THE CITY OF SAN DIEGO

OFFICE OF THE INDEPENDENT BUDGET ANALYST REPORT

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IBA Review of the Public Utilities Department FY 2023-2027 Five-Year Financial Outlook

OVERVIEW

The *Public Utilities Department Fiscal Year 2023-2027 Five-Year Financial Outlook* (PUD Outlook) was released on November 10, 2021, concurrent with the release of the General Fund Fiscal Year 2023-2027 Five-Year Financial Outlook (General Fund Outlook). Similar to the General Fund, *Council Policy 000-02: Budget Policies* states that the PUD Outlook is intended "to guide long-range planning and serve as the framework for the development of the next year's Proposed Budget for the Water and Sewer Enterprise Funds." While the General Fund Outlook has been an annual report since 2006, this is the third PUD Outlook and the second to be presented at a meeting of the full City Council.[1] In addition to projecting what may be included in future proposed budgets, the PUD Outlook also serves as the basis of needed expenditure projections and revenue needs for the next set of proposed water rates anticipated to come to City Council in calendar year (CY) 2022.

As discussed in our review of the General Fund Outlook (IBA Report 21-28), the Office of the Independent Budget Analyst (IBA) is charged with providing the City Council with review and analysis of all major budget reports including the financial outlooks, quarterly budget monitoring reports, Mayor's Proposed Budget, Mayor's May Revision to the Proposed Budget, and Capital Improvements Program (CIP) budget reports. While the City Council cannot change this PUD Outlook, City Council is the ultimate budget authority and can make changes following the release of the Proposed Budget in April 2022. City Council will also review any proposed water and sewer rate cases, ultimately approving changes following the Proposition 218 process. With this report our office intends to provide additional information, context, analysis and issues for Council to consider as it reviews the PUD Outlook, the proposed FY 2023 Budget, and upcoming proposed water rate adjustments.

[1] The first PUD Outlook was released roughly three years ago, in January 2019, and was only presented to the Budget and Government Efficiency Committee.

FISCAL/POLICY DISUSSION

The Public Utilities Department (PUD) operates two major systems, the City's Water system and the Wastewater (sewer) system, and the PUD Outlook has discrete sections for these two major functions which are accounted for and budgeted in separate funds. Water rate revenues must be used to support the activities of providing water, while sewer rate revenues are used to support the operations of the collection, treatment and disposal of wastewater.[2] The PUD Outlook projects expenditures of approximately $2.2 billion in FY 2023 for water and wastewater operations, baseline and Pure Water CIP, debt service, and reserve requirements of both systems as summarized in the table below. Expenditure projections peak in FY 2023 due to the Pure Water Phase 1 CIP which is under construction and anticipated to be online in FY 2025.

Summary of Public Utilites FY 2023-2027 Five-Year Financial Outlook Expenditures *(in millions)*						
	FY 2022 Adopted	**FY 2023 Projection**	**FY 2024 Projection**	**FY 2025 Projection**	**FY 2026 Projection**	**FY 2027 Projection**
Water Fund	$ 1,084.5	$ 1,109.7	$ 1,092.6	$ 1,012.9	$ 1,001.5	$ 1,024.8
Wastewater Funds	717.2	1,066.4	686.3	616.1	605.6	594.8
COMBINED	**$ 1,801.7**	**$ 2,176.1**	**$ 1,778.9**	**$ 1,629.0**	**$ 1,607.1**	**$ 1,619.6**

In contrast to the General Fund Outlook, PUD's Outlook does not reflect a gap (deficit or surplus) between revenues and expenditures. While the City's General Fund is constrained by available tax revenues to support expenditures, the Water and Wastewater systems are supported primarily by rates paid by customers using the systems. The PUD Outlook focuses first on projecting the costs of maintaining and operating the water and sewer systems and then estimates the revenue increase needed to fund those expenditures. The Outlook serves as the basis and first step for developing a cost of service (COS) study to determine expenditure projections and revenue needs which are the basis for the next set of water rates. The PUD Outlook identifies the overall system needs, whereas the COS analysis allocates the cost of those needs to establish equitable and proportionate rate recovery by the different user classes.

Overall, there are no major changes or surprises in the PUD Outlook, and Pure Water is a continued driver of financial outcomes. For both the Water and Wastewater Systems, baseline operating expenditures are projected to grow moderately over the five-year period. As Phase 1 of the Pure Water Program comes online, increases are expected for (1) critical operating expenditures for operations and maintenance of the facilities and (2) debt service expenditures for construction costs (of Pure Water Phase 1). CIP expenditures are expected to peak in FY 2023 and then gradually decrease through FY 2027, as Phase 1 construction of the Pure Water Program nears completion and efforts shift to design and planning for Phase 2. Additionally, baseline CIP consisting of non-Pure Water capital investments for repair, replacement, upgrades, and system expansion is expected to remain relatively level throughout the forecast period, with a minor decrease in the final years of the PUD Outlook.

[2] Note that the Wastewater system is broken down into separate funds for the (1) collection of wastewater from municipal customers in the City of San Diego (the Muni Fund) and (2) treatment and disposal of wastewater which is provided for City of San Diego customers as well as other agencies in the region that utilize our wastewater treatment system (the Metro Fund). For the purposes of the PUD Outlook, these two sewer funds have been combined.

Rate Increases

Water and wastewater rates are determined through a process prescribed by state law under what is commonly referred to as "Proposition 218", which requires a COS analysis, the opportunity for a majority protest by impacted parcels/customers, and Council approval of any rate adjustments at a public hearing.[3] COS studies provide detail on projected expenditures, determine the total revenue required to cover those expenditures, and allocate those revenue needs based on the system functions and the demands each customer class places on the water and wastewater systems. It was initially anticipated that PUD would conduct a COS study for both water and wastewater in CY 2021, but the water COS was delayed due to ongoing litigation.[4]

As summarized in the table below, the PUD Outlook shows the need and expectation of rate increases to support the water and wastewater systems over the next five years. These percentages are at the aggregate, summary level for each system and do not reflect how costs will be allocated to different rate components or customer groups. That level of detail is or will be included in the rate design of the appropriate COS study. It's important to note that the projected rates could reflect higher percentage increases for some customer classes and lower increases – or even decreases – for others.

Summary of PUD Outlook Water and Sewer Rate Increases FY 2023-2027						
	FY 2022	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**
Water	3.0%	6.9%	6.3%	6.4%	6.4%	6.9%
Sewer	5.0%	4.0%	4.0%	3.0%	5.0%	3.0%

It's notable that over the Outlook period (FY 2023-2025), total rate increases are 32.9% for water and 19.0% for sewer.

Wastewater – For the Wastewater System, sewer rates and the corresponding revenues from a recent COS study approved in September 2021 are reflected in the Outlook for FY 2022 through FY 2025. As shown in the table above, the Outlook includes maximum wastewater rate increases ranging from 3.0% to 5.0% through January 1, 2025. Our independent consultant, Stantec, completed an in-depth review of the wastewater COS study and provided recommendations, discussed in the "Oversight and Review" section of this report. The wastewater COS study was an important milestone for PUD because the most recent set of sewer rate increases was approved in 2006 and covered the years of 2007-2010. There have been no sewer rate increases in the past ten years. Note that Industrial Wastewater Control Permit (IWCP) fee changes were approved as part

[3] Among other requirements, Proposition 218 requires a majority protest vote and public hearing before approval of proposed rates (Article XIII D, Section 6), and stipulates that rates charged to customers "must not exceed the proportional cost of the service attributable to the parcel or customer." (Article XIII D, Section 6, Subdivision (b))

[4] The City's Water System is currently involved in litigation in Patz v. City of San Diego regarding the use of a tiered water rate structure for single-family residential customers. The lawsuit alleges the City's rates for water service do not reflect the actual cost to provide the water service to each parcel in violation of Proposition 218. The City contends that its water rates are strictly based on cost of service principles and compliant with Proposition 218. On September 13, 2021, the court ruled in favor of the plaintiffs on the Proposition 218 claim and moved the city into the remedies stage of the trial which is expected to take six to nine months. In the event the City appeals the ruling, additional time will be needed to hear the appeal before a final determination is made on the legality of the tiered structure. Single family residences are the largest customer class of the Water System and a ruling against the City could have a wide-ranging impact of the rates charged to that customer group moving forward.

of the sewer rate increases by City Council in September 2021 and are being phased in to get full cost recovery.[5]

Water – As previously noted, the water COS initially planned for CY 2021 was delayed to CY 2022 due to ongoing litigation. Shown in the table above, the PUD Outlook includes projected water rate revenue adjustments needed to support projected expenditures, fund reserves appropriately, and achieve the target financial metrics, ranging from 6.3% to 6.9% over the five-year period. Due to uncertainty with the Patz litigation, rate increases are proposed to be effective on April 1, 2023, for the first year and on January 1 in subsequent years. Actual rate increases and the individual customer class impact will be subject to revision and finalization during the COS study that is currently underway, and pending City Council consideration and input. Two key points regarding water rates:

- The PUD Outlook projects an additional 0.75% needed annually to account for delays in water rate increases. The most recent water COS study and rate case was approved by City Council in November 2015 (which authorized aggregate rate increases for each of those five years ranging from 5.0% to 9.8% for 2016-2020) and there were no water rate increase in CY 2020-21.
- In September 2021, City Council approved a passthrough water rate increase of 3.0% (shown in the table above) which will be effective January 1, 2022 for increasing costs for purchased water from the San Diego County Water Authority (CWA). For the years of the Outlook (FY 2023-2027), about half of proposed water rate increases are necessary to pay for increased CWA water rates. Uncertainties related to CWA rate increases is discussed in more detail in the "Water Purchases" section of this report.

Cost of Service (COS) Study

Wastewater – Stantec issued its Independent Review of the Wastewater Financial Plan, Cost of Service, and Rate Study in May 2021.[6] This review included analysis of historical and forecasted financial information, PUD's rate model and proposed COS study, and supplemental data and information used to develop key inputs and assumptions. Stantec concluded the COS developed by PUD and their consultant was conducted thoughtfully and consistent with industry practices. Additionally, the responsiveness and transparency of PUD and their consultant (Raftelis) enabled a thorough review of data, assumptions, methods, and models used in the COS study, and to clarify documentation of the process. Key findings and recommendations from the review with the potential to impact rates are summarized in the table in Attachment 1. Additional observations were documented in the review report. Notably, Attachment 1 also includes important areas identified by Stantec that should be addressed in the next wastewater COS study. Stantec's review provided insight and additional information for consideration by the City Council, Independent

[5] The IWCP issues discharge permits, performs inspects, conducts wastewater monitoring and enforces sewer discharge standards for businesses and industries based on the U.S. Environmental Protection Agencies restrictions on pollutants that can be discharged into the sewer system. Council approval of fee changes was important to address cost recovery issues for industrial users of the wastewater system, as identified in a July 2020 City Auditor report.

[6] IBA-21-14, Independent Review of the Public Utilities Department's Wastewater Cost of Service Study and Request for Rate Increase, May 17, 2021.

Rates Oversight Committee (IROC), and the public. As noted previously, sewer rate increases were approved by the City Council in September 2021.

Water – Stantec and our office are reviewing the PUD Outlook and identifying areas for further research and evaluation in preparation for the upcoming water COS study. These include assumptions, trends and policies used by the PUD and their consultant Raftelis Financial Consultants, Inc (Raftelis). The planned approach for the review and key areas of evaluations are discussed in the following section.

Key Areas for Evaluating the PUD Outlook, Financial Plan and Water COS

The first step in reviewing the City's COS study is to evaluate the Outlook and long-term financial plan with a specific focus on the four-year rate-setting period of FY 2022 through FY 2025 which forms the revenue requirements used to calculate rates. Similar to the review of the wastewater COS study, this review will include the following tasks:

1. Test model inputs and calculations for accuracy and completeness,
2. Review inputs and assumptions for reasonableness, and
3. Identify and evaluate key financial policies, targets, and decisions within the four-year forecast that affect the timing and amount of annual revenue requirements.

Any water utility financial plan includes a common set of data, inputs, assumptions, and policy decisions. The table below provides the primary elements of the financial plan and key areas that will be evaluated as part of Stantec's independent review. The remaining sections of this report follow the framework in the table, and we include assessments of several of the key areas for evaluation.

Primary Elements of the Outlook	Key Data, Inputs, and Assumptions for Evaluation
Revenues	– Water demands (and account growth) – Water sales – Non-rate revenues
Operations and Maintenance Expenditures	– Water purchases ▪ CWA rates ▪ Conservation – Baseline operations budget – Staffing levels, augmentation, and salary adjustments – Critical operating expenditures for upcoming new programs
Capital Improvement Program (CIP)	– Pure Water Phase 1 – Baseline CIP (Ongoing investments in infrastructure) – CIP funding and use of debt – Historical CIP execution – Cost escalation
Financial Policies and Rate Stabilization	– Debt service coverage ratio (DSCR) – Reserve targets – Financial key performance indicators (KPIs) – Affordability

Revenues

Water Demand Assumptions

Water demand assumptions are an important component of the PUD Outlook because they impact both projected rate revenues and water purchase costs. The projected water demand could be influenced by several factors, including rainfall, population growth and regional demands, and the completion schedule for the Pure Water Program Phase 1. The Outlook states PUD delivered approximately 175,000 acre-feet (AF) of potable water per year for FY 2016–2020. This is a reduction from previous PUD Outlooks that reported an average per year of:

- 180,000 AF for FY 2015-2019
- 200,000 AF for FY 2014-2018

This forecast of water sales increases due to population growth, but also accounts for ongoing conservation throughout the period to 2045.The City's Urban Water Management Plan (updated 2021) estimates approximately a 7.6% reduction in usage due to conservation by 2045.[7] Single-family residential water use is projected to increase by 0.62% over the period of 2025 to 2045 and Multi-family residential water use was forecasted to increase at 34% over the projection period of 2025 to 2045.

Water Conservation

While water conservation efforts reduce PUD's need to purchase water from outside sources, it is important to note a significant portion of operating expenditures for the water system are fixed costs, which generally do not change regardless of changes in water usage and conservation. For example, personnel, information technology, and administrative costs, in addition to debt service expenses, do not vary based on the level of water usage by customers. This presents additional challenges when a significant portion of water rate revenues are collected based on water usage and decreases in usage have disproportionately large impacts on revenues relative to expenditures. This will be one key topic to be addressed in the upcoming water COS study and rate design.

Given the combined impacts to rate revenues and water purchase costs, water demand projections are an important component of the financial plan and will be evaluated by Stantec as part of its review of the water COS study to fully understand the impact of changes on the financial outlook.

Operations and Maintenance Expenditures

Water Purchase Assumptions

The City provides water primarily from two water sources: (1) local supplies from rainfall and runoff that flows into reservoirs, which provide on average 10 - 15% of water needs, and (2) water purchased from its wholesaler, the CWA, which provides 85 - 90% of water needs. Because the City currently imports a significant percentage of its water supply, representing $286.2 million or 46% of the Water Utility Fund expenditures in FY 2022, water purchase assumptions are a critical component of the PUD Outlook.

The PUD Outlook projects expenditures for imported water purchases to increase from $294.3 million to $328.5 million over the five-year Outlook period. The PUD Outlook assumes the City's

[7] https://www.sandiego.gov/sites/default/files/city_of_san_diego_2020_uwmp_final_6_29_2021_send.pdf

Pure Water Program Phase 1 will be complete and providing potable water for use beginning in FY 2025.[8] As shown in the table below, water purchase expenses in FY 2025 and FY 2026 are projected to decline due to the shift toward local water supply produced from Pure Water Phase 1 to meet a portion of annual water demands.

Water Purchases Estimated in PUD Outlook							
	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Acre Feet to Purchase	146,968	173,352	165,431	165,703	149,172	132,804	133,238
Estimated Cost *(in Millions)*	$ 244.8	$ 286.2	$ 294.3	$ 312.6	$ 310.0	$ 307.3	$ 328.5

The decline in water purchase costs is offset in FY 2027 by forecasted increases in wholesale rates charged by CWA for the remaining water purchases as recently forecasted in the CWA Long Range Financing Plan.[9] The Outlook states the cost per acre foot (AF) is expected to increase 49% during the PUD Outlook period, based on current guidance provided by CWA and under CWA's current rate structure.

San Diego County Water Authority (CWA) Rates

The largest single expenditure for PUD in the Outlook and the largest nonpersonnel expense for the City is the purchase of water from CWA. The City and its regional partners' current reliance on imported water leaves the City's primary source of supply vulnerable to shortages and susceptible to rate increases beyond the control of the City. The City of San Diego is also the largest user of CWA water, accounting for about 40% of system usage. Bringing Pure Water Phase 1 into production in FY 2025 will have a significant impact on demand for CWA water.

CWA's Long-Range Financing Plan provides an "Annual All-in" range with high and low rate and charge forecasts from 2.6%-11.3%, but actual rate increases will be implemented based on multiple rate and charge categories. Applicable rate and charge categories for the City include four fixed categories (Storage, Customer Service, Supply Reliability and Infrastructure Access) and a volumetric rate based on the actual volume of water purchased. For the purpose of the Outlook, PUD used the mid-point of the high-low scenario to estimate CWA rate increases. As shown in the table below, approximately half of projected water rate increases are needed to pay for increased CWA water rates. Increases in revenue necessary to support PUD water system operations range from 3.3% to 4% in each year of the Outlook period.

Projected Water Rate Increases by CWA Pass-through Costs and Water System Costs						
	1/1/2022	4/5/2023	1/1/2024	1/1/2025	1/1/2026	1/1/2027
CWA Pass-through Costs	3.0%	3.1%	3.0%	3.1%	3.1%	2.9%
Water System Costs	0.0%	3.8%	3.3%	3.3%	3.3%	4.0%
Total Rate Increase	3.0%	6.9%	6.3%	6.4%	6.4%	6.9%

CWA is currently evaluating their rate structure and the PUD Outlook does not make any assumptions on the outcome of this effort. Depending on differential rate increases by category or

[8] Discussed more later in this report, the City is developing its Pure Water Program using advanced water purification technology to produce potable water from recycled water. Pure Water is intended to reduce reliance on purchased water and provide a sustainable local drinking water supply for San Diego.
[9] https://www.sdcwa.org/wp-content/uploads/2021/10/LRFP2021Adopted.pdf

other structural changes, the result may have a significant impact on the City. For instance, if fixed charges are increased to recover a greater share of revenue from fixed sources, the City could be impacted substantially more than if volumetric rates are increased. This type of structural change would reduce the cost savings associated with shifting a portion of the City's water supply from CWA to Pure Water. Given the potential change in water demand from the City and other regional customers, the expectation is that CWA may increase the amount of fixed charges moving forward to ensure its own revenue stability.

There are also proposed projects on the horizon that will impact costs from the CWA. The CWA has been studying the feasibility of building a Regional Conveyance System (RCS) to the Colorado River. This project would have a considerable capital cost, and as the largest member agency, City of San Diego ratepayers are significantly impacted by decisions made by CWA.[10] The RCS project continues to be controversial, and concerns and opposition have been raised by City representatives, other member agencies, environmental groups, and others. The City's primary concern is the impact to ratepayers over the next two to four decades given that the costs of the proposed RCS project are not affordable in combination with the City's Pure Water Program.

Although the decision whether to move forward with RCS and its consequences may occur outside of the PUD Outlook period, the opportunity to influence that decision will be now and in the next few years. The City has 10 members on the CWA Board of Directors whose roles are to represent the City's interests. It will be important that City representatives, staff and Board Members continue to engage with CWA to ensure its upcoming COS study is sound, CWA operations are efficient, and decisions impacting the City's ratepayers are affordable.

Personnel Expenditures

Consistent with the General Fund Outlook, the PUD Outlook accounts for negotiated pay increases through FY 2023 and assumes that salaries and wages will grow in FY 2024-2027 at the 3.05% increase used by the San Diego City Employees' Retirement System's (SDCERS) actuary to calculate the City's yearly Actuarially Determined Contribution (ADC) to the pension.[11] Baseline personnel expenditures for both water and wastewater are included in the following table. From FY 2022 to FY 2023, baseline Water personnel costs increased by almost 10.0% while the Wastewater personnel costs increased by about 5.5%. According to PUD staff, unlike the Water system, Wastewater has historically underspent its personnel budget. This was noted by Stantec in their review of the Wastewater COS study. Wastewater personnel expenses for FY 2023 were adjusted to better account for this.

[10] Based on Black & Veatch's Regional Conveyance System Study Phase A Final Report (August 202), the City's ratepayers would contribute approximately $500 million in pre-construction soft costs and $5 billion in construction costs and resulting debt service expenses.

[11] Over the past year a number of Councilmembers have raised issues related to employee staffing levels, recruitment and retention challenges, and uncompetitive compensation. As a step toward attaining a more competitive compensation position, for FY 2022 the Council approved across-the-board salary increases for all employees (which varied by Recognized Employee Organization), and certain positions received special salary adjustments or add-on pays. This is discussed in more detail in our review of the Five-Year Outlook.

Baseline Personnel Expenditures for Water and Wastewater *(in millions)*						
	FY 2022	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**
Water						
Salary and Wages	$ 53.5	$ 58.7	$ 61.1	$ 63.8	$ 65.8	$ 67.9
Fringe	$ 39.9	$ 43.2	$ 44.4	$ 46.1	$ 47.3	$ 48.7
Total	**$ 93.4**	**$ 101.9**	**$ 105.5**	**$ 109.9**	**$ 113.1**	**$ 116.6**
Wastewater						
Salary and Wages	$ 61.0	$ 64.4	$ 66.6	$ 68.9	$ 71.7	$ 73.3
Fringe	$ 44.8	$ 46.0	$ 46.8	$ 47.6	$ 48.9	$ 50.1
Total	**$ 105.8**	**$ 110.4**	**$ 113.4**	**$ 116.5**	**$ 120.6**	**$ 123.4**
Combined Total	**$ 199.2**	**$ 212.3**	**$ 218.9**	**$ 226.4**	**$ 233.7**	**$ 240.0**

Vacancies

The PUD Outlook considered recent trends in the aggregate as it related to vacancy level/ personnel spending. In our review of the General Fund Outlook, we discuss General Fund departments' challenges with filling vacancies and identifying staffing levels needed to provide budgeted service levels, for example, due to insufficient compensation and pandemic-related impacts. PUD indicated they are working on an analysis of vacancies as part of the budget monitoring process and they will be prepared to discuss in the next few months. This analysis should be considered and factored into the upcoming water system COS study.

Unwinding Proposition B

As discussed in more detail in our review of the Five Year Financial Outlook, the City anticipates significant onetime costs with respect to unwinding Proposition B. Due to the uncertain magnitude and timing of such costs, estimates have not been included in either the General Fund Outlook or PUD Outlook.

Critical Operating Expenditures for Upcoming New Programs

The PUD Outlook includes critical operating expenses for upcoming new programs for both Water and Wastewater for the addition of staff and related expenses as well as nonpersonnel expenses for supplies, contracts, and energy and utilities needed to support Department needs.

Critical operating expenditures for water and wastewater included in the PUD Outlook are the following:

Water	Wastewater
• Advanced Metering Infrastructure • Pure Water Phase 1 • Pure Water Phase 2 Program Management • Water Systems Controls	• Advanced Metering Infrastructure • Pure Water Phase 1 • Pure Water Phase 2 Program Management • PLWTP Road Erosion Monitoring

Advanced Metering Infrastructure (AMI) Operating Expenses

AMI allows water meters to be read remotely, rather than in-person by a meter reader. The goal of AMI is to receive accurate and timely data which can assist both users (such as through the identification of leaks and meeting conservation goals) and PUD (with data to assist with decision-making and development of future cost of service studies and rate allocations). PUD implemented a pilot AMI project for about 4.1% of customers (11,000) in 2012. In 2015, the Department began implementing AMI Citywide, intending to address the remaining 270,000 metered connections. However, in July 2019, the City Auditor found that "…significant management deficiencies, staffing issues, and implementation of a new work order tracking system, Enterprise Asset Management (EAM), all contributed to delays in implementing AMI Citywide."[12]

Since that time, PUD has determined hiring a consultant with specific expertise and experience implementing AMI on a large scale is the best course of action. In 2021, PUD hired HDR to develop the complex scope of work that will be required in the RFP for AMI implementation. The consultant is currently developing this RFP and PUD anticipates it will be issued in CY 2022. PUD is planning to provide an update on AMI to IROC at their January 17, 2022 meeting.

Also, the Department believes that pulling away existing resources to install the AMI equipment contributed to the lack of success on the initial effort and plans to hire additional staff to focus solely on AMI. The PUD Outlook includes critical expenditures for staff and personnel expenses as shown in the following table. Since the timing of implementation is still to be determined, the Outlook indicates that estimates will be refined as appropriate.

AMI Critical Operating Expenditures					
	FY 2023	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**
Water System					
FTE	5.00	10.00	19.50	19.50	19.50
Expense	$ 371,709	$ 743,417	$ 1,432,172	$ 1,432,172	$ 1,432,172
Wastewater System					
FTE	-	-	1.50	1.50	1.50
Expense	$ -	$ -	$ 104,016	$ 104,016	$ 104,016
Total FTE	**5.00**	**10.00**	**21.00**	**21.00**	**21.00**
Total Expenses	**$ 371,709**	**$ 743,417**	**$ 1,536,188**	**$ 1,536,188**	**$ 1,536,188**

[12] Office of the City Auditor, Performance Audit of the Public Utilities Department's Advanced Metering Infrastructure Implementation, July 2019.

PURE WATER PROGRAM

The Pure Water Program is the largest and most complex Capital Improvements Program (CIP) ever undertaken by the City. Advanced water purification technology will be used to produce potable water from recycled water. Pure Water is intended to accomplish two complementary purposes: (1) provide a safe, secure, and sustainable local drinking water supply for San Diego, thereby reducing the City's dependence on ever more expensive and scarce imported water supplies, and (2) reduce treated discharges from the Point Loma Wastewater Treatment Plant (PLWTP) ocean outfall and recycle a valuable and limited resource that is currently discharged to the ocean. Further, Pure Water eliminates the need to implement a very expensive upgrade (estimated at $1.8 billion) to the PLWTP that otherwise would be required.

Pure Water is a 20-year (2015-2035) multi-phased water and wastewater CIP that is expected by the end of Calendar Year (CY) 2035 to create a total of 83 million gallons per day (mgd) of locally controlled water. Pure Water includes two phases: Phase 1 (North City) is under construction and is designed to deliver 30 mgd of purified water into the City's potable (drinking) water system by 2025, and Phase 2 (Central Area) is in the planning stage and is designed to deliver 53 mgd by 2035. Based on PUD's most recent water demand projections, Pure Water is projected to provide nearly half of the City's drinking water supply in 2035.

The Outlook includes both critical operating expenses (discussed below) for Pure Water Phases 1 and 2, and capital expenses and financing plan for Pure Water Phase 1 (discussed in the CIP section of this report).

Important Regulatory Activities Related to Pure Water

- National Pollutant Discharge Elimination System (NPDES) – On May 13, 2020, the City received approval from the San Diego Regional Water Quality Control Board (Regional Board) of the NPDES permit to release purified water into Miramar Reservoir. This permit, which is for "Indirect Potable Reuse" using reservoir augmentation, was the first permit of its kind in the State of California.
- PLWTP Modified NPDES Permit –In August 2017, the U.S. EPA, in conjunction with the Regional Board, issued the final approval renewing the modified permit that offer alternatives to secondary treatment standards for the PLWTP, which expires on September 30, 2022.
- Ocean Pollution Reduction Act II – This bill revises requirements under the NPDES permit program for the PLWTP, eliminating the need for the City to obtain a separate permit for such modifications. Instead, the city may apply to obtain the permit modifications under the main NPDES permit if the plant meets certain conditions, such as the implementation of a pretreatment program. The legislation is now before the U.S. Senate Committee on Environment and Public Works for further consideration.

Pure Water Phase 1 Operating Expenses

Given the Pure Water Phase 1 CIP is currently in construction and going into production in FY 2025, the Outlook includes funding needs for the operation and maintenance of new and expanded Pure Water facilities and related staffing needs. The following table provides a comprehensive view of Pure Water Phase 1 operating expenditures for Water and Wastewater over the period of the Outlook. Pure Water positions are gradually being ramped up, so personnel are fully trained to operate and maintain the facilities when they come online. A total of 55.00 FTEs (29.00 FTEs from the Water System and 26.00 FTEs from the Wastewater System) are anticipated to be required when Pure Water Phase 1 becomes fully operational. The PUD Outlook projections also include non-personnel costs for supplies (chemicals), energy and utilities, contracts, and laboratory

equipment related to running the facilities. A total of $39.1 million in annual expense will be needed by FY 2027. According to PUD, Pure Water-related projections will be further refined as the City gets closer to bringing the facilities online.

Pure Water Phase 1 Critical Operating Expenditures (Personnel and Nonpersonnel)					
	FY 2023	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**
Water System					
Personnel					
FTE	13.00	27.00	29.00	29.00	29.00
Expense	$ 1,311,922	$ 2,668,566	$ 2,885,577	$ 2,885,577	$ 2,885,577
Nonpersonnel					
Supplies	$ -	$ -	$ 1,104,322	$10,166,717	$10,166,717
Contracts	$ -	$ 195,000	$ 743,000	$ 895,000	$ 895,000
Energy and Utilities	$ -	$ -	$ 7,334,247	$14,651,548	$14,651,548
Other (new laboratory equipment)	$ 660,000	$ 468,000	$ 470,000	$ -	
Total Non-personnel	**$ 660,000**	**$ 663,000**	**$ 9,651,569**	**$25,713,265**	**$25,713,265**
Total Operating Expenses	**$ 1,971,922**	**$3,331,566**	**$ 12,537,146**	**$28,598,842**	**$28,598,842**
Wastewater System					
Personnel					
FTE	11.00	20.00	26.00	26.00	26.00
Expense	$ 1,054,293	$ 1,871,051	$ 2,439,806	$ 2,439,806	$ 2,439,806
Nonpersonnel					
Supplies	$ -	$ 1,157,754	$ 1,710,055	$ 3,207,506	$ 3,207,506
Contracts	$ 657,034	$ 1,377,068	$ 5,886,267	$ 5,886,267	$ 657,034
Energy and Utilities	$ -	$ -	$ 416,434	$ 4,164,343	$ 4,164,343
Other	$ -	$ -	$ -	$ -	$ -
Total Non-personnel	**$ 657,034**	**$ 2,534,822**	**$ 8,012,756**	**$13,258,116**	**$ 8,028,883**
Total Operating Expenses	**$ 1,711,327**	**$4,405,873**	**$ 10,452,562**	**$15,697,922**	**$10,468,689**
Combined Total	**$ 3,683,249**	**$ 7,737,439**	**$ 22,989,708**	**$44,296,764**	**$39,067,531**

Pure Water Phase 2 Operating Expenses

While most of Phase 2 expenses are outside of this Outlook period, the Outlook includes project management-related operational expenses, including personnel expenses and contracts summarized in the table below.

Pure Water Phase 2 Critical Operating Expenditures (Personnel and Nonpersonnel)					
	FY 2023	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**
Water System					
Personnel					
FTE	0.50	1.00	2.00	2.00	2.00
Expense	$ 53,288	$ 106,577	$ 159,865	$ 159,865	$ 159,865
Nonpersonnel (Contracts)	$ 1,000,000	$ 3,000,000	$ 3,000,000	$ 3,000,000	$ 3,000,000
Total Operating Expenses	**$ 1,053,288**	**$3,106,577**	**$ 3,159,865**	**$ 3,159,865**	**$ 3,159,865**
Wastewater System					
Personnel					
FTE	0.50	1.00	2.00	2.00	2.00
Expense	$ 53,288	$ 106,577	$ 159,865	$ 159,865	$ 159,865
Nonpersonnel (Contracts)	$ 1,000,000	$ 3,000,000	$ 3,000,000	$ 3,000,000	$ 3,000,000
Total Operating Expenses	**$ 1,053,288**	**$3,106,577**	**$ 3,159,865**	**$ 3,159,865**	**$ 3,159,865**
Combined Total	**$ 2,106,576**	**$ 6,213,154**	**$ 6,319,730**	**$ 6,319,730**	**$ 6,319,730**

Capital Improvement Program (CIP)

Capital investments are a key driver of costs and revenue requirements in the PUD Outlook for both the water and sewer systems and include two key categories of projects: (1) Pure Water Phase 1 construction costs, and (2) Baseline CIP (ongoing investments in infrastructure repairs, replacements, and improvements). As shown in the table below, Pure Water expenditures significantly decrease after FY 2025 when construction of Phase 1 is planned to be completed and the facilities go into production.

One key area for future analysis and review is a comparison of historical levels of CIP investment relative to forecasted CIP. Benchmarking future investment levels against historical performance can provide insight into the feasibility to deliver on planned projects based on currently available resources. This analysis may indicate an overestimate of future investment plans, or a need to add staff to deliver on the volume of projects forecasted, either of which could have a material impact on the forecast of needed rate increases.

Total CIP *(in millions)*							
	FY 2022	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Total**
Pure Water Phase 1							
Water	$ 252.3	$ 260.4	$ 139.5	$ 60.0	$ 19.7	$ 14.4	$ 494.0
Sewer	$ 210.9	$ 242.8	$ 109.8	$ 42.6	$ 11.4	$ 16.2	$ 422.8
Total Pure Water	**$ 463.2**	**$ 503.2**	**$ 249.3**	**$ 102.6**	**$ 31.1**	**$ 30.6**	**$ 916.8**
Baseline CIP							
Water	$ 193.9	$ 219.8	$ 283.1	$ 245.1	$ 226.4	$ 214.9	$ 1,189.3
Sewer	$ 159.7	$ 172.8	$ 180.1	$ 188.6	$ 149.2	$ 85.9	$ 776.6
Total Other CIP	$ 353.6	$ 392.6	$ 463.2	$ 433.7	$ 375.6	$ 300.8	$ 1,965.9
Total CIP	**$ 816.8**	**$ 895.8**	**$ 712.5**	**$ 536.3**	**$ 406.7**	**$ 331.4**	**$ 2,882.7**

Pure Water Phase 1

PUD provided a comprehensive update on the Pure Water Program to the Environment Committee and full City Council in October 2021 and to IROC in November 2021. Phase 1 planning and design work is complete, and construction began in May 2019. Construction includes several large pumping and piping projects, the expansion of the North City Water Reclamation Plant (NCWRP), and the construction of the new North City Pure Water Facility (NCPWF). In August 2020, the Pure Water team began bid advertisement of the additional 10 construction contract bid packages. Eight of the total 11 contracts have been awarded, one is out to bid, and the remaining two will be advertised over the next several months.

Pure Water staff and consultants recently updated the cost for Pure Water Phase 1. Since the 2018 construction estimates, projected construction costs have increased from $1.4 billion to $1.5 billion due to a variety of factors including delays due to litigation and pandemic-related supply constraints. The City Council has shown significant support for Pure Water by increasing the construction award authority for Pure Water Phase 1 by $130.5 million to $1.2 billion and also the limit on change orders that do not require Council approval from $1.0 million to $2.0 million to help keep projects on track.

The Water and Wastewater Funds share in these expenditures according to a cost allocation based on completed design and engineering studies. Based on the cost allocation assumed in the City's

second Water Infrastructure Finance and Innovation Act (WIFIA) Loan, approximately $827.6 million (55%) is allocated to the Water Utility Fund and approximately $671.6 million (45%) is allocated to the Sewer Revenue Fund. Total cost allocations will continue to be adjusted as the final construction contracts are awarded, and as change orders are issued for the project.

As shown in the table below, PUD anticipates incurring approximately $473.5 million of additional obligations for the Pure Water CIP over the PUD Outlook period. Of this borrowing, $453.5 million is to be financed using low interest WIFIA loans from the U.S. Environmental Protection Agency (EPA). An additional $20.5 million in Pure Water CIP is to be cash-funded. Although grant funding is currently not reflected during the Outlook period, the Department indicated it is actively applying for additional grant funding and looking for new grant opportunities. The Outlook notes any grant funding awarded will be used to offset cash funding.

Pure Water CIP Phase 1 Expenditures and Revenues *(in millions)*							
	FY 2022	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**Outlook Total**
Water System							
Expenditures	**$ 252.3**	**$ 260.4**	**$ 139.5**	**$ 60.0**	**$ 19.7**	**$ 14.4**	**$ 494.0**
Revenue Souces							
Commercial Paper/Bonds	$ -	$ -	$ -	$ -	$ 10.0	$ 10.0	$ 20.0
WIFIA Loans	$ 270.4	$ 250.8	$ 129.7	$ 56.7	$ 16.3	$ -	$ 453.5
SRF Loans	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Grants	$ 1.5	$ -	$ -	$ -	$ -		$ -
Cash	$ (19.6)	$ 9.5	$ 9.8	$ 3.3	$ (6.6)	$ 4.4	$ 20.5
Total Revenue	**$ 252.3**	**$ 260.4**	**$ 139.5**	**$ 60.0**	**$ 19.7**	**$ 14.4**	**$ 494.0**
Wastewater System							
Expenditures	**$ 210.9**	**$ 242.8**	**$ 109.8**	**$ 42.6**	**$ 11.4**	**$ 16.2**	**$ 422.8**
Revenue Souces							
SRF Loans	$ 210.2	$ 226.2	$ 139.7	$ 57.2	$ 11.8	$ 1.2	$ 436.1
Grants	$ 12.9	$ -	$ -	$ -	$ -	$ -	$ -
Capacity Fees/Cash	$ (12.2)	$ 16.6	$ (29.9)	$ (14.6)	$ (0.5)	$ 15.1	$ (13.3)
Total Revenue	**$ 210.9**	**$ 242.8**	**$ 109.8**	**$ 42.6**	**$ 11.4**	**$ 16.2**	**$ 422.8**

Phase 2

Although Phase 2 capital costs are not included in the Outlook, activities are ongoing to move the project forward. In October 2021, the City Council authorized the Mayor to award $40.0 million in construction contracts for the design for the new small-scale facility for Phase 2. This is a regulatory requirement since it will treat water from a different sewer-shed and use slightly different treatment processes due to more constrained facility sites. The Pure Water team made the decision to construct the small-scale Facility at the PLWTP rather than the previously selected location immediately west of the San Diego International Airport which is anticipated to reduce the cost of the facility from an estimated $60 million to $22 million.

As part of PUD's update to Council in October 2021, the Department noted that the Pure Water team has been collaborating with the Metro Wastewater Joint Powers Authority (Metro JPA), which is a coalition of the 12 municipalities and special districts that share the use of the City of San Diego's wastewater system. As program planning proceeds, key decisions will be presented to the Metro JPA for their input. In Phase 1, the Miramar Reservoir was selected as the discharge water body for purified water. The water treatment facility for Phase 2 will be the Alvarado Water

Treatment Plant. The major remaining decision related to Phase 2 is whether to use Lake Murray or San Vicente Reservoir (or both) as the discharge location for Phase 2 purified water.

Baseline CIP – Ongoing Investments in Infrastructure

PUD has an Asset Management program to sustainably maintain, repair, and replace infrastructure assets, which helps to ensure critical water and sewer assets are functioning properly and do not fail.[13] For example, when a water pipe breaks the consequences can be significant, resulting in damage to private property, service outages, flooding, road closures, and other negative impacts. It is more cost effective to maintain assets and replace them before they fail and require emergency repairs and cause collateral damage.

An important element of the PUD Outlook is to show the Department is implementing its Asset Management program and include projections of regular, ongoing capital maintenance and replacements to keep the water and sewer systems running smoothly. The Baseline CIP in the PUD Outlook includes funding for improvements to reduce pipeline breaks and emergency repairs; improve Hodges Dam;[14] and enhance treatment and distribution process technology. The baseline CIP also includes expansion and upgrade of the Water System to accommodate growth and maintain compliance with federal and state requirements.

The various mechanisms used to fund needed capital improvements, such as commercial paper/bonds, loans, or cash, should align with the anticipated useful life and expected benefit of each improvement project. For example, debt financing of one-time system upgrades and improvements promotes intergenerational equity by distributing the project costs over the life of the new asset. Additionally, the Baseline CIP is planned to receive approximately $217.7 million in cash and capacity fee funding to cash-fund a share of repair and replacement costs for existing assets, and to ensure growth pays for growth by applying capacity charge revenue toward expansion and growth-related capital projects. The optimal combination of debt and cash funding can help balance the near- and long-term impacts to ratepayers while meeting PUD's financial targets and ratings agencies' benchmarks. As part of its review of the water COS, Stantec will evaluate historical trends for emergency work and benchmarking based on investment plans, depreciation, and asset lifecycle.

Financial Policies and Rate Stabilization

Debt Service Coverage Levels

PUD uses a combination of cash funding (such as revenue from rate payers) and debt financing to support the ongoing CIP for investment in water and sewer assets.[15] The debt service coverage

[13] Asset Management is a best business practice for sustainably maintaining, repairing, and replacing infrastructure assets, like water and sewer mains, in the most cost-effective manner. Similar to maintenance on your car, like getting the oil changed every 3,000-5,000 miles, infrastructure assets have predictive and preventive maintenance strategies to support effective lifecycle management.

[14] The Baseline includes funding for condition assessments of dam infrastructure, but currently only the assessment of Hodges Dam has been completed. As condition assessments are completed, the Department indicated additional needed capital projects will be included in future Outlooks.

[15] Debt payment obligations extend well beyond the period covered in the PUD Outlook.

ratios (DSCR)[16] are an important factor in the Outlook, because maintaining a favorable credit rating is required to continue to receive low interest rate financing. According to the Department, existing bond covenants require a minimum DSCR of 1.2x for its senior debt and 1.1x for its aggregate debt. PUD indicates that they generally target a DSCR of 1.5x for both the water and sewer systems to enhance their ability to maintain a high credit rating and receive low-cost borrowing. As shown in the table below, the Outlook includes a DSCR of 1.43 in FY 2023 and 1.42x in the out years for the water system and ranges from 1.33x to 1.45x for the sewer system.

$$\text{Debt Service Coverage Ratio} = \frac{\text{Net System Revenue}}{\text{Debt Service}}$$

Water System Projected Debt Service Coverage Ratio *(in millions)*						
	FY 2022	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**
Water						
Net Systems Revenue	$ 144.9	$ 159.0	$ 165.9	$ 204.2	$ 214.1	$ 229.0
Debt Service	$ 98.5	$ 110.8	$ 117.0	$ 144.3	$ 150.9	$ 161.1
Debt service Ratio	1.47x	1.43x	1.42x	1.42x	1.42x	1.42x
Sewer						
Net Systems Revenue	$ 146.9	$ 158.6	$ 133.5	$ 145.5	$ 124.8	$ 156.3
Debt Service	$ 105.1	$ 116.1	$ 100.1	$ 106.3	$ 89.2	$ 107.7
Debt service Ratio	1.40x	1.37x	1.33x	1.37x	1.40x	1.45x

The high level of borrowing is yielding DSCR levels below the management target of 1.5x, and significant use of the Rate Stabilization Fund (RSF) is projected to keep the DSCR at about 1.4x. According to the Department, a significant portion of the large CIP funding need driving this DSCR outcome is associated with the Pure Water program. Additionally, the plans call for $1.2 billion in baseline CIP for PUD to update and replace existing systems. The prudent use of debt has the ability to mitigate near-term shocks from large rate increases, though this must be balanced with long-term impacts of increasing fixed debt service costs and debt service coverage requirements. PUD noted that half of the recent growth in borrowing is in low interest State Revolving Fund (SRF) loans, which have continued to be popular programs in federal and state budgets. Also, PUD staff noted that future grant funding could yield material impacts that have not been incorporated into the Outlook capital funding plans and have the potential to reduce forecasted borrowing needs.

Note a DSCR less than 1.0 would indicate that the organization did not have enough revenues to support its debt payments through annual cash flows and would need to draw from fund balance or reserves or borrow additional funds in order to make debt payments.

Rate Stabilization and Reserve Requirements

Reserve balances and minimum targets are important factors in the PUD Outlook to ensure reserves are sufficient to provide stable, reliable operations and meet debt financing requirements. The Department maintains these reserve funds in accordance with the City's Reserves Policy (*Council Policy 100-20: Reserve Policy*). The Water and Sewer Utility Funds each have three reserve funds which are being funded at the targeted levels throughout the Outlook period, including the Emergency Operating Fund, Rate Stabilization Fund (RSF), and the Emergency

[16] The DSCR is a fund's revenues net of operating expenses divided by the total debt service owed.

Capital Reserve. The Water Utility Fund also has the Secondary Purchase Reserve fund intended to mitigate risks associated with drought and unforeseen emergencies impacting supply. Like the other reserves, this Secondary Purchase Reserve is funded at target levels throughout the Outlook period. At the end of FY 2022 the Water and Sewer Utility Funds are estimated to have total reserves of approximately $219.6 million and $152.2 million, respectively.

Council Policy 100-20: Reserve Policy

- Emergency Operating Reserves equivalent to 70 days of operations (for water, this is 70 days of operations less water purchase costs).
- Emergency Capital Reserves of $5 million each (total $10 million for Public Utilities) budgeted in the CIP each year.
- Rate Stabilization Fund Reserves equivalent to 5% of prior year's operating revenue.
- Secondary Purchase Reserve (water only) equivalent to 6% of the annual water purchase budget.

The Rate Stabilization Reserve Funds are funded above targeted levels, due to several one-time revenue sources For the Water RSF, this includes the sale of the stadium site, one-time grant funding and legal settlements from the Metropolitan Water District (MWD) that have allowed the City to make large contributions to the RSF. Saving one-time revenue for use in a reserve is a financial best practice so that the funds can be used to provide one-time operating revenue to offset or mitigate the need for sudden or dramatic rate increases in the future. The PUD Outlook projects use of the RSF reserves in FY 2023 through FY 2027 to help meet DSCR requirements. We note that at the end of the Outlook period, in FY 2027, the PUD Outlook projects the Rate Stabilization Reserves at $2.2 million and $7.0 million higher than the targets for water and sewer, respectively, as reflected in the following table.

Rate Stabilization Fund Reserves in PUD Outlook *(in millions)*						
	FY 2022	**FY 2023**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**
Water						
Reserve Target	$ 29.6	$ 30.7	$ 32.2	$ 34.5	$ 36.9	$ 39.4
Estimated Funding Level	153.0	118.5	90.2	57.7	48.0	41.6
Amount Above Target	***$ 123.4***	***$ 87.8***	***$ 58.0***	***$ 23.2***	***$ 11.1***	***$ 2.2***
Sewer						
Reserve Target	18.1	19.8	18.8	19.4	19.9	20.6
Estimated Funding Level	89.1	50.7	45.8	33.1	38.7	27.6
Amount Above Target	***$ 71.0***	***$ 30.9***	***$ 27.0***	***$ 13.7***	***$ 18.8***	***$ 7.0***

Other Areas for Review

While this report focuses primarily on financial elements of the Outlook and financial plan, Stantec plans to review several additional important factors as part of the water COS and rate design analyses, including the following:

- Water demand, sale, and purchase forecasts, and associated financial and cost allocation impacts.
- Costs and non-rate revenues by function within the water systems.
- Cost allocation factors and methodologies.
- Customer water demand and peaking characteristics by customer class.
- Customer class impacts resulting from potential changes to financial plans and cost allocation methodologies.
- Rate structure recommendations with consideration of recent local and statewide litigation.

CONCLUSION

The Pure Water Program continues to be a significant component of the PUD Outlook. The progress made on the Pure Water Program is very positive for the City. It will provide a local source of drinking water, reduce reliance on purchased water from 85-90% to 50% when Phase 2 of the project is completed in FY 2035. It also prevents dumping of a scarce resource (treated water) into the PLWTP ocean outfall, helps the City comply with regulatory requirements related to the NPDES permit, and prevents the City from having to invest an estimated $1.8 billion to upgrade PLWTP for secondary treatment. While initially delayed due to litigation and the pandemic, which resulted in increased costs from $1.4 billion estimated in FY 2018 to $1.5 billion in FY 2021, Phase 1 is now under construction with 8 of 11 contracts awarded. The City Council has shown support for Pure Water by approving actions to help Phase 1 contracts and change orders stay on track. Phase 1 is anticipated to deliver 30 mgd of purified water into the City's drinking water system by 2025. Ultimately, Pure Water is projected to provide 83 mgd, or nearly half of the City's drinking water supply in 2035.

The PUD Outlook includes both CIP and critical operating expenditures for Phase 1. While many Phase 2 costs are outside of the Outlook period, PUD is also making progress with Phase 2 and includes project management-related operating costs to ensure this phase continues forward. To fund Pure Water, PUD has obtained low interest SRF and WIFIA loans and continues to search and apply for grant opportunities.

Another key point is that compared to last year's Outlook, PUD's sewer system is in a relatively better position thanks to rate increases that were approved by Council in September 2021 and go into effect January 1, 2022. This PUD Outlook provides an initial basis for expenditure and revenue forecasts for the upcoming water COS study, although the ongoing litigation requires that the City be flexible in its approach to future water rates.

As discussed throughout this report, there are a variety of financial challenges and risks that could impact the projections contained in the PUD Outlook and future years, including some that are outside of the City's control. It will be critical for the City to continue to monitor and proactively engage going forward. The risks and challenges include (but are not limited to) the following:

- Unknown resolution of litigation related to tiered rate structure for water.
- Additional delays in water rate increase adoption, further raising the level of increases needed to meet funding needs.
- Potential range of CWA rate increases for purchased water, especially given decreases in demand occur as Pure Water and similar regional partner projects come online.
- Potential impacts if the CWA's proposed RCS goes forward.
- Changes to water demands, particularly lower than expected demands, and the associated impacts on supply costs and sales revenue.
- Actual CIP costs and potential impacts of cost escalation, for example due to pandemic-related supply chain issues, and feasible execution levels.
- CIP funding strategies, including the use of cash, debt, capacity fees, and grants, to mitigate potential large rate increases while monitoring the level of fixed debt service costs and revenue needs to meet long-term DSCR requirements.

- Ongoing maintenance and replacement of infrastructure assets to reduce likelihood of failure and prevent expensive emergency repairs, such as the recent water main breaks which flooded I-5 and caused related negative impacts.
- Inflation, cost escalation, and interest rate risks given recent trends and potential inflation mitigation measures from policy makers.
- Delays implementing AMI and lack of clarity regarding costs.
- Potential costs for CAP-related projects which are not included in this Outlook.
- Possible challenges with vacancies and hiring which are not reflected in this Outlook.

Stantec's independent review of the wastewater COS study and proposed rate increases was beneficial to assist Council, IROC, and the public in understanding the assumptions and factors that went into the rate increases and laying out needed data for future studies. Stantec's review of the upcoming water COS study will be particularly helpful given the financial challenges and risks noted above. Our office is continuing to work with Stantec to assist Council, IROC, and the public by conducting an in-depth review of the water COS study and proposed water rate increases. In the meantime, we recommend that the Environment Committee request regular updates and/or briefings on Pure Water, AMI, CWA's proposed RCS project, and other high-profile projects and areas of interest that will impact the proposed rate increases.

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APPROVED: Jeff Kawar
Interim Independent Budget Analyst

Independent Review of the Wastewater COS Study

Stantec issued its Independent Review of the Wastewater Financial Plan, Cost of Service, and Rate Study in May 2021.[17] This review included analysis of historical and forecasted financial information, PUD's rate model and proposed COS study, and supplemental data and information used to develop key inputs and assumptions. Stantec concluded the COS developed by PUD and their consultant was conducted thoughtfully and consistent with industry practices. Additionally, the responsiveness and transparency of PUD and their consultant (Raftelis) enabled a thorough review of data, assumptions, methods, and models used in the COS study, and to clarify documentation of the process. Key findings and recommendations from the review with the potential to impact rates are summarized in the table below. Additional observations were documented in the review report.

Summary of Key Stantec Recommendations for Wastewater COS	
Financial Plan (Section 3)	1. The revenue projections in the financial plan should be updated to reflect the planned four-year ramp-up to full cost recovery for the Industrial Wastewater Control Program (IWCP) fees as opposed to reflecting the full cost recovery fees in each year, starting in year one of the forecast. (Section 3.2) 2. The capacity fee revenue forecast in the financial plan should be updated to reflect the additional revenue from the proposed 25% increase in capacity fees. This will provide additional funds for capital projects and would affect revenue requirement allocations, as well as future borrowing and/or rates. (Section 3.3) 3. The Rate Stabilization Fund (RSF) reserve balance is well above the stated policy of 5% of previous year operating revenues. Use of a slightly greater amount of available balances in the RSF has the potential to reduce or "smooth" identified rate increases to 4% per year versus the proposed plan. (Section 3.5.2)
Cost of Service Analysis & Rate Design (Section 4)	1. A specific portion of the sampling analysis relied upon to establish wastewater strength assumptions for the residential customer class should be excluded. This would serve to lower the assumed strength of residential flows, thereby reducing the allocation of certain treatment related revenue requirements to residential customers. (Section 4.1) 2. Allocation of municipal system trunk sewer and pump station capital costs should be allocated based on flow instead of accounts and shifted from the base charge to the commodity rate. (Section 4.3) 3. The allocation of Inflow and Infiltration (I&I) costs to accounts should be revised from 67% to 57% to reflect the portion of the total collection system made up of private laterals. This would increase the portion of I&I costs allocated based on flows to 43%. (Section 4.5)

[17] IBA-21-14, Independent Review of the Public Utilities Department's Wastewater Cost of Service Study and Request for Rate Increase, May 17, 2021.

The Budget and Government Efficiency Committee discussed Stantec's independent analysis and recommendations at the meeting of May 26, 2021 and Stantec's report was presented to the IROC at their June 2021 meeting. PUD made two adjustments to address three recommendations from the table above. The first addressed recommendations 1 and 2 from the financial plan by maintaining consistency in the forecast of fee adjustments not yet approved. The financial plan was modified to omit adjustments to both the IWCP fees and the capacity fees to be conservative in the forecast of non-rate revenues, and to avoid adding increased revenues that were not yet approved as of adoption of the rate proposal. Additionally, PUD updated the COS study to allocate capital costs associated with trunk sewers and municipal pumping costs to the "flow" parameter, consistent with recommendation 2 from the Cost of Service Analysis & Rate Design section in the table above. This results in these costs being recovered by the commodity rate rather than the monthly service charge.

Key areas that should be addressed in the next wastewater COS study include (but are not limited to) the following:

- Continue to monitor growth rates in the number of billed accounts and changes in per-account demands by customer class to monitor potential revenue and variable cost impacts.
- Continue to monitor CIP execution and funding strategies to adequately fund needed investments while promoting intergenerational equity, growth paying for growth, and prudent cash-investment in repair and replacement capital needs.
- Update forecasts of IWCP fee and capacity charge revenues as increased fees are adopted to account for impacts on the level of rate increases needed in subsequent years.
- Conduct in-depth sampling studies and water vs sewer usage analyses to improve estimates of pollutant loading characteristics and return to sewer factors for each customer class.