher  
10 inflation rates than prior years. While the extent to which inflation will impact overall  
11 expenses and the length of time the Water Department can anticipate continued increases  
12 in prices may be uncertain, real impacts are already presenting themselves, as follows:

- 13 • The Water Department has seen chemical bid costs increase by over 20% in some  
14 areas.
- 15 • The PPI for Industrial Chemicals for October 2021 saw a nearly 47% increase from  
16 the prior year. The PPI reporting period is after the bids were received. Therefore,  
17 it is not unreasonable to expect pricing pressures to continue to exhibit themselves  
18 on the Water Department's expenses.

19  
20 In addition, while overall retail receipt projections are improved compared to prior  
21 projections, there remains a downside risk to revenues as both the support from Federal  
22 assistance programs (provided to Philadelphia residents in the form of aid packages and  
23 customer assistance) wanes.

1 All of the above factors will likely present headwinds for the Water Department in FY  
2 2023 and beyond. In terms of helping to manage risk for the Water Department, with the  
3 Rate Stabilization currently below target balances, the FY 2023 Incremental Base Rate  
4 Increase adjustment will help provide some level of flexibility to manage through future  
5 financial challenges.

6  
7 **Q24. WHAT IS YOUR OVERALL RECOMMENDATION WITH REGARD TO**  
8 **RECONCILIATION ADJUSTMENTS IN THIS PROCEEDING?**

9 A24. We support the Water Department's position that "zero dollar" adjustments are warranted  
10 related to Federal Stimulus Funding and FY 2021 Financial Performance, as there is an  
11 insufficient basis to meet Settlement requirements for either adjustment.

12  
13 Further, as stated above, updated financial projections indicate that the full amount of the  
14 previously approved FY 2023 Incremental Base Rate Revenue increase is still necessary;  
15 Black & Veatch does not recommend that any adjustments be made to the \$34.110 million  
16 incremental revenue adjustment in FY 2023.

17  
18 **VII. PROPOSED RATES AND CHARGES**

19  
20 **Q25. IN LIGHT OF THE WATER DEPARTMENT'S POSITION AND YOUR**  
21 **RECOMMENDATION, PLEASE DESCRIBE ANY CHANGES TO APPROVED**  
22 **RATES AND CHARGES FOR FY 2023 IN CONNECTION WITH THE**  
23 **RECONCILIATION PROCESS.**

24 A25. The FY 2023 base rates proposed to be effective on September 1, 2022, are provided in  
25 Schedule BV-2. There are no proposed adjustments to the FY 2023 incremental base rate

1 revenue adjustment; therefore, these are the same FY 2023 base rates included in the 2021  
2 Rate Determination.

3  
4 **Q26. WHAT ARE THE ASSOCIATED BILL IMPACTS ON THE WATER**  
5 **DEPARTMENT'S TYPICAL CUSTOMERS ASSOCIATED WITH THE**  
6 **IMPLEMENTATION OF THE FY 2023 RATES AND CHARGES?**

7 A26. The proposed customer bill impacts are provided in Schedule BV-3. The bill impacts  
8 related to the FY 2023 Base Rate Increase are the same as previously authorized in the  
9 2021 Rate Determination.

10  
11 As the Water Department has filed the annual TAP-R reconciliation under separate cover,  
12 the combined bill impacts of both the previously authorized FY 2023 base rates and the  
13 FY 2023 proposed TAP-R rates are presented and Schedule BV-3 and further detailed  
14 below.

15  
16 **Q27. TAKING INTO CONSIDERATION THE PROPOSED FY 2023 TAP-R RATES,**  
17 **WHAT ARE THE ASSOCIATED IMPACTS ON TYPICAL CUSTOMER BILLS?**

18 A27. Schedule BV-3 presents a series of typical or representative combined monthly residential  
19 water, sanitary sewer, and stormwater bills under the existing rates for FY 2022, as well as  
20 the existing TAP-R rates effective September 1, 2021, the previously authorized base rates  
21 for FY 2023, assumed to be effective September 1, 2022, and the proposed TAP-R rates  
22 proposed to be effective September 1, 2022. The bill impacts for PWD's typical residential,  
23 discount eligible senior citizen and non-residential customers are summarized in the table  
24 below.

<b>Total Monthly Bill<sup>13</sup></b>				
<b>Customer</b>	<b>FY 2022<sup>14</sup></b>	<b>FY 2023<sup>15</sup></b>	<b>Additional Monthly Charge</b>	<b>Percentage Increase of Monthly Bill</b>
<b>Typical Residential<sup>16</sup></b>	\$69.15	\$74.29	\$5.14	7.4%
<b>Senior Citizen with Discount<sup>17</sup></b>	\$39.80	\$42.64	\$2.84	7.1%
<b>Non-Residential<sup>18</sup></b>	\$111.59	\$120.12	\$8.53	7.6%

## VIII. CONCLUSION

### Q28. DOES THIS COMPLETE YOUR DIRECT TESTIMONY?

A28. Yes, it does.

<sup>13</sup> Includes Quantity Charges, TAP Rider Surcharge, Service Charge, and Stormwater Charges.

<sup>14</sup> FY 2022 figures reflect existing base and current TAP-R rates, of \$0.69/MCF for water and \$1.09/MCF for sewer, effective September 1, 2021.

<sup>15</sup> FY 2023 figures reflect the proposed TAP-R rates, of \$1.23/MCF for water and \$1.95/MCF for sewer and the approved FY 2023 base rates as per the 2021 Rate Determination, effective September 1, 2022.

<sup>16</sup> Based on a typical residential customer with a 5/8" meter and 500 cubic feet of monthly water consumption.

<sup>17</sup> Based on a typical discount eligible senior citizen customer with a 5/8" meter and 300 cubic feet of monthly water consumption.

<sup>18</sup> Reflects a non-residential customer with a 5/8" meter and 600 cubic feet of water consumption and a parcel with 4,000 square feet of impervious area and 5,500 square feet of gross area.

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**Special Rate Filing: Fiscal Year 2023**

**Philadelphia Water Department**

**Black & Veatch Management Consulting, LLC**

**Schedule BV-1**

**Dated: February 2022**

## SCHEDULE BV-1: RECONCILIATION ADJUSTMENT CALCULATION METHODOLOGY

### Introduction

As agreed upon in the Joint Petition for Partial Settlement (Settlement) between the Philadelphia Water Department (PWD) and the Public Advocate and approved by the Water, Sewer and Storm Water Rate Board (the Rate Board) in their Rate Determination dated June 16, 2021 (2021 Rate Determination), the fiscal year (FY) 2023 Base Rate Incremental Increase of \$34.110 million is subject to two potential adjustments related to 1) Federal Stimulus Funding and 2) Changes in FY 2021 financial performance. Consistent with the Settlement terms and conditions, these are the only two adjustments to be made in the reconciliation proceeding.

In this context, potential adjustments can be made by modifying the FY 2023 incremental additional revenues to reflect federal stimulus funding received during FY 2022 between July 1, 2021 and December 31, 2021, and/or for actual PWD financial performance in FY 2021 as reflected by available reserves in the balance of the Rate Stabilization Fund (RSF).

This document summarizes a simple calculation methodology to be used in calculating adjustments in this proceeding.

### Potential Adjustments

The 2021 Rate Determination states that *“the \$34.110 million FY 2023 Base Rate Incremental Increase is subject to the two potential adjustments relating to”* the following:

1. Federal Stimulus Funding - received between July 1, 2021 and December 31, 2021 *“should the Department receive certain federal stimulus funding (as defined in the Joint Petition) above the threshold amount of \$2 million;”* and/or
2. Changes in FY 2021 Financial Performance – as measured by comparing the End of FY 2021 Reserves in the Rate Stabilization Fund *“above a threshold amount to be determined.”*

Further, the 2021 Rate Determination notes:

- The FY 2023 Base Rate is subject to a *“reduction on a dollar-for-dollar basis;”*
- That the adjustment(s) *“cannot lower the FY 2023 Base Rate Incremental Increase below zero dollars;”* and
- Specifies in the “Adjustment, Mechanics” section of the 2021 Rate Determination that: *“The Department shall file a reconciliation request for FY 2023, setting forth the amount by which it requests the Rate Board reduce the FY 2023 Base Rate Incremental Increase to share with customers the benefit of FY 2021 amounts above a minimum threshold in the Rate Stabilization Fund.”*

## Adjustment Approach

The potential adjustments mentioned above can be determined using Table C-1A from Appendix A of the 2021 Rate Determination. More specifically, the adjustments can be made to the following lines of Table C-1A:

- **Line 6 “FY 2023 Additional Service Revenue Required”** – this indicates the FY 2023 Incremental Base Rate Revenue Adjustment;
- **Line 12 “Other Operating Revenue”** – this line item entails other operating revenue and would be where Federal Stimulus Funding received directly by the Water Department would be represented; and
- **Line 18 “Transfer From/(To) Rate Stabilization Fund”** – this line item represents transfers from or to the Rate Stabilization Fund. It would reflect the sharing of any available reserves in the RSF as of the end of FY 2021 above the threshold.

The above line items are highlighted in Figure 1 on the following page.

The Federal Stimulus Funding<sup>1</sup> adjustment can be determined by taking the actual amounts of funding received directly by the Water Department between July 1, 2021 and December 31, 2021, if above the \$2 million threshold and reducing the FY 2023 Incremental Base Rate Revenue on a dollar-for-dollar basis.

The FY 2021 financial performance adjustment can be determined using the end of FY 2021 RSF balance as an agreed-upon indicator of the Water Department’s actual financial performance<sup>2</sup>. The end of FY 2021 RSF balance reflects actual revenues, expenses, and required transfers. Available reserves in the RSF are to be measured above a minimum RSF threshold amount. The minimum RSF threshold amount proposed by the Water Department is \$135 million<sup>3</sup>, which is the previously established RSF balance target as recognized by the Rate Board in its 2018 Rate Determination. Therefore, amounts to be shared would be those amounts above the \$135 million threshold.

The amounts of these two potential adjustments can be applied to the FY 2023 Incremental Base Rate Increase, reducing the previously approved amount by the sum of the two adjustments to determine the final amount. The approach to the actual calculations is discussed in the following section, along with examples of how the calculations would be applied.

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<sup>1</sup> The 2021 General Rate Determination defines Stimulus Funding on page 25 as, “... amounts from (a) the U.S. Department of Health and Human Services (HHS) or Philadelphia Housing Development Corporation (PHDC) under the Consolidated Appropriations Act of 2021, enacted on December 27, 2020 (CARES Act) and (b) the American Rescue Plan Act, enacted on March 11, 2021 (ARPA) (collectively, the Federal legislation), that are allocated by City Council to PWD in the FY 2022 budget and/or received directly by PWD, during the Receipt Period, in either case, that can be used to reduce operating expenses that would otherwise be paid by ratepayers.”

<sup>2</sup> As this is a “Black Box” Settlement, and the Rate Board made no determination with respect to FY 2021 and no financial metrics were dictated for this period, the available reserves in the RSF are the only measure of financial performance agreed upon by the Water Department and the Public Advocate. Other FY 2021 parameters are not subject to the Special Rate Reconciliation Proceeding nor the Settlement Agreement.

<sup>3</sup> PWD Statement 1, Direct Testimony of Melissa La Buda, Page 15 and PWD Statement 2, Direct Testimony of Financial Advisors, Page 5.

Figure 1 – FY 2023 Special Rate Proceeding Adjustment Approach

### ADJUSTMENT APPROACH

**Simple Reconciliation:** Based upon C-1A Table as Included in Joint Petition for Partial Settlement and 2021 Rate Determination

#### Total of Potential Adjustments

Total adjustments to FY 2023 Incremental Base Revenues would be reflected here (Line 6)

#### Federal Stimulus Funding Adjustment

Any adjustment based on the receipt of Federal Stimulus Funding by PWD during 7/1/21 – 12/31/21 would be reflected here (Line 12)

#### FY 2021 Financial Performance Adjustment

Any adjustment based on the end of FY 2021 RSF amounts above the minimum threshold available for sharing would be reflected here (Line 18)

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

Line No.	Description	2022	2023
<b>OPERATING REVENUE</b>			
1	Water Service - Existing Rates	263,593	266,743
2	Wastewater Service - Existing Rates	423,433	429,267
3	Total Service Revenue - Existing Rates	687,026	696,010
	Additional Service Revenue Required		
	Percent Increase Months Effective		
4	FY 2021 0.00% 10	-	-
5	FY 2022 1.85% 10	10,411	12,901
6	FY 2023 5.89% 10		34,110
7	FY 2024 10		
8	FY 2025 10		
9	FY 2026 10		
10	Total Additional Service Revenue Required	10,411	47,011
11	Total Water & Wastewater Service Revenue	697,437	743,022
	Other Income (a)		
12	Other Operating Revenue	29,192	29,111
13	Debt Reserve Fund Interest Income	-	-
14	Operating Fund Interest Income	1,230	1,249
15	Rate Stabilization Interest Income	1,088	982
16	Total Revenues	728,947	774,364
<b>OPERATING EXPENSES</b>			
17	Total Operating Expenses	(517,470)	(533,064)
<b>NET REVENUES</b>			
18	Transfer From/(To) Rate Stabilization Fund (b)	9,900	11,300
19	NET REVENUES AFTER OPERATIONS	221,376	252,600
<b>DEBT SERVICE</b>			
	Senior Debt Service		
	Revenue Bonds		
20	Outstanding Bonds	(163,516)	(164,558)
21	Pennvest Parity Bonds	(10,885)	(11,067)
22	Projected Future Bonds	(8,000)	(30,798)
23	Commercial Paper	(2,000)	(4,000)
24	Total Senior Debt Service	(184,401)	(210,423)
25	TOTAL SENIOR DEBT SERVICE COVERAGE (L19/L24) (c)	1.20 x	1.20 x
26	Subordinate Debt Service	-	-
27	Transfer to Escrow	-	-
28	Total Debt Service on Bonds	(184,401)	(210,423)
29	CAPITAL ACCOUNT DEPOSIT	(29,447)	(31,155)
30	TOTAL COVERAGE (L19/(L24+L26+L29)) (c)	1.03 x	1.04 x
31	End of Year Revenue Fund Balance	7,529	11,022



## Adjustment Calculation

The adjustments can be calculated by taking the FY 2023 Incremental Base Increase and subtracting the adjustment amounts, as described below (subject to their respective thresholds).

### Federal Stimulus Funding Adjustment

This adjustment will be made in an amount equal to the Federal Stimulus Funding received above the agreed-upon threshold and can be stated as follows:

*Federal Stimulus Funding Adjustment = Federal Funding Received If Greater Than \$2 Million*

### FY 2021 Financial Performance Adjustment

This adjustment may be made if the end of FY 2021 RSF balance is above the minimum \$135 million threshold established in this proceeding. For purposes of presenting example calculations, Black & Veatch has assumed equal sharing<sup>4</sup> of amounts over the \$135 million threshold<sup>5</sup> Based on this assumption, this adjustment can be stated as follows:

$$FY\ 2021\ Financial\ Performance\ Adjustment = \frac{(Actual\ RSF\ Fund\ Balance\ Less\ \$135\ Million)}{2}$$

---

<sup>4</sup> "Sharing" of available reserves in the RSF as of the end of FY 2021 (if any) was not defined in the 2021 Rate Determination nor agreed upon in the Settlement. The actual split or shared percentage would need to be established in this Rate Proceeding.

<sup>5</sup> As RSF monies can only be used one-time, the temporary reduction in revenues would need to be restored in the subsequent fiscal year.

### Example Calculations

If Federal Stimulus Funding received between July 1, 2021 and December 31, 2021 is below \$2 million, and the ending FY 2021 RSF balance is below \$135 million, there will be no adjustment to the FY 2023 Incremental Base Rate Increase. An example calculation of Federal Stimulus Funding and FY 2021 Financial Performance being lower than their respective thresholds is shown in Table 1.

*Table 1 – Example Calculation - FY 2023 Incremental Base Rate Increase Adjustment – Lower than Thresholds*

LINE NO.	DESCRIPTION	ADJUSTMENTS
1	<b>Original FY 2023 Incremental Base Rate Increase</b>	<b>\$34.11 million</b>
	<b>Federal Stimulus Funding</b>	
2	Amount Received	\$0.00 million
3	Threshold	\$2.00 million
4	Amount	\$0
	<b>FY 2021 Financial Performance</b>	
5	FY 2021 Year-End RSF Balance	\$124.66 million
6	Threshold	\$135.00 million
7	Available Balance over Threshold	\$0
8	Amount Shared	\$0
9	<b>Total Adjustments</b>	<b>\$0</b>
10	<b>Final FY 2023 Incremental Base Rate Increase</b>	<b>\$34.11 million</b>

If the Federal Stimulus Funding is above \$2 million, then the amount shared will equal the amount of Stimulus Funding received. If the FY 2021 RSF balance is above \$135 million (under the Water Department's proposal), then the amount shared will be some portion of the amount over the threshold. The amounts shared<sup>6</sup> are then subtracted from the original FY 2023 Incremental Base Rate Increase to determine the adjusted increase. A hypothetical example calculation of Federal Stimulus Funding and FY 2021 Financial Performance being higher than their respective thresholds is shown in Table 2.

<sup>6</sup> As previously noted, for example calculation purposes, Black & Veatch assumes half of the available amount will be shared.

Table 2 – Example Calculation - FY 2023 Incremental Base Rate Increase Adjustment – Higher than Thresholds

LINE NO.	DESCRIPTION	ADJUSTMENTS
1	Original FY 2023 Incremental Base Rate Increase	\$34.11 million
	<b>Federal Stimulus Funding</b>	
2	Amount Received	\$3.00 million
3	Threshold	\$2.00 million
4	Amount	(\$3.00) million
	<b>FY 2021 Financial Performance</b>	
5	FY 2021 Year-End RSF Balance	\$140.00 million
6	Threshold	\$135.00 million
7	Available Balance over Threshold	\$5.00 million
8	Amount Shared (Assumed 50/50 Split)	(\$2.50) million
9	<b>Total Adjustments</b>	(\$5.50) million
10	<b>Final FY 2023 Incremental Base Rate Increase</b>	<b>\$28.61 million</b>

Black & Veatch has developed a simple workbook to illustrate how the agreed-upon adjustments would be determined. The Federal Stimulus Funding received by PWD between July 1, 2021 and December 31, 2021 and the actual end of year FY 2021 RSF balance are input into the workbook, and the total adjustment for the FY 2023 Incremental Base Rate Increase can be calculated using this tool. The workbook will be made available to the Rate Board and to other participants, upon their request, should further calculations be required.

### Proposed Adjustment

As noted in PWD Statement 1 and 3, no adjustment is proposed for the FY 2023 Incremental Base Rate Revenue Increase as:

1. No Federal Fiscal Stimulus Funding was received by the Water Department between July 1, 2021 and December 31, 2021; and
2. The RSF balance as of the end of FY 2021 is \$124.66 million, and there are no available reserves above the threshold of \$135 million level.

This proposed adjustment is the same as the calculation presented in Table 1.

### Other Considerations

It is important to note that the RSF balance should not be allowed to fall under \$120 million to avoid a forewarned downgrade in the Water Department's credit rating from S&P as discussed further in PWD Statement 1 Direct Testimony of Melissa La Buda and PWD Statement 2 Direct Testimony of Financial Advisors. The Financial Advisors' testimony notes that the rating agencies retain the right to adjust the ratings at their discretion and that a rating downgrade may not strictly or solely result from breaching the

\$120 million threshold. The Financial Advisors have indicated that the ratings are opinions of the respective rating agencies based upon multiple factors and that merely approaching the \$120 million threshold with a negative financial trajectory could still yield rating consequences.

When making the adjustments to the FY 2023 Base Rate Incremental Increase, the use of RSF monies to provide one-time rate relief should be balanced with the Water Department's ongoing need to be able to:

- Manage through future emergencies such as the continued emergency presented by COVID-19;
- Respond to the impacts of extreme weather events, such as those presented by Hurricane Ida in August of 2021;
- Continue to address aging infrastructure;
- Accommodate increased personnel costs (i.e., salaries, pensions, and benefits);
- Provide financial flexibility to manage finances related to legal requirements and financial metrics; and
- Allow the flexibility to help manage future required revenue adjustments.

**In the Matter of the Philadelphia Water  
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Charges**

**Special Rate Filing: Fiscal Year 2023**

**Philadelphia Water Department**

**Black & Veatch Management Consulting, LLC**

**Schedule BV-2**

**Dated: February 2022**

Schedule REF #		Schedule Name
<b>BV-2 Black &amp; Veatch Schedule</b>		
1	<b>TABLE W-18</b>	WATER: RATES FOR GENERAL SERVICE
2	<b>TABLE W-19</b>	WATER: RATES FOR PRIVATE FIRE PROTECTION
3	<b>TABLE W-19A</b>	WATER: RATES FOR PRIVATE FIRE PROTECTION RESIDENTIAL PRIVATE FIRE PROTECTION
4	<b>TABLE WW-18</b>	WASTEWATER: RATES FOR GENERAL SERVICE SANITARY SEWER
5	<b>TABLE SW-19A</b>	STORMWATER: RATES FOR RESIDENTIAL SERVICES
6	<b>TABLE SW-19B</b>	STORMWATER: RATES FOR NON-RESIDENTIAL SERVICES

The following tables present the approved base rates for FY 2023 based on the Rate Board's 2021 Rate Determination (subject to reconciliation). In conjunction with the Special Rate Proceeding: Reconciliation Proceeding for FY 2023 Base Rates (Special Rate Proceeding), the Water Department proposes no adjustment to the approved FY 2023 base rates.

**TABLE W-18  
WATER: RATES FOR  
GENERAL SERVICE**

<b>(1)</b>		
<b>SERVICE CHARGE</b>		
<b>Line No.</b>	<b>Meter Size</b>	<b>FY 2023 Monthly</b>
	Inches	\$
1	5/8	5.00
2	3/4	5.39
3	1	6.61
4	1-1/2	9.01
5	2	12.64
6	3	20.28
7	4	36.62
8	6	69.02
9	8	105.39
10	10	154.13
11	12	254.32

<b>QUANTITY CHARGE (a)</b>		
<b>Line No.</b>	<b>Monthly Water Usage</b>	<b>FY 2023 Charge per Mcf</b>
		\$
12	First 2 Mcf	49.22
13	Next 98 Mcf	45.23
14	Next 1,900 Mcf	35.05
15	Over 2,000 Mcf	34.09

(a) Quantity charges exclude the TAP-R rate rider charge:

Mcf - Thousand cubic feet

**TABLE W-19  
WATER: RATES FOR  
PRIVATE FIRE PROTECTION**

Line No.	Size of Meter or Connection	(1) FY 2023 Monthly Charge
	Inches	\$
1	4" or less	23.03
2	6	41.85
3	8	61.93
4	10	91.64
5	12	137.50

**PUBLIC FIRE PROTECTION**

Line No.	Description	(1) FY 2023 Annual Charge
		\$
6	Standard Pressure	7,148,000



**TABLE W-19A  
RATES FOR  
PRIVATE FIRE PROTECTION  
RESIDENTIAL PRIVATE FIRE PROTECTION**

Line No.	Size of Meter or Connection	(1) FY 2023 Monthly Charge
		Inches \$
Water Service Charge Including Fire Protection		
1	3/4	7.25
2	1	8.47
3	1-1/2	10.87
4	2	14.50
Sewer Service Charge		
5	3/4	7.54
6	1	7.54
7	1-1/2	7.54
8	2	7.54

# TABLE WW - 18 WASTEWATER: RATES FOR GENERAL SERVICE SANITARY SEWER

## METER BASED SERVICE CHARGE

Line No.	Meter Size	(1) FY 2023 Monthly Charge
	Inches	\$
1	5/8	7.54
2	3/4	9.63
3	1	14.14
4	1 1/2	24.91
5	2	38.43
6	3	69.32
7	4	117.78
8	6	232.18
9	8	367.45
10	10	530.31
11	12	964.36

## QUANTITY CHARGE

Line No.		FY 2023 Charge per Mcf
		\$
12	All billable water usage	34.77
13	Groundwater Charge	12.66

## SURCHARGE RATES

Line No.		FY 2023 Charge per lb
		\$
14	BOD (excess of 250 mg/l)	0.393
15	SS (excess of 350 mg/l)	0.408

## SEPTIC HAULER RATE

Line No.		FY 2023 Charge per Mgal
		\$
16	Sanitary Wastewater Delivered to WPCP (a)	58.11

(a) Based on BOD and SS Loading of 9,000 mg/l.

Mcf-Thousand cubic feet

mg/l-milligrams per liter

Mgal - Thousand gallons

WPCP - Water Pollution Control Plant

## TABLE SW-19A

### STORMWATER: RATES FOR RESIDENTIAL SERVICE

		(1) FY 2023 Monthly Charge
Line No.	Description	
<b>STORMWATER MANAGEMENT SERVICE CHARGE</b>		
1	Charge Per Parcel	\$ 16.27
<b>BILLING AND COLLECTION CHARGE</b>		
2	Charge Per Bill	\$ 1.89

## TABLE SW-19B

### STORMWATER: RATES FOR NON-RESIDENTIAL SERVICE

		(1) FY 2023 Monthly Charge
Line No.	Description	
<b>STORMWATER MANAGEMENT SERVICE CHARGE</b>		
1	Min Charge	\$ 16.27
2	GA (per 500 sf)	0.784
3	IA (per 500 sf)	5.526
<b>BILLING AND COLLECTION CHARGE</b>		
4	Charge Per Bill	\$ 2.45

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**Special Rate Filing: Fiscal Year 2023**

**Philadelphia Water Department**

**Black & Veatch Management Consulting, LLC**

**Schedule BV-3**

**Dated: February 2022**

Schedule REF #		Schedule Name
BV-3 Black & Veatch Schedule		
1	TABLE C-4	COMBINED UTILITY: COMPARISON OF TYPICAL BILL FOR RESIDENTIAL CUSTOMERS UNDER EXISTING AND PROPOSED RATES
2	TABLE C-5	COMBINED UTILITY: COMPARISON OF EXAMPLE BILLS FOR NON-RESIDENTIAL CUSTOMERS UNDER EXISTING AND PROPOSED RATES

TABLE C-4

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

(1)	(2)	(3)	(4)	(5)	
		FY 2022	FY 2023		
Meter Size	Monthly Use	Existing Rates	Proposed Rates	% Proposed of Existing	
Inches	Mcf	\$	\$	%	
5/8	0.0	28.96	30.70	6.0	
5/8	0.2	45.04	48.13	6.9	
5/8	0.3	53.07	56.86	7.1	Typical Senior
5/8	0.4	61.11	65.57	7.3	
5/8	0.5	69.15	74.29	7.4	Typical Residential
5/8	0.6	77.19	83.00	7.5	
5/8	0.7	85.23	91.72	7.6	
5/8	0.8	93.26	100.44	7.7	
5/8	1.7	165.61	178.89	8.0	
5/8	2.7	243.42	263.26	8.2	
5/8	3.3	289.46	313.18	8.2	

**Notes:**

The FY 2022 figures reflect the existing base and current TAP-R rates, of \$0.69/Mcf for water and \$1.09/Mcf for sewer.

The FY 2023 figures reflect:

(1) the proposed TAP-R rates, of \$1.23/Mcf for water and \$1.95/Mcf for sewer; and

(2) the approved FY 2023 base rates per the 2021 Rate Determination (subject to reconciliation). In conjunction with the Special Rate Reconciliation Proceeding, the Water Department proposes no adjustment to the approved FY 2023 rates.

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 2022 and FY 2023 bills would be \$39.80 and \$42.64, respectively.

Mcf - Thousand cubic feet

TABLE C-5

**COMBINED SYSTEM: COMPARISON OF EXAMPLE BILLS  
FOR NON-RESIDENTIAL CUSTOMERS  
UNDER EXISTING AND APPROVED RATES**

(1)	(2)	(3)	(4)	(5)	(6)	(7)
				FY 2022	FY 2023	
Meter Size	Monthly Use	Impervious Area	Gross Area	Existing Rates	Proposed Rates	% Proposed of Existing
Inches	Mcf	sf	sf	\$	\$	%
5/8	0.0	1,794	2,110	38.55	41.01	6.4
5/8	0.2	1,794	2,110	54.63	58.44	7.0
5/8	0.3	1,794	2,110	62.66	67.17	7.2
5/8	0.4	1,794	2,110	70.70	75.88	7.3
5/8	0.5	1,794	2,110	78.74	84.60	7.5
5/8	0.6	4,000	5,500	111.59	120.12	7.6
5/8	0.7	4,000	5,500	119.63	128.84	7.7
5/8	0.8	26,000	38,000	399.87	431.67	8.0
5/8	1.7	26,000	38,000	472.22	510.12	8.0
5/8	2.7	4,000	5,500	277.82	300.38	8.1
5/8	3.3	4,000	5,500	323.86	350.30	8.2
5/8	11.0	7,000	11,000	953.27	1,032.56	8.3
1	1.7	7,700	7,900	252.33	272.35	7.9
1	5.0	22,500	24,000	678.16	733.38	8.1
1	8.0	7,700	7,900	736.76	797.58	8.3
1	17.0	22,500	24,000	1,598.80	1,731.54	8.3
2	7.6	1,063	1,250	658.75	712.60	8.2
2	16.0	22,500	24,000	1,550.70	1,678.68	8.3
2	33.0	66,500	80,000	3,386.32	3,666.84	8.3
2	100.0	7,700	7,900	7,823.62	8,480.46	8.4
4	30.0	7,700	7,900	2,551.13	2,761.19	8.2
4	170.0	10,500	12,000	12,659.00	13,727.69	8.4
4	330.0	26,000	38,000	23,612.08	25,619.77	8.5
4	500.0	140,000	160,000	36,384.51	39,480.99	8.5
6	150.0	10,500	12,000	11,453.34	12,414.49	8.4
6	500.0	41,750	45,500	35,354.72	38,365.16	8.5
6	1,000.0	26,000	38,000	68,795.12	74,676.57	8.5
6	1,500.0	140,000	160,000	103,753.45	112,627.79	8.6
8	750.0	10,500	12,000	51,953.62	56,386.13	8.5
8	1,500.0	66,500	80,000	103,047.69	111,861.67	8.6
8	2,000.0	26,000	38,000	136,187.40	147,848.21	8.6
8	3,000.0	140,000	160,000	203,860.73	221,339.43	8.6
10	600.0	22,500	24,000	42,209.78	45,799.17	8.5
10	1,700.0	41,750	45,500	116,393.47	126,348.40	8.6
10	3,300.0	26,000	38,000	222,616.87	241,711.81	8.6
10	6,000.0	140,000	160,000	403,051.20	437,671.03	8.6

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 2022 figures reflect the existing base and current TAP-R rates, of \$0.69/Mcf for water and \$1.09/Mcf for sewer.

(c) The FY 2023 figures reflect:

(1) the proposed TAP-R rates, of \$1.23/MCF for water and \$1.95/Mcf for sewer; and

(2) the approved FY 2023 base rates per the 2021 Rate Determination (subject to reconciliation). In conjunction with the Special Rate Reconciliation Proceeding, the Water Department proposes no adjustment to the approved FY 2023 rates.

The TAP-R Rates are subject to annual reconciliation.

Mcf - Thousand cubic feet

sf - square feet



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**Philadelphia Water Department**

**Black & Veatch Management Consulting, LLC**

**Schedule BV-4**

**Dated: February 2022**

# FY 2022 to FY 2027 Financial Plan Report

PHILADELPHIA WATER DEPARTMENT  
FEBRUARY 2022

# TABLE OF CONTENTS

<b>LIST OF ACRONYMS.....</b>	<b>V</b>
<b>EXECUTIVE SUMMARY .....</b>	<b>ES-1</b>
REVENUES UNDER EXISTING RATES.....	ES-2
REVENUE REQUIREMENTS .....	ES-3
PROJECTED COMBINED SYSTEM ADJUSTMENTS .....	ES-5
WATER, SANITARY SEWER, AND STORMWATER RATES .....	ES-6
THE COMBINED SYSTEM OPERATING RESULTS .....	ES-9
FINANCIAL PROJECTION – CHALLENGES AND CONSIDERATIONS.....	ES-12
<i>Regulatory Pressures</i> .....	ES-12
<i>Policy Pressures</i> .....	ES-12
<i>Operational Pressures</i> .....	ES-13
<i>Revenue Pressures</i> .....	ES-14
FINDINGS AND CONCLUSION.....	ES-15
<b>1.0 INTRODUCTION .....</b>	<b>1</b>
1.1 PURPOSE .....	1
1.2 SCOPE OF WORK.....	2
1.3 GENERAL ASSUMPTIONS.....	2
1.3.1 <i>Revenue</i> .....	2
1.3.2 <i>Operating Expenses</i> .....	8
1.3.3 <i>Other Adjustments and Expenditures</i> .....	10
1.3.4 <i>Debt Service</i> .....	12
1.3.5 <i>Bond Covenants, Transfers, and Fund Balances</i> .....	13
1.3.6 <i>Capital Improvement Program</i> .....	14
1.4 FINANCIAL PROJECTION – CHALLENGES AND CONSIDERATIONS .....	15
1.4.1 <i>Regulatory Pressures</i> .....	15
1.4.2 <i>Policy Pressures</i> .....	15
1.4.3 <i>Operational Pressures</i> .....	16
1.4.4 <i>Revenue Pressures</i> .....	17
<b>2.0 COMBINED SYSTEM SUMMARY .....</b>	<b>19</b>
2.1 COST OF SERVICE .....	19
2.2 REVENUE.....	19
2.2.1 <i>Other Operating Income</i> .....	20
2.2.2 <i>Non-Operating Income</i> .....	20
2.2.3 <i>Tiered Assistance Program Rate Rider Surcharge</i> .....	21
2.3 REVENUE REQUIREMENTS.....	21
2.3.1 <i>Operation and Maintenance Expenses</i> .....	21
2.3.2 <i>Bond Covenants, Transfers, and Fund Balances</i> .....	23
2.3.3 <i>Capital Improvements</i> .....	24
2.3.4 <i>Debt Service</i> .....	25
2.4 SOURCES AND USES OF FUNDS .....	26
2.5 SUMMARY OF REVENUE AND REVENUE REQUIREMENTS .....	28
2.6 COMPLIANCE WITH GENERAL BOND ORDINANCE AND RATE ORDINANCE REQUIREMENTS .....	32

2.7	FY 2023 RATES AND CHARGES .....	35
2.8	TYPICAL BILL IMPACTS .....	36
2.8.1	<i>Residential and Senior Citizen Typical Bills</i> .....	36
2.8.2	<i>Non-Residential Typical Bills</i> .....	37
<b>3.0</b>	<b>WATER SYSTEM REVENUE.....</b>	<b>39</b>
3.1	WATER REVENUE .....	39
3.1.1	<i>Customers and Growth</i> .....	39
3.1.2	<i>Billed Volume</i> .....	40
3.1.3	<i>Bill Tabulation</i> .....	41
3.1.4	<i>Water Revenue</i> .....	42
3.1.5	<i>Tiered Assistance Program Rate Rider Surcharge</i> .....	46
<b>4.0</b>	<b>WASTEWATER SYSTEM REVENUES.....</b>	<b>47</b>
4.1	WASTEWATER REVENUES .....	47
4.1.1	<i>Customers and Growth</i> .....	47
4.1.2	<i>Sanitary Sewer Retail Billed Volume</i> .....	49
4.1.3	<i>Wholesale Volume, Capacity, and Strength Loadings</i> .....	49
4.1.4	<i>Stormwater Impervious and Gross Areas</i> .....	51
4.1.5	<i>Bill Tabulation</i> .....	54
4.1.6	<i>Wastewater Revenue</i> .....	54
4.1.7	<i>Tiered Assistance Program Rate Rider Surcharge</i> .....	58
<b>5.0</b>	<b>FINDINGS AND CONCLUSIONS .....</b>	<b>59</b>

## GLOSSARY

## LIST OF APPENDICES

Appendix A.	Accounts and Billed Volume per Account
Appendix B.	Stormwater Credit Historical Data
Appendix C.	Historical Retail Non-Stormwater Only and Stormwater Only Collection Factor Calculations Prior to Adjustments
Appendix D.	Actual-to-Budget Factors
Appendix E.	Water Fund Historical O&M Costs
Appendix F.	O&M Cost Industry Indices Data
Appendix G.	Capital Cost Industry Indices
Appendix H.	Memo from the City Energy Office Re: Escalation Factors for the Philadelphia Water Department
Appendix I.	Financial Plan Reports Digest

## LIST OF TABLES

TABLE ES-1	PROJECTED RECEIPTS UNDER EXISTING RATES .....	ES-2
TABLE ES-2	COMBINED SYSTEM REVENUE REQUIREMENTS .....	ES-4
TABLE ES-3	REQUIRED BASE RATE SERVICE REVENUE ADJUSTMENTS .....	ES-5
TABLE ES-4	REQUIRED TOTAL SERVICE REVENUE ADJUSTMENTS .....	ES-6
TABLE ES-5	EXISTING AND PREVIOUSLY AUTHORIZED RETAIL RATES .....	ES-7
TABLE ES-6	TYPICAL BILL IMPACTS .....	ES-8
TABLE ES-7	PROJECTED REVENUE AND REVENUE REQUIREMENTS: BASE RATES & TAP-R RATES .....	ES-10
TABLE ES-8	GENERAL BOND ORDINANCE COVENANTS – PERFORMANCE METRICS.....	ES-11
TABLE ES-9	RATE ORDINANCE REQUIREMENTS – PERFORMANCE METRICS .....	ES-12
TABLE 1-1	BASELINE ACCOUNT AND ACCOUNT GROWTH ESCALATION FACTORS BY CUSTOMER TYPE.....	4
TABLE 1-2	DEMAND ESCALATION FACTORS BY CUSTOMER TYPE .....	5
TABLE 1-3	HISTORICAL USAGE PER ACCOUNT FOR GENERAL SERVICE CUSTOMERS (5/8" METERS).....	6
TABLE 1-4	PROJECTED COLLECTION FACTORS.....	7
TABLE 1-5	PROJECTED MISCELLANEOUS AND CONTRA REVENUES .....	8
TABLE 1-6	ACTUAL TO BUDGET FACTOR EXCEPTIONS .....	9
TABLE 1-7	ANNUAL ESCALATION FACTORS .....	9
TABLE 1-8	ADDITIONAL ADJUSTMENTS FOR PROJECTED OPERATING EXPENSES.....	11
TABLE 2-1	PROJECTED RECEIPTS UNDER EXISTING RATES .....	20
TABLE 2-2	O&M EXPENSE CATEGORIES .....	22
TABLE 2-3	PROJECTED OPERATION AND MAINTENANCE EXPENSE .....	23
TABLE 2-4	WATER AND WASTEWATER FUNDS .....	23
TABLE 2-5	COMBINED SYSTEM PERFORMANCE TARGETS.....	24
TABLE 2-6	PROJECTED CAPITAL PROGRAM BUDGET AND ANNUAL EXPENDITURES.....	25
TABLE 2-7	SUMMARY OF EXISTING AND PROPOSED DEBT SERVICE .....	26
TABLE 2-8	PROJECTED FLOW OF FUNDS – CONSTRUCTION FUND & DEBT RESERVE ACCOUNT.....	27
TABLE 2-9	PROJECTED REVENUE AND REVENUE REQUIREMENTS: BASE RATES ONLY .....	29
TABLE 2-10	PROJECTED REVENUE AND REVENUE REQUIREMENTS: TAP-R RATES ONLY.....	30
TABLE 2-11	PROJECTED REVENUE AND REVENUE REQUIREMENTS: BASE RATES AND TAP-R RATES .....	31
TABLE 2-12	PROJECTED RATE STABILIZATION FUND AND COVENANTS METRICS PERFORMANCE: BASE RATES AND TAP-R RATES ....	34
TABLE 2-13	FY 2022 AND FY 2023 RATES.....	35
TABLE 2-14	COMPARISON OF TYPICAL BILL FOR RESIDENTIAL CUSTOMERS UNDER EXISTING AND PROPOSED RATES.....	36
TABLE 2-15	COMPARISON OF TYPICAL BILL FOR NON-RESIDENTIAL CUSTOMERS UNDER EXISTING AND PROPOSED RATES.....	38
TABLE 3-1	WATER SYSTEM CUSTOMER TYPES.....	39
TABLE 3-2	NUMBER OF CUSTOMER ACCOUNTS.....	40
TABLE 3-3	PROJECTED BILLED VOLUME .....	41
TABLE 3-4	EXISTING FY 2022 WATER RATES .....	43
TABLE 3-5	CURRENT CUSTOMER DISCOUNTS .....	43
TABLE 3-6	BILLINGS UNDER EXISTING RATES .....	44
TABLE 3-7	PROJECTED WATER RECEIPTS UNDER EXISTING RATES .....	46
TABLE 4-1	WASTEWATER SYSTEM CUSTOMER TYPES.....	48
TABLE 4-2	NUMBER OF CUSTOMER ACCOUNTS.....	48
TABLE 4-3	NUMBER OF BILLABLE PARCELS .....	49
TABLE 4-4	RETAIL BILLED VOLUMES .....	49
TABLE 4-5	PROJECTIONS FOR WHOLESALE CUSTOMER VOLUMES, CAPACITIES, AND STRENGTH LOADINGS .....	50
TABLE 4-6	FY 2022 MEAN GA AND MEAN IA .....	52
TABLE 4-7	DETERMINATION OF BILLABLE GROSS AREA .....	53

TABLE 4-8 DETERMINATION OF BILLABLE IMPERVIOUS AREA.....54

TABLE 4-9 EXISTING FY 2022 SANITARY SEWER AND STORMWATER RATES.....55

TABLE 4-10 BILLINGS UNDER EXISTING RATES .....56

TABLE 4-11 PROJECTED RECEIPTS UNDER EXISTING SANITARY SEWER RATES .....57

TABLE 4-12 PROJECTED RECEIPTS UNDER EXISTING STORMWATER RATES .....57

TABLE 4-13 PROJECTED RECEIPTS FOR WHOLESALE CONTRACT CUSTOMERS.....58

TABLE 4-14 PROJECTED RECEIPTS UNDER EXISTING RATES.....58

LIST OF FIGURES

FIGURE ES-1 COMBINED RATE STABILIZATION AND RESIDUAL FUND BALANCE PERFORMANCE .....ES-5

FIGURE 2-1 GENERAL FLOW OF FUNDS .....24

FIGURE 3-1 PROJECTING REVENUES UNDER EXISTING RATES .....42

FIGURE 3-2 SAMPLE CALCULATION FOR APPLICATION OF COLLECTION FACTORS TO BILLINGS FOR DERIVATION OF RECEIPTS .....45

## List of Acronyms

AMI	Advanced Metering Infrastructure
AWWA	American Water Works Association
Black & Veatch	Black & Veatch Management Consulting, LLC
BOD	Biological oxygen demand
CAFR	Comprehensive Annual Financial Report
CAP	Customer Assistance Program
CIP	Capital Improvement Program
City	The City of Philadelphia
City Charter	Philadelphia Home Rule Charter
COA	Consent Order Agreement
Combined System	The City of Philadelphia's Water and Wastewater Systems
COVID 19	Coronavirus 19
CP	Commercial Paper
CPI	Consumer Price Index
DC 33	District Council 33
DELCORA	Delaware County Regional Water Authority
ENR	Engineering News Record
FPL	Federal Poverty Level
FY	Fiscal Year ending June 30
GA	Gross Area
Green Cities, Clean Waters	Consent Order Agreement
IA	Impervious Area
IAR	Impervious Area Reduction
L&I	License and Inspection
LTCP	Long-Term Control Plan
M1 Manual	AWWA's Principles of Water Rates, Fees, and Charges" Manual of Water Supply Practices M1
Mcf	Thousand cubic feet
mg/l	Milligrams per liter
MoP 27	WEF's Financing and Charges for Wastewater Systems Manual of Practice 27
MS-4	Municipal Separate Storm Sewer System
NPDES	National Pollutant Discharge Elimination System
O&M	Operation and Maintenance
PADEP	Pennsylvania Department of Environmental Protection
PENNVEST	Pennsylvania Infrastructure Investment Authority
PHA	Philadelphia Housing Authority
PPI	Producer Price Index
PWD	The City of Philadelphia Water Department
Rate Board	The Philadelphia Water, Sewer, and Storm Water Rate Board
Rate Ordinance	Water Rate Board Ordinance
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
TY	Test Year
UESF	Utility Emergency Services Fund
US	United States
Water Department	The City of Philadelphia Water Department
WEF	Water Environment Federation
WRB	Water Revenue Bureau



## Executive Summary

Black & Veatch Management Consulting, LLC ("Black & Veatch") has prepared this Financial Plan Report (the "Report") on behalf of the City of Philadelphia (the "City") Water Department (the "Water Department" or "PWD") in connection with its five-year plan for water, sanitary sewer and stormwater service for fiscal years ("FY") 2023 to FY 2027. Revenue and revenue requirements are projected for FY 2022 through FY 2027 (the "Study Period").

This Report assesses the Water and Wastewater Systems' (together, the "System" or "Combined System") ability to meet current and future anticipated financial obligations, based on a financial plan reflecting the existing FY 2022 (effective September 1, 2021) water, sanitary and stormwater rates, and the additional approved FY 2023 Base Rate Incremental Increase of \$34.110 million<sup>1</sup>, along with additional future revenue adjustments sufficient to fund operations and capital financing needs for the Combined System.

The updated forecast begins with preliminary final results from FY 2021 (as reflected in FY 2022 starting fund balances), and projects results from implementing annual revenue increases and leveraging available funds from the Water Department's Rate Stabilization Fund ("RSF") during the Study Period. The financing plan requires annual Combined System Service Revenue increases from Base Rates ranging from 5.78 percent to 9.49 percent during the Study Period.

The forecast consists of the projected implementation of annual revenue increases and leveraging available funds from the Water Department's RSF during the Study Period. Based on the assumptions detailed herein, the financing plan requires annual Combined System Service Revenue increases from Base Rates<sup>2</sup> ranging from 5.84% to 9.60% during the Study Period.

The existing FY 2022 (effective September 1, 2021) water, sewer, and stormwater rates as well as the approved FY 2023 Base Rate Incremental Increase of \$34.110 million are based upon the Philadelphia Water, Sewer and Storm Water Rate Board ("Rate Board") Rate Determination dated June 16, 2021 (the "2021 Rate Determination"). In accordance with the 2021 Rate Determination and the Joint Petition for Partial Settlement (the "Settlement"), the FY 2023 Base Rate Incremental Increase is subject to a potential downward adjustment. Based upon the terms and conditions of the Settlement, no adjustment is proposed to the FY 2023 Base Rate Incremental Increase. Black & Veatch's analysis assumes that the full FY 2023 Base Rate Incremental Increase of \$34.110 million will be implemented on September 1, 2022. Further, the results contain herein demonstrate that the FY 2023 Base Rate Incremental Increase is required in full to allow the Water Department to adequately fund operations and capital financing needs for the Combined System while meeting minimum required financial metrics.

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<sup>1</sup> References to the previously approved FY 2023 Base Rate Incremental Increase of \$34.110 million relate to authorized revenues, which are subject to reconciliation per the 2021 Rate Determination.

<sup>2</sup> Excludes Tiered Assistance Program Rate Rider Surcharges.

## Revenues Under Existing Rates

In FY 2021, the Water System provided treated water services to approximately 506,000 customer accounts (excluding private fire and fire hydrants). The total number of Water System customer accounts are projected to increase to approximately 513,500 by FY 2027. However, the projected water consumption is projected to decrease from approximately 5.7 billion cubic feet in FY 2022 to 5.4 billion cubic feet in FY 2027, which reflects an average annual decrease of 0.9%.

In FY 2021, the Wastewater System provided sanitary sewer services to approximately 497,000 customer accounts. Like the Water System, the total number of Wastewater System customer accounts are projected to increase to 505,000 by FY 2027. However, the projected billed water volume for sanitary sewer service is projected to decrease over this period from approximately 9.7 billion cubic feet in FY 2022 to 9.4 billion cubic feet in FY 2027, which reflects an average annual decrease of 0.5%.

In FY 2021, the Wastewater System also provided stormwater services to approximately 552,800 accounts. A slight decrease is projected in the number of stormwater accounts during the Study Period to reflect an increase in the number of community gardens<sup>3</sup>. Projections of billable impervious and gross areas for the Study Period reflect the implementation of updated billing data and adjustments for projected credits and appeals.

Revenues under existing rates are projected based on: (i) the previously adopted rates for FY 2021 and FY 2022, (ii) projections of relative billing statistics (customer accounts by service, billed water and sewer volumes, and billable impervious and gross areas), and (iii) projected collection factors. Table ES-1 summarizes the projection of revenue under existing rates. During the Study Period, revenues under existing base rates are projected to range from \$719 million in FY 2024 to \$705 million in FY 2027, with the change primarily due to the projected decrease in billed consumption of residential 5/8" customers.

**Table ES-1 Projected Receipts Under Existing Rates**

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Combined System (\$000s)							
1	Water Sales Receipts	267,712	271,635	273,813	271,730	269,516	267,282
	Wastewater Sales Receipts						
2	Sanitary Sewer	260,609	263,843	265,394	263,884	262,288	260,680
3	Stormwater	177,070	178,313	179,354	178,543	177,753	176,981
4	Subtotal Wastewater Receipts	437,678	442,156	444,749	442,427	440,042	437,661
5	Total Water & Wastewater Receipts	705,390	713,792	718,562	714,157	709,558	704,943

<sup>3</sup> Community Gardens, as defined by, §19-1603 of the Philadelphia Code, are parcels which receive a 100% discount on all stormwater management service charges once approved.

In addition to revenues under existing rates, the Water Department receives other operating and non-operating income. In FY 2022, other operating and non-operating income is projected to be \$36.5 million, reflecting reduced levels of penalties consistent with FY 2021 due to the extension of the shut-off moratorium during the Coronavirus 19 (“COVID”) pandemic and including a projected release from the debt service reserve of \$9.9 million. During the remainder of the Study Period, other operating and non-operating revenues average \$33.5 million annually. Projections for the remainder of the Study Period assume that penalties will also return to pre-pandemic levels.

## Revenue Requirements

Projected water and wastewater service revenue requirements include operation and maintenance expenses, debt service payments, and transfers for cash funded capital and reserves.

Operating expenses consist of all costs of the Water Department necessary and appropriate for the operation, maintenance, and administration of the Water and Wastewater Systems 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. Projected O&M expenses for the Combined System will increase from \$527.5 million in FY 2022 to \$633.1 million in FY 2027.

Annual debt service, including principal and interest payments, for the Combined System is approximately \$177.1 million for FY 2022. The Water Department issued its \$231.9 million Water and Wastewater Revenue Bonds, Series 2021C during FY 2022. The Water Department anticipates issuing water and wastewater revenue bonds during the remaining years of the Study Period (beginning in FY 2023), in the following amounts: \$385 million, \$430 million, \$520 million, \$610 million, and \$540 million, respectively. In addition, the Water Department anticipates utilizing PENNVEST loans to fund a portion of the Capital Improvement Program. PENNVEST funded projects are further supported via use of the Water Department’s Commercial Paper Program, which will be used along with available cash funding to cover projects costs until reimbursement is received. Because of the projected capital needs, overall annual debt service payments (including existing and projected revenue bonds, PENNVEST loans and Commercial Paper Program interest) increase from \$177.1 million in FY 2022 to \$337.1 million in FY 2027.

During the Study Period, in accordance with the City’s Restated General Water and Wastewater Revenue Bond Ordinance of 1989, as amended (the “General Bond Ordinance”), the Water Department is projected to make transfers from the Revenue Fund to the Capital Account and Residual Fund. The Capital Account Deposit is projected to increase from \$29.4 million in FY 2022 to \$39.0 million in FY 2027. The projected end of year transfers from the Revenue Fund to the Residual Fund, attributable to Base Rates are projected to increase from \$6.0 million in FY 2022 to \$62.1 million in FY 2027 – prior to transfers to the Construction Fund. The end of year balance in the Residual Fund throughout the Study Period remains constant at \$15 million. As of the end of FY 2021, the RSF balance stands at \$124.66 million. Based on the FY 2022 and FY 2023 rates authorized by the 2021 Rate Determination, it is

anticipated that the Department will need to utilize \$4.0 million of the end of year FY 2021 RSF balance to meet overall FY 2023 revenue requirements, drawing the RSF balance down to approximately \$120.6 million. The FY 2024 to FY 2027 projected revenue increases are estimated to provide sufficient funding of revenue requirements and rebuild reserves in the RSF to target reserve levels of \$135 million by the end of the Study Period.

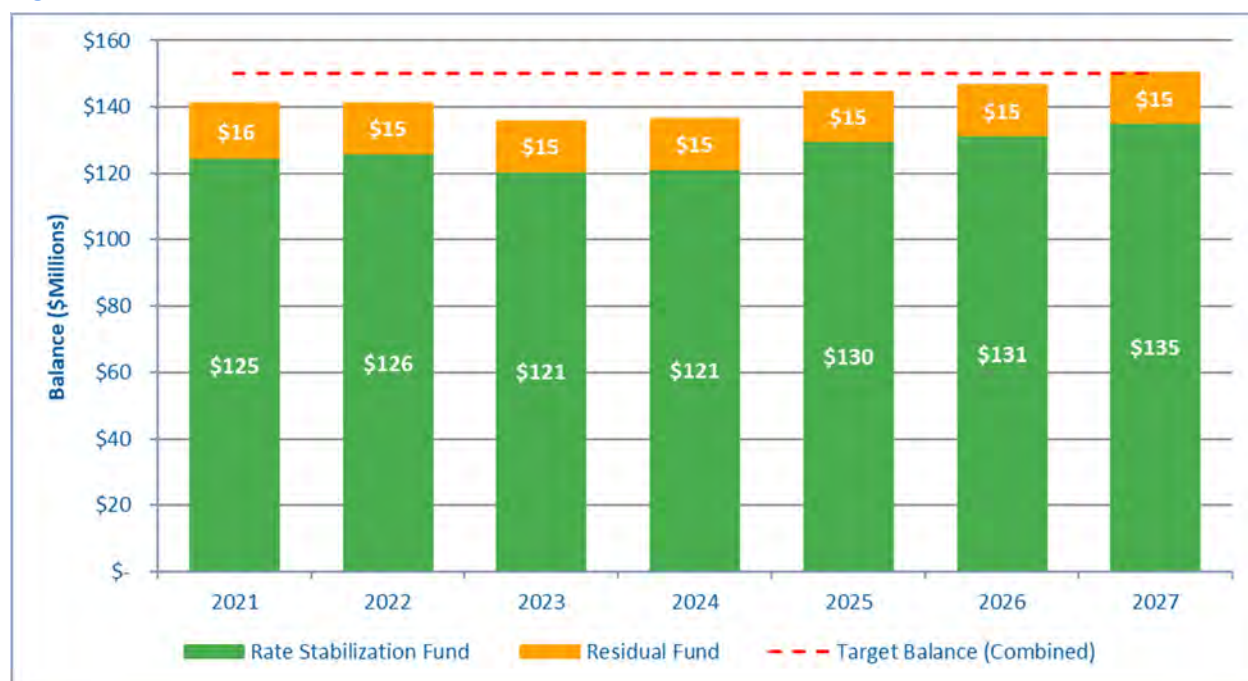
Table ES-2 summarizes the Combined System Revenue Requirements during the Study Period based on the projected cash flows.

**Table ES-2 Combined System Revenue Requirements**

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Combined System (\$000s)							
Revenue Requirements							
1	Operations & Maintenance Expense	527,472	550,149	577,614	595,306	613,867	633,058
	Existing Bond Debt Service						
2	Revenue Bonds	161,597	162,654	145,801	145,936	146,935	146,970
3	PENNVEST Parity Bonds	10,725	11,175	12,609	16,995	24,263	29,448
4	Proposed Bonds Debt Service	4,812	22,833	52,861	85,227	123,322	160,679
5	Capital Account Deposit	29,447	31,155	32,962	34,874	36,896	39,036
6	Residual Fund Deposit	5,997	8,181	30,493	39,613	51,553	62,114
7	Deposit (From)/to Rate Stabilization Fund	1,850	(4,850)	1,400	9,100	2,700	5,000
8	Total	741,900	781,296	853,741	927,050	999,536	1,076,306
Deductions of Funds from Other Sources							
9	Other Operating Revenue	(33,973)	(30,887)	(30,839)	(30,767)	(30,696)	(30,624)
10	Interest Income	(2,536)	(2,507)	(2,642)	(2,788)	(2,884)	(2,998)
11	COST OF SERVICE TO BE DERIVED FROM RATES	705,390	747,902	820,260	893,495	965,956	1,042,685

Figure ES-1 depicts the overall fund balance performance against the combined RSF and Residual Fund target balance of \$150 million, in accord with the decision of the Rate Board, dated July 12, 2018 (the “2018 Rate Determination”). As of the end of FY 2021, the RSF Balance was \$124.66 million, which is below the \$135 million target authorized in the 2018 Rate Determination. Please note, as rating agency S&P Global Ratings (“S&P”) has indicated if the Water Department were to “*deplete the RSF below the targeted \$120 million indicated in its current projections . . . we would likely lower the rating*”<sup>4</sup>, Black & Veatch is treating the \$120 million RSF balance as an absolute minimum for projection purposes. As noted above, the Water Department plans to replenish the RSF beginning in FY 2024 and the combined balance of the two funds are not projected to meet the \$150 million target until FY 2027.

<sup>4</sup> See S&P Report (September 17, 2021) at 3.

**Figure ES-1 Combined Rate Stabilization and Residual Fund Balance Performance**

### Projected Combined System Adjustments

Table ES-3 summarizes the overall annual revenue increases required from Base Rates during the Study Period. The revenue adjustments include the previously authorized FY 2023 Base Rate Incremental Increase of \$34.110 million (subject to reconciliation) as reflected in the 2021 Rate Determination as well as future adjustments needed to meet overall financial requirements. The overall increases for the Combined System range from 5.84% in FY 2023 and 9.60% in FY 2024 and 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-3 Required Base Rate Service Revenue Adjustments**

ADDITIONAL BASE RATE REVENUE REQUIRED	
FISCAL YEAR	COMBINED
2023	5.84%
2024	9.60%
2025	9.60%
2026	8.65%
2027	8.65%

Table ES-4 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 Surcharge Rates (“TAP-R”)<sup>5</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.

**Table ES-4 Required Total Service Revenue Adjustments**

ADDITIONAL SERVICE REVENUE REQUIRED	
FISCAL YEAR	COMBINED
2023	6.77%
2024	9.40%
2025	9.41%
2026	8.50%
2027	8.51%

These revenue adjustments will allow the Water Department to meet the overall revenue requirements of the Combined System as well as sustain financial metrics and ordinance obligations and requirements as further described in this Report.

## Water, Sanitary Sewer, and Stormwater Rates

Table ES-5 summarizes the FY 2022 rates (effective September 1, 2021) and FY 2023 rates (effective September 1, 2022). The base rates presented in Table ES-5 are consistent with the Rates and Charges for both fiscal years, as included with the Water Department’s Compliance Filing in the 2021 general rate proceeding. Please note that FY 2023 rates are subject to reconciliation.

The implementation of the FY 2023 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-6 and also reflect the Water Department’s proposed FY 2023 TAP-R annual adjustment, which is subject to a separate proceeding.

Based on the analyses conducted, the adoption of the increased water, sewer and stormwater rates based upon the FY 2023 Base Rate Incremental Increase of \$34.110 million is required to meet financial requirements, as further discussed below.

<sup>5</sup> Overall Additional Service Revenue Required reflects TAP-R revenues based upon proposed rates, which are subject to an annual TAP-R reconciliation proceeding.



Table ES-5 Existing and Previously Authorized Retail Rates

Water			Wastewater		
Description	FY 2022	FY 2023	Description	FY 2022	FY 2023
<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	\$4.90	\$5.00	5/8	\$7.20	\$7.54
3/4	\$5.28	\$5.39	3/4	\$9.16	\$9.63
1	\$6.46	\$6.61	1	\$13.40	\$14.14
1-1/2	\$8.75	\$9.01	1-1/2	\$23.50	\$24.91
2	\$12.26	\$12.64	2	\$36.22	\$38.43
e	\$19.61	\$20.28	e	\$65.25	\$69.32
4	\$35.46	\$36.62	4	\$110.93	\$117.78
6	\$66.76	\$69.02	6	\$218.57	\$232.18
8	\$101.84	\$105.39	8	\$345.77	\$367.45
10	\$148.99	\$154.13	10	\$499.09	\$530.31
12	\$245.14	\$254.33	12	\$906.63	\$964.36
<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	\$45.99	\$49.22	All Billable Water Usage	\$32.61	\$34.77
Next 98 Mcf	\$42.33	\$45.23	Groundwater Charge	\$11.91	\$12.66
Next 1,900 Mcf	\$32.84	\$35.05			
Over 2,000 Mcf	\$31.94	\$34.09			
			<b>Sanitary - Surcharge Rates (\$/lb)</b>		
			BOD (\$/lb in excess of 250 mg/l)	\$0.375	\$0.393
			SS (\$/lb in excess of 350 mg/l)	\$0.393	\$0.408
			<b>Residential Stormwater Charges</b>		
			<u>Monthly Stormwater Management Service Charge</u>		
			Charge Per Parcel	\$15.04	\$16.27
			<u>Monthly Billing &amp; Collection Charge</u>		
			Charge Per Bill	\$1.82	\$1.89
			<b>Non-Residential Stormwater Charges</b>		
			<u>Monthly Stormwater Management Service Charge</u>		
			Gross Area (\$/500 sf)	\$0.724	\$0.784
			Impervious Area (\$/500 sf)	\$5.117	\$5.526
			<u>Monthly Billing &amp; Collection Charge</u>		
			Charge Per Bill	\$2.36	\$2.45

## Notes:

All charges (existing and proposed) are effective September 1st of the respective Fiscal Year.

Non-Residential Stormwater Charges includes Condominiums.

Non-Residential Stormwater Customers (including Condominiums) are subject to a minimum Stormwater Management Service Charge equal to the residential charge per parcel.

Mcf - Thousand cubic feet

sf - square feet



BOD - Biochemical Oxygen Demand

SS - Suspended Solids



lb - pounds

mg/l - milligrams per liter



**Table ES-6 Typical Bill Impacts<sup>6</sup>****RESIDENTIAL CUSTOMER<sup>7</sup>**

 CURRENT TYPICAL BILL	 PROPOSED FY2023 TYPICAL BILL
Water \$23.34	Water \$25.23
Wastewater \$16.85	Wastewater \$18.36
Stormwater \$16.86	Stormwater \$18.16
Service \$12.10	Service \$12.54
<b>\$69.15</b>	<b>\$74.29</b> <i>7.4% increase</i>

**SENIOR CITIZEN WITH DISCOUNTED BILL<sup>8</sup>**

 CURRENT TYPICAL BILL	 PROPOSED FY2023 TYPICAL BILL
Water \$14.00	Water \$15.14
Wastewater \$10.11	Wastewater \$11.02
Stormwater \$16.86	Stormwater \$18.16
Service \$12.10	Service \$12.54
Senior Discount (-\$13.27)	Senior Discount (-\$14.22)
<b>\$39.80</b>	<b>\$42.64</b> <i>7.1% increase</i>

**SMALL BUSINESS CUSTOMER<sup>9</sup>**

 CURRENT TYPICAL BILL	 PROPOSED FY2023 TYPICAL BILL
Water \$28.01	Water \$30.27
Wastewater \$20.22	Wastewater \$22.03
Stormwater \$51.26	Stormwater \$55.28
Service \$12.10	Service \$12.54
<b>\$111.59</b>	<b>\$120.12</b> <i>7.6% increase</i>

<sup>6</sup> The current typical bill reflects the existing Base and TAP-R rates of \$0.69/Mcf for water quantity charges and \$1.09/Mcf for sewer quantity charges as effective September 1, 2021. Proposed FY 2023 typical bills reflect the previously authorized FY 2023 base rates assumed effective September 1, 2023 and the currently proposed FY 2023 TAP-R rates of \$1.23/Mcf for water quantity charges and \$1.95/Mcf for sewer quantity charges.

<sup>7</sup> "Typical" residential account with 5/8" meter using 5 hundred cubic feet of water monthly.

<sup>8</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>9</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-7 provides a summary of the overall Combined System Projected Revenue and Revenue Requirements during the Study Period. The previously authorized FY 2023 Base Rate Incremental Increase, along with the projected future revenue adjustments presented in this Report, allow the Combined System to meet projected revenue requirements, fulfill bond coverage and other ordinance requirements, and maintain target fund balance for the Residual Fund and rebuild RSF balances by the end of the Study Period. For this analysis, an effective increase date of September 1<sup>st</sup> for each fiscal year is assumed.

Table ES-8 summarizes Combined System performance with respect to the General Bond Ordinance Covenants.

Table ES-9 summarizes performance with respect to the Rate Ordinance Requirements<sup>10</sup>. The proposed rates presented in this Report are necessary to meet the Combined System's (i) projected revenue requirements, (ii) targeted debt service coverage, as well as (iii) other ordinance requirements, and (iv) transition to targeted fund balances for the RSF and Residual Fund.

For the Study Period, the Water Department revenue adjustments are projected to be required to meet financial metrics and help to manage customer affordability impacts.

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<sup>10</sup> Philadelphia Code, Section 13-101, et seq.

Table ES-7 Projected Revenue and Revenue Requirements: Base Rates &amp; TAP-R Rates

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Combined System (\$000s)							
Operating Revenues							
1	Water Service - Existing Rates	271,292	275,321	277,475	275,358	273,110	270,842
2	Wastewater Service - Existing Rates	443,120	447,896	450,450	448,074	445,636	443,201
3	Total Service Revenue - Existing Rates	714,412	723,217	727,926	723,433	718,746	714,043
Additional Service Revenue Required							
	Year	Percent Increase	Months Effective				
4	FY 2023	6.77%	10	39,979	49,355	49,028	48,352
5	FY 2024	9.40%	10	59,707	72,565	72,098	71,629
6	FY 2025	9.41%	10		65,039	79,022	78,508
7	FY 2026	8.50%	10			63,814	77,528
8	FY 2027	8.51%	10				68,883
9	Total Additional Service Revenue Required	-	39,979	109,062	186,633	263,624	344,899
10	Total Water & Wastewater Service Revenue	714,412	763,197	836,987	910,066	982,370	1,058,942
Other Income (a)							
11	Other Operating Revenue	24,468	15,027	13,431	13,359	13,287	13,216
12	Debt Reserve Fund Interest Income	-	-	-	-	-	-
13	Operating Fund Interest Income	1,280	1,266	1,418	1,512	1,549	1,624
14	Rate Stabilization Interest Income	1,256	1,241	1,224	1,276	1,335	1,374
15	Total Revenues	741,415	780,730	853,060	926,213	998,542	1,075,155
Operating Expenses							
16	Total Operating Expenses	(527,472)	(550,149)	(577,614)	(595,306)	(613,867)	(633,058)
Net Revenues							
17	Transfer From/(To) Rate Stabilization Fund	(1,366)	5,416	(719)	(8,263)	(1,706)	(3,849)
18	NET REVENUES AFTER OPERATIONS	212,578	235,997	274,727	322,644	382,969	438,248
Debt Service							
Senior Debt Service							
Revenue Bonds							
19	Outstanding Bonds	(161,597)	(162,654)	(145,801)	(145,936)	(146,935)	(146,970)
20	PENNVEST Parity Bonds	(10,725)	(11,175)	(12,609)	(16,995)	(24,263)	(29,448)
21	Projected Future Bonds	(4,787)	(22,738)	(52,764)	(85,145)	(123,239)	(160,609)
22	Commercial Paper	(25)	(95)	(97)	(82)	(83)	(71)
23	Total Senior Debt Service	(177,134)	(196,662)	(211,272)	(248,158)	(294,520)	(337,097)
24	TOTAL SENIOR DEBT SERVICE COVERAGE (L18/L23)	1.20 x	1.20 x	1.30 x	1.30 x	1.30 x	1.30 x
25	Subordinate Debt Service	-	-	-	-	-	-
26	Transfer to Escrow	-	-	-	-	-	-
27	Total Debt Service on Bonds	(177,134)	(196,662)	(211,272)	(248,158)	(294,520)	(337,097)
28	CAPITAL ACCOUNT DEPOSIT	(29,447)	(31,155)	(32,962)	(34,874)	(36,896)	(39,036)
29	TOTAL COVERAGE (L18/(L23+L25+L28))	1.02 x	1.03 x	1.12 x	1.13 x	1.15 x	1.16 x

**Table ES-7 Projected Revenue and Revenue Requirements: Base Rates & TAP-R Rates (continued)**

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Combined System (\$000s)							
Residual Fund							
30	Beginning of Year Balance	16,283	15,042	15,023	15,031	15,007	15,041
31	Interest Income	156	150	150	149	149	150
	Plus:						
32	End of Year Revenue Fund Balance	5,997	8,181	30,493	39,613	51,553	62,114
33	Deposit for Transfer to City General Fund (b)	1,882	1,902	2,113	2,448	2,880	3,351
	Less:						
34	Transfer to Construction Fund	(7,300)	(7,900)	(29,200)	(35,400)	(44,400)	(57,100)
35	Transfer to City General Fund	(1,882)	(1,902)	(2,113)	(2,448)	(2,880)	(3,351)
36	Transfer to Debt Service Reserve Fund	(94)	(450)	(1,435)	(4,386)	(7,268)	(5,185)
37	End of Year Balance	15,042	15,023	15,031	15,007	15,041	15,019
Rate Stabilization Fund							
38	Beginning of Year Balance	124,661	126,027	120,611	121,331	129,593	131,299
39	Deposit From/(To) Revenue Fund	1,366	(5,416)	719	8,263	1,706	3,849
40	End of Year Balance	126,027	120,611	121,331	129,593	131,299	135,148

(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). Includes Debt Service Reserve Fund Release in FY 2022.

(b) Transfer of interest earnings from the Bond Reserve Account to the Residual Fund as shown in Line 33 to satisfy the requirements for the transfer to the City General Fund shown on Line 35.

(c) FY 2022 beginning balance is estimated based on preliminary FY 2021 results.

**Table ES-8 General Bond Ordinance Covenants – Performance Metrics**

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
General Bond Ordinance Covenants							
1	Senior Debt Coverage (c)	1.20	1.20	1.30	1.30	1.30	1.30
2	Total Debt Coverage (d)	1.02	1.03	1.12	1.13	1.15	1.16
3	90% Test - Senior Debt Coverage from Current Revenues (e)	1.20	1.17	1.30	1.30	1.30	1.30

(a) 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.

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

(c) 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.



**Table ES-9 Rate Ordinance Requirements – Performance Metrics**

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Rate Ordinance Requirements (\$000s)							
1	Projected Total Revenues	741,415	780,730	853,060	926,213	998,542	1,075,155
2	Projected Total Appropriations (a)	808,591	857,576	927,867	1,003,211	1,077,788	1,156,716
3	Rate Ordinance Requirement Compliance (b)	Yes	Yes	Yes	Yes	Yes	Yes

(a) 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.

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

## Financial Projection – Challenges and Considerations

As the Water Department continues to navigate the ongoing COVID pandemic and the current economic climate, several factors may influence both spending and revenues. The items highlighted below present cost and/or revenue related pressures on the Water Department's financial condition and performance during the Study Period.

### Regulatory Pressures

- **Increasing Regulatory Requirements:** The Water Department faces increased regulatory compliance requirements in the coming years related to the new Lead and Copper Rule and pending Municipal Separate Storm Sewer System (MS4) permit negotiations. Additional costs can be anticipated to meet the above regulatory requirements in the future.
- **Continued Ramp-up in Regulatory Compliance Staff:** As the Water Department continues to pursue the requirements of the *Green City, Clean Waters* plan, additional staffing is required to design, implement, and maintain green stormwater infrastructure throughout the City.

### Policy Pressures

- **Shut-off Moratorium:** During the COVID pandemic, the City implemented a shut-off moratorium which remains in effect through at least April 2022. Penalties have also been waived during this period. As of the writing of this Report, the City is considering the further extension of the shut-off moratorium. Such an extension may have a negative impact on customer payment patterns as lack of enforcement and/or suspension of penalties have been highlighted by other utilities as creating a disincentive for customers to pay bills in a timely fashion or seek available assistance.
- **Labor Agreements and Negotiations:** The City entered into new labor agreements with Water Department Employees in District Council 33 ("DC 33"). Under these labor agreements, salaries will increase by 2.5% in FY 2022 and by 3.25% in FY 2023 and FY 2024.

- **Auto-Enrollment:** The City is moving forward with the implementation of auto-enrollment with the Health Department for qualified low-income customers into the Tiered Assistance Program (“TAP”)<sup>11</sup>.

### Operational Pressures

- **Aging Infrastructure:** The COVID pandemic delayed the implementation of the Department’s capital improvement program. Without the necessary upgrade and replacement of existing infrastructure, which is already at or beyond its service life, the Water Department may need to undertake additional short term maintenance activities until the corresponding capital projects can be completed.
- **Inflationary / Cost Escalation Pressures:** Recent Consumer Price Index (CPI) and Producer Price Index (PPI) data indicate inflation rates not seen since the 1970s<sup>12</sup>. Continued economic conditions may lead to continued cost pressures in both the short and near term. For example, while the Water Department has seen chemical bid costs increase by over 20-percent in some areas, the PPI for Industrial Chemicals for October 2021 saw a nearly 47% increase from the prior year. The Water Department is likely to face ongoing cost pressures in many key areas such as services, materials and supplies, and equipment, among others. General inflation can be expected to be significantly higher than more recent fiscal years which will put further pressure on the Water Departments operations.
- **Workforce Vacancies:** The Water Department has experienced increased vacancies due to retirements. The Water Department will need to compete with other City Department’s along with outside entities (both public and private) to fill these positions as well as retain existing staff.
- **Extreme Weather Events:** The Water Department has incurred nearly \$10M in emergency expenses related to the response to Hurricane Ida. Future extreme weather events may have similar impacts.
- **Return to Pre-COVID Operations:** The Water Department reduced a number of activities to manage costs throughout the pandemic. These activities will need to be restored to return to pre-COVID service levels.
- **Increased Workforce Pension Costs:** With the anticipated continued growth of Water Department staff, additional Pension Costs can be expected as the Water Department staffing levels increase, representing a larger portion of the City’s overall employee headcount. In turn, the Water Department is likely to be allocated a larger portion of Pension related costs in the future.
- **Customer Collections:** The Water Department’s FY 2021 collection pattern reporting, indicates that revenues from FY 2021 billings are 2% lower than the historical average over the past ten years. Collections may continue to be impacted negatively by the ongoing economic conditions, particularly as federal relief funding wanes for the general public.

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<sup>11</sup> The auto-enrollment is anticipated to commence later this year and the number of participants in TAP is projected to increase by roughly 12,500 additional enrollees. This change is reflected in the Formal Notice of the TAP Rate Rider Reconciliation Filing.

<sup>12</sup> See *Schedule BV-5: Inflation and Cost Escalation Pressures*.

## Revenue Pressures

- **Reduced Consumption:** The Water Department has seen continued reduction in the overall billed volume per account over the past 3-years. As the economy recovers, it's unclear how water consumption patterns will evolve; and whether usage by large water customers will return to pre-pandemic levels. Further risks remain that some commercial and industrial customers may not fully recover. In addition, some businesses may change their operational models and/or processes to further reduce expenses, including water consumption.
- **Withdrawal of 2020 Rate Proceeding:** In February 2020, before the pandemic's onset, the Water Department filed for FY 2021 and FY 2022 rate adjustments. On June 10, 2020, the Water Department withdrew the rate filing in response to the pandemic. Consequently, no revenue adjustment was implemented for FY 2021 and the Water Department temporarily implemented budget and operational controls and utilized available reserves to manage through FY 2021.
- **2021 Rate Determination and Settlement:** In January 2021, the Water Department filed for FY 2022 and FY 2023 rate adjustments. The Water Department and Public Advocate reached a settlement ("Settlement") in the 2021 general rate proceeding (reducing the original rate request by 60%), which was approved by the 2021 Rate Determination. Under the Settlement, the revenue adjustments were limited to a total of \$47 million for FY 2022 and FY 2023, with the \$34.110 million in FY 2023 Base Rate Incremental Increase being subject to reconciliation.
  - As a result, the Water Departments revenue adjustment in FY 2023 is effectively capped at the \$34.110 million per the Settlement.
  - Although, no additional revenues are being sought at this time, the current financial plan projections demonstrate the need to implement the full \$34.110 million incremental revenue adjustment in FY 2023. Future rate action is also anticipated to sufficiently cover costs and meet regulatory requirements and certain targeted financial metrics during the Study Period.
- **Use of Reserves:** As of the end of FY 2021, the Water Department RSF balance was \$124.66 million, which is below the \$135 million target acknowledged as reasonable in the 2018 Rate Determination. As noted earlier, in September 2021, S&P indicated that the depletion of the RSF balance below \$120 million would likely result in a downgrade of the Water Department's credit rating.
  - The Water Department has made continued use of the RSF balances over the past 5 years to help manage rate increases, as well as cover operating and capital related expenses.
  - Given the statements of S&P and the ongoing cost pressures anticipated by the Water Department in both the near and long-term, care and consideration will need to be taken when leveraging RSF monies.
  - RSF transfers are only one-time monies, simply deferring necessary revenue increases and resulting in higher future revenue increases. Further, the Water Department will need to replenish its reserves to target levels to allow for both operational and financial resiliency in the face of future emergencies.

The operational and revenue pressures identified above were not fully captured in the Cost of Service study utilized in the 2021 general rate proceeding. Many of the identified pressures occurred after the preparation of the Cost of Service study.

## Findings and Conclusion

Based on the analyses performed for this Report, the following findings are presented for the Rate Board's consideration:

1. Total projected revenue requirements will exceed revenues under existing rates during the Study Period and will require additional service revenues as recommended. Revenues under existing rates will be insufficient to fund the Combined System needs over the Study Period. Continued action will be necessary to offset anticipated increases in revenue requirements resulting from the regulatory, policy, operational and revenues related pressures outlined above.
2. The Department needs to re-start investment in an aging system, which was delayed due to the pandemic. Additional revenues are needed to meet ongoing capital obligations and debt covenant requirements.
3. The Water Department while continuing to target financial metrics acknowledged in the 2018 Rate Determination, only projects maintaining minimum debt service coverage requirements of 1.20x, with RSF balances slightly above \$120 million in FY 2022 and FY 2023.
4. To meet minimum required coverage requirements and maintain RSF balances in FY 2022 and FY 2023, the Water Department will need to monitor both revenues and expenses.
5. To restore financial performance and meet targeted financial metrics by the end of the Study Period, the Water Department projects that the RSF will need to begin to be replenished starting in FY 2024 to provide financial resiliency to manage through future emergencies and restore senior debt service coverage to target levels.
6. Beginning in FY 2024 additional revenues will be required to sustain the Water Department so as not to impede service levels and/or delay implementation of the capital improvement program.

Based on the above findings, Black & Veatch concludes that the full FY 2023 Base Rate Incremental Increase of \$34.110 million is needed and should be implemented. Further, the associated previously authorized water, sanitary sewer and stormwater rates for FY 2023 should be allowed to go into effect on September 1, 2022 to minimize reliance on RSF to meet the annual revenue requirements.

## 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 Comprehensive Annual Financial Report (“CAFR”) 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 ratemaking 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.

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 financial planning study. 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 project the additional revenues from 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 and associated revenue adjustments for water, sanitary sewer, and stormwater service. Revenue and revenue requirements cover the Study Period beginning July 1, 2021 and ending June 30, 2027 (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 revenue requirements analysis conducted herein utilizes a cost causative approach endorsed by the American Water Works Association ("AWWA") Principles of Water Rates, Fees, and Charges Manual of Water Supply Practices M1 ("M1 Manual") and Water Environment Federation ("WEF") Financing and Charges for Wastewater Systems, Manual of Practice ("MoP") No. 27; as well as WEF's User Fee Funded Stormwater Programs manual.

## 1.3 General Assumptions

The following discussion summarizes the general assumptions used to develop the projected financial plan for the Study Period.

### 1.3.1 Revenue

- Projected FY 2022 to FY 2027 service revenues under existing rates reflect the current FY 2022 rates (effective September 1, 2021).

- As of FY 2021, the Water Department saw a three-year average annual increase in retail water accounts of 0.33% while experiencing an average annual decrease in overall billed water volume per account of 1.88%. Customer accounts and usage are projected as follows:
- The FY 2021 number of accounts and usage per account serve as the initial basis of projections for all customers.
  - For FY 2022 to FY 2024, account escalation for all customer types is based upon the 3-year average annual growth in the number of accounts per type for FY 2019 to FY 2021. Accounts are assumed to remain stable for the remainder of the Study Period from FY 2025 to FY 2027.
  - For FY 2022 to FY 2024, demand escalation factors for all customers types are based upon the 3-year average annual change in consumption per account for FY 2019 to FY 2021. To approximate anticipated ongoing reductions in overall total billed water volume, the following factors are applied to the projected usage per account:
    - A 2% reduction is applied to the 5/8-inch residential customer type beginning in FY 2025<sup>13</sup>; and
    - No change in demand is applied to the remaining customer types.

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 demand escalation factors for the Study Period.

Table 1-3 summarizes these assumptions and reflects Black & Veatch's review of the historical 2-Year average change in usage per account for General Service customers with 5/8" meters.

Appendix A presents the historical data for accounts and billed volume per account.

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<sup>13</sup> Prior to the pandemic beginning in March of 2020, the 5/8-inch meter General Service customers, including the Residential customer type, have historically exhibited a 2.0% annual decrease over time since 2015. While this ongoing decline in Residential usage lessened during the pandemic, likely due to health orders and changes in work conditions, Black & Veatch assumes a resumption of the historical decline in consumption for 5/8-inch beginning in FY 2025.

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

CUSTOMER TYPE	FY 2021 ACCOUNTS [1]	FY 2022 TO FY 2024 [2]	FY 2025 TO FY 2027
<b>Senior Discount</b>			
Senior Discount 5/8"	22,215	(1.14%)	0.0%
Senior Discount >5/8"	8	4.55%	0.0%
<b>Residential</b>			
Residential 5/8"	420,516	0.14%	0.0%
Residential >5/8"	10,962	12.55%	0.0%
<b>Commercial</b>			
Commercial 5/8"	28,074	(0.20%)	0.0%
Commercial > 5/8"	9,177	3.43%	0.0%
<b>Industrial</b>			
Industrial 5/8"	509	(0.90%)	0.0%
Industrial > 5/8"	543	(0.43%)	0.0%
<b>Public Utilities</b>			
Public Utilities 5/8"	75	4.35%	0.0%
Public Utilities >5/8"	106	2.30%	0.0%
<b>PHA</b>	5,718	(1.10%)	0.0%
<b>Charities &amp; Schools</b>	1,858	(5.94%)	0.0%
<b>Hospitals and Universities</b>	140	(26.32%)	0.0%
<b>Hand Billed</b>	230	(1.55%)	0.0%
<b>Scheduled</b>	5	7.72%	0.0%
<b>Fire Service</b>	5,860	8.70%	0.0%

Notes:

PHA – Philadelphia Housing Authority

1. Initial number of accounts are based upon FY 2021, as presented in Appendix A.

2. Account Growth Escalation Factor based upon 3-year average change in usage per account for FY 2019 to FY 2021, as presented in Appendix A.

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

CUSTOMER TYPE	USAGE PER ACCOUNT [1] (MCF)	FY 2022 TO FY 2024 [2]	FY 2025 TO FY 2027 [3]
<b>Senior Discount</b>			
Senior Discount 5/8"	5.72	2.14%	0.0%
Senior Discount >5/8"	11.06	14.49%	0.0%
<b>Residential</b>			
Residential 5/8"	6.40	(0.73%)	(2.0%)
Residential >5/8"	35.45	(8.77%)	0.0%
<b>Commercial</b>			
Commercial 5/8"	9.96	(2.87%)	0.0%
Commercial > 5/8"	137.59	(3.28%)	0.0%
<b>Industrial</b>			
Industrial 5/8"	11.88	(1.43%)	0.0%
Industrial > 5/8"	144.69	(4.11%)	0.0%
<b>Public Utilities</b>			
Public Utilities 5/8"	4.91	(23.91%)	0.0%
Public Utilities >5/8"	84.02	(2.18%)	0.0%
<b>PHA</b>	25.41	(1.68%)	0.0%
<b>Charities &amp; Schools</b>	60.94	(5.59%)	0.0%
<b>Hospitals and Universities</b>	669.24	(2.49%)	0.0%
<b>Hand Billed</b>	2,068.80	1.97%	0.0%
<b>Scheduled</b>	7.60	32.06%	0.0%
<b>Fire Service</b>	1.71	(21.09%)	0.0%

Notes:

Mcf – Thousand Cubic Feet

PHA – Philadelphia Housing Authority

1. Baseline Usage per Account uses the average usage per account for FY 2021, as presented in Appendix A.

2. Demand Escalation Factor based upon 3-year average change in usage per account for FY 2019 to FY 2021, 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 for Residential 5/8" customers.

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

Description	Historical (Fiscal Year)				
	2015	2016	2017	2018	2019
Annual Billed Volume Per Account (Mcf/Account)	7.32	7.02	6.93	6.75	6.64
Annual Change	0.69%	(4.10%)	(1.28%)	(2.60%)	(1.63%)
2 Year Average Change		(1.73%)	(2.70%)	(1.94%)	(2.11%)

■ Stormwater revenue projections reflect the following

- Full implementation of the updated billing data of Impervious Area ("IA") and Gross Area ("GA") beginning in FY 2022.
- Reductions in billable IA and GA square footage resulting from stormwater credits.
  - The reductions reflect an average incremental reduction of 11.4 million square feet of GA per year and 5.8 million square feet of IA per year.
    - This reduction in square footage is primarily due to:
      - 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.
      - IA and GA Credits resulting from Stormwater Management Incentive Program/Greened Acre Retrofit Program (SMIP/GARP) grants:
        - Based upon the overall annual program budget of \$25 million in FY 2022 through FY 2027; and
        - The average grant award per greened acre, anticipated cost escalation, and average project completion time.
    - Appendix B presents the historical stormwater credit program information
  - Reductions in billable IA and GA square footage are also anticipated due to appeals and other adjustments, amounting to an average reduction of 0.2 million square feet in GA per year and a 0.07 million square feet reduction in IA per year.

■ 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 2021<sup>14</sup>. 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>15</sup>. The collection factors used in the analysis are presented in Table 1-4.

**Table 1-4      Projected Collection Factors**

	BILLING YEAR	BILLING YEAR PLUS 1	BILLING YEAR PLUS 2 AND BEYOND
Non-Stormwater Only	86.66%	8.75%	1.92%
Stormwater Only	64.67%	8.20%	6.75%

- As presented in Appendix C, the FY 2021 billing year collection factor of 84.62% reflects current impacts on customer payment patterns for Non-Stormwater Only Customers. The FY 2021 billing collection factor is over 2% lower than the multi-year average presented in Table 1-4. To reflect ongoing impacts to collections, Black & Veatch utilizes the following adjustments to the projected collection factors:
  - FY 2022 Billing Year Collection Factors** – Reduce by 2% to align with FY 2021 experience reflecting continued economic impacts of the pandemic.
  - FY 2023 Billing Year Collection Factors** – Reduce by 1%, reflecting the assumption that the 2% observed decrease would start improving as the economy recovers from the pandemic.

The above factors assume recovery in collection factors by FY 2024 to align with the overall historical averages.

- Operating Fund and Rate Stabilization Fund (“RSF”) interest earnings are estimated based on projected fund balances and 1.0% annual interest earnings rate.

<sup>14</sup> As provided by Raftelis. See APPENDIX I. Refer to FY 2021 Payment Pattern Report (Schedule RFC-3) for additional background data regarding historic billing and collections.

<sup>15</sup> The application of collection factors to projected billings results in estimated receipts used to develop projections of anticipated fiscal year revenues.

- 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>	2022	\$3.4 million
	2023 – 2027	\$10.2 million / Year to \$10.0 million / Year
<b>Other Miscellaneous Revenue [2]</b>	2022 – 2027	\$13.1 million / Year
<b>State and Federal Grants [2]</b>	2022-2027	\$0.76 million / year
<b>License and Inspection Permits [2]</b>	2022 – 2027	\$6.5 million / year
<b>UESF Grants [3]</b>	2022 – 2027	\$0.3 million / year
<b>Stormwater CAP [4]</b>	2022 – 2027	(\$1.4) million / Year
<b>Debt Service Reserve Release [5]</b>	2022	(\$9.9) million

Notes:

UESF – Utility Emergency Services Fund

1. Reflects 0.50% of billings under existing rates for FY 2022 based upon a) the FY 2021 actual penalties as a percentage of billings and b) the continued waiving of penalties due to COVID. FY 2023 and beyond reflects 1.5% of billings based on the two-year historical average from FY 2019 to FY 2020, assuming a return to pre-COVID policies and penalties as a percentage of billings.
2. FY 2022 to FY 2027 reflects the 2-year average for FY 2020 and FY 2021.
3. Reflects FY 2022 Budget amount.
4. Stormwater CAP revenue loss is anticipated to remain constant due to the transition to updated stormwater billing data for non-residential customers.
5. One-time release from Debt Service Reserve to cover Hurricane Ida expenses. See Operating Expenses for additional information.

### 1.3.2 Operating Expenses

- For FY 2022, projected operating expenses are based on the Water Department’s approved FY 2022 budget and 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) reflect the three-year historical average of the actual-to-budget ratio from FY 2019 to FY 2021 (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 [1]	2XX	SMIP/GARP	100%
Finance [2]	800	Transfers	87.94%
City Finance [3]	100	Pension, Pension Obligations, and Benefits	100%

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 2022.

2. Adjusted spend factor to account for a reduction in the budget from \$12 million in FY 2021 to \$7.7 million in FY 2022. The applied actual to budget factor is based upon the average spend over the past 3 years for FY 2019 to FY 2021 compared to the FY 2022 budget.

3. Reflects actual to budget factor adjustment to reflect estimated FY 2020 expense provided by City Finance.

- For FY 2023 through FY 2027, projected operating expenses are based on escalation of the FY 2022 projected operating expenses and include additional adjustments for planned increases or decreases in operating expenses.
- Operating Expenses for FY 2023 through 2027 are projected by applying the annual escalation factors to the projected FY 2022 operating expenses by category as presented in Table 1-7.

**Table 1-7 Annual Escalation Factors**

CLASS	DESCRIPTION	ANNUAL ESCALATION FACTOR				
		FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
100	Labor Costs	3.25%	3.25%	3.00%	3.00%	3.00%
191	Pension	2.07%	0.35%	0.20%	0.69%	0.83%
190	Pension Obligations	21.86%	12.97%	0.00%	0.00%	0.00%
1xx	Benefits	2.78%	4.03%	3.91%	3.80%	3.63%
220	Power	1.50%	1.00%	1.00%	1.00%	1.00%
221	Gas	3.00%	1.50%	1.00%	1.00%	1.00%
200	Services	5.64%	3.18%	2.77%	2.77%	2.77%
200	Public Property - Leases	0.00%	1.20%	1.20%	1.20%	1.20%
307	Chemical Costs	20.00%	15.30%	5.42%	5.42%	5.42%
300	Materials and Supplies	5.64%	3.18%	2.77%	2.77%	2.77%
400	Equipment	7.01%	4.11%	3.46%	3.46%	3.46%
500	Indemnities	0.00%	0.00%	0.00%	0.00%	0.00%
800	Transfers	5.64%	3.18%	2.77%	2.77%	2.77%



The above escalation factors are based on the following:

- **Labor Cost:** FY 2023 through FY 2024 are based upon the recent labor agreement with District Council 33 (“DC 33”). FY 2025 and thereafter are based upon the average annual increases for FY 2022 to FY 2024 as included in the DC 33 labor agreement.
- **Pension and Benefits:** The pension and benefits cost escalation factors incorporate the City’s current projected cost increases.
- **Power and Gas Cost:** Based upon the City’s Energy Office estimates (see Appendix H).
- **Services:** FY 2023 is based upon the most recent 12-month period Consumer Price Index (CPI) for the Philadelphia Area. FY 2024 is based upon the 24-month annual CPI for the Philadelphia Area. FY 2025 and thereafter is based upon the 36-month annual CPI for the Philadelphia Area.
- **Chemicals:** FY 2023 is based upon the Water Department’s recent experience in bidding chemical contracts<sup>16</sup>. FY 2024 is based upon the 24-month period Producer Price Index (PPI) for Industrial Chemicals. FY 2025 and thereafter is based upon the 36-month annual PPI for Industrial Chemicals
- **Public Property – Leases:** FY 2023 is based upon PWD’s 1-year annual experience in FY 2021. FY 2024 and thereafter use the 2-year average annual increase per PWD’s recent experience.
- **Materials and Supplies:** FY 2023 is based upon the most recent 12-month period CPI for the Philadelphia Area. FY 2024 is based upon the 24-month annual PPI for the Philadelphia Area. FY 2025 and thereafter is based upon the 36-month annual CPI for the Philadelphia Area.
- **Equipment:** FY 2023 is based upon the most recent 12-month period PPI for Construction Equipment and Machinery. FY 2024 is based upon the 24-month annual PPI for Construction Equipment and Machinery. FY 2025 and thereafter is based upon the 36-month annual PPI for Construction Equipment and Machinery.
- **Indemnities:** No escalation factor is applied for FY 2023 through FY 2027.
- **Transfers:** FY 2023 is based upon the most recent 12-month period CPI for the Philadelphia Area. FY 2024 is based upon the 24-month annual period for CPI for the Philadelphia Area. FY 2025 and thereafter is based upon the 36-month annual CPI for the Philadelphia Area.

### 1.3.3 Other Adjustments and Expenditures

Projected Operating Expenses also include adjustments as presented in Table 1-8.

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<sup>16</sup> Note the most recent 12-month period PPI for Industrial Chemicals indicates 47.3% increase in Chemical Costs.

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

CLASS	DESCRIPTION	FISCAL YEAR(S)	ADJUSTMENT AMOUNT	PURPOSE
100	Salaries & Wages	2023 to 2027	\$0.7 million to \$8.6 million	Continued shift in staffing from Capital to Operating Budget.
100	Salaries & Wages	2023 to 2027	\$1.0 million to \$4.3 million	Planned FY 2023 additions <sup>17</sup> of 71 new staff positions in Construction & Engineering, Planning & Environmental Services, Operations, Public Affairs, and Human Resources.
100	Salaries & Wages	2024 to 2027	\$0.4 million to \$1.8 million	Continued addition of Water Department staff costs related to the Consent Order & Agreement (also known as Green City, Clean Waters).
100	Salaries & Wages	2023 to 2027	\$1.0 million to \$1.2 million	Restoration of Temporary Staffing & Other Expenses.
200	Services	2023 to 2027	\$7.9 million to \$8.8 million	Additional ongoing contract services related to regulatory compliance, climate change assessments, and customer service programs.
300	Materials & Supplies	2023 to 2027	\$1.0 million to \$1.1 million	Purchase of materials and supplies related to ongoing AMI implementation.
400	Equipment	2023 to 2027	\$0.6 million to \$0.7 million	Purchase of equipment to support ongoing operations.
1xx, 190, 191	Benefits, Pension and Pension Obligations	2023 to 2027	\$0.8 million to \$5.3 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).
100, 200, 300, 400	Hurricane Ida Response	2022	\$10.0 million	One-time expenses related to emergency response and repairs resulting from the impacts of the remnants of Hurricane Ida.

<sup>17</sup> Addition of 41 positions related to regulatory compliance to support the Consent Order Agreement (36) and Lead and Copper Rule (5). Addition of 30 positions related to ongoing operations – Operations (9), Environmental Services (8), Public Affairs (3) and Human Resources (10).

CLASS	DESCRIPTION	FISCAL YEAR(S)	ADJUSTMENT AMOUNT	PURPOSE
100	Labor Agreement Bonuses	2022	\$2.9 million	One-time employee bonuses in accordance with labor agreements.

- Liquidated encumbrances for FY 2022 thru FY 2027 are estimated as 15.39% of projected Services (class 200) and Materials and Supplies (class 300) expenses excluding SMIP/GARP. The projection uses the average of the actual ratio of liquidated encumbrances to expenses for Services (class 200) and Materials and Supplies (class 300) experienced from FY 2019 to FY 2021. The SMIP/GARP budget is fully expended and thus, excluded from this ratio.

### 1.3.4 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, 2021.
- Projected debt service reflects Water and Wastewater Revenue Bond Series 2021C (issued in October 2021) together with the following anticipated bond issues and assumed interest rates:
  - FY 2023 - \$385 million at 4.0%
  - FY 2024 - \$430 million at 4.5%
  - FY 2025 - \$520 million at 5.0%
  - FY 2026 - \$610 million at 5.0%
  - FY 2027 - \$540 million at 5.0%
- Projected debt service for the anticipated bond issues in FY 2023 - 2027 reflect:
  - Bond issuance in July of each year;
  - Level debt service payments with interest-only payments, in October and April, during the first year of the bond amortization;
  - First maturity of each series on October 1<sup>st</sup>;
  - Bond issuance cost of 0.65% based upon the Water and Wastewater Revenue Bonds Series 2020A and 2020B issues; and
  - All issuances are assumed to have a 30-year term.
- Projected debt service also includes the anticipated use of the Water Department's Commercial Paper ("CP") Program<sup>18</sup> as authorized by City Council on November 19, 2020 in conjunction with projects funded by PENNVEST loans.

<sup>18</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 \$250 million at any time.

- Beginning in FY 2022, the Water Department is utilizing the CP Program to aid in paying PENNVEST funded projects. CP Program funding is used to pay contractor invoices while PENNVEST reimbursement is sought.
- Use of the CP in conjunction with PENNVEST loans and the resulting debt service schedules, including both CP interest and PENNVEST debt service, reflect projections based upon anticipated project durations for each loan.
- As PENNVEST loans require a 1:1 pledge of revenues, the CP Program is limited to use for these designated projects. Therefore, it is unavailable to support other capital improvements until the CP funding has been repaid and the Water Department obtains reauthorization from the City.

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

- The General Bond Ordinance rate covenant requires the following:
  - Minimum senior debt service coverage of 1.20;
    - Interest due on the CP program is considered on par with senior debt and included in the determination of senior debt service coverage in accordance with the General Bond Ordinance.
  - Net Revenues, excluding amounts transferred from the RSF 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”); and
  - Minimum total debt coverage of 1.00.
- Projected senior debt service coverage is based on the following assumptions:
  - Minimum senior debt service coverage is assumed for FY 2022 and FY 2023.
  - Consistent with the 2018 Rate Determination, the Water Department targets a debt service coverage of 1.30 for FY 2024 to FY 2027.
- Projected Capital Account Deposits are based on the following assumptions:
  - Inflated net plant investment of 5.8% per year based on the average annual increase in net plant investment during FY 2019 and FY 2020.
  - Annual Capital Account Deposit is based on 1.0% of the prior year projected net plant investment (original cost less depreciation).
- Projected RSF balances are based on the following assumptions:
  - Consistent with the 2018 Rate Determination, the target RSF balance is \$135 million;
  - This target will be temporarily waived during FY 2022 and FY 2023. The projected FY 2022 and FY 2023 RSF balances based upon required minimum senior debt service coverage approach the minimum RSF balance of \$120 million<sup>19</sup>; and
  - RSF balances will begin to be replenished in FY 2024 and be restored to the target level by FY 2027.

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<sup>19</sup> See S&P Report (September 17, 2021) at 3.

- Residual Fund to Construction Fund transfers are made as available and the end-of-year Residual Fund balance is maintained at \$15.0 million for the Study Period.
- The FY 2022 beginning fund balances are based on the preliminary (unaudited) FY 2021 financial results.

### 1.3.6 Capital Improvement Program

- The projected capital program is based on the Water Department's adopted FY 2022 capital program budget and proposed FY 2023 to FY 2027 capital program.
  - 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 the Water Department expects to contract in that fiscal year.
    - The Water Department's total CIP Budget does not represent expected project duration or anticipated cash flows.
    - The Water Department's CIP budget includes projects associated with the Water Master Plan (WMP).
    - The Water Department's CIP budget includes contingencies (excluding WMP and PENNVEST funded projects).
    - The Water Department's CIP Budget is not adjusted for inflation.
- The Water Department plans to provide sufficient CIP funding so that estimated outstanding project commitments will not exceed available funding in any given fiscal year<sup>20</sup>. Overall CIP funding sources, including revenue from current year rates, bond proceeds, other loans, and accumulated interest, are compared against overall project commitments less estimated capital spending.
- To evaluate CIP program funding, Black & Veatch estimated the expected project commitments for each fiscal year of the Study Period, based upon the Water Department's CIP Budget and adjusted to reflect the following:
  - The roll-forward of remaining FY 2021 budget appropriation due to bidding and project-related delays, as provided by the Water Department.
  - The roll-forward of FY 2022 to FY 2027 annual budget appropriations.
  - The shift in positions from the Capital budget to the O&M budget (as previously noted in Section 1.3.2 of this document).
  - Annual inflation of 4.0% based on industry construction cost indices for FY 2024 to FY 2027 capital program costs (See Appendix G).

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<sup>20</sup> Per City funding policy, the Water Department needs to maintain sufficient funds (including revenue sources from current year rates, bond proceeds, other loans, accumulated interest and other available sources) in the Construction Fund such that outstanding project encumbrances do not exceed available funding. See Section 2.4 of this Report for a more detailed discussion.

- Removal of contingencies by applying an adjustment factor of 85% to planned improvements, excluding Engineering and Administration, Vehicles, WMP, and 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 spending estimates reflect the following:
  - Anticipated project duration of WMP 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.

## 1.4 Financial Projection – Challenges and Considerations

As the Water Department continues to navigate the ongoing Coronavirus 19 (“COVID”) pandemic and the current economic climate, several factors may influence both spending and revenues. The items highlighted below present cost and/or revenue related pressures that could create headwinds for the Water Department's financial condition and performance during the Study Period. While the financial plan beings to address some of these elements, the full impacts are not yet known at this time.

### 1.4.1 Regulatory Pressures

- **Increasing Regulatory Requirements:** The Water Department faces increased regulatory compliance requirements in the coming years related to the new Lead and Copper Rule, and pending Municipal Separate Storm Sewer System (MS4) permit negotiations. Additional costs can be anticipated to meet compliance requirements in the future.
- **Continued Ramp-up in Regulatory Compliance Staff:** As the Water Department continues to pursue the requirements of the *Green City, Clean Waters* plan, additional staffing is required to design, implement, and maintain green stormwater infrastructure throughout the City.

### 1.4.2 Policy Pressures

- **Shut-off Moratorium:** During the pandemic, the City implemented a shut-off moratorium which has yet to be lifted for residential customers. During that time, penalties were also waived. As of the writing of this Report, the City is considering further extension of the shut-off moratorium. It is unclear what impact this may have on customer payment patterns as lack of enforcement and/or suspension of penalties have been highlighted by other utilities as creating a disincentive for customers to pay bills in a timely fashion and seek further assistance.

- **Labor Agreements and Negotiations:** The City entered into new labor agreements with Water Department Employees in DC 33. Under the labor agreements salaries will increase 2.5% in FY 2022 and 3.25% in FY 2023 and FY 2024.
- **Auto-Enrollment:** The City is moving forward with the implementation of auto-enrollment with the Health Department for qualified low-income customers into the Tiered Assistance Program (“TAP”)<sup>21</sup>.

### 1.4.3 Operational Pressures

- **Aging Infrastructure:** The COVID pandemic delayed the implementation of the Department’s capital improvement program. Without the necessary upgrade and replacement of existing infrastructure, which is already at or beyond its service life, the Water Department may need to undertake additional short term maintenance activities until the corresponding capital projects can be completed.
- **Inflationary / Cost Escalation Pressures:** Recent Consumer Price Index (CPI) and Producer Price Index (PPI) data indicate inflation rates not seen since the 1970s<sup>22</sup>. Continued economic conditions may lead to continued cost pressures during the Study Period. For example, while the Water Department has seen chemical bid costs increase by over 20-percent in some areas, the PPI for Industrial Chemicals for October 2021 saw a nearly 47% increase from the prior year. The Water Department is likely to face ongoing cost pressures in many key areas such as services, materials and supplies, and equipment, among others. In short, general inflation can be expected to be significantly higher than more recent fiscal years which will put further pressure on the Water Department’s operations.
- **Workforce Vacancies:** The Water Department has experienced increased vacancies due to retirements. The Water Department will need to compete with other City Department’s along with outside entities (both public and private) to fill these positions as well as retain existing staff.
- **Extreme Weather Events:** The Water Department has incurred nearly \$10 million in emergency expenses related to the response to Hurricane Ida. Future extreme weather events may have similar impacts.
- **Return to Pre-COVID Operations:** The Water Department reduced a number of activities to manage costs throughout the pandemic. These activities will need to be restored to return to pre-COVID service levels.
- **Increased Workforce Pension Costs:** With the anticipated continued growth of Water Department staff, additional pension costs can be expected as the Water Department staffing levels increase, representing a larger portion of the City’s overall employee headcount. In turn, the Water Department is likely to be allocated a larger portion of pension related costs in the future.

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<sup>21</sup> The auto-enrollment is anticipated to commence later this year and the number of participants in TAP is projected to increase by roughly 12,500 additional enrollees. This change is reflected in the Formal Notice of the TAP Rate Rider Reconciliation Filing.

<sup>22</sup> See *Schedule BV-5: Inflation and Cost Escalation Pressures*

- **Customer Collections:** The Water Department's FY 2021 collection pattern reporting, indicates that revenues from FY 2021 billings are 2% lower than the historical average over the past ten years. It's unclear whether collections will continue to be impacted by the ongoing economic conditions and as federal relief funding wanes for the general public.

#### 1.4.4 Revenue Pressures

- **Reduced Consumption:** The Water Department has seen continued reduction in the overall billed volume per account over the past 3-years. As the economy recovers, it's unclear how water consumption patterns will evolve; and whether usage by large water customers will return to pre-pandemic levels. Further risks remain that some commercial and industrial customers may not fully recover. In addition, some businesses may change their operational models and/or processes to further reduce expenses, including water consumption.
- **Withdrawal of 2020 Rate Proceeding:** Before the pandemic's onset, the Water Department had filed for a rate adjustment for FY 2021 and 2022. On June 10, 2020, the Water Department withdrew the rate filing in response to the pandemic. Consequently, no revenue adjustment was implemented for FY 2021 and the Water Department utilized temporarily budget and operational controls along with available reserves to manage through FY 2021.
- **2021 Rate Determination and Settlement:** The Water Department filed for FY 2022 and FY 2023 rate adjustments on January 15, 2021. The Water Department and Public Advocate reached a settlement agreement which was reflected in the 2021 Rate Determination. Under the agreement, the revenue adjustments were limited to a total of \$47 million for FY 2022 and FY 2023, with the \$34.110 million in FY 2023 Base Rate Incremental Increase being subject to reconciliation.
  - As a result, the Water Departments revenue adjustment in FY 2023 is effectively capped at the \$34.110 million per the Settlement.
  - The Rate Board recognized the revenue adjustments included in the Settlement were reduced "by 60% from the Department's original request."
  - Although, no additional revenues are being sought at this time, the current financial plan projections demonstrate the need for both the implementation of the full \$34.110 million in revenue adjustments in FY 2023 as well as the need for future rate action to sufficiently cover costs and meet both regulatory and target financial metrics.
- **Use of Reserves:** As of the end of FY 2021, the Water Department RSF balance stood at \$124.66 million, below the \$135 million target established during the 2018 Rate Determination. As noted earlier, in September 2021, S&P indicated that they may consider downgrading the Water Department's credit rating, should the RSF balance fall below \$120 million.
  - The Water Department has made continued use of the RSF balances over the past 5 years to help manage rate increases, as well as cover operating and capital related expenses.



- Given the statements of S&P and the ongoing cost pressures anticipated by the Water Department in both the near and long-term, care and consideration will need to be taken when leveraging RSF monies.
- RSF transfers are only one-time monies, simply deferring necessary revenue increases and resulting in higher future revenue increases. Further, the Water Department will need to replenish its reserves to target levels to allow for both operational and financial resiliency in the face of future emergencies.

The Cost of Service study used in conjunction with 2021 Rate Determination did not fully account for the above factors. Labor agreements were still pending at the time of the analysis, inflation and pricing pressures were at more typical historical levels and did not reflect the significant increases currently presenting themselves, federal assistance was uncertain, the Water Department had adjusted budget and operations to weather the pandemic and uncertainty surrounding revenues.

## 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 750 miles of separate storm sewers, 1,850 miles of combined sewers, and 71,500 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

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 routinely performs a multi-year financial planning analysis that supports revenue sufficiency. In addition, the Water Department also conducts retail and wholesale cost of service studies and goes through a rate proceeding process which concludes with the determination by the Rate Board. The Water Department performed its most recent Cost of Service study in conjunction with its FY 2022 and FY 2023 rate request. Rates for both FY 2022 and FY 2023 were authorized in conjunction with the Board's 2021 Rate Determination and the associated Settlement.

This section presents the results for the Combined System, summarizes the overall financial plan for the Combined System during the Study Period and reflects the previously authorized FY 2022 rates and charges and the FY 2023 revenue adjustment of \$34.110 million. The FY 2023 revenue adjustment and the previous Cost of Service study served as the basis for the pending FY 2023 water, sanitary sewer, and stormwater services.

### 2.2 Revenue

Using the assumptions discussed in Section 1.3 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 1-4<sup>23</sup> 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.

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<sup>23</sup> As stated in Section 1.3, the FY 2022 and FY 2023 Billing Year Collection Factors are reduced by 2% and 1% respectively, to reflect ongoing impacts due to the COVID pandemic.

**Table 2-1 Projected Receipts Under Existing Rates**

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Combined System (\$000s)							
1	Water Sales Receipts	267,712	271,635	273,813	271,730	269,516	267,282
	Wastewater Sales Receipts						
2	Sanitary Sewer	260,609	263,843	265,394	263,884	262,288	260,680
3	Stormwater	177,070	178,313	179,354	178,543	177,753	176,981
4	Subtotal Wastewater Receipts	437,678	442,156	444,749	442,427	440,042	437,661
5	Total Water & Wastewater Receipts	705,390	713,792	718,562	714,157	709,558	704,943
Other Income							
6	Penalties	3,411	10,241	10,193	10,121	10,049	9,978
7	Miscellaneous City Revenue	2,176	2,176	2,176	2,176	2,176	2,176
8	Other	10,533	10,533	10,533	10,533	10,533	10,533
9	State & Federal Grants	764	764	764	764	764	764
10	Permits Issued by L&I	6,510	6,510	6,510	6,510	6,510	6,510
11	Miscellaneous (Procurement)	363	363	363	363	363	363
12	City & UESF Grants	300	300	300	300	300	300
13	Affordability Program Discount Cost (a)	-	-	-	-	-	-
14	Release from Debt Service Reserve (b)	9,916	-	-	-	-	-
15	Other Operating Revenues	33,973	30,887	30,839	30,767	30,696	30,624
Interest Income							
16	Interest Income on Debt Service Reserve	-	-	-	-	-	-
17	Operating Fund	1,280	1,266	1,418	1,512	1,549	1,624
18	Rate Stabilization Fund	1,256	1,241	1,224	1,276	1,335	1,374
19	Total Nonoperating Income	2,536	2,507	2,642	2,788	2,884	2,998
20	Total Receipts	741,900	747,186	752,043	747,712	743,138	738,564

(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 Fund 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. 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 (“RSF”) 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 Tiered Assistance Program (“TAP”) Rate Rider Surcharge Rates (“TAP-R”), of \$0.69 per thousand cubic feet (Mcf) for water and \$1.09/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.

The Water Department handles the reconciliation of TAP discounts and TAP-R billings as part of a separate proceeding. Consequently, the revenues developed in Financial Plan 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 1.3.

### **2.3.1 Operation and Maintenance Expenses**

The operation and maintenance (“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, using the FY 2022 budget as the starting point and reflecting application of the actual-to-budget spend factors, inclusion of additional operating expenses, and adjustments for escalation as discussed in Sections 1.3.2 and 1.3.3.



**Table 2-3 Projected Operation and Maintenance Expense**

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Combined System (\$000s)							
1	Personal Services	163,561	168,173	178,826	186,466	194,402	202,647
2	Pension and Benefits	129,819	135,443	142,664	145,981	149,643	153,394
3	Subtotal	293,380	303,616	321,490	332,446	344,046	356,042
	Purchase of Services						
4	Power	15,118	15,344	15,498	15,653	15,809	15,967
5	Gas	4,407	4,539	4,607	4,653	4,700	4,747
6	SMIP/GARP	25,000	25,000	25,000	25,000	25,000	25,000
7	Other	147,131	160,610	165,629	170,145	174,786	179,554
8	Subtotal	191,655	205,493	210,733	215,451	220,295	225,268
	Materials and Supplies						
9	Chemicals	24,786	29,743	34,294	36,153	38,112	40,178
10	Other	26,744	26,731	27,582	28,346	29,131	29,938
11	Subtotal	51,530	56,475	61,876	64,498	67,243	70,116
12	Equipment	9,178	5,105	5,315	5,499	5,689	5,886
13	Indemnities and Transfers	10,367	10,749	10,976	11,180	11,391	11,606
14	Subtotal Expenses	556,110	581,438	610,390	629,075	648,663	668,918
15	Liquidated Encumbrances	(28,638)	(31,289)	(32,776)	(33,769)	(34,797)	(35,860)
16	Total Expenses	527,472	550,149	577,614	595,306	613,867	633,058

**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>24</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>24</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 2-1.

**Figure 2-1 General Flow of Funds**

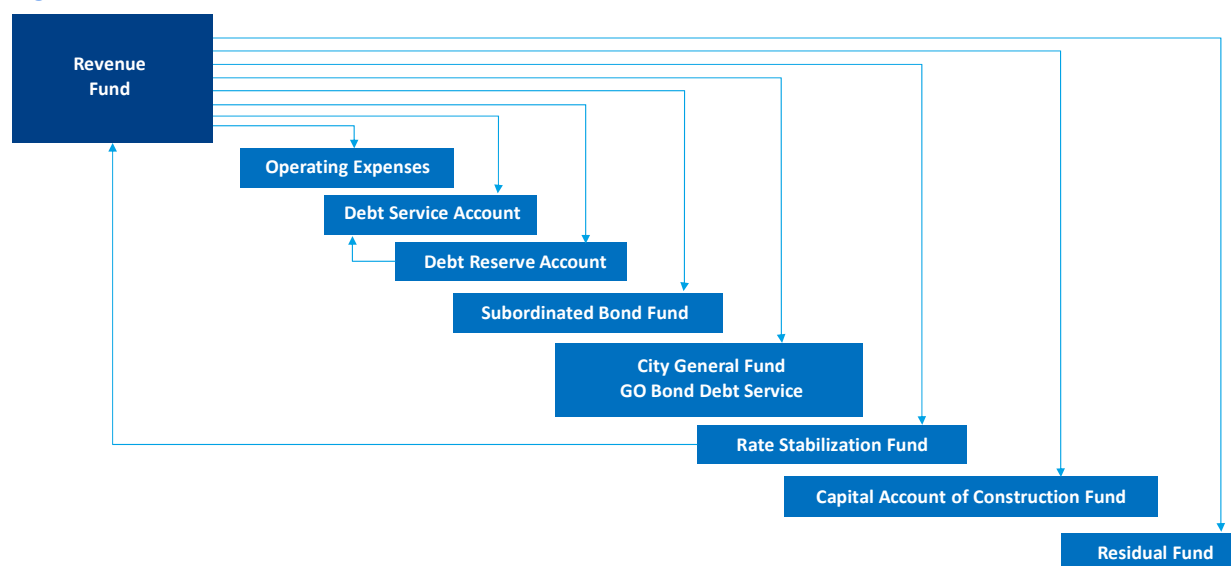


Table 2-5 summarizes the performance targets of the General Bond Ordinance and the 2018 Rate Determination described in Section 1.3.

**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"), storm flood relief, reconstruction of sewer and green stormwater infrastructure.

As discussed in Section 1.3.6, the Water Department's CIP is an appropriations-based projection that is not inflation-adjusted and contains contingencies (for projects other than WMP related and those which are PENNVEST funded). 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, budget rollforward, 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**

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Combined System (\$000s)							
1	Engineering and Administration (a)	13,595	13,614	11,890	10,166	8,442	6,718
2	Plant Improvements	250,550	255,000	326,000	168,000	455,000	195,000
3	Distribution System Rehabilitation	30,760	123,060	120,060	315,060	122,060	130,060
4	Large Meter Replacement	5,000	5,000	5,000	5,000	5,000	5,000
5	Storm Flood Relief	-	15,000	15,000	15,000	15,000	15,000
6	Reconstruction of Sewers	45,260	72,860	78,860	83,860	89,860	94,860
7	Green Infrastructure	20,000	83,000	83,000	83,000	156,000	156,000
8	Vehicles	12,000	12,000	12,000	12,000	12,000	12,000
9	Total Improvements	377,165	579,534	651,810	692,086	863,362	614,638
10	Inflation Adjustment (b)	-	0	23,832	56,014	106,629	104,402
11	Inflated Total	377,165	579,534	675,643	748,100	969,992	719,040
12	Rollforward Adjustments	(136,312)	(46,957)	30,864	(59,941)	(181,708)	26,051
13	Total Inflated Adjusted CIP Budget	240,853	532,578	706,506	688,159	788,283	745,091
14	Contingency Adjustment	0	(55,263)	(62,307)	(57,677)	(66,668)	(93,925)
15	Annual Encumbrances	240,853	477,314	644,199	630,482	721,615	651,166
16	Project Expenses (c)	287,785	360,099	513,406	601,647	653,682	683,571
17	Annual Net Encumbrances	(46,931)	117,215	130,793	28,835	67,932	(32,405)

(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 2023.

(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 1.3.4. For the analyses conducted herein, Black & Veatch worked with the Water Department, and the City's financial advisors to estimate anticipated bond issue sizes, interest rates for a 30-year term, and issuance costs.

The Water Department continues to pursue Pennsylvania Infrastructure Investment Authority ("PENNVEST") loans. 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, if awarded, will be parity debt. In addition, the PENNVEST loan agreements required a one-to-one pledge of revenues and the Water Department is only reimbursed after they submit contractor invoices to PENNVEST. To cover contractor costs between the time of the invoice(s) and the PENNVEST reimbursement, the Water Department leverages its commercial paper 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.

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

**Table 2-7 Summary of Existing and Proposed Debt Service**

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Combined System (\$000s)							
Revenue Bonds							
1	Existing (a)	161,597	162,654	145,801	145,936	146,935	146,970
	Proposed						
2	Fiscal Year 2022 (b)	4,787	9,905	13,970	13,971	13,972	13,970
3	Fiscal Year 2023 (c)		12,833	22,669	22,669	22,669	22,669
4	Fiscal Year 2024 (d)			16,125	26,838	26,838	26,838
5	Fiscal Year 2025 (e)				21,667	34,344	34,344
6	Fiscal Year 2026 (e)					25,417	40,288
7	Fiscal Year 2027 (e)						22,500
8	Total Proposed	4,787	22,738	52,764	85,145	123,239	160,609
9	Total Revenue Bonds	166,384	185,392	198,565	231,081	270,174	307,578
PENNVEST Loans							
10	PENNVEST Loans - Parity PENNVEST (f)	10,725	11,175	12,609	16,995	24,263	29,448
Commercial Paper							
11	Commercial Paper	25	95	97	82	83	71
12	Total Debt Service	177,134	196,662	211,272	248,158	294,520	337,097

(a) Projected debt service amounts include (i) debt service for the Series 2020A and 2020B Bonds which issued in FY 2021; and (ii) debt service and savings from the Forward Refunding for the Series 2011A Bonds.

(b) Projected debt service reflects the Water and Wastewater Revenue Bond Series 2021c (issued in October 2021).

(c) Projected debt service amounts assume interest only payment for the first year of the bond authorization based on 4.00% 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 4.50% interest rate; and assume issuance during the first quarter of the fiscal year.

(e) Projected debt service amounts assume interest only payment for the first year of the bond authorization based on 5.00% interest rate; and assume issuance during the first quarter of the fiscal year.

(f) 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 2022 through FY 2027, to finance the proposed capital improvements of the Water and Wastewater Systems.

As shown in Lines 2 through 5, in addition to funding capital construction costs, the bond issuance proceeds are also used to fund required deposits into the Debt Reserve Fund and pay the costs of bond issuance.

**Table 2-8 Projected Flow of Funds – Construction Fund & Debt Reserve Account**

LINE NO.		FISCAL YEAR ENDING JUNE 30,					
DESCRIPTION		2022	2023	2024	2025	2026	2027
Combined System (\$000s)							
Disposition of Bond Proceeds							
1	Proceeds From Sale of Bonds	276,613	385,000	430,000	520,000	610,000	540,000
Transfers:							
2	Debt Reserve Fund (a)	-	13,472	26,838	34,344	40,288	41,388
3	Cost of Bond Issuance (b)	1,613	2,503	2,795	3,380	3,965	5,400
4	Refund Commercial Paper	-	-	-	-	-	-
5	Construction Fund (c)	275,000	369,025	400,367	482,276	565,747	493,212
6	Total Issue	276,613	385,000	430,000	520,000	610,000	540,000
Disposition of Commercial Paper Proceeds							
7	Proceeds From Commercial Paper	15,100	49,600	49,700	40,300	41,500	32,700
Transfers:							
8	Debt Reserve Fund (a)	-	-	-	-	-	-
9	Cost of Issuance (d)	-	-	-	-	-	-
10	Interim PENNVEST Funding	15,100	49,600	49,700	40,300	41,500	32,700
11	Total Issue	15,100	49,600	49,700	40,300	41,500	32,700
Construction Fund							
12	Beginning Balance	419,719	470,191	588,722	620,450	645,448	713,185
13	Transfer From Revenue Bond Proceeds	275,000	369,025	400,367	482,276	565,747	493,212
14	Transfer From Commercial Paper Proceeds	-	-	-	-	-	-
15	PENNVEST Loan	22,081	65,282	76,589	67,797	67,616	50,060
16	Capital Account Deposit	29,447	31,155	32,962	34,874	36,896	39,036
17	Transfer from Residual Fund	7,300	7,900	29,200	35,400	44,400	57,100
18	Interest Income on Construction Fund	4,427	5,268	6,016	6,298	6,759	6,911
19	Total Available	757,976	948,822	1,133,856	1,247,095	1,366,867	1,359,505
20	Net Cash Financing Required	287,785	360,099	513,406	601,647	653,682	683,571
21	Ending Balance	470,191	588,722	620,450	645,448	713,185	675,934
Capital Program Net Encumbrances							
22	Beginning Balance	396,350	349,418	466,633	597,427	626,262	694,194
23	Annual Encumbrances	240,853	477,314	644,199	630,482	721,615	651,166
24	Project Expenses	(287,785)	(360,099)	(513,406)	(601,647)	(653,682)	(683,571)
25	Ending Balance	349,418	466,633	597,427	626,262	694,194	661,790
26	Allowance Commitments Prior to Bond Issue	-	-	-	-	-	-
27	Target Balance	349,418	466,633	597,427	626,262	694,194	661,790
Debt Reserve Fund							
28	Beginning Balance	193,105	183,283	197,205	225,478	264,207	311,763
29	Transfer From Bond Proceeds	-	13,472	26,838	34,344	40,288	41,388
30	Transfer From Residual Fund (e)	94	450	1,435	4,386	7,268	5,185
31	Debt Service Reserve Release	(9,916)	-	-	-	-	-
32	Ending Balance	183,283	197,205	225,478	264,207	311,763	358,337
33	Interest Income on Debt Reserve Fund	1,882	1,902	2,113	2,448	2,880	3,351

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

(b) Cost of bonds issuance assumed at 0.65 percent of issue amount.

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

(d) Cost of Commercial Paper issuance included in PWD Finance O&M expenses.

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

Line 7 presents the CP Program proceeds, while lines 8 through 10 show the amounts deposited to the Debt Reserve Fund, funds utilized to provide interim funding for PENNVEST projects, as well as the Cost of Issuance. The annual Debt Reserve Fund balance must equal the maximum future annual debt service estimated for the outstanding and proposed bonds as well as interest on the CP program. The debt service reserve requirement associated with PENNVEST loans are funded from the Residual Fund as reflected on Line 30.

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 21 against the Target Balance shown on Line 27, which accounts for new CIP Encumbrances and Project Expenses for each fiscal year.

The projected bond issuances are as discussed above and consistent with the general assumptions outlined in Section 1.3.

The General Bond Ordinance requires two transfers: Interest Earnings Payment and the Capital Account Deposit. The Interest Earnings Payment is discussed later in this Report. The Capital Account Deposit is shown on Line 16 and the Residual Fund Transfer is found on Line 17.

Interest income on annual average balances in the Construction Fund and the Debt Reserve Fund are shown in Lines 18 and 33. 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 annual revenue requirements of the Water Department. An assumed interest rate of 1.0% is used to determine the interest income for FY 2022 through FY 2027.

## 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<sup>25</sup> for the TAP net recoverable costs<sup>26</sup> and TAP-R revenues<sup>27</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.

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<sup>25</sup> The TAP-R cashflows presented in Table 2-10 reflect the revenues from existing TAP-R rates (effective September 1, 2021) and net recoverable costs for FY 2022 and the adjusted revenues from the FY 2023 TAP-R rates (effective September 1, 2021) along with the associated net recoverable costs.

<sup>26</sup> TAP net recoverable costs reflect the revenue requirements set forth for the TAP-R rates. This includes TAP discounts and adjustments for under/over collection including interest.



As indicated on Lines 4 through 9 of Table 2-9 and Table 2-11, annual increases in revenue are required beginning in FY 2023. As previously noted, the FY 2023 revenue adjustment reflects the previously authorized revenue increase of \$34.11 million as included in the 2021 Rate Determination. 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 reflect additional revenues relative to the total service revenue with the inclusion of TAP-R related revenues.

**Table 2-9 Projected Revenue and Revenue Requirements: Base Rates Only**

LINE	FISCAL YEAR ENDING JUNE 30,						
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Combined System (\$000s)							
Operating Revenues							
1	Water Service - Existing Rates	267,712	271,635	273,813	271,730	269,516	267,282
2	Wastewater Service - Existing Rates	437,678	442,156	444,749	442,427	440,042	437,661
3	Total Service Revenue - Existing Rates	705,390	713,792	718,562	714,157	709,558	704,943
Additional Service Revenue Required							
	Year	Percent Increase	Months Effective				
4	FY 2023	5.84%	10	34,110	41,991	41,733	41,195
5	FY 2024	9.60%	10	59,707	72,565	72,098	71,629
6	FY 2025	9.60%	10		65,039	79,022	78,508
7	FY 2026	8.65%	10			63,814	77,528
8	FY 2027	8.65%	10				68,883
9	Total Additional Service Revenue Required	-	34,110	101,698	179,338	256,398	337,742
10	Total Water & Wastewater Service Revenue	705,390	747,902	820,260	893,495	965,956	1,042,685
Other Income (a)							
11	Other Operating Revenue	33,973	30,887	30,839	30,767	30,696	30,624
12	Debt Reserve Fund Interest Income	-	-	-	-	-	-
13	Operating Fund Interest Income	1,280	1,266	1,418	1,512	1,549	1,624
14	Rate Stabilization Interest Income	1,256	1,241	1,224	1,276	1,335	1,374
15	Total Revenues	741,900	781,296	853,741	927,050	999,536	1,076,306
Operating Expenses							
16	Total Operating Expenses	(527,472)	(550,149)	(577,614)	(595,306)	(613,867)	(633,058)
Net Revenues							
17	Transfer From/(To) Rate Stabilization Fund	(1,850)	4,850	(1,400)	(9,100)	(2,700)	(5,000)
18	NET REVENUES AFTER OPERATIONS	212,578	235,997	274,727	322,644	382,969	438,248
Debt Service							
Senior Debt Service							
Revenue Bonds							
19	Outstanding Bonds	(161,597)	(162,654)	(145,801)	(145,936)	(146,935)	(146,970)
20	PENNVEST Parity Bonds	(10,725)	(11,175)	(12,609)	(16,995)	(24,263)	(29,448)
21	Projected Future Bonds	(4,787)	(22,738)	(52,764)	(85,145)	(123,239)	(160,609)
22	Commercial Paper	(25)	(95)	(97)	(82)	(83)	(71)
23	Total Senior Debt Service	(177,134)	(196,662)	(211,272)	(248,158)	(294,520)	(337,097)
24	TOTAL SENIOR DEBT SERVICE COVERAGE (L18/L23)	1.20 x	1.20 x	1.30 x	1.30 x	1.30 x	1.30 x
25	Subordinate Debt Service	-	-	-	-	-	-
26	Transfer to Escrow	-	-	-	-	-	-
27	Total Debt Service on Bonds	(177,134)	(196,662)	(211,272)	(248,158)	(294,520)	(337,097)
28	CAPITAL ACCOUNT DEPOSIT	(29,447)	(31,155)	(32,962)	(34,874)	(36,896)	(39,036)
29	TOTAL COVERAGE (L18/(L23+L25+L28))	1.02 x	1.03 x	1.12 x	1.13 x	1.15 x	1.16 x
30	End of Year Revenue Fund Balance	5,997	8,181	30,493	39,613	51,553	62,114

(a) Includes other operating and nonoperating income, including interest income on funds and accounts transferable to the Revenue Fund. Includes Debt Service Reserve Fund Release in FY 2022.

**Table 2-10 Projected Revenue and Revenue Requirements: TAP-R Rates Only**

LINE	FISCAL YEAR ENDING JUNE 30,						
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Combined System (\$000s)							
Operating Revenues							
1	Water Service - Existing Rates	3,580	3,686	3,662	3,628	3,594	3,560
2	Wastewater Service - Existing Rates	5,441	5,740	5,701	5,648	5,594	5,540
3	Total Service Revenue - Existing Rates	9,021	9,426	9,363	9,276	9,188	9,100
Additional Service Revenue Required							
	Year	Percent Increase	Months Effective				
4	FY 2023	78.65%	10	5,869	7,364	7,295	7,157
5	FY 2024	0.00%	10	-	-	-	-
6	FY 2025	0.00%	10		-	-	-
7	FY 2026	0.00%	10			-	-
8	FY 2027	0.00%	10				-
9	Total Additional Service Revenue Required	-	5,869	7,364	7,295	7,226	7,157
10	Total Water & Wastewater Service Revenue	9,021	15,295	16,728	16,571	16,414	16,257
Other Income							
11	Other Operating Revenue (a)	(9,506)	(15,861)	(17,408)	(17,408)	(17,408)	(17,408)
12	Debt Reserve Fund Interest Income	-	-	-	-	-	-
13	Operating Fund Interest Income	-	-	-	-	-	-
14	Rate Stabilization Interest Income	-	-	-	-	-	-
15	Total Revenues	(484)	(566)	(681)	(837)	(994)	(1,151)
Operating Expenses							
16	Total Operating Expenses	-	-	-	-	-	-
Net Revenues							
17	Transfer From/(To) Rate Stabilization Fund (b)	484	566	681	837	994	1,151
18	NET REVENUES AFTER OPERATIONS	-	-	-	-	-	-
Debt Service							
Senior Debt Service							
Revenue Bonds							
19	Outstanding Bonds	-	-	-	-	-	-
20	PENNVEST Parity Bonds	-	-	-	-	-	-
21	Projected Future Bonds	-	-	-	-	-	-
22	Commercial Paper	-	-	-	-	-	-
23	Total Senior Debt Service	-	-	-	-	-	-
24	TOTAL SENIOR DEBT SERVICE COVERAGE (L18/L23)	NA	NA	NA	NA	NA	NA
25	Subordinate Debt Service	-	-	-	-	-	-
26	Transfer to Escrow	-	-	-	-	-	-
27	Total Debt Service on Bonds	-	-	-	-	-	-
28	CAPITAL ACCOUNT DEPOSIT	-	-	-	-	-	-
29	TOTAL COVERAGE (L18/(L23+L25+L28))	NA	NA	NA	NA	NA	NA
30	End of Year Revenue Fund Balance	-	-	-	-	-	-

(a) Reflects net recoverable costs for TAP-R on a fiscal year basis based on the 2021 and 2022 Annual Adjustment Proceeding.

(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

LINE NO.	DESCRIPTION	FISCAL YEAR ENDING JUNE 30,					
		2022	2023	2024	2025	2026	2027
Combined System (\$000s)							
Operating Revenues							
1	Water Service - Existing Rates	271,292	275,321	277,475	275,358	273,110	270,842
2	Wastewater Service - Existing Rates	443,120	447,896	450,450	448,074	445,636	443,201
3	Total Service Revenue - Existing Rates	714,412	723,217	727,926	723,433	718,746	714,043
Additional Service Revenue Required							
	Year	Percent Increase	Months Effective				
4	FY 2023	6.77%	10	39,979	49,355	48,691	48,352
5	FY 2024	9.40%	10	59,707	72,565	72,098	71,629
6	FY 2025	9.41%	10		65,039	79,022	78,508
7	FY 2026	8.50%	10			63,814	77,528
8	FY 2027	8.51%	10				68,883
9	Total Additional Service Revenue Required	-	39,979	109,062	186,633	263,624	344,899
10	Total Water & Wastewater Service Revenue	714,412	763,197	836,987	910,066	982,370	1,058,942
Other Income (a)							
11	Other Operating Revenue	24,468	15,027	13,431	13,359	13,287	13,216
12	Debt Reserve Fund Interest Income	-	-	-	-	-	-
13	Operating Fund Interest Income	1,280	1,266	1,418	1,512	1,549	1,624
14	Rate Stabilization Interest Income	1,256	1,241	1,224	1,276	1,335	1,374
15	Total Revenues	741,415	780,730	853,060	926,213	998,542	1,075,155
Operating Expenses							
16	Total Operating Expenses	(527,472)	(550,149)	(577,614)	(595,306)	(613,867)	(633,058)
Net Revenues							
17	Transfer From/(To) Rate Stabilization Fund	(1,366)	5,416	(719)	(8,263)	(1,706)	(3,849)
18	NET REVENUES AFTER OPERATIONS	212,578	235,997	274,727	322,644	382,969	438,248
Debt Service							
Senior Debt Service							
Revenue Bonds							
19	Outstanding Bonds	(161,597)	(162,654)	(145,801)	(145,936)	(146,935)	(146,970)
20	PENNVEST Parity Bonds	(10,725)	(11,175)	(12,609)	(16,995)	(24,263)	(29,448)
21	Projected Future Bonds	(4,787)	(22,738)	(52,764)	(85,145)	(123,239)	(160,609)
22	Commercial Paper	(25)	(95)	(97)	(82)	(83)	(71)
23	Total Senior Debt Service	(177,134)	(196,662)	(211,272)	(248,158)	(294,520)	(337,097)
24	TOTAL SENIOR DEBT SERVICE COVERAGE (L18/L23)	1.20 x	1.20 x	1.30 x	1.30 x	1.30 x	1.30 x
25	Subordinate Debt Service	-	-	-	-	-	-
26	Transfer to Escrow	-	-	-	-	-	-
27	Total Debt Service on Bonds	(177,134)	(196,662)	(211,272)	(248,158)	(294,520)	(337,097)
28	CAPITAL ACCOUNT DEPOSIT	(29,447)	(31,155)	(32,962)	(34,874)	(36,896)	(39,036)
29	TOTAL COVERAGE (L18/(L23+L25+L28))	1.02 x	1.03 x	1.12 x	1.13 x	1.15 x	1.16 x

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

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Combined System (\$000s)							
Residual Fund							
30	Beginning of Year Balance	16,283	15,042	15,023	15,031	15,007	15,041
31	Interest Income	156	150	150	149	149	150
	Plus:						
32	End of Year Revenue Fund Balance	5,997	8,181	30,493	39,613	51,553	62,114
33	Deposit for Transfer to City General Fund (b)	1,882	1,902	2,113	2,448	2,880	3,351
	Less:						
34	Transfer to Construction Fund	(7,300)	(7,900)	(29,200)	(35,400)	(44,400)	(57,100)
35	Transfer to City General Fund	(1,882)	(1,902)	(2,113)	(2,448)	(2,880)	(3,351)
36	Transfer to Debt Service Reserve Fund	(94)	(450)	(1,435)	(4,386)	(7,268)	(5,185)
37	End of Year Balance	15,042	15,023	15,031	15,007	15,041	15,019
Rate Stabilization Fund							
38	Beginning of Year Balance	124,661	126,027	120,611	121,331	129,593	131,299
39	Deposit From/(To) Revenue Fund	1,366	(5,416)	719	8,263	1,706	3,849
40	End of Year Balance	126,027	120,611	121,331	129,593	131,299	135,148

(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). Includes Debt Service Reserve Fund Release in FY 2022.

(b) Transfer of interest earnings from the Bond Reserve Account to the Residual Fund as shown in Line 33 to satisfy the requirements for the transfer to the City General Fund shown on Line 35.

(c) FY 2022 beginning balance is estimated based on preliminary FY 2021 results.

For this analysis, an effective increase date of September 1<sup>st</sup> for each fiscal year is assumed. As indicated in Lines 24 and 29 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 30 of Table 2-9 and Line 32 of 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 RSF at minimum 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 acknowledged the following financial policy goals as reasonable: a target RSF 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. As noted throughout this Report, the Water Department continues to target financial metrics acknowledged as

reasonable in the 2018 Rate Determination. The achievement of certain targeted metrics is deferred during the early years of the Study Period, as discussed below.

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 previously authorized for FY 2023 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. 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, restore reserves and help manage through future emergencies and strains on the system. At this point in time, it is critical that the RSF not be drawn down in lieu of generating additional revenues. The projected RSF balance by the end of FY 2023 is estimated at \$120.6 million. This is slightly above the RSF balance of \$120 million referenced by S&P in their September 17, 2021 credit rating report, which Black & Veatch utilized as an absolute minimum in the development of the financial plan projections. As shown on line 3 of Table 2-12, the Water Department is planning to return to the previously target RSF balance of \$135 million by FY 2027.

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**Without the FY 2023 Base Rate Revenue Incremental Increase, and if all other factors remain unchanged, the end of year FY 2023 RSF balance will fall significantly below the \$120 million balance S&P identified as the potential trigger for a rating downgrade. In addition, significantly higher revenue increases, beyond those presented in Table 2-11, would be required beginning in FY 2024 in order to meet the projected revenue requirements.**

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**Table 2-12 Projected Rate Stabilization Fund and Covenants Metrics Performance: Base Rates and TAP-R Rates**

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Rate Stabilization Fund (\$000s)							
1	Beginning Balance: Rate Stabilization Fund (a)	124,661	126,027	120,611	121,331	129,593	131,299
2	Transfers From (To) Revenue Fund (b)	1,366	(5,416)	719	8,263	1,706	3,849
3	Year-End Rate Stabilization Fund Balance (Line 1 + Line 2)	126,027	120,611	121,331	129,593	131,299	135,148
4	Senior Debt Coverage (c)	1.20	1.20	1.30	1.30	1.30	1.30
5	Total Debt Coverage (d)	1.02	1.03	1.12	1.13	1.15	1.16
6	90% Test - Senior Debt Coverage from Current Revenues (e)	1.20	1.17	1.30	1.30	1.30	1.30
7	Projected O&M Budget (\$000s) (f)	594,163	621,578	651,740	671,467	692,119	713,468
8	O&M Actual to Budget Ratio	88.8%	88.5%	88.6%	88.7%	88.7%	88.7%
Rate Ordinance Requirements (\$000s)							
9	Projected Total Revenues	741,415	780,730	853,060	926,213	998,542	1,075,155
10	Projected Total Appropriations (a)	808,591	857,576	927,867	1,003,211	1,077,788	1,156,716
11	Rate Ordinance Requirement Compliance (b)	Yes	Yes	Yes	Yes	Yes	Yes
Cash Funding (\$000s)							
12	Cash Funded Capital (i)	36,747	39,055	62,162	70,274	81,296	96,136
13	Capital Improvement Program Annual Expenses	287,785	360,099	513,406	601,647	653,682	683,571
14	Cash Funded Capital Ratio (j)	12.8%	10.8%	12.1%	11.7%	12.4%	14.1%

(a) FY 2022 beginning balance is estimated based on FY 2021 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 General Bond 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 2022 budget reflects the PWD adopted budget; FY 2023 through FY 2026 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.

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 in order to meet the requirements of the General Bond Ordinance.

## 2.7 FY 2023 Rates and Charges

The FY 2023 base rates and charges for water and wastewater as presented in this Report, are as reflected in the 2021 Rate Determination<sup>28</sup>, 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. Existing discounts (25% for senior citizens, charities and schools and 5% for PHA) are assumed applicable for the Study Period.

Table 2-13 presents the base rates and charges for FY 2022 and FY 2023. Rates are assumed to be effective September 1<sup>st</sup> of each respective fiscal year. Note - Table 2-13 excludes TAP-R rates.

**Table 2-13 FY 2022 and FY 2023 Rates**

Water		
Description	FY 2022	FY 2023
<b>Monthly Water Service Charge (\$/bill)</b>		
<u>Meter Size (Inches)</u>		
5/8	\$4.90	\$5.00
3/4	\$5.28	\$5.39
1	\$6.46	\$6.61
1-1/2	\$8.75	\$9.01
2	\$12.26	\$12.64
e	\$19.61	\$20.28
4	\$35.46	\$36.62
6	\$66.76	\$69.02
8	\$101.84	\$105.39
10	\$148.99	\$154.13
12	\$245.14	\$254.33
<b>Base Rate - Water Quantity Charges (\$/Mcf)</b>		
<u>Monthly Water Usage</u>		
First 2 Mcf	\$45.99	\$49.22
Next 98 Mcf	\$42.33	\$45.23
Next 1,900 Mcf	\$32.84	\$35.05
Over 2,000 Mcf	\$31.94	\$34.09

**Notes:**

All charges (existing and proposed) are effective September 1st. of the respective Fiscal Year.

Non-Residential Stormwater Charges includes Condominiums.

Non-Residential Stormwater Customers (including Condominiums) are subject to a minimum Stormwater Management Service Charge equal to the residential charge per parcel.

Mcf - Thousand cubic feet

sf - square feet

BOD - Biochemical Oxygen Demand

SS - Suspended Solids

lb - pounds

mg/l - milligrams per liter

Wastewater		
Description	FY 2022	FY 2023
<b>Monthly Sanitary Sewer Service Charge (\$/bill)</b>		
<u>Meter Size (Inches)</u>		
5/8	\$7.20	\$7.54
3/4	\$9.16	\$9.63
1	\$13.40	\$14.14
1-1/2	\$23.50	\$24.91
2	\$36.22	\$38.43
e	\$65.25	\$69.32
4	\$110.93	\$117.78
6	\$218.57	\$232.18
8	\$345.77	\$367.45
10	\$499.09	\$530.31
12	\$906.63	\$964.36
<b>Base Rate - Sanitary Sewer Quantity Charges (\$/Mcf)</b>		
<u>Monthly Usage</u>		
All Billable Water Usage	\$32.61	\$34.77
Groundwater Charge	\$11.91	\$12.66

Sanitary - Surcharge Rates (\$/lb)		
BOD (\$/lb in excess of 250 mg/l)	\$0.375	\$0.393
SS (\$/lb in excess of 350 mg/l)	\$0.393	\$0.408

Residential Stormwater Charges		
<u>Monthly Stormwater Management Service Charge</u>		
Charge Per Parcel	\$15.04	\$16.27
<u>Monthly Billing &amp; Collection Charge</u>		
Charge Per Bill	\$1.82	\$1.89
Non-Residential Stormwater Charges		
<u>Monthly Stormwater Management Service Charge</u>		
Gross Area (\$/500 sf)	\$0.724	\$0.784
Impervious Area (\$/500 sf)	\$5.117	\$5.526
<u>Monthly Billing &amp; Collection Charge</u>		
Charge Per Bill	\$2.36	\$2.45

<sup>28</sup> The previously authorized FY 2023 Base Rates are subject to reconciliation per the 2021 Rate Determination.

## 2.8 Typical Bill Impacts

This section presents the overall bill impacts for typical Water Department customers. The bill impacts presented reflect the current rates and charges (effective September 1, 2021), and the previously authorized FY 2023 base rates (assumed effective September 1, 2022). In addition, as the Water Department has filed the annual adjustment for the TAP-R rates, the bill impacts reflect the existing TAP-R rates (effective September 1, 2021) and proposed TAP-R rates (assumed effective September 1, 2022) included in the separate proceeding.

### 2.8.1 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 authorized rates for FY 2023 for the 5/8-inch meter size. A typical PWD residential customer has a 5/8-inch meter and uses about 0.5 Mcf, or approximately 500 cubic feet, monthly. Under the pending schedules of water, sanitary sewer, and stormwater rates for FY 2023, this customer's monthly bill would increase from \$69.15 to \$74.29, an increase of \$5.14 or about 7.4%.

**Table 2-14 Comparison of Typical Bill for Residential Customers Under Existing and Proposed Rates**

METER SIZE	MONTHLY USE	FY 2022	FY 2023	
		EXISTING RATES	PROPOSED RATES	% PROPOSED OF EXISTING
Inches	Mcf	\$	\$	%
5/8	0.0	28.96	30.70	6.0
5/8	0.2	45.04	48.13	6.9
5/8	0.3	53.07	56.86	7.1
5/8	0.4	61.11	65.57	7.3
5/8	0.5	69.15	74.29	7.4
5/8	0.6	77.19	83.00	7.5
5/8	0.7	85.23	91.72	7.6
5/8	0.8	93.26	100.44	7.7
5/8	1.7	165.61	178.89	8.0
5/8	2.7	243.42	263.26	8.2
5/8	3.3	289.46	313.18	8.2

**Notes:**

The FY 2022 figures reflect the existing base and current TAP-R rates, of \$0.69/Mcf for water and \$1.09/Mcf for sewer.

The FY 2023 figures reflect:

(1) the proposed TAP-R rates, of \$1.23/Mcf for water and \$1.95/Mcf for sewer; and

(2) the approved FY 2023 base rates per the 2021 Rate Determination (subject to reconciliation). In conjunction with the Special Rate Reconciliation Proceeding, the Water Department proposes no adjustment to the approved FY 2023 rates.

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 2022 and FY 2023 bills would be \$39.80 and \$42.64, respectively.

Mcf - Thousand cubic feet



A typical PWD senior residential customer has a 5/8-inch meter and uses about 0.3 Mcf or approximately 300 cubic feet, monthly. Under the pending base rate schedules of water, sanitary sewer, and stormwater and the proposed TAP-R rates for FY 2023, this customer's monthly bill would increase from \$53.07 to \$56.86, an increase of \$3.79 or about 7.1%. As previously noted, 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. Accounting for the discount for qualifying senior citizens, the typical senior residential customer's monthly bill (based upon the previously stated billing parameters) would increase from \$39.80 to \$42.64, an increase of \$2.84 or about 7.1%.

### **2.8.2 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 pending rates FY 2023 for multiple meter sizes and various parcel characteristics (i.e., GA and IA) along with the proposed TAP-R rates for FY 2023. 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 overall FY 2023 schedules of water, sanitary sewer, and stormwater rates, this customer's monthly bill would increase from \$111.59 to \$120.12, an increase of \$8.53 or about 7.6%.

**Table 2-15 Comparison of Typical Bill for Non-Residential Customers Under Existing and Proposed Rates**

METER SIZE	MONTHLY USE	IMPERVIOUS AREA	GROSS AREA	FY 2022	FY 2023	
				EXISTING RATES	PROPOSED RATES	% PROPOSED OF EXISTING
Inches	Mcf	sf	sf	\$	\$	%
5/8	0.0	1,794	2,110	38.55	41.01	6.4
5/8	0.2	1,794	2,110	54.63	58.44	7.0
5/8	0.3	1,794	2,110	62.66	67.17	7.2
5/8	0.4	1,794	2,110	70.70	75.88	7.3
5/8	0.5	1,794	2,110	78.74	84.60	7.5
5/8	0.6	4,000	5,500	111.59	120.12	7.6
5/8	0.7	4,000	5,500	119.63	128.84	7.7
5/8	0.8	26,000	38,000	399.87	431.67	8.0
5/8	1.7	26,000	38,000	472.22	510.12	8.0
5/8	2.7	4,000	5,500	277.82	300.38	8.1
5/8	3.3	4,000	5,500	323.86	350.30	8.2
5/8	11.0	7,000	11,000	953.27	1,032.56	8.3
1	1.7	7,700	7,900	252.33	272.35	7.9
1	5.0	22,500	24,000	678.16	733.38	8.1
1	8.0	7,700	7,900	736.76	797.58	8.3
1	17.0	22,500	24,000	1,598.80	1,731.54	8.3
2	7.6	1,063	1,250	658.75	712.60	8.2
2	16.0	22,500	24,000	1,550.70	1,678.68	8.3
2	33.0	66,500	80,000	3,386.32	3,666.84	8.3
2	100.0	7,700	7,900	7,823.62	8,480.46	8.4
4	30.0	7,700	7,900	2,551.13	2,761.19	8.2
4	170.0	10,500	12,000	12,659.00	13,727.69	8.4
4	330.0	26,000	38,000	23,612.08	25,619.77	8.5
4	500.0	140,000	160,000	36,384.51	39,480.99	8.5
6	150.0	10,500	12,000	11,453.34	12,414.49	8.4
6	500.0	41,750	45,500	35,354.72	38,365.16	8.5
6	1,000.0	26,000	38,000	68,795.12	74,676.57	8.5
6	1,500.0	140,000	160,000	103,753.45	112,627.79	8.6
8	750.0	10,500	12,000	51,953.62	56,386.13	8.5
8	1,500.0	66,500	80,000	103,047.69	111,861.67	8.6
8	2,000.0	26,000	38,000	136,187.40	147,848.21	8.6
8	3,000.0	140,000	160,000	203,860.73	221,339.43	8.6
10	600.0	22,500	24,000	42,209.78	45,799.17	8.5
10	1,700.0	41,750	45,500	116,393.47	126,348.40	8.6
10	3,300.0	26,000	38,000	222,616.87	241,711.81	8.6
10	6,000.0	140,000	160,000	403,051.20	437,671.03	8.6

(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 2022 figures reflect the existing base and current TAP-R rates, of \$0.69/Mcf for water and \$1.09/Mcf for sewer.

(c) The FY 2023 figures reflect:

(1) the proposed TAP-R rates, of \$1.23/MCF for water and \$1.95/Mcf for sewer; and

(2) the approved FY 2023 base rates per the 2021 Rate Determination (subject to reconciliation). In conjunction with the Special Rate Reconciliation Proceeding, the Water Department proposes no adjustment to the approved FY 2023 rates.

The TAP-R Rates are subject to annual reconciliation.

Mcf - Thousand cubic feet

sf - square feet

### 3.0 Water System Revenue

The major elements of the water system include three river supply intakes, three treatment plants, storage facilities and a conveyance network. Based on the 2020 U.S. Census Bureau estimate, the Water System served 1,584,064 individuals.

This section of the report focuses on the Revenue and Revenue Requirements component of the Financial Plan 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)	

Based on a review of historical growth patterns, the Water Department saw a three-year average annual increase in retail water accounts of 0.33%. As presented in Table 1-1, the number accounts for the study period, were projected based upon the following:

- The FY 2021 number of accounts and usage per account serve as the initial basis of projections for all customers.
- An account escalation for all customer types based upon the 3-year average annual growth in the number of accounts per type for FY 2019 to FY 2021 to estimate the number accounts for FY 2022 to FY 2024.
- Accounts are assumed to remain stable for the remainder of the Study Period from FY 2025 to FY 2027, as shown on Table 3-2.

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

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Water System							
1	Residential	433,422	435,540	437,853	437,853	437,853	437,853
2	Senior Citizens	21,970	21,719	21,472	21,472	21,472	21,472
3	Commercial	37,509	37,778	38,058	38,058	38,058	38,058
4	Industrial	1,045	1,038	1,031	1,031	1,031	1,031
5	Public Utilities	187	193	196	196	196	196
6	Subtotal General Service	494,133	496,268	498,611	498,611	498,611	498,611
7	PHA	5,655	5,593	5,531	5,531	5,531	5,531
8	Charities and Schools	1,748	1,644	1,546	1,546	1,546	1,546
9	Hospitals and Universities	103	76	56	56	56	56
10	Hand Billed	226	223	220	220	220	220
11	Scheduled (Flat Rate)	5	6	6	6	6	6
12	Private Fire Protection	6,370	6,925	7,527	7,527	7,527	7,527
	Public Fire Protection	0	0	0	0	0	0
13	Subtotal Retail Customers	508,240	510,734	513,497	513,497	513,497	513,497
14	Aqua Pennsylvania	1	1	1	1	1	1
15	Total Water System	508,241	510,735	513,498	513,498	513,498	513,498

### 3.1.2 Billed Volume

For all customer types, the average usage per account for FY 2021, serves as the initial basis for the projection. Billed volume projections included the following adjustments:

- Demand escalation factors for FY 2022 to FY 2024 are based upon the 3-year average annual change in consumption per account for FY 2019 to FY 2021.
- To approximate ongoing reductions in overall total billed water volume, the following factors are applied to the projected usage per account beginning in FY 2025:
  - A 2% reduction is applied to the 5/8-inch residential customer type beginning in FY 2025<sup>29</sup>; and
  - No change in demand is applied to the remaining customer types.

Section 1.3 further discussed the assumptions underlying the billed volumes projections. Table 1-2 provides the baseline usage per account and summarizes the associated escalation factors for the Study Period. Table 1-3 presents the historical usage per account for General Service customers (5/8-inch meters).

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

<sup>29</sup> Prior to the pandemic beginning in March of 2020, the 5/8-inch meter General Service customers, including the Residential customer type, have historically exhibited a 2.0% annual decrease over time since 2015. While this ongoing decline in Residential usage lessened during the pandemic, likely due to health orders and changes in work conditions, Black & Veatch assumes a resumption of the historical decline in consumption for Residential 5/8-inch meter customers beginning in FY 2025.

**Table 3-3 Projected Billed Volume**

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Water System (Mcf)							
1	Residential	3,073,022	3,066,219	3,059,660	3,008,993	2,958,326	2,907,660
2	Senior Citizens	128,360	129,521	130,858	130,858	130,858	130,858
3	Commercial	1,534,041	1,526,131	1,518,599	1,518,599	1,518,599	1,518,599
4	Industrial	80,927	77,398	74,029	74,029	74,029	74,029
5	Public Utilities	9,206	9,152	8,911	8,911	8,911	8,911
6	Subtotal General Service	4,825,556	4,808,422	4,792,056	4,741,389	4,690,723	4,640,056
7	PHA	141,320	137,413	133,614	133,614	133,614	133,614
8	Charities and Schools	100,537	89,272	79,270	79,270	79,270	79,270
9	Hospitals and Universities	67,313	48,361	34,745	34,745	34,745	34,745
10	Hand Billed	477,702	479,588	481,482	481,482	481,482	481,482
11	Scheduled (Flat Rate)	54	77	109	109	109	109
12	Private Fire Protection	8,600	7,377	6,328	6,328	6,328	6,328
13	Public Fire Protection	0	0	0	0	0	0
14	Subtotal Retail Customers	5,621,082	5,570,509	5,527,603	5,476,936	5,426,269	5,375,602
15	Aqua Pennsylvania	68,500	68,500	68,500	68,500	68,500	68,500
16	Total Water System	5,689,582	5,639,009	5,596,103	5,545,436	5,494,769	5,444,102

**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

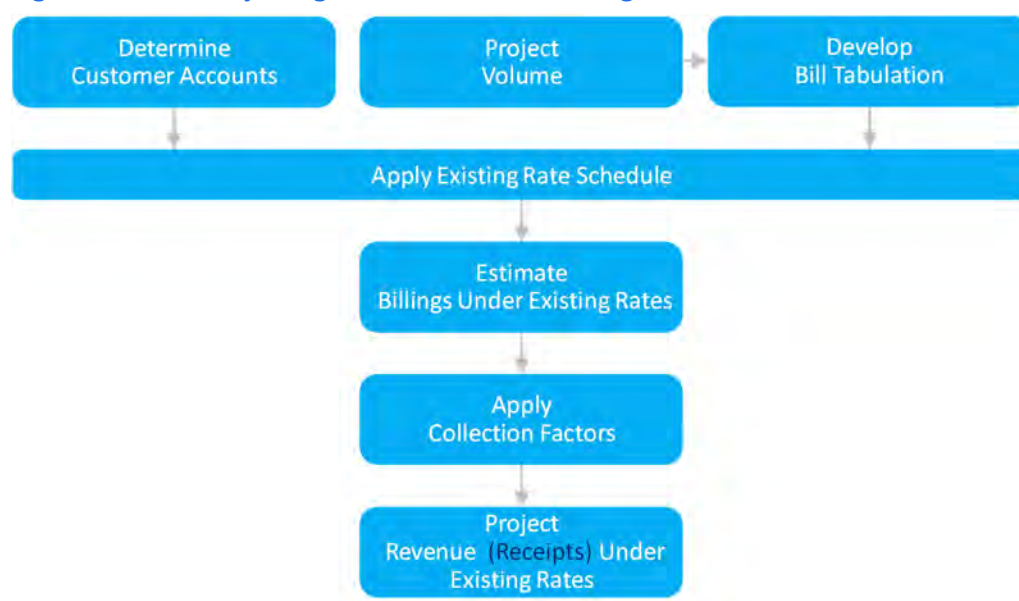
The total operating revenues for the Water Department include the following:

- 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; 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 2022 water gross billings, the FY 2021 and FY 2022 (effective October 1, 2020 and effective September 1, 2021) schedule of water rates were applied to proportionate shares of the projected FY 2022 annual water sales and number of customer accounts, to reflect the September 1, 2021 implementation of the FY 2022 rate schedule. To project FY 2023 to FY 2027 water gross billings, the FY 2022 schedule of water rates shown on Table 3-4 were applied to the projections of annual water sales and number of customer accounts.

**Table 3-4 Existing FY 2022 Water Rates**

Monthly Water Service Charge (\$/bill)			Quantity Charges (\$/Mcf)	
DESCRIPTION	WATER	PRIVATE FIRE	DESCRIPTION	WATER
<u>Meter Size (Inches)</u>				
5/8	4.90	22.37	First 2 Mcf	45.99
3/4	5.28	22.37	Next 98 Mcf	42.33
1	6.46	22.37	Next 1,900 Mcf	32.84
1-1/2	8.75	22.37	Over 2,000 Mcf	31.94
2	12.26	22.37	Notes: Quantity Charges presented above exclude TAP-R rates.	
3	19.61	22.37		
4	35.46	22.37		
6	66.76	40.59		
8	101.84	59.96		
10	148.99	88.79		
12	245.14	132.6		

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 Water System billings projected for FY 2023 to FY 2027 reflect a compounded annual decline of approximately 0.72%, which is primarily due an anticipated reduction in demand (per account) for 5/8-inch meter Residential customers. The decrease in the usage per customer for smaller accounts seen on Table 1-3 continues a consistent downward trend observed over the past decade, both nationally as well as locally.

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

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Water System (\$000s)							
Water Non-Discount							
1	Residential	164,548	165,191	165,111	162,815	160,519	158,223
2	Commercial	65,491	66,188	65,944	65,944	65,944	65,944
3	Industrial	3,282	3,195	3,061	3,061	3,061	3,061
4	Public Utilities	407	412	402	402	402	402
5	Private Fire Protection	4,266	4,455	4,838	4,838	4,838	4,838
6	Public Fire Protection	6,533	6,533	6,533	6,533	6,533	6,533
7	Wholesale	3,334	3,231	3,231	3,231	3,231	3,231
8	Other (Hand-Billed and Scheduled)	16,488	16,863	16,930	16,930	16,930	16,930
9	Subtotal Water Non-Discount Billings	264,349	266,069	266,049	263,753	261,457	259,162
Water Discount							
10	Residential (Senior Citizens)	5,335	5,383	5,418	5,418	5,418	5,418
11	PHA	5,902	5,815	5,660	5,660	5,660	5,660
12	Charity/Schools/Hospital/University	5,212	4,391	3,677	3,677	3,677	3,677
13	Subtotal Water Discount Billings	16,450	15,589	14,755	14,755	14,755	14,755
14	Total Water Service Billings	280,799	281,659	280,804	278,508	276,212	273,916

**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 ten fiscal years (FY 2012 through FY 2021) of billing and associated collections.

The collection factors represent the multi-year payment pattern, as described below. Table 1-4 in Section 1.3.1 presents the historical collection factors<sup>30</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 1.3.1.

As noted in Section 1.3.1, the following adjustments to the projected collection factors are proposed based upon the Water Department's recent experience:

- **FY 2022 Billing Year Collection Factors** – Reduce by 2% to align FY 2021 experience.
- **FY 2023 Billing Year Collection Factors** – Reduce by 1% assuming recovery of billing year collections.

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

<sup>30</sup> As previously discussed in Section 1.3.1, collection factors used in the financial plan analysis reflect the average collection factors for FY 2012 through FY 2021.

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



1. To determine the FY 2024 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 2024 receipts and accounting for the billing year collection factor adjustments as applicable:
    - i. **Billing Year** is FY 2024 with a collection factor of 86.66%
    - ii. **Billing Year Plus 1** is FY 2023 with a collection factor of 8.75%
    - iii. **Billing Year Plus 2 and Beyond** is FY 2022 with a collection factor of 1.92%
  - b. Identify Projected Billings (in \$000s) for each Collection Period from Table 3-6 (Line 1)
    - i. **Billing Year:** FY 2024 = \$165,111
    - ii. **Billing Year Plus 1:** FY 2023 = \$165,191
    - iii. **Billing Year Plus 2 and Beyond:** FY 2022 = \$164,548
2. Calculate the projected FY 2024 receipts (in \$000s) for each Collection Period:
  - a. **Billing Year receipts** =  $\$165,111 \times 86.66\% = \$143,085$
  - b. **Billing Year Plus 1 receipts** =  $\$165,191 \times 8.75\% = \$14,454$
  - c. **Billing Year Plus 2 and Beyond receipts** =  $\$164,548 \times 1.92\% = \$3,159$
3. Sum the projected FY 2024 receipts by Collection Period to arrive at the total FY 2024 receipts:  
 $\$143,085 + \$14,454 + \$3,159 = \$160,698$  (Matches Line 1 of Table 3-7 for FY 2024)

### 3.1.4.4 Wholesale Operating Revenues

Currently, Aqua Pennsylvania (“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		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Water System (\$000s)							
1	Residential	156,542	159,014	160,699	158,714	156,522	154,288
2	Senior Citizens	5,079	5,179	5,269	5,273	5,274	5,274
3	Commercial	62,110	63,620	64,196	64,188	64,183	64,183
4	Industrial	3,133	3,086	2,995	2,981	2,979	2,979
5	Public Utilities	386	396	392	391	391	391
6	Subtotal General Customers	227,249	231,294	233,550	231,548	229,349	227,115
7	Housing Authority	5,611	5,608	5,527	5,512	5,509	5,509
8	Charities and Schools	3,216	2,945	2,660	2,625	2,618	2,618
9	Hospitals and Universities	1,914	1,386	1,011	968	960	960
10	Hand Billed	15,587	16,177	16,458	16,471	16,472	16,472
11	Scheduled (Flat Rate)	3	4	5	5	5	5
Fire Protection							
12	Private	4,266	4,455	4,838	4,838	4,838	4,838
13	Public	6,533	6,533	6,533	6,533	6,533	6,533
14	Subtotal Retail Customers	264,378	268,404	270,582	268,499	266,285	264,050
15	Aqua Pennsylvania	3,334	3,231	3,231	3,231	3,231	3,231
16	Total Water System Sales	267,712	271,635	273,813	271,730	269,516	267,282
17	Other Operating Revenues (a)	14,880	14,336	14,317	14,283	14,248	14,214
Interest Income							
18	Interest Income on Debt Reserve Fund (	-	-	-	-	-	-
19	Operating Fund	477	457	568	622	654	689
20	Rate Stabilization Fund	664	599	554	575	599	614
21	Total Interest Income	1,141	1,056	1,123	1,197	1,253	1,303
22	Total Water System Receipts	283,733	287,026	289,253	287,210	285,017	282,798

(a) Includes Debt Service Reserve Fund Release in FY 2022.

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

### 3.1.5 Tiered Assistance Program Rate Rider Surcharge

As, previously noted, base rate revenue figures for the Study Period exclude the current Tiered Assistance Program ("TAP") Rate Rider Surcharge Rate ("TAP-R") of \$0.69/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.

## 4.0 Wastewater System Revenues

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 3,700 miles of total collector system piping, 29 pumping stations, 94,530 manholes, 26 storm relief structures, and 71,500 stormwater inlets. There are approximately 770 miles, 750 miles, and 1,850 miles of sanitary, stormwater, and combined sanitary/stormwater mains, respectively. Approximately 55% of the collection system consists of combined sanitary/stormwater mains. 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 Wastewater revenues projections related to the FY 2022 to FY 2027 Financial Plan projections for sewer and stormwater services.

### 4.1 Wastewater Revenues

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.

#### 4.1.1 Customers and Growth

Table 4-1 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.

**Table 4-1 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			

Based on a review of historical growth patterns, it is projected that the total number of sanitary sewer accounts will grow from about 499,300 in FY 2022 to about 504,500 in FY 2024 and remain stable during the remainder of the Study Period. Table 4-2 and Table 4-3 present the projection for number of accounts and billable parcels during the Study Period.

**Table 4-2 Number of Customer Accounts**

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Sanitary Sewer							
1	Residential	431,154	433,272	435,585	435,585	435,585	435,585
2	Senior Citizens	21,950	21,699	21,452	21,452	21,452	21,452
3	Commercial	36,599	36,868	37,148	37,148	37,148	37,148
4	Industrial	1,003	996	989	989	989	989
5	Public Utilities	184	190	193	193	193	193
6	Subtotal General Service	490,890	493,025	495,368	495,368	495,368	495,368
7	PHA	5,654	5,592	5,530	5,530	5,530	5,530
8	Charities and Schools	1,709	1,605	1,507	1,507	1,507	1,507
9	Hospitals and University	100	73	53	53	53	53
10	Hand Billed	201	198	195	195	195	195
11	Scheduled	5	6	6	6	6	6
12	Fire Service	636	1,191	1,793	1,793	1,793	1,793
13	Sewer Only	62	62	62	62	62	62
14	Groundwater	5	5	5	5	5	5
15	Subtotal Retail Customers	499,262	501,756	504,519	504,519	504,519	504,519
16	Wholesale	10	10	10	10	10	10
17	Total Sanitary Sewer	499,272	501,766	504,529	504,529	504,529	504,529
Stormwater							
18	Residential	465,496	465,496	465,496	465,496	465,495	465,495
19	Non-Residential	82,153	82,139	82,125	82,112	82,098	82,084
20	Condominium	5,096	5,096	5,096	5,096	5,096	5,096
21	Subtotal Stormwater	552,745	552,731	552,717	552,703	552,689	552,675



**Table 4-3 Number of Billable Parcels**

Line No.	Description	2022	2023	2024	2025	2026	2027
<b>Stormwater</b>							
<b>Residential</b>							
1	Initial Parcel Count	463,119	463,119	463,119	463,119	463,119	463,119
2	Less Residential Zero Rate <sup>1</sup>	0	0	0	1	1	1
3	Subtotal Residential	463,119	463,119	463,119	463,119	463,118	463,118
<b>Non-Residential</b>							
4	Initial Parcel Count	72,553	72,553	72,553	72,553	72,553	72,553
5	Less Non-Residential Zero Rate <sup>2</sup>	14	28	42	56	69	83
6	Subtotal Non Residential	72,539	72,525	72,511	72,498	72,484	72,470
<b>Condominium</b>							
7	Initial Parcel Count	2,183	2,183	2,183	2,183	2,183	2,183
8	Less Stormwater Appeals Adjustments	0	0	0	0	0	0
9	Subtotal Condominium	2,183	2,183	2,183	2,183	2,183	2,183
10	<b>TOTAL: System Billable Parcels</b>	<b>537,841</b>	<b>537,827</b>	<b>537,813</b>	<b>537,799</b>	<b>537,785</b>	<b>537,771</b>
1: Comprises Community Gardens under Residential Category							
2: Comprises Community Gardens under Non-Residential Category							

**4.1.2 Sanitary Sewer Retail Billed Volume**

Table 4-4 presents the projected billed volume for retail sanitary sewer customers.

**Table 4-4 Retail Billed Volumes**

LINE NO.	DESCRIPTION	FISCAL YEAR ENDING JUNE 30,					
		2022	2023	2024	2025	2026	2027
<b>Wastewater System (Mcf)</b>							
1	Residential	3,060,579	3,053,776	3,047,217	2,996,550	2,945,883	2,895,217
2	Senior Citizens	128,256	129,417	130,755	130,755	130,755	130,755
3	Commercial	1,512,803	1,504,893	1,497,361	1,497,361	1,497,361	1,497,361
4	Industrial	76,103	72,574	69,205	69,205	69,205	69,205
5	Public Utilities	9,198	9,145	8,903	8,903	8,903	8,903
6	<b>Subtotal General Service</b>	<b>4,786,940</b>	<b>4,769,806</b>	<b>4,753,440</b>	<b>4,702,773</b>	<b>4,652,107</b>	<b>4,601,440</b>
7	PHA	141,279	137,372	133,572	133,572	133,572	133,572
8	Charities and Schools	99,728	88,463	78,461	78,461	78,461	78,461
9	Hospitals and University	67,291	48,338	34,722	34,722	34,722	34,722
10	Hand Billed	379,806	381,692	383,586	383,586	383,586	383,586
11	Scheduled	54	77	109	109	109	109
12	Fire Service	9,740	9,740	9,740	9,740	9,740	9,740
13	Sewer Only	58,470	58,470	58,470	58,470	58,470	58,470
14	Groundwater	217,290	217,290	217,290	217,290	217,290	217,290
15	<b>Subtotal Retail Customers</b>	<b>5,760,597</b>	<b>5,711,248</b>	<b>5,669,390</b>	<b>5,618,723</b>	<b>5,568,057</b>	<b>5,517,390</b>
16	Wholesale	3,932,471	3,932,471	3,932,471	3,932,471	3,932,471	3,932,471
17	<b>Total Sanitary Sewer System</b>	<b>9,693,069</b>	<b>9,643,719</b>	<b>9,601,861</b>	<b>9,551,195</b>	<b>9,500,528</b>	<b>9,449,861</b>

**4.1.3 Wholesale Volume, Capacity, and Strength Loadings**

Table 4-5 summarizes projections of billed volume, capacity, and biological oxygen demand (“BOD”) and suspended solids (“SS”) loadings for the wholesale customers.



Table 4-5 Projections for Wholesale Customer Volumes, Capacities, and Strength Loadings

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Wastewater System							
Abington							
1	Volume (Mcf)	92,377	92,377	92,377	92,377	92,377	92,377
2	Capacity (Mcf/day)	6,167	6,167	6,167	6,167	6,167	6,167
3	SS (1,000 lbs)	942	942	942	942	942	942
4	BOD (1,000 lbs)	1,354	1,354	1,354	1,354	1,354	1,354
Bucks County (Bensalem)							
5	Volume (Mcf)	151,838	151,838	151,838	151,838	151,838	151,838
6	Capacity (Mcf/day)	7,588	7,588	7,588	7,588	7,588	7,588
7	SS (1,000 lbs)	1,538	1,538	1,538	1,538	1,538	1,538
8	BOD (1,000 lbs)	1,614	1,614	1,614	1,614	1,614	1,614
Bucks County							
9	Volume (Mcf)	887,325	887,325	887,325	887,325	887,325	887,325
10	Capacity (Mcf/day)	47,996	47,996	47,996	47,996	47,996	47,996
11	SS (1,000 lbs)	11,328	11,328	11,328	11,328	11,328	11,328
12	BOD (1,000 lbs)	10,809	10,809	10,809	10,809	10,809	10,809
Cheltenham							
13	Volume (Mcf)	431,544	431,544	431,544	431,544	431,544	431,544
14	Capacity (Mcf/day)	20,521	20,521	20,521	20,521	20,521	20,521
15	SS (1,000 lbs)	3,072	3,072	3,072	3,072	3,072	3,072
16	BOD (1,000 lbs)	2,678	2,678	2,678	2,678	2,678	2,678
Lower Moreland							
17	Volume (Mcf)	60,406	60,406	60,406	60,406	60,406	60,406
18	Capacity (Mcf/day)	3,800	3,800	3,800	3,800	3,800	3,800
19	SS (1,000 lbs)	612	612	612	612	612	612
20	BOD (1,000 lbs)	459	459	459	459	459	459
Lower Southampton							
21	Volume (Mcf)	272,536	272,536	272,536	272,536	272,536	272,536
22	Capacity (Mcf/day)	10,205	10,205	10,205	10,205	10,205	10,205
23	SS (1,000 lbs)	2,446	2,446	2,446	2,446	2,446	2,446
24	BOD (1,000 lbs)	1,899	1,899	1,899	1,899	1,899	1,899
DELCORA							
25	Volume (Mcf)	1,126,279	1,126,279	1,126,279	1,126,279	1,126,279	1,126,279
26	Capacity (Mcf/day)	100,179	100,179	100,179	100,179	100,179	100,179
27	SS (1,000 lbs)	12,117	12,117	12,117	12,117	12,117	12,117
28	BOD (1,000 lbs)	10,069	10,069	10,069	10,069	10,069	10,069
Lower Merion							
29	Volume (Mcf)	319,582	319,582	319,582	319,582	319,582	319,582
30	Capacity (Mcf/day)	20,404	20,404	20,404	20,404	20,404	20,404
31	SS (1,000 lbs)	3,327	3,327	3,327	3,327	3,327	3,327
32	BOD (1,000 lbs)	2,844	2,844	2,844	2,844	2,844	2,844

**Table 4-5 Projections for Wholesale Customer Volumes, Capacities, and Strength Loadings (continued)**

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Wastewater System							
Springfield (less Wyndmoor)							
33	Volume (Mcf)	108,069	108,069	108,069	108,069	108,069	108,069
34	Capacity (Mcf/day)	2,973	2,973	2,973	2,973	2,973	2,973
35	SS (1,000 lbs)	2,309	2,309	2,309	2,309	2,309	2,309
36	BOD (1,000 lbs)	2,153	2,153	2,153	2,153	2,153	2,153
Upper Darby							
37	Volume (Mcf)	464,760	464,760	464,760	464,760	464,760	464,760
38	Capacity (Mcf/day)	22,621	22,621	22,621	22,621	22,621	22,621
39	SS (1,000 lbs)	4,523	4,523	4,523	4,523	4,523	4,523
40	BOD (1,000 lbs)	3,856	3,856	3,856	3,856	3,856	3,856
Springfield (Wyndmoor)							
41	Volume (Mcf)	17,753	17,753	17,753	17,753	17,753	17,753
42	Capacity (Mcf/day)	1,247	1,247	1,247	1,247	1,247	1,247
43	SS (1,000 lbs)	206	206	206	206	206	206
44	BOD (1,000 lbs)	154	154	154	154	154	154

**4.1.4 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. The billable units of service are utilized in projecting the stormwater revenues under existing rates.

Table 4-6 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 projected number of parcels for each customer class beginning in FY 2022.

**Table 4-6 FY 2022 Mean GA and Mean IA**

Line No.	Description	FY 2022 MEAN GA	FY 2022 MEAN IA
<b>Stormwater (square feet)</b>			
1	<b>All Residential Parcels</b>	<b>2,110</b>	<b>1,200</b>
<b>Non-Residential Sub-Classes</b>			
<b>Non-Discount</b>			
2	Water & Sewer	27,686	15,509
3	SW Only	8,851	2,687
<b>Discount: Senior, Education &amp; Charities</b>			
4	Water & Sewer	95,664	51,205
5	SW Only	28,974	14,944
<b>Discount: PHA</b>			
6	Water & Sewer	54,776	29,708
7	SW Only	2,092	739
<b>Condominiums Sub-Classes</b>			
<b>Non-Discount</b>			
8	Water & Sewer	16,553	11,655
9	SW Only	24,116	15,883
<b>Discount: Senior, Education &amp; Charities</b>			
10	Water & Sewer	44,104	22,739
11	SW Only	-	-
<b>Discount: PHA</b>			
12	Water & Sewer	9,358	6,158
13	SW Only	-	-

FY 2022 Mean GA and Mean IA is based on fully transitioned stormwater parcel data. This dataset is based on 2015 aerial and infrared imagery obtained by the City of Philadelphia.

With this financial plan report, projected billable units of service reflect:

■ Projected stormwater billing data as follows:

- For FY 2022 and beyond – full transition of initial IA and GA square footage based to the updated data set.
- Reduction in billable IA and GA 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 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; and
  - Credits resulting from SMIP/GARP grants:
    - Based upon the overall annual program budget of \$25 million; and
    - Average grant award per greened acre, anticipated cost escalation and average project completion time.

■ Reduction in billable IA and GA 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" adjustments in the tables below. This discount also applies to billing and collection charges associated with the subject parcel(s).

Table 4-7 summarizes the development of the billable GA for the Study Period, while Table 4-8 summarizes the development of the billable IA for the Study Period.

**Table 4-7 Determination of Billable Gross Area**

Line No.	Description	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
<b>Stormwater (thousand square feet)</b>							
<b>Residential</b>							
1	Initial GA	977,181	977,181	977,181	977,181	977,181	977,181
2	Less Residential Zero Rate <sup>1</sup>	1	1	2	3	4	4
3	Subtotal Residential Billable GA (sf)	977,180	977,180	977,179	977,178	977,177	977,177
<b>Non-Residential</b>							
4	Initial GA	1,432,279	1,432,279	1,432,279	1,432,279	1,432,279	1,432,279
5	Less Credits Adjustments	330,439	342,197	353,880	364,635	375,285	385,834
6	Less Stormwater Appeals	309	452	452	452	452	452
7	Less Non-Residential Zero Rate <sup>2</sup>	147	294	441	588	735	882
8	Subtotal Non Residential Billable GA (sf)	1,101,384	1,089,335	1,077,506	1,066,604	1,055,806	1,045,110
<b>Condominium</b>							
9	Initial GA	37,595	37,595	37,595	37,595	37,595	37,595
10	Less Credits Adjustments	8,705	9,015	9,322	9,606	9,886	10,164
11	Subtotal Condominium Billable GA (sf)	28,890	28,581	28,273	27,990	27,709	27,431
12	<b>TOTAL: System Billable GA (sf)</b>	<b>2,107,455</b>	<b>2,095,096</b>	<b>2,082,957</b>	<b>2,071,772</b>	<b>2,060,693</b>	<b>2,049,718</b>

1: Comprises Community Gardens under Residential Category

2: Comprises Community Gardens in the Non-Residential Category.

**Table 4-8 Determination of Billable Impervious Area**

Line No.	Description	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
<b>Stormwater (thousand square feet)</b>							
<b>Residential</b>							
1	Initial IA	555,743	555,743	555,743	555,743	555,743	555,743
2	Less Residential Zero Rate <sup>1</sup>	0	0	1	1	1	1
3	Subtotal Residential Billable IA (sf)	555,743	555,743	555,742	555,742	555,742	555,742
<b>Non-Residential</b>							
4	Initial IA	721,325	721,325	721,325	721,325	721,325	721,325
5	Less Credits Adjustments	103,946	110,111	116,202	121,382	126,460	131,438
6	Less Stormwater Appeals	692	1,013	1,013	1,013	1,013	1,013
7	Less Non-Residential Zero Rate <sup>2</sup>	6	12	18	25	31	37
8	Subtotal Non Residential Billable IA (sf)	616,680	610,188	604,092	598,905	593,821	588,837
<b>Condominium</b>							
9	Initial IA	26,077	26,077	26,077	26,077	26,077	26,077
10	Less Credits Adjustments	4,768	5,051	5,330	5,568	5,800	6,029
11	Subtotal Condominium Billable IA (sf)	21,309	21,026	20,747	20,509	20,276	20,048
12	<b>TOTAL: System Billable IA (sf)</b>	<b>1,193,732</b>	<b>1,186,957</b>	<b>1,180,581</b>	<b>1,175,157</b>	<b>1,169,840</b>	<b>1,164,627</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 distribution of projected credits, appeals, and community garden adjustments are based on current distributions within the stormwater billing data.

#### 4.1.5 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.

#### 4.1.6 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

##### 4.1.6.1 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.

#### 4.1.6.2 Projection of Gross Billings

To project the FY 2022 sewer gross billings, the FY 2021 and FY 2022 (effective October 1, 2020 and effective September 1, 2021) schedules of sanitary sewer rates were applied to the projected FY 2022 annual billed water volume and number of customer accounts. For stormwater, the method is similar to the sanitary sewer billing projections, the FY 2021 and FY 2022 (effective September 1, 2019 and effective September 1, 2021) schedules of stormwater are applied to the projected FY 2022 billable residential parcels and accounts, and non-residential billable GA and IA, as well as accounts.

To project the FY 2022 to FY 2027 sewer gross billings, the FY 2022 schedule of sewer rates shown Table 4-9 were applied to the projections of annual billed water volume, bill tabulation, and number of customer accounts. For stormwater, we apply the FY 2022 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 4-9 Existing FY 2022 Sanitary Sewer and Stormwater Rates**

Sanitary Sewer		Stormwater		
Monthly Sanitary Sewer Service Charge (\$/bill)		Residential Stormwater Charges		
<u>Meter Size (Inches)</u>		<u>Monthly Stormwater Management Service Charge</u>		
5/8	\$7.20	Charge Per Parcel		\$15.04
3/4	\$9.16			
1	\$13.40	<u>Monthly Billing &amp; Collection Charge</u>		
1-1/2	\$23.50	Charge Per Bill		\$1.82
2	\$36.22	Non-Residential Stormwater Charges		
3	\$65.25	<u>Monthly Stormwater Management Service Charge</u>		
4	\$110.93	Gross Area (\$/500 sf)	\$0.724	
6	\$218.57	Impervious Area (\$/500 sf)	\$5.117	
8	\$345.77			
10	\$499.09	<u>Monthly Billing &amp; Collection Charge</u>		
12	\$906.63	Charge Per Bill		\$2.36
<u>Base Rate - Sanitary Sewer Quantity Charges (\$/Mcf)</u>		Notes:		
<u>Monthly Usage</u>		Non-Residential Stormwater Charges includes Condominiums.		
All Billable Water Usage	\$32.61	Non-Residential Stormwater Customers are		
Groundwater Charge	\$11.91	subject to a minimum Stormwater Management Service Charge		
		equal to the residential charge per parcel.		
<u>Sanitary - Surcharge Rates (\$/lb)</u>		Mcf - Thousand cubic feet		
BOD (\$/lb in excess of 250 mg/l)	\$0.375	mg/l - milligrams per liter		
SS (\$/lb in excess of 350 mg/l)	\$0.393			

Where applicable, for all customer types that are eligible for discounts, the appropriate discounts previously shown on Table 3-5 were applied. Moreover, like our analysis for the Water System, TAP discounts and TAP-R surcharge billings are excluded from this analysis. Thus, the proposed revenue adjustments reflect the Base Rate revenues for sanitary sewer and stormwater.

#### 4.1.6.3 Projection of Projected Billings

Table 4-10 presents the projected billings under existing rates for the Wastewater System.

**Table 4-10 Billings Under Existing Rates**

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Wastewater System (\$000s)							
Sewer Non-Discount							
1	Residential	\$ 137,250	\$ 138,253	\$ 138,245	\$ 136,593	\$ 134,941	\$ 133,288
2	Commercial	55,299	55,543	55,346	55,346	55,346	55,346
3	Industrial	2,694	2,600	2,488	2,488	2,488	2,488
4	Public Utilities	366	370	363	363	363	363
5	Fire Protection	315	318	318	318	318	318
6	Wholesale	38,501	38,662	38,662	38,662	38,662	38,662
7	Surcharge	6,008	6,008	6,008	6,008	6,008	6,008
8	Other (Hand-Billed and Groundwater)	15,191	15,269	15,328	15,328	15,328	15,328
9	Sewer Only	1,916	1,933	1,933	1,933	1,933	1,933
10	Subtotal Sewer Non-Discount Billings	257,541	258,955	258,692	257,040	255,387	253,735
Sewer Discount							
11	Residential (Senior Citizens)	4,526	4,572	4,588	4,588	4,588	4,588
12	PHA	4,972	4,885	4,760	4,760	4,760	4,760
13	Charity/Schools/Hospital/University	4,682	3,925	3,300	3,300	3,300	3,300
14	Subtotal Sewer Discount Billings	14,180	13,382	12,649	12,649	12,649	12,649
15	Subtotal Sewer Service Billings	271,721	272,337	271,340	269,688	268,036	266,384
Stormwater							
Stormwater General Service							
16	Residential	87,311	88,458	88,458	88,458	88,458	88,458
17	Non Residential	89,378	87,627	86,706	85,908	85,125	84,355
18	Subtotal Stormwater Non-Discount	176,689	176,085	175,164	174,366	173,583	172,813
Stormwater Discount							
19	Residential (Senior Citizens)	3,312	3,355	3,355	3,355	3,355	3,355
20	PHA	2,107	2,107	2,107	2,107	2,106	2,106
21	Charity/Schools/Hospital/University	7,918	7,790	7,736	7,688	7,642	7,596
22	Subtotal Stormwater Discount	13,337	13,252	13,198	13,150	13,103	13,057
23	Subtotal Stormwater Service Billings	190,026	189,338	188,361	187,516	186,686	185,870
24	Subtotal Wastewater Billings	\$ 461,747	\$ 461,674	\$ 459,702	\$ 457,205	\$ 454,722	\$ 452,254

**4.1.6.4 Application of Collection Factors**

As shown in Figure 3-1, 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 1.3.1 presents the collection factors used in determining the revenues for sanitary sewer and stormwater in the Study.

Table 4-11 and Table 4-12 summarizes the projected revenues (receipts) during the Study Period for the Retail and Wholesale customers of the Wastewater System.



**Table 4-11 Projected Receipts Under Existing Sanitary Sewer Rates**

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Sanitary Sewer (\$000s)							
1	Residential	\$ 130,341	\$ 132,994	\$ 134,536	\$ 133,122	\$ 131,546	\$ 129,938
2	Senior Citizens	4,301	4,396	4,463	4,466	4,466	4,466
3	Commercial	52,563	53,449	53,885	53,872	53,869	53,869
4	Industrial	2,574	2,515	2,436	2,424	2,422	2,422
5	Public Utilities	348	355	354	353	353	353
6	Sewer Only	1,819	1,859	1,881	1,881	1,881	1,881
7	Groundwater	2,578	2,506	2,521	2,519	2,519	2,519
8	Subtotal General Customers	194,523	198,074	200,075	198,638	197,056	195,448
9	Housing Authority	4,734	4,714	4,648	4,636	4,633	4,633
10	Charities and Schools	2,868	2,621	2,379	2,349	2,344	2,344
11	Hospitals and University	1,757	1,257	914	875	868	868
12	Hand Billed	11,901	12,186	12,387	12,395	12,396	12,396
13	Scheduled	2	3	4	4	4	4
14	Fire Service	315	318	318	318	318	318
15	Wholesale	38,501	38,662	38,662	38,662	38,662	38,662
16	Surcharge	6,008	6,008	6,008	6,008	6,008	6,008
17	Subtotal Sanitary Sewer Receipts	\$ 260,609	\$ 263,843	\$ 265,394	\$ 263,884	\$ 262,288	\$ 260,680

**Table 4-12 Projected Receipts Under Existing Stormwater Rates**

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Stormwater (\$000s)							
Residential							
1	Non Discount	\$ 82,565	\$ 84,786	\$ 85,859	\$ 85,882	\$ 85,882	\$ 85,882
2	Discount: Senior, Education & Charities	3,140	3,224	3,264	3,265	3,265	3,265
3	Discount PHA	723	742	751	751	751	751
Non Residential							
4	Non Discount	78,877	77,885	77,785	77,031	76,318	75,621
5	Discount: Senior, Education & Charities	7,434	7,376	7,392	7,345	7,301	7,258
6	Discount PHA	1,234	1,234	1,246	1,246	1,246	1,246
Condominium							
7	Non Discount	3,002	2,971	2,962	2,929	2,898	2,868
8	Discount: Elderly, Education & Charities	94	93	93	92	90	89
9	Discount PHA	1	1	1	1	1	1
10	Total Stormwater Receipts	\$ 177,070	\$ 178,313	\$ 179,354	\$ 178,543	\$ 177,753	\$ 176,981

#### 4.1.6.5 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 on a monthly basis 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 the Delaware County Regional Water Authority (“DELCORA”) contract rates consist of charges for O&M expense and capital costs associated with the Long-Term Control Plan (“LTCP”) and Consent Order Agreement (“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.

Table 4-13 presents the projected revenues under existing rates from the wholesale customers based on their respective contract terms.

**Table 4-13 Projected Receipts for Wholesale Contract Customers**

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Wastewater System (\$000s)							
1	Abington	\$ 1,571	\$ 1,568	\$ 1,568	\$ 1,568	\$ 1,568	\$ 1,568
2	Bucks County (Bensalem)	1,183	1,146	1,146	1,146	1,146	1,146
3	Bucks County	8,133	7,987	7,987	7,987	7,987	7,987
4	Cheltenham	4,282	4,297	4,297	4,297	4,297	4,297
5	Lower Moreland	855	855	855	855	855	855
6	Lower Southampton	4,208	4,224	4,224	4,224	4,224	4,224
7	DELCORA	10,715	11,017	11,017	11,017	11,017	11,017
8	Lower Merion	2,241	2,239	2,239	2,239	2,239	2,239
9	Springfield (less Wyndmoor)	2,097	2,116	2,116	2,116	2,116	2,116
10	Upper Darby	2,895	2,893	2,893	2,893	2,893	2,893
11	Springfield (Wyndmoor)	320	320	320	320	320	320
12	Total Wastewater Wholesale	\$ 38,501	\$ 38,662	\$ 38,662	\$ 38,662	\$ 38,662	\$ 38,662

#### 4.1.6.6 Projected Wastewater System Operating Revenues

Table 4-14 summarizes the projected receipts for the Wastewater System during the Study Period.

**Table 4-14 Projected Receipts under Existing Rates**

LINE		FISCAL YEAR ENDING JUNE 30,					
NO.	DESCRIPTION	2022	2023	2024	2025	2026	2027
Wastewater System (\$000s)							
1	Sanitary Sewer Receipts	260,609	263,843	265,394	263,884	262,288	260,680
2	Stormwater Receipts	177,070	178,313	179,354	178,543	177,753	176,981
3	Total Wastewater Service Receipts	437,678	442,156	444,749	442,427	440,042	437,661

#### 4.1.7 Tiered Assistance Program Rate Rider Surcharge

As, previously noted, base rate revenue figures for the Study Period exclude the current Tiered Assistance Program (“TAP”) Rate Rider Surcharge Rate (“TAP-R”) of \$1.09/Mcf for wastewater. The TAP-R currently recovers the cost of providing discounts to TAP customers from Non-TAP customers and is subject to an annual reconciliation.

## 5.0 Findings and Conclusions

Based on the analyses performed for this Report, the following findings are presented for the Rate Board's consideration:

1. Total projected revenue requirements will exceed revenues under existing rates during the Study Period and will require additional service revenues as recommended in this Report. Revenues under existing rates will be insufficient to fund the Combined System needs over the Study Period. Continued action will be necessary to offset anticipated increases in revenue requirements resulting from:
  - a. Regulatory Pressures such as the Lead and Copper rule, MS4 permit requirements, and, and *Green City, Clean Waters* plan will require additional revenue requirements to provide the programs to meet their respective requirements.
  - b. Policy Pressures such as a potential extension of the Shut-off moratorium, recent labor agreements, and potential changes to TAP certification/enrollment have the potential to put pressure on both System revenue and revenue requirements.
  - c. Operational Pressures related to infrastructure repair/replacement; economic impacts due to the pandemic including inflation and reduced customer collections; restoration of operations to pre-pandemic levels; increasing workforce costs; and increase in pension contribution costs.
  - d. The need to restore financial reserves to targeted levels to allow for both operational and financial resiliency in the face of future emergencies.
2. The Department needs to re-start investment in an aging system, which was delayed due to the pandemic. The Water Department needs additional revenues to meet ongoing capital obligations and debt covenant requirements as well as adhere to the City's capital funding policy.
3. The Water Department while continuing to target financial metrics acknowledged in the 2018 Rate Determination, projects in the following in FY 2022 and FY 2023:
  - a. Maintaining minimum senior debt service coverage requirement of 1.20x, instead of the target 1.30 set forth under the 2018 Rate Determination;
  - b. Maintaining Rate Stabilization Fund ("RSF") balances above \$120 million; and
  - c. Deferring the 20% cash funding target for capital projects.
4. To meet minimum required coverage requirements and maintain RSF balances in FY 2022 and FY 2023, the Water Department will need to monitor both revenues and expenses.
5. To restore financial performance and meet targeted financial metrics by the end of the Study Period, the Water Department projects the following:

- a. Replenish the RSF balance beginning in FY 2024 to provide the financial resiliency necessary to manage through future emergencies.
  - b. Restore senior debt coverage service to 1.30x targeted levels beginning in FY 2024.
6. Beginning in FY 2024 additional revenues will be required to sustain the Water Department so as not to impede service levels and/or delay implementation of the capital improvement program.

Based on the above findings, Black & Veatch concludes that the full FY 2023 Base Rate Incremental Increase of \$34.110 million is needed and should be implemented. Further, the associated previously authorized water, sanitary sewer and stormwater rates for FY 2023 should be allowed to go into effect on September 1, 2022 to minimize reliance on RSF to meet the annual revenue requirements.

## Glossary

<b>90% Test</b>	General Bond Ordinance requirement 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.
<b>Base Rates</b>	Rate revenues that exclude revenue losses associated with providing TAP discounts and the TAP-R surcharge revenues.
<b>Billing Year Collections</b>	All payments associated with a given fiscal year's billing and received within the 12 months following the beginning of the fiscal year.
<b>Billing Year Plus 1 Collections</b>	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 2021.
<b>Billing Year Plus 2 and Beyond Collections</b>	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 2021.
<b>Collection Factors</b>	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 2021.
<b>Combined System</b>	The City of Philadelphia's Water and Wastewater Systems
<b>Community Gardens</b>	Parcels, as defined by, Section 19-1603, which receive a 100 percent discount on all stormwater management service charges once approved.
<b>General Bond Ordinance</b>	The Restated General Water and Wastewater Revenue Bond Ordinance of 1989, approved by the Mayor on June 24, 1993, as supplemented and amended.
<b>Hand Bill</b>	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.
<b>M1 Manual</b>	AWWA's Principles of Water Rates, Fees, and Charges" Manual of Water Supply Practices M1. The M1 Manual is the utility industry's guidance manual for water rate-making.
<b>MoP 27</b>	WEF's Financing and Charges for Wastewater Systems Manual of Practice No. 27. This is the wastewater industry's manual for sewer rate-making.
<b>Rate Compression Factor</b>	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.
<b>Rate Ordinance</b>	Refers to Section 13-101(4)(a) of the Philadelphia Code

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
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.

## Appendix A

### Accounts and Billed Volume per Account

Number of Accounts and Account Growth								
Customer Type	USE	Average Annual Growth			Historical Number of Accounts			
	FY 2022 <sup>1</sup>	1 Year	2 Year	3 Year	FY 2018	FY 2019	FY 2020	FY 2021
<b>Senior Citizens (Special Customer Group II)</b>								
5/8" Meter	21,961	-2.30%	-2.69%	-1.14%	22,994	23,460	22,738	22,215
> 5/8" Meter	8	0.00%	-5.72%	4.55%	7	9	8	8
<b>General Service (Residential)</b>								
5/8" Meter	421,084	2.10%	0.85%	0.14%	418,816	413,482	411,877	420,516
> 5/8" Meter	12,338	11.28%	11.07%	12.55%	7,688	8,885	9,851	10,962
<b>General Service (Commercial)</b>								
5/8" Meter	28,017	0.96%	-0.12%	-0.20%	28,246	28,142	27,807	28,074
> 5/8" Meter	9,492	5.10%	3.27%	3.43%	8,293	8,605	8,732	9,177
<b>General Service (Industrial)</b>								
5/8" Meter	504	0.59%	-0.49%	-0.90%	523	514	506	509
> 5/8" Meter	541	-0.91%	-0.64%	-0.43%	550	550	548	543
<b>General Service (Public Utilities)</b>								
5/8" Meter	78	4.17%	0.67%	4.35%	66	74	72	75
> 5/8" Meter	108	4.95%	3.47%	2.30%	99	99	101	106
<b>General Service (Excluding Senior Citizens)</b>								
5/8" Meter	449,684	2.02%	0.78%	0.11%	447,651	442,212	440,262	449,174
> 5/8" Meter	22,479	8.09%	7.05%	7.72%	16,630	18,139	19,232	20,788
<b>General Service (Including Senior Citizens)</b>								
5/8" Meter	471,645	1.81%	0.61%	0.05%	470,645	465,672	463,000	471,389
> 5/8" Meter	22,488	8.09%	7.05%	7.72%	16,637	18,148	19,240	20,796
<b>PHA (Special Customer Group IV)</b>								
Charities & Schools (Special Customer Group I)	1,748	-4.47%	-7.32%	-5.94%	2,233	2,163	1,945	1,858
Hospital/University (Special Customer Group III)	103	-52.05%	-41.28%	-26.32%	350	406	292	140
Hand Billed	226	-1.29%	-2.31%	-1.55%	241	241	233	230
Scheduled	5	66.67%	29.10%	7.72%	4	3	3	5
Fire Service	6,370	4.53%	2.87%	8.70%	4,562	5,538	5,606	5,860
<b>Notes:</b>								
1. FY 2022 is based on the FY 2021 number of accounts and the 3-year average annual growth rate.								



Annual Billed Volume Per Account (Mcf/Account)							
Customer Type	USE	Historical Average Change			Historical Usage Per Account		
	FY 2022	1 Year	2 Year	3 Year	FY 2019	FY 2020	FY 2021
Senior Citizens (Special Customer Group II)							
5/8" Meter	5.72	0.25%	1.65%	2.14%	5.54	5.71	5.72
> 5/8" Meter	11.06	39.59%	39.18%	14.49%	5.71	7.93	11.06
General Service (Residential)							
5/8" Meter	6.40	-0.28%	-0.17%	-0.73%	6.42	6.42	6.40
> 5/8" Meter	35.45	-4.48%	-6.20%	-8.77%	40.30	37.12	35.45
General Service (Commercial)							
5/8" Meter	9.96	-0.72%	-2.83%	-2.87%	10.55	10.03	9.96
> 5/8" Meter	137.59	-8.41%	-3.13%	-3.28%	146.62	150.22	137.59
General Service (Industrial)							
5/8" Meter	11.88	-14.24%	-4.45%	-1.43%	13.01	13.85	11.88
> 5/8" Meter	144.69	-14.30%	-26.70%	-4.11%	269.34	168.84	144.69
General Service (Public Utilities)							
5/8" Meter	4.91	-28.11%	-23.46%	-23.91%	8.39	6.83	4.91
> 5/8" Meter	84.02	-5.77%	0.06%	-2.18%	83.92	89.16	84.02
General Service (Excluding Senior Citizens)							
5/8" Meter	NA	-0.40%	-0.48%	-0.96%	6.69	6.66	6.63
> 5/8" Meter	NA	-9.57%	-7.58%	-6.82%	97.92	92.50	83.64
General Service (Including Senior Citizens)							
5/8" Meter	NA	-0.30%	-0.38%	-0.80%	6.64	6.61	6.59
> 5/8" Meter	NA	-9.57%	-7.58%	-6.82%	97.88	92.46	83.61
PHA (Special Customer Group IV)							
Charities & Schools (Special Customer Group I)	60.94	-13.44%	-8.56%	-5.59%	72.89	70.40	60.94
Hospital/University (Special Customer Group III)	669.24	-14.31%	-2.61%	-2.49%	705.56	781.00	669.24
Hand Billed	2,068.80	0.56%	7.85%	1.97%	1,778.52	2,057.24	2,068.80
Scheduled	7.60	-36.67%	35.06%	32.06%	4.17	12.00	7.60
Fire Service	1.71	0.03%	5.64%	-21.09%	1.53	1.71	1.71

## **Appendix B**

### **Stormwater Credit Historical Data**

PHILADELPHIA WATER DEPARTMENT | FY 2022 TO FY 2027 FINANCIAL PLAN REPORT FORMAL NOTICE

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)
1	2013	604	223,367,443	61,793,806	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	20,633,386	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	145,679,885	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	819	314,867,652	116,945,118	158,782,876	45,629,169	57,735,322	19,905,522	19,129,234	-	-	6	70,495	24,305	23,357
10	5-Yr Average	801	322,056,396	116,779,405	150,444,370	41,235,258	64,961,857	18,072,874	17,132,800	-	-	25	81,262	22,524	21,345
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)
11	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
12	2014	212	272,919,261	91,624,837	170,699,769	53,699,207	114,259,551	49,493,761	49,668,409	1,580,879	2,681,653	60	538,960	233,461	234,285
13	2015	246	283,413,656	98,224,301	176,990,329	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
14	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
15	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
16	2018	318	331,071,935	98,430,878	227,585,196	66,195,369	148,779,130	62,881,606	62,901,801	726,596	3,097,451	6	471,004	197,741	197,804
17	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
18	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
19	2021	313	330,383,873	93,902,032	236,732,412	64,171,566	160,865,635	60,921,094	61,177,855	531,051	2,759,029	1	513,948	194,636	195,456
20	5-Yr Average	313	324,295,146	94,080,903	232,180,158	64,716,703	157,765,787	61,601,214	61,732,144	530,468	2,396,292	8	504,900	197,071	197,490
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)
21	2013	-	-	-	-	-	-	-	-	-	-	-	-	-	-
22	2014	1	55,200	31,107	23,176	8,721	14,455	8,721	8,721	-	-	1	14,455	8,721	8,721
23	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
24	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
25	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
26	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
27	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
28	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
29	2021	120	49,927,619	26,094,693	25,169,592	15,996,748	11,776,471	15,295,956	13,392,006	-	-	(1)	98,137	127,466	111,600
30	5-Yr Average	91	35,064,948	19,332,731	18,174,569	13,271,746	7,537,139	12,854,634	10,616,700	-	-	19	83,625	147,871	119,291

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 greened 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)
<i>FY 2012</i>	84.74%	9.67%	2.77%
<i>FY 2013</i>	84.87%	9.81%	2.75%
<i>FY 2014</i>	86.22%	8.63%	2.51%
<i>FY 2015</i>	87.15%	8.28%	2.21%
<i>FY 2016</i>	87.72%	8.31%	1.84%
<i>FY 2017</i>	88.21%	8.17%	1.53%
<i>FY 2018</i>	87.96%	8.38%	1.16%
<i>FY 2019</i>	88.05%	8.93%	0.60%
<i>FY 2020</i>	87.04%	8.54%	
<i>FY 2021</i>	84.62%		
<b>Average</b>	<b>86.66%</b>	<b>8.75%</b>	<b>1.92%</b>

Source: Raftelis FY 2021 Payment Pattern Report (Schedule RFC-3)

Stormwater Only Customers	Collection Factors		
	Billing Year	Billing Year Plus 1	Billing Year Plus 2 and Beyond
	(Payments within 12 months)	(Payments w/in 13-24 months)	(Payment after 24 months)
<i>FY 2012</i>	<i>59.95%</i>	<i>9.26%</i>	<i>9.57%</i>
<i>FY 2013</i>	<i>61.24%</i>	<i>7.55%</i>	<i>9.21%</i>
<i>FY 2014</i>	<i>59.20%</i>	<i>5.99%</i>	<i>9.59%</i>
<i>FY 2015</i>	<i>59.62%</i>	<i>8.18%</i>	<i>8.04%</i>
<i>FY 2016</i>	<i>64.65%</i>	<i>8.15%</i>	<i>6.78%</i>
<i>FY 2017</i>	<i>66.93%</i>	<i>7.96%</i>	<i>5.03%</i>
<i>FY 2018</i>	<i>67.68%</i>	<i>8.36%</i>	<i>3.22%</i>
<i>FY 2019</i>	<i>69.86%</i>	<i>8.81%</i>	<i>2.58%</i>
<i>FY 2020</i>	<i>71.21%</i>	<i>9.51%</i>	
<i>FY 2021</i>	<i>66.34%</i>		
<b>Average</b>	<b>64.67%</b>	<b>8.20%</b>	<b>6.75%</b>

Source: Raftelis FY 2021 Payment Pattern Report (Schedule RFC-3)

## Appendix D

### Actual-to-Budget Factors



PHILADELPHIA WATER DEPARTMENT | FY 2022 TO FY 2027 FINANCIAL PLAN REPORT FORMAL NOTICE

	Factor Used	Historical Average			Actual to Budget Factor			Actual O&M Expense			Budgeted O&M Expense			
		2 Year	3 Year	5 Year	2021	2020	2019	2021	2020	2019	2021	2020	2019	
Human Resources and Administration														
Salaries & Wages	100	96.16%	96.60%	96.16%	95.18%	93.34%	99.99%	95.25%	\$ 9,370,164	\$ 9,673,937	\$ 9,009,476	\$ 10,039,053	\$ 9,675,002	\$ 9,459,000
Services	200	62.67%	69.19%	62.67%	66.33%	61.88%	81.61%	53.05%	\$ 3,241,468	\$ 2,516,056	\$ 2,997,589	\$ 5,238,000	\$ 3,083,000	\$ 5,650,000
Materials and Supplies	300	69.13%	63.38%	69.13%	67.87%	56.23%	73.55%	79.73%	\$ 687,442	\$ 631,090	\$ 899,390	\$ 1,222,500	\$ 858,000	\$ 1,128,000
Equipment	400	39.61%	49.31%	39.61%	65.11%	49.02%	51.18%	29.24%	\$ 331,348	\$ 55,271	\$ 214,297	\$ 676,000	\$ 108,000	\$ 733,000
Indemnities	500	0.00%	0.00%	0.00%	0.00%		0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ 100,000	\$ 100,000
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Human Resources and Administration			85.51%	82.44%	83.13%	79.36%	93.14%	76.86%	\$ 13,630,422	\$ 12,876,354	\$ 13,120,752	\$ 17,175,553	\$ 13,824,002	\$ 17,070,000
Finance														
Salaries & Wages	100	81.67%	88.33%	81.67%	84.90%	71.03%	116.72%	64.96%	\$ 5,450,152	\$ 5,456,616	\$ 3,193,307	\$ 7,672,958	\$ 4,675,000	\$ 4,916,034
Services	200	101.93%	106.35%	101.93%	99.67%	120.04%	92.91%	93.18%	\$ 9,271,497	\$ 7,312,002	\$ 7,328,266	\$ 7,723,500	\$ 7,870,000	\$ 7,865,000
SMIP/GARP	2xx	100.00%	142.33%	126.05%	114.06%	212.88%	100.00%	100.00%	\$ 31,932,618	\$ 25,000,000	\$ 25,000,000	\$ 15,000,000	\$ 25,000,000	\$ 25,000,000
Materials and Supplies	300	56.12%	47.93%	56.12%	58.70%	98.16%	5.09%	72.01%	\$ 56,931	\$ 3,459	\$ 46,807	\$ 58,000	\$ 68,000	\$ 65,000
Equipment	400	33.77%	18.00%	33.77%	39.12%	0.00%	34.28%	63.80%	\$ -	\$ 14,398	\$ 26,798	\$ 38,000	\$ 42,000	\$ 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	87.94%	53.31%	59.75%	73.58%	65.32%	40.21%	73.21%	\$ 7,838,707	\$ 4,423,296	\$ 8,052,752	\$ 12,000,000	\$ 11,000,000	\$ 11,000,000
Subtotal Finance			106.13%	100.24%	98.70%	128.35%	86.74%	89.26%	\$ 54,549,905	\$ 42,209,771	\$ 43,647,930	\$ 42,502,458	\$ 48,665,000	\$ 48,898,034
Construction and Engineering														
Salaries & Wages	100	93.86%	98.98%	93.86%	91.10%	88.60%	113.40%	77.94%	\$ 4,576,001	\$ 4,214,474	\$ 2,225,368	\$ 5,164,544	\$ 3,716,360	\$ 2,855,352
Services	200	81.73%	80.61%	81.73%	75.91%	77.27%	85.07%	84.05%	\$ 1,240,537	\$ 1,021,702	\$ 1,141,400	\$ 1,605,500	\$ 1,201,000	\$ 1,358,000
Materials and Supplies	300	42.04%	39.99%	42.04%	36.52%	24.32%	53.04%	45.14%	\$ 23,587	\$ 61,791	\$ 63,643	\$ 97,000	\$ 116,500	\$ 141,000
Equipment	400	31.00%	43.97%	31.00%	29.79%	0.32%	82.24%	6.65%	\$ 660	\$ 193,259	\$ 15,632	\$ 206,000	\$ 235,000	\$ 235,000
Indemnities	500	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Construction and Engineering			91.82%	87.28%	83.12%	82.58%	104.22%	75.09%	\$ 5,840,785	\$ 5,491,226	\$ 3,446,043	\$ 7,073,044	\$ 5,268,860	\$ 4,589,352

Note: Spend factors using 3-year average highlighted yellow and exceptions are highlighted in blue.

PHILADELPHIA WATER DEPARTMENT | FY 2022 TO FY 2027 FINANCIAL PLAN REPORT FORMAL NOTICE

	Factor Used	Historical Average			Actual to Budget Factor			Actual O&M Expense			Budgeted O&M Expense			
		2 Year	3 Year	5 Year	2021	2020	2019	2021	2020	2019	2021	2020	2019	
Operations														
Salaries & Wages	100	94.63%	94.21%	94.63%	95.93%	90.52%	98.10%	95.51%	\$ 82,941,746	\$ 85,482,469	\$ 80,747,114	\$ 91,633,042	\$ 87,136,263	\$ 84,546,676
Services	200	86.08%	82.26%	86.08%	90.39%	80.67%	84.00%	95.28%	\$ 81,249,860	\$ 77,776,273	\$ 76,327,780	\$ 100,715,250	\$ 92,595,300	\$ 80,109,026
Power	220	79.97%	84.78%	79.97%	81.41%	83.25%	86.44%	71.03%	\$ 15,737,655	\$ 15,046,774	\$ 13,854,363	\$ 18,903,000	\$ 17,408,000	\$ 19,505,474
Gas	221	81.91%	80.15%	81.91%	77.12%	75.53%	85.20%	85.06%	\$ 3,870,000	\$ 3,991,800	\$ 4,652,000	\$ 5,124,000	\$ 4,685,000	\$ 5,469,000
Materials and Supplies	300	80.52%	80.09%	80.52%	82.77%	76.53%	83.58%	81.40%	\$ 15,618,059	\$ 17,381,434	\$ 16,573,700	\$ 20,408,000	\$ 20,796,766	\$ 20,361,000
Chemicals	307	94.71%	94.31%	94.71%	93.90%	91.10%	97.90%	95.57%	\$ 23,842,156	\$ 22,886,203	\$ 22,115,310	\$ 26,171,000	\$ 23,378,000	\$ 23,141,000
Equipment	400	79.32%	75.24%	79.32%	74.21%	78.72%	74.04%	87.17%	\$ 1,860,257	\$ 5,098,204	\$ 4,195,679	\$ 2,363,000	\$ 6,885,434	\$ 4,813,000
Indemnities	500	0.00%			0.00%				\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Operations			87.38%	88.77%	90.79%	84.85%	90.03%	91.81%	\$ 225,119,733	\$ 227,663,158	\$ 218,465,946	\$ 265,317,292	\$ 252,884,763	\$ 237,945,176
Planning & Environmental Services														
Salaries & Wages	100	98.85%	98.04%	98.85%	96.84%	96.20%	100.00%	100.74%	\$ 17,273,380	\$ 16,906,060	\$ 14,956,269	\$ 17,955,633	\$ 16,906,740	\$ 14,847,000
Services	200	97.00%	97.42%	97.00%	97.20%	98.75%	96.24%	96.29%	\$ 15,957,673	\$ 17,460,836	\$ 19,507,659	\$ 16,160,000	\$ 18,142,850	\$ 20,259,000
Materials and Supplies	300	88.49%	88.84%	88.49%	86.53%	86.95%	90.85%	87.91%	\$ 1,425,909	\$ 1,405,580	\$ 1,680,851	\$ 1,640,000	\$ 1,547,200	\$ 1,912,000
Equipment	400	63.91%	87.10%	63.91%	68.19%	90.49%	82.73%	41.09%	\$ 470,365	\$ 333,419	\$ 385,416	\$ 519,800	\$ 403,000	\$ 938,000
Indemnities	500	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Planning & Environmental Services			97.21%	96.88%	96.05%	96.84%	97.58%	96.24%	\$ 35,127,327	\$ 36,105,895	\$ 36,530,195	\$ 36,275,433	\$ 36,999,790	\$ 37,956,000
Public Affairs														
Salaries & Wages	100	99.32%	98.73%	99.32%	94.12%	97.56%	99.99%	100.64%	\$ 5,464,005	\$ 5,244,307	\$ 4,922,385	\$ 5,600,810	\$ 5,245,060	\$ 4,891,060
Services	200	98.41%	98.17%	98.41%	97.24%	98.24%	98.11%	98.81%	\$ 5,949,469	\$ 7,662,337	\$ 8,327,583	\$ 6,056,000	\$ 7,810,000	\$ 8,428,000
Materials and Supplies	300	70.05%	65.63%	70.05%	68.02%	46.43%	93.49%	77.49%	\$ 258,613	\$ 359,005	\$ 432,412	\$ 557,000	\$ 384,000	\$ 558,000
Equipment	400	29.06%	41.42%	29.06%	21.62%	101.50%	7.62%	9.76%	\$ 9,135	\$ 1,220	\$ 1,562	\$ 9,000	\$ 16,000	\$ 16,000
Indemnities	500	95.79%	99.50%	95.79%	97.32%	100.00%	99.01%	89.13%	\$ 500,000	\$ 500,000	\$ 500,000	\$ 500,000	\$ 505,000	\$ 561,000
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Public Affairs			97.25%	97.56%	94.98%	95.74%	98.62%	98.13%	\$ 12,181,222	\$ 13,766,869	\$ 14,183,942	\$ 12,722,810	\$ 13,960,060	\$ 14,454,060

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PHILADELPHIA WATER DEPARTMENT | FY 2022 TO FY 2027 FINANCIAL PLAN REPORT FORMAL NOTICE

	Factor Used	Historical Average			Actual to Budget Factor			Actual O&M Expense			Budgeted O&M Expense			
		2 Year	3 Year	5 Year	2021	2020	2019	2021	2020	2019	2021	2020	2019	
Division of Technology														
Salaries & Wages	100	80.13%	79.62%	80.13%	83.32%	80.29%	78.96%	81.24%	\$ 7,019,427	\$ 6,869,622	\$ 6,502,251	\$ 8,742,629	\$ 8,700,632	\$ 8,003,747
Services	200	74.10%	74.74%	74.10%	74.52%	73.96%	75.56%	72.86%	\$ 15,310,229	\$ 15,123,111	\$ 15,249,284	\$ 20,700,879	\$ 20,015,542	\$ 20,930,724
Materials and Supplies	300	66.59%	67.82%	66.59%	70.77%	63.51%	71.96%	64.90%	\$ 1,301,139	\$ 1,535,616	\$ 1,967,863	\$ 2,048,850	\$ 2,133,850	\$ 3,032,350
Equipment	400	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Indemnities	500	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Division of Technology			75.65%	75.16%	76.54%	75.04%	76.27%	74.20%	\$ 23,630,795	\$ 23,528,349	\$ 23,719,398	\$ 31,492,358	\$ 30,850,024	\$ 31,966,821
Mayor's Office of Transportation & Utilities and Office of Sustainability														
Salaries & Wages	100	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	\$ 202,423	\$ 202,433	\$ 202,424	\$ 202,424	\$ 202,424	\$ 202,424
Services	200	100.00%	100.00%	100.00%	99.33%	100.00%	100.00%	100.00%	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000	\$ 30,000
Materials and Supplies	300	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	400	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Indemnities	500	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Mayor's Office of Transportation & Utilities			100.00%	100.00%	99.91%	100.00%	100.00%	100.00%	\$ 232,423	\$ 232,433	\$ 232,424	\$ 232,424	\$ 232,424	\$ 232,424
Philadelphia Water, Sewer and Storm Water Rate Board														
Salaries & Wages	100	95.46%	96.93%	95.46%	40.22%	96.28%	97.61%	92.24%	\$ 42,901	\$ 41,760	\$ 36,897	\$ 44,558	\$ 42,782	\$ 40,000
Services	200	35.49%	38.47%	35.49%	34.29%	4.04%	73.14%	26.52%	\$ 30,499	\$ 548,683	\$ 132,615	\$ 755,200	\$ 750,200	\$ 500,000
Materials and Supplies	300	0.00%	0.00%	0.00%	0.00%		0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ 25,000	\$ 25,000
Equipment	400	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Indemnities	500	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Philadelphia Water, Sewer and Storm Water Rate Board						9.18%	72.18%	30.00%	\$ 73,400	\$ 590,443	\$ 169,512	\$ 799,758	\$ 817,982	\$ 565,000

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PHILADELPHIA WATER DEPARTMENT | FY 2022 TO FY 2027 FINANCIAL PLAN REPORT FORMAL NOTICE

	Factor Used	Historical Average			Actual to Budget Factor			Actual O&M Expense			Budgeted O&M Expense			
		2 Year	3 Year	5 Year	2021	2020	2019	2021	2020	2019	2021	2020	2019	
Public Property														
Salaries & Wages	100	0.00%						\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Leases	200	100.00%	100.00%	100.00%	100.00%	100.00%	100.00%	\$ 4,368,565	\$ 4,270,347	\$ 4,265,847	\$ 4,368,565	\$ 4,270,347	\$ 4,265,847	
Materials and Supplies	300	0.00%						\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Equipment	400	0.00%						\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Indemnities	500	0.00%						\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Transfers	800	0.00%						\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Subtotal Public Property			100.00%	100.00%	100.00%	100.00%	100.00%	\$ 4,368,565	\$ 4,270,347	\$ 4,265,847	\$ 4,368,565	\$ 4,270,347	\$ 4,265,847	
Fleet Management														
Salaries & Wages	100	88.53%	85.75%	88.53%	91.06%	76.93%	95.37%	\$ 2,589,222	\$ 2,940,437	\$ 2,909,020	\$ 3,365,544	\$ 3,083,114	\$ 3,083,114	
Services	200	84.34%	76.77%	84.34%	83.57%	68.25%	85.29%	\$ 1,016,231	\$ 1,269,896	\$ 1,481,230	\$ 1,489,000	\$ 1,489,000	\$ 1,489,000	
Materials and Supplies	300	73.85%	74.75%	73.85%	76.61%	75.94%	73.63%	\$ 3,071,606	\$ 3,147,317	\$ 3,081,353	\$ 4,044,640	\$ 4,274,640	\$ 4,274,640	
Equipment	400	0.00%						\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Indemnities	500	0.00%						\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Transfers	800	0.00%						\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Subtotal Fleet Management			79.09%	80.87%	82.89%			\$ 6,677,059	\$ 7,357,650	\$ 7,471,603	\$ 8,899,184	\$ 8,846,754	\$ 8,846,754	
City Finance														
Salaries & Wages	100	0.00%						\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Benefits	1xx	100.00%	90.71%	89.94%	93.86%	93.88%	87.73%	\$ 58,250,637	\$ 57,760,775	\$ 54,912,153	\$ 62,047,800	\$ 65,839,194	\$ 62,155,000	
Pension	191	100.00%	107.33%	104.94%	106.82%	108.16%	106.41%	\$ 81,201,619	\$ 71,612,808	\$ 64,686,954	\$ 75,076,794	\$ 67,300,000	\$ 64,881,002	
Pension Obligations	190	100.00%	111.89%	106.73%	109.25%	120.24%	109.69%	\$ 4,514,537	\$ 15,686,125	\$ 14,170,375	\$ 3,754,608	\$ 14,300,000	\$ 14,150,000	
Services	200	0.00%						\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Materials and Supplies	300	0.00%						\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Equipment	400	0.00%						\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Indemnities	500	41.55%	42.98%	41.55%	59.00%	33.83%	52.13%	\$ 2,537,590	\$ 3,909,860	\$ 3,316,246	\$ 7,500,000	\$ 7,500,000	\$ 8,500,000	
Transfers	800	0.00%						\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	
Subtotal City Finance			97.41%	95.49%	98.92%	98.74%	96.15%	91.58%	\$ 146,504,383	\$ 148,969,568	\$ 137,085,728	\$ 148,379,202	\$ 154,939,194	\$ 149,686,002

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PHILADELPHIA WATER DEPARTMENT | FY 2022 TO FY 2027 FINANCIAL PLAN REPORT FORMAL NOTICE

	Factor Used	Historical Average			Actual to Budget Factor			Actual O&M Expense			Budgeted O&M Expense			
		2 Year	3 Year	5 Year	2021	2020	2019	2021	2020	2019	2021	2020	2019	
Revenue														
Salaries & Wages	100	91.88%	90.63%	91.88%	92.48%	88.38%	92.91%	94.53%	\$ 9,763,255	\$ 10,102,618	\$ 9,791,864	\$ 11,047,032	\$ 10,873,116	\$ 10,358,907
Services	200	85.87%	80.88%	85.87%	90.19%	65.75%	96.02%	96.05%	\$ 3,395,971	\$ 4,959,294	\$ 4,858,989	\$ 5,165,000	\$ 5,165,000	\$ 5,059,000
Materials and Supplies	300	60.07%	49.39%	60.07%	60.21%	61.73%	37.01%	81.48%	\$ 885,451	\$ 529,102	\$ 1,164,755	\$ 1,434,500	\$ 1,429,500	\$ 1,429,500
Equipment	400	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Indemnities	500	0.00%	0.00%	0.00%	0.60%		0.00%	0.00%	\$ -	\$ -	\$ -	\$ -	\$ 5,000	\$ 5,000
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Revenue			84.39%	87.45%	89.13%	79.59%	89.23%	93.85%	\$ 14,044,677	\$ 15,591,014	\$ 15,815,608	\$ 17,646,532	\$ 17,472,616	\$ 16,852,407
Procurement														
Salaries & Wages	100	85.38%	80.42%	85.38%	89.66%	91.64%	68.65%	96.87%	\$ 101,275	\$ 72,282	\$ 90,176	\$ 110,515	\$ 105,285	\$ 93,093
Services	200	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Materials and Supplies	300	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Equipment	400	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Indemnities	500	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Procurement			80.42%	85.38%	89.66%	91.64%	68.65%	96.87%	\$ 101,275	\$ 72,282	\$ 90,176	\$ 110,515	\$ 105,285	\$ 93,093
Law														
Salaries & Wages	100	100.00%	100.00%	100.00%	97.92%	100.00%	100.00%	100.00%	\$ 2,570,334	\$ 2,569,445	\$ 2,569,445	\$ 2,570,334	\$ 2,569,445	\$ 2,569,445
Services	200	99.99%	99.99%	99.99%	78.42%	99.99%	100.00%	99.97%	\$ 691,565	\$ 691,589	\$ 691,440	\$ 691,614	\$ 691,614	\$ 691,614
Materials and Supplies	300	85.10%	78.35%	85.10%	79.99%	60.69%	96.01%	98.59%	\$ 26,104	\$ 41,295	\$ 42,404	\$ 43,010	\$ 43,010	\$ 43,010
Equipment	400	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Indemnities	500	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Transfers	800	0.00%							\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Subtotal Law			99.72%	99.80%	93.58%	99.49%	99.95%	99.98%	\$ 3,288,003	\$ 3,302,329	\$ 3,303,289	\$ 3,304,958	\$ 3,304,069	\$ 3,304,069
Total Water Fund			91.47%	91.13%	92.30%	91.46%	91.49%	90.43%	\$ 545,369,974	\$ 542,027,687	\$ 521,548,393	\$ 596,300,086	\$ 592,441,170	\$ 576,725,039

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					
		2016	2017	2018	2019	2020	2021
PWD Operating and Maintenance Expenses Summary							
100	Salaries & Wages	\$ 118,414,751	\$ 125,010,184	\$ 132,309,261	\$ 137,155,996	\$ 149,776,460	\$ 147,364,285
1xx	Benefits	47,276,002	52,651,923	56,886,859	54,912,153	57,760,775	58,250,637
191	Pension	46,646,526	55,552,438	62,666,813	64,686,954	71,612,808	81,201,619
190	Pension Obligations	12,468,686	13,362,362	14,290,585	14,170,375	15,686,125	4,514,537
200	Services	106,570,050	127,171,308	125,564,692	138,073,835	136,371,779	137,384,999
220	Power	20,071,556	18,252,847	15,002,114	13,854,363	15,046,774	15,737,655
221	Gas	4,013,404	3,176,528	3,855,757	4,652,000	3,991,800	3,870,000
2xx	Services - Property Leases	4,042,633	4,042,633	4,256,817	4,265,847	4,270,347	4,368,565
2xx	SMIP/GARP	15,000,000	15,000,000	26,900,000	25,000,000	25,000,000	31,932,618
300	Materials and Supplies	22,505,723	25,773,136	25,210,739	25,953,178	25,095,689	23,354,841
307	Chemicals	21,075,520	18,728,508	21,771,176	22,115,310	22,886,203	23,842,156
400	Equipment	1,992,145	2,120,160	3,094,873	4,839,384	5,695,771	2,671,765
500	Indemnities	5,440,820	7,352,313	6,779,219	3,816,246	4,409,860	3,037,590
800	Transfers	8,100,186	12,097,064	7,319,325	8,052,752	4,423,296	7,838,707
Total PWD Operating and Maintenance Expenses Summary		\$ 433,618,002	\$ 433,618,002	\$ 480,291,404	\$ 505,908,230	\$ 521,548,393	\$ 542,027,687
PWD Operating and Maintenance Expenses Summary - Annual Increase		2016 - 2017		2017 - 2018	2018 - 2019	2019 - 2020	2020 - 2021
100	Salaries & Wages			5.57%	5.84%	3.66%	9.20%
1xx	Benefits			11.37%	8.04%	-3.47%	5.19%
191	Pension			19.09%	12.81%	3.22%	10.71%
190	Pension Obligations			7.17%	6.95%	-0.84%	10.70%
200	Services			19.33%	-1.26%	9.96%	-1.23%
220	Power			-9.06%	-17.81%	-7.65%	8.61%
221	Gas			-20.85%	21.38%	20.65%	-14.19%
2xx	Services - Property Leases			0.00%	5.30%	0.21%	0.11%
307	Chemicals			-11.14%	16.25%	1.58%	3.49%
400	Equipment			6.43%	45.97%	56.37%	17.70%
500	Indemnities			35.13%	-7.79%	-43.71%	15.55%
800	Transfers			49.34%	-39.50%	10.02%	-45.07%
Total PWD Operating and Maintenance Expenses Summary - Annual Increase				10.76%	5.33%	3.09%	3.93%
PWD Operating and Maintenance Expenses Summary - 2 Year Average Increase				2017 - 2019		2018 - 2020	2019 - 2021
100	Salaries & Wages			4.75%		6.40%	3.65%
1xx	Benefits			2.12%		0.77%	2.99%
191	Pension			7.91%		6.90%	12.04%
190	Pension Obligations			2.98%		4.77%	-43.56%
200	Services			4.20%		4.21%	-0.25%
220	Power			-12.88%		0.15%	6.58%
221	Gas			21.02%		1.75%	-8.79%
2xx	Services - Property Leases			2.72%		0.16%	1.20%
2xx	SMIP/GARP			29.10%		-3.60%	13.02%
300	Materials and Supplies			0.35%		-0.23%	-5.14%
307	Chemicals			8.67%		2.53%	3.83%
400	Equipment			51.08%		35.66%	-25.70%
500	Indemnities			-27.95%		-19.35%	-10.78%
800	Transfers			-18.41%		-22.26%	-1.34%
Total PWD Operating and Maintenance Expenses Summary - 2 Year Average Increase				8.01%		4.21%	3.51%
PWD Operating and Maintenance Expenses Summary - 3 Year Average Increase							
100	Salaries & Wages					6.21%	3.66%
1xx	Benefits					3.14%	0.79%
191	Pension					8.83%	9.02%
190	Pension Obligations					5.49%	-31.89%
200	Services					2.36%	3.04%
220	Power					-6.24%	1.61%
221	Gas					7.91%	0.12%
2xx	Services - Property Leases					1.84%	0.87%
2xx	SMIP/GARP					18.56%	5.88%
300	Materials and Supplies					-0.88%	-2.52%
307	Chemicals					6.91%	3.08%
400	Equipment					39.01%	-4.78%
500	Indemnities					-15.67%	-23.48%
800	Transfers					-28.49%	2.31%
Total PWD Operating and Maintenance Expenses Summary - 3 Year Average Increase						6.35%	4.11%



## 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-18	253.0	286.3	249.6	228.7
Oct-19	258.0	252.3	250.8	233.7
Oct-20	260.0	227.7	262.5	236.7
Oct-21	274.6	335.4	310.8	253.3
12 Month Annual Change	5.64%	47.30%	18.40%	7.01%
24 Month Annual Change	3.18%	15.30%	11.32%	4.11%
36 Month Annual Change	2.77%	5.42%	7.58%	3.46%

**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	CUURA102SA0, CUUSA102SA0	Philadelphia-Wilmington-Atlantic City, 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
2012	780	10.17%	669	4.21%	711	10.40%	669	5.69%	646	1.73%	9,189.3	2.67%
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%
Avg.	-	7.35%	-	3.69%	-	2.83%	-	3.39%	-	2.53%	-	2.70%
2 Yr Avg												
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%
3 Yr Avg												
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%

## **Appendix H**

Memo from the City Energy Office

Re: Escalation Factors for the Philadelphia Water Department



## MEMO

**TO:** Melissa LaBuda, Philadelphia Water Department  
**CC:** Emily Hill, Samantha O'Connor, Marc Cammarata, Dominic McGraw  
**FROM:** Madeline Schuh  
**DATE:** October 8, 2021  
**SUBJECT:** Utility Escalation Factors for the Philadelphia Water Department

### Background

At the request of the Philadelphia Water Department (PWD), this memo outlines PWD's utility cost escalation between FY22 and FY26. The Energy Office, housed in the Office of Sustainability, purchases electricity, natural gas, and vehicle fuel on behalf of the City (including PWD). As such, the Energy Office has information on how hedge purchases and rate cases impact future costs.

### Electricity

The City purchases electricity in a two-part process — supply and distribution. Electricity supply is purchased through a third party while distribution is provided by PECO. This allows the City to hedge electricity costs by purchasing future electricity supply. Current electricity hedges are in place through FY22 with FY23 hedging in process.

The other portion of electricity costs, distribution, is provided by PECO. PECO filed a rate case with the Pennsylvania Public Utility Commission (PUC) in March 2021. Rate negotiations were settled in September 2021 and rates will take effect in January 2022. Costs associated with PECO distribution will rise by approximately 8.5% by FY23. However, due to strategic procurement through electricity hedges, the increases will have a modest effect on total electricity costs. For reference, PECO distribution costs are approximately 20% of the Water Fund's total electricity costs.

After accounting for completed electricity purchases, existing hedges, future markets, and potential increases in PECO costs, the Energy Office anticipates a 1.0% increase in FY22. Between FY22 and FY23, total electricity costs are expected to rise by 1.5%. In the following years, a relatively flat escalation rate for electricity prices is expected, as outlined in the table below.

Year Transition	Escalation Rate
FY21 to FY22	1.0%
FY22 to FY23	1.5%
FY23 to FY24	1.0%
FY24 to FY25	1.0%
FY25 to FY26	1.0%



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SUSTAINABILITY

### Natural Gas

The City has purchases of natural gas for Fiscal Years '21 and '22. Projections for future escalation curves beyond hedges are primarily based on the forward NYMEX natural gas market and Winter Basis Strips from Transco Z6 (NNY) North. Winter Basis strip prices are used as a proxy for all months as they tend to have the most volatile cost changes. PWD's use is not driven by weather patterns as much as the General Fund use and thus is more sheltered from the basis market (and price volatility). We do not anticipate significant increases to commodity prices for PWD over the next five years. However, due to recent trends in natural gas markets, we do expect a slight increase in cost in FY22 and FY23.

Beyond natural gas commodity, the other significant portion of natural gas costs come from distribution services provided by PGW. PGW filed a rate case in February 2020 and the Pennsylvania Public Utility Commission (PUC) issued a final order on January 1, 2021. As a result of the ruling, the City's PGW rates began increasing incrementally in January 2021. The City's natural gas costs will continue to increase, rising by approximately 7% by mid-FY23. This increase is expected to be followed by a relatively flat escalation through FY26. The escalation based on the rate increase schedule and the City's portfolio of PGW accounts. Please see the table below for the estimated year-over-year natural gas total cost increases.

Year Transition	Escalation Rate
FY21 to FY22	6.0%
FY22 to FY23	3.0%
FY23 to FY24	1.5%
FY24 to FY25	1.0%
FY25 to FY26	1.0%

### Next Steps

The Energy Office will provide regular updates to PWD on the purchases and impacts to electricity and natural gas rates, as well as escalation projections. Please feel free to reach out if there are any questions.

### Madeline Schuh

Senior Energy Management Analyst

[Madeline.schuh@phila.gov](mailto:Madeline.schuh@phila.gov)

## Appendix I

### Financial Plan Reports Digest

<b>To: Philadelphia Water Department (PWD)</b>	<b>From: Raftelis Financial Consultants</b>
Task Name: 2022 Rate Case Reporting	Project Number:
Document: Financial Plan Reports Digest	Date: December 15 <sup>th</sup> , 2021

The purpose of the memorandum is to provide an overview of the reports Raftelis Financial Consultants (RFC) provided in support of the Financial Plan developed by Black & Veatch. Each report is detailed below.

### **Service Usage and Billing Report**

The first report details service usage and billings across the service area in aggregate by customer type, service type, and meter size. This report provides historical information on water, wastewater, and stormwater charges and usage at varying levels of detail for FY2012-FY2021. It comprises three tables, which provide bills, accounts, consumption amounts and usage charges by service type and customer category; bills, accounts, service charges by service type and meter size; and bills, accounts, and stormwater usage by service type and customer category.

Accounts included in this report have a unique customer at a location (installation) combination, an account, with a “bill” type transaction of interest (usage, service, or stormwater) in a certain month. The bill transaction is the indicator of activity for that account (customer + installation combination). The report provides one field for the total of all accounts of interest for the year as well as the total of all accounts of interest for the year divided by 12 months (the “average” for the year). The Service Usage and Billing Report is included below as Schedule RFC-1.

### **Water Usage and Billing Report**

The Water Usage and Billing Report tallies the number of bills, volume of water usage, and total water charges within each tier of the current water quantity charge rate structure by Customer Category. The report includes only a single fiscal year, FY2021, and is only based on data stored in basis2 as of the June 30th extract (that is, without the use of revenue reporting extracts containing historical information on customer types). The Water Usage and Billing Report is included below as Schedule RFC-2.

### **Payment Patterns Report**

The Payment Patterns Report summarizes billings for each fiscal year, and payments against those billings in each of three timeframes. The report includes a summary for each fiscal year, FY2012 through FY2021. In this report, billings are defined as service and usage charges, with creation dates during the fiscal year of interest. Billings do include all City accounts except those designated as PWD accounts; they include only retail customers, excluding any wholesale customers. Total billings are split between Non-Stormwater Only and Stormwater Only accounts based on the account’s installation designation. Payments for accounts other than City accounts are defined as receipt or transfer credits allocated to billings. Payments are reported only when they link to specific bill transactions reported for the fiscal year in question. Payments in the ‘Billing Year’ are those that were received by the end of the fiscal year in which they were billed. Payments in ‘Billing year +1’ are those that were received during the subsequent fiscal year. Payments in ‘Billing year +2 and beyond’ are those that were received any time after the subsequent fiscal year.

City accounts are billed the same rates and charges as all other Water Department customers. Since the Water Department rates and charges do not maintain a separate rate schedule for City accounts and City accounts are billed the same as retail customers, collection factors were developed for: Non-Stormwater Only and Stormwater Only accounts. City accounts (other than PWD accounts) categories have a 100% collection rate in the ‘Billing Year’. The Payment Patterns Report is included below as Schedule RFC-3.

FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY12 # of Accounts Months</u>	<u>FY12 # of Accounts</u>	<u>FY12 # of Original Bills Issued</u>	<u>FY12 Billed Water Usage</u>	<u>FY12 Water Usage Charges</u>	<u>FY12 Sewer Usage Charges</u>
01-Water,Sewer,Stormwater	01-General Service-Residential	5,118,032	426,503	5,143,843	3,406,390,500	\$ 108,063,044.93	\$ 75,167,589.95
01-Water,Sewer,Stormwater	02-General Service-Commercial	396,579	33,048	397,981	1,176,343,300	\$ 31,913,804.72	\$ 24,818,709.82
01-Water,Sewer,Stormwater	03-General Service-Industrial	12,795	1,066	12,829	86,705,900	\$ 1,956,873.37	\$ 1,575,459.76
01-Water,Sewer,Stormwater	04-General Service-Public Utilities	1,142	95	1,147	6,843,300	\$ 185,970.97	\$ 141,187.07
01-Water,Sewer,Stormwater	05-P.H.A	72,712	6,059	72,782	176,306,000	\$ 4,725,028.27	\$ 3,698,126.58
01-Water,Sewer,Stormwater	06-Charity/Non-Public Schools	26,841	2,237	27,031	160,316,900	\$ 3,305,474.59	\$ 2,633,584.83
01-Water,Sewer,Stormwater	07-Public Schools	4,688	391	4,718	54,204,900	\$ 1,101,292.92	\$ 898,235.11
01-Water,Sewer,Stormwater	08-Senior Citizens Discount	229,714	19,143	230,824	106,205,000	\$ 2,589,872.00	\$ 1,765,003.93
01-Water,Sewer,Stormwater	09-Hand Bill	3,245	270	3,254	537,600,000	\$ 11,221,111.24	\$ 7,237,133.02
01-Water,Sewer,Stormwater	10-City Leased	589	49	596	5,156,100	\$ 139,594.01	\$ 89,146.81
01-Water,Sewer,Stormwater	11-Hospital/University	4,196	350	4,246	270,717,700	\$ 5,200,683.69	\$ 4,205,963.91
01-Water,Sewer,Stormwater	12-Scheduled	24	2	24	11,500	\$ 376.89	\$ 254.36
01-Water,Sewer,Stormwater	13-Fire Service	1,071	89	1,075	10,799,500	\$ 289,940.76	\$ 229,741.65
01-Water,Sewer,Stormwater	14-City Government	11,634	970	11,895	446,059,600	\$ 10,686,136.00	\$ 9,833,920.09
01-Water,Sewer,Stormwater	14-Non-City Government	-	-	-	-	\$ -	\$ -
02-Water Only	01-General Service-Residential	4,305	359	4,499	392,200	\$ 12,178.54	\$ -
02-Water Only	02-General Service-Commercial	2,811	234	2,891	759,200	\$ 20,810.19	\$ 9,210.31
02-Water Only	03-General Service-Industrial	190	16	196	-	\$ -	\$ -
02-Water Only	04-General Service-Public Utilities	11	1	14	-	\$ -	\$ -
02-Water Only	05-P.H.A	680	57	732	-	\$ -	\$ -
02-Water Only	06-Charity/Non-Public Schools	187	16	188	3,800	\$ 91.52	\$ 62.57
02-Water Only	07-Public Schools	555	46	558	111,200	\$ 2,279.86	\$ 1,842.20
02-Water Only	08-Senior Citizens Discount	7	1	7	-	\$ -	\$ -
02-Water Only	09-Hand Bill	98	8	100	-	\$ -	\$ -
02-Water Only	10-City Leased	53	4	55	111,400	\$ 3,096.09	\$ 2,432.09
02-Water Only	11-Hospital/University	337	28	343	11,800	\$ 286.70	\$ 194.80
02-Water Only	13-Fire Service	25,751	2,146	25,843	3,168,900	\$ 77,978.84	\$ 1,222.72
02-Water Only	14-City Government	528	44	532	327,600	\$ 9,065.92	\$ 7,247.93
02-Water Only	14-Non-City Government	-	-	-	-	\$ -	\$ -
03-Stormwater Only	01-General Service-Residential	162,754	13,563	163,339	5,169,900	\$ 162,857.43	\$ 6,349.27
03-Stormwater Only	02-General Service-Commercial	368,428	30,702	371,427	4,507,500	\$ 117,618.58	\$ 6,710.41
03-Stormwater Only	03-General Service-Industrial	176	15	181	2,911,400	\$ 72,951.84	\$ -
03-Stormwater Only	04-General Service-Public Utilities	14,085	1,174	14,138	-	\$ -	\$ -
03-Stormwater Only	05-P.H.A	11,116	926	11,439	-	\$ -	\$ -
03-Stormwater Only	06-Charity/Non-Public Schools	537	45	537	114,300	\$ 2,554.63	\$ 114.56
03-Stormwater Only	07-Public Schools	919	77	924	-	\$ -	\$ -
03-Stormwater Only	08-Senior Citizens Discount	146	12	146	44,100	\$ 1,088.03	\$ 54.66
03-Stormwater Only	09-Hand Bill	124	10	131	5,196,400	\$ 126,492.78	\$ -
03-Stormwater Only	10-City Leased	45	4	45	633,500	\$ 16,667.44	\$ -
03-Stormwater Only	11-Hospital/University	1,497	125	1,506	14,600	\$ 349.36	\$ -
03-Stormwater Only	12-Scheduled	8	1	8	-	\$ -	\$ -
03-Stormwater Only	13-Fire Service	1,106	92	1,206	1,500	\$ 67.45	\$ 6.07
03-Stormwater Only	14-City Government	10,679	890	10,797	10,800	\$ 350.01	\$ -
03-Stormwater Only	14-Non-City Government	-	-	-	-	\$ -	\$ -

## FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY12 # of Accounts Months</u>	<u>FY12 # of Accounts</u>	<u>FY12 # of Original Bills Issued</u>	<u>FY12 Billed Water Usage</u>	<u>FY12 Water Usage Charges</u>	<u>FY12 Sewer Usage Charges</u>
04-Sewer and Stormwater	01-General Service-Residential	165	14	168	-	\$ -	\$ 1,512.16
04-Sewer and Stormwater	02-General Service-Commercial	19	2	19	-	\$ -	\$ -
04-Sewer and Stormwater	03-General Service-Industrial	27	2	27	-	\$ -	\$ 204,465.12
04-Sewer and Stormwater	04-General Service-Public Utilities	2	-	2	-	\$ -	\$ 4,122.44
04-Sewer and Stormwater	06-Charity/Non-Public Schools	6	1	6	-	\$ -	\$ 1,283.56
04-Sewer and Stormwater	09-Hand Bill	167	14	170	-	\$ -	\$ 504,529.16
04-Sewer and Stormwater	10-City Leased	-	-	-	-	\$ -	\$ -
04-Sewer and Stormwater	11-Hospital/University	-	-	-	-	\$ -	\$ -
05-Water and Stormwater	01-General Service-Residential	12,399	1,033	12,844	7,596,400	\$ 244,694.40	\$ -
05-Water and Stormwater	02-General Service-Commercial	2,688	224	3,030	11,302,800	\$ 298,666.86	\$ 1,523.22
05-Water and Stormwater	03-General Service-Industrial	188	16	206	16,710,400	\$ 413,568.85	\$ -
05-Water and Stormwater	04-General Service-Public Utilities	16	1	17	800	\$ 26.01	\$ -
05-Water and Stormwater	05-P. H.A	498	42	581	-	\$ -	\$ -
05-Water and Stormwater	06-Charity/Non-Public Schools	225	19	253	178,100	\$ 4,141.35	\$ 24.90
05-Water and Stormwater	07-Public Schools	319	27	393	401,600	\$ 8,093.83	\$ 6,647.34
05-Water and Stormwater	08-Senior Citizens Discount	107	9	108	54,000	\$ 1,331.50	\$ -
05-Water and Stormwater	09-Hand Bill	87	7	101	28,205,100	\$ 1,203,465.66	\$ -
05-Water and Stormwater	10-City Leased	193	16	200	2,099,100	\$ 56,401.18	\$ 1,153.49
05-Water and Stormwater	11-Hospital/University	204	17	249	57,500	\$ 1,306.91	\$ 146.12
05-Water and Stormwater	13-Fire Service	14,954	1,246	18,542	2,238,400	\$ 55,912.20	\$ 143.91
05-Water and Stormwater	14-City Government	714	60	740	1,524,000	\$ 42,579.01	\$ 3,799.22
06-Sewer Only	01-General Service-Residential	5	-	5	-	\$ -	\$ 22.06
06-Sewer Only	02-General Service-Commercial	-	-	-	-	\$ -	\$ -
06-Sewer Only	03-General Service-Industrial	2	-	6	-	\$ -	\$ 143.91
06-Sewer Only	04-General Service-Public Utilities	-	-	-	-	\$ -	\$ -
06-Sewer Only	06-Charity/Non-Public Schools	5	-	5	-	\$ -	\$ 1,086.94
06-Sewer Only	07-Public Schools	-	-	-	-	\$ -	\$ -
06-Sewer Only	09-Hand Bill	21	2	21	-	\$ -	\$ 396.32
06-Sewer Only	13-Fire Service	-	-	-	-	\$ -	\$ -
06-Sewer Only	14-City Government	-	-	-	-	\$ -	\$ -
06-Sewer Only	14-Non-City Government	-	-	-	-	\$ -	\$ -
07-Water and Sewer	01-General Service-Residential	278	23	288	116,500	\$ 3,753.54	\$ 2,561.87
07-Water and Sewer	02-General Service-Commercial	89	7	90	494,500	\$ 14,139.32	\$ 9,952.57
07-Water and Sewer	03-General Service-Industrial	1	-	1	500	\$ 14.93	\$ 10.65
07-Water and Sewer	04-General Service-Public Utilities	-	-	-	-	\$ -	\$ -
07-Water and Sewer	05-P. H.A	20	2	21	373,800	\$ 9,594.88	\$ 7,861.42
07-Water and Sewer	06-Charity/Non-Public Schools	32	3	32	170,900	\$ 3,518.19	\$ 2,837.64
07-Water and Sewer	07-Public Schools	-	-	-	-	\$ -	\$ -
07-Water and Sewer	08-Senior Citizens Discount	4	-	4	2,400	\$ 69.00	\$ 46.49
07-Water and Sewer	09-Hand Bill	1	-	3	-	\$ -	\$ 25,768.75
07-Water and Sewer	10-City Leased	-	-	-	-	\$ -	\$ -
07-Water and Sewer	11-Hospital/University	4	-	4	23,700	\$ 510.54	\$ 393.54
07-Water and Sewer	13-Fire Service	11	1	11	-	\$ -	\$ -
07-Water and Sewer	14-City Government	26	2	26	19,500	\$ 508.87	\$ 419.97
07-Water and Sewer	14-Non-City Government	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	01-General Service-Residential	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	02-General Service-Commercial	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	03-General Service-Industrial	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	04-General Service-Public Utilities	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	05-P. H.A	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	08-Senior Citizens Discount	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	10-City Leased	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	12-Scheduled	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	13-Fire Service	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	14-City Government	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	14-Non-City Government	-	-	-	-	\$ -	\$ -

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY12 # of Accounts Months</u>	<u>FY12 # of Accounts</u>	<u>FY12 # of Original Bills Issued</u>	<u>FY12 Billed Water Usage</u>	<u>FY12 Water Usage Charges</u>	<u>FY12 Sewer Usage Charges</u>
09-RFSS, No Sewer	01-General Service-Residential	-	-	-	-	\$ -	\$ -
09-RFSS, No Sewer	02-General Service-Commercial	-	-	-	-	\$ -	\$ -
09-RFSS, No Sewer	04-General Service-Public Utilities	-	-	-	-	\$ -	\$ -



FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY12 # of Accounts Months</u>	<u>FY12 # of Accounts</u>	<u>FY12 # of Original Bills Issued</u>	<u>FY12 Billed Water Usage</u>	<u>FY12 Water Usage Charges</u>	<u>FY12 Sewer Usage Charges</u>
09-RFSS, No Sewer	05-P.H.A	-	-	-	-	\$ -	\$ -
09-RFSS, No Sewer	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
10-Unknown	01-General Service-Residential	1,754	146	2,199	40,800	\$ 1,004.07	\$ 738.89
10-Unknown	02-General Service-Commercial	4,046	337	4,449	65,700	\$ 7,723.23	\$ 1,189.40
10-Unknown	03-General Service-Industrial	165	14	174	30,300	\$ 1,176.47	\$ 761.00
10-Unknown	04-General Service-Public Utilities	81	7	99	100	\$ 2.99	\$ 2.13
10-Unknown	05-P.H.A	29	2	40	5,300	\$ 2,090.64	\$ 102.45
10-Unknown	06-Charity/Non-Public Schools	19	2	25	154,100	\$ 3,153.73	\$ 2,558.85
10-Unknown	07-Public Schools	2	-	2	-	\$ -	\$ -
10-Unknown	08-Senior Citizens Discount	1	-	1	400	\$ 9.85	\$ 6.65
10-Unknown	09-Hand Bill	458	38	465	-	\$ -	\$ -
10-Unknown	10-City Leased	1	-	2	3,400	\$ 130.70	\$ 51.47
10-Unknown	11-Hospital/University	24	2	27	37,400	\$ 908.76	\$ 645.71
10-Unknown	12-Scheduled	-	-	-	-	\$ -	\$ -
10-Unknown	13-Fire Service	2	-	3	-	\$ -	\$ -
10-Unknown	14-City Government	147	12	162	-	\$ -	\$ -
10-Unknown	14-Non-City Government	-	-	-	-	\$ -	\$ -

## FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY13 # of Accounts Months</u>	<u>FY13 # of Accounts</u>	<u>FY13 # of Original Bills Issued</u>	<u>FY13 Billed Water Usage</u>	<u>FY13 Water Usage Charges</u>	<u>FY13 Sewer Usage Charges</u>
01-Water,Sewer,Stormwater	01-General Service-Residential	4,945,788	412,149	5,021,324	3,368,262,000	\$ 111,388,635.16	\$ 78,172,157.33
01-Water,Sewer,Stormwater	02-General Service-Commercial	392,269	32,689	396,246	1,220,882,700	\$ 34,057,038.37	\$ 26,820,229.17
01-Water,Sewer,Stormwater	03-General Service-Industrial	12,013	1,001	12,108	82,776,200	\$ 1,916,795.18	\$ 1,509,432.39
01-Water,Sewer,Stormwater	04-General Service-Public Utilities	1,246	104	1,263	8,923,300	\$ 249,993.20	\$ 194,667.85
01-Water,Sewer,Stormwater	05-P.H.A	70,755	5,896	71,171	166,093,600	\$ 4,656,018.09	\$ 3,665,128.17
01-Water,Sewer,Stormwater	06-Charity/Non-Public Schools	26,375	2,198	26,911	160,982,200	\$ 3,453,394.42	\$ 2,784,000.60
01-Water,Sewer,Stormwater	07-Public Schools	4,605	384	4,694	52,840,900	\$ 1,118,816.62	\$ 921,221.39
01-Water,Sewer,Stormwater	08-Senior Citizens Discount	230,533	19,211	234,066	109,734,500	\$ 2,786,100.22	\$ 1,919,764.08
01-Water,Sewer,Stormwater	09-Hand Bill	2,957	246	2,966	527,321,000	\$ 11,335,422.00	\$ 6,946,084.20
01-Water,Sewer,Stormwater	10-City Leased	544	45	560	4,381,800	\$ 123,564.49	\$ 83,819.81
01-Water,Sewer,Stormwater	11-Hospital/University	4,333	361	4,454	261,871,500	\$ 5,210,861.88	\$ 4,166,424.76
01-Water,Sewer,Stormwater	12-Scheduled	27	2	27	15,600	\$ 530.71	\$ 363.57
01-Water,Sewer,Stormwater	13-Fire Service	1,004	84	1,017	9,847,600	\$ 274,345.82	\$ 225,883.64
01-Water,Sewer,Stormwater	14-City Government	10,402	867	11,105	525,310,500	\$ 12,844,184.77	\$ 12,118,239.54
01-Water,Sewer,Stormwater	14-Non-City Government	-	-	-	-	\$ -	\$ -
02-Water Only	01-General Service-Residential	6,723	560	7,951	515,700	\$ 16,591.38	\$ -
02-Water Only	02-General Service-Commercial	4,582	382	5,446	2,236,600	\$ 62,961.01	\$ 25,945.95
02-Water Only	03-General Service-Industrial	259	22	309	-	\$ -	\$ -
02-Water Only	04-General Service-Public Utilities	19	2	22	-	\$ -	\$ -
02-Water Only	05-P.H.A	1,364	114	1,635	-	\$ -	\$ -
02-Water Only	06-Charity/Non-Public Schools	284	24	339	12,900	\$ 324.49	\$ 220.44
02-Water Only	07-Public Schools	781	65	934	155,300	\$ 3,324.25	\$ 2,713.88
02-Water Only	08-Senior Citizens Discount	10	1	12	-	\$ -	\$ -
02-Water Only	09-Hand Bill	150	13	178	-	\$ -	\$ -
02-Water Only	10-City Leased	79	7	94	165,300	\$ 4,777.34	\$ 3,691.17
02-Water Only	11-Hospital/University	502	42	598	22,000	\$ 562.42	\$ 384.34
02-Water Only	13-Fire Service	37,720	3,143	45,072	6,053,200	\$ 156,550.49	\$ 7,895.16
02-Water Only	14-City Government	834	70	930	497,600	\$ 14,359.81	\$ 11,644.28
02-Water Only	14-Non-City Government	-	-	-	-	\$ -	\$ -
03-Stormwater Only	01-General Service-Residential	294,831	24,569	300,898	13,463,100	\$ 442,032.97	\$ 317,907.23
03-Stormwater Only	02-General Service-Commercial	418,106	34,842	432,418	180,200	\$ 5,861.94	\$ 4,220.22
03-Stormwater Only	03-General Service-Industrial	165	14	176	100	\$ 463.37	\$ -
03-Stormwater Only	04-General Service-Public Utilities	15,715	1,310	16,097	4,300	\$ 145.99	\$ 99.61
03-Stormwater Only	05-P.H.A	13,741	1,145	14,718	-	\$ 9.24	\$ 4.54
03-Stormwater Only	06-Charity/Non-Public Schools	765	64	791	130,600	\$ 3,195.63	\$ 7.43
03-Stormwater Only	07-Public Schools	993	83	1,016	-	\$ -	\$ -
03-Stormwater Only	08-Senior Citizens Discount	2,395	200	2,446	191,200	\$ 4,970.72	\$ 3,500.45
03-Stormwater Only	09-Hand Bill	168	14	195	-	\$ -	\$ -
03-Stormwater Only	10-City Leased	-	-	-	-	\$ -	\$ -
03-Stormwater Only	11-Hospital/University	1,824	152	1,859	-	\$ -	\$ -
03-Stormwater Only	12-Scheduled	20	2	20	-	\$ -	\$ -
03-Stormwater Only	13-Fire Service	1,292	108	1,514	-	\$ -	\$ -
03-Stormwater Only	14-City Government	10,642	887	11,129	500	\$ 17.82	\$ 12.37
03-Stormwater Only	14-Non-City Government	-	-	-	-	\$ -	\$ -

## FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY13 # of Accounts Months</u>	<u>FY13 # of Accounts</u>	<u>FY13 # of Original Bills Issued</u>	<u>FY13 Billed Water Usage</u>	<u>FY13 Water Usage Charges</u>	<u>FY13 Sewer Usage Charges</u>
04-Sewer and Stormwater	01-General Service-Residential	294	25	304	-	\$ -	\$ 2,733.00
04-Sewer and Stormwater	02-General Service-Commercial	-	-	-	-	\$ -	\$ -
04-Sewer and Stormwater	03-General Service-Industrial	5	-	5	-	\$ -	\$ -
04-Sewer and Stormwater	04-General Service-Public Utilities	-	-	-	-	\$ -	\$ 7,419.87
04-Sewer and Stormwater	06-Charity/Non-Public Schools	11	1	11	-	\$ -	\$ 2,852.20
04-Sewer and Stormwater	09-Hand Bill	210	18	234	-	\$ -	\$ 1,264,821.76
04-Sewer and Stormwater	10-City Leased	-	-	-	-	\$ -	\$ -
04-Sewer and Stormwater	11-Hospital/University	-	-	-	-	\$ -	\$ -
05-Water and Stormwater	01-General Service-Residential	14,263	1,189	14,513	11,889,500	\$ 390,777.38	\$ 163.70
05-Water and Stormwater	02-General Service-Commercial	1,645	137	1,713	14,858,000	\$ 409,572.22	\$ 37.11
05-Water and Stormwater	03-General Service-Industrial	191	16	192	8,576,200	\$ 227,486.16	\$ -
05-Water and Stormwater	04-General Service-Public Utilities	12	1	12	1,100	\$ 36.70	\$ -
05-Water and Stormwater	05-P.H.A	65	5	84	12,300	\$ 361.22	\$ -
05-Water and Stormwater	06-Charity/Non-Public Schools	194	16	205	409,600	\$ 9,528.36	\$ 11.82
05-Water and Stormwater	07-Public Schools	16	1	18	351,400	\$ 7,262.24	\$ 6,047.75
05-Water and Stormwater	08-Senior Citizens Discount	160	13	160	68,000	\$ 1,745.07	\$ -
05-Water and Stormwater	09-Hand Bill	39	3	40	39,032,000	\$ 953,528.69	\$ -
05-Water and Stormwater	10-City Leased	196	16	210	2,265,400	\$ 62,559.32	\$ -
05-Water and Stormwater	11-Hospital/University	27	2	29	37,900	\$ 954.46	\$ -
05-Water and Stormwater	13-Fire Service	832	69	1,020	8,700	\$ 294.45	\$ 88.03
05-Water and Stormwater	14-City Government	378	32	420	1,441,000	\$ 41,789.26	\$ -
06-Sewer Only	01-General Service-Residential	1	-	1	-	\$ -	\$ 2.21
06-Sewer Only	02-General Service-Commercial	-	-	-	-	\$ -	\$ -
06-Sewer Only	03-General Service-Industrial	12	1	13	-	\$ -	\$ 86.59
06-Sewer Only	04-General Service-Public Utilities	-	-	-	-	\$ -	\$ -
06-Sewer Only	06-Charity/Non-Public Schools	1	-	1	-	\$ -	\$ 156.09
06-Sewer Only	07-Public Schools	-	-	-	-	\$ -	\$ -
06-Sewer Only	09-Hand Bill	7	1	8	-	\$ -	\$ 45,172.65
06-Sewer Only	13-Fire Service	-	-	-	-	\$ -	\$ -
06-Sewer Only	14-City Government	-	-	-	-	\$ -	\$ -
06-Sewer Only	14-Non-City Government	-	-	-	-	\$ -	\$ -
07-Water and Sewer	01-General Service-Residential	986	82	1,024	863,800	\$ 26,100.75	\$ 18,760.26
07-Water and Sewer	02-General Service-Commercial	218	18	223	596,700	\$ 17,590.78	\$ 13,595.59
07-Water and Sewer	03-General Service-Industrial	1	-	1	200	\$ 6.57	\$ 4.43
07-Water and Sewer	04-General Service-Public Utilities	-	-	-	-	\$ -	\$ -
07-Water and Sewer	05-P.H.A	27	2	27	613,500	\$ 16,284.88	\$ 13,607.67
07-Water and Sewer	06-Charity/Non-Public Schools	48	4	48	165,100	\$ 3,562.03	\$ 2,828.04
07-Water and Sewer	07-Public Schools	11	1	13	937,500	\$ 18,248.55	\$ 15,346.55
07-Water and Sewer	08-Senior Citizens Discount	14	1	14	6,100	\$ 155.08	\$ 105.79
07-Water and Sewer	09-Hand Bill	6	1	11	-	\$ -	\$ 110,183.62
07-Water and Sewer	10-City Leased	-	-	-	-	\$ -	\$ -
07-Water and Sewer	11-Hospital/University	1	-	1	4,100	\$ 91.20	\$ 68.08
07-Water and Sewer	13-Fire Service	12	1	13	13,400	\$ 404.06	\$ 296.68
07-Water and Sewer	14-City Government	30	3	31	189,000	\$ 5,061.58	\$ 4,184.47
07-Water and Sewer	14-Non-City Government	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	01-General Service-Residential	1,433	119	1,460	1,054,000	\$ 37,974.35	\$ 25,360.75
08-RFSS, All Services	02-General Service-Commercial	125	10	126	145,300	\$ 4,800.05	\$ 3,528.19
08-RFSS, All Services	03-General Service-Industrial	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	04-General Service-Public Utilities	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	05-P.H.A	2	-	2	1,100	\$ 36.69	\$ 25.35
08-RFSS, All Services	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	08-Senior Citizens Discount	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	10-City Leased	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	12-Scheduled	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	13-Fire Service	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	14-City Government	9	1	9	4,100	\$ 144.43	\$ 99.86
08-RFSS, All Services	14-Non-City Government	-	-	-	-	\$ -	\$ -

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY13 # of Accounts Months</u>	<u>FY13 # of Accounts</u>	<u>FY13 # of Original Bills Issued</u>	<u>FY13 Billed Water Usage</u>	<u>FY13 Water Usage Charges</u>	<u>FY13 Sewer Usage Charges</u>
09-RFSS, No Sewer	01-General Service-Residential	-	-	-	-	\$ -	\$ -
09-RFSS, No Sewer	02-General Service-Commercial	-	-	-	-	\$ -	\$ -
09-RFSS, No Sewer	04-General Service-Public Utilities	-	-	-	-	\$ -	\$ -

FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY13 # of Accounts Months</u>	<u>FY13 # of Accounts</u>	<u>FY13 # of Original Bills Issued</u>	<u>FY13 Billed Water Usage</u>	<u>FY13 Water Usage Charges</u>	<u>FY13 Sewer Usage Charges</u>
09-RFSS, No Sewer	05-P.H.A	-	-	-	-	\$ -	\$ -
09-RFSS, No Sewer	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
10-Unknown	01-General Service-Residential	973	81	1,226	118,900	\$ 4,035.88	\$ 2,969.60
10-Unknown	02-General Service-Commercial	4,212	351	4,596	91,100	\$ 2,707.60	\$ 2,088.61
10-Unknown	03-General Service-Industrial	167	14	173	26,100	\$ 1,129.95	\$ 458.84
10-Unknown	04-General Service-Public Utilities	71	6	101	-	\$ -	\$ -
10-Unknown	05-P.H.A	22	2	31	7,300	\$ 56.61	\$ 38.35
10-Unknown	06-Charity/Non-Public Schools	13	1	17	72,900	\$ 1,555.71	\$ 1,084.87
10-Unknown	07-Public Schools	5	-	8	-	\$ -	\$ -
10-Unknown	08-Senior Citizens Discount	-	-	-	-	\$ -	\$ -
10-Unknown	09-Hand Bill	469	39	478	78,000	\$ 8,955.51	\$ 276.23
10-Unknown	10-City Leased	-	-	-	-	\$ -	\$ -
10-Unknown	11-Hospital/University	14	1	16	4,900	\$ 105.31	\$ 81.37
10-Unknown	12-Scheduled	-	-	-	-	\$ -	\$ -
10-Unknown	13-Fire Service	50	4	56	1,500	\$ 53.45	\$ 37.11
10-Unknown	14-City Government	185	15	242	190,700	\$ 13,666.59	\$ 7,968.31
10-Unknown	14-Non-City Government	-	-	-	-	\$ -	\$ -

FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY14 # of Accounts Months</u>	<u>FY14 # of Accounts</u>	<u>FY14 # of Original Bills Issued</u>	<u>FY14 Billed Water Usage</u>	<u>FY14 Water Usage Charges</u>	<u>FY14 Sewer Usage Charges</u>
01-Water,Sewer,Stormwater	01-General Service-Residential	4,941,835	411,820	4,990,136	3,232,852,000	\$ 116,593,996.61	\$ 84,327,900.03
01-Water,Sewer,Stormwater	02-General Service-Commercial	402,999	33,583	405,611	1,200,955,200	\$ 36,824,023.06	\$ 29,631,074.44
01-Water,Sewer,Stormwater	03-General Service-Industrial	12,490	1,041	12,563	83,992,400	\$ 2,091,914.10	\$ 1,671,029.48
01-Water,Sewer,Stormwater	04-General Service-Public Utilities	1,358	113	1,366	8,360,500	\$ 258,651.72	\$ 204,898.74
01-Water,Sewer,Stormwater	05-P.H.A	70,185	5,849	70,471	165,565,400	\$ 5,036,920.24	\$ 4,108,891.29
01-Water,Sewer,Stormwater	06-Charity/Non-Public Schools	26,460	2,205	26,815	155,856,400	\$ 3,657,588.89	\$ 3,028,132.00
01-Water,Sewer,Stormwater	07-Public Schools	4,627	386	4,682	54,532,000	\$ 1,255,250.87	\$ 1,064,154.45
01-Water,Sewer,Stormwater	08-Senior Citizens Discount	233,880	19,490	236,167	109,417,200	\$ 3,009,626.75	\$ 2,145,753.08
01-Water,Sewer,Stormwater	09-Hand Bill	3,021	252	3,031	524,656,800	\$ 12,420,096.36	\$ 8,081,052.90
01-Water,Sewer,Stormwater	10-City Leased	527	44	534	4,442,400	\$ 136,798.85	\$ 109,732.09
01-Water,Sewer,Stormwater	11-Hospital/University	4,464	372	4,526	262,307,400	\$ 5,720,709.70	\$ 4,723,960.01
01-Water,Sewer,Stormwater	12-Scheduled	24	2	24	22,000	\$ 815.90	\$ 575.47
01-Water,Sewer,Stormwater	13-Fire Service	923	77	929	2,960,100	\$ 94,655.32	\$ 77,163.51
01-Water,Sewer,Stormwater	14-City Government	10,404	867	10,691	504,656,100	\$ 13,370,027.93	\$ 13,136,576.41
01-Water,Sewer,Stormwater	14-Non-City Government	-	-	-	-	\$ -	\$ -
02-Water Only	01-General Service-Residential	7,304	609	8,763	129,200	\$ 4,658.46	\$ 1,035.34
02-Water Only	02-General Service-Commercial	5,101	425	6,062	621,300	\$ 20,408.02	\$ 16,209.45
02-Water Only	03-General Service-Industrial	267	22	319	-	\$ -	\$ -
02-Water Only	04-General Service-Public Utilities	19	2	24	-	\$ -	\$ -
02-Water Only	05-P.H.A	1,418	118	1,706	-	\$ -	\$ -
02-Water Only	06-Charity/Non-Public Schools	270	23	329	62,300	\$ 1,510.05	\$ 237.14
02-Water Only	07-Public Schools	817	68	975	371,200	\$ 8,634.01	\$ 7,283.03
02-Water Only	08-Senior Citizens Discount	10	1	12	-	\$ -	\$ -
02-Water Only	09-Hand Bill	171	14	205	-	\$ -	\$ -
02-Water Only	10-City Leased	68	6	78	146,100	\$ 4,562.59	\$ 3,823.32
02-Water Only	11-Hospital/University	572	48	668	19,200	\$ 534.40	\$ 376.90
02-Water Only	13-Fire Service	39,690	3,308	47,469	6,276,200	\$ 176,257.34	\$ 707.24
02-Water Only	14-City Government	755	63	793	448,200	\$ 14,122.13	\$ 11,726.32
02-Water Only	14-Non-City Government	-	-	-	-	\$ -	\$ -
03-Stormwater Only	01-General Service-Residential	375,416	31,285	378,449	12,680,400	\$ 444,106.67	\$ 327,416.90
03-Stormwater Only	02-General Service-Commercial	417,014	34,751	422,924	144,500	\$ 4,625.02	\$ 3,598.06
03-Stormwater Only	03-General Service-Industrial	166	14	171	-	\$ -	\$ -
03-Stormwater Only	04-General Service-Public Utilities	15,376	1,281	15,458	100	\$ 3.71	\$ 2.62
03-Stormwater Only	05-P.H.A	13,827	1,152	14,380	100	\$ 3.52	\$ 2.49
03-Stormwater Only	06-Charity/Non-Public Schools	1,191	99	1,195	33,900	\$ 910.03	\$ 11.46
03-Stormwater Only	07-Public Schools	986	82	996	-	\$ -	\$ -
03-Stormwater Only	08-Senior Citizens Discount	3,574	298	3,609	289,700	\$ 7,421.91	\$ 5,652.32
03-Stormwater Only	09-Hand Bill	139	12	150	-	\$ -	\$ -
03-Stormwater Only	10-City Leased	-	-	-	-	\$ -	\$ -
03-Stormwater Only	11-Hospital/University	1,885	157	1,907	-	\$ -	\$ -
03-Stormwater Only	12-Scheduled	25	2	25	-	\$ -	\$ -
03-Stormwater Only	13-Fire Service	528	44	599	300	\$ 11.14	\$ 7.86
03-Stormwater Only	14-City Government	8,926	744	9,080	200	\$ 7.42	\$ 5.24
03-Stormwater Only	14-Non-City Government	-	-	-	-	\$ -	\$ -



## FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY14 # of Accounts Months</u>	<u>FY14 # of Accounts</u>	<u>FY14 # of Original Bills Issued</u>	<u>FY14 Billed Water Usage</u>	<u>FY14 Water Usage Charges</u>	<u>FY14 Sewer Usage Charges</u>
04-Sewer and Stormwater	01-General Service-Residential	418	35	423	8,900	\$ 329.62	\$ 3,323.52
04-Sewer and Stormwater	02-General Service-Commercial	-	-	-	-	\$ -	\$ -
04-Sewer and Stormwater	03-General Service-Industrial	12	1	12	-	\$ -	\$ -
04-Sewer and Stormwater	04-General Service-Public Utilities	4	-	4	-	\$ -	8,292.58
04-Sewer and Stormwater	06-Charity/Non-Public Schools	11	1	11	-	\$ -	3,052.78
04-Sewer and Stormwater	09-Hand Bill	216	18	219	-	\$ -	1,776,344.05
04-Sewer and Stormwater	10-City Leased	-	-	-	-	\$ -	\$ -
04-Sewer and Stormwater	11-Hospital/University	12	1	12	-	\$ -	\$ -
05-Water and Stormwater	01-General Service-Residential	17,408	1,451	17,532	12,994,000	\$ 468,597.40	\$ 20.96
05-Water and Stormwater	02-General Service-Commercial	1,854	155	1,878	18,255,300	\$ 547,439.77	\$ 14.84
05-Water and Stormwater	03-General Service-Industrial	207	17	207	11,748,700	\$ 335,030.66	\$ -
05-Water and Stormwater	04-General Service-Public Utilities	12	1	12	1,200	\$ 44.54	\$ -
05-Water and Stormwater	05-P.H.A	54	5	58	23,200	\$ 718.20	\$ -
05-Water and Stormwater	06-Charity/Non-Public Schools	365	30	370	5,533,300	\$ 113,466.95	\$ 7.86
05-Water and Stormwater	07-Public Schools	8	1	8	89,900	\$ 2,027.16	1,738.56
05-Water and Stormwater	08-Senior Citizens Discount	204	17	204	82,900	\$ 2,781.55	\$ 9.17
05-Water and Stormwater	09-Hand Bill	38	3	38	37,722,500	\$ 1,012,742.94	\$ -
05-Water and Stormwater	10-City Leased	226	19	235	3,110,500	\$ 94,097.12	\$ -
05-Water and Stormwater	11-Hospital/University	43	4	43	31,700	\$ 854.14	\$ -
05-Water and Stormwater	13-Fire Service	934	78	1,076	9,800	\$ 359.15	241.70
05-Water and Stormwater	14-City Government	360	30	372	1,211,700	\$ 38,445.80	\$ -
06-Sewer Only	01-General Service-Residential	3	-	3	600	\$ 22.26	15.72
06-Sewer Only	02-General Service-Commercial	2	-	2	1,000	\$ 37.12	26.19
06-Sewer Only	03-General Service-Industrial	3	-	3	-	\$ -	\$ -
06-Sewer Only	04-General Service-Public Utilities	-	-	-	-	\$ -	\$ -
06-Sewer Only	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
06-Sewer Only	07-Public Schools	-	-	-	-	\$ -	\$ -
06-Sewer Only	09-Hand Bill	12	1	12	-	\$ -	202,280.56
06-Sewer Only	13-Fire Service	5	-	6	-	\$ -	\$ -
06-Sewer Only	14-City Government	-	-	-	-	\$ -	\$ -
06-Sewer Only	14-Non-City Government	-	-	-	-	\$ -	\$ -
07-Water and Sewer	01-General Service-Residential	191	16	197	40,900	\$ 1,507.39	1,060.96
07-Water and Sewer	02-General Service-Commercial	193	16	197	499,300	\$ 16,340.10	13,021.90
07-Water and Sewer	03-General Service-Industrial	-	-	-	-	\$ -	\$ -
07-Water and Sewer	04-General Service-Public Utilities	-	-	-	-	\$ -	\$ -
07-Water and Sewer	05-P.H.A	25	2	25	623,500	\$ 18,074.96	15,486.63
07-Water and Sewer	06-Charity/Non-Public Schools	37	3	37	138,200	\$ 3,339.12	2,701.66
07-Water and Sewer	07-Public Schools	12	1	12	165,700	\$ 3,875.12	3,250.41
07-Water and Sewer	08-Senior Citizens Discount	12	1	12	13,000	\$ 355.02	253.72
07-Water and Sewer	09-Hand Bill	-	-	-	-	\$ -	\$ -
07-Water and Sewer	10-City Leased	-	-	-	-	\$ -	\$ -
07-Water and Sewer	11-Hospital/University	-	-	-	-	\$ -	\$ -
07-Water and Sewer	13-Fire Service	10	1	12	-	\$ -	\$ -
07-Water and Sewer	14-City Government	12	1	12	-	\$ -	\$ -
07-Water and Sewer	14-Non-City Government	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	01-General Service-Residential	6,996	583	7,030	3,625,600	\$ 133,534.83	94,547.32
08-RFSS, All Services	02-General Service-Commercial	474	40	474	218,000	\$ 8,255.29	5,700.73
08-RFSS, All Services	03-General Service-Industrial	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	04-General Service-Public Utilities	1	-	1	200	\$ 7.42	5.24
08-RFSS, All Services	05-P.H.A	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	08-Senior Citizens Discount	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	10-City Leased	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	12-Scheduled	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	13-Fire Service	24	2	24	16,800	\$ 623.63	440.00
08-RFSS, All Services	14-City Government	23	2	23	15,200	\$ 538.77	381.49
08-RFSS, All Services	14-Non-City Government	-	-	-	-	\$ -	\$ -

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY14 # of Accounts Months</u>	<u>FY14 # of Accounts</u>	<u>FY14 # of Original Bills Issued</u>	<u>FY14 Billed Water Usage</u>	<u>FY14 Water Usage Charges</u>	<u>FY14 Sewer Usage Charges</u>
09-RFSS, No Sewer	01-General Service-Residential	9	1	9	2,900	\$ 107.66	\$ 75.98
09-RFSS, No Sewer	02-General Service-Commercial	-	-	-	-	\$ -	\$ -
09-RFSS, No Sewer	04-General Service-Public Utilities	-	-	-	-	\$ -	\$ -

FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY14 # of Accounts Months</u>	<u>FY14 # of Accounts</u>	<u>FY14 # of Original Bills Issued</u>	<u>FY14 Billed Water Usage</u>	<u>FY14 Water Usage Charges</u>	<u>FY14 Sewer Usage Charges</u>
09-RFSS, No Sewer	05-P.H.A	-	-	-	-	\$ -	\$ -
09-RFSS, No Sewer	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
10-Unknown	01-General Service-Residential	1,026	86	1,275	149,600	\$ 4,824.53	\$ 3,784.00
10-Unknown	02-General Service-Commercial	4,891	408	5,358	18,100	-\$ 209.71	495.97
10-Unknown	03-General Service-Industrial	194	16	203	5,400	\$ 190.76	\$ 141.43
10-Unknown	04-General Service-Public Utilities	91	8	123	-	\$ -	\$ -
10-Unknown	05-P.H.A	10	1	12	-	\$ -	\$ -
10-Unknown	06-Charity/Non-Public Schools	10	1	12	2,500	\$ 66.47	\$ 49.11
10-Unknown	07-Public Schools	-	-	-	-	\$ -	\$ -
10-Unknown	08-Senior Citizens Discount	1	-	2	-	\$ -	\$ -
10-Unknown	09-Hand Bill	449	37	451	-	\$ -	\$ -
10-Unknown	10-City Leased	-	-	-	-	\$ -	\$ -
10-Unknown	11-Hospital/University	24	2	28	-	\$ -	\$ -
10-Unknown	12-Scheduled	-	-	-	-	\$ -	\$ -
10-Unknown	13-Fire Service	1,197	100	1,494	-	\$ -	\$ -
10-Unknown	14-City Government	111	9	118	-	\$ -	\$ -
10-Unknown	14-Non-City Government	-	-	-	-	\$ -	\$ -

## FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY15 # of Accounts Months</u>	<u>FY15 # of Accounts</u>	<u>FY15 # of Original Bills Issued</u>	<u>FY15 Billed Water Usage</u>	<u>FY15 Water Usage Charges</u>	<u>FY15 Sewer Usage Charges</u>
01-Water,Sewer,Stormwater	01-General Service-Residential	4,861,964	405,164	4,933,290	3,139,848,400	\$ 118,720,222.49	\$ 87,687,155.88
01-Water,Sewer,Stormwater	02-General Service-Commercial	402,604	33,550	406,348	1,253,972,100	\$ 39,928,683.50	\$ 33,171,592.56
01-Water,Sewer,Stormwater	03-General Service-Industrial	12,331	1,028	12,408	83,836,500	\$ 2,179,757.33	\$ 1,779,949.89
01-Water,Sewer,Stormwater	04-General Service-Public Utilities	1,441	120	1,451	7,936,200	\$ 257,483.26	\$ 206,503.08
01-Water,Sewer,Stormwater	05-P.H.A	68,906	5,742	69,251	176,663,200	\$ 5,566,519.60	\$ 4,687,244.98
01-Water,Sewer,Stormwater	06-Charity/Non-Public Schools	25,289	2,107	25,728	135,607,300	\$ 3,352,787.02	\$ 2,826,304.11
01-Water,Sewer,Stormwater	07-Public Schools	4,435	370	4,502	51,290,600	\$ 1,237,665.04	\$ 1,067,070.66
01-Water,Sewer,Stormwater	08-Senior Citizens Discount	241,855	20,155	245,533	114,324,100	\$ 3,301,918.65	\$ 2,403,006.45
01-Water,Sewer,Stormwater	09-Hand Bill	2,941	245	2,965	494,485,500	\$ 12,126,306.66	\$ 8,662,091.88
01-Water,Sewer,Stormwater	10-City Leased	555	46	558	4,293,900	\$ 132,059.85	\$ 116,575.25
01-Water,Sewer,Stormwater	11-Hospital/University	5,005	417	5,061	266,795,100	\$ 6,126,729.92	\$ 5,206,608.41
01-Water,Sewer,Stormwater	12-Scheduled	27	2	27	20,700	\$ 805.89	\$ 579.36
01-Water,Sewer,Stormwater	13-Fire Service	851	71	856	2,636,000	\$ 87,203.81	\$ 71,826.74
01-Water,Sewer,Stormwater	14-City Government	10,963	914	11,074	555,537,800	\$ 15,400,231.50	\$ 15,221,985.47
01-Water,Sewer,Stormwater	14-Non-City Government	-	-	-	-	\$ -	\$ -
02-Water Only	01-General Service-Residential	8,472	706	9,255	91,700	\$ 3,560.58	\$ 341.71
02-Water Only	02-General Service-Commercial	5,857	488	6,445	732,200	\$ 24,635.41	\$ 20,405.72
02-Water Only	03-General Service-Industrial	302	25	329	100	\$ 3.91	\$ 2.81
02-Water Only	04-General Service-Public Utilities	21	2	22	-	\$ -	\$ -
02-Water Only	05-P.H.A	1,575	131	1,739	-	\$ -	\$ -
02-Water Only	06-Charity/Non-Public Schools	99	8	108	70,200	\$ 1,714.28	\$ -
02-Water Only	07-Public Schools	873	73	975	560,200	\$ 13,473.46	\$ 11,725.96
02-Water Only	08-Senior Citizens Discount	11	1	12	-	\$ -	\$ -
02-Water Only	09-Hand Bill	210	18	229	-	\$ -	\$ -
02-Water Only	10-City Leased	91	8	97	167,400	\$ 5,501.66	\$ 4,675.61
02-Water Only	11-Hospital/University	805	67	890	24,200	\$ 705.31	\$ 506.19
02-Water Only	13-Fire Service	46,274	3,856	50,427	8,886,200	\$ 261,901.05	\$ 25,963.82
02-Water Only	14-City Government	938	78	1,031	672,100	\$ 22,017.38	\$ 18,742.17
02-Water Only	14-Non-City Government	-	-	-	-	\$ -	\$ -
03-Stormwater Only	01-General Service-Residential	418,906	34,909	424,517	44,801,300	\$ 1,652,615.79	\$ 1,243,662.05
03-Stormwater Only	02-General Service-Commercial	404,016	33,668	414,087	382,800	\$ 12,060.65	\$ 9,212.41
03-Stormwater Only	03-General Service-Industrial	152	13	157	19,500	\$ 750.60	\$ 546.25
03-Stormwater Only	04-General Service-Public Utilities	14,832	1,236	15,091	900	\$ 32.90	\$ 25.27
03-Stormwater Only	05-P.H.A	13,854	1,155	14,510	-	\$ -	\$ -
03-Stormwater Only	06-Charity/Non-Public Schools	1,019	85	1,049	8,500	\$ 255.90	\$ 92.20
03-Stormwater Only	07-Public Schools	963	80	979	-	\$ -	\$ -
03-Stormwater Only	08-Senior Citizens Discount	4,493	374	4,547	1,246,500	\$ 32,658.05	\$ 26,147.07
03-Stormwater Only	09-Hand Bill	115	10	120	-	\$ -	\$ -
03-Stormwater Only	10-City Leased	-	-	-	-	\$ -	\$ -
03-Stormwater Only	11-Hospital/University	2,121	177	2,153	-	\$ -	\$ -
03-Stormwater Only	12-Scheduled	21	2	21	-	\$ -	\$ -
03-Stormwater Only	13-Fire Service	303	25	321	-	\$ -	\$ -
03-Stormwater Only	14-City Government	9,246	771	9,493	7,000	\$ 259.90	\$ 196.53
03-Stormwater Only	14-Non-City Government	-	-	-	-	\$ -	\$ -

FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY15 # of Accounts Months</u>	<u>FY15 # of Accounts</u>	<u>FY15 # of Original Bills Issued</u>	<u>FY15 Billed Water Usage</u>	<u>FY15 Water Usage Charges</u>	<u>FY15 Sewer Usage Charges</u>
04-Sewer and Stormwater	01-General Service-Residential	418	35	422	25,900	\$ 1,006.81	\$ 4,735.55
04-Sewer and Stormwater	02-General Service-Commercial	-	-	-	-	\$ -	\$ -
04-Sewer and Stormwater	03-General Service-Industrial	12	1	12	-	\$ -	\$ -
04-Sewer and Stormwater	04-General Service-Public Utilities	12	1	12	-	\$ -	\$ 8,979.75
04-Sewer and Stormwater	06-Charity/Non-Public Schools	10	1	11	-	\$ -	\$ 3,276.43
04-Sewer and Stormwater	09-Hand Bill	218	18	225	-	\$ -	\$ 1,700,205.19
04-Sewer and Stormwater	10-City Leased	-	-	-	-	\$ -	\$ -
04-Sewer and Stormwater	11-Hospital/University	12	1	12	-	\$ -	\$ -
05-Water and Stormwater	01-General Service-Residential	17,272	1,439	17,392	13,960,000	\$ 525,320.75	\$ 2,651.29
05-Water and Stormwater	02-General Service-Commercial	1,862	155	1,889	28,437,300	\$ 870,068.77	\$ -
05-Water and Stormwater	03-General Service-Industrial	187	16	190	5,927,300	\$ 180,615.82	\$ -
05-Water and Stormwater	04-General Service-Public Utilities	12	1	12	600	\$ 23.45	\$ -
05-Water and Stormwater	05-P.H.A	34	3	36	34,300	\$ 1,104.27	\$ -
05-Water and Stormwater	06-Charity/Non-Public Schools	269	22	273	569,800	\$ 15,443.77	\$ -
05-Water and Stormwater	07-Public Schools	4	-	4	-	\$ -	\$ -
05-Water and Stormwater	08-Senior Citizens Discount	198	17	198	71,400	\$ 2,085.12	\$ -
05-Water and Stormwater	09-Hand Bill	52	4	52	76,304,400	\$ 1,995,645.05	\$ -
05-Water and Stormwater	10-City Leased	232	19	240	4,009,100	\$ 124,935.50	\$ -
05-Water and Stormwater	11-Hospital/University	36	3	36	18,000	\$ 525.52	\$ -
05-Water and Stormwater	13-Fire Service	1,292	108	1,451	1,400	\$ 53.90	\$ 38.54
05-Water and Stormwater	14-City Government	391	33	398	1,402,000	\$ 46,252.37	\$ -
06-Sewer Only	01-General Service-Residential	18	2	18	13,800	\$ 538.72	\$ 387.14
06-Sewer Only	02-General Service-Commercial	12	1	12	38,800	\$ 1,389.73	\$ 1,089.10
06-Sewer Only	03-General Service-Industrial	-	-	-	-	\$ -	\$ -
06-Sewer Only	04-General Service-Public Utilities	3	-	3	8,800	\$ 319.61	\$ 247.01
06-Sewer Only	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
06-Sewer Only	07-Public Schools	-	-	-	-	\$ -	\$ -
06-Sewer Only	09-Hand Bill	15	1	15	-	\$ -	\$ 239,885.47
06-Sewer Only	13-Fire Service	11	1	12	-	\$ -	\$ -
06-Sewer Only	14-City Government	5	-	5	17,700	\$ 647.63	\$ 496.84
06-Sewer Only	14-Non-City Government	-	-	-	-	\$ -	\$ -
07-Water and Sewer	01-General Service-Residential	193	16	197	29,700	\$ 1,677.35	\$ 1,068.48
07-Water and Sewer	02-General Service-Commercial	229	19	233	545,800	\$ 18,882.47	\$ 15,115.13
07-Water and Sewer	03-General Service-Industrial	-	-	-	-	\$ -	\$ -
07-Water and Sewer	04-General Service-Public Utilities	-	-	-	-	\$ -	\$ -
07-Water and Sewer	05-P.H.A	26	2	26	649,100	\$ 19,702.56	\$ 17,266.93
07-Water and Sewer	06-Charity/Non-Public Schools	34	3	34	271,100	\$ 6,622.73	\$ 5,669.85
07-Water and Sewer	07-Public Schools	8	1	8	97,400	\$ 2,407.04	\$ 2,043.32
07-Water and Sewer	08-Senior Citizens Discount	11	1	11	2,300	\$ 65.78	\$ 46.88
07-Water and Sewer	09-Hand Bill	-	-	-	-	\$ -	\$ -
07-Water and Sewer	10-City Leased	-	-	-	-	\$ -	\$ -
07-Water and Sewer	11-Hospital/University	-	-	-	-	\$ -	\$ -
07-Water and Sewer	13-Fire Service	10	1	12	-	\$ -	\$ -
07-Water and Sewer	14-City Government	12	1	12	-	\$ -	\$ -
07-Water and Sewer	14-Non-City Government	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	01-General Service-Residential	11,111	926	11,142	5,366,600	\$ 208,102.20	\$ 149,949.21
08-RFSS, All Services	02-General Service-Commercial	511	43	513	279,700	\$ 10,534.04	\$ 7,813.37
08-RFSS, All Services	03-General Service-Industrial	1	-	1	-	\$ -	\$ -
08-RFSS, All Services	04-General Service-Public Utilities	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	05-P.H.A	100	8	100	70,600	\$ 2,619.26	\$ 1,882.97
08-RFSS, All Services	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	08-Senior Citizens Discount	8	1	8	2,800	\$ 90.82	\$ 65.25
08-RFSS, All Services	10-City Leased	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	12-Scheduled	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	13-Fire Service	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	14-City Government	12	1	12	7,300	\$ 283.95	\$ 203.80
08-RFSS, All Services	14-Non-City Government	-	-	-	-	\$ -	\$ -

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY15 # of Accounts Months</u>	<u>FY15 # of Accounts</u>	<u>FY15 # of Original Bills Issued</u>	<u>FY15 Billed Water Usage</u>	<u>FY15 Water Usage Charges</u>	<u>FY15 Sewer Usage Charges</u>
09-RFSS, No Sewer	01-General Service-Residential	13	1	14	4,100	\$ 158.59	\$ 113.57
09-RFSS, No Sewer	02-General Service-Commercial	4	-	4	600	\$ 23.43	\$ 16.83
09-RFSS, No Sewer	04-General Service-Public Utilities	-	-	-	-	\$ -	\$ -

FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY15 # of Accounts Months</u>	<u>FY15 # of Accounts</u>	<u>FY15 # of Original Bills Issued</u>	<u>FY15 Billed Water Usage</u>	<u>FY15 Water Usage Charges</u>	<u>FY15 Sewer Usage Charges</u>
09-RFSS, No Sewer	05-P.H.A	-	-	-	-	\$ -	\$ -
09-RFSS, No Sewer	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
10-Unknown	01-General Service-Residential	1,388	116	1,708	91,900	\$ 3,351.53	\$ 2,439.96
10-Unknown	02-General Service-Commercial	5,585	465	6,667	1,374,600	\$ 31,720.16	\$ 27,869.50
10-Unknown	03-General Service-Industrial	215	18	232	3,400	\$ 121.38	\$ 90.40
10-Unknown	04-General Service-Public Utilities	166	14	189	-	\$ -	\$ -
10-Unknown	05-P.H.A	162	14	212	41,500	\$ 1,533.90	\$ 1,106.66
10-Unknown	06-Charity/Non-Public Schools	8	1	12	7,000	\$ 190.94	\$ 147.38
10-Unknown	07-Public Schools	3	-	4	-	\$ -	\$ -
10-Unknown	08-Senior Citizens Discount	1	-	2	-	\$ -	\$ -
10-Unknown	09-Hand Bill	465	39	469	-	\$ -	\$ 67,200.00
10-Unknown	10-City Leased	-	-	-	-	\$ -	\$ -
10-Unknown	11-Hospital/University	44	4	52	6,100	\$ 163.69	\$ 127.58
10-Unknown	12-Scheduled	-	-	-	-	\$ -	\$ -
10-Unknown	13-Fire Service	3,146	262	3,478	1,100	\$ 42.97	\$ 30.88
10-Unknown	14-City Government	71	6	77	507,200	\$ 16,286.23	\$ 14,237.11
10-Unknown	14-Non-City Government	-	-	-	-	\$ -	\$ -



## FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY16 # of Accounts Months</u>	<u>FY16 # of Accounts</u>	<u>FY16 # of Original Bills Issued</u>	<u>FY16 Billed Water Usage</u>	<u>FY16 Water Usage Charges</u>	<u>FY16 Sewer Usage Charges</u>
01-Water,Sewer,Stormwater	01-General Service-Residential	4,946,866	412,239	4,995,514	3,097,101,400	\$ 117,428,731.30	\$ 86,759,752.09
01-Water,Sewer,Stormwater	02-General Service-Commercial	405,402	33,784	408,112	1,255,277,800	\$ 40,182,788.36	\$ 33,316,636.36
01-Water,Sewer,Stormwater	03-General Service-Industrial	12,334	1,028	12,419	90,217,900	\$ 2,336,728.48	\$ 1,919,603.83
01-Water,Sewer,Stormwater	04-General Service-Public Utilities	1,552	129	1,558	10,365,800	\$ 333,799.49	\$ 277,224.51
01-Water,Sewer,Stormwater	05-P.H.A	66,886	5,574	67,169	160,786,300	\$ 5,113,923.38	\$ 4,286,111.07
01-Water,Sewer,Stormwater	06-Charity/Non-Public Schools	24,510	2,043	24,849	132,616,900	\$ 3,272,267.61	\$ 2,759,289.98
01-Water,Sewer,Stormwater	07-Public Schools	4,361	363	4,416	44,624,700	\$ 1,102,922.86	\$ 949,549.30
01-Water,Sewer,Stormwater	08-Senior Citizens Discount	256,207	21,351	258,736	116,896,700	\$ 3,389,998.53	\$ 2,465,391.92
01-Water,Sewer,Stormwater	09-Hand Bill	2,865	239	2,877	444,290,600	\$ 10,975,725.27	\$ 8,236,443.67
01-Water,Sewer,Stormwater	10-City Leased	410	34	413	2,337,700	\$ 77,622.67	\$ 65,133.65
01-Water,Sewer,Stormwater	11-Hospital/University	5,008	417	5,052	297,121,100	\$ 6,813,162.86	\$ 5,675,774.44
01-Water,Sewer,Stormwater	12-Scheduled	37	3	37	15,800	\$ 617.07	\$ 443.49
01-Water,Sewer,Stormwater	13-Fire Service	924	77	927	6,388,600	\$ 202,804.57	\$ 172,715.72
01-Water,Sewer,Stormwater	14-City Government	10,768	897	10,869	487,904,000	\$ 13,766,579.39	\$ 13,725,028.15
01-Water,Sewer,Stormwater	14-Non-City Government	-	-	-	-	\$ -	\$ -
02-Water Only	01-General Service-Residential	7,368	614	9,636	98,500	\$ 3,840.42	\$ 695.56
02-Water Only	02-General Service-Commercial	5,185	432	6,559	1,073,800	\$ 36,096.77	\$ 30,138.80
02-Water Only	03-General Service-Industrial	280	23	354	3,300	\$ 128.89	\$ 92.63
02-Water Only	04-General Service-Public Utilities	21	2	24	-	\$ -	\$ -
02-Water Only	05-P.H.A	1,307	109	1,737	-	\$ -	\$ -
02-Water Only	06-Charity/Non-Public Schools	66	6	86	30,700	\$ 1,001.01	\$ -
02-Water Only	07-Public Schools	723	60	911	394,900	\$ 9,523.30	\$ 8,313.64
02-Water Only	08-Senior Citizens Discount	16	1	22	-	\$ -	\$ -
02-Water Only	09-Hand Bill	188	16	239	-	\$ -	\$ -
02-Water Only	10-City Leased	63	5	66	192,800	\$ 6,441.40	\$ 5,411.91
02-Water Only	11-Hospital/University	752	63	926	30,200	\$ 884.50	\$ 635.88
02-Water Only	13-Fire Service	42,988	3,582	54,406	8,581,500	\$ 252,377.30	\$ 2,947.36
02-Water Only	14-City Government	995	83	1,078	685,500	\$ 22,523.38	\$ 19,236.49
02-Water Only	14-Non-City Government	-	-	-	-	\$ -	\$ -
03-Stormwater Only	01-General Service-Residential	346,812	28,901	350,599	14,178,700	\$ 528,949.59	\$ 394,610.03
03-Stormwater Only	02-General Service-Commercial	389,759	32,480	395,419	207,300	\$ 7,089.93	\$ 5,414.79
03-Stormwater Only	03-General Service-Industrial	212	18	215	48,100	\$ 1,845.33	\$ 1,350.16
03-Stormwater Only	04-General Service-Public Utilities	14,545	1,212	14,626	100	\$ 65.11	\$ -
03-Stormwater Only	05-P.H.A	14,674	1,223	15,250	-	\$ -	\$ -
03-Stormwater Only	06-Charity/Non-Public Schools	1,035	86	1,049	30,700	\$ 921.91	\$ 16.85
03-Stormwater Only	07-Public Schools	939	78	947	-	\$ -	\$ -
03-Stormwater Only	08-Senior Citizens Discount	3,320	277	3,359	417,000	\$ 11,111.09	\$ 8,787.69
03-Stormwater Only	09-Hand Bill	95	8	103	-	\$ -	\$ -
03-Stormwater Only	10-City Leased	-	-	-	-	\$ -	\$ -
03-Stormwater Only	11-Hospital/University	2,125	177	2,152	-	\$ -	\$ -
03-Stormwater Only	12-Scheduled	14	1	14	-	\$ -	\$ -
03-Stormwater Only	13-Fire Service	165	14	188	4,000	\$ 156.21	\$ 112.29
03-Stormwater Only	14-City Government	9,084	757	9,222	4,600	\$ 179.67	\$ 129.15
03-Stormwater Only	14-Non-City Government	-	-	-	-	\$ -	\$ -

## FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY16 # of Accounts Months</u>	<u>FY16 # of Accounts</u>	<u>FY16 # of Original Bills Issued</u>	<u>FY16 Billed Water Usage</u>	<u>FY16 Water Usage Charges</u>	<u>FY16 Sewer Usage Charges</u>
04-Sewer and Stormwater	01-General Service-Residential	475	40	478	173,200	\$ 6,428.18	\$ 9,245.75
04-Sewer and Stormwater	02-General Service-Commercial	-	-	-	-	\$ -	\$ -
04-Sewer and Stormwater	03-General Service-Industrial	12	1	12	-	\$ -	\$ -
04-Sewer and Stormwater	04-General Service-Public Utilities	11	1	11	-	\$ -	\$ 9,077.84
04-Sewer and Stormwater	06-Charity/Non-Public Schools	11	1	11	-	\$ -	\$ 3,290.54
04-Sewer and Stormwater	09-Hand Bill	236	20	237	-	\$ -	\$ 2,081,163.12
04-Sewer and Stormwater	10-City Leased	-	-	-	-	\$ -	\$ -
04-Sewer and Stormwater	11-Hospital/University	12	1	12	-	\$ -	\$ -
05-Water and Stormwater	01-General Service-Residential	17,313	1,443	17,482	13,730,600	\$ 519,683.80	\$ 1,263.15
05-Water and Stormwater	02-General Service-Commercial	1,852	154	1,900	26,432,300	\$ 819,606.17	\$ 266.66
05-Water and Stormwater	03-General Service-Industrial	198	17	201	6,480,700	\$ 196,163.44	\$ -
05-Water and Stormwater	04-General Service-Public Utilities	12	1	12	700	\$ 27.37	\$ -
05-Water and Stormwater	05-P.H.A	30	3	36	45,400	\$ 1,446.65	\$ -
05-Water and Stormwater	06-Charity/Non-Public Schools	322	27	326	540,100	\$ 14,809.87	\$ -
05-Water and Stormwater	07-Public Schools	17	1	20	400	\$ 11.71	\$ 8.42
05-Water and Stormwater	08-Senior Citizens Discount	234	20	234	94,100	\$ 2,771.15	\$ -
05-Water and Stormwater	09-Hand Bill	57	5	57	127,688,900	\$ 3,214,389.37	\$ -
05-Water and Stormwater	10-City Leased	195	16	202	4,458,500	\$ 139,567.23	\$ -
05-Water and Stormwater	11-Hospital/University	36	3	36	7,500	\$ 219.72	\$ -
05-Water and Stormwater	13-Fire Service	1,415	118	1,878	5,700	\$ 222.59	\$ 160.00
05-Water and Stormwater	14-City Government	394	33	399	1,419,500	\$ 47,107.34	\$ -
06-Sewer Only	01-General Service-Residential	43	4	43	47,100	\$ 1,690.61	\$ 1,322.09
06-Sewer Only	02-General Service-Commercial	32	3	32	59,000	\$ 2,094.91	\$ 1,652.97
06-Sewer Only	03-General Service-Industrial	-	-	-	-	\$ -	\$ -
06-Sewer Only	04-General Service-Public Utilities	12	1	12	40,000	\$ 1,400.55	\$ 1,122.80
06-Sewer Only	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
06-Sewer Only	07-Public Schools	-	-	-	-	\$ -	\$ -
06-Sewer Only	09-Hand Bill	23	2	23	-	\$ -	\$ 234,103.82
06-Sewer Only	13-Fire Service	9	1	12	-	\$ -	\$ -
06-Sewer Only	14-City Government	12	1	12	36,500	\$ 1,331.46	\$ 1,024.54
06-Sewer Only	14-Non-City Government	-	-	-	-	\$ -	\$ -
07-Water and Sewer	01-General Service-Residential	268	22	274	221,700	\$ 7,641.55	\$ 5,505.58
07-Water and Sewer	02-General Service-Commercial	284	24	288	1,212,600	\$ 40,545.97	\$ 32,141.33
07-Water and Sewer	03-General Service-Industrial	-	-	-	-	\$ -	\$ -
07-Water and Sewer	04-General Service-Public Utilities	12	1	12	64,200	\$ 2,203.62	\$ 1,802.09
07-Water and Sewer	05-P.H.A	24	2	24	630,900	\$ 19,165.57	\$ 16,823.93
07-Water and Sewer	06-Charity/Non-Public Schools	17	1	17	94,500	\$ 2,291.72	\$ 1,989.47
07-Water and Sewer	07-Public Schools	20	2	20	208,800	\$ 5,162.76	\$ 4,395.80
07-Water and Sewer	08-Senior Citizens Discount	12	1	12	-	\$ -	\$ -
07-Water and Sewer	09-Hand Bill	-	-	-	-	\$ -	\$ -
07-Water and Sewer	10-City Leased	1	-	1	38,300	\$ 1,298.28	\$ 921.88
07-Water and Sewer	11-Hospital/University	-	-	-	-	\$ -	\$ -
07-Water and Sewer	13-Fire Service	3	-	3	-	\$ -	\$ -
07-Water and Sewer	14-City Government	12	1	12	54,700	\$ 1,989.94	\$ 1,394.87
07-Water and Sewer	14-Non-City Government	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	01-General Service-Residential	18,431	1,536	18,472	8,195,800	\$ 329,282.54	\$ 229,425.52
08-RFSS, All Services	02-General Service-Commercial	619	52	619	315,900	\$ 12,081.26	\$ 8,867.66
08-RFSS, All Services	03-General Service-Industrial	12	1	12	2,700	\$ 105.46	\$ 75.77
08-RFSS, All Services	04-General Service-Public Utilities	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	05-P.H.A	408	34	408	313,600	\$ 10,962.17	\$ 8,344.20
08-RFSS, All Services	06-Charity/Non-Public Schools	5	-	5	4,300	\$ 125.94	\$ 90.52
08-RFSS, All Services	08-Senior Citizens Discount	13	1	13	2,600	\$ 78.13	\$ 56.13
08-RFSS, All Services	10-City Leased	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	12-Scheduled	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	13-Fire Service	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	14-City Government	6	1	6	2,000	\$ 78.11	\$ 56.14
08-RFSS, All Services	14-Non-City Government	-	-	-	-	\$ -	\$ -

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY16 # of Accounts Months</u>	<u>FY16 # of Accounts</u>	<u>FY16 # of Original Bills Issued</u>	<u>FY16 Billed Water Usage</u>	<u>FY16 Water Usage Charges</u>	<u>FY16 Sewer Usage Charges</u>
09-RFSS, No Sewer	01-General Service-Residential	67	6	68	27,400	\$ 1,070.12	\$ 769.14
09-RFSS, No Sewer	02-General Service-Commercial	13	1	13	2,400	\$ 93.74	\$ 67.37
09-RFSS, No Sewer	04-General Service-Public Utilities	3	-	3	1,100	\$ 42.97	\$ 30.88

FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY16 # of Accounts Months</u>	<u>FY16 # of Accounts</u>	<u>FY16 # of Original Bills Issued</u>	<u>FY16 Billed Water Usage</u>	<u>FY16 Water Usage Charges</u>	<u>FY16 Sewer Usage Charges</u>
09-RFSS, No Sewer	05-P.H.A	-	-	-	-	\$ -	\$ -
09-RFSS, No Sewer	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
10-Unknown	01-General Service-Residential	1,861	155	2,336	252,800	\$ 9,254.73	\$ 7,026.47
10-Unknown	02-General Service-Commercial	4,979	415	5,694	441,400	\$ 14,399.64	\$ 20,185.09
10-Unknown	03-General Service-Industrial	197	16	215	-	\$ -	\$ -
10-Unknown	04-General Service-Public Utilities	186	16	212	-	\$ -	\$ -
10-Unknown	05-P.H.A	84	7	139	43,500	\$ 1,611.65	\$ 1,160.05
10-Unknown	06-Charity/Non-Public Schools	5	-	6	-	\$ -	\$ -
10-Unknown	07-Public Schools	9	1	10	38,800	\$ 951.61	\$ 816.85
10-Unknown	08-Senior Citizens Discount	-	-	-	-	\$ -	\$ -
10-Unknown	09-Hand Bill	425	35	446	131,900	\$ 33,332.74	\$ 55,144.90
10-Unknown	10-City Leased	-	-	-	-	\$ -	\$ -
10-Unknown	11-Hospital/University	36	3	51	629,000	\$ 14,884.32	\$ 13,114.21
10-Unknown	12-Scheduled	-	-	-	-	\$ -	\$ -
10-Unknown	13-Fire Service	4,082	340	5,505	500	\$ 19.53	\$ 14.04
10-Unknown	14-City Government	122	10	163	1,130,000	\$ 35,682.56	\$ 31,365.45
10-Unknown	14-Non-City Government	-	-	-	-	\$ -	\$ -

## FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY17 # of Accounts Months</u>	<u>FY17 # of Accounts</u>	<u>FY17 # of Original Bills Issued</u>	<u>FY17 Billed Water Usage</u>	<u>FY17 Water Usage Charges</u>	<u>FY17 Sewer Usage Charges</u>
01-Water,Sewer,Stormwater	01-General Service-Residential	4,987,653	415,638	5,035,576	3,122,428,000	\$ 125,946,083.09	\$ 95,309,980.72
01-Water,Sewer,Stormwater	02-General Service-Commercial	408,600	34,050	411,144	1,283,507,200	\$ 44,798,907.62	\$ 37,210,310.76
01-Water,Sewer,Stormwater	03-General Service-Industrial	12,295	1,025	12,356	85,538,100	\$ 2,491,676.21	\$ 2,064,644.52
01-Water,Sewer,Stormwater	04-General Service-Public Utilities	1,726	144	1,733	13,252,900	\$ 454,249.73	\$ 371,611.43
01-Water,Sewer,Stormwater	05-P.H.A	40,651	3,388	40,919	84,942,500	\$ 2,923,001.59	\$ 2,453,400.89
01-Water,Sewer,Stormwater	06-Charity/Non-Public Schools	23,366	1,947	23,684	126,451,500	\$ 3,449,551.08	\$ 2,868,222.20
01-Water,Sewer,Stormwater	07-Public Schools	4,307	359	4,364	45,834,100	\$ 1,251,536.64	\$ 1,038,835.43
01-Water,Sewer,Stormwater	08-Senior Citizens Discount	267,973	22,331	270,646	118,943,100	\$ 3,641,894.10	\$ 2,720,415.58
01-Water,Sewer,Stormwater	09-Hand Bill	2,753	229	2,757	441,672,200	\$ 11,625,005.23	\$ 8,892,372.58
01-Water,Sewer,Stormwater	10-City Leased	370	31	371	1,921,400	\$ 71,302.92	\$ 58,359.44
01-Water,Sewer,Stormwater	11-Hospital/University	5,137	428	5,182	298,688,700	\$ 7,230,476.31	\$ 6,208,656.37
01-Water,Sewer,Stormwater	12-Scheduled	48	4	48	13,600	\$ 557.46	\$ 413.56
01-Water,Sewer,Stormwater	13-Fire Service	1,073	89	1,076	6,325,200	\$ 221,148.06	\$ 185,538.90
01-Water,Sewer,Stormwater	14-City Government	10,812	901	10,896	460,160,400	\$ 13,659,132.70	\$ 13,835,862.97
01-Water,Sewer,Stormwater	14-Non-City Government	-	-	-	-	\$ -	\$ -
02-Water Only	01-General Service-Residential	9,313	776	9,758	113,600	\$ 4,652.91	\$ 687.77
02-Water Only	02-General Service-Commercial	6,334	528	6,732	717,700	\$ 26,067.92	\$ 21,718.43
02-Water Only	03-General Service-Industrial	309	26	337	1,000	\$ 40.49	\$ 29.81
02-Water Only	04-General Service-Public Utilities	22	2	24	-	\$ -	\$ -
02-Water Only	05-P.H.A	1,448	121	1,467	-	\$ -	\$ -
02-Water Only	06-Charity/Non-Public Schools	99	8	104	39,800	\$ 1,161.59	\$ -
02-Water Only	07-Public Schools	805	67	871	155,800	\$ 4,278.68	\$ 3,562.72
02-Water Only	08-Senior Citizens Discount	22	2	22	-	\$ -	\$ -
02-Water Only	09-Hand Bill	212	18	235	-	\$ -	\$ -
02-Water Only	10-City Leased	61	5	64	191,800	\$ 7,078.36	\$ 5,822.58
02-Water Only	11-Hospital/University	904	75	996	21,700	\$ 666.77	\$ 494.55
02-Water Only	13-Fire Service	51,359	4,280	55,896	8,098,100	\$ 236,263.41	\$ 425.30
02-Water Only	14-City Government	1,050	88	1,130	683,800	\$ 24,957.95	\$ 20,720.47
02-Water Only	14-Non-City Government	-	-	-	-	\$ -	\$ -
03-Stormwater Only	01-General Service-Residential	325,989	27,166	328,202	1,617,000	\$ 245,867.46	\$ 182,200.44
03-Stormwater Only	02-General Service-Commercial	385,132	32,094	388,750	107,100	\$ 13,260.23	\$ 10,183.78
03-Stormwater Only	03-General Service-Industrial	203	17	206	26,700	\$ 1,069.37	\$ 21,562.23
03-Stormwater Only	04-General Service-Public Utilities	14,040	1,170	14,135	-	\$ -	\$ -
03-Stormwater Only	05-P.H.A	9,778	815	10,071	-	\$ -	\$ -
03-Stormwater Only	06-Charity/Non-Public Schools	1,284	107	1,297	16,400	\$ 484.18	\$ -
03-Stormwater Only	07-Public Schools	901	75	908	-	\$ -	\$ -
03-Stormwater Only	08-Senior Citizens Discount	4,071	339	4,109	137,700	\$ 3,869.29	\$ 3,060.99
03-Stormwater Only	09-Hand Bill	116	10	119	-	\$ -	\$ -
03-Stormwater Only	10-City Leased	-	-	-	-	\$ -	\$ -
03-Stormwater Only	11-Hospital/University	2,083	174	2,105	-	\$ -	\$ -
03-Stormwater Only	12-Scheduled	23	2	23	-	\$ -	\$ -
03-Stormwater Only	13-Fire Service	156	13	167	-	\$ -	\$ -
03-Stormwater Only	14-City Government	8,415	701	8,500	1,265,100	\$ 40,903.16	\$ 35,931.48
03-Stormwater Only	14-Non-City Government	-	-	-	-	\$ -	\$ -

## FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY17 # of Accounts Months</u>	<u>FY17 # of Accounts</u>	<u>FY17 # of Original Bills Issued</u>	<u>FY17 Billed Water Usage</u>	<u>FY17 Water Usage Charges</u>	<u>FY17 Sewer Usage Charges</u>
04-Sewer and Stormwater	01-General Service-Residential	321	27	330	1,200	\$ 49.32	\$ 3,991.96
04-Sewer and Stormwater	02-General Service-Commercial	1	-	1	-	\$ -	\$ -
04-Sewer and Stormwater	03-General Service-Industrial	7	1	7	-	\$ -	\$ -
04-Sewer and Stormwater	04-General Service-Public Utilities	9	1	9	-	\$ -	\$ 13,493.55
04-Sewer and Stormwater	06-Charity/Non-Public Schools	10	1	10	-	\$ -	\$ 3,261.48
04-Sewer and Stormwater	09-Hand Bill	198	17	199	-	\$ -	\$ 2,803,447.54
04-Sewer and Stormwater	10-City Leased	2	-	2	-	\$ -	\$ 119.15
04-Sewer and Stormwater	11-Hospital/University	12	1	12	-	\$ -	\$ -
05-Water and Stormwater	01-General Service-Residential	17,189	1,432	17,287	14,351,100	\$ 570,652.20	\$ 374.37
05-Water and Stormwater	02-General Service-Commercial	1,921	160	1,929	34,819,400	\$ 1,097,598.32	\$ 266.66
05-Water and Stormwater	03-General Service-Industrial	188	16	188	6,475,700	\$ 202,026.94	\$ -
05-Water and Stormwater	04-General Service-Public Utilities	12	1	12	1,200	\$ 49.12	\$ -
05-Water and Stormwater	05-P.H.A	23	2	23	25,700	\$ 898.09	\$ -
05-Water and Stormwater	06-Charity/Non-Public Schools	289	24	293	699,000	\$ 19,929.51	\$ -
05-Water and Stormwater	07-Public Schools	23	2	23	300	\$ 9.24	\$ 6.88
05-Water and Stormwater	08-Senior Citizens Discount	230	19	230	107,700	\$ 3,305.81	\$ -
05-Water and Stormwater	09-Hand Bill	55	5	55	100,250,100	\$ 2,758,387.71	\$ -
05-Water and Stormwater	10-City Leased	150	13	156	3,659,600	\$ 123,872.64	\$ -
05-Water and Stormwater	11-Hospital/University	36	3	36	22,600	\$ 672.84	\$ -
05-Water and Stormwater	13-Fire Service	1,780	148	1,796	5,900	\$ 242.53	\$ 180.27
05-Water and Stormwater	14-City Government	348	29	349	3,279,500	\$ 179,739.11	\$ -
06-Sewer Only	01-General Service-Residential	41	3	41	8,600	\$ 353.30	\$ 262.53
06-Sewer Only	02-General Service-Commercial	38	3	38	70,700	\$ 2,739.68	\$ 2,150.80
06-Sewer Only	03-General Service-Industrial	-	-	-	-	\$ -	\$ -
06-Sewer Only	04-General Service-Public Utilities	12	1	12	66,800	\$ 2,422.60	\$ 2,011.01
06-Sewer Only	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
06-Sewer Only	07-Public Schools	10	1	11	315,300	\$ 7,612.98	\$ 5,870.63
06-Sewer Only	09-Hand Bill	22	2	22	-	\$ -	\$ 198,346.77
06-Sewer Only	13-Fire Service	11	1	11	-	\$ -	\$ -
06-Sewer Only	14-City Government	10	1	10	29,900	\$ 1,171.02	\$ 908.26
06-Sewer Only	14-Non-City Government	-	-	-	-	\$ -	\$ -
07-Water and Sewer	01-General Service-Residential	2,914	243	2,940	3,207,300	\$ 317,783.88	\$ 231,274.07
07-Water and Sewer	02-General Service-Commercial	654	55	661	3,037,000	\$ 147,094.88	\$ 114,754.28
07-Water and Sewer	03-General Service-Industrial	15	1	15	3,000	\$ 123.33	\$ 91.68
07-Water and Sewer	04-General Service-Public Utilities	12	1	12	64,900	\$ 2,436.16	\$ 1,969.33
07-Water and Sewer	05-P.H.A	12	1	12	315,100	\$ 10,747.27	\$ 9,091.10
07-Water and Sewer	06-Charity/Non-Public Schools	12	1	12	-	\$ -	\$ -
07-Water and Sewer	07-Public Schools	24	2	24	398,200	\$ 10,787.57	\$ 9,069.46
07-Water and Sewer	08-Senior Citizens Discount	12	1	12	-	\$ -	\$ -
07-Water and Sewer	09-Hand Bill	-	-	-	-	\$ -	\$ -
07-Water and Sewer	10-City Leased	-	-	-	-	\$ -	\$ -
07-Water and Sewer	11-Hospital/University	-	-	-	-	\$ -	\$ -
07-Water and Sewer	13-Fire Service	-	-	-	-	\$ -	\$ -
07-Water and Sewer	14-City Government	23	2	23	400	\$ 16.44	\$ 12.22
07-Water and Sewer	14-Non-City Government	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	01-General Service-Residential	26,927	2,244	26,955	11,248,700	\$ 460,516.38	\$ 342,554.49
08-RFSS, All Services	02-General Service-Commercial	887	74	887	427,200	\$ 17,443.05	\$ 13,010.16
08-RFSS, All Services	03-General Service-Industrial	2	-	2	300	\$ 12.13	\$ 8.92
08-RFSS, All Services	04-General Service-Public Utilities	12	1	12	1,900	\$ 78.10	\$ 58.07
08-RFSS, All Services	05-P.H.A	679	57	679	539,800	\$ 20,134.75	\$ 15,620.37
08-RFSS, All Services	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	08-Senior Citizens Discount	24	2	24	8,100	\$ 248.95	\$ 184.72
08-RFSS, All Services	10-City Leased	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	12-Scheduled	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	13-Fire Service	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	14-City Government	2	-	2	1,100	\$ 44.19	\$ 32.37
08-RFSS, All Services	14-Non-City Government	-	-	-	-	\$ -	\$ -

FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY17 # of Accounts Months</u>	<u>FY17 # of Accounts</u>	<u>FY17 # of Original Bills Issued</u>	<u>FY17 Billed Water Usage</u>	<u>FY17 Water Usage Charges</u>	<u>FY17 Sewer Usage Charges</u>
09-RFSS, No Sewer	01-General Service-Residential	46	4	46	29,700	\$ 1,219.40	\$ 907.45
09-RFSS, No Sewer	02-General Service-Commercial	2	-	2	2,200	\$ 84.56	\$ 62.48
09-RFSS, No Sewer	04-General Service-Public Utilities	-	-	-	-	\$ -	\$ -



FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY17 # of Accounts Months</u>	<u>FY17 # of Accounts</u>	<u>FY17 # of Original Bills Issued</u>	<u>FY17 Billed Water Usage</u>	<u>FY17 Water Usage Charges</u>	<u>FY17 Sewer Usage Charges</u>
09-RFSS, No Sewer	05-P.H.A	-	-	-	-	\$ -	\$ -
09-RFSS, No Sewer	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
10-Unknown	01-General Service-Residential	16,823	1,402	17,249	275,200	\$ 27,380.33	\$ 20,144.53
10-Unknown	02-General Service-Commercial	5,817	485	6,267	382,900	\$ 29,004.41	\$ 35,871.76
10-Unknown	03-General Service-Industrial	266	22	278	12,200	\$ 444.34	\$ 1,525.21
10-Unknown	04-General Service-Public Utilities	200	17	220	5,200	\$ 197.13	\$ 158.86
10-Unknown	05-P.H.A	49	4	76	4,500	\$ 102.89	\$ 85.70
10-Unknown	06-Charity/Non-Public Schools	18	2	24	2,600	\$ 141.17	\$ 95.82
10-Unknown	07-Public Schools	14	1	14	155,700	\$ 4,247.94	\$ 3,543.64
10-Unknown	08-Senior Citizens Discount	2	-	3	-	\$ -	\$ -
10-Unknown	09-Hand Bill	420	35	422	-	\$ -	\$ 68,643.23
10-Unknown	10-City Leased	-	-	-	-	\$ -	\$ -
10-Unknown	11-Hospital/University	46	4	50	800	\$ 22.28	\$ 15.71
10-Unknown	12-Scheduled	14	1	14	-	\$ -	\$ -
10-Unknown	13-Fire Service	7,502	625	7,762	500	\$ 20.55	\$ 15.29
10-Unknown	14-City Government	138	12	159	650,700	\$ 23,591.36	\$ 20,047.11
10-Unknown	14-Non-City Government	-	-	-	-	\$ -	\$ -

## FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY18 # of Accounts Months</u>	<u>FY18 # of Accounts</u>	<u>FY18 # of Original Bills Issued</u>	<u>FY18 Billed Water Usage</u>	<u>FY18 Water Usage Charges</u>	<u>FY18 Sewer Usage Charges</u>
01-Water,Sewer,Stormwater	01-General Service-Residential	5,050,640	420,887	5,076,061	3,062,694,600	\$ 127,209,248.58	\$ 99,595,673.62
01-Water,Sewer,Stormwater	02-General Service-Commercial	414,735	34,561	416,153	1,304,053,500	\$ 47,940,647.98	\$ 39,659,610.38
01-Water,Sewer,Stormwater	03-General Service-Industrial	12,322	1,027	12,352	67,056,400	\$ 2,332,464.00	\$ 1,879,120.42
01-Water,Sewer,Stormwater	04-General Service-Public Utilities	1,880	157	1,884	9,455,000	\$ 364,099.72	\$ 294,570.50
01-Water,Sewer,Stormwater	05-P.H.A	68,356	5,696	68,493	156,319,500	\$ 5,588,450.60	\$ 4,796,611.38
01-Water,Sewer,Stormwater	06-Charity/Non-Public Schools	21,144	1,762	21,294	109,668,300	\$ 3,145,490.96	\$ 2,630,764.96
01-Water,Sewer,Stormwater	07-Public Schools	4,227	352	4,268	49,829,200	\$ 1,414,230.58	\$ 1,204,620.51
01-Water,Sewer,Stormwater	08-Senior Citizens Discount	275,569	22,964	276,956	123,295,700	\$ 3,592,361.97	\$ 3,001,300.24
01-Water,Sewer,Stormwater	09-Hand Bill	2,624	219	2,626	394,619,500	\$ 10,743,699.35	\$ 8,185,627.14
01-Water,Sewer,Stormwater	10-City Leased	562	47	564	3,893,600	\$ 149,703.97	\$ 124,139.80
01-Water,Sewer,Stormwater	11-Hospital/University	3,600	300	3,627	248,831,900	\$ 6,399,782.12	\$ 5,317,888.73
01-Water,Sewer,Stormwater	12-Scheduled	48	4	48	13,200	\$ 566.10	\$ 425.98
01-Water,Sewer,Stormwater	13-Fire Service	1,256	105	1,259	7,518,000	\$ 276,719.40	\$ 225,691.35
01-Water,Sewer,Stormwater	14-City Government	10,682	890	10,743	458,626,800	\$ 14,358,394.16	\$ 14,808,326.60
01-Water,Sewer,Stormwater	14-Non-City Government	-	-	-	-	\$ -	\$ -
02-Water Only	01-General Service-Residential	8,816	735	9,667	124,000	\$ 20,493.62	\$ 12,455.73
02-Water Only	02-General Service-Commercial	6,476	540	7,083	3,055,200	\$ 33,752.70	\$ 12,396.65
02-Water Only	03-General Service-Industrial	290	24	319	-	\$ -	\$ -
02-Water Only	04-General Service-Public Utilities	21	2	22	-	\$ -	\$ -
02-Water Only	05-P.H.A	1,514	126	1,665	400	\$ 16.38	\$ 12.34
02-Water Only	06-Charity/Non-Public Schools	81	7	88	37,500	\$ 1,163.11	\$ -
02-Water Only	07-Public Schools	753	63	825	105,100	\$ 3,028.76	\$ 2,553.21
02-Water Only	08-Senior Citizens Discount	20	2	22	-	\$ -	\$ -
02-Water Only	09-Hand Bill	206	17	227	-	\$ -	\$ -
02-Water Only	10-City Leased	87	7	92	192,300	\$ 7,476.74	\$ 6,214.15
02-Water Only	11-Hospital/University	516	43	566	14,700	\$ 491.53	\$ 368.57
02-Water Only	13-Fire Service	51,639	4,303	56,693	8,339,600	\$ 252,865.60	\$ 2,833.00
02-Water Only	14-City Government	1,008	84	1,093	683,300	\$ 26,291.52	\$ 22,075.97
02-Water Only	14-Non-City Government	-	-	-	-	\$ -	\$ -
03-Stormwater Only	01-General Service-Residential	268,829	22,402	269,985	2,281,100	\$ 246,194.77	\$ 184,905.76
03-Stormwater Only	02-General Service-Commercial	377,127	31,427	379,832	55,600	\$ 3,973.75	\$ 2,155.36
03-Stormwater Only	03-General Service-Industrial	188	16	188	15,900	\$ 676.80	\$ 515.55
03-Stormwater Only	04-General Service-Public Utilities	13,701	1,142	13,745	-	\$ -	\$ -
03-Stormwater Only	05-P.H.A	18,525	1,544	18,874	-	\$ 1,239.23	\$ 901.20
03-Stormwater Only	06-Charity/Non-Public Schools	884	74	884	-	\$ -	\$ -
03-Stormwater Only	07-Public Schools	779	65	783	-	\$ -	\$ -
03-Stormwater Only	08-Senior Citizens Discount	2,797	233	2,813	42,800	\$ 2,792.10	\$ 2,092.50
03-Stormwater Only	09-Hand Bill	91	8	94	39,600	\$ 1,429.32	\$ -
03-Stormwater Only	10-City Leased	-	-	-	-	\$ -	\$ -
03-Stormwater Only	11-Hospital/University	1,263	105	1,273	-	\$ -	\$ -
03-Stormwater Only	12-Scheduled	12	1	12	-	\$ -	\$ -
03-Stormwater Only	13-Fire Service	177	15	190	-	\$ -	\$ -
03-Stormwater Only	14-City Government	8,322	694	8,376	1,696,800	\$ 63,132.99	\$ 53,981.97
03-Stormwater Only	14-Non-City Government	-	-	-	-	\$ -	\$ -

## FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY18 # of Accounts Months</u>	<u>FY18 # of Accounts</u>	<u>FY18 # of Original Bills Issued</u>	<u>FY18 Billed Water Usage</u>	<u>FY18 Water Usage Charges</u>	<u>FY18 Sewer Usage Charges</u>
04-Sewer and Stormwater	01-General Service-Residential	356	30	369	155,000	\$ 6,112.34	\$ 9,296.77
04-Sewer and Stormwater	02-General Service-Commercial	9	1	9	14,700	\$ 632.73	\$ 477.17
04-Sewer and Stormwater	03-General Service-Industrial	2	-	2	-	\$ -	\$ 165,231.13
04-Sewer and Stormwater	04-General Service-Public Utilities	3	-	3	-	\$ -	\$ 18,345.24
04-Sewer and Stormwater	06-Charity/Non-Public Schools	12	1	12	-	\$ -	\$ 4,104.94
04-Sewer and Stormwater	09-Hand Bill	173	14	208	-	\$ -	\$ 2,008,851.31
04-Sewer and Stormwater	10-City Leased	9	1	9	-	\$ -	\$ 1,510.14
04-Sewer and Stormwater	11-Hospital/University	3	-	3	-	\$ -	\$ -
05-Water and Stormwater	01-General Service-Residential	17,304	1,442	17,374	12,222,700	\$ 515,959.26	\$ 2,805.66
05-Water and Stormwater	02-General Service-Commercial	1,955	163	1,975	22,485,100	\$ 772,962.82	\$ 2,307.14
05-Water and Stormwater	03-General Service-Industrial	194	16	195	18,116,800	\$ 546,633.90	\$ -
05-Water and Stormwater	04-General Service-Public Utilities	12	1	12	1,200	\$ 51.52	\$ -
05-Water and Stormwater	05-P.H.A	32	3	34	30,200	\$ 1,122.68	\$ -
05-Water and Stormwater	06-Charity/Non-Public Schools	287	24	289	573,600	\$ 17,367.80	\$ -
05-Water and Stormwater	07-Public Schools	22	2	23	1,100	\$ 35.53	\$ 26.79
05-Water and Stormwater	08-Senior Citizens Discount	241	20	241	105,000	\$ 3,384.96	\$ -
05-Water and Stormwater	09-Hand Bill	40	3	40	75,158,600	\$ 2,175,841.76	\$ -
05-Water and Stormwater	10-City Leased	210	18	215	3,384,500	\$ 116,983.74	\$ -
05-Water and Stormwater	11-Hospital/University	12	1	12	9,600	\$ 309.00	\$ -
05-Water and Stormwater	13-Fire Service	1,661	138	1,819	6,800	\$ 287.16	\$ 220.35
05-Water and Stormwater	14-City Government	305	25	306	1,604,200	\$ 60,211.91	\$ -
06-Sewer Only	01-General Service-Residential	34	3	34	10,200	\$ 435.42	\$ 328.23
06-Sewer Only	02-General Service-Commercial	66	6	66	88,500	\$ 3,590.99	\$ 2,863.77
06-Sewer Only	03-General Service-Industrial	-	-	-	-	\$ -	\$ -
06-Sewer Only	04-General Service-Public Utilities	12	1	12	26,200	\$ 1,060.80	\$ 846.82
06-Sewer Only	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
06-Sewer Only	07-Public Schools	12	1	12	15,200	\$ 490.99	\$ 369.91
06-Sewer Only	09-Hand Bill	24	2	24	-	\$ -	\$ 217,569.86
06-Sewer Only	13-Fire Service	10	1	11	-	\$ -	\$ -
06-Sewer Only	14-City Government	12	1	12	74,200	\$ 2,813.76	\$ 2,318.36
06-Sewer Only	14-Non-City Government	-	-	-	-	\$ -	\$ -
07-Water and Sewer	01-General Service-Residential	2,026	169	2,034	1,753,000	\$ 322,226.34	\$ 235,515.02
07-Water and Sewer	02-General Service-Commercial	600	50	603	2,179,600	\$ 138,570.60	\$ 106,075.20
07-Water and Sewer	03-General Service-Industrial	13	1	13	9,500	\$ 390.05	\$ 307.04
07-Water and Sewer	04-General Service-Public Utilities	12	1	12	66,700	\$ 2,633.37	\$ 2,152.29
07-Water and Sewer	05-P.H.A	25	2	25	653,100	\$ 23,534.57	\$ 20,104.23
07-Water and Sewer	06-Charity/Non-Public Schools	15	1	15	100	\$ 4,537.57	\$ 3,291.59
07-Water and Sewer	07-Public Schools	23	2	23	432,900	\$ 12,288.28	\$ 10,496.55
07-Water and Sewer	08-Senior Citizens Discount	13	1	13	4,700	\$ 134.14	\$ 113.12
07-Water and Sewer	09-Hand Bill	-	-	-	-	\$ -	\$ -
07-Water and Sewer	10-City Leased	-	-	-	-	\$ -	\$ -
07-Water and Sewer	11-Hospital/University	-	-	-	-	\$ -	\$ -
07-Water and Sewer	13-Fire Service	-	-	-	-	\$ -	\$ -
07-Water and Sewer	14-City Government	39	3	39	8,300	\$ 355.12	\$ 268.12
07-Water and Sewer	14-Non-City Government	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	01-General Service-Residential	35,194	2,933	35,266	14,584,100	\$ 624,647.61	\$ 471,838.62
08-RFSS, All Services	02-General Service-Commercial	1,223	102	1,224	699,800	\$ 29,575.66	\$ 22,530.33
08-RFSS, All Services	03-General Service-Industrial	4	-	4	200	\$ 8.42	\$ 6.30
08-RFSS, All Services	04-General Service-Public Utilities	12	1	12	28,700	\$ 1,171.23	\$ 930.84
08-RFSS, All Services	05-P.H.A	872	73	872	738,500	\$ 29,191.31	\$ 22,698.78
08-RFSS, All Services	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	08-Senior Citizens Discount	24	2	24	11,600	\$ 373.74	\$ 281.44
08-RFSS, All Services	10-City Leased	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	12-Scheduled	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	13-Fire Service	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	14-City Government	5	-	5	1,500	\$ 64.62	\$ 48.69
08-RFSS, All Services	14-Non-City Government	-	-	-	-	\$ -	\$ -

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY18 # of Accounts Months</u>	<u>FY18 # of Accounts</u>	<u>FY18 # of Original Bills Issued</u>	<u>FY18 Billed Water Usage</u>	<u>FY18 Water Usage Charges</u>	<u>FY18 Sewer Usage Charges</u>
09-RFSS, No Sewer	01-General Service-Residential	93	8	93	50,800	\$ 2,170.59	\$ 1,635.16
09-RFSS, No Sewer	02-General Service-Commercial	14	1	14	12,600	\$ 528.84	\$ 395.43
09-RFSS, No Sewer	04-General Service-Public Utilities	-	-	-	-	\$ -	\$ -

FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY18 # of Accounts Months</u>	<u>FY18 # of Accounts</u>	<u>FY18 # of Original Bills Issued</u>	<u>FY18 Billed Water Usage</u>	<u>FY18 Water Usage Charges</u>	<u>FY18 Sewer Usage Charges</u>
09-RFSS, No Sewer	05-P.H.A	-	-	-	-	\$ -	\$ -
09-RFSS, No Sewer	06-Charity/Non-Public Schools	1	-	1	10,400	\$ 546.89	\$ 241.78
10-Unknown	01-General Service-Residential	17,066	1,422	17,766	316,900	\$ 40,968.89	\$ 30,739.64
10-Unknown	02-General Service-Commercial	6,706	559	7,225	425,200	\$ 21,374.71	\$ 10,970.51
10-Unknown	03-General Service-Industrial	331	28	343	600	\$ 25.85	\$ 1,524.48
10-Unknown	04-General Service-Public Utilities	212	18	233	-	\$ -	\$ -
10-Unknown	05-P.H.A	124	10	145	3,100	\$ 126.36	\$ 95.60
10-Unknown	06-Charity/Non-Public Schools	41	3	47	-	\$ -	\$ -
10-Unknown	07-Public Schools	18	2	20	78,100	\$ 2,237.62	\$ 1,881.72
10-Unknown	08-Senior Citizens Discount	10	1	13	13,100	\$ 319.38	\$ 282.03
10-Unknown	09-Hand Bill	399	33	400	14,300	\$ 369.16	\$ 300.54
10-Unknown	10-City Leased	2	-	4	-	\$ -	\$ 9.74
10-Unknown	11-Hospital/University	23	2	26	2,700	\$ 82.67	\$ 64.01
10-Unknown	12-Scheduled	14	1	14	-	\$ -	\$ -
10-Unknown	13-Fire Service	10,064	839	11,106	15,100	\$ 629.93	\$ 469.78
10-Unknown	14-City Government	115	10	131	1,041,200	\$ 39,807.42	\$ 33,644.55
10-Unknown	14-Non-City Government	-	-	-	-	\$ -	\$ -

## FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY19 # of Accounts Months</u>	<u>FY19 # of Accounts</u>	<u>FY19 # of Original Bills Issued</u>	<u>FY19 Billed Water Usage</u>	<u>FY19 Water Usage Charges</u>	<u>FY19 Sewer Usage Charges</u>
01-Water,Sewer,Stormwater	01-General Service-Residential	4,990,679	415,890	5,037,745	2,962,517,700	\$ 123,586,132.85	\$ 95,170,387.54
01-Water,Sewer,Stormwater	02-General Service-Commercial	415,807	34,651	418,503	1,279,362,600	\$ 48,794,820.69	\$ 38,896,261.24
01-Water,Sewer,Stormwater	03-General Service-Industrial	12,189	1,016	12,290	93,978,400	\$ 3,230,298.36	\$ 2,409,570.26
01-Water,Sewer,Stormwater	04-General Service-Public Utilities	2,001	167	2,013	8,650,900	\$ 341,763.87	\$ 263,161.81
01-Water,Sewer,Stormwater	05-P.H.A	67,171	5,598	67,335	154,252,800	\$ 5,693,562.15	\$ 4,662,803.41
01-Water,Sewer,Stormwater	06-Charity/Non-Public Schools	20,276	1,690	20,460	107,149,100	\$ 3,201,982.15	\$ 2,555,858.76
01-Water,Sewer,Stormwater	07-Public Schools	4,197	350	4,245	48,139,400	\$ 1,405,457.27	\$ 1,151,121.09
01-Water,Sewer,Stormwater	08-Senior Citizens Discount	280,984	23,415	283,697	128,966,000	\$ 3,049,360.04	\$ 3,102,046.94
01-Water,Sewer,Stormwater	09-Hand Bill	2,581	215	2,585	417,713,100	\$ 11,627,401.86	\$ 8,888,290.72
01-Water,Sewer,Stormwater	10-City Leased	473	39	475	3,435,700	\$ 137,060.21	\$ 109,762.88
01-Water,Sewer,Stormwater	11-Hospital/University	4,187	349	4,216	284,142,500	\$ 7,391,842.91	\$ 5,933,318.89
01-Water,Sewer,Stormwater	12-Scheduled	36	3	37	12,500	\$ 561.70	\$ 399.11
01-Water,Sewer,Stormwater	13-Fire Service	1,338	112	1,348	8,370,500	\$ 317,723.32	\$ 258,859.88
01-Water,Sewer,Stormwater	14-City Government	11,268	939	11,375	464,998,500	\$ 14,931,414.83	\$ 14,851,244.82
01-Water,Sewer,Stormwater	14-Non-City Government	24	2	25	22,600	\$ 1,018.77	\$ 720.66
02-Water Only	01-General Service-Residential	10,721	893	10,964	167,400	\$ 15,364.59	\$ 8,447.67
02-Water Only	02-General Service-Commercial	7,553	629	7,793	36,773,600	\$ 1,121,216.72	\$ 18,013.25
02-Water Only	03-General Service-Industrial	334	28	348	-	\$ -	\$ -
02-Water Only	04-General Service-Public Utilities	23	2	24	-	\$ -	\$ -
02-Water Only	05-P.H.A	1,632	136	1,646	4,000	\$ 171.84	\$ 121.01
02-Water Only	06-Charity/Non-Public Schools	83	7	86	12,800	\$ 406.81	\$ -
02-Water Only	07-Public Schools	805	67	839	200	\$ 6.47	\$ 4.87
02-Water Only	08-Senior Citizens Discount	23	2	23	-	-\$ 11.60	\$ -
02-Water Only	09-Hand Bill	249	21	262	-	\$ -	\$ -
02-Water Only	10-City Leased	70	6	72	193,400	\$ 7,803.31	\$ 6,175.40
02-Water Only	11-Hospital/University	593	49	628	21,400	\$ 720.45	\$ 512.70
02-Water Only	13-Fire Service	62,887	5,241	65,206	97,100	\$ 3,904.72	\$ 1,510.94
02-Water Only	14-City Government	1,208	101	1,279	687,100	\$ 27,410.32	\$ 21,941.36
02-Water Only	14-Non-City Government	7	1	7	-	\$ -	\$ -
03-Stormwater Only	01-General Service-Residential	308,312	25,693	311,180	16,889,000	\$ 852,620.36	\$ 629,662.11
03-Stormwater Only	02-General Service-Commercial	368,399	30,700	372,753	219,200	\$ 13,621.86	\$ 10,461.54
03-Stormwater Only	03-General Service-Industrial	195	16	197	6,200	\$ 276.39	\$ 198.59
03-Stormwater Only	04-General Service-Public Utilities	13,209	1,101	13,349	-	\$ -	\$ -
03-Stormwater Only	05-P.H.A	26,053	2,171	26,445	17,000	\$ 3,028.14	\$ 2,191.03
03-Stormwater Only	06-Charity/Non-Public Schools	896	75	900	79,100	\$ 2,467.39	\$ 19.48
03-Stormwater Only	07-Public Schools	802	67	812	-	\$ -	\$ -
03-Stormwater Only	08-Senior Citizens Discount	4,579	382	4,631	610,400	\$ 20,551.09	\$ 15,175.05
03-Stormwater Only	09-Hand Bill	79	7	84	-	\$ -	\$ -
03-Stormwater Only	10-City Leased	-	-	-	-	\$ -	\$ -
03-Stormwater Only	11-Hospital/University	1,584	132	1,614	-	\$ -	\$ -
03-Stormwater Only	12-Scheduled	25	2	25	-	\$ -	\$ -
03-Stormwater Only	13-Fire Service	174	15	182	-	\$ -	\$ -
03-Stormwater Only	14-City Government	6,113	509	6,214	877,400	\$ 31,703.84	\$ 28,087.92
03-Stormwater Only	14-Non-City Government	2,884	240	2,905	-	\$ -	\$ -

## FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY19 # of Accounts Months</u>	<u>FY19 # of Accounts</u>	<u>FY19 # of Original Bills Issued</u>	<u>FY19 Billed Water Usage</u>	<u>FY19 Water Usage Charges</u>	<u>FY19 Sewer Usage Charges</u>
04-Sewer and Stormwater	01-General Service-Residential	323	27	329	600	\$ 27.32	\$ 4,034.87
04-Sewer and Stormwater	02-General Service-Commercial	4	-	5	42,800	\$ 1,675.28	\$ 1,201.05
04-Sewer and Stormwater	03-General Service-Industrial	12	1	12	-	\$ -	\$ 1,036,501.66
04-Sewer and Stormwater	04-General Service-Public Utilities	3	-	3	-	\$ -	\$ 25,448.50
04-Sewer and Stormwater	06-Charity/Non-Public Schools	12	1	12	-	\$ -	\$ 3,732.28
04-Sewer and Stormwater	09-Hand Bill	168	14	168	-	\$ -	\$ 823,046.20
04-Sewer and Stormwater	10-City Leased	-	-	-	-	\$ -	\$ -
04-Sewer and Stormwater	11-Hospital/University	-	-	-	-	\$ -	\$ -
05-Water and Stormwater	01-General Service-Residential	17,171	1,431	17,226	11,279,400	\$ 500,565.83	\$ 229.08
05-Water and Stormwater	02-General Service-Commercial	1,924	160	1,934	18,896,700	\$ 680,513.70	\$ 917.72
05-Water and Stormwater	03-General Service-Industrial	191	16	192	57,795,000	\$ 1,748,868.28	\$ -
05-Water and Stormwater	04-General Service-Public Utilities	12	1	12	1,200	\$ 53.88	\$ -
05-Water and Stormwater	05-P.H.A	34	3	34	62,100	\$ 2,338.49	\$ -
05-Water and Stormwater	06-Charity/Non-Public Schools	298	25	303	781,000	\$ 23,587.62	\$ -
05-Water and Stormwater	07-Public Schools	22	2	22	700	\$ 23.91	\$ 16.67
05-Water and Stormwater	08-Senior Citizens Discount	235	20	236	102,600	\$ 3,458.20	\$ -
05-Water and Stormwater	09-Hand Bill	24	2	24	9,766,700	\$ 306,358.14	\$ -
05-Water and Stormwater	10-City Leased	157	13	160	1,709,100	\$ 66,452.06	\$ -
05-Water and Stormwater	11-Hospital/University	21	2	21	13,400	\$ 452.31	\$ -
05-Water and Stormwater	13-Fire Service	2,035	170	2,044	2,900	\$ 126.87	\$ 93.58
05-Water and Stormwater	14-City Government	389	32	390	1,803,500	\$ 71,030.44	\$ -
06-Sewer Only	01-General Service-Residential	33	3	33	16,700	\$ 748.60	\$ 530.81
06-Sewer Only	02-General Service-Commercial	82	7	82	136,000	\$ 5,679.48	\$ 4,339.16
06-Sewer Only	03-General Service-Industrial	-	-	-	-	\$ -	\$ -
06-Sewer Only	04-General Service-Public Utilities	12	1	12	34,600	\$ 1,461.26	\$ 1,105.67
06-Sewer Only	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
06-Sewer Only	07-Public Schools	8	1	8	10,800	\$ 367.62	\$ 257.59
06-Sewer Only	09-Hand Bill	24	2	24	-	\$ -	\$ 214,315.23
06-Sewer Only	13-Fire Service	12	1	12	-	\$ -	\$ -
06-Sewer Only	14-City Government	26	2	28	120,400	\$ 5,008.15	\$ 3,843.74
06-Sewer Only	14-Non-City Government	1	-	1	-	\$ -	\$ -
07-Water and Sewer	01-General Service-Residential	127	11	128	554,600	\$ 99,627.41	\$ 72,536.48
07-Water and Sewer	02-General Service-Commercial	192	16	193	1,969,700	\$ 93,034.54	\$ 74,124.89
07-Water and Sewer	03-General Service-Industrial	1	-	1	-	\$ -	\$ -
07-Water and Sewer	04-General Service-Public Utilities	12	1	12	66,200	\$ 2,716.66	\$ 2,113.99
07-Water and Sewer	05-P.H.A	12	1	12	616,500	\$ 22,923.09	\$ 18,683.03
07-Water and Sewer	06-Charity/Non-Public Schools	12	1	12	-	\$ -	\$ -
07-Water and Sewer	07-Public Schools	12	1	12	446,500	\$ 13,035.24	\$ 10,728.08
07-Water and Sewer	08-Senior Citizens Discount	-	-	-	-	\$ -	\$ -
07-Water and Sewer	09-Hand Bill	-	-	-	-	\$ -	\$ -
07-Water and Sewer	10-City Leased	-	-	-	-	\$ -	\$ -
07-Water and Sewer	11-Hospital/University	1	-	1	-	\$ -	\$ -
07-Water and Sewer	13-Fire Service	-	-	-	-	\$ -	\$ -
07-Water and Sewer	14-City Government	55	5	60	25,700	\$ 1,155.91	\$ 819.49
07-Water and Sewer	14-Non-City Government	77	6	77	200	\$ 9.10	\$ 6.36
08-RFSS, All Services	01-General Service-Residential	45,231	3,769	45,312	18,385,300	\$ 823,538.00	\$ 587,318.80
08-RFSS, All Services	02-General Service-Commercial	1,456	121	1,457	779,100	\$ 36,494.32	\$ 26,359.02
08-RFSS, All Services	03-General Service-Industrial	12	1	12	-	\$ -	\$ -
08-RFSS, All Services	04-General Service-Public Utilities	12	1	12	25,000	\$ 1,079.75	\$ 796.59
08-RFSS, All Services	05-P.H.A	1,485	124	1,485	1,135,100	\$ 47,307.93	\$ 34,389.80
08-RFSS, All Services	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	08-Senior Citizens Discount	24	2	24	12,400	\$ 418.77	\$ 296.67
08-RFSS, All Services	10-City Leased	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	12-Scheduled	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	13-Fire Service	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	14-City Government	88	7	89	39,300	\$ 1,402.40	\$ 1,254.21
08-RFSS, All Services	14-Non-City Government	-	-	-	-	\$ -	\$ -



<u>Usage Type</u>	<u>Customer Type</u>	<u>FY19 # of Accounts Months</u>	<u>FY19 # of Accounts</u>	<u>FY19 # of Original Bills Issued</u>	<u>FY19 Billed Water Usage</u>	<u>FY19 Water Usage Charges</u>	<u>FY19 Sewer Usage Charges</u>
09-RFSS, No Sewer	01-General Service-Residential	22	2	22	14,700	\$ 646.69	\$ 473.31
09-RFSS, No Sewer	02-General Service-Commercial	-	-	-	-	\$ -	\$ -
09-RFSS, No Sewer	04-General Service-Public Utilities	-	-	-	-	\$ -	\$ -

FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY19 # of Accounts Months</u>	<u>FY19 # of Accounts</u>	<u>FY19 # of Original Bills Issued</u>	<u>FY19 Billed Water Usage</u>	<u>FY19 Water Usage Charges</u>	<u>FY19 Sewer Usage Charges</u>
09-RFSS, No Sewer	05-P.H.A	-	-	-	-	\$ -	\$ -
09-RFSS, No Sewer	06-Charity/Non-Public Schools	7	1	7	64,200	\$ 1,969.12	\$ -
10-Unknown	01-General Service-Residential	14,037	1,170	14,575	578,000	\$ 44,137.43	\$ 30,004.65
10-Unknown	02-General Service-Commercial	8,129	677	8,510	2,532,500	\$ 68,859.57	\$ 72,203.05
10-Unknown	03-General Service-Industrial	350	29	365	31,700	\$ 1,033.00	\$ 854.95
10-Unknown	04-General Service-Public Utilities	195	16	213	-	\$ -	\$ -
10-Unknown	05-P.H.A	154	13	160	8,500	\$ 365.99	\$ 256.88
10-Unknown	06-Charity/Non-Public Schools	14	1	14	11,300	\$ 332.09	\$ 274.96
10-Unknown	07-Public Schools	14	1	15	-	\$ -	\$ -
10-Unknown	08-Senior Citizens Discount	4	-	7	600	\$ 20.48	\$ 14.30
10-Unknown	09-Hand Bill	386	32	387	-	\$ -	\$ -
10-Unknown	10-City Leased	1	-	2	-	\$ -	\$ -
10-Unknown	11-Hospital/University	25	2	25	-	\$ -	\$ -
10-Unknown	12-Scheduled	13	1	13	-	\$ -	\$ -
10-Unknown	13-Fire Service	15,877	1,323	15,971	16,800	\$ 719.63	\$ 534.20
10-Unknown	14-City Government	174	15	189	1,916,000	\$ 70,175.38	\$ 56,131.93
10-Unknown	14-Non-City Government	76	6	88	-	\$ -	\$ -

## FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY20 # of Accounts Months</u>	<u>FY20 # of Accounts</u>	<u>FY20 # of Original Bills Issued</u>	<u>FY20 Billed Water Usage</u>	<u>FY20 Water Usage Charges</u>	<u>FY20 Sewer Usage Charges</u>
01-Water,Sewer,Stormwater	01-General Service-Residential	4,975,431	414,619	5,051,655	2,944,237,500	\$ 124,016,277.65	\$ 95,190,422.08
01-Water,Sewer,Stormwater	02-General Service-Commercial	414,804	34,567	419,508	1,284,704,900	\$ 49,073,122.68	\$ 38,866,341.75
01-Water,Sewer,Stormwater	03-General Service-Industrial	12,081	1,007	12,224	82,794,900	\$ 2,896,265.36	\$ 2,213,661.39
01-Water,Sewer,Stormwater	04-General Service-Public Utilities	1,996	166	2,011	9,056,700	\$ 357,577.05	\$ 279,765.39
01-Water,Sewer,Stormwater	05-P.H.A	65,907	5,492	66,123	137,521,300	\$ 5,195,921.71	\$ 4,187,309.77
01-Water,Sewer,Stormwater	06-Charity/Non-Public Schools	18,667	1,556	18,913	93,145,100	\$ 2,801,040.46	\$ 2,226,055.30
01-Water,Sewer,Stormwater	07-Public Schools	4,120	343	4,185	37,459,700	\$ 1,128,789.29	\$ 910,083.55
01-Water,Sewer,Stormwater	08-Senior Citizens Discount	272,511	22,709	276,820	128,447,100	\$ 2,851,569.57	\$ 3,111,932.63
01-Water,Sewer,Stormwater	09-Hand Bill	2,445	204	2,456	411,035,700	\$ 11,539,895.63	\$ 9,091,623.44
01-Water,Sewer,Stormwater	10-City Leased	530	44	532	7,092,700	\$ 258,598.06	\$ 226,748.94
01-Water,Sewer,Stormwater	11-Hospital/University	3,370	281	3,405	227,524,500	\$ 6,002,471.43	\$ 4,904,875.40
01-Water,Sewer,Stormwater	12-Scheduled	40	3	42	36,000	\$ 1,635.32	\$ 1,160.72
01-Water,Sewer,Stormwater	13-Fire Service	1,432	119	1,438	9,450,100	\$ 360,124.74	\$ 293,521.64
01-Water,Sewer,Stormwater	14-City Government	10,240	853	10,361	459,339,300	\$ 14,898,431.89	\$ 14,725,419.62
01-Water,Sewer,Stormwater	14-Non-City Government	105	9	106	481,800	\$ 19,381.70	\$ 15,392.20
02-Water Only	01-General Service-Residential	9,974	831	11,121	136,800	\$ 6,204.80	\$ 1,770.56
02-Water Only	02-General Service-Commercial	7,220	602	8,109	21,090,000	\$ 643,352.84	\$ 20,055.13
02-Water Only	03-General Service-Industrial	307	26	351	-	\$ -	\$ -
02-Water Only	04-General Service-Public Utilities	22	2	24	-	\$ -	\$ -
02-Water Only	05-P.H.A	9	1	9	3,500	\$ 151.34	\$ 107.04
02-Water Only	06-Charity/Non-Public Schools	28	2	32	6,000	\$ 204.82	\$ -
02-Water Only	07-Public Schools	-	-	-	-	\$ -	\$ -
02-Water Only	08-Senior Citizens Discount	-	-	-	-	\$ -	\$ -
02-Water Only	09-Hand Bill	253	21	291	37,617,500	\$ 1,140,036.82	\$ -
02-Water Only	10-City Leased	94	8	104	191,700	\$ 7,825.60	\$ 6,182.97
02-Water Only	11-Hospital/University	60	5	67	-	\$ -	\$ -
02-Water Only	13-Fire Service	63,877	5,323	72,116	80,500	\$ 3,416.97	\$ 2,519.98
02-Water Only	14-City Government	1,051	88	1,156	681,400	\$ 27,499.43	\$ 21,975.92
02-Water Only	14-Non-City Government	-	-	-	-	\$ -	\$ -
03-Stormwater Only	01-General Service-Residential	293,642	24,470	297,171	25,666,200	\$ 1,164,964.18	\$ 858,756.48
03-Stormwater Only	02-General Service-Commercial	363,334	30,278	367,577	291,300	\$ 10,799.74	\$ 8,140.53
03-Stormwater Only	03-General Service-Industrial	267	22	270	14,500	\$ 607.16	\$ 435.15
03-Stormwater Only	04-General Service-Public Utilities	12,801	1,067	12,937	-	\$ -	\$ -
03-Stormwater Only	05-P.H.A	25,899	2,158	26,256	10,100	\$ 436.71	\$ 309.58
03-Stormwater Only	06-Charity/Non-Public Schools	1,076	90	1,080	4,600	\$ 157.03	\$ 111.86
03-Stormwater Only	07-Public Schools	841	70	851	-	\$ -	\$ -
03-Stormwater Only	08-Senior Citizens Discount	3,412	284	3,490	1,148,500	\$ 36,181.90	\$ 27,712.65
03-Stormwater Only	09-Hand Bill	102	9	102	-	\$ -	\$ -
03-Stormwater Only	10-City Leased	-	-	-	-	\$ -	\$ -
03-Stormwater Only	11-Hospital/University	1,344	112	1,374	-	\$ -	\$ -
03-Stormwater Only	12-Scheduled	21	2	21	-	\$ -	\$ -
03-Stormwater Only	13-Fire Service	157	13	177	-	\$ -	\$ -
03-Stormwater Only	14-City Government	6,240	520	6,336	1,028,800	\$ 40,085.32	\$ 32,850.97
03-Stormwater Only	14-Non-City Government	1,600	133	1,613	-	\$ -	\$ -

## FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY20 # of Accounts Months</u>	<u>FY20 # of Accounts</u>	<u>FY20 # of Original Bills Issued</u>	<u>FY20 Billed Water Usage</u>	<u>FY20 Water Usage Charges</u>	<u>FY20 Sewer Usage Charges</u>
04-Sewer and Stormwater	01-General Service-Residential	309	26	322	4,800	\$ 214.59	\$ 4,160.07
04-Sewer and Stormwater	02-General Service-Commercial	1	-	1	300	\$ 13.66	\$ 9.53
04-Sewer and Stormwater	03-General Service-Industrial	4	-	4	-	\$ -	\$ 359,965.92
04-Sewer and Stormwater	04-General Service-Public Utilities	10	1	10	-	\$ -	\$ 21,984.40
04-Sewer and Stormwater	06-Charity/Non-Public Schools	12	1	12	-	\$ -	\$ 3,767.02
04-Sewer and Stormwater	09-Hand Bill	173	14	181	-	\$ -	\$ 1,457,388.11
04-Sewer and Stormwater	10-City Leased	-	-	-	-	\$ -	\$ -
04-Sewer and Stormwater	11-Hospital/University	-	-	-	-	\$ -	\$ -
05-Water and Stormwater	01-General Service-Residential	16,906	1,409	17,002	11,753,800	\$ 525,112.41	\$ 1,290.17
05-Water and Stormwater	02-General Service-Commercial	1,835	153	1,869	11,696,900	\$ 440,499.04	\$ 5,055.75
05-Water and Stormwater	03-General Service-Industrial	200	17	203	16,150,000	\$ 512,114.96	\$ -
05-Water and Stormwater	04-General Service-Public Utilities	12	1	12	1,200	\$ 54.60	\$ -
05-Water and Stormwater	05-P.H.A	12	1	12	55,500	\$ 2,127.15	\$ -
05-Water and Stormwater	06-Charity/Non-Public Schools	329	27	331	788,600	\$ 24,772.08	\$ -
05-Water and Stormwater	07-Public Schools	-	-	-	-	\$ -	\$ -
05-Water and Stormwater	08-Senior Citizens Discount	242	20	244	116,400	\$ 3,733.21	\$ -
05-Water and Stormwater	09-Hand Bill	32	3	32	25,057,900	\$ 783,256.00	\$ -
05-Water and Stormwater	10-City Leased	221	18	229	2,119,600	\$ 82,542.70	\$ -
05-Water and Stormwater	11-Hospital/University	43	4	43	33,800	\$ 1,096.03	\$ -
05-Water and Stormwater	13-Fire Service	1,947	162	2,121	19,100	\$ 863.02	\$ 616.95
05-Water and Stormwater	14-City Government	324	27	325	2,616,200	\$ 103,235.37	\$ -
06-Sewer Only	01-General Service-Residential	33	3	34	20,800	\$ 929.75	\$ 666.32
06-Sewer Only	02-General Service-Commercial	68	6	68	101,700	\$ 4,242.88	\$ 3,275.14
06-Sewer Only	03-General Service-Industrial	7	1	8	-	\$ -	\$ 3,435.58
06-Sewer Only	04-General Service-Public Utilities	11	1	11	35,300	\$ 1,457.87	\$ 1,132.49
06-Sewer Only	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
06-Sewer Only	07-Public Schools	4	-	4	2,800	\$ 95.57	\$ 67.68
06-Sewer Only	09-Hand Bill	26	2	26	-	\$ -	\$ 28,891.00
06-Sewer Only	13-Fire Service	11	1	12	-	\$ -	\$ -
06-Sewer Only	14-City Government	33	3	34	293,200	\$ 11,848.22	\$ 9,462.21
06-Sewer Only	14-Non-City Government	-	-	-	-	\$ -	\$ -
07-Water and Sewer	01-General Service-Residential	60	5	60	25,200	\$ 2,400.74	\$ 1,723.30
07-Water and Sewer	02-General Service-Commercial	140	12	143	1,670,400	\$ 65,879.61	\$ 53,848.99
07-Water and Sewer	03-General Service-Industrial	-	-	-	-	\$ -	\$ -
07-Water and Sewer	04-General Service-Public Utilities	12	1	12	65,800	\$ 2,733.17	\$ 2,122.06
07-Water and Sewer	05-P.H.A	11	1	11	614,800	\$ 23,071.58	\$ 18,853.27
07-Water and Sewer	06-Charity/Non-Public Schools	12	1	12	-	\$ -	\$ -
07-Water and Sewer	07-Public Schools	11	1	11	429,200	\$ 12,745.23	\$ 10,341.94
07-Water and Sewer	08-Senior Citizens Discount	-	-	-	-	\$ -	\$ -
07-Water and Sewer	09-Hand Bill	-	-	-	-	\$ -	\$ -
07-Water and Sewer	10-City Leased	-	-	-	-	\$ -	\$ -
07-Water and Sewer	11-Hospital/University	-	-	-	-	\$ -	\$ -
07-Water and Sewer	13-Fire Service	-	-	-	-	\$ -	\$ -
07-Water and Sewer	14-City Government	56	5	58	236,400	\$ 9,571.10	\$ 7,580.48
07-Water and Sewer	14-Non-City Government	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	01-General Service-Residential	54,713	4,559	54,852	22,548,600	\$ 1,019,014.80	\$ 727,693.05
08-RFSS, All Services	02-General Service-Commercial	1,645	137	1,646	855,900	\$ 38,307.70	\$ 27,615.10
08-RFSS, All Services	03-General Service-Industrial	12	1	12	-	\$ -	\$ -
08-RFSS, All Services	04-General Service-Public Utilities	12	1	12	32,900	\$ 1,428.00	\$ 1,062.54
08-RFSS, All Services	05-P.H.A	2,585	215	2,585	1,954,800	\$ 81,756.17	\$ 59,915.32
08-RFSS, All Services	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	08-Senior Citizens Discount	24	2	24	11,600	\$ 395.98	\$ 280.67
08-RFSS, All Services	10-City Leased	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	12-Scheduled	2	-	2	-	\$ -	\$ -
08-RFSS, All Services	13-Fire Service	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	14-City Government	17	1	18	128,500	\$ 5,231.89	\$ 4,127.63
08-RFSS, All Services	14-Non-City Government	-	-	-	-	\$ -	\$ -

FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY20 # of Accounts Months</u>	<u>FY20 # of Accounts</u>	<u>FY20 # of Original Bills Issued</u>	<u>FY20 Billed Water Usage</u>	<u>FY20 Water Usage Charges</u>	<u>FY20 Sewer Usage Charges</u>
09-RFSS, No Sewer	01-General Service-Residential	27	2	27	11,400	\$ 515.90	\$ 366.89
09-RFSS, No Sewer	02-General Service-Commercial	1	-	1	-	\$ -	\$ -
09-RFSS, No Sewer	04-General Service-Public Utilities	-	-	-	-	\$ -	\$ -

FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY20 # of Accounts Months</u>	<u>FY20 # of Accounts</u>	<u>FY20 # of Original Bills Issued</u>	<u>FY20 Billed Water Usage</u>	<u>FY20 Water Usage Charges</u>	<u>FY20 Sewer Usage Charges</u>
09-RFSS, No Sewer	05-P.H.A	1	-	1	-	\$ -	\$ -
09-RFSS, No Sewer	06-Charity/Non-Public Schools	3	-	3	90,200	\$ 2,728.15	\$ -
10-Unknown	01-General Service-Residential	10,540	878	10,955	191,400	\$ 10,052.88	\$ 6,697.28
10-Unknown	02-General Service-Commercial	8,805	734	9,260	360,600	\$ 8,291.72	\$ 4,343.39
10-Unknown	03-General Service-Industrial	300	25	333	14,800	\$ 596.17	\$ 479.66
10-Unknown	04-General Service-Public Utilities	136	11	148	77,800	\$ 2,612.39	\$ 2,470.92
10-Unknown	05-P.H.A	40	3	42	7,300	\$ 315.58	\$ 223.56
10-Unknown	06-Charity/Non-Public Schools	4	-	4	1,000	\$ 34.13	\$ 24.31
10-Unknown	07-Public Schools	1	-	1	-	\$ 79.52	\$ 12.39
10-Unknown	08-Senior Citizens Discount	7	1	9	500	\$ 17.32	\$ 12.16
10-Unknown	09-Hand Bill	428	36	450	-	\$ -	\$ -
10-Unknown	10-City Leased	5	-	5	-	\$ -	\$ -
10-Unknown	11-Hospital/University	3	-	3	1,300	\$ 44.39	\$ 30.97
10-Unknown	12-Scheduled	12	1	12	-	\$ -	\$ -
10-Unknown	13-Fire Service	19,054	1,588	20,787	32,700	\$ 1,426.03	\$ 238.93
10-Unknown	14-City Government	189	16	211	2,479,500	\$ 92,100.20	\$ 59,782.31
10-Unknown	14-Non-City Government	19	2	19	-	\$ -	\$ -

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY21 # of Accounts Months</u>	<u>FY21 # of Accounts</u>	<u>FY21 # of Original Bills Issued</u>	<u>FY21 Billed Water Usage</u>	<u>FY21 Water Usage Charges</u>	<u>FY21 Sewer Usage Charges</u>
01-Water,Sewer,Stormwater	01-General Service-Residential	5,087,333	423,944	5,157,390	3,030,738,100	\$ 126,978,168.60	\$ 97,696,454.98
01-Water,Sewer,Stormwater	02-General Service-Commercial	423,081	35,257	427,159	1,363,776,800	\$ 52,309,271.11	\$ 40,997,161.63
01-Water,Sewer,Stormwater	03-General Service-Industrial	12,126	1,011	12,286	80,579,300	\$ 2,865,275.38	\$ 2,220,353.81
01-Water,Sewer,Stormwater	04-General Service-Public Utilities	2,112	176	2,132	9,140,000	\$ 368,553.83	\$ 290,382.17
01-Water,Sewer,Stormwater	05-P.H.A	65,682	5,474	65,877	141,777,800	\$ 5,356,986.95	\$ 4,330,721.02
01-Water,Sewer,Stormwater	06-Charity/Non-Public Schools	17,662	1,472	17,857	84,951,400	\$ 2,557,892.05	\$ 2,046,144.28
01-Water,Sewer,Stormwater	07-Public Schools	4,152	346	4,206	27,319,300	\$ 812,089.21	\$ 658,559.69
01-Water,Sewer,Stormwater	08-Senior Citizens Discount	266,404	22,200	270,264	126,789,100	\$ 2,646,126.13	\$ 3,060,363.41
01-Water,Sewer,Stormwater	09-Hand Bill	2,441	203	2,452	377,927,100	\$ 10,587,120.74	\$ 8,434,231.81
01-Water,Sewer,Stormwater	10-City Leased	581	48	584	3,154,700	\$ 128,001.37	\$ 100,692.38
01-Water,Sewer,Stormwater	11-Hospital/University	1,635	136	1,668	93,671,100	\$ 2,476,226.06	\$ 2,248,997.97
01-Water,Sewer,Stormwater	12-Scheduled	63	5	65	38,000	\$ 1,725.86	\$ 1,221.89
01-Water,Sewer,Stormwater	13-Fire Service	1,502	125	1,510	9,900,100	\$ 372,823.77	\$ 310,228.95
01-Water,Sewer,Stormwater	14-City Government	10,695	891	10,788	403,207,800	\$ 13,107,416.54	\$ 12,966,285.24
01-Water,Sewer,Stormwater	14-Non-City Government	146	12	146	1,683,600	\$ 27,065.95	\$ 23,273.98
02-Water Only	01-General Service-Residential	9,977	831	11,133	97,300	\$ 4,413.93	\$ 102.38
02-Water Only	02-General Service-Commercial	7,269	606	8,139	631,800	\$ 25,953.17	\$ 20,281.28
02-Water Only	03-General Service-Industrial	305	25	348	-	\$ -	\$ -
02-Water Only	04-General Service-Public Utilities	22	2	24	-	\$ -	\$ -
02-Water Only	05-P.H.A	-	-	-	-	\$ -	\$ -
02-Water Only	06-Charity/Non-Public Schools	28	2	30	9,300	\$ 313.19	\$ -
02-Water Only	07-Public Schools	-	-	-	-	\$ -	\$ -
02-Water Only	08-Senior Citizens Discount	-	-	-	-	\$ -	\$ -
02-Water Only	09-Hand Bill	256	21	291	62,265,300	\$ 1,878,323.85	\$ -
02-Water Only	10-City Leased	97	8	108	191,900	\$ 7,817.38	\$ 6,170.49
02-Water Only	11-Hospital/University	-	-	-	-	\$ -	\$ -
02-Water Only	13-Fire Service	66,803	5,567	75,234	18,400	\$ 832.05	\$ 514.93
02-Water Only	14-City Government	1,017	85	1,168	683,100	\$ 27,510.23	\$ 21,965.76
02-Water Only	14-Non-City Government	27	2	30	-	\$ -	\$ -
03-Stormwater Only	01-General Service-Residential	192,838	16,070	195,470	9,095,300	\$ 397,239.22	\$ 295,905.80
03-Stormwater Only	02-General Service-Commercial	365,143	30,429	369,424	137,700	\$ 5,975.62	\$ 4,501.52
03-Stormwater Only	03-General Service-Industrial	253	21	255	38,200	\$ 1,504.75	\$ 1,213.26
03-Stormwater Only	04-General Service-Public Utilities	12,630	1,053	12,763	-	\$ -	\$ -
03-Stormwater Only	05-P.H.A	24,856	2,071	25,189	12,200	\$ 526.20	\$ 372.19
03-Stormwater Only	06-Charity/Non-Public Schools	1,075	90	1,080	4,300	\$ 146.53	\$ 103.86
03-Stormwater Only	07-Public Schools	831	69	841	-	\$ -	\$ -
03-Stormwater Only	08-Senior Citizens Discount	871	73	889	307,700	\$ 9,776.90	\$ 7,421.84
03-Stormwater Only	09-Hand Bill	107	9	108	-	\$ -	\$ -
03-Stormwater Only	10-City Leased	7	1	7	-	\$ -	\$ -
03-Stormwater Only	11-Hospital/University	440	37	460	-	\$ -	\$ -
03-Stormwater Only	12-Scheduled	-	-	-	-	\$ -	\$ -
03-Stormwater Only	13-Fire Service	161	13	181	-	\$ -	\$ -
03-Stormwater Only	14-City Government	5,280	440	5,373	421,600	\$ 16,688.21	\$ 13,573.47
03-Stormwater Only	14-Non-City Government	2,110	176	2,138	-	\$ -	\$ -



## FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY21 # of Accounts Months</u>	<u>FY21 # of Accounts</u>	<u>FY21 # of Original Bills Issued</u>	<u>FY21 Billed Water Usage</u>	<u>FY21 Water Usage Charges</u>	<u>FY21 Sewer Usage Charges</u>
04-Sewer and Stormwater	01-General Service-Residential	328	27	344	2,500	\$ 113.43	\$ 4,140.17
04-Sewer and Stormwater	02-General Service-Commercial	-	-	-	-	\$ -	\$ -
04-Sewer and Stormwater	03-General Service-Industrial	-	-	-	-	\$ -	\$ -
04-Sewer and Stormwater	04-General Service-Public Utilities	8	1	8	-	\$ -	21,916.51
04-Sewer and Stormwater	06-Charity/Non-Public Schools	12	1	12	-	\$ -	3,755.48
04-Sewer and Stormwater	09-Hand Bill	163	14	172	-	\$ -	1,747,466.75
04-Sewer and Stormwater	10-City Leased	-	-	-	-	\$ -	\$ -
04-Sewer and Stormwater	11-Hospital/University	-	-	-	-	\$ -	\$ -
05-Water and Stormwater	01-General Service-Residential	17,115	1,426	17,212	12,314,800	\$ 550,565.56	\$ 2,584.85
05-Water and Stormwater	02-General Service-Commercial	1,913	159	1,947	16,531,300	\$ 609,178.04	\$ 9,147.51
05-Water and Stormwater	03-General Service-Industrial	201	17	204	4,823,900	\$ 162,011.98	\$ -
05-Water and Stormwater	04-General Service-Public Utilities	12	1	12	7,400	\$ 320.24	\$ -
05-Water and Stormwater	05-P.H.A	11	1	11	41,400	\$ 1,603.83	\$ -
05-Water and Stormwater	06-Charity/Non-Public Schools	430	36	434	734,800	\$ 23,258.67	\$ -
05-Water and Stormwater	07-Public Schools	-	-	-	-	\$ -	\$ -
05-Water and Stormwater	08-Senior Citizens Discount	239	20	240	103,300	\$ 3,044.79	\$ -
05-Water and Stormwater	09-Hand Bill	36	3	36	35,630,700	\$ 1,105,237.18	\$ -
05-Water and Stormwater	10-City Leased	216	18	227	1,848,800	\$ 73,226.94	\$ -
05-Water and Stormwater	11-Hospital/University	36	3	36	22,600	\$ 740.54	\$ -
05-Water and Stormwater	13-Fire Service	1,988	166	2,161	15,400	\$ 669.33	\$ 494.86
05-Water and Stormwater	14-City Government	326	27	327	1,351,500	\$ 53,593.74	\$ -
06-Sewer Only	01-General Service-Residential	38	3	38	25,400	\$ 1,131.05	\$ 816.61
06-Sewer Only	02-General Service-Commercial	68	6	68	130,500	\$ 5,413.32	\$ 4,125.66
06-Sewer Only	03-General Service-Industrial	12	1	12	-	\$ -	7,455.22
06-Sewer Only	04-General Service-Public Utilities	11	1	11	27,700	\$ 1,176.04	\$ 893.43
06-Sewer Only	06-Charity/Non-Public Schools	-	-	-	-	\$ -	\$ -
06-Sewer Only	07-Public Schools	12	1	12	38,500	\$ 1,178.55	\$ 935.02
06-Sewer Only	09-Hand Bill	23	2	25	-	\$ -	321.35
06-Sewer Only	13-Fire Service	11	1	12	-	\$ -	\$ -
06-Sewer Only	14-City Government	36	3	36	2,340,700	\$ 80,155.78	\$ 75,163.10
06-Sewer Only	14-Non-City Government	-	-	-	-	\$ -	\$ -
07-Water and Sewer	01-General Service-Residential	76	6	77	113,300	\$ 4,722.39	\$ 3,634.53
07-Water and Sewer	02-General Service-Commercial	144	12	145	2,161,200	\$ 83,239.42	\$ 69,448.18
07-Water and Sewer	03-General Service-Industrial	-	-	-	-	\$ -	\$ -
07-Water and Sewer	04-General Service-Public Utilities	12	1	12	65,800	\$ 2,727.56	\$ 2,115.85
07-Water and Sewer	05-P.H.A	12	1	12	616,500	\$ 23,083.94	\$ 18,823.23
07-Water and Sewer	06-Charity/Non-Public Schools	12	1	12	-	\$ -	\$ -
07-Water and Sewer	07-Public Schools	8	1	8	92,600	\$ 2,792.47	\$ 2,248.64
07-Water and Sewer	08-Senior Citizens Discount	-	-	-	-	\$ -	\$ -
07-Water and Sewer	09-Hand Bill	-	-	-	-	\$ -	\$ -
07-Water and Sewer	10-City Leased	-	-	-	-	\$ -	\$ -
07-Water and Sewer	11-Hospital/University	-	-	-	-	\$ -	\$ -
07-Water and Sewer	13-Fire Service	1	-	1	8,300	\$ 376.63	\$ 266.00
07-Water and Sewer	14-City Government	49	4	49	26,100	\$ 1,181.36	\$ 838.64
07-Water and Sewer	14-Non-City Government	12	1	12	-	\$ -	\$ -
08-RFSS, All Services	01-General Service-Residential	63,096	5,258	63,259	28,635,300	\$ 1,275,835.16	\$ 920,837.09
08-RFSS, All Services	02-General Service-Commercial	2,049	171	2,050	1,589,400	\$ 68,485.12	\$ 51,073.86
08-RFSS, All Services	03-General Service-Industrial	12	1	12	-	\$ -	\$ -
08-RFSS, All Services	04-General Service-Public Utilities	17	1	17	34,000	\$ 1,436.90	\$ 1,096.80
08-RFSS, All Services	05-P.H.A	2,905	242	2,905	2,842,800	\$ 118,579.82	\$ 86,854.65
08-RFSS, All Services	06-Charity/Non-Public Schools	2	-	2	100	\$ 3.41	\$ 2.40
08-RFSS, All Services	08-Senior Citizens Discount	33	3	33	13,300	\$ 287.04	\$ 320.59
08-RFSS, All Services	10-City Leased	7	1	7	80,900	\$ 3,239.77	\$ 2,616.34
08-RFSS, All Services	12-Scheduled	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	13-Fire Service	-	-	-	-	\$ -	\$ -
08-RFSS, All Services	14-City Government	16	1	16	15,200	\$ 690.35	\$ 488.84
08-RFSS, All Services	14-Non-City Government	1	-	1	-	\$ -	\$ -

FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY21 # of Accounts Months</u>	<u>FY21 # of Accounts</u>	<u>FY21 # of Original Bills Issued</u>	<u>FY21 Billed Water Usage</u>	<u>FY21 Water Usage Charges</u>	<u>FY21 Sewer Usage Charges</u>
09-RFSS, No Sewer	01-General Service-Residential	113	9	113	30,900	\$ 1,402.93	\$ 992.47
09-RFSS, No Sewer	02-General Service-Commercial	-	-	-	-	\$ -	\$ -
09-RFSS, No Sewer	04-General Service-Public Utilities	-	-	-	-	\$ -	\$ -

FY 2021 Service Usage and Billing Report - Usage

<u>Usage Type</u>	<u>Customer Type</u>	<u>FY21 # of Accounts Months</u>	<u>FY21 # of Accounts</u>	<u>FY21 # of Original Bills Issued</u>	<u>FY21 Billed Water Usage</u>	<u>FY21 Water Usage Charges</u>	<u>FY21 Sewer Usage Charges</u>
09-RFSS, No Sewer	05-P.H.A	-	-	-	-	\$ -	\$ -
09-RFSS, No Sewer	06-Charity/Non-Public Schools	3	-	3	64,900	\$ 2,037.79	\$ -
10-Unknown	01-General Service-Residential	11,465	955	11,946	607,600	\$ 17,035.27	\$ 11,834.17
10-Unknown	02-General Service-Commercial	7,027	586	7,373	913,700	\$ 34,686.99	\$ 28,934.83
10-Unknown	03-General Service-Industrial	350	29	362	825,900	-\$ 20,978.35	-\$ 18,047.09
10-Unknown	04-General Service-Public Utilities	111	9	122	-	\$ -	\$ -
10-Unknown	05-P.H.A	348	29	384	25,100	\$ 1,082.81	\$ 766.81
10-Unknown	06-Charity/Non-Public Schools	3	-	3	-	\$ -	\$ -
10-Unknown	07-Public Schools	4	-	6	8,500	\$ 261.16	\$ 204.20
10-Unknown	08-Senior Citizens Discount	3	-	4	100	\$ 3.41	\$ 2.40
10-Unknown	09-Hand Bill	457	38	460	-	\$ -	\$ -
10-Unknown	10-City Leased	11	1	12	-	\$ -	\$ -
10-Unknown	11-Hospital/University	1	-	2	-	\$ -	\$ -
10-Unknown	12-Scheduled	-	-	-	-	\$ -	\$ -
10-Unknown	13-Fire Service	21,074	1,756	23,027	80,100	\$ 3,392.27	\$ 1,096.17
10-Unknown	14-City Government	169	14	181	1,478,600	\$ 57,128.81	\$ 27,925.08
10-Unknown	14-Non-City Government	27	2	27	-	\$ -	\$ -

FY 2021 Water Usage and Billing

Description	0 CCF Count	0 CCF Usage (CF)	0 CCF Charges	.01 to 20 CCF Count	.01 to 20 CCF Usage (CF)	.01 to 20 CCF Charges	20.01-1,000 CCF Count	20.01-1,000 CCF Usage (CF)	20.01-1,000 CCF Charges	1,000.01-20,000 CCF Count	1,000.01-20,000 CCF Usage (CF)	1,000.01-20,000 CCF Charges	20,000+ CCF Count	20,000+ CCF Usage (CF)	20,000+ CCF Charges
General Service	775,784	-	\$ -	4,750,414	2,558,619,800	\$ 116,148,785.81	176,794	1,431,435,200	\$ 56,741,780.09	2,766	584,314,700	\$ 20,412,483.12	4	17,037,700	\$ 526,632.93
Residential	673,059	-	\$ -	4,473,519	2,376,692,400	\$ 107,912,633.86	106,904	633,769,500	\$ 26,184,952.86	438	73,884,700	\$ 2,639,885.05	-	-	\$ -
Commercial	99,305	-	\$ -	269,601	177,532,600	\$ 8,038,060.02	66,055	752,168,900	\$ 28,831,922.88	2,174	465,750,600	\$ 16,303,646.52	4	17,037,700	\$ 526,632.93
Industrial	2,854	-	\$ -	6,134	3,816,700	\$ 171,841.97	3,412	40,513,300	\$ 1,524,088.91	131	41,325,300	\$ 1,345,393.69	-	-	\$ -
Public Utilities	566	-	\$ -	1,160	578,100	\$ 26,250.32	423	4,983,500	\$ 200,815.36	23	3,354,100	\$ 123,557.90	-	-	\$ -
PHA	8,242	-	\$ -	53,406	38,635,500	\$ 1,666,789.40	7,421	62,349,200	\$ 2,409,737.01	179	46,924,300	\$ 1,514,603.41	-	-	\$ -
Charities and Schools	4,201	-	\$ -	11,958	8,288,700	\$ 282,319.28	6,267	83,543,000	\$ 2,515,772.95	139	22,923,200	\$ 628,100.46	-	-	\$ -
Senior Citizens	26,496	-	\$ -	240,230	102,609,400	\$ 3,518,901.03	4,745	24,519,300	\$ 769,337.47	-	-	\$ -	-	-	\$ -
Hand Bill	171	-	\$ -	360	283,300	\$ 12,024.15	1,390	56,672,000	\$ 2,009,414.33	599	238,618,900	\$ 6,253,400.40	46	209,260,800	\$ 6,255,248.06
City Leased	220	-	\$ -	281	177,200	\$ 8,047.08	360	4,819,200	\$ 193,596.93	5	637,300	\$ 24,666.09	-	-	\$ -
Hospital/University	214	-	\$ -	434	240,700	\$ 8,197.79	803	22,914,600	\$ 680,680.27	256	75,235,500	\$ 1,919,026.98	1	6,152,500	\$ 146,637.90
Scheduled	16	-	\$ -	48	38,000	\$ 1,725.86	-	-	\$ -	-	-	\$ -	-	-	\$ -
Fire Service	1,234	-	\$ -	1,118	699,400	\$ 31,749.74	273	3,687,800	\$ 147,964.68	27	5,508,600	\$ 193,002.01	-	-	\$ -
Non-City Gov (Cust Type Z)	1,970	-	\$ -	60	43,600	\$ 1,980.04	25	828,500	\$ 32,754.57	3	679,700	\$ 24,805.58	-	-	\$ -
City Government	3,411	-	\$ -	3,843	2,434,800	\$ 110,558.87	4,030	54,278,600	\$ 2,178,977.96	336	154,461,300	\$ 5,036,613.19	52	201,765,400	\$ 6,123,070.22
PWD	106	-	\$ -	135	87,900	\$ 3,990.91	284	4,308,900	\$ 172,385.79	131	65,641,400	\$ 2,121,801.83	46	188,928,200	\$ 5,723,378.23
City Government Less PWD	3,305	-	\$ -	3,708	2,346,900	\$ 106,567.96	3,746	49,969,700	\$ 2,006,592.17	205	88,819,900	\$ 2,914,811.36	6	12,837,200	\$ 399,691.99

FY 2021 Payment Patterns

Billing Year	Billing year +1	Billing year +2 and beyond
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Fiscal Year	Type	Billings	Payments (All)	FY2021 (Payments <=12 Months)	FY2022 (Payments 13-24 Months)	FY2023 and beyond (Payments 25 and greater)
FY21	Total*	\$ 667,715,759.77	\$ 562,125,909.93	\$ 561,488,766.47	-	-
FY21	Non-SWO*	\$ 648,387,084.08	\$ 549,294,191.92	\$ 548,666,153.33	-	-
FY21	SWO*	\$ 19,328,675.69	\$ 12,831,718.01	\$ 12,822,613.14	-	-
FY21	Total percent collected**	-	84.19%	84.09%	-	-
FY21	Non-SWO collected**	-	84.72%	84.62%	-	-
FY21	SWO collected**	-	66.39%	66.34%	-	-
FY21	Percent of Remainder Collected	-	-	-	-	-

Fiscal Year	Type	Billings	Payments (All)	FY2020 (Payments <=12 Months)	FY2021 (Payments 13-24 Months)	FY2022 and beyond (Payments 25 and greater)
FY20	Total*	\$ 666,497,144.28	\$ 634,289,505.66	\$ 577,169,661.74	\$ 57,111,522.14	-
FY20	Non-SWO*	\$ 648,054,622.54	\$ 619,402,637.02	\$ 564,037,325.97	\$ 55,357,026.85	-
FY20	SWO*	\$ 18,442,521.74	\$ 14,886,868.64	\$ 13,132,335.77	\$ 1,754,495.29	-
FY20	Total percent collected**	-	95.17%	86.60%	8.57%	-
FY20	Non-SWO collected**	-	95.58%	87.04%	8.54%	-
FY20	SWO collected**	-	80.72%	71.21%	9.51%	-
FY20	Percent of Remainder Collected	-	-	-	63.93%	-

Fiscal Year	Type	Billings	Payments (All)	FY2019 (Payments <=12 Months)	FY2020 (Payments 13-24 Months)	FY2021 and beyond (Payments 25 and greater)
FY19	Total*	\$ 660,018,535.94	\$ 640,846,372.54	\$ 577,782,756.52	\$ 58,918,959.06	\$ 4,143,373.44
FY19	Non-SWO*	\$ 641,699,412.49	\$ 626,053,616.28	\$ 564,984,614.10	\$ 57,305,889.26	\$ 3,761,829.40
FY19	SWO*	\$ 18,319,123.45	\$ 14,792,756.26	\$ 12,798,142.42	\$ 1,613,069.80	\$ 381,544.04
FY19	Total percent collected**	-	97.10%	87.54%	8.93%	0.65%
FY19	Non-SWO collected**	-	97.56%	88.05%	8.93%	0.60%
FY19	SWO collected**	-	80.75%	69.86%	8.81%	2.58%
FY19	Percent of Remainder Collected	-	-	-	71.65%	17.77%

Fiscal Year	Type	Billings	Payments (All)	FY2018 (Payments <=12 Months)	FY2019 (Payments 13-24 Months)	FY2020 and beyond (Payments 25 and greater)
FY18	Total*	\$ 657,621,636.07	\$ 637,760,544.03	\$ 574,649,828.19	\$ 55,097,456.29	\$ 8,013,259.54
FY18	Non-SWO*	\$ 639,002,038.61	\$ 623,001,849.16	\$ 562,048,307.89	\$ 53,540,338.05	\$ 7,413,203.21
FY18	SWO*	\$ 18,619,597.46	\$ 14,758,694.87	\$ 12,601,520.30	\$ 1,557,118.24	\$ 600,056.33
FY18	Total percent collected**	-	96.98%	87.38%	8.38%	1.22%
FY18	Non-SWO collected**	-	97.50%	87.96%	8.38%	1.16%
FY18	SWO collected**	-	79.26%	67.68%	8.36%	3.22%
FY18	Percent of Remainder Collected	-	-	-	66.41%	28.75%

Fiscal Year	Type	Billings	Payments (All)	FY2017 (Payments <=12 Months)	FY2018 (Payments 13-24 Months)	FY2019 and beyond (Payments 25 and greater)
FY17	Total*	\$ 634,226,874.61	\$ 617,609,264.34	\$ 555,462,368.70	\$ 51,769,903.88	\$ 10,376,991.76
FY17	Non-SWO*	\$ 615,356,738.61	\$ 602,528,360.26	\$ 542,833,449.89	\$ 50,267,345.80	\$ 9,427,564.57
FY17	SWO*	\$ 18,870,136.00	\$ 15,080,904.08	\$ 12,628,918.81	\$ 1,502,558.08	\$ 949,427.19
FY17	Total percent collected**	-	97.38%	87.58%	8.16%	1.64%
FY17	Non-SWO collected**	-	97.92%	88.21%	8.17%	1.53%
FY17	SWO collected**	-	79.92%	66.93%	7.96%	5.03%
FY17	Percent of Remainder Collected	-	-	-	65.73%	38.44%

Fiscal Year	Type	Billings	Payments (All)	FY2016 (Payments <=12 Months)	FY2017 (Payments 13-24 Months)	FY2018 and beyond (Payments 25 and greater)
FY16	Total*	\$ 608,671,230.48	\$ 592,286,878.05	\$ 529,560,455.92	\$ 50,570,507.92	\$ 12,155,914.21
FY16	Non-SWO*	\$ 589,634,465.46	\$ 577,136,360.63	\$ 517,253,071.05	\$ 49,018,403.43	\$ 10,864,886.15
FY16	SWO*	\$ 19,036,765.02	\$ 15,150,517.42	\$ 12,307,384.87	\$ 1,552,104.49	\$ 1,291,028.06
FY16	Total percent collected**	-	97.31%	87.00%	8.31%	2.00%
FY16	Non-SWO collected**	-	97.88%	87.72%	8.31%	1.84%
FY16	SWO collected**	-	79.59%	64.65%	8.15%	6.78%
FY16	Percent of Remainder Collected	-	-	-	63.92%	42.59%

\*includes City, less PWD, \*\*assumes City 100%, excludes PWD

FY 2021 Payment Patterns

Billing Year	Billing year +1	Billing year +2 and beyond
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Fiscal Year	Type	Billings	Payments (All)	FY2015 (Payments <=12 Months)	FY2016 (Payments 13-24 Months)	FY2017 and beyond (Payments 25 and greater)
FY15	Total*	\$ 612,795,610.23	\$ 593,990,613.94	\$ 528,516,639.02	\$ 50,731,697.60	\$ 14,742,277.32
FY15	Non-SWO*	\$ 592,696,123.83	\$ 578,747,048.42	\$ 516,534,228.42	\$ 49,087,149.18	\$ 13,125,670.82
FY15	SWO*	\$ 20,099,486.40	\$ 15,243,565.52	\$ 11,982,410.60	\$ 1,644,548.42	\$ 1,616,606.50
FY15	Total percent collected**	-	96.93%	86.25%	8.28%	2.41%
FY15	Non-SWO collected**	-	97.65%	87.15%	8.28%	2.21%
FY15	SWO collected**	-	75.84%	59.62%	8.18%	8.04%
FY15	Percent of Remainder Collected	-	-	-	60.19%	43.94%

Fiscal Year	Type	Billings	Payments (All)	FY2014 (Payments <=12 Months)	FY2015 (Payments 13-24 Months)	FY2016 and beyond (Payments 25)
FY14	Total*	\$ 585,544,621.99	\$ 565,585,503.65	\$ 499,489,736.40	\$ 50,014,026.02	\$ 16,081,048.53
FY14	Non-SWO*	\$ 565,773,118.61	\$ 550,799,873.40	\$ 487,784,189.25	\$ 48,830,141.31	\$ 14,184,850.14
FY14	SWO*	\$ 19,771,503.38	\$ 14,785,630.25	\$ 11,705,547.15	\$ 1,183,884.71	\$ 1,896,198.39
FY14	Total percent collected**	-	96.59%	85.30%	8.54%	2.75%
FY14	Non-SWO collected**	-	97.35%	86.22%	8.63%	2.51%
FY14	SWO collected**	-	74.78%	59.20%	5.99%	9.59%
FY14	Percent of Remainder Collected	-	-	-	58.12%	44.62%

Fiscal Year	Type	Billings	Payments (All)	FY2013 (Payments <=12 Months)	FY2014 (Payments 13-24 Months)	FY2015 and beyond (Payments 25)
FY13	Total*	\$ 547,047,803.21	\$ 529,789,882.23	\$ 460,398,067.95	\$ 53,295,680.72	\$ 16,096,133.56
FY13	Non-SWO*	\$ 530,576,016.40	\$ 516,940,909.67	\$ 450,310,293.93	\$ 52,052,081.05	\$ 14,578,534.69
FY13	SWO*	\$ 16,471,786.81	\$ 12,848,972.56	\$ 10,087,774.02	\$ 1,243,599.67	\$ 1,517,598.87
FY13	Total percent collected**	-	96.85%	84.16%	9.74%	2.94%
FY13	Non-SWO collected**	-	97.43%	84.87%	9.81%	2.75%
FY13	SWO collected**	-	78.01%	61.24%	7.55%	9.21%
FY13	Percent of Remainder Collected	-	-	-	61.51%	48.26%

Fiscal Year	Type	Billings	Payments (All)	FY2012 (Payments <=12 Months)	FY2013 (Payments 13-24 Months)	FY2014 (Payments 25 Months and beyond)
FY12	Total*	\$ 531,184,832.19	\$ 514,158,712.46	\$ 447,336,597.77	\$ 51,334,926.92	\$ 15,487,187.76
FY12	Non-SWO*	\$ 519,968,227.54	\$ 505,322,453.29	\$ 440,611,855.47	\$ 50,296,379.05	\$ 14,414,218.76
FY12	SWO*	\$ 11,216,604.65	\$ 8,836,259.17	\$ 6,724,742.30	\$ 1,038,547.87	\$ 1,072,969.00
FY12	Total percent collected**	-	96.79%	84.21%	9.66%	2.92%
FY12	Non-SWO collected**	-	97.18%	84.74%	9.67%	2.77%
FY12	SWO collected**	-	78.78%	59.95%	9.26%	9.57%
FY12	Percent of Remainder Collected	-	-	-	61.22%	47.63%

\*includes City, less PWD, \*\*assumes City 100%, excludes PWD

	Billing Year	Billing year +1	Billing year +2 and beyond
FY 12 through FY 21 Average Collection: Total	86.01%	8.73%	2.06%
FY 12 through FY 21 Average Collection: Non SWO	86.66%	8.75%	1.92%
FY 12 through FY 21 Average Collection: SWO	64.67%	8.20%	6.75%





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

**Special Rate Filing: Fiscal Year 2023**

**Philadelphia Water Department**

**Black & Veatch Management Consulting, LLC**

**Schedule BV-5**

**Dated: February 2022**

## **SCHEDULE BV-5: INFLATION AND COST ESCALATION PRESSURES**

### **Background**

The impacts of the COVID-19 pandemic on the global economy have been unprecedented. More than eighteen months since the first mandated shelter-in-place orders, the US is now struggling to deal with steep inflationary increases in the face of high demand and low supply. Disruptions to the supply chain and distribution logistics exacerbate the situation, while pent-up consumer demand does not appear to be declining. As noted in the Wall Street Journal in its December 10, 2021 article, inflation has “reached a nearly four-decade high.”<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, and material and supply cost increases.

Considering this period of high inflation and its potential impacts on the Philadelphia Water Department's (PWD or Water Department) financial outlook, this white paper describes the approach used by Black & Veatch to estimate price changes due to inflation in the context of updated FY 2022 to FY 2027 financial projections as presented in Schedule BV-4. Outside of the updated financial outlook, the various price and cost escalation factors described herein, highlight ongoing cost pressures on the Water Department's 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 and used in analyzing and projecting cost and expense for public utilities. To support the Water Department in developing its financial plan, Black & Veatch Management Consulting, LLC (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 that provide insight into the effects of inflation in the communities they serve.

The United States Bureau of Labor Statistics (BLS) publishes monthly data on both Consumer and Producer prices. The Consumer Price Index (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 prices indices that 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 source of data specific to the utility industry. Black & Veatch uses this data to closely evaluate the price evolution of construction costs affecting public utilities.

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<sup>1</sup> “U.S. Inflation Hit a 39-Year High in November,” Wall Street Journal, December 10, 2021.

### Operations and Maintenance Cost Indices

Black & Veatch uses specific indices to aid in developing projections of future expenses. Specific expense elements are affected differently by inflationary pressures, 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 (CPI)
  - All Urban Consumers Philadelphia Area
  - Electricity Philadelphia Area
  - Gas Philadelphia Area
- Producer Price Index (PPI)
  - Materials for Construction
  - Construction Machinery & Equipment
  - Industry Chemicals

### Capital Investment Cost Indices

Black & Veatch uses industry-specific price indices to project changes in Capital Cost. Due to the long lead times between budgeting, design, and construction of large utility projects, changes in the pricing of capital goods can vary from budget significantly. Specific cost elements are affected differently by inflationary pressures, and using specific criteria provides a more accurate way to evaluate costs incurred, replacement values, 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 Transmission Plant - Steel Mains
- Handy-Whitman Index Cost of Construction Transmission Plant - Mains
- McGraw-Hill (ENR) Construction Cost Index

### Economic and Inflationary Trends

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, while the economy registered 128 months of continued economic expansion, ending in March 2020. During this economic expansion, inflation remained below the Federal Reserve Bank target inflation rate of about 2% increase per year in the Personal Consumer Expenditures (PCE) index. This economic environment allowed for unprecedented low unemployment numbers, reaching a historic low of 3.5% in January and February 2020<sup>2</sup>.

However, due to COVID-19 and actions to contain the spread, the United States Gross Domestic Product experienced two months of negative economic growth in March and April 2020. Unemployment reached

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<sup>2</sup> Bureau of Labor and Statistics, Series ID: LNS 14000000 Seasonally Adjusted, [www.bls.gov](http://www.bls.gov)

14.7% in April 2020; the highest rate observed since data collection began in 1948. The unemployment rate has since recovered to 4.2% as of November 2021. However, economists point to an overall economy with approximately 3.9 million fewer workers<sup>3</sup>. While the causes for this phenomenon are still unclear, this labor shortage is expected to result in price pressure on wages.

The effects of the COVID-19 pandemic and other geopolitical situations also affect the price of Oil and Gas, which tends to be transferred to other products in the value chain. This situation has disrupted what had become a fairly predictable, multi-year trend and appears to be affecting different sectors of the economy in different ways.

To say that it is difficult to predict where inflation is heading now is an understatement. Federal Reserve Chairman, Jerome Powell, told the Senate Banking Committee on November 30, 2021, that he “thinks that the risk of higher inflation has increased.”<sup>4</sup> This is a change from the popular belief in June 2021 that inflation would run its course by the end of that year. Although economists predicted the impacts of wage and labor pressures, they underestimated the magnitude of supply-chain disruptions. Today, both the Federal Reserve and most economists agree that the nation’s economy is tied to recovery from COVID-19. Mr. Powell noted that the “recent rise in COVID-19 cases and the emergence of the omicron variant pose downside risks...and increased uncertainty for inflation.”<sup>5</sup>

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 for Fiscal Years 2015 to 2021. Specific to the Philadelphia-Camden-Wilmington area, the CPI (All Urban Consumers Philadelphia Area) shows increases in pricing that tended to decline between FY 2015 and FY 2018 and increase between FY 2019 and FY 2021.

Producer prices for construction materials (PPI Materials for Construction) show a slight but consistent increase from FY 2015 to FY 2020 and a more significant increase in FY 2021. Construction machinery and equipment (PPI Construction Machinery & Equipment) show a slight but steady trend during the same period, indicating that the pricing of materials is being 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 an increase in FY 2021. This is an indication of changes in pricing trends that requires further attention.

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<sup>3</sup> News Release, Department of Labor Statistics, U.S. Department of Labor December 3, 2021

<sup>4</sup> “Fed’s Powell sees growing risk of “persistent” higher inflation,” [Fed’s Powell sees growing risk of ‘persistent’ higher inflation - Roll Call](#).

<sup>5</sup> Ibid

**Table 1. 5-Year Average Annual Change in O&M Related Cost Indices**

Fiscal Year	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%

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 plant and equipment. Black & Veatch uses industry-specific indices to monitor the evolution of pricing in the construction industry, as cities require to evaluate investment priorities, prior investments and insure existing plant and equipment. 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
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%

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 2021, 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 to the construction industry. Notably, prices in most categories have increased consistently,

reflecting higher average values for FY 2021 in Treatment Plant - Equipment, Transmission Plant - Steel Mains, and Distribution Plant - Mains. The overall McGraw-Hill (ENR) Construction Cost Index shows consistent price increases at about 3% during the period. It does not seem to reflect changes in pricing above the range observed in the period.

### Recent Inflation Change

The previous section analyzed annual, 5-year average pricing trends ending at the close of the Fiscal Year in June 2021. This analysis method intends to avoid transitory pricing variations that may affect forecasting accuracy. However, a more pronounced price escalation has become evident during the second half of 2021. The United States Consumer Price Index All Urban Consumers (CPI-U), on a seasonally adjusted basis, rose 6.2% for the 12 months ending October 2021.

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 current 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 that inflation rates will not decrease to target levels in the short term. 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 assess the immediate pricing trends better.

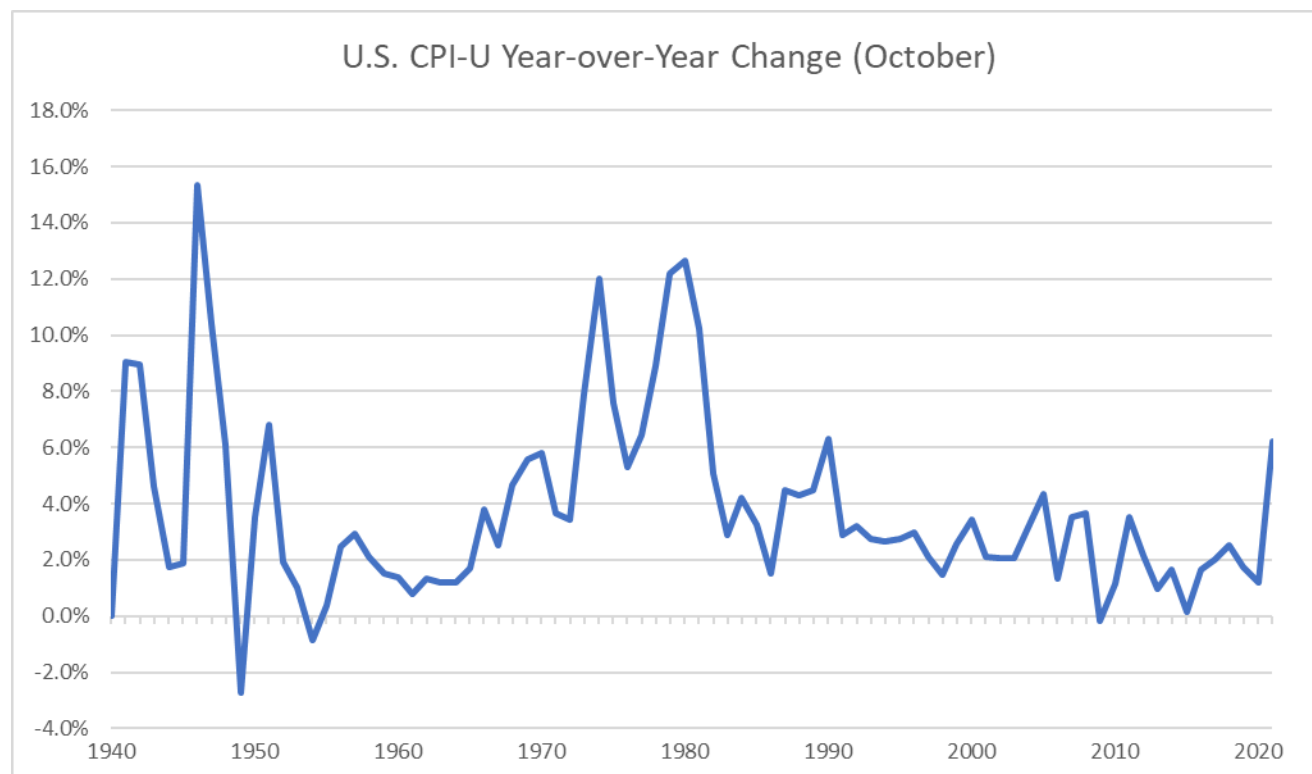


Figure 1 October Year over Year Change in National Consumer Price Index for All Urban Consumers, not seasonally adjusted  
Source: Bureau of Labor Statistics

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	5.64%	3.18%	2.77%
PPI - Commodity data for Final demand	8.84%	4.63%	3.42%
PPI - Materials for Construction	18.71%	11.47%	7.68%
PPI - Construction Machinery & Equipment	8.80%	4.97%	4.04%
PPI - Industrial Chemicals	46.99%	15.18%	5.34%
CPI - Electricity Philadelphia Area	2.86%	1.02%	1.36%
CPI - Gas Philadelphia Area	7.33%	-0.36%	2.00%

1) Period Ending October 2021

Table 3 shows how the average annual pricing has increased in more recent years for the majority of indices. The CPI-U Philadelphia Area registered a 5.6% increase for the preceding 12-month period, while the PPI - Commodity data for Final demand rose 8.8% for the same period.

Significant price increases in Materials for Construction and Industrial Chemicals are evident, as well as an increase in the cost of Gas, noticing the figure is before an expected winter surge in demand.

Data for specific Indices of Capital Cost is not collected and published as often as broader indices. However, data through June of 2021 already shows some signs of increased cost.

**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	0.76%	4.33%	6.41%
H.W. Index Cost of Construction Treatment Plant - Equipment	6.29%	6.00%	5.22%
H.W. Index Cost of Construction Transmission Plant - Steel Mains	15.90%	10.70%	7.70%
H.W. Index Cost of Construction Distribution Plant - Mains	7.18%	5.02%	3.48%
H.W. Index Cost of Construction Distribution Plant - Meters	5.14%	4.19%	3.77%
McGraw-Hill (ENR) Construction Cost Index	6.98%	4.10%	3.25%

H.W. = Handy-Whitman

1) Period Ending in July 2021

Table 4 shows changes in prices affecting Capital Costs for utilities; using the latest available data. Except for Pump Plant - Equipment, all other indicators show more significant increases as the term analyzed is shorter.

Furthermore, while the figures shown here are for July, it is important to note that the McGraw-Hill (ENR) Construction Cost Index for October has been released, showing an 8.02% 12-month average annual change, a 4.90% 24-month average annual change, and a 3.68% 36-month average annual change in prices, indicating that pricing continued to rise through October at an increased rate.



### 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 appropriately price goods and services. Broader indices are also important to analyze, understand the impact on the utility user base, and guide future policy decisions.

Increases in the previous 12-month period are larger than the 24-month average annual increase. The 24-month average annual increase is larger than the 36-month average annual increase, showing that the rate of change accelerates over the three years. Presumably, this is due to the economic effects of the COVID-19 pandemic starting sometime in 2020 rather than at the beginning of the 36 months. It is important to notice that some of the effects of the pandemic did not become larger issues until later in the cycle. Problems in global logistics became an issue in mid-2021. Labor shortages were expected to subside as more schools returned to in-person attendance, and the fear of getting COVID declined. However, the “great resignation,” a sudden increase in the Quits Rate<sup>6</sup>, did not become apparent until sometime in 2021, and it is still unclear how its impact on inflation may evolve.

Table 5 shows the 12-month, 24-month, and 36-month average annual changes in prices as tracked by several of the most-commonly used Producer Price Indices published by the BLS (Appendix E). Notably, all these indices show increases 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	16.35%	7.07%	3.99%
PPI - Finished Consumer Goods	15.32%	6.27%	3.85%
PPI - Commodities Finished Energy Goods	38.96%	11.06%	4.45%
PPI - All Commodities - US	22.28%	9.99%	5.50%
PPI - Construction Machinery	8.30%	4.82%	3.93%
PPI - Capital Equipment - US	5.71%	3.36%	2.75%

1) Period Ending in October 2021

### Inflation Projections

The United States Federal Reserve had initially remarked that the observed increase in inflation could be “transitory.” However, the Federal Reserve is no longer using this term to characterize the changes in prices. On November 8, 2021, The Federal Reserve Bank Vice Chair, Richard H. Clarida,<sup>7</sup> indicated that they expected inflation, as measured by the PCE, for 2021 to reach at least 3.7% and could be as high as 4% before reverting to 2.3% in 2022, 2.2% in 2023 and 2.1% by 2024.

<sup>6</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>7</sup> At the Symposium on Monetary Policy Frameworks, The Brookings Institution, Washington, D.C. (via webcast)

It is expected that at some point in the future, as vaccination progresses and generalized immunity improves, the virus will become endemic and will not pose a significant threat to the health of individuals or the economy. However, other geopolitical situations make supply chain disruptions and energy pricing less predictable and thus economic projections more difficult.

### Local Economic Forecast

The Federal Reserve Bank of Philadelphia conducts a Survey of Professional Forecasters to gather opinions primarily about economic growth, unemployment, and inflation. The most recent release of this report referenced in preparing this document was on November 15, 2021. Table 7 below captures the Median Forecast for Inflation for 2021-2023 from the report described above.

**Table 6. Median Short-Run and Long-Run Projections for Inflation<sup>8</sup>**

Year	Headline CPI Annual Average
2021	5.80%
2022	2.70%
2023	2.40%

Inflation projections provided by this survey provide generalized guidance and may not provide specific guidance regarding the specific sectors analyzed here. It appears as if the main factors of restrictions in reaction to COVID-19, energy prices, and labor shortages will continue to drive higher price changes. According to this survey of forecasters, the impact will be felt with decreasing impact in 2022 and 2023.

### Conclusion

Inflation and overall cost escalation pressures present both immediate and long-term risks to the Water Department's operating and overall capital project expenses. The Water Department's updated financial outlook for FY 2022 to FY 2027, presented in Schedule BV-4, highlights the need for the full amount of the FY 2023 base rate revenue increase. Otherwise, available financial reserves may be further depleted and/or 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.

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<sup>8</sup> Survey of Professional Forecasters, Federal Reserve Bank of Philadelphia, November 15, 2021

Appendix A  
O&M Cost Indices by Fiscal Year

CPI					PPI					CPI					CPI	
All Urban Consumers			PPI		PPI		Construction		PPI		CPI		CPI			
Fiscal Year	Philadelphia Area		Commodity		Materials for		Machinery & Equipment		Industrial Chemicals		Philadelphia Area		Philadelphia Area			
	Raw		Raw		Raw		Raw		Raw		Raw		Raw			
	Number	% Change	Number	% Change	Number	% Change	Number	% Change	Number	% Change	Number	% Change	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%	273.3	8.37%	239.6	1.96%	257.5	9.02%	179.4	-0.22%	166.4	-4.42%		
Avg.	-	1.38%	-	1.82%	-	2.74%	-	2.10%	-	0.45%	-	-1.06%	-	-1.59%		
5 Yr Avg																
2021	-	1.49%	-	1.98%	-	3.69%	-	1.90%	-	2.17%	-	-1.44%	-	2.36%		

## 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
2012	780	10.17%	669	4.21%	711	10.40%	669	5.69%	646	1.73%	9,189.3	2.67%
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%
Avg.	-	7.35%	-	3.69%	-	2.83%	-	3.39%	-	2.53%	-	2.70%
5 Yr Avg												
2021	-	7.72%	-	4.08%	-	3.93%	-	3.40%	-	2.83%	-	2.81%

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-18	253.0	117.6	249.6	228.7	286.3	174.7	169.0
Oct-19	258.0	118.8	250.8	233.7	252.3	178.3	180.6
Oct-20	260.0	119.5	262.5	236.7	227.7	176.9	167.1
Oct-21	274.6	130.1	311.6	257.5	334.7	181.9	179.3
<b>12 Month Annual Change</b>	<b>5.64%</b>	<b>8.84%</b>	<b>18.71%</b>	<b>8.80%</b>	<b>46.99%</b>	<b>2.86%</b>	<b>7.33%</b>
<b>24 Month Annual Change</b>	<b>3.18%</b>	<b>4.63%</b>	<b>11.47%</b>	<b>4.97%</b>	<b>15.18%</b>	<b>1.02%</b>	<b>-0.36%</b>
<b>36-Month Annual Change</b>	<b>2.77%</b>	<b>3.42%</b>	<b>7.68%</b>	<b>4.04%</b>	<b>5.34%</b>	<b>1.36%</b>	<b>2.00%</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 sea:	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  
(July)

Month	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
Jul-18	1,216	812	770	801	750	11,116
Jul-19	1,346	842	785	826	772	11,293
Jul-20	1,454	890	830	850	797	11,439
Jul-21	1,465	946	962	911	838	12,237
<b>12 Month Annual Change</b>	<b>0.76%</b>	<b>6.29%</b>	<b>15.90%</b>	<b>7.18%</b>	<b>5.14%</b>	<b>6.98%</b>
<b>24 Month Annual Change</b>	<b>4.33%</b>	<b>6.00%</b>	<b>10.70%</b>	<b>5.02%</b>	<b>4.19%</b>	<b>4.10%</b>
<b>36-Month Annual Change</b>	<b>6.41%</b>	<b>5.22%</b>	<b>7.70%</b>	<b>4.38%</b>	<b>3.77%</b>	<b>3.25%</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 All Commodities US	PPI Construction Machinery	PPI Capital Equipment - US
	Raw Number	Raw Number	Raw Number	Raw Number	Raw Number	Raw Number
Oct-18	200.4	219.8	180.0	204.6	257.5	175.3
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	225.4	246.2	205.1	240.3	289.1	190.2
<b>12 Month Annual Change</b>	<b>16.35%</b>	<b>15.32%</b>	<b>38.96%</b>	<b>22.28%</b>	<b>8.30%</b>	<b>5.71%</b>
<b>24 Month Annual Change</b>	<b>7.07%</b>	<b>6.27%</b>	<b>11.06%</b>	<b>9.99%</b>	<b>4.82%</b>	<b>3.36%</b>
<b>36-Month Annual Change</b>	<b>3.99%</b>	<b>3.85%</b>	<b>4.45%</b>	<b>5.50%</b>	<b>3.93%</b>	<b>2.75%</b>

Notes:

All producer price indexes are from the Bureau of Labor Statistics. Indexes are not seasonally adjusted.

Index	Series Id	Group	Items	Base Date
PPI - Total Mfg. Industries	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	pcu33312033312	Construction machinery manufacturing	Construction machinery manufacturing	198212
PPI - Capital Equipment	WPUFD41312	Final Demand	Private capital equipment	198200

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

**Special Rate Filing: Fiscal Year 2023**

**Philadelphia Water Department**

**Black & Veatch Management Consulting, LLC**

**Schedule BV-6**

**Dated: February 2022**

# Black & Veatch Team Resumes

# Ann Bui

## Managing Director

Ms. Bui has more than 30 years of experience working with utilities on more than 450 engagements. She has provided financial and business planning services for public and investor-owned utilities of all sizes ranging from those with less than 3,000 service connections to those serving populations over 7 million.

Ms. Bui is a Managing Director and Client Director for Black & Veatch Management Consulting's Advisory and Planning - Water Business Line. In this role, she oversees all rate and financial planning work for water and wastewater clients. She has also provided services to agencies located internationally in the United Arab Emirates, Chile, Hong Kong, and Singapore.

Her recent assignments have focused on water insecurity; addressing affordability and assistance program needs; quantifying the financial impact of deferred asset maintenance; developing innovative approaches for structuring alternative delivery projects using private and public financing instruments and preparing financial feasibility reports supporting more than \$12 billion of revenue bond sales and more than \$3 billion in state revolving fund loans. 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, 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 litigation matters for the City of San Diego, CA, Greater Cincinnati Water Works, 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 (FAMC) Committee and is involved with AWWA's Strategic Practices Committee, AWWA's Rates and Charges Committee, the National Association of Clean Water Agency's (NACWA's) Utility Management Committee, and with the Water Environment Federation (WEF).

Under her six-year tenure as FAMC Vice-Chair and Chair, she was a lead author and editor for AWWA's book ***Financial Management for Water Utilities: Principles of***

### 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

32

### 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

**Finance, Accounting and Management Controls.** Additionally, she has been an author or peer reviewer for 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 presently leading the update for AWWA's M29 – Water Capital Financing.

#### REPRESENTATIVE PROJECT EXPERIENCE

##### **Philadelphia Water Department; Water, Wastewater and Stormwater Cost of Service Studies; Pennsylvania; 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 Philadelphia Water Department (PWD). The 2018 Rate Case incorporated program costs for PWD's long-term control plan, green infrastructure, public-private grants to incentivize stormwater improvements, and restructuring of the City's assistance programs. The 2018 Rate Case also included development of a customer assistance rate rider as well as changes in public fire protection cost recovery.

##### **Washington Suburban Sanitary Commission; Comprehensive Water and Wastewater Rate Study; Laurel, Maryland, United States; 2016-Present**

**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. For the rate study, we performed an analysis of WSSC's current rate structure as well as numerous alternative rate structures and conducted extensive public outreach to a bi-county working group as well as stakeholder groups. Workshops included explanation of the rate-making process, WSSC priorities and goals for rate setting, and discussion of stakeholder issues and concerns. The Black & Veatch team continues to advise WSSC on alternative rate structures as management and the Board consider a new rate structure that better addresses WSSC's goals and objectives.

##### **Sewerage and Water Board of New Orleans; Operations Reports, Comprehensive Financial Planning and Cost of Service Studies and Customer Assistance Program; Louisiana; 2017-Present**

**Project Director.** Ms. Bui serves as the Project Director for Black & Veatch's ongoing engagement for the Sewerage and Water Board of New Orleans. Our work for the Board has been on a continual basis for over 45 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; and the development and implementation of the Board's first comprehensive customer assistance program.

##### **County of San Diego's Department of Public Works | Rate Studies | 2015-Present**

**Project Director.** Ms. Bui serves as the Project Director for Black & Veatch's ongoing engagement with the County of San Diego's Department of Public Works. The engagement with the County has included comprehensive rate studies as well as specialized studies. Recently, we performed a rate study focused on creating a water rate for the Live Oaks area, which the County was taking over from a private water utility. Water service to the area is via groundwater wells and does not meet regulatory standards.



**City of Santa Clara; Water and Wastewater Rate Study; Santa Clara, California; 2017 - Present**

**Project Director.** Ms. Bui serves as the Project Director for Black & Veatch's continuing work for the City of Santa Clara. She worked with the Director of Public Utilities and Management Analyst to update their water and wastewater rates. The City dealt with Covid-19 changes in consumption at the end of fiscal year 2020, therefore the study incorporated changes to the extent possible in the development of their yearly rates. The City performs a cost-of-service study on a yearly basis.

**City of Burbank; Wastewater Rate Study; Burbank, California; 2012-2031 and 2020-Present**

**Project Director.** Ms. Bui leads this wastewater cost of service study. In this role, she is working close with the Assistant City Manager to perform a cost-of-service analysis on the City's wastewater utility. The result will be an updated rate structure for all customer classes. In addition, she will assist the City in reviewing and updating their connection fee for new connections. The analysis will focus on alternative fee structures to better align with Burbank Water and Power.

**City of Phoenix; Water Efficiency Study; Phoenix, Arizona; 2012 and 2020**

**Project Director.** Ms. Bui served as the Project Director for two water efficiency studies with the City. In this role she worked close with Water Service Department staff to perform a cost analysis on the various preventative and reactive maintenance activities for the water utility. The Department handles production and distribution functions for the water system. The intent of the cost analysis was to determine the actual cost that is required by the Department to perform activities such as water main repairs, valves and hydrant maintenance and benchmark these activities to third-party providers.

**City of Menlo Park; Water Rate and System Development Charges Study; Menlo Park, California; 2020-2021**

**Project Director.** Ms. Bui is the Project Director for this water rate study, working with Public Works to develop water rates. The study includes a financial plan, cost of service and rate design. The rate design component incorporates drought charges based on the City's four drought phases. The study is also developing system development charges for new connections to the water system. The study temporarily placed on hold in early 2020 as the City dealt with Covid-19. The City will update the rate study for fiscal year 2021 in late 2020/early 2021.

**Charleston Water Systems; Comprehensive Financial Planning and Cost of Service Studies; South Carolina; 2015-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 2018 and we are currently preparing a new rate study for both utilities. 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.

**Las Campanas Water and Sewer Coop; Water and Sewer Rate Study; Santa Fe, New Mexico; 2019**

**Project Director.** Ms. Bui served as the Project Director for a water and sewer rate study. She worked with staff and Board of Directors to develop a multi-year financial plan. The Coop was in the process of renegotiating contract service terms with its third-party operating partner and therefore sought an interactive rate model that could be used in the negotiations. Ms. Bui directed the effort in the cost of service and rate design for the Coop. In addition, she led in an additional reserve study which provided the Coop a benchmark for setting reserve requirements for both operating and capital.

### **City of Simi Valley; Simi Valley, California; 2019**

**Project Director.** Ms. Bui served as the Project Director for the City's sanitation (sewer) rate study. In this role she is worked closely with City staff and an independent rate consultant who was performing a water rate study. The study included a multi-year financial plan, cost of service analysis, and rate design. The conclusion was a final report that satisfied Proposition 218 requirements. In addition, Ms. Bui led the effort in developing system development charges for the sanitation district.

### **Olivenhain Municipal Water District; Review of Recycled Water Charges; Encinitas, California; 2019**

**Project Director.** Ms. Bui managed a team that conducted a review of Olivenhain Municipal Water District's (OMWD) recycled water charges. OMWD purchased recycled water from Vallecitos Water District (Vallecitos) through an agreement that was established in 2003. Over the years, Vallecitos has expanded recycled water production while OMWD has reduced recycled water demand. As part of the review, Black & Veatch reviewed and validated the cost components included in the charge and made recommendations for future changes to the agreement.

### **City of San Diego; Pure Water Funding Support, California; 2017 - 2018**

**Lead Economist and Project Director.** Provided technical and economic services supporting the City's Water Storage Investment Program application. Led the economic analysis for the monetization of ecosystem, water, emergency resources, and recreational benefits. Monetization efforts included incorporating all hydraulic modeling generated by the team, as well as identifying the avoided cost, least cost, and willingness to pay values for 11 identified benefits supporting a total funding request of \$220 million.

### **American Water Company | Automated Metering Infrastructure Rate Case Support and Water-Budget Rate Setting Expert Witness; California | 2016-2019**

**Project Director.** Ms. Bui served as the Project Director for California American Water's (CAW's) Rate Case petition for an Automated Metering Infrastructure (AMI) program in front of the California Public Utilities Commission (CPUC). CAW retained Black & Veatch to help support the development of an AMI framework and provide expert witness testimony. As part of the framework, we developed cost estimates for different AMI configurations and evaluated both tangible and intangible benefits of AMI. The CPUC is currently reviewing the petition and Black & Veatch is serving as an expert witness. Concurrent with the work, Ms. Bui served as an expert witness for CAW's separate CPUC rate petition regarding its water budget-based rate design for the Monterey service area.

### **City of San Diego | Water and Wastewater Cost of Service Studies; California | 2012-2016**

**Project Director.** Ms. Bui served as the Project Director for the City of San Diego's water and wastewater cost of service studies Black & Veatch prepared a comprehensive look at the City's financial condition and rate structure for the water and wastewater utilities. Faced with significant purchased water increases and required wastewater investments at Point Loma, the City is actively looking for innovative ways to restructure its rates. As part of this multi-year study, Black & Veatch also provided the City with active public outreach services; wholesale contract reviews; and stakeholder negotiations.

## Midwestern & Eastern US - Water, Wastewater, Stormwater, Solid Waste & Gas Utility Enterprise Financial Planning, Rate & Cost-of-Service Studies, System Development Charges, Indirect Cost Allocations, & Business Planning Activities

- City of Dayton, OH
- Greater Cincinnati Water Works, OH
- Metropolitan Sewer District of Hamilton County, OH
- City of Mason, OH
- City of Columbia, OH
- City of Wyoming, MI
- City of Detroit, MI
- Great Lakes Water Authority, MI
- City of Grand Rapids, MI
- City of Holland, MI
- City of Rochester Hills, MI
- Philadelphia Water Department, PA
- Philadelphia Gas Works, PA
- Alleghany County Sanitary Authority, PA
- Sewerage and Water Board of New Orleans, LA
- Baton Rouge, LA
- JEA, FL
- Florida Governmental Utility Authority, FL
- City of North Miami, FL
- Miami-Dade Water and Sewer Department, FL
- City of Surfside, FL
- Puerto Rico Aqueduct and Sewer Authority, PR
- Palmas Del Mar Utilities, PR
- Northern Kentucky Water District, KY
- Louisville Water Company, KY
- Warren County, KY
- Johnson County Wastewater, KS
- Unified Government of Wyandotte County, KS
- WaterOne, KS
- Kansas City Board of Public Utilities, KS
- City of Leavenworth, KS
- City of El Dorado, KS
- City of Topeka, KS
- City of Kansas City, MO
- City of St Louis, Water Division, MO
- Broken Arrow Municipal Authority, OK
- Tulsa Municipal Utility Authority, OK
- City of Jasper, AL
- City of Highland, IL
- City of Aurora, IL
- Thorn Creek Basin Sanitary District, IL
- City of Bloomington Department of Utilities, IN
- New Jersey American Water, NJ
- Suez Water, NY
- City of High Point, NC
- City of Raleigh, NC
- Town of Clayton, NC
- Johnson County, NC
- City of Columbus, SC
- City of Charleston, SC
- Charleston Water System, SC
- Beaufort-Jasper Water and Sewer Authority, SC
- Renewable Water Resources, SC
- Woodruff Roebuck Water District, SC
- Gulf Coast Water Authority, TX
- San Antonio Water System, TX
- City of Arlington, TX
- North Texas Municipal Water Authority, TX
- City of Hudson Oaks, TX
- City of Taylor, TX
- Lower Colorado River Authority, TX
- North Texas Municipal Water District, TX
- Washington Suburban Sanitary Commission, MD
- City of Norfolk, VA

**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**

- City of Glendale, AZ
- City of Phoenix, AZ
- City of Tucson, AZ
- City of Flagstaff, AZ
- City of Scottsdale, AZ
- City of Henderson, NV
- City of Las Vegas, NV
- City of Santa Monica, CA
- Los Angeles Bureau of Sanitation
- City of Long Beach, CA
- City of Orange, CA
- City of Palo Alto, CA
- City of Napa, CA
- City of South Gate, CA
- City of San Diego, CA
- County of San Diego, CA
- Cambria Community Services District, CA
- Marin Municipal Water District, CA
- Helix Water District, CA
- Rancho California Water District, CA
- Indio Water Authority, CA
- City of San Clemente, CA
- City of Soledad, CA
- San Joaquin County, CA
- City of Port Hueneme, CA
- Santa Ynez River Water Conservation District, CA
- Guam Waterworks Authority
- City of Salem, OR
- City of Oxnard, CA
- City of Los Angeles, Stormwater Division
- City of San Juan Capistrano, CA
- City of Downey, CA
- Camrosa Water District, CA
- City of Pico Rivera, CA
- Leucadia Water District, CA
- City of Orange, CA
- City of Yuba City, CA
- City of Antioch, CA
- Encinitas Wastewater Authority, CA
- City of Escondido, CA
- Dublin San Ramon Service District, CA
- Padre Dam Municipal Water District, CA
- Sweetwater Authority, CA
- Western Municipal Water District, CA
- Cucamonga Valley Water District, CA
- City of Patterson, CA
- City of Chino Hills, CA
- Riverside Public Utilities, CA
- Vallecitos Water District, CA
- City of Fountain Valley, CA
- City of Westminster, CA
- City of Santa Ana, CA
- City of Lomita, CA
- Atascadero Mutual Water Company, CA
- Golden States Water Company
- California American Water
- City of Ontario, CA
- City of San Jose, CA
- County of San Bernardino, CA
- Goleta Water District
- Burbank Water & Power, CA
- Metropolitan Water District of Southern California
- Vallejo Flood Control District, CA
- Central Contra Costa Sanitation District, CA
- LA DWP, CA
- City of Santa Clara, CA
- City of Menlo Park, CA
- Olivehain Municipal Water District, CA
- Port of San Diego, CA
- Simi Valley Sanitation, CA
- City of Banning, CA City of Tacoma, WA
- Cherry Hills Sanitation District, CO
- Parker Water and Sanitation District, CO
- Waste Management Inc., CO
- Southeastern Colorado Water Conservancy District, CO
- Las Campanas Water & Sewer Cooperative, NM
- Suez Water, ID

## 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

34

### EXPERTISE

Bond Feasibility; Computer Modeling; Financial Planning; Fixed Asset Recordkeeping; Rate Design

### REPRESENTATIVE PROJECT 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 2010–2021**

**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 2021 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 19 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 PROJECT EXPERIENCE

#### Philadelphia Water Department, City of Philadelphia, Pennsylvania | Financial Planning and Cost of Service Study | 2019-Present

**Project Manager.** Mr. Merritt serves as project manager for the Water Department's Cost of Service Study and Related Service Contract. Mr. Merritt provided testimony in the 2021 Rate Proceeding and added in the development of the supporting analyses and schedules. Mr. Merritt helped to lead the 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. During this time Mr. Merritt also supported the 2019, 2020 and 2021 reconciliation of the Tiered Assistance Program Rate Rider Surcharge (TAP-R). Current work includes the financial planning, stormwater cost of service analysis, and rate structure review for the Philadelphia Water Department (PWD).

#### 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.

### EDUCATION

MS, Civil & Environmental Engineering, Lehigh University, 2007

BS, Civil & Environmental Engineering, Lehigh University, 2000

### YEARS' EXPERIENCE

19

### 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.

### **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.

### **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.

### **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 has been working 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 initial implementation in the late 1990s. In addition, the City had obtained updated impervious area data (i.e. planimetric data) for the entire service area. Mr. Merritt worked with the City to assess 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. Customer bills were also evaluated to assess potential impacts on the various stormwater customer classes. In addition, alternative rate structures were developed to help improve the public understanding and improve the overall equity of the stormwater rate structure. A rate study report was delivered to staff in late 2018, with consideration by City Council expected to follow.

#### **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 is 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 worked 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 incentivizes 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 Utility Implementation**

- "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

### Publications

*“Sustainable Stormwater Programs and Financing”*, Pennsylvania Borough News, October 2014

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.