PHILADELPHIA WATER DEPARTMENT
STATEMENT NO. 2

BEFORE THE
PHILADELPHIA WATER, SEWER AND STORM WATER RATE BOARD

In the Matter of the Philadelphia Water Department's Proposed Change in Water, Wastewater and Stormwater Rates and Related Charges	Fiscal Years 2022 - 2023

Direct Testimony

of

Melissa La Buda

on behalf of

The Philadelphia Water Department

Dated: January 2021

TABLE OF CONTENTS

I. INTRODUCTION AND PURPOSE OF TESTIMONY

Q1. PLEASE STATE YOUR NAME AND POSITION WITH THE PHILADELPHIA WATER DEPARTMENT.

A1. My name is Melissa La Buda. My position with the Philadelphia Water Department, also referred to in my testimony as PWD or the Department, is Deputy Commissioner of Finance.

Q2. WHAT ARE YOUR JOB RESPONSIBILITIES?

A2. As Deputy Commissioner of Finance, I have overall responsibility for the Department's financial, accounting and budgetary functions, including overseeing the budget, accounting for financial activities, issuing financial reports, and developing the debt issuance requirements. In connection with debt financings, I participate in meetings with rating agencies with respect to the credit ratings on Water and Wastewater System debt. I also led the Department's efforts related to the Cost of Service study for the current and prior general rate proceedings.

Q3. PLEASE SUMMARIZE YOUR EDUCATIONAL BACKGROUND AND RELEVANT WORK EXPERIENCE.

A3. I received a Bachelor of Science Degree in Business Administration from Bloomsburg University of Pennsylvania in 1995. I joined the Department as an Assistant Deputy Commissioner in October 2013. I was elevated to my current position in August 2014. Before joining the Department, I worked for a global financial institution where I served as an investment banker to public power and combined utility systems. Prior to that position, I worked for Public Financial Management, Inc. A more detailed description of my relevant work experience is set forth in my resume which accompanies my testimony as Schedule ML-1.

Q4. PLEASE DESCRIBE THE PURPOSE OF YOUR DIRECT TESTIMONY.

A4. The purpose of my testimony is to: (1) provide an overview of the financial condition of the Department and the reasons the Department is requesting rate relief; (2) describe the applicable ratemaking and financial requirements, including the updated Financial Plan that the Department is requesting the Philadelphia Water, Sewer and Storm Water Rate Board ("Rate Board") to approve; (3) explain the Department's ratemaking methodology, development of revenue requirements, projected increase in revenue requirements and need for additional revenue; (4) discuss the proposed language changes as well as proposed changes in Miscellaneous Charges, the Stormwater Management Service Charge Credits, and the Stormwater Management Fee in Lieu Charge; and (5) provide background information on prior rate proceedings.

Q5. PLEASE IDENTIFY THE SCHEDULES THAT ACCOMPANY YOUR DIRECT TESTIMONY.

A5. The following schedules accompany my testimony.

Schedule ML-1:	Resume of Melissa LaBuda
Schedule ML-2:	Financial Plan
Schedule ML-3:	Bond Counsel Memorandum
Schedule ML-4:	Rating Agency Reports
Schedule ML-5:	Water Fund Projection Summary
Schedule ML-6:	Financial Advisors Memorandum
Schedule ML-7:	Miscellaneous Changes

Schedule ML-8:	Summary of Prior Rate Proceedings
Schedule ML-9	Comparison of Projections from 2018 General Rate Case with Actual Results

II. FINANCIAL CONDITION OF THE DEPARTMENT

Q6. PLEASE SUMMARIZE THE RELIEF THAT THE DEPARTMENT IS REQUESTING THROUGH THIS GENERAL RATE PROCEEDING.

A6. The requested rate increase is intended to sustain the Department's operations so that it can provide high-quality service. We are in the middle of a pandemic and are still learning about its long-term impacts. The Department is adjusting its operations to mitigate the impacts of current circumstances, such as the shutoff moratorium and changes to consumption and collection patterns.

The Department has no choice but to request rate relief now. The standards, established by City Council, require that revenues (rates) be at least equal to operating expense and debt service requirements. The Department urgently needs additional revenues in FY 2022 and FY 2023, primarily to offset changes in consumption patterns and collection rates, meet day-to-day operating needs and support its capital program. As explained in greater detail herein and in the other supporting testimony, schedules and exhibits:

- Revenues were not sufficient to pay all of the budgeted expenses in FY 2020. The Department made a $33 million withdrawal from cash reserves to meet obligations and debt service coverage.

- Current revenues will not pay all of the budgeted expenses in FY 2021. Due to changes in consumption patterns and a decline in collection rates, FY 2021 total revenues are anticipated to be $38.6 million less than FY 2020 revenues. Even with the austerity measures implemented as part of the response to COVID, FY 2021 is currently projected to require an over $41 million withdrawal from cash reserves to meet obligations and minimum debt service coverage requirements.

- Revenues at current rates are not projected to pay all of the budgeted expenses in the Rate Period. In FY 2022, without rate relief, the Department would barely meet the mandatory financial metrics and would be required to make another significant withdrawal from cash reserves to meet obligations and minimum debt service coverage requirements. The depletion of cash reserves would leave the Department with few options on a going-forward basis to fulfill its mission of providing high-quality, reliable service to its customers. Without rate relief, it is projected that the Department would fail to meet the rate covenant requirements in FY 2023.

Revenues at the requested rates are projected to meet the mandatory financial metrics and to be sufficient to pay all of the budgeted expenses in the Rate Period.

Q7. PLEASE DESCRIBE CHANGES IN THE DEPARTMENT'S FINANCIAL POSITION SINCE THE 2018 GENERAL RATE CASE.

A7. The Department's financial condition has deteriorated, since the 2018 general rate case. In that proceeding, as summarized in Schedule ML-8, additional revenues sufficient to generate a 1.33% rate increase in FY 2019 and an additional 1.2% increase in FY 2020 were authorized. Since then, the Department filed a general rate case in February 2020. However, that filing was withdrawn at the onset of the pandemic, leaving the Department's rates and charges unchanged for FY 2021. During the aforesaid period, PWD revenue requirements increased significantly above the level of authorized revenues, causing the Department to run operating deficits in FY 2020 and FY 2021.

Stated differently, since the last rate case, the Department has experienced and continues to experience an increased level of expenditures related to materials/supplies/equipment, chemicals, services, workforce costs, and other expenses — all compared with final 2018 rate case projections. During this same period, PWD revenue projections were lower than final 2018 rate case projections. The decline in revenues is being driven by reduced consumption and reduced collections. Overall, this means that, with the exception of certain offsets related to electricity, gas, indemnities and General Fund reimbursements, PWD is in a financial deficit.

To be sure, this situation must change — not only to correct for the above deficiency, but to also address prospective needs related to financing the Department's capital program. As explained below and in PWD Statements 3 and 4, increased rates are also critically required to support the Capital Improvement Program in FY 2022 and FY 2023. Taken together, this is why rate relief is urgently needed.

Q8. PLEASE SPECIFICALLY DESCRIBE SOME OF THE MATERIAL CHANGES IN THE FINANCIAL POSITION ALLUDED TO IN YOUR PRIOR RESPONSE.

A8. The Department has experienced several major cost increases that it cannot continue to absorb without additional revenues, if the Department is going to maintain its financial status and current favorable bond ratings.

Fiscal Year 2020 Review

The Department experienced significant cost increases in FY 2020 that were partially offset by limited cost decreases (both of which are identified below and on page 9 of Schedule ML-2):

- Workforce costs increased from prior rate case projection of $281 million to $296 million in FY 2020.
- Costs related to services, excluding electricity and gas, have increased from prior rate case projection of $154 million to $166 million.
- Materials, equipment & supplies, excluding chemicals, have increased from prior rate case projection of $28 million to $31 million.
- Chemicals increased from prior rate case projection of $21 million to $23 million.
- General Fund reimbursement decreased from prior rate case projection of $6.8 million to $4.4 million.
- Costs related to purchasing electricity and gas for operations decreased from prior rate case projections of $21 million to $19 million.

The total FY 2020 cost increases in the above noted categories were about $31 million higher than prior rate case projections. During that period, the identified offsets (decreases) totaling about $5.8 million related to indemnities, electricity, gas and General Fund reimbursement were not enough to mitigate those cost increases. The Department does not anticipate that even this marginal aggregate level of decreases will be repeated in FY 2021.

COVID-19 Impacts on Revenues

Post FY 2020, the COVID-19 pandemic has further strained the Department's revenues, which reinforce the need for a rate increase.

- **Shut-Off Moratorium**: As discussed in PWD Statement 5, there are a large number of accounts eligible for shutoff due to the extended moratorium (in place since November 2019).
- **Collections**: Monthly revenue collections are trending lower than the same period in prior fiscal years, as discussed in PWD Statement 5.
- **Demand**: Non-residential customer demand has fallen, as discussed in PWD Statements 7A and 4.
- **Reserves**: Historically, the Department has made transfers from the Rate Stabilization Fund (RSF) to pay operating expenses and debt service (because the Revenue Fund is included as pledged security for the revenue bonds) that were not covered by revenues — this was the case in FY 2020 ($33 million RSF withdrawal) and is projected to be required again in FY 2021.

Q9. CAN THE DEPARTMENT PARTIALLY OFFSET THE PROPOSED RATE INCREASES BY MAKING ADDITIONAL WITHDRAWALS FROM THE RATE STABILIZATION FUND?

A9. Not in any significant way. In prior rate proceedings, transfers (withdrawals) from the Rate Stabilization Fund ("RSF") were used to offset rate increases. This is not a reasonable option for the Rate Period because the Department has already made transfers from the Rate Stabilization Fund to pay operating expenses and debt service that were not covered by revenues in FY 2020. A $33 million transfer from the RSF was authorized in FY 2020 for this purpose. A more sizeable draw down is projected in FY 2021 (over $41 million). These withdrawals have and cumulatively will significantly reduce the Department's financial flexibility. Making additional significant (or sizeable) withdrawals from the Department's reserves would further lower those reserves (below the Department's long-term targets) and seriously weaken the Department's financial condition.[1]

The solution is not to make another significant (or sizeable) RSF transfer in FY 2022. Rather, that is a result to be avoided. The RSF is already below the Rate Board's target level of $135 million (or $150 million for combined Residual Fund and RSF balances) that was established to ensure that PWD has sufficient liquidity to meet (i) future unforeseen financial challenges and (ii) financial requirements such as meeting its rate covenants. We cannot continually draw down the RSF by making significant withdrawals and expect to have sufficient reserves to address future liquidity risks (e.g., escalating regulatory requirements, unanticipated operating needs).

[1] A small RSF transfer is projected in FY 2022. *See* Schedule BV-1 at Table C-1, line 40. No withdrawals are projected for FY 2023. *Id.* Even with the small deposit projected in FY 2023, the Rate Period is projected to end with the RSF well below the target level. *Id.*

Table 1 below shows the impact of recent RSF draw downs on operating balances and shows that, without rate relief, PWD liquidity will be well below targeted levels.

Table 1	
	Operating Funds Rate Stabilization Fund
FY 2021 Starting Balance	$150,652,000
FY 2021 Projected Withdrawals	**-($41,464,000)**
FY 2022 Potential Starting Balance	**$109,188,000**

This shows that the Rate Period begins with the RSF projected to be well below the target level. In that context, the appropriate fix is to increase rates to meet the operating/financial requirements detailed in this rate filing.

Q10. CAN THE DEPARTMENT REDUCE ITS BUDGET TO PARTIALLY OFFSET THE PROPOSED RATE INCREASES?

A10. No — not if the Department is to pursue necessary maintenance activities and maintain current levels of service. The Department has already reduced its operating budget in FY 2021 through a series of temporary cuts, as discussed below. PWD cannot continue these measures without jeopardizing its ability to provide safe, high quality drinking water and wastewater services without any major service interruptions or system failures. As explained in PWD Statements 3 and 4, the Department needs to proceed with the projects identified in the above testimony to provide adequate services that are reliable, resilient and regulatory compliant.

The Rate Board should be aware that during FY 2021, the Department reduced its operating budget for that year by approximately $25 million, at the City's request, in light of the COVID-19 pandemic. Monthly budget reviews were performed during that period to monitor cost trends within the Department, monitoring closely for compliance with General Bond Ordinance requirements. Travel and other reimbursable expenses were also significantly decreased or suspended.

Please note that the budget reductions (as identified below) were not determined by an equal distribution of revenue loss among divisions. Instead, the cuts were made to align with and to minimize disruption to the Department's core mission and services. For example:

- Reduction of workforce costs totaling $2.3 million
- Reduction of contract services by $8.7 million
- Delayed equipment and supply purchases and vehicle replacements ($3.9 million)
- Reduction of Stormwater Management Incentives Program (SMIP) ($10 million)

It bears emphasis that these reductions cannot stay in place indefinitely. They were intended to be temporary in nature and, as such, were designed to avoid an increased risk for major service interruptions or system failures. In the aggregate, the above temporary cuts constituted a limited solution that served its purpose during FY 2021. They cannot be used on a going-forward basis to span the gap between revenues at current rates and charges and projected expenses for the Rate Period.

In addition to the above reductions, the Department also postponed many capital projects in FY 2021. The Department plans to resume necessary improvements in FY 2022, as discussed in PWD Statement 3 and authorized in the Capital Budgets for FY 2022 and FY 2023. I would further note that peer utility comparisons, summarized in Schedule ML-2 and presented in Schedule ML-6, show that: PWD's infrastructure has a shorter remaining useful life compared to other utilities, which indicates more investment will be needed to maintain the system.

Q11. WHY IS PWD'S FINANCIAL CONDITION RELEVANT TO THE CURRENT RATE CASE?

A11. The Department needs higher rates (increased revenues) so that it will have additional cash-in-hand to pay its bills when they are due and to maintain efficient access to the capital markets at reasonable cost.

As explained above, the Department's FY 2020 financial results, as compared to the prior rate case projections, demonstrate a pattern of increased expenses above prior rate case levels which are continuing into FY 2021, FY 2022 and beyond. This approach (running a deficit with rates not high enough to meet revenue requirements and using limited financial reserves to make up the difference) is unsustainable. The Department has no choice but to request that rates be raised now.

As always, the Department's financial condition is a major concern to rating agencies and investors. It is particularly concerning for FY 2022 and FY 2023, given the impact of the pandemic and the Department's needs to access the capital markets to finance its sizeable and increasing Capital Improvement Program.

Q12. PLEASE EXPLAIN THE DEPARTMENT'S FUTURE PLANS TO ACCESS THE CAPITAL MARKETS.

A12. The Department expects to finance its Capital Improvement Program during the FY 2022 and FY 2023 (the "Rate Period") with projected long term debt issuances totaling $740 million, revolving commercial paper program of $200 million, current revenues (i.e. coverage),[2] and possibly alternate sources of funding, including loans or grants.[3] The City expects all of the above debt to be primarily in the form of new money revenue bonds and commercial paper issued in several transactions, as necessary. Debt issuance projections for the Rate Period are shown in the direct testimony of Black & Veatch. (*See* PWD Statement 7A; Schedule BV-1, at Table C-9).

The City will need the above-described additional debt to support the Department's Capital Improvement Program.

Without additional debt, the Department's ability to fund the repair and replacement of infrastructure will be limited. As explained in PWD Statements 3 and 4, financial support for Capital Improvement Program is critically needed to avoid jeopardizing the Department's ability to appropriately invest in infrastructure improvements that are needed to maintain system reliability and customer service levels.

---

[2] PWD Statement 7A at 25; Schedule BV-1 at Table C-8.

[3] The City may from time to time receive state or federal grants, but any such amounts are immaterial for purposes of this discussion.

Q13. HAS THE DEPARTMENT TAKEN STEPS TO MAKE FINANCING ITS CAPITAL PROGRAM MORE ECONOMICAL?

A13. PWD has taken advantage of low interest rates to reduce debt service expenses and the associated debt burden on ratepayers.

<u>Pennvest Loans</u>

In April 2020, the Pennsylvania Infrastructure Investment Authority ("Pennvest") Board of Directors approved a funding offer for more than $73 million to the City of Philadelphia for the rehabilitation of the Torresdale Filtered Water Pump Station - the largest drinking water station in the City. The offer is part of Pennvest's Drinking Water State Revolving Fund program and is the third largest award ever by the infrastructure funding organization. The interest rate of the loan for years one through five is 1.0% and 1.727% through years 6 until maturity.

I would note that, in January 2021, Pennvest is scheduled to act on the following applications from the Department. First, there is the $100 million Pennvest application regarding the Northeast Water Pollution Control Plant. This project is a major step in achieving compliance with the Consent Order and Agreement ("COA").[4] This new facility, termed the "New Preliminary Treatment Building," will increase the plant's wet-weather treatment capacity by 50%. This will allow PWD to treat a greater volume of combined sewage, significantly reducing the frequency of Combined Sewer Overflow (CSO) discharges in the City. Second, there is a $5 million Pennvest application regarding "Lawncrest Stormwater." The Department is making these stormwater improvements in the Lawncrest neighborhood as part of the COA, also known as the

[4] A copy of the COA is included with the filing as PWD Exhibit 7.

"Green City, Clean Waters" program. In addition, the Department may submit other applications to Pennvest to obtain low-cost loans or grants in FY 2021 and in the Rate Period.

New Debt Issuance

On August 13, 2020, the City issued $296.6 million in revenue bonds designated as City of Philadelphia, Pennsylvania-Water and Wastewater Revenue Bonds, Series 2020A and Series 2020B. *See* PWD Exhibit 5. The proceeds are designed to finance capital improvements to its water and wastewater system; refund all of a portion of the 1997B, 2010C, 2011B, 2012, and 2013A bonds; and pay costs of issuance. The series 2020A and 2020B bonds were structured with maturities from November 1, 2022 to November 1, 2040 and from November 1, 2021 to November 1, 2035. The City was able to refinance existing debt to achieve $24.3 million in net present value savings (19.6% of refunded par) for the Department over the next 23 years.

On August 14, 2019, the City issued $250,660,000 in new money revenue bonds, designated as City of Philadelphia, Pennsylvania-Water and Wastewater Revenue Bonds, Series 2019B ("the 2019B Bonds"). The proceeds were designated to finance a portion of the Department's capital program and to pay the cost of issuance. The 2019B bonds were structured with maturities from November 1, 2023 to November 1, 2027 and from November 1, 2043 to November 1, 2054. This transaction was achieved with historically low interest rates, helping the City deliver necessary improvements to Department rate payers at a lower cost. By achieving interest rates 0.6% less than the most recent previous Water & Wastewater Revenue borrowing, the City was able to save $14 million dollars in relative costs.

Refinancing Debt

On February 27, 2019, the City entered into a Forward Purchase Contract and Bond Committee Determination for the issuance and purchase of certain City of Philadelphia, Pennsylvania, Water and Wastewater Revenue Refunding Bonds, Series 2020 (Forward Delivery), that were issued on October 7, 2020 (the "2020 Bonds"). The proceeds of the 2020 Bonds were used to refund all or a portion of the City's outstanding Water and Wastewater Revenue Bonds, Series 2011A. The refunding will produce savings derived in fiscal years 2021 through 2041 producing a total net present value savings of approximately $10.1 million.

Commercial Paper Program

The Department is also working on implementing a new commercial paper program. This program, among other things, will support the Department's efforts to obtain low-cost loans from the Federal and State government. The low-cost loans will reduce the debt burden on ratepayers, as compared to long-term capital debt financed by revenue bonds. This program will also benefit the Water Fund, since the cash therein will not be needed to manage expenses related to these loans.

The bill authorizing the commercial paper program was passed by Philadelphia City Council ("City Council") on November 19, 2020 and signed by the Mayor on December 1, 2020. The Department is working with the City Treasurer to procure the services needed to establish this program so that it can begin in FY 2022.

Q14. DOES THE DEPARTMENT'S FINANCIAL PLAN ADDRESS THE NECESSITY OF MAINTAINING ITS CURRENT CREDIT RATINGS AND FINANCIAL METRICS?

A14. Yes. The Department's updated Financial Plan, as discussed later in my testimony, is designed to maintain the Department's current credit rating. The most recent credit ratings, received in July 2020, in connection with the issuance of the City's Water and Wastewater Revenue Bonds, 2020A and 2020B water and wastewater revenue bonds are as follows: Moody's, A1, "stable outlook;" S&P, A+, "stable outlook;" and Fitch, A+, "stable outlook." The most recent rating reports are attached to my testimony as Schedule ML-4.

Credit ratings are important because the Department, like most utilities, is required to make significant capital infrastructure improvements each year for new and replacement assets. As noted in the Department's Financial Plan, approximately 90% of the Department's capital costs will be funded with sizeable debt issuance. Credit ratings are a critical component in determining the cost of debt as the ratings signal the Department's ability and willingness to meet financial obligations, notably including the repayment of its debt in full and on time. A downgrade of the credit ratings would result in an increase in the Department's borrowing costs and necessitate higher rates over time.

III. NEED FOR RATE RELIEF

Q15. IS OBTAINING RATE RELIEF KEY TO MEETING THE OBJECTIVES OF THE FINANCIAL PLAN.

A15. Yes. The Department's only source of revenue is through its customer base. New revenues are needed in FY 2022 and FY 2023 (which are essentially rebuilding years), as PWD transitions away from the austerity measures implemented because of the pandemic and seriously addresses its current financial deficit. As on slide 9 of Schedule ML-2, for FY 2020, utility revenue requirements exceed operating revenues.

And those increases are only a subset of total revenue requirements. After taking into account all of the projected revenue requirements, even with the proposed offsets, there is a demonstrated need for rate relief , as shown in Table C-1, PWD Statement 7A, to ensure that the Department can even meet the modest interim objectives of the Financial Plan.

Q16. PLEASE DESCRIBE WHAT MAY HAPPEN TO THE DEPARTMENT'S CREDIT RATING IN THE ABSENCE OF PROPOSED RATE RELIEF.

A16. Stated plainly, in light of the financial deficit currently facing PWD, the Department is concerned that an insufficient level of rate relief will be met with a negative reaction by the credit rating agencies. Such a reaction could take the form of a credit rating downgrade or market access deterioration. Municipal credit ratings are generally slow to rise and, often go down quickly. Thus, it is critical to assure rating agencies and investors of the long-term commitment to the cost recovery and stability of the Department's finances.

Bond investors may also react negatively to any failure to support needed rate relief. While PWD has been able to maintain access at low cost borrowing levels for the present, there is certainly no guarantee that this will continue without rate relief. And given the frequency of the Departments borrowing needs, it is critical to maintain confidence in the rate setting process.

While the Rate Board's rate support historically has been constructive in allowing the Department to maintain stable finances, additional operating revenues are needed for FY 2022 and FY 2023. PWD believes that withholding appropriate rate relief will be met with a negative reaction. These reactions include credit ratings downgrades and capital markets access deterioration.

Q17. WHY IS IT ESSENTIAL THAT THE RATE BOARD GRANT RATE RELIEF?

A17. The requested rate increase is needed to improve the Department's deteriorated financial position, to pay for the day-to-day operating needs of the Department and to fund its ongoing capital improvement program. As such, the approval of the requested rate increases ensures funding for safety and reliability of the system. Additionally, it is essential to meet the enumerated goals and metrics of (i) senior debt service coverage of 1.20 times; (ii) meeting additional rate covenant requirements (90% test); and (iii) maintaining reasonable liquidity for FY 2022 and FY 2023.

Q18. ARE THERE ANY OTHER REASONS THAT JUSTIFY THE REQUESTED RATE RELIEF?

A18. Yes. As explained above, PWD is running year-over-year operating deficits even after taking significant steps to control its operating costs. This is clearly demonstrated by examination of the 90% test in the Department's Rate Covenants.

The 90% test examines whether current revenues are sufficient to pay for current debt service. Under that test, 100% (or 1.00) means that current revenues are sufficient to pay for the Department's current debt service. A level higher than 1.00 means that current revenues are sufficient to not only pay current debt service, but also to pay for other expenses from current revenues. A level lower than 1.00 means that current revenues are not sufficient to pay for current debt service. The test mandates that a violation of Rate Covenants occurs if current revenues fall below 90% (or 0.90). That is the minimum level of required current revenues, and the fiscally responsible goal is to always pay for current debt service from current revenues.

The Department is not able to pay for current debt service from current revenues in FY 2021, as shown on Schedule BV-1 at Table C-2, line 6. This is because rates are not high enough to meet revenue requirements. The 90% test is only marginally met in FY 2022; and, will be missed altogether by FY 2023 – absent increased rates. A PWD failure to meet the 90% test (covenant) would be a technical default. The Rate Board should be reminded that the bulk of the costs supported by rates are non-discretionary in nature (workforce costs, critical maintenance expenses and costs tied to meeting regulatory requirements). PWD cannot reduce these costs further without lowering service levels.

Likewise, the Department must continue to invest in its aging infrastructure, so that maintenance expenses are not escalating because repairs are being made to plant/facilities/equipment beyond its useful life. It bears emphasis that the Capital Improvement Program will literally come to a halt for FY 2022-2023 without the proposed rate relief. This would be an untenable result. PWD is trying to balance its need to remain operationally and financially sound with customer needs. That is why we have deferred rate relief until now. The point of my testimony is that we cannot delay implementing new rates any longer.

Q19. WHAT LEVEL OF INCREASED REVENUES IS BEING REQUESTED?

A19. The Department is requesting annual revenue increases to generate approximately $48.864 million in FY 2022 and an additional $31.543 million in FY 2023 with proposed effective dates of September 1, 2021 and September 1, 2022, respectively.

Q20. OVER WHAT PERIOD OF TIME ARE THE PROPOSED INCREASED REVENUES BEING REQUESTED?

A20. The Department is requesting increased revenues based on forecasted revenue requirements for FY 2022 and FY 2023. This two-year rate period is consistent with the Rate Board's prior rate determinations in the 2016 and 2018 general rate proceedings. As discussed in PWD Statement 7A (the direct testimony of Black & Veatch), AWWA's "Principles of Water Rates, Fees, and Charges Manual of Water Supply M1" (the "AWWA Manual" or the "M1 Manual") is an industry manual, which was utilized in the cost of service study. The M1 Manual acknowledges that government-owned utilities may use multi-year rate periods and phase in rates over the rate period.

IV. RATE-MAKING AND FINANCIAL REQUIREMENTS

Q21. PLEASE DESCRIBE THE REQUIREMENTS OF THE HOME RULE CHARTER WITH RESPECT TO RATEMAKING.

A21. The Philadelphia Home Rule Charter ("Charter") was amended in 2012 to allow City Council to establish, by ordinance, an independent ratemaking body responsible for fixing and regulating rates and charges for water and wastewater services (referred to in this testimony as the "Rate Board"), and open and transparent processes and procedures for fixing and regulating those rates and charges, including ratemaking standards (hereinafter, the "Rate Ordinance"). The Charter requires that the Rate Board fix and regulate rates and charges for supplying water, wastewater, and stormwater services in accordance with standards established by City Council. Such standards must enable the City to yield from rates and charges an amount at least equal to operating expense and debt service requirements on any debt incurred or about to be incurred for water supply, sewage and sewage disposal purposes. It further provides that in computing operating expenses, there shall be a proportionate charge for all services performed for the Department by all officers, departments, boards or commissions of the City. (See Charter, Section 5-801.)

Q22. PLEASE SUMMARIZE THE STANDARDS OF THE RATE ORDINANCE WITH REGARD TO ESTABLISHING NEW RATES AND CHARGES.

A22. The Rate Ordinance was enacted and became effective on January 20, 2014, and its substantive provisions are set forth as part of Section 13-101 of the Philadelphia Code. Section 13-101(2) of the Philadelphia Code requires the Department to develop a comprehensive plan ("Financial Stability Plan" or "Financial Plan") in which the Department forecasts capital and operating costs and expenses and corresponding revenue requirements. The Financial Stability Plan must: (i) forecast capital and operating costs and expenses and corresponding revenue requirements; (ii) identify the strengths and challenges to the Department's overall financial status including the Water Department's credit ratings, planned and actual debt service coverage, capital and operating reserves and utility service benchmarks; and (iii) compare PWD to similar agencies in peer cities in the United States. The Department must submit an updated Financial Stability Plan to City Council every four years and update the plan prior to proposing revisions in rates and charges.

Section 13-101(4) of the Philadelphia Code, entitled "Standards for Rates and Charges," contains the ratemaking standards established by City Council and applicable to this rate proceeding. This provision, among other things, requires the Rate Board to establish rates and charges sufficient to fund budgeted operating expense and annual debt service obligations from current revenues and to comply with rate covenants and the debt service reserve requirement. It further requires that the rates and charges be developed in accordance with sound utility rate making practices and consistent with industry standards for water, wastewater and stormwater utilities (including standards published by the American Water Works Association and the Water Environmental Federation). Paragraphs (e) and (f) of Section 13-101(4) require special rates and charges to be established for certain categories of customers. As explained in the direct testimony of Black & Veatch, the proposed rates comply with these requirements. (See PWD Statement 7A at 26 to 29)

In addition, Section 13-101(4)(b)(i) of the Philadelphia Code requires the Rate Board to: (i) fully consider the Department's Financial Plan, (ii) determine the extent to which current revenue should fund capital expenditures and the minimum level of reserves to be maintained during the rate period based on all relevant information presented including, but not limited to, peer utility practices, best management practices and projected impacts on customer rates, and (iii) set forth such determinations in the Rate Board's written report.

Q23. WHAT ADDITIONAL REQUIREMENTS ARE APPLICABLE TO RATE SETTING?

A23. In the 1989 General Bond Ordinance, the City covenanted with the bondholders that it will impose, charge and collect rates and charges in each fiscal year sufficient to produce annual net revenues which are at least 1.20 times the debt service requirements, excluding the amounts required for subordinated bonds (as defined in the 1989 General Bond Ordinance). In addition, the City's covenants to its bondholders require that net revenues in each fiscal year must be equal to 1.00 times (A) annual debt service requirements for such fiscal year, including the amounts required for subordinated bonds, (B) annual amounts required to be deposited in the debt reserve account, (C) the annual principal or redemption price of interest on General Obligation Bonds payable, (D) the annual debt service requirements on interim debt, and (E) the annual amount of the deposit to the Capital Account (less amounts transferred from the Residual Fund to the Capital Account).

Further, pursuant to the 1989 General Bond Ordinance, the City will, at a minimum, impose, charge and collect in each fiscal year such water and wastewater rents, rates, fees and charges and shall yield Net Revenues (defined for purposes of this covenant particularly, calculated to exclude any amounts transferred from the Rate Stabilization Fund to the Revenue Fund in, or as of the end of, such fiscal year) which will be equal to at least 0.90 times Debt Service Requirements for such fiscal year (excluding principal and interest payments in respect of Subordinated Bonds and transfers from the Rate Stabilization Fund). In this testimony, the above covenants are referred to collectively as the “Rate Covenants.”

A failure by the Department (City) to comply with any provision of its revenue bonds or with any Bond Covenant constitutes an event of default as defined under the 1989 General Bond Ordinance (a “Covenant Default”). In the event of a Covenant Default, a bondholder of any of the Department’s revenue bonds will be entitled to all the remedies provided under the First Class City Revenue Bond Act (the “Act”). Upon such event, the holders of 25% in aggregate principal amount of the affected series of the Department’s revenue bonds may appoint a trustee to represent such bondholders to exercise remedies. Such trustee may, and upon the written request of the holders of 25% in aggregate principal amount of such revenue bonds must, sue the City at law or in equity to enforce the rights of the aforesaid bondholders including, among others, their right to require the City to impose and collect sufficient rates, as required under the 1989 General Bond Ordinance, if the City has failed to do so.

Additional information on the Bond Covenants is provided in the Bond Counsel Memorandum attached to my testimony as Schedule ML-3.

Q24. HAS THE DEPARTMENT PREPARED A FINANCIAL STABILITY PLAN AS REQUIRED BY THE RATE ORDINANCE?

A24. Yes, the Department updated its Financial Plan prior to initiating this rate proceeding. The updated Financial Plan is attached to my testimony as Schedule ML-2.

Q25. PLEASE DESCRIBE THE CONTENTS OF DEPARTMENT'S FINANCIAL PLAN.

A25. The Financial Plan contains five major sections which provide the information required by the Rate Ordinance.

The first section provides a financial overview. It describes the Department's management initiatives and cost savings strategies as well as the Department's COVID-19 Crisis Response. It also describes the Department's goals and key policies with respect to capital funding from current revenues, debt service coverage, debt issuance and cash revenues.

The second section summarizes information on financial results versus projections for FY 2019 and FY 2020.

The third section of the Financial Plan describes the Department's outlook on its goals and key policies with respect to capital funding from current revenues, debt service coverage, debt issuance and cash revenues. As explained in this section, the Department proposes no changes to the financial metrics approved by the Rate Board in its Rate Determination in the 2018 general rate proceeding. Projections of future costs and revenue requirements and the strengths and challenges to the Department's overall financial status, including planned debt service coverage, debt issuance, and cash reserves are also addressed in this section. We recognize, however, that we will be short of certain targets in the immediate term.

The fourth section of the Financial Plan is a peer utility review and includes a comparison of credit ratings, financial metrics for revenue and debt, debt service coverage, reserve levels, debt to revenue ratios, affordability and asset conditions.

The fifth section of the Financial Plan presents the current Five-Year Plan for the Department.

Q26. PLEASE DESCRIBE THE COMPONENTS OF THE FINANCIAL PLAN FOR WHICH APPROVAL IS REQUESTED.

A26. PWD is requesting that the Rate Board affirm its approval of the specific financial metrics of the Financial Plan previously authorized by the Rate Board in the 2018 general rate proceeding. These consist of the following objectives: (i) target funding of at least 20% of the Department's capital program from current revenues; (ii) targeting a Senior Debt Service Coverage Ratio of 1.30x; (iii) maintaining $150 million as the combined target for cash reserves in the Rate Stabilization and Residual Funds; (iv) using strategic debt amortizations to align debt payments over the lifetime of assets. As discussed below, PWD realizes that it will not meet all of these targets during the Rate Period.

Q27. WHY IS PWD REQUESTING THAT THE RATE BOARD REAFFIRM THE FINANCIAL METRICS APPROVED IN THE 2018 RATE DETERMINATION?

A27. As discussed previously and in my testimony during the 2018 general rate proceeding, the rating agency reports have noted the Department's relatively large capital improvement plan and heavy reliance on long-term debt to fund its capital program, as well as the Department's relatively low coverage levels compared to its peers. The fundamental ratemaking philosophy for most financially stable municipal utilities is to provide safe and reliable service at rates that recover all current costs, plus a margin in excess of current costs. This margin, also referred to as coverage, is a municipal utility's only real alternative to issuing debt to fund a portion of the capital program costs. Using current revenues to fund capital expenditures is necessary to improve debt service coverage to industry standards and is just and reasonable as a principle of both finance and ratemaking. From both an operational and a credit rating perspective it is essential for the Department to sustain debt service coverage levels significantly above the minimum levels required by the Rate Covenants to provide rating agencies and bondholders comfort that the Department is not continually operating at the edge of an event that would cause a violation of the Rate Covenants.

As also noted in the memorandum from bond counsel, the 1989 General Bond Ordinance dictates the priority of payment and the flow of revenues collected from rates in and out of the funds and accounts of the Water Fund. There is never a guarantee that the Department's revenues will be sufficient in the future to cover the revenue requirements used to establish rates and charges. Given the required flow of funds under the General Bond Ordinance, any shortfall will impact the amount of revenue that can be used to fund the Capital Improvement Program before it impacts any other element of the revenue requirement.

Maintaining adequate cash reserves in funds such as the Department's Rate Stabilization and Residual Funds is a standard element of ratemaking for municipal utilities. This allows a municipal utility to deal with contingencies and help such utilities demonstrate the financial stability necessary to achieve and maintain good credit rating. Additional information in support of these financial policies regarding maintaining adequate cash reserves in the rate stabilization and residual fund and certain financial metrics is provided in the memorandum from the Department's financial advisor, attached to my testimony as Schedule ML-6.

Reaffirming these financial metrics (20% pay go target, 1.30 times Senior Debt Service Coverage Ratio, and maintaining a $150 million combined balance target in the Rate Stabilization and Residual Fund) not only memorializes these goals along with resulting rate increases, but also assists the Department with its persuasion of the rating agencies to maintain or improve the Department's ratings.

That being said, due to current circumstances, PWD is going to forego certain financial targets during the Rate Period. First, for the Rate Period, the PWD is foregoing the target for funding of the capital program from current revenues. PWD will adjust coverage to balance the Capital Program funding from current revenues target of 20%. Over the next few years, PWD is not projected to meet its goal of funding at least 20% of its capital program from current revenues. Transfers to the Capital Account must increase, over time, to achieve the 20% goal.

Second, the Department is deferring the Cash Reserve goals for the Rate Period. PWD is utilizing cash reserves to offset the level of current rate increases. PWD's projected RSF balance is less than the target $135 million RSF balance by the end of FY 2021. The RSF serves as the Department's primary source of liquidity and provides protection to ratepayers and bondholders. The RSF will need to be restored over time.

Third, the Department is requesting for the Rate Period only that senior debt service coverage be set at 1.20 times, which is below the above-stated target of 1.30 times. PWD will maintain the goal of 1.30 times debt service coverage for revenue bonds; however due to the COVID-19 pandemic the interim focus is on 1.20 times for FY 2022 and FY 2023. The interim focus avoids a violation of the Rate Covenants for the near term, recognizing the 1.30 times is the appropriate longer term goal. The target of 1.30 times recognizes that, from both an operational and a credit rating perspective it is essential for the Department to sustain debt service coverage levels above the minimum levels required by the Rate Covenants to provide a hedge against unanticipated cost increases or revenue losses, as well as to provide bondholders comfort that the Department is not continually operating at the edge of an event that would cause a violation of the Rate Covenants.

V. RATE-MAKING METHODOLOGY

Q28. ON WHAT BASIS DOES THE DEPARTMENT ESTABLISH RATES AND CHARGES?

A28. The Department's rates are set using the cash basis of accounting. Under this basis, revenues are recorded on a receipt basis, except revenues from other governments and interest. Expenditures are recognized and recorded as expenses at the time they are paid or encumbered, except debt service which are recorded when paid.

Q29. WHAT SPECIFIC RATEMAKING METHODOLOGIES AND POLICIES APPLY TO THE DEPARTMENT, AS A MUNICIPAL UTILITY?

A29. The Department is one of the operating departments of the City and is a "government-owned utility" as defined in AWWA's M1 Manual." For government-owned utilities, the initial measure of whether revenues under existing rates are adequate is made to determine whether such revenues are sufficient to meet the utility's cash requirements for the study period. The Department has no shareholders and does not pay a dividend or rate of return to the City as the owner of the water and wastewater systems. Virtually all the funds needed to run the operations of the Department come from ratepayers or from proceeds of debt borrowing.

The cost of borrowing must be paid by ratepayers. Therefore, the rates and charges are set by determining the appropriate levels of cash, debt service coverage and other financial metrics necessary to enable the Department to pay its bills and maintain efficient access to the capital markets at reasonable rates.

Q30. PLEASE EXPLAIN THE IMPORTANCE OF HAVING CASH-ON-HAND.

A30. Cash-on-hand is the total amount of any accessible cash that a business has available at a certain time.

As a "cash flow" entity, the Department's operations are entirely funded from rates, either indirectly as a result of short-term or long-term borrowing (which then must be paid back by ratepayers) or directly through charges to customers. So, one of the Department's most important financial metrics are end of year days cash on hand; and, separately, liquidity balance.

Cash is vital so that the Department can meet unforeseen financial challenges and financial requirements. The Engineering Report, which is part of PWD Exhibit 5, echoes that point. It states that the "Department needs to continue to carefully monitor its revenue and collections and manage its business operations to ensure that it appropriately meets projected payments and achieves the Rate Covenant requirements of the General Ordinance."

Without adequate cash, the Department will not be able to pay its bills when they are due. That could result in failing to satisfy financial metrics or a violation of the covenants. To avoid those results, the Department would need to adjust its spending to coordinate with the available cash. Doing so, however, would jeopardize the Department's ability to appropriately invest in infrastructure improvements that are needed to maintain system reliability and customer service levels, as further explained in PWD Statements 3 and 4.

VI. DEVELOPMENT OF REVENUE REQUIREMENTS

Q31. HOW DOES THE DEPARTMENT DETERMINE THAT A RATE INCREASE IS NECESSARY?

A31. The Department initially develops projected revenue requirements for future fiscal years in the same manner as in the two previous general rate proceedings before the Rate Board. The Department's approved operating budget for FY 2021 is used as a starting point for developing projected revenues and expenses anticipated as of FY 2022 and FY 2023. The Department's rate consultant, Black & Veatch, then used the budget data with specific adjustments as inputs to its financial cost-of-service model it developed to determine appropriate rates and charges for the Department.

Various City departments and agencies provide operational support to the Department, for which they receive a direct appropriation at the beginning of each fiscal year ("Direct Appropriation") or interfund transfer during the fiscal year from the Water Department's operating budget. These departments include: the Revenue Department (Water Revenue Bureau or "WRB") for meter reading, billing and collection services; the Law Department for legal services; the Department of Public Property for the rental of office space and parking; the Office of Fleet Management for vehicle acquisition, fuel, and vehicle maintenance; the Office of Innovation and Technology for communications and computer support services; the Procurement Department for services related to the acquisition of goods and services; the Office of the Director of Finance for fringe benefits, indemnities and support services; the Sinking Fund Commission for the payment of debt service; the Philadelphia Fire Department for inspection and testing of

City fire hydrants and inspection of industrial facilities required under the City's Municipal Separate Storm Sewer System (MS4) Permit from the Pennsylvania Department of Environmental Protection; the Office of Sustainability for energy procurement services; the Office of Transportation and Infrastructure; and the Rate Board.

Q32. HOW DOES THE DEPARTMENT DETERMINE ITS ANNUAL OPERATING BUDGET?

A32. The Department, like all other City departments, submits a proposed budget for the following year to the Office of the Director of Finance Budget Bureau and the City's Managing Director's Office for consideration and inclusion in the Mayor's proposed annual operating budget. The Department began preparation of its operating budget for FY 2021 in September 2020, when each of the Department's divisions and the Water Revenue Bureau submitted their budget proposals setting forth their estimated obligations for FY 2021. Revenue estimates were prepared by the Water Revenue Bureau, with support of the Water Department, under the direction of the City's Office of the Director of Finance and the Department. I, with the assistance of the Financial Planning, Budget and Rates team and with the support of the Water Commissioner, reviewed all the budget proposals of the various Water Department divisions and the Water Revenue Bureau.

On March 5, 2020, Mayor Kenney presented the FY21-25 Five Year Financial Plan to City Council. It included expectations for continued economic growth in Philadelphia, with additional revenues available to make investments to tackle Philadelphia's biggest challenges: intergenerational poverty, the need for an improving education system, and violence and public safety crises that threaten lives and disrupt our cherished communities. By the end of March 2020, all but essential City operations and businesses had ceased operations, our schools had closed, and we had shifted our City workforce to preventing the spread of COVID-19 and treating those affected. The impact on the City's finances has been immediate; with reduced revenues, new costs, and increased costs for existing expenditures. As such in April 2020, the Water Department submitted its proposed FY 2021 budget proposal to the City's Budget Bureau - reflecting the reductions discussed earlier in my testimony. The Mayor then submitted the Department's proposed budget as part of the City's proposed revised operating budget for FY 2021, which was submitted to City Council on or about May 1, 2020. The City's FY 2021 annual operating budget was approved by City Council on June 25, 2020 and signed by the Mayor on June 26, 2020.

Q33. HOW DOES THE WATER DEPARTMENT DEVELOP ITS CAPITAL IMPROVEMENT PROGRAM AND CAPITAL BUDGET?

A33. The Water Department updates its Capital Improvement Program and capital budget annually as part of its annual budget process. The Department began preparing its capital budget request for FY 2021 in September 2019. The budget was approved by the City Planning Commission and the Mayor's Office and included in the City's capital budget for FY 2021, Five-Year Financial and Strategic Plan for Fiscal Years 2021-2025, and Capital Program for Fiscal Years 2021-2026, all of which were submitted to City Council for adoption. The City's capital budget for FY 2021 and its capital program for Fiscal Years 2021 through 2026 were approved by City Council on June 25, 2020 and signed by the Mayor on June 26, 2020.

Q34. WHAT IS THE WATER FUND?

A34. The Water Fund is an accounting convention established pursuant to the General Bond Ordinance 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.

Q35. HOW ARE THE CITY'S ACCOUNTING AND FINANCIAL POLICIES APPLIED TO THE WATER FUND ACCOUNTS?

A35. For purposes of rate setting, calculating compliance with the Rate Covenant and debt service coverage and budgeting, the Water Fund accounts are maintained on a cash basis of accounting, also referred to as the "Legally Enacted Basis." Under this basis, revenues are recorded on a receipts basis, except revenues from other governments and interest, which are accrued as earned.

Q36. HOW ARE PROJECTIONS DEVELOPED FOR THE WATER FUND?

A36. Schedule ML-5, attached to my testimony, is the Water Fund Projection Summary for the Water Operating Fund. The column labeled "FY'19 Year-End Final" summarizes the Department's final revenues, obligations/appropriations, adjustments and balances for Fiscal Year 2019. The column labeled "FY'20 Year-End Prelim" contains the same preliminary (unaudited) information for Fiscal Year 2020. The column labeled "FY'21 B&V Projected Budget" summarizes the same information as budgeted for the Department in the City's Fiscal Year 2021 annual operating budget, updated as part of the cost of service study reflecting various spend factors and other adjustments. As explained by the testimony of Black & Veatch, for purposes of developing projections for

Fiscal Years 2022 and 2023, further adjustments were made to the budgeted data, where necessary, to ensure that the projections are representative of the amounts that the Department expects to experience during the Rate Period.

Q37. HOW IS SCHEDULE ML-5 USED IN THE RATE FILING?

A37. The schedule ML-5 bridges the presentation differences between Black & Veatch schedules and the City's Water Fund budgetary schedules.

VII. PROJECTED INCREASED REVENUE REQUIREMENTS

Q38. WHAT ARE THE KEY DRIVERS FOR THE DEPARTMENT'S INCREASED REVENUE REQUIREMENTS?

A38. The need for rate relief in FY 2022 and 2023 is caused by the following main drivers: (1) changes in consumption patterns; (2) decline in collection rates; (3) higher costs related to supporting its CIP program, including the increased cost of infrastructure maintenance; and (4) unavoidable increases in workforce costs. Another factor driving the need for rate relief includes increases in costs over various categories, such as chemicals used in the water treatment process, as previously mentioned.

Q39. PLEASE EXPLAIN WHY MAINTENANCE COSTS FOR INFRASTRUCTURE ARE INCREASING.

A39. The Department has experienced significant cost increases related to services, materials/equipment/supplies, workforce as well as other expense categories and workforce costs, as I previously mentioned. These costs are driven by a variety of factors including general economic conditions.

In addition, there are general increases associated to maintenance and repairs. As explained in PWD Statement 4: the longer this equipment is used, the more maintenance it requires, and the less reliable it becomes. Costs related to maintenance and repair of PWD's aging equipment are increasing. This will continue until the equipment can be replaced with new and more reliable equipment. Until such equipment is replaced, the Department runs the risk of equipment failure(s) which can result in treatment plant unit process upsets, water delivery interruptions and sewer failures.

Q40. DOES THE CITY POLICY MANDATING THE SHIFT IN CERTAIN SPENDING FROM THE CAPITAL BUDGET TO THE OPERATING BUDGET IMPACT REVENUE REQUIREMENTS DURING THE RATE PERIOD?

A40. Yes. As I noted in my testimony in the 2018 general rate proceeding, under City-wide budgeting and accounting policies, PWD is no longer able to procure certain vehicle types with capital funds and must instead use operating funds. The additional operating costs related to this change totaled approximately $3 million as of the 2018 general rate proceeding and as of FY 2019 totaled approximately $3.1 million. The FY 2020 budget reflects $1 million in additional costs related to this policy change. In PWD's budgets for the Rate Period, the Department also will be required to fund certain critical maintenance and repair projects at its treatment plants through its operating budget. These projects include the dredging of a raw water basin, electrical repairs, masonry repairs, digester cleaning and corrosion protection for piping. Additional employee costs previously paid through the capital budget also must be shifted to the operating budget. This process started with the policy shift reported above and will continue for the next few years.

Q41. PLEASE DESCRIBE HOW INCREASING WORK FORCE COSTS IMPACT REVENUE REQUIREMENTS.

A41. The Department's payments to the Municipal Pension Fund continue to increase. The payment for FY 2020 was $67.3 million and the payment for FY 2021 is expected to total $72.4 million of which the Department has paid $71.7 million. The estimated payment for FY 2022 is $73.5 million and the proposed payment for FY 2023 is $75.3 million. This is an increasing cost the Department does not control and is unavoidable.

Payments from the Water Fund to the City's General Fund for the Water Fund's allocable share of principal and interest payments on the City's Pension Bonds for FY 2020 was $15.6 million and the payment for FY 2019 was approximately $14.1 million. The payments for Fiscal Year 2022 and Fiscal Year 2023 are approximately $15.6.

Q42. PLEASE EXPLAIN ANY DECREASES IN BILLED WATER CONSUMPTION AND ASSOCIATED REVENUES.

A42. A review of historical water usage per account, performed by Black &Veatch, shows that, prior to the pandemic, 5/8-inch meter General Service customers, generally exhibited a 2.0% annual decrease over time. *See* PWD Statement 7A at 12-13. While residential usage has increased in during recent months, a resumption of the historical decline in consumption is anticipated beginning in FY 2023 for the 5/8-inch meter General Service customers. After FY 2021, with the exception of 5/8-inch meter residential service customers, consumption is assumed to remain at levels similar to those experienced during the pandemic. This finding is consistent with decreasing consumption patterns reported by other water utilities in the region. For example, in a proceeding before the Pennsylvania Public Utility Commission, a water utility serving suburban counties around Philadelphia reported that annual water sales have fallen by 1.3% annually since 2011.[5]

VIII. PROPOSED TARIFF CHANGES

Q43. WHAT REVISIONS TO THE DEPARTMENT'S TARIFF ARE BEING PROPOSED IN THIS CASE?

A43. The proposed rates and charges are in PWD Exhibits 3A and 3C, and redline versions are provided as PWD Exhibits 3B and 3D. The proposed rates and charges changes are further discussed in Black & Veatch's testimony, PWD Statement 7A.

In addition, PWD is proposing to update various miscellaneous rates and charges, as summarized in Schedule BV-4 and as discussed in PWD Statement 7A. The proposed miscellaneous charges are detailed in Tables M-1 and M-2, in Schedule BV-4. Please refer to Section 6 of PWD Exhibit No. 3 for additional information regarding these proposed updates.

Apart from the proposed changes to rates and charges, PWD is also proposing the language or "housekeeping" changes discussed in Schedule ML-7 and shown in redline on PWD Exhibits 3B and 3D.

---

[5] *See* AP Statement No. 1, Direct Testimony of William C. Packer on behalf of Aqua Pennsylvania, Inc., PUC Docket No. R-2018-3003068, available at: http://www.puc.state.pa.us/about_puc/search_results.aspx and at: http://www.puc.state.pa.us//pcdocs/1582240.pdf.

Q44. DO THE PROPOSED CHANGES IMPACT THE STORMWATER MANAGEMENT SERVICE (SWMS) CREDIT AND THE STORMWATER MANAGEMENT FEE IN LIEU CHARGE?

A44. Yes.

Q45. PLEASE DESCRIBE THE DEPARTMENT'S PROPOSED CHANGES IN THE STORMWATER MANAGEMENT SERVICE (SWMS) CREDIT.

A45. In 2019, PWD engaged various stakeholders in a facilitated process to consider changes to rate structure in three areas: water quantity charges, stormwater credits and incentives, and recovery of pension related expenses. One of the alternatives presented for adjusting stormwater credits was to revise credit eligibility to align the credit criteria with the Department's stormwater regulations. Currently, the stormwater regulations require properties subject to the regulations to manage the first 1.5 inches of stormwater runoff, while the credit program requires management of only the first 1 inch of stormwater runoff. Attendees and commenters generally agreed with revising the credit program to increase the credit eligibility threshold from 1 inch to 1.5 inches of stormwater managed to align the credit program with the regulations. However, some suggested that projects already receiving credit for 1 inch of stormwater runoff be grandfathered into the credit program.

As part of this rate proceeding and based on the comments received during the alternative rate analysis, PWD is proposing to revise Section 4.5 of Rates and Charges to align the stormwater credit eligibility criteria with the regulations. The proposed change, if approved, would require properties receiving impervious area (IA) management credit for managing stormwater runoff to manage the first 1.5 inches of stormwater runoff.

Properties for which PWD has received credit applications before September 1, 2021, would be grandfathered and thus be allowed to receive IA credit under the credit eligibility requirements in effect before that date.

In addition, PWD is proposing to revise Section 4.5(c)(1)(i) of Rates and Charges to clarify the types of stormwater management practices that are eligible for Impervious Area Reduction (IAR) adjustments. IAR adjustments result in a direct reduction of billable impervious area on a parcel and must meet the requirements in the Stormwater Management Service Charge Credits and Appeals Manual (the "Manual"). The Manual limits IAR adjustments to three types of stormwater management practices, tree canopy cover, roof leader/downspout disconnection, and pavement disconnection. The proposed revisions to Section 4.5(c)(1)(i) are proposed to clarify that only these three stormwater management practices qualify for IAR adjustments.

Q46. PLEASE DESCRIBE THE DEPARTMENT'S PROPOSED CHANGES IN THE STORMWATER MANAGEMENT FEE IN LIEU CHARGE.

A46. The Department is proposing to change the Stormwater Management Fee in Lieu Charges in Section 8.2 of Rates and Charges from $15 per square foot of earth disturbance to $25 per square foot in FY 2022 and $31 per square foot in FY 2023 based on the total directly connected impervious Area within the limits of earth disturbance. This change is being made to reflect more recent data on the cost to the Department to construct and maintain similar stormwater management projects. In addition, the Department is proposing to delete portions of Section 8.2 that are covered by the Department's current stormwater regulations.

IX. PRIOR RATE PROCEEDINGS

Q47. PLEASE SUMMARIZE RECENT CHANGES IN RATES AND CHARGES APPROVED BY THE RATE BOARD.

A47. The present proceeding is the seventh rate proceeding and fourth general rate proceeding before the Rate Board. As described in Schedule ML-8, the general rate increases approved by the Rate Board were 5.1% and 4.5% in 2016 and 2017, respectively, and 1.3% and 1.2% in 2018 and 2019, respectively.

The 2018 general rate case contained projections for FY 2019 and FY 2020. Projected revenue requirements from that rate proceeding are compared with actual results in Schedule ML-9. As described therein, PWD ended FY 2019 in-line with projections and ended FY 2020 with expenses higher than projections.

X. CONCLUSION

Q48. DOES THIS CONCLUDE YOUR DIRECT TESTIMONY?

A48. Yes, it does.

Melissa La Buda

melissa.labuda@phila.gov

Education

Bloomsburg University of Pennsylvania
Bloomsburg, Pennsylvania
Bachelor of Science in Business Administration May 1995

Organizations / Affiliations

American Water Works Association (AWWA)
Financial Community Advisory Group
2019

National Association of Clean Water Agencies (NACWA)
Finance Workgroup
2016 to Present

Professional Experience

City of Philadelphia, Philadelphia Water Department, Philadelphia, Pennsylvania
Deputy Water Commissioner, Chief Financial Officer, 2015-present
Assistant Deputy Water Commissioner, 2013-2014

- Responsible for the Water Department's financial management, including: accounting, budget, rates and charges, debt management, grant management, capital program funding, audit, procurement, contract management, and risk.
- Provide financial oversight for an $800 million Operating Budget, plus a $400 million Capital Budget, and establish protocols to monitor long-term budget stability.
- Provide expert witness testimony to legislative and regulatory matters to various agencies on behalf of the Department
- Manage a team of 60 professionals that perform necessary financial operations in support of the Water Department and its 2,000+ employees
- Led the development of a long-range financial planning model and Cost Allocation Plan
- Implemented the creation of standard operating procedures for the Finance and Accounting Units

Morgan Stanley, Inc., New York, New York
Fixed Income Division, Public Finance Department – Vice President, 2005-2013

- Provided investment banking services to some of the country's largest public utility systems, including origination, structuring and execution of a variety of municipal debt transactions
- Helped solve complex financing challenges and led the financing for over $25 billion of municipal debt
- Structured and marketed various financing and refinancing options to municipal debt issuers.
- Worked on all aspects of business development, development of product marketing materials, responses to request for proposals, rating agency and investor materials.
- Demonstrated relationship development expertise that resulted in expansion of the Firm's municipal client base, increasing revenues.
- Led marketing, structuring and execution of the South Carolina Public Service Authority's ("Santee Cooper") Series 2012ABC Transaction.

Public Financial Management, Inc., New York, New York
Financial Advisory - Senior Managing Consultant, 2001-2005

- Analyzed, structured and executed municipal debt transactions for Utility and Transportation issuers. Worked independently and as a team member on all aspects of transactions including complex modeling, marketing, structuring, pricing, execution and documentation.
- Performed pre- and post-pricing analysis. including analysis of comparable transactions, market conditions and overall plan of finance objectives. Created rating agency presentations and written marketing materials for existing clients.
- Provided structuring and analytical advice to MEAG Power, JEA, Energy Northwest, BATA, MBTA, and ACTA on debt restructuring and new money issuance totaling in excess of $6 billion of debt.
- Analyzed and structured the State of Wisconsin $1.7 billion Pension Obligation Bonds

Melissa La Buda
melissa.labuda@phila.gov

Morgan Stanley Investment Management, West Conshohocken, Pennsylvania
Marketing Services - Associate, 1999-2001

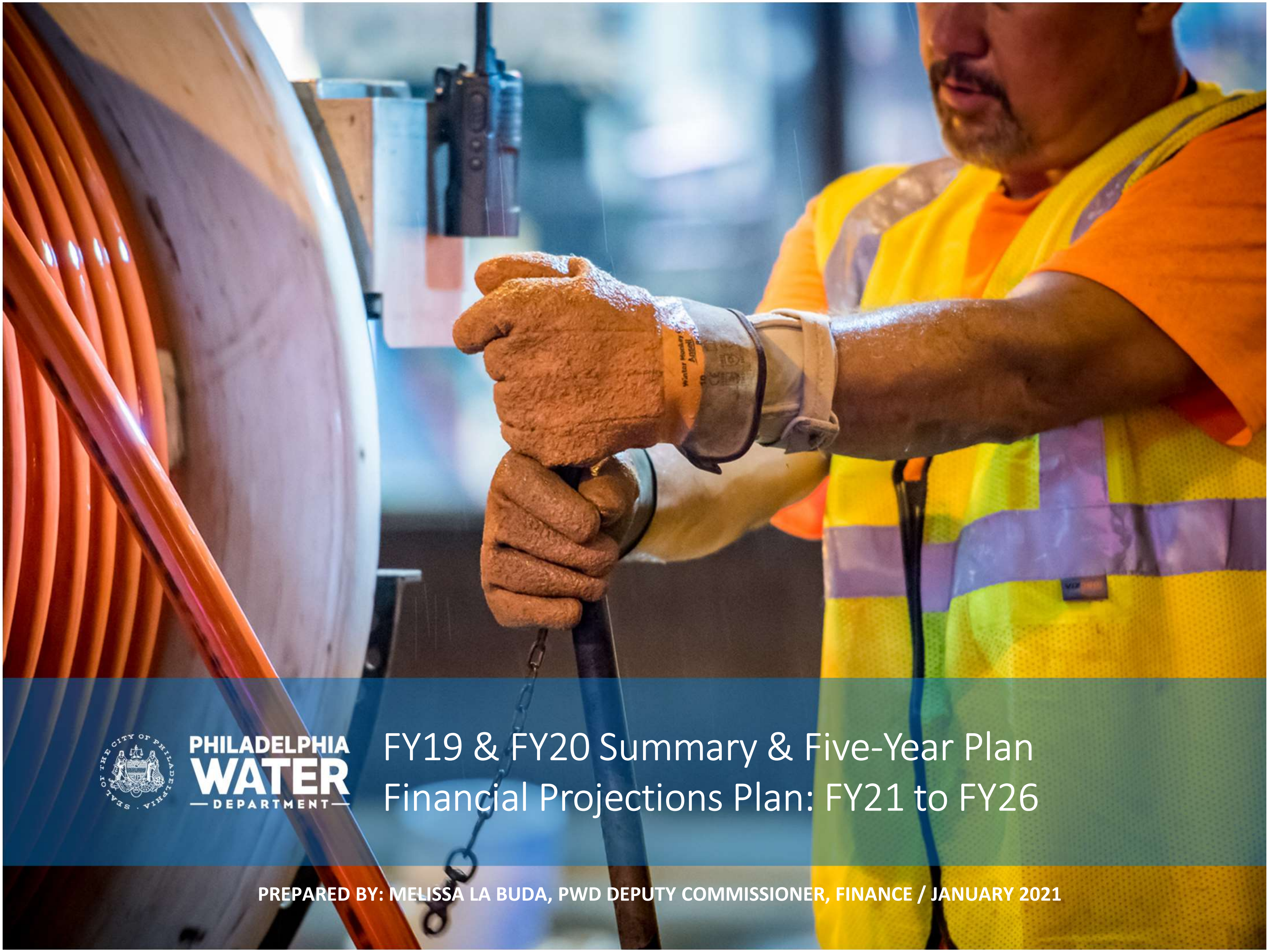
- Created product proposal responses for Morgan Stanley Investment Management's investment services, specifically for high yield, emerging market debt and investment grade fixed income products.

Public Financial Management, Inc., Harrisburg, Pennsylvania
Asset Management Group - Trader, 1996-1999

- Facilitated daily trading of a $1 billion dollar short-term investment grade, pooled fixed income portfolio.
- Assisted in management of individual portfolios for California and Pennsylvania local governments.

Dauphin Deposit Bank & Trust Co., Harrisburg, Pennsylvania
Private Asset Management - Analyst, 1995-1996

- Gained familiarity with handling of stock and bond trading from retail and institutional perspective.



PHILADELPHIA WATER DEPARTMENT

FY19 & FY20 Summary & Five-Year Plan
Financial Projections Plan: FY21 to FY26

PREPARED BY: MELISSA LA BUDA, PWD DEPUTY COMMISSIONER, FINANCE / JANUARY 2021

The Financial Plan Supports the PWD Vision, Mission and Values

PWD's vision is **"to be America's model 21st century urban water utility** – one that fully meets the complex responsibilities and opportunities of our time and our environment."

TABLE OF CONTENTS

PWD MISSION

The primary mission of the Philadelphia Water Department is to plan for, operate, and maintain both the infrastructure and the organization necessary to purvey high quality drinking water, to provide an adequate and reliable water supply for all household, commercial, and community needs, and to sustain and enhance the region's watersheds and quality of life by managing wastewater and stormwater effectively. In fulfilling its mission, the utility seeks to be customer-focused, delivering services in a fair, equitable, and cost-effective manner, with a commitment to public involvement. Having already served the City and region for nearly two centuries, the utility's vision for the future includes an active role in the economic development of Greater Philadelphia and a legacy of environmental stewardship.

Financial Overview

- Management Initiatives and Cost Savings Strategies
- COVID-19 Crisis Response
- PWD Policy Goals

Management Initiatives and Cost Saving Strategies in Response to COVID-19

In response to COVID-19, the Department promptly implemented numerous management and operational initiatives aimed at maintaining continuity of service to customers and addressing the immediate and longer-term economic challenges created by the pandemic:

- The original FY 2021 budget submittal was reduced by approximately $25 million, strategically identifying cuts that avoid disruptions to core water and wastewater services.
- Monthly budget reviews are performed to monitor cost trends within the Department, monitoring closely for compliance with General Bond Ordinance requirements.
- Travel and other reimbursable expenses have been significantly decreased or suspended.
- Due to the financial impacts of the COVID-19 pandemic, PWD postponed many capital projects in FY2021. The Department plans to resume necessary improvements in FY2022.

City Suspends Termination of Water Service During COVID-19 Crisis

The City imposed a moratorium on shut-offs and disconnects during the COVID-19 pandemic that is expected to be in place until April 2021.

- **March 13th**: Water Shutoffs Postponed
  - **March 16th**: Continued Service Under Essential Personnel Policy
  - **March 25th**: Commenced Restoration of a Majority of Delinquent Accounts
- As of December 31, 2020, there are over 70,000 accounts eligible for shutoff but none have been disconnected due to the moratorium.

Account Type	# Accounts Eligible for Shutoff
Commercial	5,993
Residential	63,229
TAP	3.304
Total	**72,526**

PHILADELPHIA WATER DEPARTMENT

PWD Policy Goals

PWD previously established four key financial policies to guide the strategic financial actions for the utility:

- **Capital Funding from Current Revenues:** Transition to 20% funding of capital program from current revenues.
- **Debt Service Coverage:** Maintain 1.30x debt service coverage for senior debt.
- **Debt Issuance:** Relieve cash flow pressure and better align debt payments, over the lifetime of assets, through strategic debt amortization.
- **Cash Reserves:** Utilize cash reserves to absorb unexpected costs and offset the level of rate increases.

Due to current financial circumstances, PWD will defer the CIP Cash Funding Target and the Cash Reserves goals for FY21, FY22 and FY23.

Financial Results
FY19 & FY20

- Revenue & Expense Summary
- Transfers and Liquidations
- Debt Service Coverage / Capital Funding
- Cash Balances
- System Generated Financial Results

PWD Ended FY2020 with Expenses Higher Than Projections

REVENUES

System-generated revenue results (excluding transfers from Rate Stabilization Fund) were **higher than projections**, with a **1.19%** variance

OBLIGATIONS

Actual expense results were **higher than projections**, with a **3.52%** variance.

Note: Expense results above exclude transfers and liquidated encumbrances. Because of the performance of revenues and the higher than projected expense levels, the Net Revenues available for debt service were lower than projected.

PHILADELPHIA WATER DEPARTMENT

FY2020 Expense Summary
Projected vs. Preliminary Final

	EXPENSE CATEGORY	FY20 PROJECTED ($000s)	FY20 PRELIM FINAL ($000s)	TOTAL VARIANCE
39%	Workforce Costs	280,758	295,825	+2.08%
22%	Services	154,274	165,891	+1.60%
2%	Electricity and Gas	21,248	19,069	-0.30%
4%	Materials, Equipment & Supplies	28,454	31,173	+0.38%
3%	Chemicals	20,938	22,886	+0.27%
1%	Indemnities	5,642	4,410	-0.17%
28%	Capital Program – Debt Service Payments	206,479	206,392	0.00%
1%	General Fund Reimbursement	6,756	4,423	-0.32%
	TOTAL	**$724,548**	**$750,069**	**3.52%**

Actual expense results were 3.52% higher than projections.

The largest deviations from projections were from workforce costs and services.

PHILADELPHIA WATER DEPARTMENT

FY2020 Transfers & Liquidations

Transfers	FY20 Projected	FY20 Preliminary Final	Variance
Capital Program (Deposits to Capital Account)	$ 62,032,000	**$ 56,553,000**	-8.83%
Rate Stabilization Fund Withdrawal	$ 26,288,000	**$ 33,083,149**	+28.85%

Liquidated Encumbrances	FY20 Projected	FY20 Preliminary Final	Variance
Liquidated Encumbrances	($ 23,202,000)	**($ 26,861,077)**	-15.77%

PHILADELPHIA WATER DEPARTMENT

FY2020 Debt Service Coverage & Capital Funding

FY2020 Debt Service Coverage Results

	FY2020 Projected	FY2020 Preliminary
Revenue Bonds Debt Service Coverage	1.30x	**1.28x**
Total Debt Service Coverage	1.16x	**1.13x**
90% Test - Senior Debt Coverage from Current Revenues	1.17x	**1.11x**

FY2020 Capital Funding Results

	Total Transfer to Capital Account	Total Expenditures for Capital	%	20% Goal Met?
FY2020 Preliminary	$56.6 million	$270.9 million	21%	Y
FY2020 Projected	$62.0 million	$355.8 million	17%	N

Cash Balances, Rate Stabilization and Residual Funds

In FY2020, the Water Department's year-end Rate Stabilization Fund and total cash reserve balances were lower than projected.

Fiscal Year	Residual Fund*	Rate Stabilization Fund*	Total Cash Reserves
2020 Projected	$15 million	$185 million	**$200 million**
2020 Preliminary	$16 million	$151 million	**$167 million**

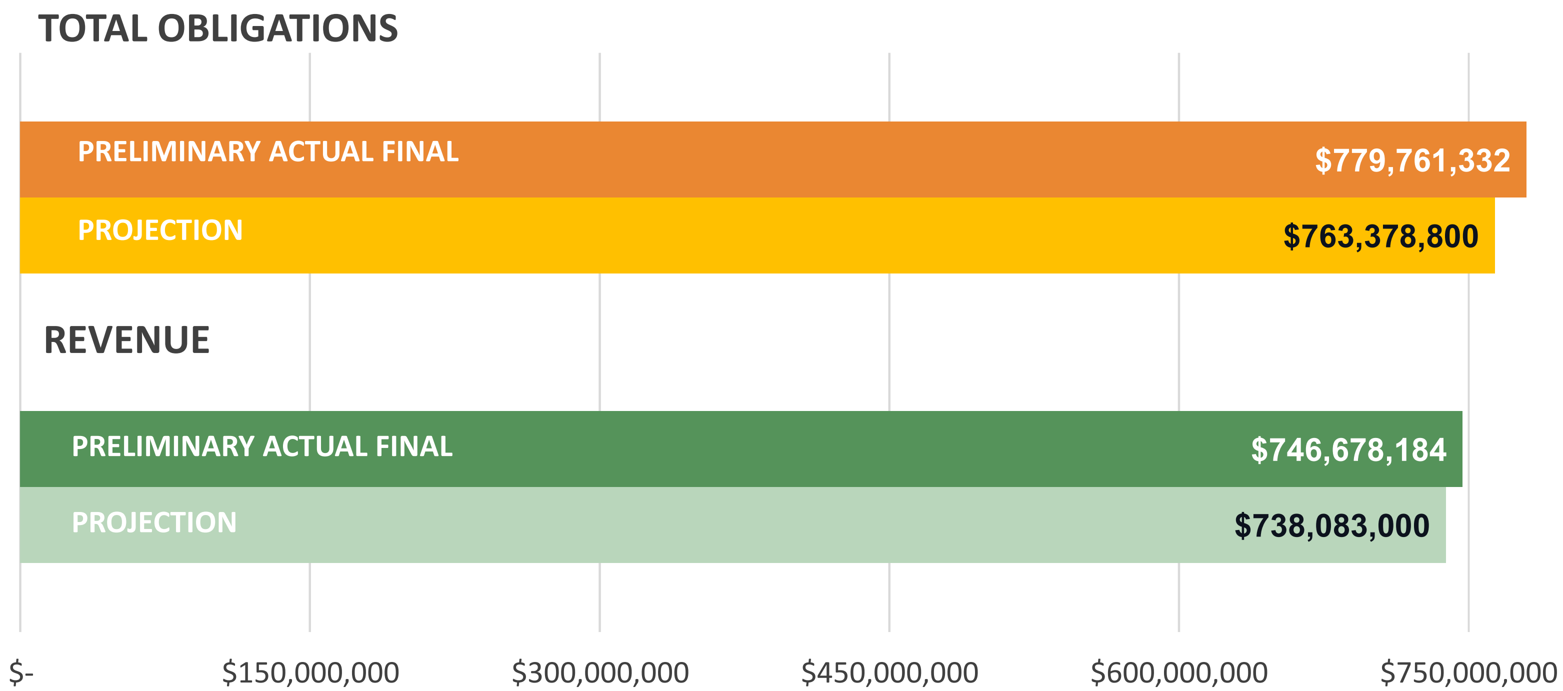
*year-end balance

Sources: PWD Financial Statements, FY2019 & FY2020 Rate Case FINAL Tables (Black & Veatch)

PHILADELPHIA WATER DEPARTMENT

FY2020 System Generated Results

Actuals vs. Projections



Note: *Revenue totals presented exclude revenues from the Rate Stabilization Fund. Obligations include transfers to the Rate Stabilization Fund and liquidated encumbrances.*

PWD Ended FY2019 in-line with Projections

REVENUES

System-generated revenue results (excluding transfers from Rate Stabilization Fund) were nearly equal to projections: **+0.63% variance** from 2018 rate case projections

OBLIGATIONS

Actual expense results **exceeded projections by 1.5%** from the projections. The main reason for differences are related to:

- Maintenance at treatment plants,
- Advanced Metering Infrastructure, and
- Customer service and repair programs

Note: Expense results above exclude transfers and liquidated encumbrances. Because of the performance of revenues and the higher than projected expense levels, the Net Revenues available for debt service were lower than projected.

PHILADELPHIA WATER DEPARTMENT

FY2019 Expense Summary

Projected vs. Final

	EXPENSE CATEGORY	FY19 PROJECTED ($000s)	FY19 FINAL ($000s)	VARIANCE
38.0%	Workforce Costs	270,874	271,047	0.02%
23.5%	Services	150,160	167,556	2.47%
2.7%	Electricity and Gas	22,180	19,336	-0.40%
4.3%	Materials, Equipment & Supplies	28,295	30,793	0.36%
3.1%	Chemicals	20,527	22,115	0.23%
0.5%	Indemnities	5,642	3,816	-0.26%
26.8%	Capital Program - Debt Service Payments	198,847	190,908	-1.13%
1.1%	General Fund Reimbursement	6,591	7,752	0.17%
	TOTAL	**$703,116**	**$713,323**	**1.45%**

Actual expense results over projections by 1.45%

The largest deviations (%) from projections were from: Services, Electricity & Gas, Indemnities and Materials.

FY2019 Transfers & Liquidations

Transfers	FY19 Projected	FY19 Final	Variance
Capital Program (Deposits to Capital Account)	59,729,000	**62,964,743**	5.42%
Rate Stabilization Fund Withdrawal	3,277,000	**4,321,032**	31.86%

Liquidated Encumbrances	FY19 Projected	FY19 Final	Variance
Liquidated Encumbrances	($22,664,000)	**($30,420,600)**	-34.22%

FY2019 Debt Service Coverage & Capital Funding

FY2019 Debt Service Coverage Results

	FY2019 Projected	FY2019 Final
Revenue Bonds Debt Service Coverage	1.30x	**1.33x**
Total Debt Service Coverage	1.16x	**1.18x**
90% Test - Senior Debt Coverage from Current Revenues	1.28x	**1.30x**

FY2019 Capital Funding Results

	Total Transfer to Capital Account	Total Expenditures for Capital	%	20% Goal Met?
FY2019 Projected	$59.7 million	$328.3 million	18.2%	N
FY2019 Final	$62.9 million	$311.8 million	20.2%	Y

PHILADELPHIA WATER DEPARTMENT

Cash Balances, Rate Stabilization and Residual Funds

In FY 2019, the Water Department's year-end Rate Stabilization Fund and total cash reserve balances were lower than projected.

Cash Balances

Fiscal Year	Residual Fund*	Rate Stabilization Fund*	Total Cash Reserves
2019 Projected	$15.1 million	$185.7 million	**$200.8 million**
2019 Final	$15.9 million	$179.8 million	**$195.7 million**

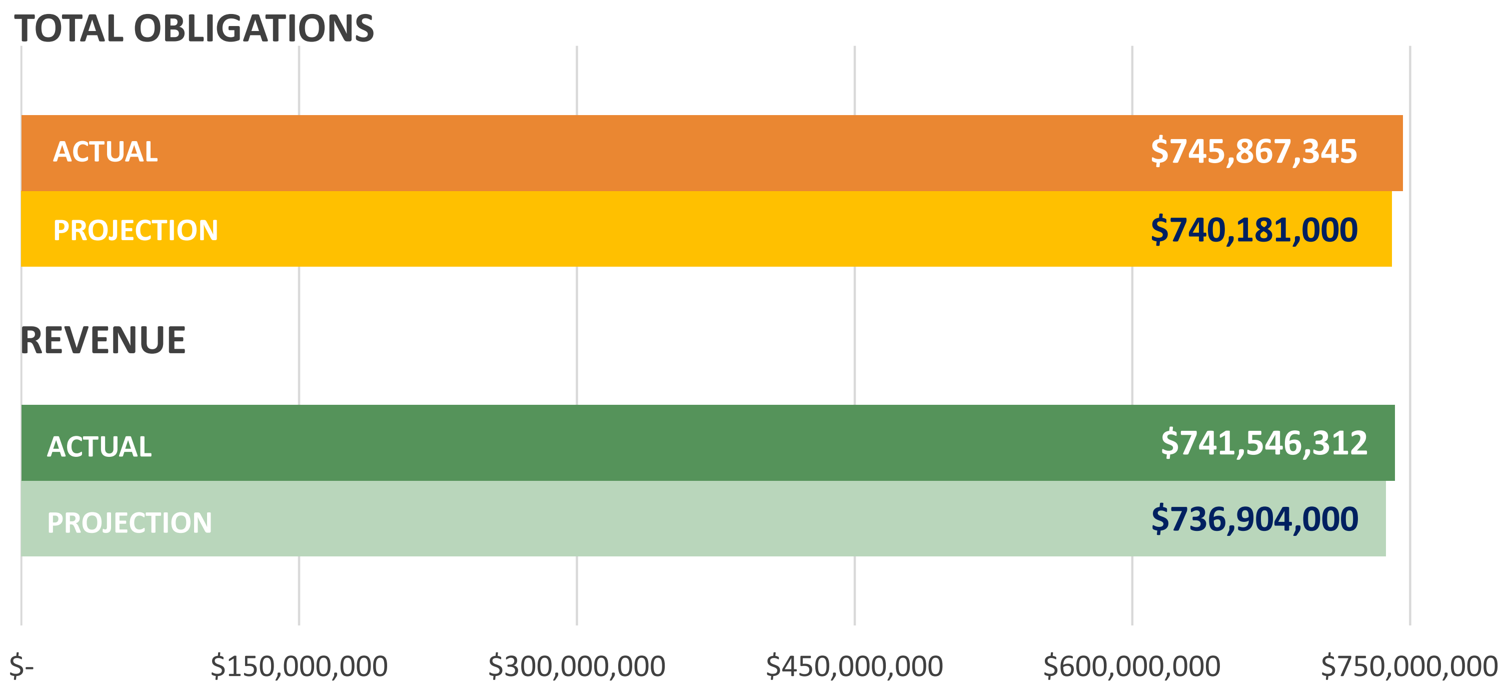
*year-end balance

Sources: PWD Financial Statements, FY2019 & FY2020 Rate Case FINAL Tables (Black & Veatch)

PHILADELPHIA WATER DEPARTMENT

FY2019 System Generated Results

Actuals vs. Projections



***Note**: Revenue totals presented exclude revenues from the Rate Stabilization Fund. Obligations include transfers to the Rate Stabilization Fund and liquidated encumbrances.*

Key Policy Outlook

- Capital Funding
- Debt Service Coverage
- Debt Profile
- Cash Reserves

Capital Funding from Current Revenues

Over the next few years, PWD is not projected to meet its goal of funding at least 20% of its capital program from current revenues. Transfers to the Capital Account must increase, over time, to achieve the 20% goal.

	Cash Funded Capital (000s)	Total Expenditures for Capital (000s)	%
FY2021	$37,883	$324,964	**11.7%**
FY2022	$37,447	$345,303	**10.8%**
FY2023	$43,655	$426,730	**10.2%**
FY2024	$49,462	$535,538	**9.2%**
FY2025	$55,974	$545,260	**10.3%**
FY2026	$63,596	$562,222	**11.3%**

source: PWD Financial Statements , Rate Compliance Schedule, Black & Veatch Financial Plan Tables

Debt Service Coverage

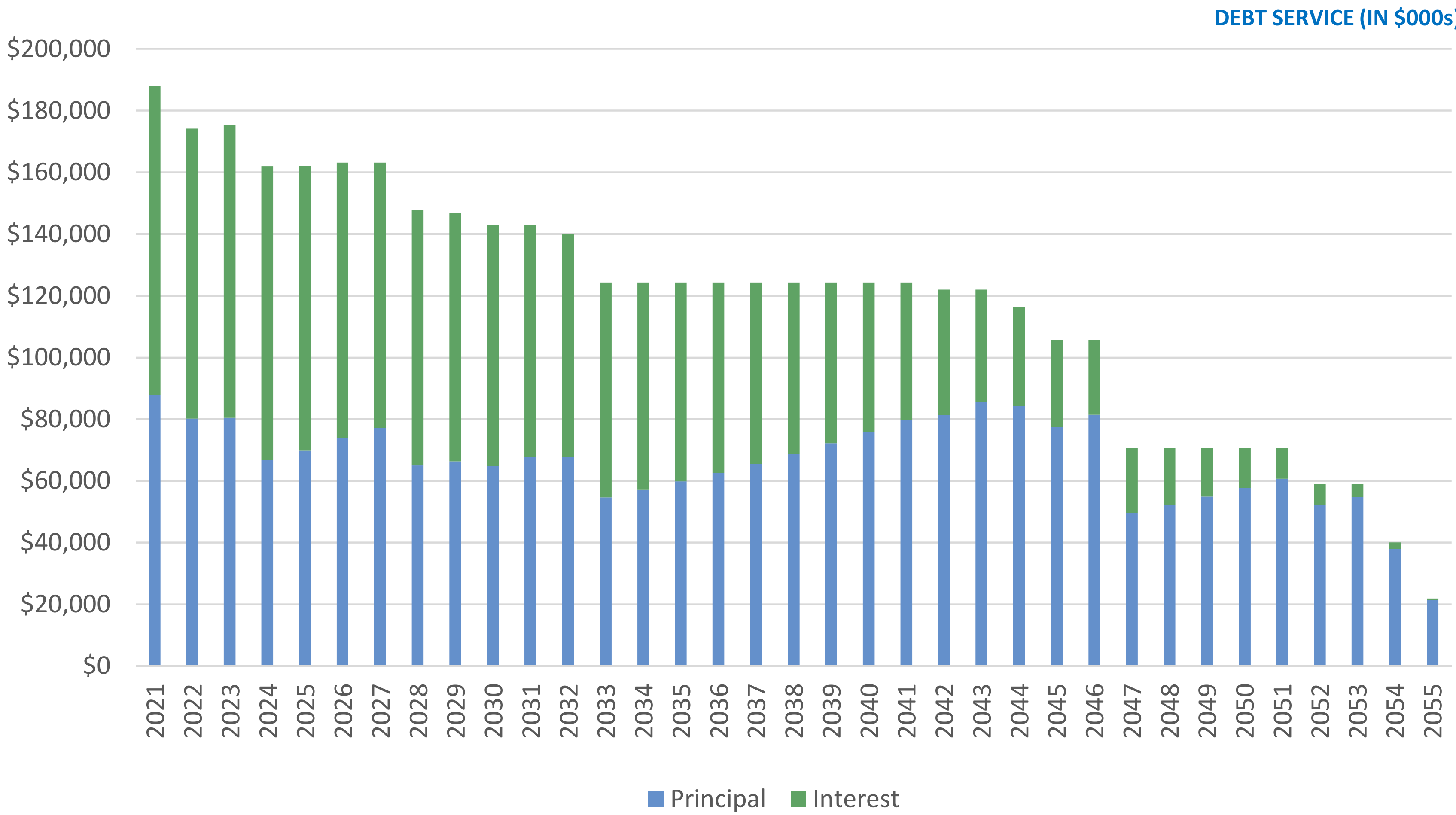
PWD will maintain the goal of 1.30x debt service coverage for revenue bonds; however due to the COVID-19 pandemic the focus is on 1.20x over the next few years. In coming years, PWD will adjust coverage to balance the Capital Program funding from current revenues target of 20%.

	PROJECTED					
	FY2021	FY2022	FY2023	FY2024	FY2025	FY2026
Revenue Bonds Debt Service Coverage	1.20x	1.20x	1.20x	1.20x	1.20x	1.20x
Total Coverage	1.04x	1.03x	1.04x	1.05x	1.13x	1.07x
90% Test - Senior Debt Coverage from Current Revenues	0.97	1.19	1.20	1.20	1.20	1.19

source: Rate Compliance Schedule

Debt Profile

Through strategic debt amortizations, PWD plans to align debt payments over the lifetime of assets.



Cash Reserves

Projected Cash Balances

Fiscal Year	**Residual Fund** Year-End Balance ($000s)	Goal Met?	**Rate Stabilization Fund** Year-End Balance ($000s)	Goal Met?	Total Cash Reserves ($000s)
2021	$15,020	**Y**	$103,024	**N**	$118,045
2022	$15,033	**Y**	$102,293	**N**	$117,326
2023	$15,072	**Y**	$102,439	**N**	$117,512
2024	$15,047	**Y**	$104,650	**N**	$119,697
2025	$15,085	**Y**	$104,590	**N**	$119,675
2026	$15,080	**Y**	$104,360	**N**	$119,440

sources: Rate Case FINAL Tables (Black & Veatch)

- Historically, PWD utilized cash reserves to offset the level of current rate increases.
- However, PWD has already made transfers from the RSF to pay O&M expenses and debt service not covered by revenues in FY 2020 ($32 million); and is projected to draw down an additional $42 million in FY 2021.
- PWD's projected RSF balance is significantly less than the target **$135M RSF balance by 2021**. The RSF serves as the Water Department's primary source of liquidity and provides protection to ratepayers and bondholders. **The RSF will need to be restored over time.**

Peer Utility Review

- Peer Utilities and Rating Distribution
- PWD Current Credit Rating
- Peer Utility Financial Metrics
- Peer Utility Asset Condition
- COVID-19 Response In-Line with Peers
- Affordability Comparison
- Other Peer Comparisons
- Presentation Summary

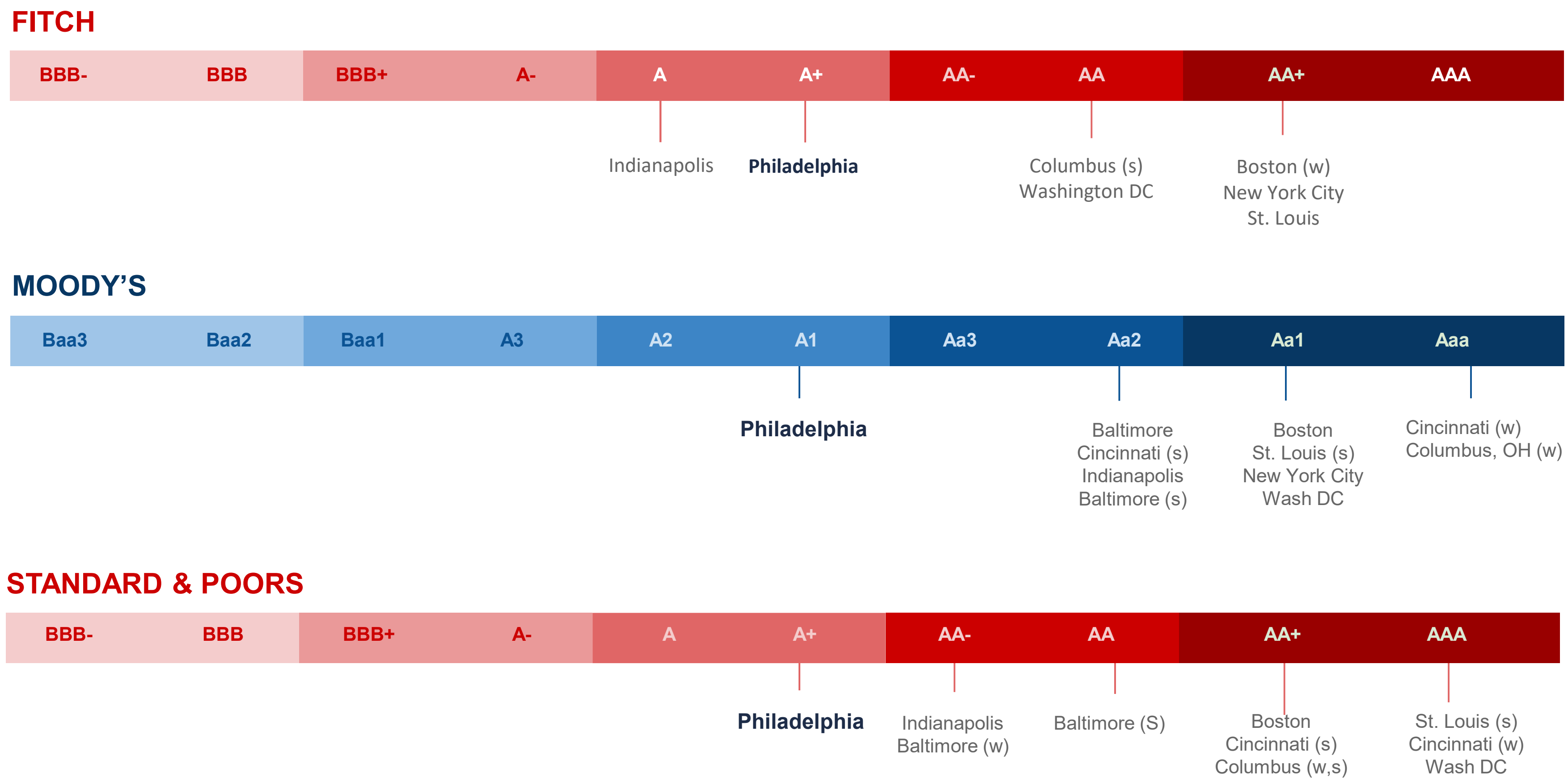
Peer Utilities

The utilities identified as peers for this comparison are mid-size to large utilities serving formerly industrial cities in the Northeast and Midwestern US.

City	Utility	Total Operating Revenue ($*000*s)	Population Served	# Accounts
Philadelphia	**Philadelphia Water Department**	**$726,942**	**1.6M (w) 2.3M (s)**	**480,000 (w) 545,000 (s)**
Baltimore	Baltimore (City of MD) Water Enterprise	$178,367	1.8M	402,988
	Baltimore (City of MD) Sewer Enterprise	$258,386		
Boston	Boston Water and Sewer Commission	$363,057	0.7M	90,000
Cincinnati	Greater Cincinnati Water Works	$161,835	1.0M	241,000
	Metropolitan Sewer District - Greater Cincinnati	$291,400	0.8M	
Columbus, OH	City of Columbus, OH Water Enterprise	$198,213	1.2M	274,000
	City of Columbus, OH Sewer Enterprise	$267,662		
Indianapolis	Indianapolis Citizens Energy Group	$207,235	0.3M	317,200
St. Louis	St. Louis Metropolitan Sewer District	$368,293	1.3M	426,000
New York	New York City Municipal Finance Authority	$3,859,737	8.6M	835,000
Washington, DC	District of Columbia Water & Sewer Authority	$684,502	2.3M	127,700

Rating Distribution of Peer Utilities

PWD's long-term credit standing falls within "A" for all three major credit rating agencies. Most of PWD's peer utilities are ranked in the 'AA' category.



Key: (w): water only, (s): sewer only

PWD Current Credit Rating

PWD maintains credit ratings in the "A" category across all three rating agencies:

	Fitch[1]	Moody's[2]	S&P[3]
	A+	A1	A+
	Rated: Stable Outlook (7/2020)	Rated: Stable Outlook (7/2020)	Rated: Stable Outlook (7/2020)
STRENGTHS	• Stable operations and robust system capacity • Low cost burden • Essential service provider to large and diverse regional service area • Satisfactory financial performance; sound historical finances	• Satisfactory current financial position • Large and diverse service area • Despite current financial pressure, operational stability will come from comprehensive debt planning	• A diverse and stable customer base • Strong management which uses reserves strategically • Extremely strong liquidity
CHALLENEGES	• Insufficient rate recovery in timely manner still a key rating factor for future • Elevated capital program costs - filed force majeure with DEP • Relatively weak income levels in the City	• Sizeable consent order and the system's aging infrastructure require significant capital investment going forward • Substantial future debt issuances needed to support the department's capital improvement plan.	• A large, regulatory-driven $3.6 billion CIP over the next five years, which will be more than 80% debt-funded
POSITIVE CREDIT IMPACT ITEMS	• Continued sound management and stable operations • Improvements in service area characteristics and rate flexibility • Leverage consistently below 8.0x	• Considerable improvement in debt service coverage • Service area expansion • Revenue growth beyond expected rate increases	• Unlikely given current circumstances • In time, an increase is possible if the city's financial performance significantly exceeds current projections

1. Source: Fitch Ratings. Fitch Rates Philadelphia (PA) Water & Wastewater Revs 'A+'; Outlook Stable – July 16, 2020
2. Source: Moody's Investor's Report. Philadelphia Water & Sewer Enterprise, PA New Issue Report – July 13, 2020
3. Source: S&P Global Ratings – Philadelphia Water Sewer Ratings Direct Report – July 10. 2020

PHILADELPHIA WATER DEPARTMENT

Peer Financial Metrics

Listed below are summary financial metrics for revenue and debt for the selected peer utilities.

PEER CITY	TOTAL OPERATING REVENUE ($000s)	NET FUNDED DEBT ($000s)	TOTAL LONG TERM DEBT ($000s)	DEBT RATIO (%)
Philadelphia	**746,072**	**1,802,833**	**1,824,493**	**54.3**
Baltimore (w)	185,132	980,624	1,025,206	49.1
Baltimore (s)	267,204	1,389,347	1,449,367	36.2
Boston (w)*	386,648	435,209	548,569	26.9
Cincinnati (w)	161,835	423,070	556,074	25.9
Cincinnati (s)	291,400	847,485	915,386	40.8
Columbus (w)	203,359	963,524	963,524	58.4
Indianapolis	203,359	794,946	871,395	67.4
New York	3,819,799	29,699,652	30,975,053	91.2
St. Louis (s)	401,109	1,452,401	1,510,664	41.0
Washington, DC	705,147	3,167,180	3,237,089	43.0

Key: (w): water only, (s): sewer only

Net Funded Debt = all interest-bearing debt less Cash and Cash Equivalents

Debt to Revenue = net long-term debt less debt service reserve funds divided by most recent year's operating revenues.

Source: Moody's Investor Services. *Figures represent 2019 financials.

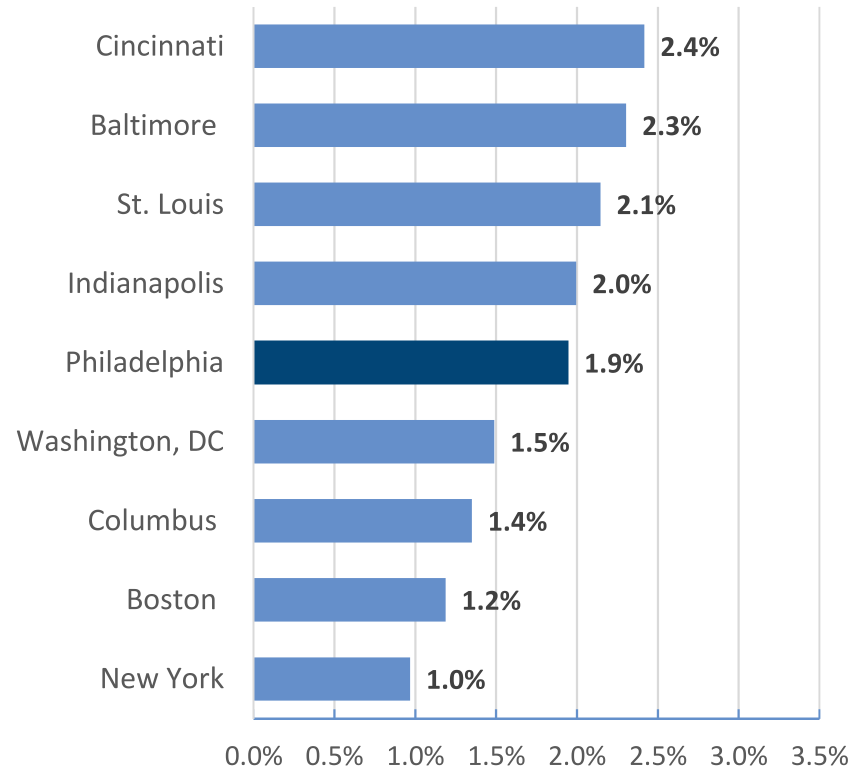
Affordability Comparison

Even with proposed rate relief, PWD rates compare favorably to other large urban water and wastewater systems. Shown below is a comparison of the median household income (MHI) for the population served by selected peer utilities.

PEER CITY	MEDIAN HOUSEHOLD INCOME AS % OF NATIONAL AVG	MONTHLY BILL
Cincinnati	59.2%	$81.85
St. Louis	63.9%	$78.49
Philadelphia	**66.8%**	**$74.47**
Indianapolis	69.7%	$79.65
Baltimore	73.3%	$96.78
Columbus	78.2%	$60.48
New York	93.2%	$51.67
Boston	103.5%	$70.38
Washington, DC	125.8%	$107.24

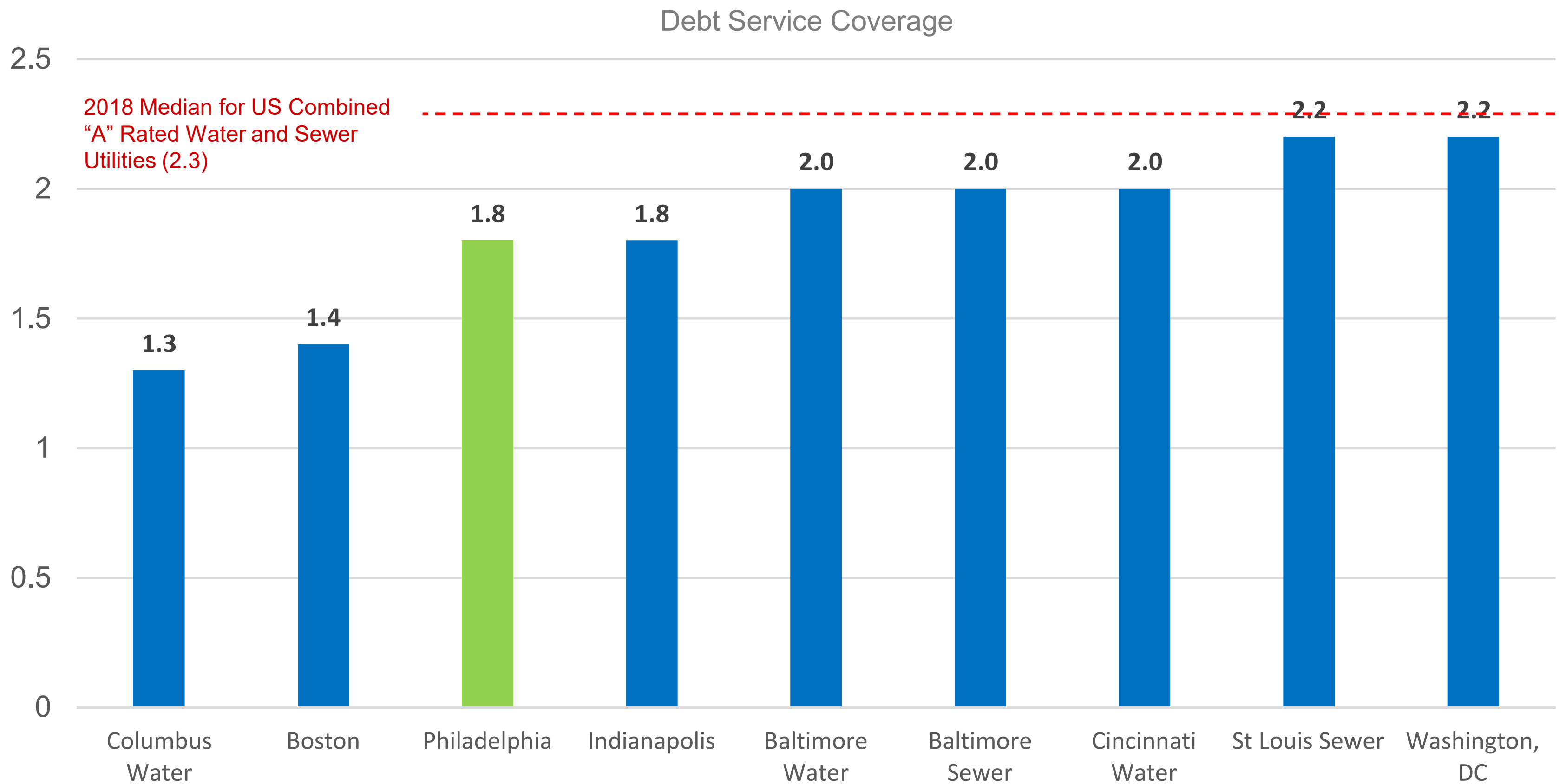
Source: Moody's Investor Services, United States Census Bureau and American Fact Finder. Figures represent 2019 median household income statistics.

COMBINED BILL AS % OF EACH CITY'S MHI



Annual Debt Service Coverage

PWD has modest debt service coverage compared to peer utilities and is below median coverage for other "A" water and sewer rated utilities.

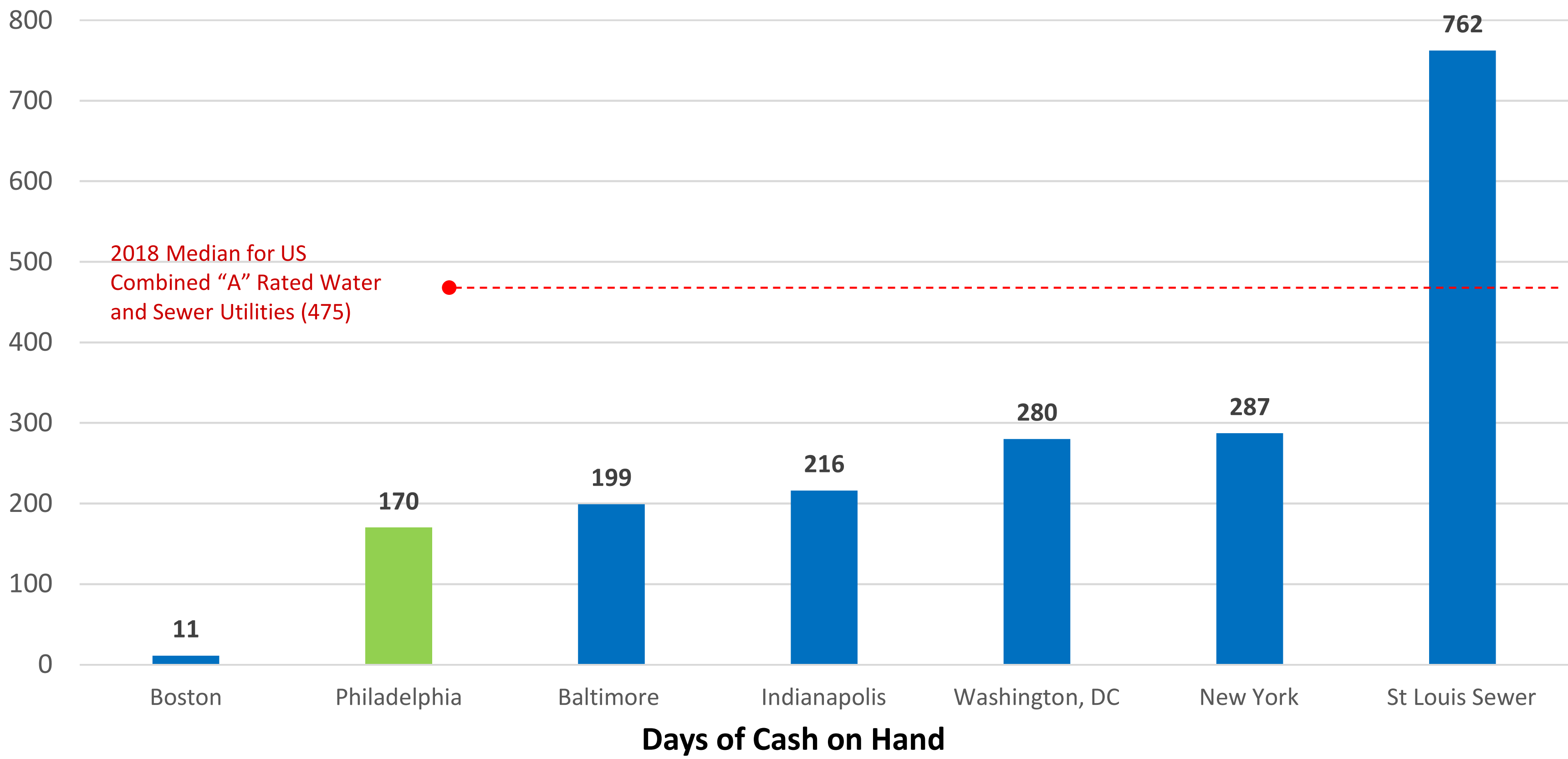


Note: Annual debt service coverage is defined as *"most recent year's net revenue divided by most recent year's debt service, expressed as a multiple."*
(Source: Moody's Water and sewer utilities – US Medians - Solid financial performance, ability to increase rates underpin stability – May 2020)

PHILADELPHIA WATER DEPARTMENT

PWD Reserve Levels vs. Peer Utilities

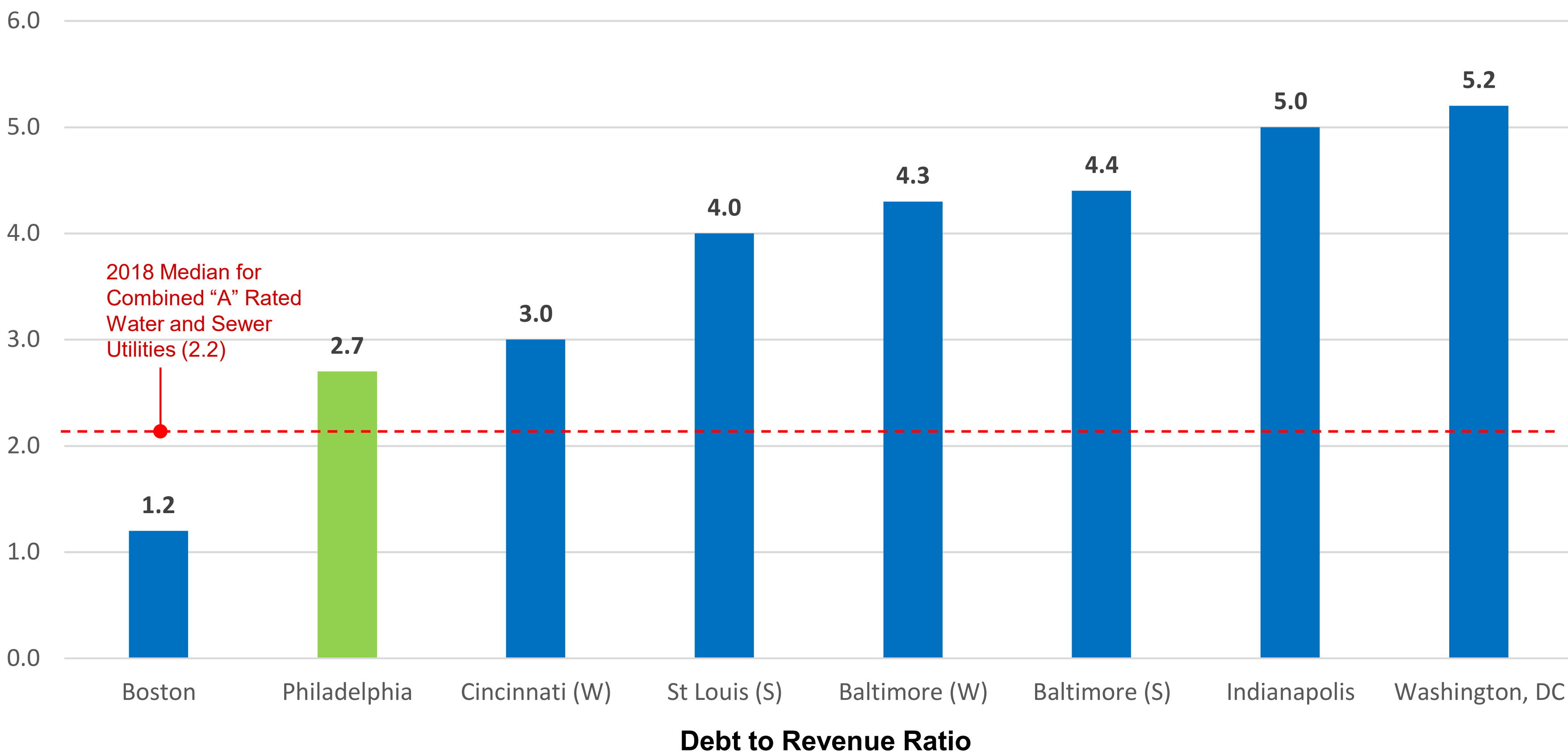
PWD has modest reserves compared to peer utilities and falls below the median for "A" rated water and sewer utilities.



Source: (source: Moody's Water and sewer utilities – US Medians - Solid financial performance, ability to increase rates underpin stability – May 2020)
Days of cash on hand information was not available for the following entities: Baltimore Water Enterprise, Greater Cincinnati Water Works, and City of Columbus, OH Water Enterprise.
NOTE: Days on cash is defined as the number of days that an organization can continue to pay its operating expenses, given the amount of cash available

Debt to Revenue Ratio

Despite increases in capital spending, PWD has a low debt to revenue ratio compared to peer utilities. PWD's current debt to revenue ratio is modestly higher than the median for other "A" rated utilities.

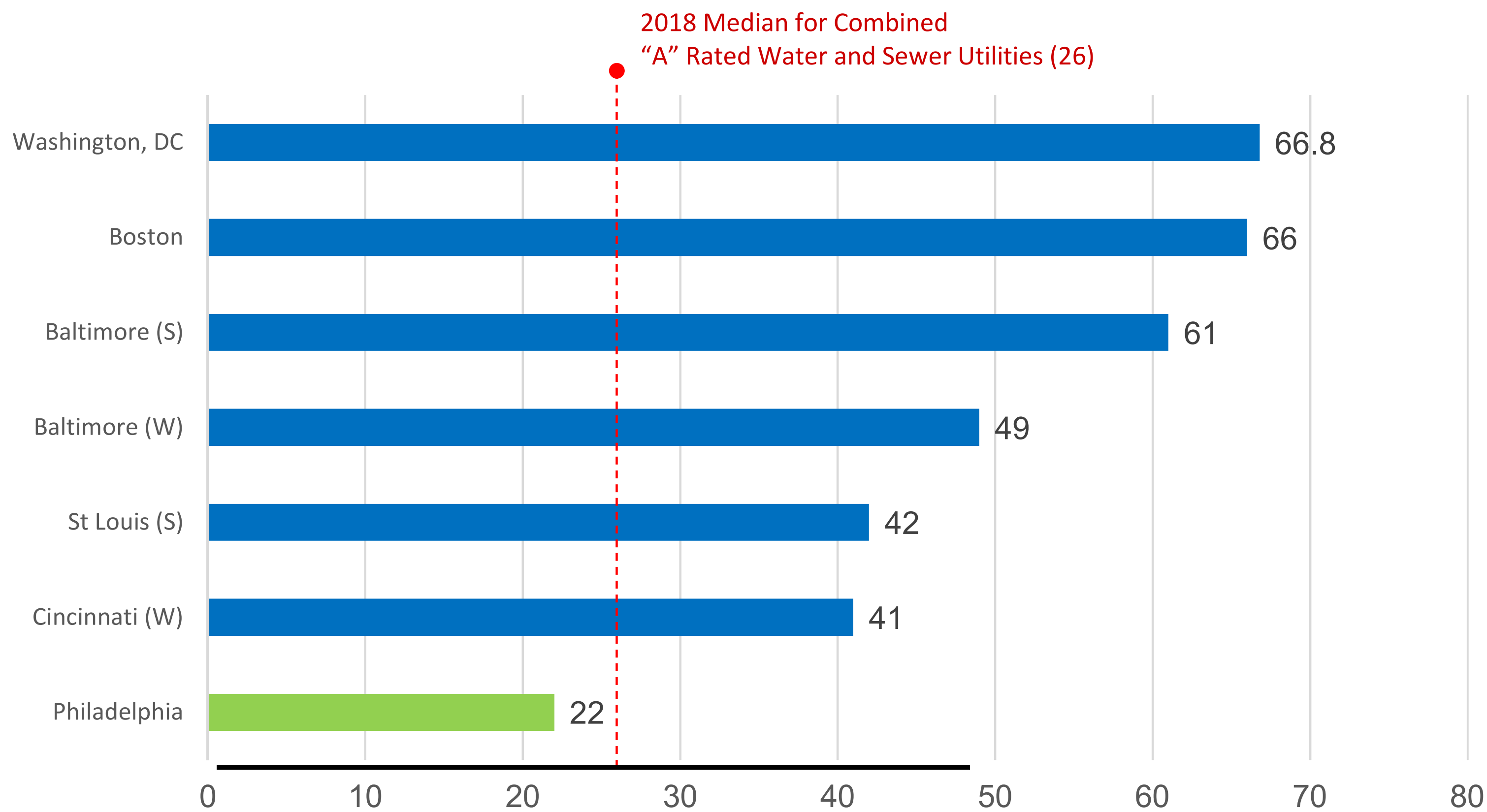


Key: (w): water only, (s): sewer only

Source: Moody's Investor Services. NOTE: Debt to revenue is defined as *"net debt divided by most recent year's operating expenses, expressed as a multiple."* Net debt is a utility's long-term debt subtracted by debt service reserve funds. (source: (source: Moody's Water and sewer utilities – US Medians - Solid financial performance, ability to increase rates underpin stability – May 2020)

Asset Condition

PWD's infrastructure has a shorter remaining useful life compared to other utilities, which indicates more investment will be needed to maintain the system.



Key: (w): water only, (s): sewer only

Source: (source: Moody's Water and sewer utilities – US Medians - Solid financial performance, ability to increase rates underpin stability – May 2020)
NOTE: Asset condition is defined as *"net fixed assets divided by most recent year's depreciation, expressed in years".*

Summary

- PWD projected revenues and revenue requirements indicate a rate increase is necessary for FY 2022 and 2023.
- PWD cannot further significantly draw down its financial reserves any further in lieu of rate relief.
- Instead, the Department must rebuild liquidity and improve financial position over the long term.
- The age of PWD's system, maintenance needs, and necessary replacements necessitate continued and focused investment in its infrastructure. The utility needs revenue to restart critical projects needed to sustain the operation.
- PWD does not compare favorably with many of its peer utilities (e.g., financial reserves, debt service coverage). To improve its peer comparisons for the long term, the PWD needs to bolster its financial metrics for the best alignment between debt service coverage and reserves.
- PWD cannot defer rate relief for FY 2022-23 as it did in the last general rate case. New rates are urgently needed now.

FY21-FY26 Projections

Projected Revenue & Revenue Requirements

FY21-FY26 Projected Revenue and Revenue Requirements

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

Line No.	Description			Fiscal Year Ending June 30, 2021	2022	2023	2024	2025	2026
	OPERATING REVENUE								
1	Water Service - Existing Rates			256,215	266,656	269,813	272,813	270,500	268,191
2	Wastewater Service - Existing Rates			411,294	427,613	433,417	438,954	436,238	433,537
3	Total Service Revenue - Existing Rates			667,509	694,269	703,229	711,766	706,738	701,727
	Additional Service Revenue Required								
	Year	Percent Increase	Months Effective						
4	FY 2021	0.00%	10	-	-	-	-	-	-
5	FY 2022	8.61%	10		48,864	60,553	61,290	60,859	60,429
6	FY 2023	5.05%	10			31,543	39,054	38,780	38,506
7	FY 2024	5.05%	10				33,556	40,757	40,469
8	FY 2025	7.24%	10					50,125	60,881
9	FY 2026	7.54%	10						55,599
10	Total Additional Service Revenue Required			-	48,864	92,096	133,900	190,520	255,884
11	Total Water & Wastewater Service Revenue			667,509	743,132	795,325	845,666	897,258	957,611
	Other Income (a)								
12	Other Operating Revenue			38,160	21,719	21,638	21,561	21,484	21,408
13	Debt Reserve Fund Interest Income			-	-	-	-	-	-
14	Operating Fund Interest Income			1,071	1,280	1,316	1,354	1,376	1,413
15	Rate Stabilization Interest Income			1,298	1,089	1,092	1,110	1,127	1,132
16	Total Revenues			708,038	767,220	819,371	869,691	921,245	981,564
	OPERATING EXPENSES								
17	Total Operating Expenses			(525,844)	(543,868)	(558,009)	(572,357)	(586,998)	(602,222)
	NET REVENUES								
18	Transfer From/(To) Rate Stabilization Fund			41,464	331	(446)	(2,611)	(340)	(170)
19	NET REVENUES AFTER OPERATIONS			223,658	223,683	260,916	294,723	333,907	379,172
	DEBT SERVICE								
	Senior Debt Service								
	Revenue Bonds								
20	Outstanding Bonds			(175,726)	(163,516)	(164,558)	(151,302)	(151,438)	(152,439)
21	Pennvest Parity Bonds			(10,651)	(10,885)	(11,067)	(14,864)	(14,864)	(15,182)
22	Projected Future Bonds			-	(10,000)	(37,726)	(75,393)	(107,893)	(144,284)
23	Commercial Paper			-	(2,000)	(4,000)	(4,000)	(4,000)	(4,000)
24	Total Senior Debt Service			(186,377)	(186,401)	(217,351)	(245,558)	(278,195)	(315,905)
25	TOTAL SENIOR DEBT SERVICE COVERAGE (L19/L24)			1.20 x	1.20 x	1.20 x	1.20 x	1.20 x	1.20 x
26	Subordinate Debt Service			-	-	-	-	-	-
27	Transfer to Escrow			-	-	-	-	-	-
28	Total Debt Service on Bonds			(186,377)	(186,401)	(217,351)	(245,558)	(278,195)	(315,905)
29	CAPITAL ACCOUNT DEPOSIT			(27,833)	(29,447)	(31,155)	(32,962)	(34,874)	(36,896)
30	TOTAL COVERAGE (L19/(L24+L26+L29))			1.04 x	1.03 x	1.04 x	1.05 x	1.06 x	1.07 x

PHILADELPHIA WATER DEPARTMENT

Ballard Spahr LLP

1735 Market Street, 51st Floor
Philadelphia, PA 19103-7599
TEL 215.665.8500
FAX 215.864.8999
www.ballardspahr.com

MEMORANDUM

TO	City of Philadelphia Water Department
FROM	Valarie J. Allen
DATE	January 10, 2021
RE	Flow of capital and operating funds under the City of Philadelphia Restated General Water and Wastewater Revenue Bond Ordinance of 1989, as amended (the "General Bond Ordinance")

In connection with the rate proceedings currently being undertaken by the City of Philadelphia Water Department ("Water Department"), you have asked us, as bond counsel to the Water Department, to prepare for submission a discussion of the legally permitted applications, including without limitation the operating and capital expenditure, of Project Revenues and other moneys credited to the Water and Wastewater Funds established under the General Bond Ordinance. We have prepared and we attach that discussion, entitled "Flow of Funds and Permitted Expenditure and Other Uses Under the Restated General Water and Wastewater Revenue Bond Ordinance of 1989, as amended," to this memorandum. The discussion attached supersedes in all respects the discussion entitled "Flow of Funds Under Restated General Water and Wastewater Revenue Bond Ordinance of 1989, as amended" dated February 5, 2018.

Ballard Spahr LLP was bond counsel to the Water Department at the time and participated in the drafting of the General Bond Ordinance. Since 1958, Ballard Spahr LLP has been listed continuously as a nationally recognized bond counsel firm in *The Bond Buyer's Municipal Marketplace* (the Red Book). I have served on Ballard's bond counsel team for the Water Department since 2007. I am a partner in the firm and co-chair the firm's public finance practice group. I am resident in our Philadelphia offices, where I practice exclusively in the area of public finance law.

Flow of Funds and Permitted Expenditures and Other Uses Under the Restated General Water and Wastewater Revenue Bond Ordinance of 1989, as amended

Prepared by
Ballard Spahr LLP
Bond Counsel

January 10, 2021

Ballard Spahr LLP

TABLE OF CONTENTS

Page

Section 1. ***INTRODUCTION AND BACKGROUND***

The treatment and application of revenues and other moneys of the City of Philadelphia (the "*City*"), relating to the its water system and wastewater system (together, the "*System*"), are governed by a legal structure created under Pennsylvania law, namely, the statutes and ordinances known as the Philadelphia Home Rule Charter[1] (the "*City Charter*"), the First Class City Revenue Bond Act[2] (the "*Revenue Bond Act*") and the City's Restated General Water and Wastewater Revenue Bond Ordinance of 1989 (as amended and supplemented, the "*General Bond Ordinance*"). This paper focuses primarily on the General Bond Ordinance, the provisions of which control, among other things, (1) the flow of funds or moneys generated by and otherwise related to the System, and (2) City's ability to obtain capital to invest in the infrastructure necessary to keep the System in good working condition.

The City Charter endows the Water Department with the duty and power to, among other things, (1) operate, maintain, repair, construct and improve the City's water supply and sewage disposal systems and facilities, and (2) impose and collect rates and charges sufficient to pay the costs of operating, maintaining, repairing, constructing and improving such systems and facilities.[3] In order for the Water Department to keep the System in good working condition and meet its mandate, it must repair, replace, and improve critical infrastructure on a regular basis. As noted in the annotations to the relevant provisions of the City Charter, paying the ongoing costs associated with the repair, construction and improvement of water and sewer infrastructure represent major capital investments by the City, the undertaking of which requires authorization by City Council. The Revenue Bond Act provides the City Council with the authority to finance these capital costs through the issuance of debt payable solely from revenues generated by or otherwise received for the System. City Council authorizes the City to make operating and capital expenditures, incur debt, and fund reserves for the System pursuant the General Bond Ordinance.

The City finances capital expenditures for the System primarily through (1) the incurrence of debt through the issuance of water and wastewater revenue bonds ("*Bonds*") and (2) the accumulation of revenues generated by the System and deposited to the Capital Account.[4] The General Bond Ordinance facilitates both of these methods for obtaining capital, but not simply by providing the mechanics for issuing bonds and accumulating revenues. The General Bond Ordinance is a contract between the City and its Bondholders concerning how the repayment of debt and other financing activities of the Water Department will be performed and controlled. It originally was enacted during a period when the City was financially distressed. The financial, operational, procedural and other covenants made by the City in the General Bond Ordinance largely reflect what was required by investors, rating agencies, and bond insurers and other credit enhancers at that time in order for the City to be able to sell its Bonds in the capital market and achieve an affordable cost of capital for its ratepayers.

---

[1] Philadelphia Home Rule Charter adopted by the electors of the City of Philadelphia on April 17, 1951, as amended.

[2] The First Class City Revenue Bond Act approved October 18, 1972 (Act No. 234, 53 P.S. § 15901 to 16924) as from time to time amended.

[3] See City Charter §5-800, §5-801.

[4] The City may from time to time receive state or federal grants, but any such amounts are immaterial for purposes of this discussion.

In 2018, the City amended the General Bond Ordinance (by Bill No. 171110-A, passed by Council on April 12, 2018 and signed by the mayor on April 24, 2018, the "2018, Amending Ordinance") The new provisions reflect, among other things, the increased credit strength of the Water Department and the Water Fund and the modern demands of the investor market. The amendments contained in the "2018 Amending Ordinance" are referred to as the "2018 Amendments" herein. Certain of the 2018 Amendments will not become effective until at least 67% of all holders of the City's water and wastewater revenue bonds have consented to them. The City has been accumulating consent from Bondholders of water and wastewater revenue bonds sold by the City subsequent to the date of the 2018 Amendments, but as of this date 67% of Bondholders' consent has not been obtained. The affected 2018 Amendments are referred to as the "Pending 2018 Amendments" herein.

On November 19, 2020, the Philadelphia City Council passed the Twenty-Fifth Supplemental Ordinance to the General Bond Ordinance, Bill No. 200599, enacted by signature of the mayor on December 1, 2020 (the "Twenty-Fifth Supplemental Ordinance"), to establish a revolving commercial paper program ("CP Program") to provide the Water Department a source of an interim, short-term financing to meet immediate capital spending needs between long-term debt issuances. The Twenty-Fifth Supplemental Ordinance provides for the issuance of obligations under the CP Program ("CP Obligations"), on a revolving basis, in an aggregate principal amount not greater than $400 million at any time outstanding. When issued, CP Obligations will constitute Bonds outstanding under the General Bond Ordinance, secured and payable with other senior debt under issued or incurred by the City under the General Bond Ordinance.

Section 2. ***PURPOSES OF GENERAL BOND ORDINANCE***

The General Bond Ordinance was enacted by the City for the purposes of:

- Authorizing the issuance from time to time by the City of debt in the form of water and wastewater revenue bonds ("*Bonds*"), payable solely from revenues attributable to the City's water and wastewater systems (the "*System*"), to pay capital costs of the System;

- Establishing a contract and security agreement between the City and holders of Bonds (and credit providers for Bonds) under which the City, for so long as any Bond or related obligation is outstanding, (a) covenants, among other things, to pay the Bonds and related obligations and (b) pledges security to holders of the Bonds (and credit providers for Bonds); and

- Establishing a system of funds and accounts with a fiscal agent, for the benefit of the holders of Bonds (and credit providers for Bonds), to facilitate and control the segregation, deposit, holding, investment, transfer and expenditure of all Project Revenues (defined below) and all other moneys related to the System, including for the payment of the Bonds.

Section 3. SECURITY INTERESTS IN PROJECT REVENUES AND WATER AND WASTEWATER FUNDS

This section discusses the sources of payment and security for Bonds, as governed by the General Bond Ordinance. "Revenue bonds" are so called because they are payable only from a particular stream of revenues. In the case of Water and Wastewater Revenue Bonds, they are payable from "Project Revenues", i.e., revenues generated by and collected in respect of the System (as more particularly defined below). Under the General Bond Ordinance, the City has covenanted that it will expend Project Revenues only in support of the System and in a specified order of priority; and the City has granted to U.S. Bank National Association, as fiscal agent under the General Bond Ordinance (together with its successors and assigns, the "*Fiscal Agent*"), for the benefit of all Bondholders (other than holders of Subordinated Bonds)[5], a first lien on and security interest in all Project Revenues and amounts in the Water and Wastewater Revenue Funds (other than the Rebate Fund)[6].

3.1 Deposit of Project Revenues, Segregation of Water and Wastewater Funds

In order to preserve and protect Bondholders' sole source of payment and security – Project Revenues – the General Bond Ordinance provides for strict controls on the collection, deposit, segregation and disbursement of Project Revenues. The City must cause all Project Revenues received by it to be deposited into the Revenue Fund upon receipt; and the Fiscal Agent must, upon receipt of Project Revenues, deposit them into the Revenue Fund. Under the General Bond Ordinance, "*Project Revenues*" is defined to include:

> all rents, rates, fees and charges imposed or charged for the connection to, or use or product of or services generated by the System to the ultimate users or customers thereof, all payments under bulk contracts with municipalities, governmental instrumentalities or other bulk users, all subsidies or payments payable by Federal, State or local governments or governmental agencies on account of the cost of operation of, or the payment of the principal of or interest on moneys borrowed to finance costs, chargeable to the System, all grants, payments and contributions made in aid or on account of the System exclusive of grants and similar payments and contributions solely in aid of construction and all accounts, contract rights and general intangibles representing the foregoing.
> (GBO Section 2.01)

---

[5] The Fiscal Agent must hold and apply such security interests, in trust, for the equal and ratable benefit and security of all present and future Holders of Bonds (other than Subordinated Bonds) issued pursuant to the provisions of the General Bond Ordinance and each Supplemental Ordinance, without preference, priority or distinction of any one Bond over any other Bond (other than Subordinated Bonds); provided however, that the pledge of the General Bond Ordinance may also be for the benefit of a Credit Facility and Qualified Swap, or any other person who undertakes to provide moneys for the account of the City for the payment of principal or redemption price of and interest on any Series of Bonds (other than Subordinated Bonds), on and equal and ratable basis with Bonds, to the extent provided by any Supplemental Ordinance or Determination.

[6] The Rebate Fund is established for the purpose of paying to the United States Treasury the amount required to be rebated pursuant to Section 148(f) of the Code. All amounts in the Rebate Fund, including income earned from investment of amounts in the Rebate Fund shall be held free and clear of the lien created by the General Bond Ordinance

The funds and accounts established under the General Bond Ordinance must be held separate and apart from all other funds and accounts of the City and the Fiscal Agent. The moneys in such funds and accounts may not be commingled with, loaned or transferred among themselves, or with or to any other funds or accounts of the City, except as expressly permitted in the General Bond Ordinance.
(GBO Section 4.05(a))

3.2 Pledge of Project Revenues

The City has pledged and granted a lien on and security interest in all Project Revenues to the Fiscal Agent, for the equal and ratable security and payment of all Bonds (other than Subordinated Bonds). Financing statements have been filed with the Secretary of State of the Commonwealth of Pennsylvania in respect of such pledge and grant of security interest.
(GBO Section 4.02)

3.3 Pledge of Funds and Accounts

The City has pledged and granted a lien on and security interest in all amounts on deposit in or standing to the credit of the funds and accounts (other than the Rebate Fund) established in Section 4.04 of the General Bond Ordinance, together with interest earnings on amounts in such funds and accounts (other than the Rebate Fund) to the Fiscal Agent, for the equal and ratable security and payment of all Bonds (other than Subordinated Bonds). Financing statements have been filed with the Secretary of State of the Commonwealth of Pennsylvania in respect of such pledge and grant of security interest.
(GBO Section 4.02)

The funds and accounts established under Section 4.04 of the General Bond Ordinance and held by the Fiscal Agent include the Revenue Fund; the Sinking Fund, and within the Sinking Fund the Debt Service Account, Debt Reserve Account and Charges Account; the Subordinated Bond Fund; the Rate Stabilization Fund; the Residual Fund; the Construction Fund, and within the Construction Fund the Bond Proceeds Account, Capital Account and Existing Projects Account; and the Rebate Fund. In addition, under certain conditions in connection with the issuance of one or more Series of Bonds, the City may establish additional funds or accounts to be held for the benefit of one or more Series of Bonds, as set forth in Supplemental Ordinances.
(GBO Section 4.04)

*Section 4. **INTRODUCTION TO FUNDS AND ACCOUNTS AND THEIR PURPOSES***

This Section lists the funds and accounts established under the General Bond Ordinance and summarizes the purposes for which moneys in each fund or account may be used.

4.1 Revenue Fund

All Project Revenues initially are deposited into the Revenue Fund for payment of Operating Expenses; and then remaining Project Revenues are transferred to the other funds and accounts established under the General Bond Ordinance, as described in ***Section 5***, below. Other moneys may be transferred or deposited into the Revenue Fund at the City's direction, as described below.
(*GBO Section 4.06*)

4.2 Sinking Fund

The Sinking Fund is a consolidated fund for the equal and proportionate benefit of the holders of all Bonds (other than Subordinated Bonds) Outstanding, including CP Obligations. Money deposited in the Sinking Fund may be used only to pay Debt Service Requirements (i.e., principal, interest and redemption price, as applicable) on such Bonds and other obligations (such as payments under Credit Facilities or Exchange Agreements) related to such Bonds. The Sinking Fund consists of three accounts: the Debt Service Account, the Debt Reserve Account and the Charges Account, which are described below.
(*GBO Section 4.07*)

Debt Service Account

Money in the Debt Service Account of the Sinking Fund is used to pay debt service and redemption price on Bonds (other than Subordinated Bonds) and related obligations. The Fiscal Agent, as directed by the City, pays (i) by each interest payment date for any such Bonds the amount for the interest payable on such date, (ii) by each principal payment, prepayment or redemption date for any such Bonds the amount payable on such date, and (iii) by the respective due dates the amounts, if any, due under any Swap Agreements or Credit Facilities.
(GBO Section 4.07)

Debt Reserve Account

Money in the Debt Reserve Account of the Sinking Fund is used primarily to cure deficiencies in the Debt Service Account to ensure timely payment of debt service (and other obligations of the City that are payable from the Debt Service Account). If the money in the Debt Service Account is insufficient to pay the debt service or redemption price on any Bond or other obligation payable from the Debt Service Account when due (including under Swap Agreements and Credit Facilities), the Fiscal Agent must transfer from the Debt Reserve Account into the Debt Service Account the amount of such deficiency.

The money and investments in the Debt Reserve Account must be held and maintained in an amount equal at all times to the Debt Reserve Requirement, as defined under the General Bond Ordinance. The Debt Reserve Requirement is generally met through the deposit of Bond proceeds each time Bonds (other than Subordinated Bonds) are issued. The amount of such deposit is the amount necessary to ensure that the Debt Reserve Requirement will be met upon the issuance of such Bonds.

There are two exceptions to the requirement described in the preceding paragraph to deposit Bond proceeds into the Debt Reserve Account at the time of issuance. The Supplemental Ordinance under which the Bonds are issued may permit the City, in lieu of making such a deposit at the time of issuance, either (i) to accumulate from Project Revenues of a reserve of such amount in respect of such Bonds over a period of not more than three Fiscal Years after the issuance and delivery of such Bonds, then the full payment of the annual deposits required under such Supplemental Ordinance will meet the Debt Reserve Requirements of the General Bond Ordinance in respect of such Bonds, or (ii) in lieu of the required deposits into the Debt Reserve Account, the City may cause to be deposited into the Debt Reserve Account a surety bond or an insurance policy payable to the Fiscal Agent for the account of the Bondholders and any Qualified Swap or an irrevocable letter of Credit in an amount equal to the difference between the Debt Service Requirement and the remaining sums, if any, then on deposit in the Debt Reserve Account.
(GBO Section 4.09)

Certain of the Pending 2018 Amendments provide for the creation of subaccounts within the Debt Reserve Account whereby amounts in each such subaccount would secure and inure to a specific Series of Bonds only. The creation of such a Series subaccount (each, a "Series Debt Reserve Subaccount") will have to be authorized under the Supplemental Ordinance that authorizes the issuance of the subject Series of Bonds. Each Series Debt Reserve Subaccount will have its own Series Debt Reserve Requirement separate from the common Debt Reserve Requirement.[7]

Charges Account

The Fiscal Agent pays out of the Charges Account to the appropriate payees any fees, expenses and other amounts due under any Credit Facility with respect to Bonds (other than Subordinated Bonds), to the extent such amounts are not paid from the Debt Service Account.
(GBO Section 4.07)

Calculation of Debt Service Requirements; CP Obligations

Amounts Comprising Debt Service Requirements of Bonds Generally. Debt Service Requirements in any period equals the aggregate amount of principal, interest and redemption price paid on Bonds during the period out of amounts derived from Project Revenues and available under the General Bond Ordinance to pay debt service on Bonds. Those amounts are paid out of the Debt Service Account of the Sinking Fund.[8]

Under the General Bond Ordinance, "Debt Service Requirements," with reference to a specified period, means:

A. amounts required to be paid into any mandatory sinking fund[9] established for the benefit of Bonds during the period;

B. amounts needed to pay the principal or redemption price of Bonds maturing during the period ***and not to be redeemed at or prior to maturity through any sinking fund established for the benefit of Bonds*** [emphasis added];

---

[7] The Pending 2018 Amendments will add the following two definitions to the General Bond Ordinance.

> "Series Debt Reserve Requirement" means, for any Series of Bonds, the amount, if any, required pursuant to a Supplemental Ordinance or Determination to be reserved and (if such amount is greater than zero dollars ($0) deposited or maintained in the Series Debt Reserve Subaccount established for such Series of Bonds; provided that such amount may equal zero dollars ($0); and provided further that such amount may not exceed the lesser of (i) the greatest amount of Debt Service Requirements payable on such Series of Bonds in any one Fiscal Year and (ii) the maximum amount permitted to be financed with proceeds of such Series of Bonds permitted by Section 148(d)(1) the Code (or any successor provision).
>
> "Series Debt Reserve Subaccount" means any subaccount of the Debt Reserve Account created, pursuant to a Supplemental Ordinance or Determination for a particular Series of Bonds, which Series of Bonds will not otherwise be secured by the Debt Reserve Account and for which a Series Debt Reserve Requirement applies.

[8] In the event of a deficiency in the Debt Service Account of the Sinking Fund, the General Bond Ordinance provides for transfer of moneys to such account to cure the deficiency rather than for payment of debt service from another fund or account established thereunder.

[9] This represents payments made when due with respect to the scheduled amortization of Bonds.

C. interest payable on Bonds during the period, ***with adjustment for capitalized interest or redemption through any sinking fund established for the benefit of Bonds*** [emphasis added]; and

D. all net amounts, if any, due and payable by the City under a Qualified Swap during such period.
(GBO Section 2.01)

The language emphasized is intended to highlight the exceptions, i.e., the amounts paid or payable that are not includible in the calculation of Debt Service Requirements. These exceptions include amounts paid from sources other than the Debt Service Account of the Sinking Fund such as, for example, proceeds of Bonds issued to pay down prior Bonds or to fund capitalized interest.

Amounts Comprising Debt Service Requirements of CP Obligations. CP Obligations will constitute Bonds outstanding under the General Bond Ordinance. As such, for purposes of determining, from time to time, the Debt Reserve Requirement or Rate Covenant compliance under the General Bond Ordinance, such calculations will be required to include, as Debt Service Requirements on Bonds (other than Subordinated Bonds), principal of or interest on outstanding CP Obligations that is paid or payable (as applicable) from Project Revenues and other amounts deposited or credited to the Debt Service Account of the Sinking Fund[10], if any, consistent with clauses B and C above. Principal of or interest on CP Obligations paid from other sources, such as proceeds of other Bonds (including other CP Obligations), will not be included in such calculations.

4.3 Subordinated Bond Fund

Any money in the Subordinated Bond Fund will be used to pay the principal of, redemption premium, if any, and interest on Subordinated Bonds and make payments due under any Credit Facilities and Exchange Agreements with respect to Subordinated Bonds. To date, the City has not issued any Subordinated Bonds.
(GBO Section 4.10)

4.4 Rate Stabilization Fund

The purpose of the Rate Stabilization Fund is to maintain liquidity in the Water and Wastewater Funds in satisfaction of financial covenants and otherwise for the financial health and operation of the water and sewer enterprise. The Water Commissioner will determine any transfer to be made between the Revenue Fund and the Rate Stabilization Fund, which transfer occurs as of June 30 of each Fiscal Year.
(GBO Section 4.13)

4.5 Construction Fund

Unless being used to fund a deficiency described in ***5.4*** or ***5.5*** below, Construction Fund moneys only may be used to pay capital expenditures, that is, to pay the costs of acquiring or constructing new assets and replacing or improving existing assets to maintain and expand the System. Please refer to ***5.3***

[10] This includes principal or interest initially paid under a Credit Facility reimbursed by the City out of the Debt Service Account of the Sinking Fund.

for additional information concerning qualified (capital) expenditures and limitations on the use of moneys deposited into the Construction Fund.

The Construction Fund consists of three accounts: the Bond Proceeds Account, the Capital Account and the Existing Projects Account. The purposes of the Bond Proceeds Account and the Capital Account are described below. The Existing Projects Account held unexpended proceeds of bonds issued for the System prior to the enactment of the General Bond Ordinance – which have since been expended – and is no longer in use.
(GBO Section 4.11)

Bond Proceeds Account

The Bond Proceeds Account holds proceeds of Bonds issued for "capital purposes" (and not for refunding purposes) under the General Bond Ordinance, for disbursement according to established procedures of the City to pay the costs of new capital projects.

Capital Account

Moneys deposited into the Capital Account must be used for capital expenditures, or else to pay debt service in limited circumstances.[11] Specifically, such amounts may be applied to (i) payments for the cost of renewals, replacements and improvements to the System; (ii) payments into the Sinking Fund or into the Subordinated Bond Fund to cure a deficiency in one of the foregoing; or (iii) the purchase of Bonds if a Consulting Engineer first has certified to the City that amounts remaining on deposit in the Capital Account following the proposed purchase of Bonds will be sufficient to pay, the cost of renewals, replacements and improvements to the System projected to be payable during such Fiscal Year.

4.6 Residual Fund

As the Water and Wastewater Funds are a closed system, the Residual Fund is the last Fund into which Project Revenues are transferred from the Revenue Fund. Money in the Residual Fund may be used to pay Operating Expenses or debt service, or for almost any other purpose in support of the System, as described in ***5.2*** and ***5.4*** below. In addition, money in the Residual Fund may be used to fund a transfer to the City's General Fund limited to the "Net Reserve Earnings"[12] up to a maximum of $4,994,000. This annual transfer is often referred to as the "scoop" by the City.
(GBO Section 4.12)

4.7 Rebate Fund

The Rebate Fund is maintained for the purpose of paying to the United States Treasury the amount required to be rebated pursuant to Section 148(f) of the Code. All amounts in the Rebate Fund,

[11] Such moneys may be used for other very limited purposes only in the event of a deficiency in another Fund. *See* ***5.4*** and ***5.5*** for an explanation of such other purposes.

[12] "Net Reserve Earnings" means the amount of interest earnings during the Fiscal Year on amounts in the Debt Reserve Account and the Subordinated Bond Fund less the amount of interest earnings during the Fiscal Year on amounts in any such reserve funds and accounts giving rise to a rebate obligation pursuant to Section l48(f) of the Code.

including income earned from investment of amounts in the Rebate Fund must be held by the City free and clear of the lien created by the General Bond Ordinance.

Section 5. ***FLOW OF FUNDS UNDER THE GENERAL BOND ORDINANCE***

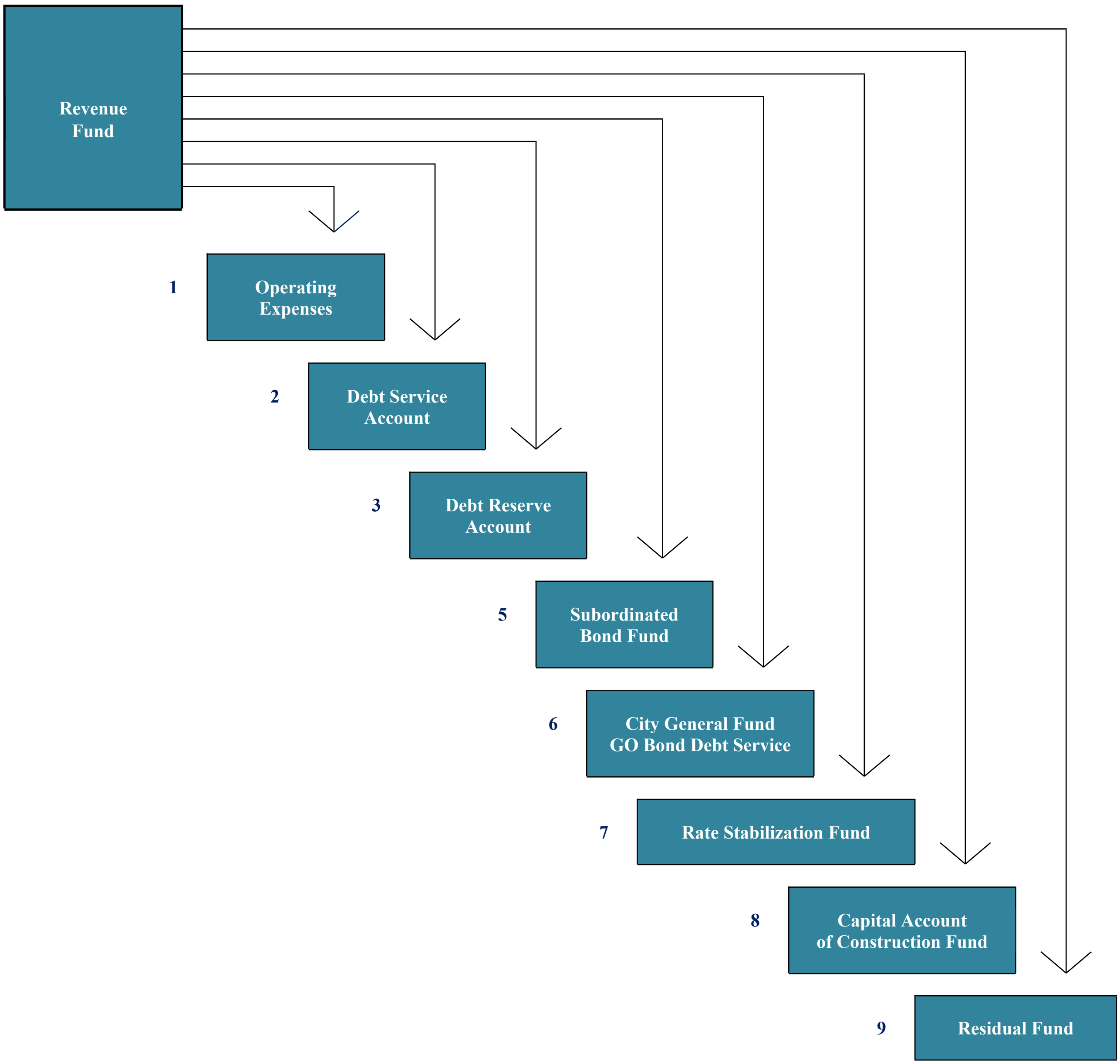
The General Bond Ordinance controls the City's and Fiscal Agent's ability to expend, disburse, transfer and invest Project Revenues and other moneys in the Water and Wastewater Funds and their accounts. This Section describes how and for what purposes such moneys flow in and out of those funds and accounts from time to time, in accordance with the provisions of the General Bond Ordinance.

5.1 The Waterfall

Project Revenues and other moneys (other than investment earnings) initially enter the Water and Wastewater Funds when they are deposited into the Revenue Fund. Moneys in the Revenue Fund are disbursed or transferred to the other funds and accounts in order of priority set forth in the General Bond Ordinance. This "flow of funds" often is described as a waterfall. Moneys flow out of the Revenue Fund and down to each fund or account to satisfy the purposes set forth in the General Bond Ordinance for such fund or account (e.g., such as payment of current obligations or replenishment of amounts that were withdrawn). Each of the funds and accounts into which water flows is often referred to as a "bucket" that catches moneys until it is filled, at which point moneys flow over it and down to the next bucket. ***Figure 5.1*** depicts this waterfall; and the number next to each of the boxes corresponds to the funds and accounts, or buckets, and purposes served with the moneys in those buckets.[13]

[13] There is no box numbered 4, as the referenced account, which may be established at the option of the City, has not been established.

Figure. 5.1
Water and Wastewater Revenue Funds "Waterfall"



The General Bond Ordinance requires that amounts in the Revenue Fund must be disbursed and applied in the following manner and order of priority.[14] *(GBO Section 4.06)*

1. Pay ***Operating Expenses*** in a timely manner.

2. Deposit into the ***Debt Service Account*** of the Sinking Fund amounts necessary for the Fiscal Agent to pay debt service and redemption price on Bonds (other than Subordinated Bonds), payments under a Swap Agreement, and payments or reimbursements under a Credit Facility, when due.

3. Deposit into the ***Debt Reserve Account*** the amount required to eliminate any deficiency therein.

4. Deposit into the any debt reserve account established within the Sinking Fund and not held for the equal and ratable benefit of all Bonds (other than Subordinated Bonds) the amount required to eliminate any deficiency therein.[15]

5. Deposit into the ***Subordinated Bond Fund*** the amount necessary to provide for the timely payment of the principal or redemption price of and interest on Subordinated Bonds, and forward to the paying agent in respect of bond anticipation notes (payable by exchange for, or out of the proceeds of the sale of Subordinated Bonds) the amount necessary to provide for the timely payment of interest thereon (to the extent not capitalized).

6. Pay to the City the amount necessary to provide for the timely payment of the principal or redemption price of and interest on ***General Obligation Bonds*** of the City issued to finance or refinance capital projects of the System.

7. Deposit into the ***Rate Stabilization Fund*** such amount as the Water Commissioner may determine.

8. Deposit into the ***Capital Account*** of the Construction Fund on June 20 of each Fiscal Year an amount equal to the sum of (i) the Capital Account Deposit Amount[16], (ii) the Debt Service Withdrawal[17] for the preceding Fiscal Year and (iii) the Operating Expense

---

[14] Notwithstanding the foregoing, nothing in the General Bond Ordinance will prevent the City from directing the transfer of amounts on deposit in in any fund or account established under General Bond Ordinance into the Rebate Fund in the amounts and at the times specified by the General Bond Ordinance.

[15] To date, no such account has been established for any Series of Bonds.

[16] "Capital Account Deposit Amount" means an amount equal to one percent (1.0%) of the depreciated value of property, plant and equipment of the System or such greater amount as shall be annually certified to the City in writing by a Consulting Engineer as sufficient to make renewals, replacements and improvements in order to maintain adequate water and wastewater service to the areas served by the System.

[17] "Debt Service Withdrawal" means the aggregate amount withdrawn from the Capital Account during a Fiscal Year and applied toward the payment of principal or redemption price of or interest on Bonds or toward the elimination of a deficiency in any reserve fund established for the benefit of Bonds.

Withdrawal[18] for the preceding Fiscal Year, less any amounts transferred during the Fiscal Year to such Capital Account from the Residual Fund.

9. Deposit all remaining amounts into the Residual Fund.

5.2 Other Deposits to the Revenue Fund

Project Revenues are the primary but not the sole source of moneys that flow into the Revenue Fund. For example, earnings on the investment of moneys held in certain funds and accounts are transferred to the Revenue Fund, as provided by the General Bond Ordinance. Once in the Revenue Fund, these moneys again flow through the waterfall.

This Section describes the conditions under and purposes for which moneys, other than Project Revenues, are deposited into the Revenue Fund.

Debt Reserve Account Excess

The money and investments in the Debt Reserve Account must be held and maintained in an amount equal at all times to the Debt Reserve Requirement. The Debt Reserve Requirement is generally met through the deposit of Bond proceeds each time Bonds (other than Subordinated Bonds) are issued. The amount of such deposit is the amount necessary to ensure that the Debt Reserve Requirement will be met upon the issuance of such Bonds.

An excess in the Debt Reserve Account may arise when principal on Bonds is paid or prepaid. For example, when refunding Bonds are issued to refinance existing debt, amounts already on deposit in the Debt Reserve Account probably will be sufficient or even in excess of what is needed to meet the Debt Reserve Requirement as recalculated when the new Bonds are issued and the old Bonds paid. The General Bond Ordinance states that any money in the Debt Reserve Account in excess of the Debt Reserve Requirement must be transferred to the Revenue Fund at the written direction of the City. How such excess is subsequently disbursed from the Revenue Fund and applied will be limited to the extent that the transferred excess consists of tax-exempt Bond proceeds.[19]
(GBO Section 4.09)

Investment Earnings from Certain Funds and Accounts

All or a portion of the net earnings on deposit in the following funds and accounts are required under the General Bond Ordinance to be transferred or credited to the Revenue Fund. Such crediting typically occurs when the books are closed as of each Fiscal Year end.
(GBO Section 4.16)

1. Revenue Fund.

[18] "Operating Expense Withdrawal" means the aggregate amount withdrawn from the Capital Account during a Fiscal Year and applied toward the payment of Operating Expenses.

[19] Under the Code, the use of tax-exempt bond proceeds will be limited to payment of debt service or redemption price on Bond and will not be eligible to pay Operating Expenses. There currently is pending in City Council a supplemental ordinance that would permit the City to apply Debt Reserve Account excess directly to the payment of debt service on or redemption of Bonds or, if such excess is not comprised of tax-exempt bond proceeds, to transfer such excess to the Residual Fund.

2. Rate Stabilization Fund.

3. Sinking Fund (except the Debt Reserve Account), to the extent not needed to pay Debt Service Requirements on Bonds (other than Subordinated Bonds).

4. Debt Reserve Account, to the extent that (i) the Debt Reserve Requirement is satisfied and (ii) the scoop in the maximum permitted amount already has been transferred to the City's General Fund.

5. Subordinated Bond Fund, to the extent not needed to pay Debt Service Requirements on Subordinated Bonds.

6. Construction Fund, to the extent any amount is not credited to the appropriate account of the Construction Fund.

Rate Stabilization Fund

As earlier described, as of June 30 or each Fiscal Year, the Water Commissioner may transfer from the Rate Stabilization Fund to the Revenue Fund the amount she determines.

5.3 Capital Expenses and Payments from Construction Fund

Construction Fund moneys are available primarily for payment of capital expenditures in respect of the System. For an expenditure to qualify as capital and payable from the Bond Proceeds Account or the Capital Account of the Construction Fund, it must satisfy the requirements contained in (i) State law, specifically the Revenue Bond Act and the General Bond Ordinance, (ii) the Water Department's standards for defining capital assets, which may be found in the City's Comprehensive Annual Financial Report Fiscal Year Ended June 30, 2019, Note 6 (Capital Assets), and (iii) with respect to tax-exempt Bond proceeds, the Federal tax law (the "Code")[20]. Essentially, capital expenditures are investments in the System, i.e., payment of costs of the acquisition or construction of new assets, or the replacement or improvement of existing assets, to maintain and expand the System. Except in the very limited circumstances described under ***5.4***, operating expenses are not payable from the Construction Fund.

Federal Tax Law Concerning Tax-Exempt Bonds

Tax-exempt bonds generally provide the lowest cost debt for the City to finance capital projects, because holders of tax-exempt bonds are permitted under the Code (and Pennsylvania income tax law) to exclude the interest earnings on their bonds from income for tax purposes. Holders then can pass all or a portion of those savings back to the City in the form of a reduced rate of interest as compared to a taxable loan. The exclusion from income and resulting reduced cost of borrowing described above constitute an indirect subsidy from the U.S. Treasury to the City to offset the City's infrastructure costs. As such, of the City's total System debt outstanding, an overwhelming portion is funded from tax-exempt bonds.[21]

This federal subsidy is a scarce resource given for a singular purpose: to support state and local funding of public infrastructure. The distribution of this subsidy is heavily regulated to ensure that that

[20] That is, the Internal Revenue Code of 1986, as amended, and the regulations promulgated thereunder.

[21] Pennvest Loans are funded from tax-exempt bonds issued by Pennvest for the purpose of making such loans.

purpose is met. More specifically, the Code restricts the purposes for which proceeds of tax-exempt Bonds and any earnings thereon[22] may be expended to the acquisition, construction, improvement or equipping of facilities that are owned or controlled by the City and fulfill a governmental purpose. So tax-exempt Bond proceeds are used only to fund capital expenditures of the System. They may not be used to pay operating expenses of the Water Department.

Guidance under the Code for determining capital expenditures versus operating expenses is generally given in the context of a taxpayer who seeks a deduction in the current year, rather than a political subdivision not subject to paying federal tax. That said, in general, under the Code a project cost is capitalized if it purchases an asset with a useful life of more than one year or extends the life of an asset for at least an additional year.[23] Expenses that are ordinary and recurring are not capitalized.[24] Some capital expenditures specifically identified in the Code that we expect are applicable to the operation of the System include (without limitation) paying costs of acquisition or construction of new buildings or permanent improvements and equipment having a useful life substantially beyond the current year, as well as the cost of defending or perfecting title to property.[25] Costs of removal or retirement of a depreciable asset in connection with the construction, development, improvement or installation of a replacement asset is not capitalized as part of the cost of the replacement asset.[26] However, costs of demolishing a building must be capitalized into the value of the land on which it was located.[27]

State Law

First Class City Revenue Bond Act. The Revenue Bond Act contains comprehensive statutory authority for the City[28] to finance self-funding infrastructure through the issuance of special obligations of the City (i.e., revenue bonds or notes).[29] Under to the Revenue Bond Act, the City may finance "project costs" through the issuance of debt payable solely from revenues generated by such projects. For purposes of the Revenue Bond Act, "project costs" include all costs of construction or acquisition of a project with proper allowance for contingencies determined in accordance with generally accepted municipal accounting principles.[30] "Projects" include buildings, structures, facilities or improvements of a public nature, related estates in land, and related furnishings or equipment, which the City is authorized to

---

[22] Under the Code, investment earnings on tax-exempt bond proceeds (referred to as "investment proceeds") generally are treated as bond proceeds.

[23] *See INDOPCO Inc. v. Comr,* 503 U.S. 79 (1992).

[24] IRC § 162(a).

[25] *See* IRC § 263; Treas. Regs. §§ 1.263(a)-1 and 1.263(a)-2.

[26] *See* Rev. Rul. 2000-7 relating to IRC § 263.

[27] *See* IRC § 280C.

[28] The City of Philadelphia is the only first class city of the Commonwealth of Pennsylvania. *See* 53 P.S. § 12101 *et seq*.

[29] *See* Section 3 of the Revenue Bond Act.

[30] As defined in the Revenue Bond Act, the term "project costs" may include but is not limited to costs of preliminary studies, surveys, planning, testing and design work; fees and expenses of engineers, architects, financial advisors, attorneys and other experts engaged in connection with the project; financing costs including bond discount, interest on money borrowed to finance the project if capitalized and operating capital during construction and for one year after completion of the project; capitalized reserves, the repayment of temporary loans or the payment of bond anticipation notes made or issued in connection with the project, and any of the foregoing incurred or paid prior to as well as after the issuance of revenue bonds.

own, construct, acquire, improve, lease, operate, maintain or support, and in respect of which the City may reasonably be expected to receive project revenues.

General Bond Ordinance. The City enacted the General Bond Ordinance under authority granted under the Revenue Bond Act.[31] As such, the provisions of the General Bond Ordinance concerning the City's ability to finance and refinance projects with Bonds are entirely consistent with the provisions of the Revenue Bond Act.

The General Bond Ordinance also establishes a Capital Account of the Construction Fund for purposes of accumulating moneys sufficient, at minimum, to pay project costs for renewals, replacements and improvements to the System as needed to maintain adequate water and wastewater service to the areas that the System serves.

Accounting Standards

The City's standards for defining capital assets may be found in Comprehensive Annual. Financial Report Fiscal Year Ended June 30, 2018, Note 6. Briefly summarized, capital assets include property, plant, equipment and infrastructure assets with an initial individual cost in excess of $5,000 and an estimated useful life in excess of three years.

5.4 Sources for Payment of Operating Expenses in Event of Revenue Fund Deficiency

The first priority for the Revenue Fund is timely payment of Operating Expenses. Operating Expenses must be paid first in order to ensure that the System continues to generate Project Revenues to repay debt and for all of the other purposes mandated by the General Bond Ordinance. To this end, to the extent that at any time amounts in the Revenue Fund are insufficient to pay Operating Expenses when due, the General Bond Ordinance provides for the use of moneys in certain other funds and accounts, including the Residual Fund, the Rate Stabilization Fund and the Capital Account of the Construction Fund, for this purpose.

From Residual Fund

Payment of Operating Expenses is the first purpose listed in the General Bond Ordinance for which moneys in the Residual Fund may be used.
(GBO Section 4.12(i))

Temporary Loans

The General Bond Ordinance permits the City to make temporary loans from the Residual Fund, Rate Stabilization Fund and Capital Account of the Construction Fund to the Revenue Fund if, at any time, amounts in the Revenue Fund are insufficient both to pay Operating Expenses and to make the transfers described in ***5.1*** above. Such loans are limited to the amount of any such deficiency. Such loans must be repaid when or before such loaned amounts are required by the Water Department for the purposes of the Fund making the loan. The terminology "temporary loan" connotes that the amounts transferred under these provisions of the General Bond Ordinance are not re-counted as revenues, and are

[31] *See* Section 4 of the Revenue Bond Act.

to be replenished not later than when they are needed for the purposes of the respective fund or account.
(GBO Section 4.05, 4.11)

5.5 Sources for Payment of Debt Obligations in Event of Debt Service Account Deficiency

The second priority for the Revenue Fund is the transfer of moneys to the Sinking Fund to ensure timely payment of debt service and redemption price on Bonds (other than Subordinated Bonds) and related obligations such as credit facility and swap payments. If at any time Project Revenues from the Revenue Fund are insufficient to make the necessary deposit into the Debt Service Account of the Sinking Fund in order to pay all principal or redemption price of and interest on Bonds (other than Subordinated Bonds) and related obligations when due, the General Bond Ordinance provides for the transfer by the Fiscal Agent to the Debt Service Account of amounts in other funds and accounts to pay such debt service and other obligations.

Debt Reserve Account of Sinking Fund

The City has directed the Fiscal Agent that if at any time the moneys in the Debt Service Account are insufficient to pay when due, the principal or redemption price of or interest on any Bond payable from the Debt Service Account then due (including under Swap Agreements and Credit Facilities), the Fiscal Agent must transfer amounts necessary to cure such deficiency from the Debt Reserve Account to the Debt Service Account.
(GBO Section 4.09)

Residual Fund

The City is permitted, at its discretion, to transfer amounts from the Residual Fund to the Debt Service Account.
(GBO Section 4.12(ii))

Capital Account of Construction Fund

Amounts deposited in the Capital Account may be applied to cure a deficiency in the Sinking Fund, or to purchase Bonds under certain conditions including, among other things, the prior receipt by the City of a certification by a Consulting Engineer that amounts that will remain on deposit in the Capital Account following the proposed purchase of Bonds will be sufficient to pay the cost of renewals, replacements and improvements to the System projected to be payable during such Fiscal Year.
(GBO Section 4.11)

Subordinated Bond Fund

If at any time the amount in Debt Service Account is insufficient and there not on deposit in the Debt Reserve Account, the Capital Account and the Residual Fund available moneys sufficient to cure such deficiency, then the Fiscal Agent must withdraw from the Subordinated Bond Fund and deposit into the Debt Service Account the amount necessary (or all the moneys in the Subordinated Bond Fund, if they are less than the amount necessary) to eliminate such deficiency.
(GBO Section 4.10)

5.6 Other Permitted Transfers

Temporary Loans to the Construction Fund

The General Bond Ordinance permits the City to make temporary loans from the Revenue Fund, Rate Stabilization Fund and Residual Fund to the Construction Fund if, at any time, amounts in the Construction Fund are insufficient to pay capital expenses due and payable. Such loans are limited to the amount of any such deficiency. Such loans must be repaid when or before such loaned amounts are required by the Water Department for the purposes of the Fund making the loan.
(GBO Section 4.05)

Other Purposes of the Residual Fund

As the Residual Fund is the last bucket in the waterfall, moneys on deposit there are permitted to be used or transferred to almost any of the other Water and Wastewater Funds. In addition to paying Operating Expenses as described above, amounts in the Residual Fund may be used as follows: to fund transfers to any fund or account established under the General Bond Ordinance or under a Supplemental Ordinance (other than the Revenue Fund and the Rate Stabilization Fund); to make payments required under any Exchange Agreement; for the payment of debt service or redemption price on any revenue bonds or notes issued under the Act but not under the General Bond Ordinance or on any general obligation debt of the City (the proceeds of which were applied m respect of the System); for the payment of amounts due under capitalized leases or similar obligations relating to the System; and to fund the transfer of the scoop to the City's General Fund as of June 30 of each Fiscal Year. Amounts in the Residual Fund may not be transferred to the Revenue Fund or the Rate Stabilization Fund.
(GBO Section 4.12)

Subordinated Bond Fund Deficiency

As mentioned previously, amounts deposited in the Capital Account may be used to pay the cost of renewals, replacements and improvements to the System, and to cure deficiencies in the Sinking Fund and purchase Bonds. In addition, the City may apply moneys in the Capital Account to cure a deficiency, if any, in the Subordinated Bond Fund. To date, the City has never issued Subordinated Bonds.
(GBO Section 4.11)

5.7 Credit of Investment Earnings in Funds and Accounts

The General Bond Ordinance controls how money in the funds and accounts established thereunder may be invested and, more particularly for this discussion, where earnings on such money must be credited. ***5.2*** above highlights only earnings that flow to the Revenue Fund. More broadly, earnings on amounts on deposit in:

(i) the Revenue Fund must be credited to the Revenue Fund;

(ii) the Sinking Fund (except as provided in (iii) below) (A) must be credited to the Sinking Fund to the extent needed to meet Debt Service Requirements in respect of Bonds (other than Subordinated Bonds) and (B) additional interest earnings must be credited to the Revenue Fund;

(iii) the Debt Reserve Account (A) must be credited to the Debt Reserve Account until such account is fully funded and (B) must then be credited to the Residual Fund up to the scoop, and any amount in excess of the scoop must then transferred to the Revenue Fund;

(iv) the Subordinated Bond Fund must be credited (A) to the Subordinated Bond Fund to the extent needed to meet Debt Service Requirements in respect of Subordinated Bonds and (B) additional interest earnings must be credited to the Revenue Fund or to such other fund or account established under the General Bond Ordinance as the City may direct pursuant to a Supplemental Ordinance;

(v) the Residual Fund, must be credited to the Residual Fund;

(vi) the Rate Stabilization Fund must be credited to the Revenue Fund;

(vii) the Construction Fund must be credited to the appropriate account of the Construction Fund or to the Revenue Fund, as the City directs; and

(viii) the Rebate Fund must be credited to the Rebate Fund.
(GBO Section 4.16)

GLOSSARY OF CERTAIN TERMS USED IN THE GENERAL BOND ORDINANCE

"Act" means The First Class City Revenue Bond Act approved October 18, 1972 (Act No. 234, 53 P.S. § 15901 to 16924) as from time to time amended.

"Bond" or "Bonds" means, upon and after issuance of the first Series of bonds under the General Bond Ordinance, if and to the extent Outstanding at any time, all Series of bonds authorized and issued under one or more supplemental ordinances amending and supplementing the General Bond Ordinance.

"Bond Committee" means the Mayor, City Controller and City Solicitor or a majority thereof.

"Bond Counsel" means a firm of nationally recognized bond counsel selected by the City.

"Bondholder" or "Holder" means any registered owner of Bonds or holder of Bonds issued in coupon form at the time Outstanding.

"Capital Account" means the Capital Account within the Construction Fund established in Section 4.04 of the General Bond Ordinance.

"Capital Account Deposit Amount" means an amount equal to one percent (1.0 %) of the depreciated value of property, plant and equipment of the System or such greater amount as shall be annually certified to the City in writing by a Consulting Engineer as sufficient to make renewals, replacements and improvements in order to maintain adequate water and wastewater service to the areas served by the System.

"Capital Appreciation Bonds" means any Bonds issued under the General Bond Ordinance which do not pay interest either until maturity or until a specified date prior to maturity, but whose Original Value increases periodically by accretion to a final Maturity Value.

"Charges Account" means the Charges Account established within the Sinking Fund to provide for the payment of fees under any Credit Facility to the extent payment of such fees are not otherwise provided.

"City" means the City of Philadelphia, Pennsylvania.

"City Controller" means the head of the City's auditing department as provided by the Philadelphia Home Rule Charter.

"City Solicitor" means the head of the City's law department as provided by the Philadelphia Home Rule Charter.

"Code" means the Internal Revenue Code of 1986, as amended, and the regulations promulgated thereunder. ·

"Construction Fund" means the Construction Fund established in Section 4.04 of the General Bond Ordinance.

"Consulting Engineer" means a nationally recognized Independent registered consulting engineer or a nationally recognized Independent Firm of registered consulting engineers, in either case having experience in the design and analysis of the operation of water and wastewater systems of the magnitude and scope of the System.

"Credit Facility" means any letter of credit, standby bond purchase agreement, line of credit, surety bond, insurance policy or other insurance commitment or similar agreement (other than a Qualified Swap or an Exchange Agreement) that is provided by a commercial bank, insurance company or other institution, with a current long term rating (or whose obligations thereunder are guaranteed by a financial institution with a long term rating) from Moody's and S&P not lower than a credit rating of any Series of Bonds which has no Credit Facility, to provide support for a Series of Bonds or for any issue of Subordinated Bonds, and shall include any substitute Credit Facility.[32]

"Debt Reserve Account" means the Debt Reserve Account of the Sinking Fund established in Section 4.04 of the General Bond Ordinance.

"Debt Reserve Requirement" means with respect to all Bonds, an amount equal to the lesser of (i) the greatest amount of Debt Service Requirements payable in any one Fiscal Year (except that such Debt Service Requirement will be computed as if any Qualified Swap did not exist and the Debt Service Requirements attributable to any Variable Rate Bonds may be based upon the fixed rate of interest as set forth in the Supplemental Ordinance or Determination for such Bonds), determined as of any particular date or (ii) the maximum amount to be financed with proceeds of Bonds permitted by Section 148(d)(1) the Code (or any successor provision).[33]

"Debt Service Account" means the Debt Service Account of the Sinking Fund established in Section 4.04 of the General Bond Ordinance.

"Debt Service Requirements," with reference to a specified period, means:

A. amounts required to be paid into any mandatory sinking fund established for the benefit of Bonds during the period;

---

[32] The Pending 2018 Amendments, with the approval of the holders of 67% of all Bonds outstanding, will restate the definition of "Credit Facility" under the General Bond Ordinance to read as follows.

> "Credit Facility" means any letter of credit, standby bond purchase agreement, line of credit, surety bond, insurance policy or other insurance commitment or similar agreement (other than a Qualified Swap or an Exchange Agreement) that is provided by a commercial bank, insurance company or other institution.

[33] The Pending 2018 Amendments, with the approval of the holders of 67% of all Bonds outstanding, will restate the definition of "Debt Reserve Requirement" under the General Bond Ordinance to read as follows.

> "Debt Reserve Requirement" means (i) with respect to all Bonds outstanding (regardless whether interest thereon may be excluded from the gross income of the holder thereof for federal income tax purposes) (a) whose Debt Service Requirements are payable from the Sinking Fund (i.e., excluding Subordinated Bonds) and (b) that are of a Series for which the City has not created a Series Debt Reserve Subaccount, an amount equal to the greatest amount of Debt Service Requirements on such Bonds payable in any one Fiscal Year (except that such Debt Service Requirements will be computed as if any Qualified Swap did not exist and the Debt Service Requirements attributable to any Variable Rate Bonds may be based upon the fixed rate of interest as set forth in the Supplemental Ordinance or Determination for such Bonds) determined as of any particular date, and (ii) with respect to the amount to be deposited in the Debt Reserve Account, pursuant to the first paragraph of Section 4.09 hereof, in connection with the issuance of such a Series of Bonds, the lesser of (x) the amount necessary to comply clause (i) and (y) the maximum amount permitted to be financed with proceeds of Bonds permitted by Section 148(d)(1) the Code (or any successor provision)..

B. amounts needed to pay the principal or redemption price of Bonds maturing during the period and not to be redeemed at or prior to maturity through any sinking fund established for the benefit of Bonds;

C. in payable on Bonds during the period, with adjustment or capitalized interest or redemption through any sinking fund established for the benefit of Bonds; and

D. all net amounts, if any, due and payable by the City under a Qualified Swap during such period.

For purposes of estimating Debt Service Requirements for any future period, (i) any Option Bond outstanding during such period shall be assumed to mature on the stated maturity date thereof, except that the principal amount of y Option Bond tendered for payment and cancellation before its stated maturity date shall be deemed to accrue on the date required for payment pursuant such tender; and (ii) Debt Service Requirements on Bonds for which the City has entered into a Qualified Swap shall be calculated assuming that the interest rate on such Bonds shall equal the stated fixed or variable rate on the Qualified Swap or, if applicable and if greater such stated rate, the applicable rate for any Bonds issued in connection with the Qualified Swap adjusted, the case of a variable rate obligation, as provided in Section 5.01 of the General Bond Ordinance. Calculation of Debt Service Requirements with respect to Variable Rate Bonds shall be subject to adjustment as permitted by Section 5.01 of the General Bond Ordinance.[34]

---

[34] The Pending 2018 Amendments, with the approval of the holders of 67% of all Bonds outstanding, will restate the definition of "Debt Service Requirements" to read as follows.

"Debt Service Requirements," with reference to a specified period, means:

A. amounts required to be paid into any mandatory sinking fund established for the benefit of Bonds during the period;

B. amounts needed to pay the principal or redemption price of Bonds maturing during the period and not to be redeemed at or prior to maturity through any sinking fund established for the Bonds;

C. interest payable on Bonds during the period, with adjustments for capitalized interest or redemption through any sinking fund established for the benefit of Bonds; and

D. all net amounts, if any, due and payable by the City under a Qualified Swap during such period.

For purposes of estimating Debt Service Requirements for any future period, (i) any Option Bond outstanding during such period shall be assumed to mature on the stated maturity date thereof, except that the principal amount of any Option Bond tendered for payment and cancellation before its stated maturity date shall be deemed to accrue on the date required for payment pursuant such tender; and (ii) Debt Service Requirements on Bonds for which the City has entered into a Qualified Swap shall be calculated assuming that the interest rate on such Bonds shall equal the stated fixed or variable rate on the Qualified Swap or, if applicable and if greater such stated rate, the applicable rate for any Bonds issued in connection with the Qualified Swap adjusted, the case of a variable rate obligation, as provided in Section 5.01 of the General Bond Ordinance. Calculation of Debt Service Requirements with respect to Variable Rate Bonds and Balloon Bonds shall be subject to adjustment as permitted by Section 5.01(c) of the General Bond Ordinance.

The term "Balloon Bonds" as used in this definition, will be a new definition added to the General Bond Ordinance via the aforementioned supplemental ordinance, and will mean any Series of Bonds, or any portion of a Series of Bonds, designated by a Determination as Balloon Bonds, (a) 25% or more of the principal payments (including mandatory sinking fund payments) of which are due in a single year, or (b) 25% or more of the principal of which may, at the option of the holder

“Debt Service Withdrawal” means the aggregate amount withdrawn from the Capital Account during a Fiscal Year and applied toward the payment of principal or redemption price of or interest on Bonds or toward the elimination of a deficiency in any reserve fund established for the benefit of Bonds.

“Determination” means a determination by the Bond Committee regarding certain matters relating to the issuance of a Series of Bonds, made pursuant to the General Bond Ordinance or the Supplemental Ordinance providing for the issuance of such Series of Bonds.

“Exchange Agreement” means, to the extent from time to time permitted by applicable law, any interest exchange agreement, interest rate swap agreement, currency swap agreement or other contract or agreement, other than a Qualified Swap, authorized, recognized and approved by a Supplemental Ordinance or Determination as an Exchange Agreement and providing for (i) certain payments by the City from the Residual Fund and (ii) payments by an entity whose senior long term debt obligations, other senior unsecured long term obligations or claims paying ability, or whose obligations under an Exchange Agreement are guaranteed by an entity whose senior long term debt obligations, other senior secured long term obligations or claims paying ability are rated not less than A3 by Moody’s, A- by S&P or A- by Fitch, or the equivalent the thereof by any successor thereto as of the date the Exchange Agreement is entered into; which payments by the City and counterparty are calculated by reference to fixed or variable rates and constituting a financial accommodation between the City and such counterparty.

“Fiscal Agent” means a bank or other entity designated as such pursuant to Section 7.01 of the General Bond Ordinance or its successor.

“Fiscal Year” means the fiscal year of the City.

“Fitch” means Fitch Investors Service and any successor thereto.

“General Bond Ordinance” means the Restated General Water and Wastewater Revenue Bonds Ordinance of 1989, as amended from time to time by one or more Supplemental Ordinances in-accordance with Article X of the General Bond Ordinance.

“General Obligation Bonds” means the general obligation bonds of the City issued and outstanding from time to time to finance improvements to the System and adjudged, pursuant to the Constitution and laws of the Commonwealth of Pennsylvania, to be self-sustaining on the basis of expected Project Revenues.

“Interdepartmental Charges” means the proportionate charges for services performed for the Water Department by all officers, departments, boards or commissions of the City which are required by the Philadelphia Home Rule Charter to be included in the computation of operating expenses of the Water Department.

“Operating Expenses” for any period means all costs and expenses of the Water Department necessary and appropriate to operate and maintain the System in good operating condition, and shall include, without limitation, salaries and wages, purchases of services by contract, costs of materials, supplies and expendable equipment, maintenance costs, costs of any property or the replacement thereof or for any work or project, related to the System, which is not properly chargeable to property, plant and

---

or holders thereof, be redeemed at one time; provided, however that a Variable Rate Bond that is able to be redeemed at the option of the Holder shall not constitute a Balloon Bond.

equipment, pension and welfare plan and worker's compensation requirements, provisions for claims, refunds and uncollectible receivables and for Interdepartmental Charges, all in accordance with generally accepted accounting principles consistently applied, but Operating Expenses shall exclude depreciation, amortization, interest and sinking fund charges.

"Operating Expense Withdrawal" means the aggregate amount withdrawn from the Capital Account during a Fiscal Year and applied toward the payment of Operating Expenses.

"Outstanding," when used with reference to Bonds, means, as of any date, all Bonds heretofore or thereupon being authenticated and delivered under the Ordinance except (i) any Bonds cancelled by the Fiscal Agent at or prior to such date; (ii) Bonds (or portion of Bonds) for the payment or redemption of which moneys, equal to the principal amount, Accreted Value or redemption price thereof, as the case may be, with interest (except to the extent of any Capital Appreciation Bonds) to the date of maturity or redemption date, shall be held in trust under the Ordinance and set aside for such payment or redemption (whether at or prior to the maturity or redemption date), provided that if such Bonds (or portions of Bonds) are to be redeemed, notice of such redemption shall have been given as provided in Article VI of the Ordinance or provision satisfactory to the Trustee shall have been made for the giving of such notice; (iii) Bonds in lieu of or in substitution for which other Bonds shall have been authenticated and delivered pursuant to Article III or Section 6.06 of the General Bond Ordinance; and (iv) Bonds deemed to have been paid as provided in Section 11.01 of the General Bond Ordinance.

"Philadelphia Home Rule Charter" means the Philadelphia Home Rule Charter, as amended or superseded by any new home rule charter, adopted pursuant to authorization of the First Class City Home Rule Act approved April 21, 1949, P.L. 665 §1 et seq. (53 P.S. §13101 et seq.).

"Prior Ordinance" means the General Water and Sewer Revenue Bond Ordinance of 1974 approved May 16, 1974 as amended and supplemented from time to time.

"Project" shall have the meaning assigned to it in the Act, as the same may be amended from time to time.

"Project Revenues" means all rents, rates, fees and charges imposed or charged for the connection to, or use or product of or services generated by the System to the ultimate users or customers thereof. all payments under bulk contracts with municipalities, governmental instrumentalities or other bulk users, all subsidies or payments payable by Federal, State or local governments or governmental agencies on account of the cost of operation of, or the payment of the principal of or interest on moneys borrowed to finance costs, chargeable to the System, all grants, payments and contributions made in aid or on account of the System exclusive of grants and similar payments and contributions solely in aid of construction and all accounts, contract rights and general intangibles representing the foregoing.

"Qualified Swap" or "Swap Agreement: means, with respect to a Series of Bonds, any financial arrangement that (i) is entered into by the City with an entity that is a Qualified Swap Provider at the time the arrangement is entered into; (ii) provides that (a) the City shall pay to such entity an amount based on the interest accruing at a fixed rate on an amount equal to the principal amount of the Outstanding Bonds of such Series, and that such entity shall pay to the City an amount based on the interest accruing on a principal amount initially equal to the same principal amount as such Bonds, at either a variable rate of interest or a fixed rate of interest computed according to a formula set forth in such arrangement (which needs not be the same as the actual rate of interest borne by the Bonds) or that one shall pay to the other any net amount due under such arrangement or (b) the City shall pay to such entity an amount based on the interest accruing on the principal amount of the Outstanding Bonds of such Series at a variable rate of interest as set forth in the arrangement and that such entity shall pay to the City an amount based on interest accruing on a principal amount equal to the Outstanding Bonds of such Series at an agreed fixed rate (which shall not be the same as the rate on the Bonds) or that one shall pay to the other any net amount due under such agreement; and (iii) which has been designated in writing to the Fiscal Agent by the City as a Qualified Swap with respect to the Bonds.

“Qualified Swap Provider” means, with respect to a Series of Bonds, an entity whose senior long term debt obligations, other senior unsecured long term obligations or claims paying ability, or whose payment obligations under a Qualified Swap are guaranteed by an entity whose senior long term debt obligations, other senior unsecured long term obligations or claims paying ability, are rated (at the time the subject Qualified Swap is entered into) at least as high as Aa by Moody’s, and *AA* by S&P, or the equivalent thereof by any successor thereto.

“Rate Stabilization Fund” means the Rate Stabilization Fund established in Section 4.04 of the General Bond Ordinance.

“Rebate Fund” means the Rebate Fund established in Section 4.04 of the General Bond Ordinance.

“Residual Fund” means the Residual Fund established in Section 4.04 of the General Bond Ordinance.

“Revenue Fund” means the Revenue Fund establish in Section 4.04 of the General Bond Ordinance.

“Series” when applied to Bonds means, collectively, all of the Bonds of a given issue authorized by Supplemental Ordinance, as provided in the General Bond Ordinance, and may also mean, if appropriate, a subseries of any Series if, for any reason, the City should determine to divide any Series into one or more subseries of Bonds.

“Subordinated Bond Fund” means the Subordinated Bond Fund established in Section 4.04 of the General Bond Ordinance.

“System” means the entire combined water system and wastewater system of the City, now existing and hereafter acquired by lease, direct control, purchase or otherwise or constructed by the City, including any interest or participation of the City in any facilities in connection with said System, together with all additions, betterments, extensions and improvements to said System or any part thereof hereafter constructed or acquired and together with all lands, easements, licenses and rights of way of the City and all other works, property or structures of the City and contract rights and other property or structures of the City and· eon tract rights and other tangible and intangible assets of the City now or hereafter owned or used in connection with or related to said System.

“Water and Wastewater Funds” means, collectively, the Revenue Fund, the Sinking Fund, the Subordinated Bond Fund, the Rate Stabilization Fund, the Residual Fund and the Construction Fund.

“Water Commissioner” means the head of the Water Department as provided by the Philadelphia Home Rule Charter.

“Water Department” means the Water Department of the City created pursuant to Section 3-100 of the Philadelphia Home Rule Charter.

Schedule ML-4

Rating Agency Reports

- Fitch
- Moody’s
- S&P

FitchRatings

RATING ACTION COMMENTARY

Fitch Rates Philadelphia (PA) Water and Wastewater Revs 'A+'; Outlook Stable

Mon 13 Jul, 2020 - 3:22 PM ET

Fitch Ratings - New York - 13 Jul 2020: Fitch Ratings has assigned an 'A+' rating to the following Philadelphia, PA (the city) revenue bonds:

--$175 million water and wastewater revenue and revenue refunding bonds, series 2020A;

--$95 million water and wastewater revenue refunding bonds, series 2020B (federally taxable).

The city expects to sell the bonds in a negotiated sale the week of July 20. Proceeds will be used to finance capital improvements for the water and wastewater system, fund capitalized interest, and refund all or a portion of various series of outstanding parity bonds for savings and pay issuance costs. Savings on the refunding bonds will be taken annually, with no extension of maturities.

In addition, Fitch has affirmed the following ratings:

--Approximately $2.0 billion in outstanding water and wastewater revenue bonds at 'A+'.

Fitch has also assessed a Standalone Credit Profile (SCP) for the system of 'a+'.

The Rating Outlook is Stable.

ANALYTICAL CONCLUSION

Fitch's 'A+' rating on PWD's bonds and 'a+' SCP reflect the water and wastewater system's (the system) leverage profile within the context of strong revenue defensibility, supported by the department's role as an essential service provider within a well-defined service territory, stable demographic trends, and strong rate flexibility. The rating also considers life-cycle investment needs that are expected to remain elevated for the foreseeable future as the department faces long-term asset rehabilitation needs and continued progress toward addressing combined sewer overflows. The currently stable financial profile is expected to weaken with lower margins anticipated over the next several years, which coupled with a growing debt burden will lead to a rise in the leverage ratio over time.

Finally, Fitch's analysis incorporates a forward-look base and stress scenario, which includes the city's capital improvement plan and anticipated debt issuances as well as expectations for revenue declines due to coronavirus. As of YE 2019, the leverage ratio was just 6.8x and consistent over the past five years. Fitch expects additional debt issuances and compressed financial margins over the next few years will lead to an increase in the leverage ratio. However, the leverage ratio is expected to remain below 10x over the next five-years, which supports the current rating but is contingent upon sizable rate increases beginning in 2022 and fairly aggressive capital spending.

Coronavirus Considerations

The outbreak of the coronavirus has created an uncertain environment for the water and sewer utility sector. Fitch's ratings are forward-looking in nature, and Fitch will monitor developments related to the severity and duration of the outbreak, and incorporate revised expectations for future performance and assessment of key rating drivers as necessary.

The city imposed a moratorium on shut-offs and disconnections to help offset economic hardships due to the coronavirus. Currently, the moratorium is in place until August 31, 2020, but could be extended. In addition, the city initiated a rate increase proceeding for 2021 in February 2020 just prior to the stay-at-home directives, causing it to withdraw the rate case until Q1 2021, foregoing a rate increase for this fiscal year. PWD will offset the lower system collection rates and weaker revenue performance with anticipated budget adjustments, a systemwide hiring freeze and use of rate stabilization funds through fiscal 2021, and into 2022, when new rates are expected to be implemented.

CREDIT PROFILE

The Philadelphia Water Department provides potable water to all of the nearly 1.6 million residents of the city as well as a small wholesale customer that serves accounts in neighboring Montgomery and Delaware Counties. The wastewater service area, which includes the city as well as portions of the surrounding counties through wholesale contract, serves a larger population estimated at nearly 2.3 million. The retail customer base is highly diverse, comprising predominantly residential users, with the 10-largest customers accounting for just 9.5% of fiscal 2019 total revenue.

Operations are stable and system capacity is robust. Average daily water demand is comfortably below permitted water supply and capacity at all treatment facilities remains well within existing permit limits. Raw water supplies from the Delaware and Schuylkill rivers are sufficient for the foreseeable future.

The city continues to operate under a consent order and agreement (COA) signed in 2011 with the Pennsylvania Department of Environmental Protection (DEP). The COA requires PWD to address combined sewer overflows (CSO) over a 25-year term ending in 2036. The total cost of the program, which began in 2012, is approximately $4.5 billion ($3.5 billion capital-related, $1 billion O&M). Terms of the agreement, including total cost and timeline are considered by Fitch to be generally favorable for the city when compared with alternative and likely more costly strategies.

The city has notified DEP of its intent to seek an extension of the upcoming 10-year COA compliance obligations (in 2021), which include certain milestones for greened acreage and lower CSO flows, citing force majeure due to coronavirus disruptions. The city anticipated meeting all required compliance milestones prior to the pandemic and communication with DEP is ongoing.

KEY RATING DRIVERS

Revenue Defensibility 'a'

Monopolistic Service Provider, Rate Flexibility Limitations

PWD provides essential utility services to a stable service area that serves as the economic hub for the region. The customer base is diverse, and demographic indicators are midrange and stable. The rate approval process has proven somewhat arduous and rate affordability and cost recovery remain a concern for Fitch, limiting overall revenue defensibility.

Operating Risks 'aa'

Very Low Cost Burden, Elevated Capital Needs

The operating cost burden has averaged a very low $2,400 per million gallons (mg) of demand over the past several fiscal years. While expected to rise, the cost burden should remain well below the upper threshold for a very strong assessment (which is $6,500 per mg). Rising annual capex trends and sizable long-term capital reinvestment plans should continue to lower PWD's currently elevated life-cycle investment ratio over time (down to 49% in 2019).

Financial Profile 'a'

Strong Financial Profile, Leverage to Rise

The financial profile is considered strong with historically stable metrics recorded over the past five years. Financial margins are projected to weaken, and with an increase in debt expected, the leverage ratio will rise but anticipated to remain fully supportive of the current rating and SCP assessment.

ASYMMETRIC ADDITIVE RISK CONSIDERATIONS

No asymmetric additive risk considerations affect this rating.

RATING SENSITIVITIES

Factors that could, individually or collectively, lead to positive rating action/upgrade:

--Leverage consistently below 8.0x, assuming revenue defensibility and operating risk key rating drivers remain constant.

--Improvement in revenue defensibility to a 'aa' assessment due to higher subfactor assessments of both service area characteristics and rate flexibility.

Factors that could, individually or collectively, lead to negative rating action/downgrade:

--Inferior financial performance that leads to leverage exceeding 10x for multiple years.

--Deterioration in the city's credit quality and IDR.

--While not expected, a reduction in the rate flexibility assessment to 'bbb' from the current 'a' would significantly raise the bar for leverage expectations at the current rating level.

BEST/WORST CASE RATING SCENARIO

International scale credit ratings of Sovereigns, Public Finance and Infrastructure issuers have a best-case rating upgrade scenario (defined as the 99th percentile of rating transitions, measured in a positive direction) of three notches over a three-year rating horizon; and a worst-case rating downgrade scenario (defined as the 99th percentile of rating transitions, measured in a negative direction) of three notches over three years. The complete span of best- and worst-case scenario credit ratings for all rating categories ranges from 'AAA' to 'D'. Best- and worst-case scenario credit ratings are based on historical performance. For more information about the methodology used to determine sector-specific best- and worst-case scenario credit ratings, visit [https://www.fitchratings.com/site/re/10111579].

SECURITY

The bonds are secured by a senior lien on combined net revenues of the Philadelphia Water Department's system.

REVENUE DEFENSIBILITY

Revenue defensibility, assessed at 'a', is strong as all of PWD's revenues are derived from provision of monopolistic water delivery and wastewater services to the city and portions of surrounding areas. The system directly serves the city's 1.7 million population as well as an additional estimated 57,000 residents of neighboring Montgomery and Delaware Counties. The wastewater service area is slightly larger, serving portions of the surrounding counties with a population estimated at nearly 2.3 million through wholesale contract. Wholesale revenues comprise just 5.3% of total system revenues.

PWD's service territory and customer base are diverse and considered stable by Fitch with weaker median household income and unemployment levels relative to the national averages. While PDW provides service to areas outside of the city limits, Fitch uses the city's demographic statistics to inform its assessment of the service territory given the vast majority of customers are located within the city limits.

Rates are deemed affordable for a significant majority of the population (around 70%) but rate-setting includes a somewhat arduous and time consuming process to raise rates that includes approval by a separate, five-member rate board. The average residential customer bill totaled approximately $101 for 7,500 gallons of water consumed (6,000 gallons of sewer flows) in 2019. PWD has implemented various bill reduction programs for a few thousand lower-income residents, although the department can request (and has requested in the past) approval of a rate rider to recover a portion of the revenue lost due to customer assistance programs.

OPERATING RISKS

Fitch assesses PWD's operating risks profile as very strong, reflecting a very low operating cost burden and strong historical capital re-investment trends. The majority of the system's expense budget comprises well-defined cost drivers, including labor and related costs, purchased utility services and other general and administrative expenses. Elevated life-cycle investment needs are adequately addressed with sizable historical and projected capital spending. The cost burden has been relatively stable and Fitch anticipates costs will rise at manageable rates, leaving the operating risk profile relatively stable.

The system participates in the city's single-employer, defined contribution pension plan (municipal plan), which has a Fitch-adjusted net pension liability of $430 million. With a cost burden currently low, Fitch expects the system will be able absorb future cost increases while maintaining the 'aa' assessment.

FINANCIAL PROFILE

PWD's financial profile historically has produced stable financial margins and low system leverage relative to its business profile. Fiscal 2019 leverage was 6.8x while the liquidity profile, although favorable, was considered neutral to the rating. Management budgets to meet a 1.3x debt service coverage target, which in some years has required a transfer from the department's rate stabilization fund (RSF) to balance lower projected cash flow amounts. RSF transfers have been fairly minimal over the past several years, leading to a fairly robust RSF balance of $180 million. Financial operating results for fiscal 2019 were in line with prior projections with coverage of full obligations (COFO) of 1.4x, continuing a consistent trend of satisfactory financial performance. Debt service coverage for the year was also 1.4x, while unrestricted balance sheet cash and investments totaled 216 days cash on hand.

Fitch Analytical Stress Test (FAST)

Based on the department's updated financial forecast, which includes revenue declines in 2020 (3.3%) and 2021 (an additional negative 3.0%) and corresponding budget reductions in 2021 due to coronavirus, Fitch's FAST considers the potential trend of key ratios in a base case and a stress case. The stress case is designed to impose capital costs 10% above expected levels and evaluate potential variability in projected key ratios. The FAST also includes PWD's capital spending forecast, including significant debt-funding sources, and future rate revenue requirements.

The FAST indicates an increase in the leverage ratio given an expected $2.3 billion in capital spending (mostly debt-financed) over the next five years and a rise in cash reserves as new rates are anticipated beginning in 2022. Leverage is expected to increase to about 9.3x but remain closer to 8.0x in all five years of the forecast under Fitch's base case, which includes PWD's coronavirus revenue declines and standard stress scenario. In the rating case, system leverage may exceed 9x for two years over the next five-year period, but ratios are anticipated to remain below 10x and supportive of the rating. Any change to this expected trend could pressure the leverage profile assessment and the ratings.

SOURCES OF INFORMATION

In addition to the sources of information identified in Fitch's applicable criteria specified below, this action was informed by information from Lumesis.

REFERENCES FOR SUBSTANTIALLY MATERIAL SOURCE CITED AS KEY DRIVER OF RATING

The principal sources of information used in the analysis are described in the Applicable Criteria.

ESG CONSIDERATIONS

The highest level of ESG credit relevance, if present, is a score of 3. This means ESG issues are credit-neutral or have only a minimal credit impact on the entity(ies), either due to their nature or to the way in which they are being managed by the entity(ies). For more information on Fitch's ESG Relevance Scores, visit www.fitchratings.com/esg.

VIEW ADDITIONAL RATING DETAILS

FITCH RATINGS ANALYSTS

Andrew DeStefano
Director
Primary Rating Analyst
+1 212 908 0284
Fitch Ratings, Inc. Hearst Tower 300 W. 57th Street New York 10019

Eva Rippeteau
Director
Secondary Rating Analyst
+1 212 908 9105

Douglas Scott
Managing Director
Committee Chairperson
+1 512 215 3725

MEDIA CONTACTS

Sandro Scenga
New York
+1 212 908 0278
sandro.scenga@thefitchgroup.com

Additional information is available on www.fitchratings.com

APPLICABLE CRITERIA

Public Sector, Revenue-Supported Entities Rating Criteria (pub. 27 Mar 2020) (including rating assumption sensitivity)

U.S. Water and Sewer Rating Criteria (pub. 03 Apr 2020) (including rating assumption sensitivity)

ADDITIONAL DISCLOSURES

Dodd-Frank Rating Information Disclosure Form

Solicitation Status

Endorsement Policy

ENDORSEMENT STATUS

Philadelphia (PA)	EU Endorsed

DISCLAIMER

READ LESS

COPYRIGHT

making other reports (including forecast information), Fitch relies on factual information it receives from issuers and underwriters and from other sources Fitch believes to be credible. Fitch conducts a reasonable investigation of the factual information relied upon by it in accordance with its ratings methodology, and obtains reasonable verification of that information from independent sources, to the extent such sources are available for a given security or in a given jurisdiction. The manner of Fitch's factual investigation and the scope of the third-party verification it obtains will vary depending on the nature of the rated security and its issuer, the requirements and practices in the jurisdiction in which the rated security is offered and sold and/or the issuer is located, the availability and nature of relevant public information, access to the management of the issuer and its advisers, the availability of pre-existing third-party verifications such as audit reports, agreed-upon procedures letters, appraisals, actuarial reports, engineering reports, legal opinions and other reports provided by third parties, the availability of independent and competent third- party verification sources with respect to the particular security or in the particular jurisdiction of the issuer, and a variety of other factors. Users of Fitch's ratings and reports should understand that neither an enhanced factual investigation nor any third-party verification can ensure that all of the information Fitch relies on in connection with a rating or a report will be accurate and complete. Ultimately, the issuer and its advisers are responsible for the accuracy of the information they provide to Fitch and to the market in offering documents and other reports. In issuing its ratings and its reports, Fitch must rely on the work of experts, including independent auditors with respect to financial statements and attorneys with respect to legal and tax matters. Further, ratings and forecasts of financial and other information are inherently forward-looking and embody assumptions and predictions about future events that by their nature cannot be verified as facts. As a result, despite any verification of current facts, ratings and forecasts can be affected by future events or conditions that were not anticipated at the time a rating or forecast was issued or affirmed.

The information in this report is provided "as is" without any representation or warranty of any kind, and Fitch does not represent or warrant that the report or any of its contents will meet any of the requirements of a recipient of the report. A Fitch rating is an opinion as to the creditworthiness of a security. This opinion and reports made by Fitch are based on established criteria and methodologies that Fitch is continuously evaluating and updating. Therefore, ratings and reports are the collective work product of Fitch and no individual, or group of individuals, is solely responsible for a rating or a report. The rating does not address the risk of loss due to risks other than credit risk, unless such risk is specifically mentioned. Fitch is not engaged in the offer or sale of any security. All Fitch reports have shared authorship.

READ LESS

SOLICITATION STATUS

The ratings above were solicited and assigned or maintained at the request of the rated entity/issuer or a related third party. Any exceptions follow below.

ENDORSEMENT POLICY

Fitch's approach to ratings endorsement so that ratings produced outside the EU may be used by regulated entities within the EU for regulatory purposes, pursuant to the terms of the EU Regulation with respect to credit rating agencies, can be found on the EU Regulatory Disclosures page. The endorsement status of all International ratings is provided within the entity summary page for each rated entity and in the transaction detail pages for all structured finance transactions on the Fitch website. These disclosures are updated on a daily basis.

US Public Finance   Infrastructure and Project Finance   North America   United States

MOODY'S
INVESTORS SERVICE

Rating Action: **Moody's assigns A1 rating to Philadelphia Water & Sewer Enterprise, PA's $301 million Series 2020 A&B; Outlook stable**

13 Jul 2020

New York, July 13, 2020 -- Moody's Investors Service has assigned an A1 rating to the City of Philadelphia Water & Sewer Enterprise, PA's $206 million Water and Wastewater Revenue Bonds, Series 2020A and $95 million Water and Wastewater Revenue Refunding Bonds (Federally Taxable), Series 2020B. Concurrently, Moody's has affirmed the A1 rating on roughly $2.15 billion of parity debt outstanding as of June 30, 2020. The outlook remains stable.

RATINGS RATIONALE

The A1 rating speaks to Philadelphia Water and Sewer Enterprise, PA's (or Philadelphia Water Department, or "the department") satisfactory current financial position, with revenues supported by its large and diverse service area - primarily the city of Philadelphia (A2 stable) and its immediate suburbs. The rating also reflects the department's sizeable consent order and the system's aging infrastructure, both of which require significant ongoing capital investment. The A1 rating incorporates our expectation of substantial future debt issuance in the coming years to support the department's capital improvement plan.

The Water Department's conservative financial forecast projects moderate revenue pressure in the near term due to coronavirus-related business closures in the city of Philadelphia as well as a material increase in delinquent residential customer accounts. The department plans to offset revenue shortfalls through appropriation of its rate stabilization fund reserves and reduce capital projects to delay non-essential expenditures. The department also anticipates a significant decline in delinquencies at the end of the moratorium on service shutoffs and a resumption payment enforcement. While these financial challenges do not pose an immediate risk to the department's credit profile, prolonged economic stress in the customer base could present downward rating pressure.

We regard the coronavirus outbreak as a social risk under our ESG framework, given the substantial implications for public health and safety. Philadelphia Water and Sewer Enterprise will face both fiscal and operating challenges as a result of the coronavirus. However, we do not believe that these challenges change the department's overall credit profile at this time. The situation surrounding coronavirus is rapidly evolving; longer term impacts will depend on both the severity and duration of the crisis. If our view of the credit quality of the department changes, we will update the rating and/or outlook at that time.

RATING OUTLOOK

The outlook is stable given consistent historical results and our expectation that management will continue to act to maintain structural operating balance and meet coverage covenants despite near-term revenue pressures. Annual debt service requirements are currently manageable, with several consecutive years of decline embedded in the current schedule. This should serve to keep costs reasonable, even with annual new money issuances to support the department's sizeable CIP. Engineer and financial consultant reports are required for each bond issuance, also adding to operational stability and comprehensive debt planning. While we do expect some decline in debt service coverage in fiscal 2020 and 2021, we also anticipate that the reduction will be temporary, consistent with rate covenants, and still in line with the current rating.

FACTORS THAT COULD LEAD TO AN UPGRADE OF THE RATINGS

- Considerable improvement in debt service coverage

- Service area expansion / revenue growth beyond expected rate increases

FACTORS THAT COULD LEAD TO A DOWNGRADE OF THE RATINGS

- Failure to meet bond coverage covenants

- Inability to increase rates commensurate with coverage requirements

- Appropriation of reserves beyond current expectations

LEGAL SECURITY

The bonds are special obligations of the city of Philadelphia, secured equally and ratably with the city's outstanding Water and Wastewater Revenue bonds. All Water and Wastewater Revenue bonds are secured by a pledge of and security interest in all Project Revenues derived from the city's water and wastewater systems.

USE OF PROCEEDS

Proceeds from the Series 2020 A&B bonds will be used to provide funds, which together with other available funds of the city, will be used to finance capital improvements to the city's water and wastewater systems and to refund a portion or all of the currently outstanding Series 1997B, 2010C, 2011B, 2012 and 2013A Bonds. Proceeds will also fund a deposit to the debt service reserve account.

PROFILE

The Philadelphia Water & Sewer Enterprise provides water and sewer treatment service to the city of Philadelphia and some of its surrounding suburbs. PWD's customer base includes approximately 480,000 active water accounts and 545,000 active wastewater accounts.

METHODOLOGY

The principal methodology used in these ratings was US Municipal Utility Revenue Debt published in October 2017 and available at https://www.moodys.com/researchdocumentcontentpage.aspx?docid=PBM_1095545. Alternatively, please see the Rating Methodologies page on www.moodys.com for a copy of this methodology.

REGULATORY DISCLOSURES

For further specification of Moody's key rating assumptions and sensitivity analysis, see the sections Methodology Assumptions and Sensitivity to Assumptions in the disclosure form. Moody's Rating Symbols and Definitions can be found at: https://www.moodys.com/researchdocumentcontentpage.aspx?docid=PBC_79004

For ratings issued on a program, series, category/class of debt or security this announcement provides certain regulatory disclosures in relation to each rating of a subsequently issued bond or note of the same series, category/class of debt, security or pursuant to a program for which the ratings are derived exclusively from existing ratings in accordance with Moody's rating practices. For ratings issued on a support provider, this announcement provides certain regulatory disclosures in relation to the credit rating action on the support provider and in relation to each particular credit rating action for securities that derive their credit ratings from the support provider's credit rating. For provisional ratings, this announcement provides certain regulatory disclosures in relation to the provisional rating assigned, and in relation to a definitive rating that may be assigned subsequent to the final issuance of the debt, in each case where the transaction structure and terms have not changed prior to the assignment of the definitive rating in a manner that would have affected the rating. For further information please see the ratings tab on the issuer/entity page for the respective issuer on www.moodys.com.

The ratings have been disclosed to the rated entity or its designated agent(s) and issued with no amendment resulting from that disclosure.

These ratings are solicited. Please refer to Moody's Policy for Designating and Assigning Unsolicited Credit Ratings available on its website www.moodys.com.

Regulatory disclosures contained in this press release apply to the credit rating and, if applicable, the related rating outlook or rating review.

Moody's general principles for assessing environmental, social and governance (ESG) risks in our credit analysis can be found at https://www.moodys.com/researchdocumentcontentpage.aspx?docid=PBC_1133569.

The Global Scale Credit Rating on this Credit Rating Announcement was issued by one of Moody's affiliates outside the EU and is endorsed by Moody's Deutschland GmbH, An der Welle 5, Frankfurt am Main 60322, Germany, in accordance with Art.4 paragraph 3 of the Regulation (EC) No 1060/2009 on Credit Rating Agencies. Further information on the EU endorsement status and on the Moody's office that issued the credit rating is available on www.moodys.com.

Please see www.moodys.com for any updates on changes to the lead rating analyst and to the Moody's legal entity that has issued the rating.

Please see the ratings tab on the issuer/entity page on www.moodys.com for additional regulatory disclosures for each credit rating.

Nicolanne Serrano
Lead Analyst
Regional PFG Northeast
Moody's Investors Service, Inc.
7 World Trade Center
250 Greenwich Street
New York 10007
US
JOURNALISTS: 1 212 553 0376
Client Service: 1 212 553 1653

Michael Wertz
Additional Contact
Regional PFG Northeast
JOURNALISTS: 1 212 553 0376
Client Service: 1 212 553 1653

Releasing Office:
Moody's Investors Service, Inc.
250 Greenwich Street
New York, NY 10007
U.S.A
JOURNALISTS: 1 212 553 0376
Client Service: 1 212 553 1653

CREDIT RATINGS ISSUED BY MOODY'S INVESTORS SERVICE, INC. AND/OR ITS CREDIT RATINGS AFFILIATES ARE MOODY'S CURRENT OPINIONS OF THE RELATIVE FUTURE CREDIT RISK OF ENTITIES, CREDIT COMMITMENTS, OR DEBT OR DEBT-LIKE SECURITIES, AND MATERIALS, PRODUCTS, SERVICES AND INFORMATION PUBLISHED BY MOODY'S (COLLECTIVELY, "PUBLICATIONS") MAY INCLUDE SUCH CURRENT OPINIONS. MOODY'S INVESTORS SERVICE DEFINES CREDIT RISK AS THE RISK THAT AN ENTITY MAY NOT MEET ITS CONTRACTUAL FINANCIAL OBLIGATIONS AS THEY COME DUE AND ANY ESTIMATED FINANCIAL LOSS IN THE EVENT OF DEFAULT OR IMPAIRMENT. SEE MOODY'S RATING SYMBOLS AND DEFINITIONS PUBLICATION FOR INFORMATION ON THE TYPES OF CONTRACTUAL FINANCIAL OBLIGATIONS ADDRESSED BY MOODY'S INVESTORS SERVICE CREDIT RATINGS. CREDIT RATINGS DO NOT ADDRESS ANY OTHER RISK, INCLUDING BUT NOT LIMITED TO: LIQUIDITY RISK, MARKET VALUE RISK, OR PRICE VOLATILITY. CREDIT RATINGS, NON-CREDIT ASSESSMENTS ("ASSESSMENTS"), AND OTHER OPINIONS INCLUDED IN MOODY'S PUBLICATIONS ARE NOT STATEMENTS OF CURRENT OR HISTORICAL FACT. MOODY'S PUBLICATIONS MAY ALSO INCLUDE QUANTITATIVE MODEL-BASED ESTIMATES OF CREDIT RISK AND RELATED OPINIONS OR COMMENTARY PUBLISHED BY MOODY'S ANALYTICS, INC. AND/OR ITS AFFILIATES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT CONSTITUTE OR PROVIDE INVESTMENT OR FINANCIAL ADVICE, AND MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT AND DO NOT PROVIDE RECOMMENDATIONS TO PURCHASE, SELL, OR HOLD PARTICULAR SECURITIES. MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS DO NOT COMMENT ON THE SUITABILITY OF AN INVESTMENT FOR ANY PARTICULAR INVESTOR. MOODY'S ISSUES ITS CREDIT RATINGS, ASSESSMENTS AND OTHER OPINIONS AND PUBLISHES ITS PUBLICATIONS WITH THE EXPECTATION AND UNDERSTANDING THAT EACH INVESTOR WILL, WITH DUE CARE, MAKE ITS OWN STUDY AND EVALUATION OF EACH SECURITY THAT IS UNDER CONSIDERATION FOR PURCHASE, HOLDING, OR SALE.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS, AND PUBLICATIONS ARE NOT INTENDED FOR USE BY RETAIL INVESTORS AND IT WOULD BE RECKLESS AND INAPPROPRIATE FOR RETAIL INVESTORS TO USE MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS OR PUBLICATIONS WHEN MAKING AN INVESTMENT DECISION. IF IN DOUBT YOU SHOULD CONTACT YOUR FINANCIAL OR OTHER PROFESSIONAL ADVISER.

MOODY'S CREDIT RATINGS, ASSESSMENTS, OTHER OPINIONS AND PUBLICATIONS ARE NOT INTENDED FOR USE BY ANY PERSON AS A BENCHMARK AS THAT TERM IS DEFINED FOR REGULATORY PURPOSES AND MUST NOT BE USED IN ANY WAY THAT COULD RESULT IN THEM BEING CONSIDERED A BENCHMARK.

All information contained herein is obtained by MOODY'S from sources believed by it to be accurate and reliable. Because of the possibility of human or mechanical error as well as other factors, however, all information contained herein is provided "AS IS" without warranty of any kind. MOODY'S adopts all necessary measures so that the information it uses in assigning a credit rating is of sufficient quality and from sources MOODY'S considers to be reliable including, when appropriate, independent third-party sources. However, MOODY'S is not an auditor and cannot in every instance independently verify or validate information received in the rating process or in preparing its Publications.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability to any person or entity for any indirect, special, consequential, or incidental losses or damages whatsoever arising from or in connection with the information contained herein or the use of or inability to use any such information, even if MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers is advised in advance of the possibility of such losses or damages, including but not limited to: (a) any loss of present or prospective profits or (b) any loss or damage arising where the relevant financial instrument is not the subject of a particular credit rating assigned by MOODY'S.

To the extent permitted by law, MOODY'S and its directors, officers, employees, agents, representatives, licensors and suppliers disclaim liability for any direct or compensatory losses or damages caused to any person or entity, including but not limited to by any negligence (but excluding fraud, willful misconduct or any other type of liability that, for the avoidance of doubt, by law cannot be excluded) on the part of, or any contingency within or beyond the control of, MOODY'S or any of its directors, officers, employees, agents, representatives, licensors or suppliers, arising from or in connection with the information contained herein or the use of or inability to use any such information.

NO WARRANTY, EXPRESS OR IMPLIED, AS TO THE ACCURACY, TIMELINESS, COMPLETENESS, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE OF ANY CREDIT RATING, ASSESSMENT, OTHER OPINION OR INFORMATION IS GIVEN OR MADE BY MOODY'S IN ANY FORM OR MANNER WHATSOEVER.

Moody's Investors Service, Inc., a wholly-owned credit rating agency subsidiary of Moody's Corporation ("MCO"), hereby discloses that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by Moody's Investors Service, Inc. have, prior to assignment of any credit rating, agreed to pay to Moody's Investors Service, Inc. for credit ratings opinions and services rendered by it fees ranging from $1,000 to approximately $2,700,000. MCO and Moody's investors Service also maintain policies and procedures to address the independence of Moody's Investors Service credit ratings and credit rating processes. Information regarding certain affiliations that may exist between directors of MCO and rated entities, and between entities who hold credit ratings from Moody's Investors Service and have also publicly reported to the SEC an ownership interest in MCO of more than 5%, is posted annually at www.moodys.com under the heading "Investor Relations — Corporate Governance — Director and Shareholder Affiliation Policy."

Additional terms for Australia only: Any publication into Australia of this document is pursuant to the Australian Financial Services License of MOODY'S affiliate, Moody's Investors Service Pty Limited ABN 61 003 399 657AFSL 336969 and/or Moody's Analytics Australia Pty Ltd ABN 94 105 136 972 AFSL 383569 (as applicable). This document is intended to be provided only to "wholesale clients" within the meaning of section 761G of the Corporations Act 2001. By continuing to access this document from within Australia, you represent to MOODY'S that you are, or are accessing the document as a representative of, a "wholesale client" and that neither you nor the entity you represent will directly or indirectly disseminate this document or its contents to "retail clients" within the meaning of section 761G of the Corporations Act 2001. MOODY'S credit rating is an opinion as to the creditworthiness of a debt obligation of the issuer, not on the equity securities of the issuer or any form of security that is available to retail investors.

Additional terms for Japan only: Moody's Japan K.K. ("MJKK") is a wholly-owned credit rating agency subsidiary of Moody's Group Japan G.K., which is wholly-owned by Moody's Overseas Holdings Inc., a wholly-owned subsidiary of MCO. Moody's SF Japan K.K. ("MSFJ") is a wholly-owned credit rating agency subsidiary of MJKK. MSFJ is not a Nationally Recognized Statistical Rating Organization ("NRSRO"). Therefore, credit ratings assigned by MSFJ are Non-NRSRO Credit Ratings. Non-NRSRO Credit Ratings are assigned by an entity that is not a NRSRO and, consequently, the rated obligation will not qualify for certain types of treatment under U.S. laws. MJKK and MSFJ are credit rating agencies registered with the Japan Financial Services Agency and their registration numbers are FSA Commissioner (Ratings) No. 2 and 3 respectively.

MJKK or MSFJ (as applicable) hereby disclose that most issuers of debt securities (including corporate and municipal bonds, debentures, notes and commercial paper) and preferred stock rated by MJKK or MSFJ (as applicable) have, prior to assignment of any credit rating, agreed to pay to MJKK or MSFJ (as applicable) for credit ratings opinions and services rendered by it fees ranging from JPY125,000 to approximately JPY250,000,000.

MJKK and MSFJ also maintain policies and procedures to address Japanese regulatory requirements.

S&P Global
Ratings

RatingsDirect®

Summary:

Philadelphia; Joint Criteria; Water/Sewer

Primary Credit Analyst:
Erin Boeke Burke, New York + 1 (212) 438 1515; Erin.Boeke-Burke@spglobal.com

Secondary Contact:
Scott D Garrigan, New York (1) 312-233-7014; scott.garrigan@spglobal.com

Table Of Contents

Summary:

Philadelphia; Joint Criteria; Water/Sewer

Credit Profile		
US$175.245 mil wtr & wastewtr rev rfdg bnds ser 2020A due 11/01/2051		
Long Term Rating	A+/Stable	New
US$94.97 mil wtr & wastewtr rev rfdg bnds ser 2020B due 11/01/2055		
Long Term Rating	A+/Stable	New
Philadelphia wtr & swr		
Long Term Rating	A+/Stable	Affirmed

Rating Action

S&P Global Ratings assigned its 'A+' long-term rating to Philadelphia's series 2020A and 2020B water and wastewater revenue bonds. At the same time, we affirmed our 'A+' long-term ratings and underlying ratings (SPURs) on the city's existing water and wastewater revenue bonds, and our 'AA+/A-1+' rating on Philadelphia's series 1997B bonds, which are jointly secured by the city and the letter of credit provider TD Bank N.A. Except for when applying joint criteria, in which case the outlook is not meaningful, the outlook on the bonds is stable.

The city will use the series 2020 bond proceeds to finance capital improvements to its water and wastewater system; refund all of a portion of the 1997B, 2010C, 2011B, 2012, and 2013A bonds; and pay costs of issuance.

Securing debt service are net revenues of the water and sewer fund, which include (net of operating expenses) rates and charges of the system, transfers from the rate stabilization fund (RSF), and interest earnings. Rates must be set to generate revenues and charges plus transfers from the RSF that represent at least 1.2x annual debt service on senior revenue bonds and 1.0x coverage when including all subordinate debt (if outstanding, which currently they are not) and certain other transfers. The city can issue additional debt as long as it is complying with the rate covenant at the time of issuance and net revenue projections are sufficient to provide for rate covenant compliance for the two fiscal years following the debt issuance. There is an additional test that requires that the city maintain net system revenues (excluding transfers from the RSF) totaling at least 90% of operating requirements (90% test). This provides additional bondholder protection, in our view, since this effectively limits how much the system can rely on draws from the RSF. This provision also applies to the additional bonds test.

Credit overview

The rating reflects our view of the system's very strong enterprise and financial risk profiles, as well as a large capital investment plan (CIP) that will require substantial debt issuance in the coming years.

Key credit strengths include:

- Extremely strong liquidity with over $293 million in available reserves at the end of fiscal 2019, representing 216 days' cash. Although management plans to draw down cash in the next few years, projected levels are still extremely strong, in our opinion;

- Strong management which uses reserves strategically as it balances capital needs with affordability concerns; and
- A diverse and stable customer base, with the top ten customers representing less than 10% of revenues, and 5% of revenues coming from the more affluent suburban areas.

Key credit weaknesses include:

- A large, regulatory-driven $3.6 billion CIP over the next five years, which will be more than 80% debt-funded when the system is already highly leveraged;
- Modest but generally consistent all-in debt service coverage (DSC), which may be abnormally low in fiscal years 2020 and 2021 (near sufficiency) due to the effects of COVID-19 and the ensuring pandemic. DSC has historically hovered around 1.2x to 1.3x; returning to these levels will require substantial rate increases after 2020; and
- Philadelphia's lower income levels (77% of the national average), elevated poverty rate (25.3%), and unemployment rate of 15.0% in May 2020.

Following the rise of the Covid-19 pandemic, the department took a number of operational and financial actions to protect customer health and safety, including imposing a moratorium on shutoffs and disconnects and restoring service to a majority of delinquent accounts. It also withdrew its 2020 rate case. Financially, management has seen some decline in consumption since the implementation of the stay-at-home order in March, and the payment rate is down from its historically strong 96%, but we do not currently expect this to affect the authority's ability to maintain strong financial metrics or pay debt service. Management quickly reduced its 2021 budget submittal by $25 million and has suspended bidding on nonessential capital projects, which will reduce capital spend. Management expects to file its next rate case early in calendar 2021, and while the next few years are likely to be weaker, the Rate Board has agreed to long-term financial targets, including senior DSC of 1.3x (including RSF use), a RSF and residual fund balance of $150 million, and 20% pay-as-you-go spending for capital needs. For more information, see our article, "COVID-19's Potential Effects In U.S. Public Finance Vary By Sector" (published March 5, 2020 on RatingsDirect).

The stable outlook reflects our opinion that the water department should be able to continue meeting or exceeding its financial projections as long as it receives sufficient rate adjustments from the Rate Board and controls its overall costs in a fashion consistent with or better than what the projections indicate.

Environmental, social, and governance factors

Philadelphia Water Department benefits from strong and proactive management, which is deliberately targeting affordability concerns as it works though its substantial capital needs. Combined water and sewer rates are just over 2.0% of local incomes (including the stormwater fee), but we believe requests for increases may be pressured given current recessionary conditions and social risks compared to other water utilities stemming from the elevated county poverty rate and the need for the Rate Board to approve all rate increases. Management has continued to advertise its Tiered Assistance Program (TAP), which provides rate relief to low-income customers.

The utility's current CIP largely reflects regulatory requirements, namely a consent decree to address combined sewer overflows. This limits management's ability to reduce capital expenditures; however, the Pennsylvania Department of Environmental Protection is generally willing to work with utilities as they balance capital needs and affordability concerns.

Stable Outlook

Downside scenario

If rate increases are short of what is needed to restore all-in coverage to levels consistent with recent experience by 2022, there are drawdowns in liquidity below $75 million or 90 days' cash, or a significant amount of additional capital spending is added to the city's CIP, we could lower the rating or revise the outlook to negative.

Upside scenario

We view any upside potential as remote for the next two years given management's decision to withdraw the 2020 rate case, lower system revenues due to the pandemic and recession, and the large amount of capital and debt needs. In time, if the city's actual financial performance significantly exceeds current projections, we could raise the rating.

Credit Opinion

Enterprise risk

Philadelphia's water and wastewater systems provide service to roughly 1.6 million people in the city with wholesale service providing services to additional residents outside city boundaries. The systems predominantly serve retail residential customers in the city, as well as in 11 surrounding townships and utility authorities on a wholesale basis. The number of retail accounts has remained relatively stable since 2001 and currently totals about 490,000 for the water system and 545,000 for the wastewater system, which includes about 60,000 stormwater-only accounts. The water department customer base, in which the city is the leading user, remains stable and diverse: The 10 leading retail customers accounted for less than 10% of total revenue in fiscal 2019. Because the service base spans both Philadelphia and suburban areas, the demographic profile takes into account a wide range of socioeconomic scales. The city's unemployment rate has historically been above the state and national averages, and was 15.0% for May 2020, as reported by the U.S. Bureau of Labor Statistics. In our opinion, income indicators for both the city and county are just adequate, with median household effective buying income (MHHEBI) at 77% of national levels. Portions of Bucks, Delaware, and Montgomery counties are part of the service base, and all have stronger median household income levels.

We view rates as affordable despite county poverty rates and city income levels that do not compare well with national averages. As part of our criteria application, we benchmark rate affordability against Philadelphia County's income levels and its poverty rates, which were last reported at about 25% by the U.S. Department of Agriculture. But rate increases have generally been regular and consistent. From 2006 to 2014, management raised rates by about 4%-7% annually. Since the introduction of the independent Rate Board in 2016, increases were 5.1% and 4.5% in 2016 and 2017, respectively, and 1.3% and 1.2% in 2018 and 2019, respectively, but were also accompanied by some other changes to the rate structure that yielded greater revenue. The city submitted a request in February 2020, which it withdrew in May due to the coronavirus pandemic. Management expects to file its next request to the Rate Board in early 2021. We will monitor future actions by the Rate Board for any differences between requested and approved rate increases; given the CIP and absence of a 2020 rate increase, future requests could be as high as 10%. Management estimates that the average monthly combined bill currently totals $67 for 500 cubic feet of use; or just over 2% of

MHHEBI on an annualized basis, including a stormwater fee of $16 (including a billing surcharge) per equivalent dwelling unit. Due to the size of the CIP and the customer profile, affordability will be pressured in the coming years; however, we believe the department's TAP may help alleviate these pressures for low-income residents. The collection rate in 2019 was over 96%; this has declined with the pandemic and recession and the city is continuing outreach to get customers with affordability issues to register for TAP.

We view both the operational and financial management policies for the water department as strong and well-embedded. Water withdrawal and wastewater treatment capacities are 680 million gallons per day (mgd) and 522 mgd, respectively. We consider water capacity adequate, given average use of less than half that; sewer average use is about 90% of capacity, but the city is actively working on enhancing treatment capacity and accelerating main replacement. It has a full asset management program that helps inform its CIP project prioritization; good communication to ratepayers, especially related to implementation of its long-term control plan, green infrastructure projects, and rate plans; and consistent rate adjustments.

Financial risk

Despite generally stable financial performance, Philadelphia relies on periodic draws on its RSF to support operations, and the department plans larger draws to support the budget for the next few years if revenues are depressed by the pandemic. In recent years, it drew $4.3 million in 2019, $24.6 million in 2018, $4.6 million in 2017, and $1.6 million in 2016, but deposited an aggregate of $44.4 million during fiscal years 2014 and 2015. Management's latest available financial projections show the water department continuing to rely on RSF draws to meet its minimum coverage requirements for several years, potentially drawing down from $180 million at the end of fiscal 2019 to $95 million in 2022. The board has a minimum target of $150 million combined in the RSF and residual fund (the latter is consistently $15 million); it will likely take several years to return to this level even with significant rate increases.

Our all-in coverage calculation of 1.2x to 1.4x for the last three audited fiscal years (2017-2019) does not include nonrecurring sources of revenue, such as transfers from the RSF. Management can reach its 1.2x coverage target by making a transfer into or out of its RSF, but the city also remains in compliance with the 90% test, as indicated above. Management had previously projected similar results for fiscal 2020 and beyond; following the operational and financial response to the pandemic, it now conservatively projects DSC of approximately 1x without RSF use for 2020 and 2021 and returning to 1.2x-1.3x thereafter. We base our calculation on net audited operating revenues backing out depreciation and including miscellaneous non-operating revenues and expenses, and debt service on all revenue bonds and Pennsylvania Infrastructure Investment Authority (PENNVEST) loans. While operating transfers out for cost reimbursement to other departments is subtracted from net available for debt service, we do not count RSF transfers in either revenues available or an operating expense.

Unrestricted cash levels (including the RSF balance) at the end of each fiscal year also demonstrate stable financial performance, in our view. The combined unrestricted and RSF balances have typically represented 200-250 days' operations (between about $250 million to $300 million). The bond ordinance also stipulates that amounts on deposit in the water department's RSF, capital fund, and residual fund can all be loaned to the revenue fund to pay operating expenses or even debt service because the revenue fund is included as pledged security for the revenue bonds.

Philadelphia's combined water and sewer system is highly leveraged and the $3.6 billion 2021-2026 CIP is likely to require significant additional debt funding; management was planning to debt-fund approximately 80% of the plan but due to the pandemic, this ratio is likely to be higher. However, since the city entered into a 25-year consent order and agreement with the Pennsylvania Department of Environmental Protection in 2011, a good portion of the CIP projects are now definable. As debt is layered in, we would expect that annual debt service costs would also steadily increase as additional debt is issued. We also expect that management will continue to raise rates as it has in the past, to fund these additional costs, as well as cash-funded capital costs and general operating expenses. Total debt has consistently represented no less than about two-thirds of capitalization, which we consider high. Given the large CIP, we do not expect this to change materially over time. About 5% of the city's $2.1 billion in water and sewer revenue debt outstanding at the end of June 2019 is PENNVEST state revolving fund loans, and only about 2% is variable rate. Management currently plans to fix out the variable-rate debt as part of the 2020 financing. There is no subordinate debt or swap exposure in the portfolio at this time.

Financial management practices applied to all its financial operations are generally strong, in our opinion.

Management has integrated capital and financial planning and comprehensive policies for liquidity, while recent financial variances from the budget have been small and positive, and the department acted quickly to revise the budget for pandemic effects.

Related Research

- Through The ESG Lens 2.0: A Deeper Dive Into U.S. Public Finance Credit Factors, April 28, 2020

Ratings Detail (As Of July 10, 2020)		
Philadelphia wtr & swr (AGM)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed
Philadelphia wtr & swr (BAM)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed
Philadelphia wtr & swr (BAM) (SECMKT)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed
Philadelphia wtr & wastewtr VRDB - 1997B		
Long Term Rating	AA+/A-1+	Affirmed
Unenhanced Rating	A+(SPUR)/Stable	Affirmed
Philadelphia wtr (BAM) (SECMKT)		
Unenhanced Rating	A+(SPUR)/Stable	Affirmed

Many issues are enhanced by bond insurance.

Schedule ML5
Table 1
City of Philadelphia

Water Operating Fund
Fund Balance Summary

Category	FY'19 Year-End Final	FY'20 Year-End Prelim	FY'20 B&V Projected	FY'21 B&V Projected	FY'22 B&V Projected	FY'23 B&V Projected	FY'24 B&V Projected	FY'25 B&V Projected	FY'26 B&V Projected
REVENUES									
Locally Generated Non - Tax Revenues	740,848,137	745,818,509	737,083,000	707,038,464	766,220,169	818,371,444	868,691,252	920,244,998	980,564,043
Other Governments	698,175	859,675	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Revenue from Other Funds of City - General Fund									
Revenue from Other Funds of City - Rate Stabilization Fund	4,321,032	33,083,149	26,228,000	41,463,710	330,836	0	0	0	0
Total Revenues and Other Sources	**745,867,345**	**779,761,333**	**764,311,000**	**749,502,174**	**767,551,005**	**819,371,444**	**869,691,252**	**921,244,998**	**981,564,043**

Category	FY'19 PWD Final	FY'20 Year-End Prelim	FY'20 B&V Projected	FY'21 B&V Projected	FY'22 B&V Projected	FY'23 B&V Projected	FY'24 B&V Projected	FY'25 B&V Projected	FY'26 B&V Projected
OBLIGATIONS / APPROPRIATIONS									
Personal Services	137,276,973	150,765,136	141,493,000	157,512,519	163,063,915	168,410,800	173,986,821	179,718,520	185,609,890
Personal Services - Pension	78,876,294	87,298,934	78,082,000	86,892,386	88,556,208	91,162,944	93,554,490	95,998,845	98,411,469
Personal Services - Other Employee Benefits	54,893,284	57,760,775	61,183,000	62,047,800	65,358,834	68,141,661	70,989,636	73,872,059	77,140,496
Sub-Total Employee Compensation	271,046,551	295,824,844	280,758,000	306,452,704	316,978,958	327,715,406	338,530,947	349,589,423	361,161,856
Purchase of Services	167,555,924	165,891,336	154,274,000	166,470,539	169,781,078	172,147,078	174,551,500	176,994,967	179,478,109
Purchases of Services - Electricity	13,884,363	15,076,774	17,256,000	14,799,967	14,799,967	14,873,967	15,022,706	15,172,933	15,324,663
Purchases of Services - Gas	5,452,000	3,991,800	4,924,000	4,361,910	4,601,815	4,670,842	4,740,905	4,788,314	4,836,197
Sub-Total Purchase of Services	186,892,287	184,959,910	176,454,000	185,632,415	189,182,860	191,691,887	194,315,111	196,956,214	199,638,969
Materials, Supplies	23,426,796	23,594,854	28,454,000	28,143,895	30,522,527	31,333,235	32,165,488	33,019,859	33,896,935
Equipment	7,365,765	7,577,910							
Materials - Chemicals	22,115,310	22,886,203	20,938,000	25,317,281	25,950,213	26,598,968	27,263,943	27,945,541	28,644,180
Sub Total -Materials, Supplies and Equipment	52,907,871	54,058,968	49,392,000	53,461,176	56,472,740	57,932,204	59,429,431	60,965,400	62,541,115
Contributions, Indemnities and Taxes	3,816,246	4,409,960	5,642,000	4,378,903	4,378,903	4,378,903	4,378,903	4,378,903	4,378,903
UESF	500,000	500,000							
Indemnities	3,316,246	3,909,960							
Debt Service	190,908,003	206,392,432	206,479,000	186,377,450	186,400,880	217,351,060	245,558,171	278,194,591	315,905,096
Transfer to Escrow	0	0	0						
Sub Total Debt Service	190,908,003	206,392,432	206,479,000	186,377,450	186,400,880	217,351,060	245,558,171	278,194,591	315,905,096
Advances and Miscellaneous Payments		-		-	-	-	-	-	-
Payment to Other Funds - Net of Payment to Rate Stabilization Fund	70,716,987	60,976,296	68,788,000	45,945,069	45,946,945	52,230,236	57,830,044	64,377,243	71,931,655
Payments to Other Funds - Rate Stabilization Fund		-		-	-	445,951	2,610,621	340,180	169,848
Total Obligations / Appropriations	**776,287,945**	**806,622,410**	**787,513,000**	**782,247,717**	**799,361,286**	**851,745,646**	**902,653,228**	**954,801,955**	**1,015,727,441**
Operating Surplus / (Deficit)	**(30,420,600)**	**(26,861,077)**	**(23,202,000)**	**(32,745,543)**	**(31,810,281)**	**(32,374,202)**	**(32,961,976)**	**(33,556,957)**	**(34,163,398)**
OPERATIONS IN RESPECT TO PRIOR FISCAL YEARS									
Net Adjustments - Prior Year (Liquidated Encumbrance)	30,420,600	26,861,077	23,202,000	32,745,543	31,810,281	32,374,202	32,961,976	33,556,957	34,163,398
Total Net Adjustments	**30,420,600**	**26,861,077**	**23,202,000**	**32,745,543**	**31,810,281**	**32,374,202**	**32,961,976**	**33,556,957**	**34,163,398**
Year End Balance	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Category PAYMENTS TO OTHER FUNDS	FY'19 Year-End Final	FY'20 Year-End Prelim	FY'20 B&V Projected	FY'21 B&V Projected	FY'22 B&V Projected	FY'23 B&V Projected	FY'24 B&V Projected	FY'25 B&V Projected	FY'26 B&V Projected
Payment to Other Funds - Net of Payment to Rate Stabilization Fund									
Capital Account Deposit	24,878,890	26,553,000	24,655,000	27,832,760	29,447,060	31,154,990	32,961,979	34,873,774	36,896,453
Residual Fund Transfer to Capital	*38,085,853*	30,000,000	37,377,000	9,447,514	7,835,089	12,410,450	16,203,269	20,838,673	26,370,406
Transfer to GF for Services	7,752,244	4,423,296	6,756,000	8,664,796	8,664,796	8,664,796	8,664,796	8,664,796	8,664,796
Total	70,716,987	60,976,296	68,788,000	45,945,069	45,946,945	52,230,236	57,830,044	64,377,243	71,931,655

December 22, 2020

Memorandum

TO: City of Philadelphia Water Department
FROM: Katherine Clupper, Managing Director, Public Financial Management
Peter Nissen, Managing Director, Acacia Financial Group, Inc.
RE: Discussion of Water Department Financial Policies and Metrics

Introduction

The purpose of this memorandum ("Memorandum") is to provide additional support for the Philadelphia Water Department's ("PWD" or "Department") Financial Plan, related policies and financial metrics. This memorandum is submitted by Public Financial Management ("PFM") and Acacia Financial Group, Inc. ("Acacia"), as financial advisors to the Department.[1] The recommendations herein are based upon PFM's and Acacia's knowledge of the Department, national water and sewer utility experience, credit agencies published metrics and methodology, comparative information on peer utilities and industry best practices.

The central recommendation of this Memorandum is that implementation of the PWD Financial Plan, as proposed in the pending rate proceeding before the Philadelphia Water, Sewer and Storm Water Rate Board ("Rate Board") is critical (i) to maintaining a strong credit profile and (ii) to sustaining reasonable liquidity levels to provide protection from unforeseen financial events or economic downturns.

The discussion below focuses upon the following key financial metrics identified by the Department in connection with its Financial Plan: (i) capital funding from current revenues (pay-go), (ii) debt service coverage, (iii) cash reserves or system liquidity and (iv) debt issuance or system leverage, including comparing life of the assets to debt. We will discuss the importance of these metrics, the Department's financial trends and the resulting impact on the credit profile, including insights from the rating agencies, on median comparisons and a review of peer systems and financial comparisons. It is our position that the requested revenue requirements are well within industry standards and that it is critical for the Department to maintain and continue to manage to these financial metrics, particularly through the recovery of the COVID-19 Pandemic. These agreed upon metrics are within industry norms and would be considered best practices.

[1] The resumes of experience of Katherine Clupper, Peter Nissen and their respective firms are attached to this Memorandum and incorporated herein by reference.

It should also be noted that the projected revenue and revenue requirements presented by the Department's rate consultant, Black & Veatch, support proposed increases in water, sanitary sewer and stormwater rates and charges which will, among other things, allow the Department to comply with the financial policies and metrics discussed below[2].

Financial Metrics

Pursuant to the Rate Ordinance, the Rate Board has and must "recognize the importance of financial stability to customers and fully consider the Water Department's Financial Stability Plan" (Philadelphia Code 13-101 (4)(b)(.1)) in addition to considering "peer utility practices, best management practices and projected impacts on customer rates" (Philadelphia Code 13-101 (4)(b)(.1)). The Department developed key financial policies as a part of their annual Financial Stability Plan and have incorporated these metrics in the rate increase request.

Capital Funding from Current Revenues (Pay-Go Financing) – Pay-Go financing is simply funding capital needs with current revenues, rather than from debt borrowing. Pay-Go financing is often funded with identified user charges or growth-related fees. Systems that have funded significant portions of their Capital Improvement Plan ("CIP") with annual revenues are able to manage their debt while mitigating the burden upon future rate payers. PWD has targeted 20% of its CIP being funded with pay-go revenues (or 80% debt funding). Post-COVID-19, PWD will endeavor to manage to 20% pay-go funding depending upon available cash. While this target might not be able to be met as PWD addresses economic challenges stemming from the COVID-19 Pandemic, the target should remain. As a point of reference, Fitch's 2020 medians indicate a pay-go percentage of 66% for all systems and 54% for large systems. The PWD goal is on the weaker side and should be met and even strengthened in the future. Systems that can sustain higher levels of Pay-Go financing consequently also enjoy healthier debt service coverage, greater liquidity and lower borrowing costs which inure to the benefit of ratepayers.

***Debt Service Coverage* -** The Water and Wastewater sector is capital intensive, requiring significant capital investment to insure safe and efficient delivery of service. Debt service coverage provides ongoing revenues to continue to fund a portion of a systems capital needs with internally

[2] These policies were developed to position the PWD with adequate debt service coverage and cash reserves (i) to address capital needs aimed at maintaining assets and (ii) to increase pay-go funding to lower the debt burden. PWD has also implemented affordability programs to address ongoing rate increase impact on lower income rate payer. Additional revenue will be required to fund these affordability programs which will be increasingly necessary to mitigate the impact of rate increases on low-income households. Affordability is becoming an increased focal point in the credit profile of utilities across the sector and we believe the Department has been pro-active in addressing this issue. The Tiered Assistance Program is specifically noted by S&P as a tool to alleviate future pressure on low income residents (S&P Report, July 10, 2020)

generated funds. Adequate coverage also permits reserves to be maintained at levels which can mitigate unforeseen expenses and capital needs or shortfalls in expected revenue. The PWD has set its financial plan to formulate senior debt service coverage levels that support maintaining its existing credit ratings over the next five fiscal years.

The authorizing bond document (i.e. legal) requirement for debt service coverage for the PWD is 1.2 times coverage of senior debt, inclusive of contributions from the Rate Stabilization Fund. The Department has managed to debt service coverage of 1.3 times, as concluded reasonable in the 2018 Rate Determination. It should be noted that sector wide coverage is 2.30 times (2020E Moody's medians for combined systems) and is only expected to drop to 2.02 in 2021F (Moody's Outlook Report for 2021, December 2, 2020). For the rating category and the size of the Department, the current and past debt service coverage are below national trends. Without managing to level of coverage at the 1.3 times or greater, the ability to generate financial resources to fund the 20% pay go levels will be inhibited and debt burden will significantly increase. Additionally, relying on the Rate Stabilization Fund contributions to meet debt service coverage depletes financial resources which can be critical in addressing potential economic or operational challenges and diminishes the debt service coverage perception by the rating agencies. PWD should continue to manage to at least 1.3 times coverage, understanding that during the recovery period achieving this coverage might prove difficult.

***Cash Reserves* –** Liquidity measures are a critical indicator of the financial stability of utility system. Adequate cash reserves allow systems to contribute to growing capital projects, mitigate system disruptions, and fund unexpected operating expenses. The Department is maintaining liquidity by managing to a $135 million balance in the Rate Stabilization Fund (over time) and $15 million in the Residual Fund. The credit agencies give credit to the Department for balances in both funds in calculating liquidity levels. The common measure to determine liquidity is "days cash on hand", which is calculated by totaling unrestricted cash and investments and any restricted cash that is available for general system purposes, divided by the result of the annual operating expenses (minus depreciation), divided by 365. While rating agencies vary in their calculation, particularly with regards to the allowance of balances in the Rate Stabilization Fund and the Residual Fund, all mention and acknowledge these balances in their liquidity consideration. It is critical that the Department maintain the thresholds adopted in the 2018 Rate Determination of a Rate Stabilization balance of $135 million (by 2023) and a Residual Fund balance of $15 million. Understanding that this might prove difficult in the short run, these targets should continue as stated goals.

***Debt Issuance* -** Finally PWD is considering the overall investment in assets and the impact of debt issuance on the average life of PWD's assets. In addition to considering the useful life of assets in comparison to overall debt levels, consideration is also given to matching asset life to the life of the outstanding debt. Matching assets to liabilities is an important goal in any robust debt management plan and intrinsic to matching the utility of an asset to the repayment of the asset (i.e. ratepayers should derive the benefit of asset over the same term that the asset is repaid). Since debt issuances typically have 20 to 30-year amortization schedules, it is important to balance the debt burden of current rate payers with future customers. Structuring a debt portfolio requires consideration of long-range planning. Over the past several years, PWD has increased the average life of its debt portfolio to begin achieving this goal. The table below illustrates that pre-COVID-19, PWD has increased the average life of the debt outstanding and slightly increased debt service coverage over the past several years, which is in line with the financial policies of the Department and the recommendations of the Rate Board in the 2018 Rate Determination.

Year	2016	2017	2018	2019	2020E
Debt Service Coverage	1.24	1.31	1.38	1.33	1.28
Weighted Average life of outstanding debt	12.87	14.54	14.24	13.48	16.03

Bond Credit Agencies

Moody's, Standard & Poor's and Fitch look to variations of the above metrics in determining the Department's credit worthiness. Notably, the consistency of PWD's respective ratings of A1/A+/A+ show a consistency of rating views by all three rating agencies. This benefits PWD as investors price to the lowest rating if there are significant discrepancies. PWD successfully issued a new money and refunding (for savings) bond issue in July of 2020 with extremely positive results. Both issues were significantly oversubscribed with orders from bond purchasers and the final order book and allocations resulted in increasing PWD's investor base. Issuers with a robust and diverse buyer base are better received in the market, which is critical in times of market stress. PWD's consistent rating profile is a critical component of this success. It also reflects the positive trends in financial metrics and the assumption that these trends will continue. During times of economic stress, systems that can point to improving financial metrics will be better received by investors.

All three rating agencies have been updating their methodology with a view towards transparency with a more quantitative approach. S&P updated their methodology in 2016, Moody's updated theirs in 2017 and Fitch recently updated its criteria in 2020. Both Moody's and S&P have published credit scorecards which identify certain rating factors as well as assigning certain factor weighting. Both credit scorecards include some level of qualitative analysis beyond strict quantitative analytics. Fitch's criteria identify attributes and identifies stronger (AAA), midrange (AA) and weaker (A) guidelines, as well as including an economic stress test analysis. There are general observations, however, that are germane to all the rating analysis and comments.

Moody's – Moody's identifies broad factors for consideration and further provides sub factors in its scorecard. The broad categories include system characteristics (asset condition, service area and system size), financial strength (debt service coverage, day's cash on hand, debt to operating revenues), management (rate management, regulatory, compliance and capital plans) and legal provisions (rate covenant, debt service reserve requirements). Financial metrics that are mentioned as credit strengths include healthy cash reserves and a formal reserve policy (mentioning a FY 2018-year end $192 million balances in the rate stabilization fund and the residual fund (Moody's Credit Opinion 26 July 2019)). Specific credit challenges mentioned in that report were the regulatory and compliance realities which will require a large CIP and the "possible rate limitations through Rate Board approval structure and continued rate increases required to support debt and capital plan". In the most recent report, issued post-COVID-19, Moody's maintains the rating and stable outlook "given consistent historical results and our expectation that management will continue to act to maintain structural operating balance and meet coverage covenants despite near-term revenue pressures" (Moody's Credit Opinion 13 July 2020).

Moody's has assigned the water and sewer industry nationally a stable outlook for 2021, noting strong liquidity and management but indicating under-investment in infrastructure. These characteristics mirror the strengths of PWD. However, Moody's will conduct future rating reviews by considering future debt service coverage and expected increases in debt burden resulting from the future CIP. This will be viewed negatively if not improved, particularly in comparison to other A rated systems. Below are Moody's selected indicators which illustrate this analysis. These are considered key ratios, and it should be noted that PWD is generally below national medians. Increasing rates to provide available cash flow to fund an increased percentage of projects on a pay-go basis will help to mitigate this concern.

Key Indicator	PWD (2019)	A Rated Medians (2018)	Aa Rated Medians (2018)
Asset Condition	21	25	26
Debt to operating Revenues	2.2	2.5	2.1
Debt service coverage	1.8	2.0	2.4
Days cash on hand	250*	377	504

*Includes the Rate Stabilization and Residual Fund (Moody's Median Report (May 19, 2020))

Standard & Poor's – S&P also has developed a credit calculator to provide a qualitative analysis of a system's credit profile. They measure credit through an enterprise risk profile (economic fundamentals, industry risk, market position and operational management assessment) and a financial risk profile (all-in-coverage, liquidity and reserves, debt and liabilities and financial management assessment). They also provide for notch adjustments for certain factors. PWD was upgraded by S&P in 2016, specifically noting financial performance that has continued to meet or exceed historical projections. Increased debt service coverage to 1.3 times and higher liquidity (cash reserves, rate stabilization and residual fund) were included in the discussion of the strong financial risk profile. This is needed to support the robust capital plan and high debt to capitalization ratio. This rating increase was important because, as discussed previously, it aligned the Department's S&P rating with Moody's and Fitch and provided a strong message to the investor public.

It is important to note that S&P does not include transfers from the RSF in the debt service reserve coverage calculation. The report clearly stated that "if rate increases are short of what is needed to maintain financial performance consistent with recent experience, there are drawdowns in liquidity beyond current expectations or a significant amount of additional capital spending is added to the city's CIP, we could lower the rating or revise the outlook to negative". In the most recent report, post-COVID-19, S&P noted the strong year end FY2019 liquidity and while acknowledging post-COVID-19 financial stress, specifically mentions PWD and the Rate Board's agreed upon financial metrics as critical factors in maintaining the rating. (S&P Credit Opinion July 10, 2020)

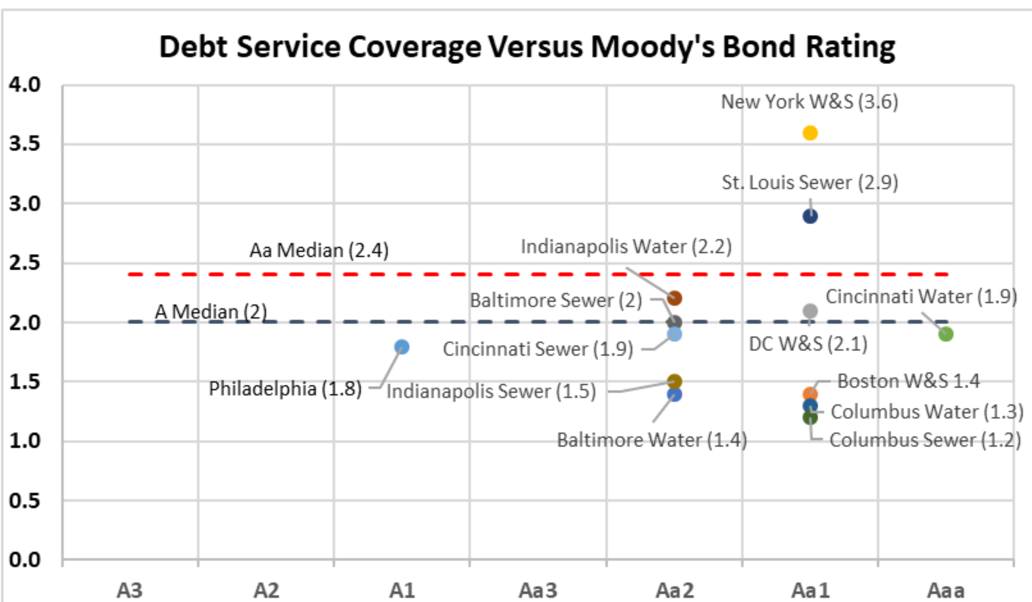
Fitch – As mentioned previously, Fitch has not developed a scorecard but has developed ranges based on certain considerations. The assessment includes a review of revenue defensibility (the ability to generate cash flow given legal framework and fundamental economics), operating risks (revenue/expense predictability, life cycle/capital risks, key resource risk), financial profile (operating margins, liquidity and overall leverage) and asymmetric risks (debt structure, management and governance). Fitch views PWD's financial performance as "satisfactory," mentioning the 1.3 times debt service coverage and healthy liquidity levels (pre-COVID-19). High debt burden and mixed economic characteristics raise concern, especially since Philadelphia's poverty levels are higher than the national average. Clearly the financial metric targets for PWD are "weaker than Fitch Ratings' medians", however Fitch's expectation is that PWD will continue to be able to achieve consistent rate recovery through rate increases to continue to support the planned capital needs. Consistency in achieving the PWD's stated metrics will be key to maintaining the current rating.

General observations – All three of the rating agencies have mentioned the PWD's increased debt service coverage of 1.3 times as a credit positive. This increased coverage has resulted in stronger liquidity and will ultimately allow for increased pay go funding. This is critical given the reality of PWD's significant required capital needs. Ongoing maintenance of assets is critical with older urban systems. PWD has historically had lower margins and a higher debt burden. Consistent reasonable rate increases will allow PWD to address capital needs without over-burdening future rate payers. We expect the rating agencies to take into consideration the current economic realities of the Pandemic into consideration if these targets are not met in the short run. However, providing a plan on how these targets will be achieved in the future will be an important discussion.

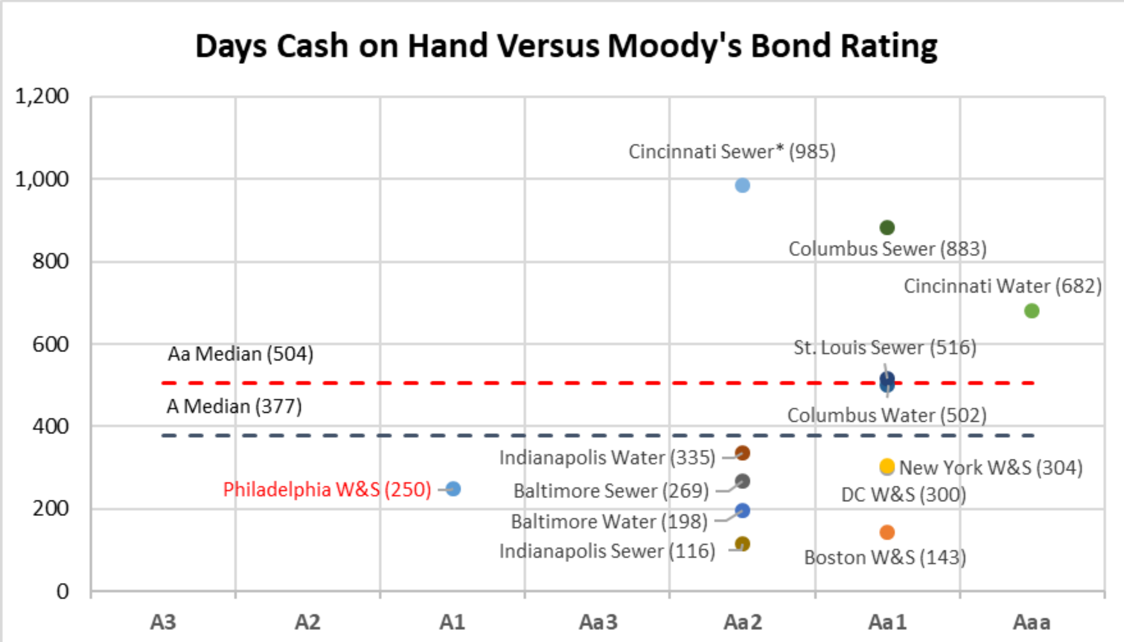
Peer Utilities

Peer utility comparisons are relevant in weighting the appropriate metrics to be approved for the Department. PWD has selected certain peer systems to provide important benchmarking critical to organizational best practices. While systems each have their own characteristics based on regions, size, and service area, the selected peers are of similar size, service areas of industrial urban centers and are located largely in the mid-Atlantic and Midwestern regions of the country. Peer comparisons and benchmarking performance indicators are a component of best practices and are specifically mentioned as a factor the Rate Board must consider in its rate making decisions.

Below are charts which indicate that PWD, as compared to its peers, remains on the weaker side of certain key financial ratios. It is important to note that viewing data for peer systems should be used to provide a general perspective, since obviously each system has its own characteristics.



(Moody’s MFR, 2019)



(Moody's MFR, 2019)
*Cincinnati Sewer includes Surplus Account in calculation

Resiliency

Municipal resiliency is an additional consideration weighed in assessing credit and risk. There has been increased focus on utility and municipal resilience by both the investor and credit community in the face of increased economic and environmental risks. Moody's Investor Services has begun to develop an additional approach to assessing credit and risk by viewing all credits considering Environmental, Social and Governance (ESG) factors. Global themes that impact water and sewer utilities focus on rising debt burdens, environmental impact and social trends, particularly affordability. Environmental factors specifically relevant to combined systems such as PWD are flooding and the impact on combined sewer overflow (CSO). It is estimated that future capital needs for CSO are $48 billion. Additionally, EPA regulations are expected to tighten further in 2021 in particular those related to Lead and Copper regulations and addressing the health risks of PFAS or per- and polyfluoroalkyl substances. (Moody's 2021 Outlook)

ESG analysis assess how governance can stay ahead of these environmental pressures, while at the same time mitigating negative social impact. Systems that are resilient are able to manage this balance without weakening their overall credit profile. Globally the COVID-19 pandemic will put additional pressure on ESG risks across credit sectors. There will be increased scrutiny on the ability to be prepared and the acknowledgment of the impact of social stresses on financial solutions. Affordability will become an increased focus and will need to be balanced against the capital needs required to address environmental pressures. (ESG-Global Moody's Sector In-Depth, 24 June 2020)

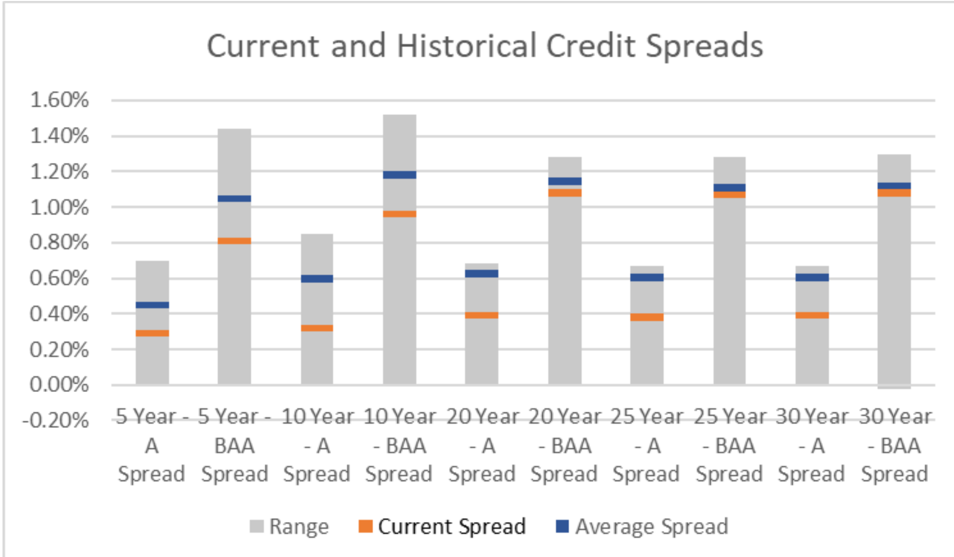
Public versus Private Utilities

Publicly-owned utilities have two major sources of funds to address capital needs: (i) revenues generated from rates and fees (Pay-Go) and (ii) proceeds from debt issuance (bonds). It is important to note that the cost of borrowing also must be paid by ratepayers. This differs from private (or investor) owned utilities, who have an additional source of funds since they can also rely on investor equity to fund projects in exchange for a return on equity.

In each year, the PWD incurs both operating and capital expenses to operate, maintain, and improve the Water and Wastewater Systems. Utilities incur capital costs to make long-term infrastructure improvements (e.g. water main replacements, sewer replacements, pumping stations, plant improvements) to maintain and improve the level of service provided to customers and ensure compliance with environmental regulations. As a municipally-owned utility, the PWD generally establishes rates and charges that are designed to generate revenues that exceed operating costs and debt service in order (i) to provide funds for unforeseen circumstances and (ii) to provide a contribution from rates to capital costs to avoid relying solely on debt financing. This excess above current costs is referred to as coverage. For an investor-owned utility, these excess funds are partially paid out as dividends to shareholders. For publicly owned utilities, there are no external dividend payments and the margin above current costs stays within the system for the benefit of ratepayers over time. This common use of coverage with public owned utilities is illustrated by the fact that the median debt service coverage for US publicly owned, combined systems is 2.3 times and the median days cash on hand is 465 days. (Moody's Municipal Water & Sewer Utilities Sector Outlook, Dec. 2, 2020)

Cost of Capital

The ultimate measure of credit and risk is the sufficiency of service revenues to provide the necessary cash flow for liquidity and pay-go funding. The authorization of higher rate levels is required from time to time to sustain this over-arching financial metric. To be sure, this has a direct impact on the utility's cost of capital. The foregoing also has an impact on the cost of annual debt service as well as the cost to the Department of alternative financing options such as letter of credits, bank loans, and implementing a commercial paper program. Higher rated credits enjoy a range of options in financing growing CIP programs and these short term, variable rate options can be even more advantageous in a rising rate environment. Below are current and historical credit spreads for various bond ratings. The lower borrowing cost with higher credit ratings is apparent for various bond ratings.



Source: Municipal Market Data (MMD) Curve

Over the next five years, the Department expects to issue $2.345 billion in additional debt. For every 50-basis point increase (or ½ of a percentage point) in borrowing yield, rate payers should expect to pay an additional $7.8 million in annual debt service on the amount expected to be borrowed. This increase is cumulative and can place additional stress on debt service coverage requirements.

Conclusion

Taken together, the financial metrics and policies identified in the Department's Financial Plan are reasonable and should be reaffirmed in the current rate case, to ensure that the Department can maintain and continue to manage its financial metrics and bond ratings.

SCHEDULE ML-7

Miscellaneous Changes in Terms of Rates and Charges

Section and Title in Rates and Charges	**Proposed Change**
1.0 Definitions	Revise definition of "Condominium" based on the definition in the Uniform Condominium Act at 68 P.A.C.S. § 3103 Add definition of "Dwelling Unit" based on the definition in the Zoning Code at Section 14-203 of the Philadelphia Code. Add definition of "Rate Board."
2.1 General Customers	Disclaimer added to Section 2.1(c) quantity charges.
3.5 Sewer Credits	Revise the first sentence of Section 3.5 to reference the correct section of the Philadelphia Code. Former Section 13-201(4) is now Section 13-101(6).
4.0 Stormwater Management Service (SWMS) Charges – 4.3 Non-residential Properties	Revise the first sentence of 4.3 to reflect that some non-residential properties are eligible for exemptions or 100% discount of SWMS charges. Revise section 4.3(7) to allow SWMS adjustments to Gross Area and Impervious Area calculations to be applied retroactively for up to three years prior to receipt of a completed Adjustment Appeals Application under certain circumstances.
4.5 SWMS Credits	Revise Section 4.5(c)(1)(i) to clarify the types of stormwater management practices that are eligible for Impervious Area Reduction (IAR) adjustments. Revise Section 4.5(c)(1)(ii) to align the stormwater credit eligibility criteria with the regulations by requiring properties receiving impervious area (IA) management credit for managing stormwater runoff to manage the first 1.5 inches of stormwater runoff. Properties for which PWD has received credit applications before September 1, 2021, would be grandfathered and thus be allowed to receive IA credit under the credit eligibility requirements in effect before that date.
5.2 Special Customers	Revise Section 5.2(b) to increase the senior citizen income threshold and to clarify that the income threshold will be adjusted at each general rate proceeding as per Section 19-1902 of the Philadelphia Code.

	Revise Section 5.2(n) to add a reference to Chapter 16-400 of the Philadelphia Code as per Section 16-403 of the Philadelphia Code regarding abatement of water and sewer charges for property held by the Redevelopment Authority.
5.3 Eligibility for Charity Rates and Charges	Revise Section 5.3(c) to reflect revisions to the Section 13-101(4)(e) of the Philadelphia Code regarding termination of charity rates for institutions that violate prevailing wage requirements. See Bill No. 190911, approved by the Mayor on December 30, 2019.
6.4 Shutoff and Restoration of Water Service	Revise Section 6.4 to provide customers enrolled in TAP with a special miscellaneous rate for shutoff and restoration of Water Service
6.7 Water Connection Charge	Revise Section 6.7(b)(2) to delete superfluous words.
8.2 Stormwater Manager Fee in Lieu	Delete portions of Section 8.2 that are covered the Department's current stormwater regulations See also the testimony in PWD Statement 2 regarding changes in the amount of the fee.
9.1 Charges	Disclaimer added to Section 9.1(d) quantity charges.
10.1 Computation of the TAP-R and 10.2 Filing with the Philadelphia Water, Sewer and Storm Water Rate Board	Term change in Section 10.1(a) and definition charges for the TAP-R formula in Section 10.1(b). Section 10.2 edited to clarify the TAP Rate Rider Reconciliation procedure with the Rate Board. See Testimony of Black & Veatch regarding TAP-R changes.

Schedule ML-8

Philadelphia Water, Sewer, And Storm Water Rate Board
Summary Of Prior Rate Proceedings

2020 Rate Adjustment

In 2020, the Rate Board conducted a TAP-R (Tiered Assistance Program Rate Rider Surcharge Rate) Reconciliation Proceeding to implement an annual adjustment to TAP-R. The rates charged in Fiscal Year 2021 were reduced slightly as a result of the annual adjustment approved by the Rate Board in the 2020 TAP-R Reconciliation Proceeding.

2020 General Rate Proceeding

The 2020 Rate Case was filed to determine water, sewer, and storm water rates for the 2021 and 2022 fiscal years. Formal notice was given March 13 2020. The Rate Board granted, on June 18, 2020, the Department's request to withdraw the 2020 Rate Case without prejudice to any participant in that or any other proceedings before the Rate Board.

2019 Rate Adjustment

In 2019, the Rate Board conducted a TAP-R (Tiered Assistance Program Rate Rider Surcharge Rate) Reconciliation Proceeding to implement an annual adjustment to TAP-R. The increase for Fiscal Year 2020 was reduced slightly as a result of the annual adjustment approved by the Rate Board in the 2019 TAP-R Reconciliation Proceeding.

2018 General Rate Proceeding

The 2018 Rate Case determined water, sewer, and storm water rates for the 2019 and 2020 fiscal years. Formal notice was given March 14, 2018, and the Rate Determination was announced on July 12, 2018. In the 2018 Rate Case, the Rate Board approved rate increases necessary to recover an additional $24.5 million in revenues in Fiscal Years 2019 and 2020, reflecting annual revenue increases of 1.33% for Fiscal Year 2019 and 1.2% additional increase for Fiscal Year 2020. This proceeding also approved a reconciliation procedure for TAP-R (Tiered Assistance Program Rate Rider Surcharge Rate).

On August 9, 2018, the Public Advocate filed a challenge to Rate Board's 2018 Rate Determination in the Court of Common Pleas (August Term, 2018 No. 00527). That Court affirmed the Rate Board's decision, and the Public Advocate filed an appeal with the Commonwealth Court (1070 CD 2019). That appeal will be argued *en banc* before the Commonwealth Court on (or about) February 10, 2021.

2016 Special Rate Proceeding

The Rate Board also conducted a special rate proceeding from October to December of 2016 as a result of an ordinance adopted on June 28, 2016, which required the Rate Board to establish special discounted rates for eligible community gardens.

2016 General Rate Proceeding

The 2016 Rate Case determined water, sewer, and storm water rates for the 2017 and 2018 fiscal years. Formal notice was given February 8, 2016, and the Rate Determination was announced on June 8, 2016. The Rate Board approved rate increases necessary to recover an additional $89 million in revenues in Fiscal Years 2017 and 2018, reflecting an average annual revenue increase of about 4.5% over those two years.

Schedule ML-9

Comparison of Projections
from 2018 General Rate Case with Actual Results

FY 2019:

PWD ended FY 2019 in-line with projections.

- **Revenues**: Fiscal Year 2019 revenues were in-line with 2018 rate case projections with a variance of 0.60%.

- **Operating Expenses and Liquidated Encumbrances**: During FY 2019 operating expenses were higher than 2018 rate case projections in several main categories including services, materials, supplies and equipment, chemicals, and reimbursements to the General Fund**.** The increased operating expenses for the categories noted above versus final 2018 rate case projections total approximately $22,815,000.

  These increases were partially off-set by FY 2019 operating expenses with results that were lower than 2018 rate case projections including electricity, gas, and indemnities**.** The lower than expected operating expenses for the above noted categories totals approximately $4,670,000.

  Liquidated Encumbrances which reduce operating expenses were higher than 2018 rate case projections by approximately $7,760,000. The combined impact of the operating expenses and increased liquidated encumbrances versus 2018 rate case projections totaled a net higher cost to the rate base of $10,390,000.

- **Debt Service Payments**: During FY 2019 debt service payments were lower than 2018 rate case projections by approximately $7,940,000.

- **Capital Account Deposits**: Fiscal Year 2019 capital account deposits were higher than 2018 rate case results by approximately $3,236,000.

FY 2020:

PWD ended FY 2020 with expenses higher than projections.

- **Revenues**: System-generated revenue results (excluding transfers from Rate Stabilization Fund) were higher than projections, with a 1.19% variance.

- **Operating Expenses and Liquidated Encumbrances**: Actual expense results were higher than projections, with a 3.52% variance.

- **Debt Service Payments**: Fiscal Year 2020 debt service payments were in-line with 2018 rate case projections with a variance of -0.24%.