Wastewater Rate Study
(2021 cost of service analysis)

IB CONSULTING

IB Consulting, LLC

31938 Temecula Parkway, Suite A #350

Temecula, CA. 92592

TABLE OF CONTENTS

TABLES

FIGURES

Executive Summary

Delta Diablo (District) reviews and updates its Sewer Service Charges (SSCs) annually to determine if adjustments are necessary to generate sufficient revenue to meet operational costs, capital investment needs, and reserve funding policy requirements. The District collects its SSCs on the property tax roll and finalizes proposed rates before submitting the levy to Contra Costa County. The District hired IB Consulting to conduct a comprehensive cost of service update, and this Report sets rates for FY 2021-2022 (FY21/22 or FY 2022).

Overview

When necessary, the District updates SSCs to meet overall revenue requirements based on the updated operating budget and capital improvements plans. As part of updating the FY21/22 SSCs, IB Consulting developed a financial plan model to review the long-term financial outlook at current rates and determine the wastewater utility's revenue requirements over the next five years (Financial Plan Period). Developing a long-term financial plan is a prudent business practice to ensure the utility can fund the upcoming fiscal year needs and fully fund revenue requirements over the Financial Plan Period.

Developing a financial plan requires a thorough review of the utility's current financial health. The utility has significant capital projects during the Financial Plan Period, generating pressure to increase SSCs to meet total obligations. Significant projects coming online over the next few years include Headworks Improvements, Pump Station Facilities Repairs, Cogeneration System Improvements, Treatment Plant Switchgear Replacement, and Secondary Process Improvements. Collectively, the District's proposed 5-year (FY21/22 – FY25/26) Capital Improvement Program (CIP) totals over $123 million. Without any SSC adjustments, current rate revenues will not be sufficient to fund operating expenses, capital investment needs, and minimum reserve targets.

This Report includes a comprehensive update to the District's SSCs to reflect updated costs, current water usage and flow trends, and a cost-of-service analysis that accounts for the updated flows and strength concentrations of wastewater influent by customer class. The existing rate structure consists of annual fixed charges per dwelling unit for Residential parcels and flow rates for Non-Residential parcels. Residential and most Non-Residential SSCs are levied on the tax roll. Non-Residential SSCs levied on the tax roll are based on water usage data from the previous calendar year. Flow rates are for each Hundred Cubic Feet (HCF) of water used (HCF = 748.05 gallons of water) with a minimum annual charge equal to the Residential SSC.

Existing SSCs vary by three separate service areas identified as Bay Point, Antioch, and Pittsburg. Antioch and Pittsburg Residential SSCs are the same, but commercial SSCs vary by Non-Residential customer class. Bay Point SSCs include an additional charge to pay for a wastewater collection system owned and operated by the District. Antioch and Pittsburg only pay for the District's Wastewater Treatment Plant (WWTP) as the collection systems for those service areas are owned and operated by each city.

The FY21/22 proposed SSCs incorporates a comprehensive update to the cost-of-service between customer classes and existing zones. The 2021 cost-of-service analysis eliminated separate service areas for setting SSCs related to the WWTP expenses. However, the Bay Point service area continues to pay an additional charge to operate and maintain the collection system that serves Bay Point. The 2021 cost-of-service analysis and elimination of service areas for WWTP expenses caused a shift of approximately $740,000 from Non-Residential to Residential.

Therefore, the FY21/22 proposed SSCs reflect equivalent rates across all service areas for the District's WWTP operating and capital expenses. The proposed SSCs derived within this Report also include a revenue adjustment of 4.75% that will generate approximately $1.6 million in additional revenue for FY21/22. FY21/22 SSCs will continue to generate positive net income before direct transfers, generate additional funding for reinvestment in the WWTP and Bay Point collection system, and meet minimum reserve targets. The proposed SSCs were noticed to each customer by mail as part of the Proposition 218 noticing requirements. On June 9, 2021, a Public Hearing will occur on the proposed SSCs identified in Table 1. SSCs for Single-Family residential units in Bay Point will increase by approximately 5.9% and SSCs for Single-Family residential units in Pittsburg and Antioch will increase by approximately 6.5%, which incorporates a revenue adjustment for FY21/21 and cost-of-service findings. Non-Residential SSCs adjustments will vary by category and previous service area designation.

Table 1: Proposed FY21/22 Sewer Service Charges

FY 21/22 Sewer Service Charges		Zone 1 - Bay Point	Zone 2 - Pittsburg	Zone 3 - Antioch
Residential		FY 2022	FY 2022	FY 2022
Equivalent Residential Unit	($/Year)	$589.24	$429.41	$429.41
Non-Residential Charges		FY 2022	FY 2022	FY 2022
Bakeries & Restaurants	($/HCF)	$9.02	$7.33	$7.33
Dow Chemical	($/HCF)	$3.70	$3.70	$3.70
G&K Services	($/HCF)	$5.04	$5.04	$5.04
Hotel/Motel	($/HCF)	$4.57	$4.57	$4.57
Institutional	($/HCF)	$5.91	$4.22	$4.22
Light Industry	($/HCF)	$5.71	$4.02	$4.02
Marinas	($/HCF)	$6.03	$6.03	$6.03
Generon IGS	($/HCF)	$4.99	$4.99	$4.99
Misc. Commercial	($/HCF)	$5.91	$4.22	$4.22
Mortuaries	($/HCF)	$5.83	$5.83	$5.83
Praxair	($/HCF)	$3.58	$3.58	$3.58
Premark Packaging	($/HCF)	$5.91	$4.22	$4.22
U.S. Army	($/HCF)	$5.27	$3.58	$3.58

Background

Wastewater System

The District provides wastewater conveyance and treatment services for about 215,000 customers in the cities of Antioch and Pittsburg, and the unincorporated community of Bay Point. The District treats approximately 13 million gallons of wastewater and produces 6 million gallons of recycled water daily.

Figure 1: Delta Diablo Wastewater Treatment Plant

The District is currently completing a Resource Recovery Facility Master Plan (RRFMP) that identifies current and future capital investment needs. Based on the District's current CIP, the District requires approximately $123 million in capital funding over the next five years. The CIP is broken out between the District's capital-related funds, including Capital Asset Fund, Advanced Treatment Fund, Capital Asset Replacement, and Bay Point Collection. Figure 2 through Figure 5 identifies the CIP distribution by each capital fund through FY25/26, without considering debt financing as a funding source (Figure 13 through Figure 16 within Proposed Financial Plan section includes debt as a funding source). Figure 6 provides a summary of all funds combined through FY25/26.

Figure 2: Capital Improvement Program – Capital Assets

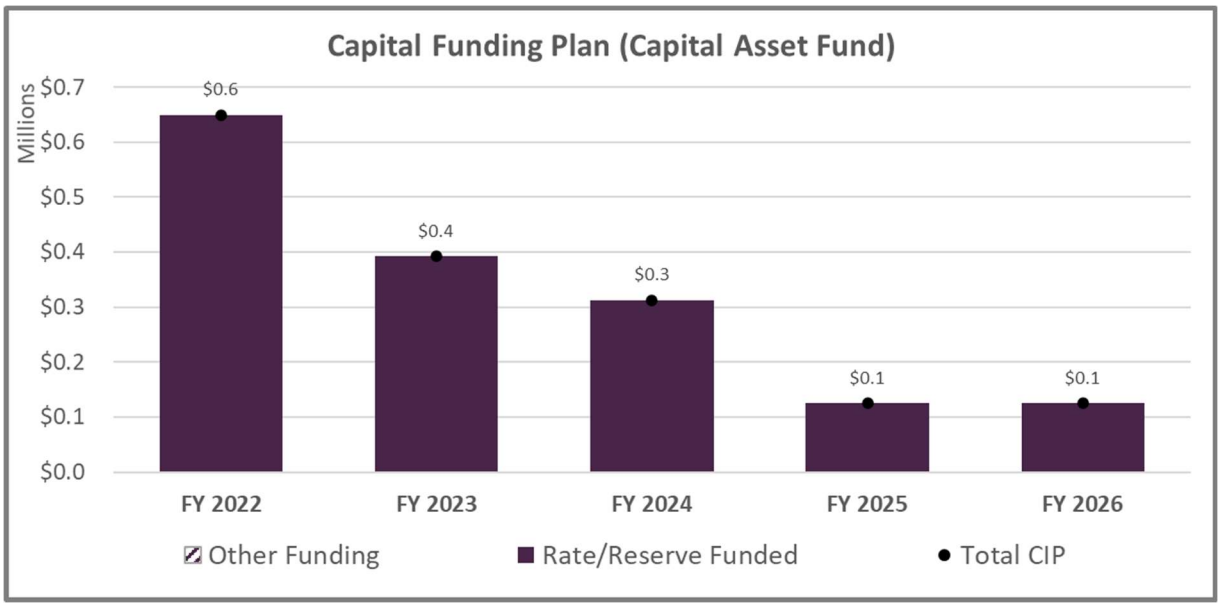


Figure 3: Capital Improvement Program – Advanced Treatment

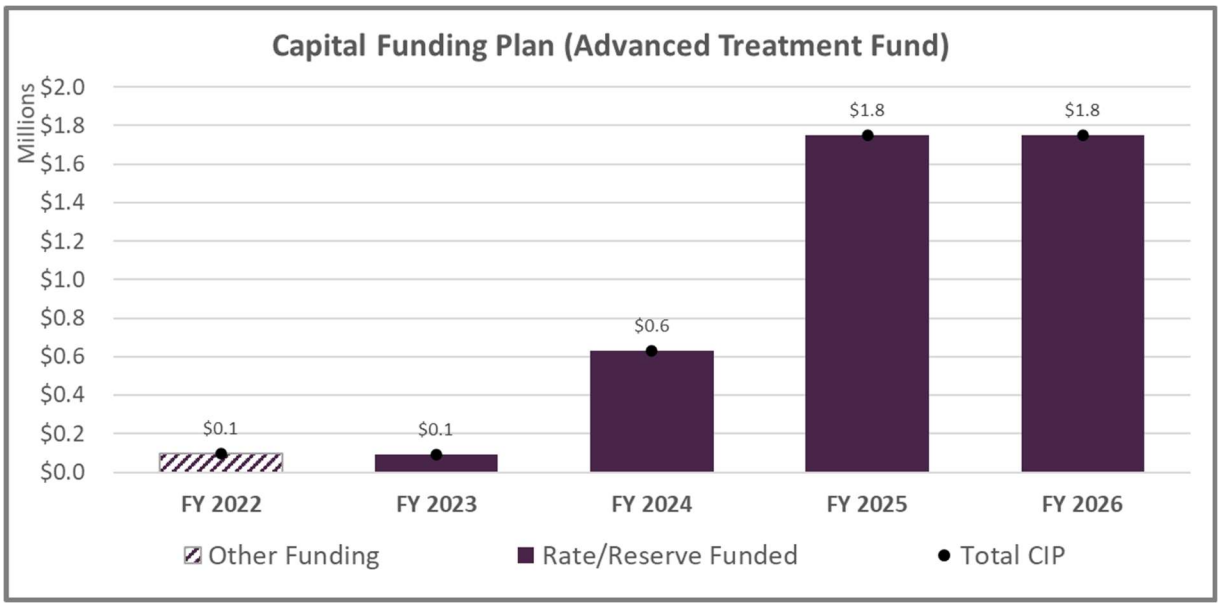


Figure 4: Capital Improvement Program – Capital Asset Replacement

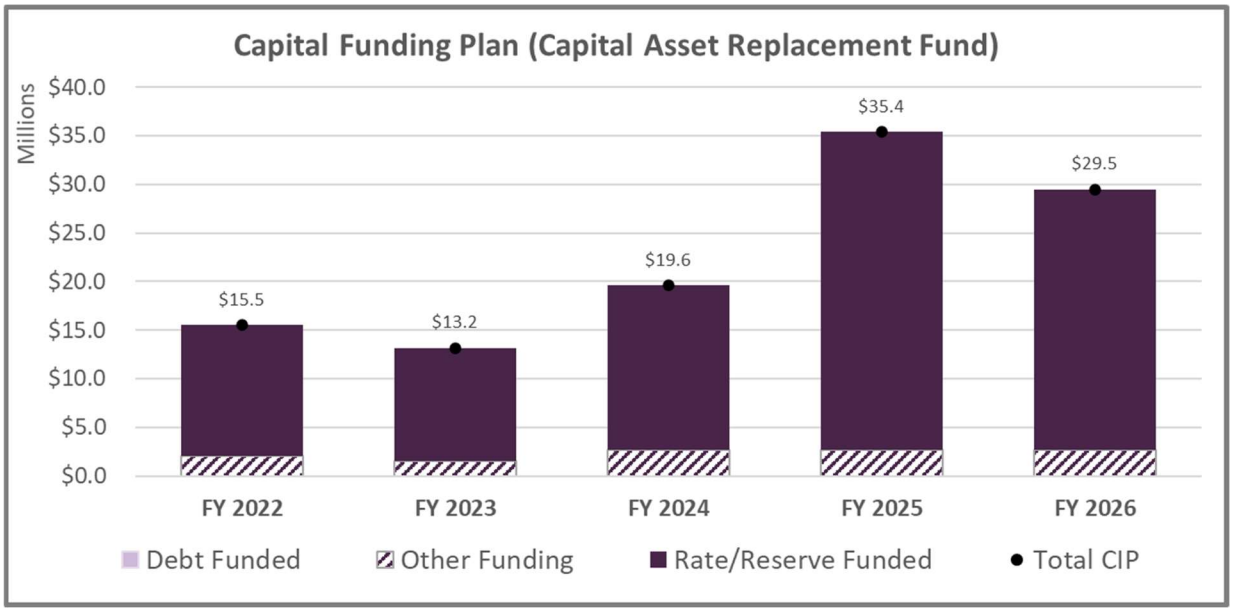


Figure 5: Capital Improvement Program – Bay Point Collection

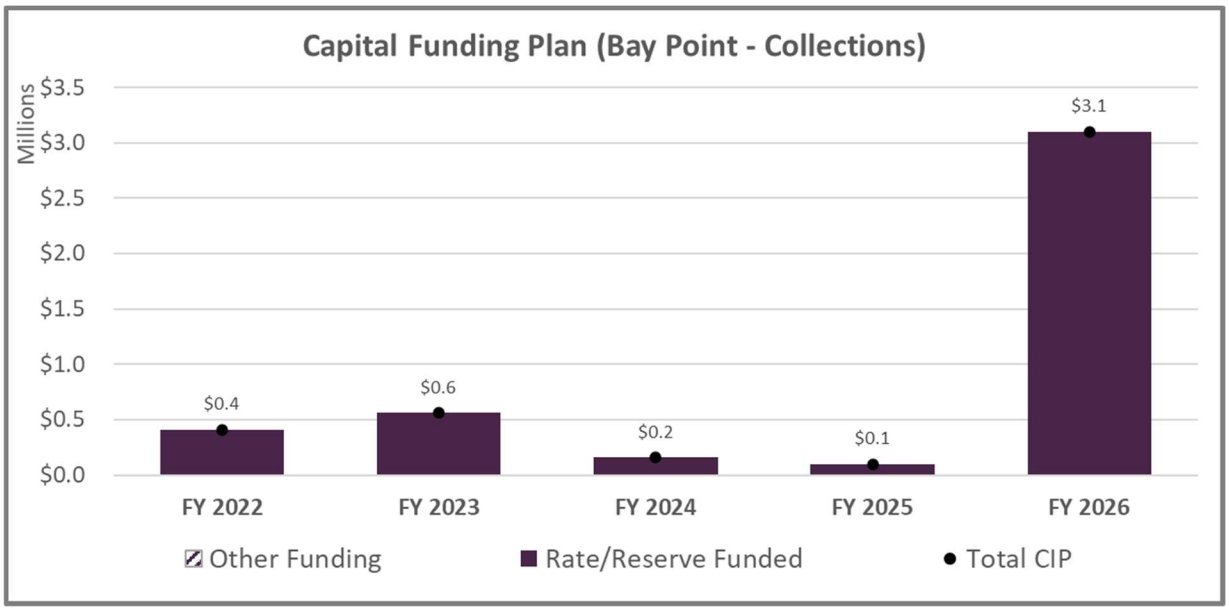
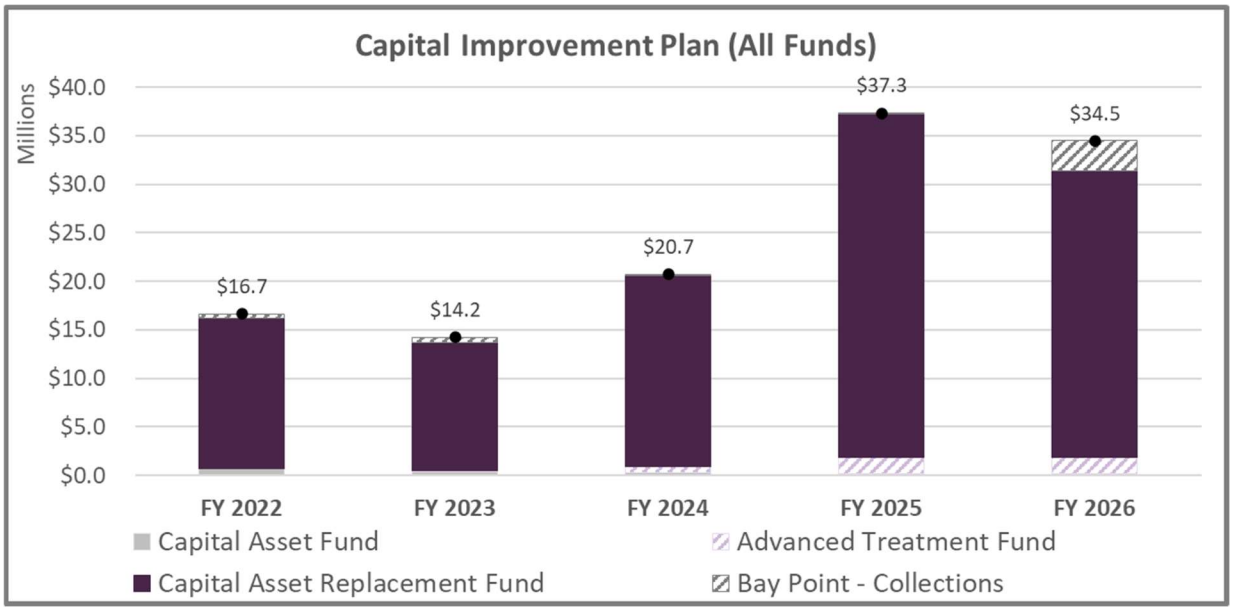


Figure 6: Capital Improvement Program – All Funds



Customers

The District serves 68,598 Residential units and 2,887 Non-Residential accounts, with over 95% of sewer units classified as Residential. Table 2 provides a summary of accounts/sewer units by customer class and zone.

Table 2: Accounts / Equivalent Residential Units by Customer Class and Zone

Customer Class	Zone 1 Bay Point	Zone 2 Pittsburg	Zone 3 Antioch	Total Combined
Residential	7,231	24,056	37,311	68,598
Non-Residential				
Bakeries & Restaurants	13	98	152	263
Dow Chemical	-	1	-	1
G&K Services	-	1	-	1
Hotel/Motel	-	4	5	9
Institutional	25	95	120	240
Light Industry	7	168	121	296
Marinas	-	2	1	3
Generon IGS	-	1	-	1
Misc. Commercial	123	651	1,293	2,067
Mortuaries	-	2	1	3
Praxair	-	1	-	1
Premark Packaging	1	-	-	1
U.S. Army	1	-	-	1
Subtotal of Non-Residential	170	1,024	1,693	2,887
Units of Service	7,401	25,080	39,004	71,485

The current SSCs consist of annual fixed charges per dwelling unit for Residential customers and flow rates for Non-Residential customers with a minimum charge equal to the Residential SSC for usage less than 90 HCF. Existing SSCs are identified in Table 3.

Table 3: FY20/21 Sewer Service Charges

Existing Sewer Service Charges		Zone 1 - Bay Point	Zone 2 - Pittsburg	Zone 3 - Antioch
Residential		Existing	Existing	Existing
Equivalent Residential Unit	($/Year)	$556.47	$403.10	$403.10
Non-Residential Charges		Existing	Existing	Existing
Bakeries & Restaurants	($/HCF)	$9.47	$8.01	$7.94
Dow Chemical	($/HCF)	-	$4.66	-
G&K Services	($/HCF)	-	$5.46	-
Hotel/Motel	($/HCF)	-	$4.27	$4.64
Institutional	($/HCF)	$6.52	$4.89	$4.85
Light Industry	($/HCF)	$6.52	$4.89	$4.85
Marinas	($/HCF)	-	$6.30	$6.34
Generon IGS	($/HCF)	-	$9.11	-
Misc. Commercial	($/HCF)	$6.52	$4.89	$4.79
Mortuaries	($/HCF)	-	$5.53	$5.55
Praxair	($/HCF)	-	$4.62	-
Premark Packaging	($/HCF)	$6.58	-	-
U.S. Army	($/HCF)	$6.38	-	-

Financial Plan Overview

Financial Planning

A comprehensive financial plan was developed for the wastewater utility, including the following:

1) Historical Non-Residential water sales, expected flows by customer class, flow return factors, and inflow/infiltration factors determine an appropriate level of flow to project expenses.
2) Operational costs that may change over the planning period due to inflation and any new expenditures incurred to meet strategic goals, regulatory requirements, or changes in operations.
3) Multi-year system improvements and scheduling based on priority. This review also considers available funding sources to complete capital projects such as "pay-as-you-go (PAYGO)", grants, and debt financing.
4) Reserve funding to meet adopted reserve policies. The goal is to generate adequate cash on hand to mitigate financial risks related to operating cashflow needs, unexpected increases in expenses, shortages in system reinvestment, and potential system failures.

Figure 7 illustrates the key elements when developing a long-term financial plan.

Figure 7: Financial Plan Key Elements

Financial Planning Assumptions

Developing a long-term financial plan requires an understanding of the utility's financial position by evaluating existing revenue streams, ongoing expenses, how those expenses are expected to change over time, existing debt requirements, new strategic objectives, and reserve policies. With these considerations, certain assumptions are required for projecting revenues, expenses, and expected ending fund balances. Table 4 identifies assumptions used for forecasting revenues, and Table 5 identifies assumptions used for forecasting increases in expenses through FY25/26.

Table 4: Revenue Forecasting Assumptions

Key Assumptions	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
Revenue						
Non-Rate Revenues	3.1%	3.1%	3.1%	3.1%	3.1%	3.1%
Reserve Interest	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%
Growth	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Flow Demand Increases	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Non-Residential Water Usage	762,054	762,054	762,054	762,054	762,054	762,054

Table 5: Expense Forecasting Assumptions

Key Assumptions	Notes:		FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Expenditure							
Employee Benefits			4.0%	4.0%	6.0%	6.0%	6.0%
Capital Construction	*ENR - SF*	*5-Year Average*	2.8%	2.8%	2.8%	2.8%	2.8%
Chemicals			6.0%	6.0%	6.0%	6.0%	6.0%
General Costs	*CPI - SF (BLS)*	*5-Year Average*	3.1%	3.1%	3.1%	3.1%	3.1%
Utilities			4.0%	4.0%	4.0%	4.0%	4.0%
Salaries & Wages			3.2%	3.2%	3.2%	3.2%	3.2%

Current Financial Position

Revenues

The District collects almost all of the SSCs on the Contra Costa County tax roll, with a few Non-Residential customers direct billed. The County guarantees the levy as part of the Teeter Plan (California Revenue and Taxation Code Section 4701-4717). The Teeter Plan allows cities and special districts to receive the total allocation of each levy submitted. In return, the County keeps all delinquencies and penalties incurred. The total levy amount submitted to the County for FY20/21 is the baseline revenue used for financial planning. SSCs revenue for FY21/22 and beyond were increased by new accounts that have come online since the submittal of the FY20/21 tax levy, generating an additional $475k in revenue. Table 6 shows all revenues, including SSCs, Other Revenues, and Other Financing Sources. Interfund Transfer is increased based on the "Non-Rate Revenues" percentage increase from Table 4. The Interfund Transfer goes towards the District's Household Hazardous Waste (HHW) program that mitigates significant hazardous constituents from entering the WWTP influent. The Interfund Loan in FY21/22 is repayment to operating from expansion for a previous advancement of funds.

Table 6: Delta Diablo Projected Revenues Based on FY20/21 Rates

Revenue	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Rate Revenue						
SSCs	$32,700,000	$33,175,000	$33,175,000	$33,175,000	$33,175,000	$33,175,000
Total Rate Revenue	$32,700,000	$33,175,000	$33,175,000	$33,175,000	$33,175,000	$33,175,000
Other Revenues						
Discharge Permit & Fees	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000
Overhead (from Capital Projects)	$700,000	$700,000	$700,000	$700,000	$700,000	$700,000
Miscellaneous	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000
Utility Rebates (from Calpine)	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000
Interest	$205,000	$266,000	$235,000	$163,000	$100,000	$38,000
Subtotal Other Revenues	$1,555,000	$1,616,000	$1,585,000	$1,513,000	$1,450,000	$1,388,000
Other Financing Sources						
Interfund Transfer	($370,000)	($381,000)	($392,000)	($404,000)	($416,000)	($428,000)
Interfund Loan	$0	$478,000	$0	$0	$0	$0
Subtotal Other Financing Sources	($370,000)	$97,000	($392,000)	($404,000)	($416,000)	($428,000)
Total Revenues	*$33,885,000*	*$34,888,000*	*$34,368,000*	*$34,284,000*	*$34,209,000*	*$34,135,000*

Expenses

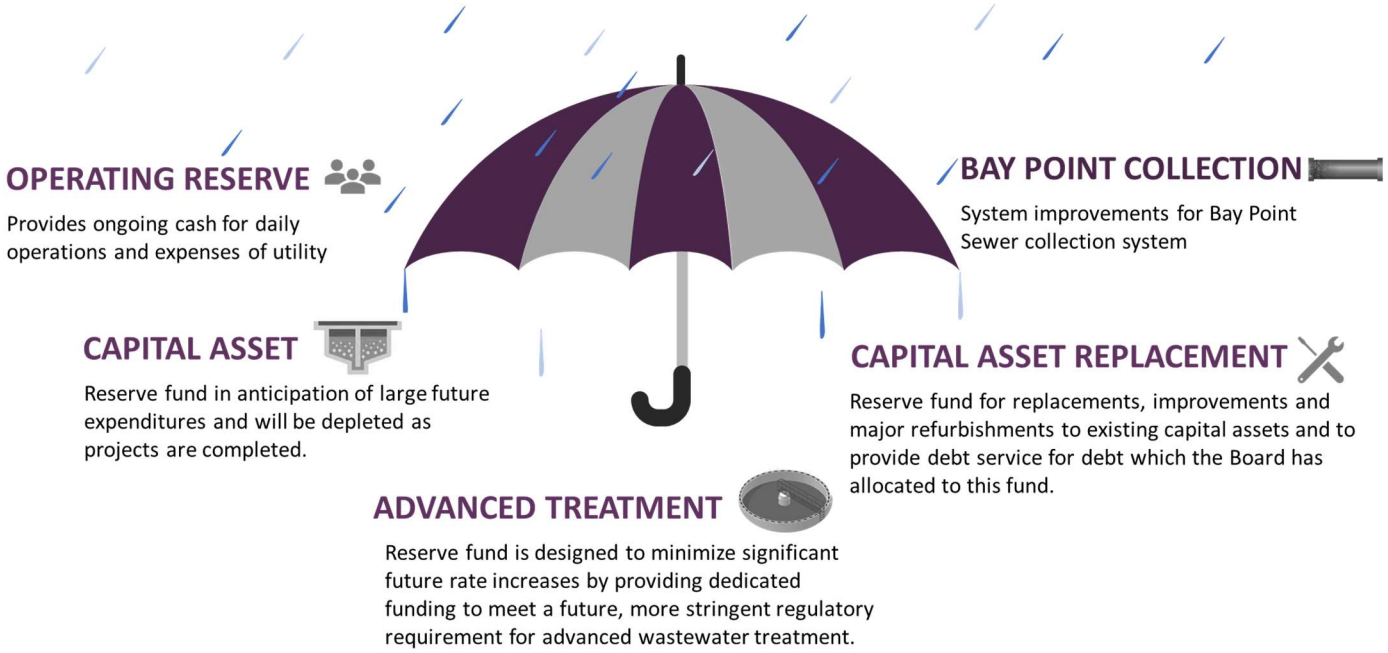
The preliminary FY21/22 budget was used as the baseline expenses for the utility and were adjusted in subsequent years based on the percentage increases shown in Table 5. Table 7 provides projected Operational & Maintenance (O&M) costs through FY25/26 (rounded to thousands). Each expense category includes detailed line-item expenditures discussed with staff to determine the appropriate escalation factor for forecasting how costs will increase over time. Revenues in Table 6 exceed total O&M expenses because total revenue requirements also include capital expenses and reserve funding.

Table 7: Projected O&M Expenses

O&M Expenses	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Operating Expenses						
Administration Division	$1,870,000	$2,229,000	$2,304,000	$2,396,000	$2,492,000	$2,592,000
Board of Directors Division	$68,000	$32,000	$33,000	$35,000	$37,000	$39,000
Public Information Division	$200,000	$46,000	$47,000	$48,000	$49,000	$50,000
Human Resources Division	$928,000	$1,133,000	$1,170,000	$1,214,000	$1,260,000	$1,307,000
Finance Division	$1,597,000	$2,077,000	$2,145,000	$2,227,000	$2,312,000	$2,401,000
Information Technology Division	$1,226,000	$1,404,000	$1,452,000	$1,507,000	$1,563,000	$1,621,000
Purchasing Division	$192,000	$623,000	$644,000	$670,000	$698,000	$727,000
Engineering Division	$2,551,000	$2,077,000	$2,149,000	$2,239,000	$2,333,000	$2,431,000
Maintenance Division	$4,677,000	$5,107,000	$5,281,000	$5,493,000	$5,715,000	$5,946,000
Operations/Plant Division	$6,430,000	$6,936,000	$7,208,000	$7,521,000	$7,851,000	$8,196,000
Laboratory Divison	$1,118,000	$1,209,000	$1,251,000	$1,304,000	$1,361,000	$1,422,000
Lab Pretreatment Division	$341,000	$437,000	$452,000	$470,000	$489,000	$509,000
Lab Pollution Prevention Division	$0	$5,000	$5,000	$5,000	$5,000	$5,000
Safety Division	$282,000	$368,000	$380,000	$395,000	$410,000	$426,000
Subtotal Operating Expenses	*$21,480,000*	*$23,683,000*	*$24,521,000*	*$25,524,000*	*$26,575,000*	*$27,672,000*

Reserves

Figure 8: Wastewater Utility Reserves



Per District policy, the Wastewater Operating and Maintenance (WW O&M) Fund is required to maintain a reserve for operating equal to 40% of operating expenses. There are no formal capital-related reserves as part of the District's reserve policy; however, capital reserves are recommended to ensure that the District maintains a strong financial outlook moving forward. It is standard industry best management practice to establish a capital reserve equal to at least the annual depreciation value of the District's assets or to cover a year's worth of upcoming capital expenses within the CIP. Therefore, as part of the proposed financial plan, reserves include the existing Operating Reserve and recommended minimum capital funding targets for each capital-related fund based on the average annual expenses of the CIP over the next five years. These reserves help mitigate risks to the utility by ensuring sufficient cash is on hand for daily operations and to fund annual system improvements. In addition, these reserves help smooth rates and mitigate the potential for sharp rate increases due to emergencies or unplanned, higher system costs. Table 8 summarizes the minimum operating reserve requirement and recommended funding targets of each capital-related fund.

Table 8: Reserve Requirement and Recommended Capital Funding Targets

Reserve/Fund	Minimum Requirement/Funding Target	Status
Operating	40% of WW O&M	Policy
Capital Asset	1-year of capital expenditures (5-year average)	Recommended
Advanced Treatment	$2M	Recommended
Capital Asset Replacement	1-year of capital expenditures (5-year average)	Recommended
Bay Point Collection	40% of O&M + 1-year of capital expenditures (5-year average)	Recommended

The reserve balance as of July 1, 2020, equaled approximately $55.6 million.

Financial Outlook at Existing Rates

Revenues from existing rates are sufficient to fund WW O&M through FY25/26 as shown in Figure 9. However, after direct transfers for capital spending, WW O&M is overdrawn, and reserves would need to be used to ensure capital projects move forward as scheduled (Figure 10). Using operating reserves would cause the balance to fall below the 40% target generating pressure to increase rates. The current operating reserve can absorb the direct transfers through FY22/23 while maintaining the 40% operating minimum reserve requirement but depletes by FY25/26. Figure 9 illustrates the operating position of the utility, where WW O&M expenses are identified with the dashed red trendline, and the horizontal black trendline shows total revenues at current rates. The bars represent the amount of net operating income before direct transfers for capital spending. Figure 10 identifies the operating position after direct transfers for capital.

Figure 9: Current Operating Financial Position Before Direct Transfers

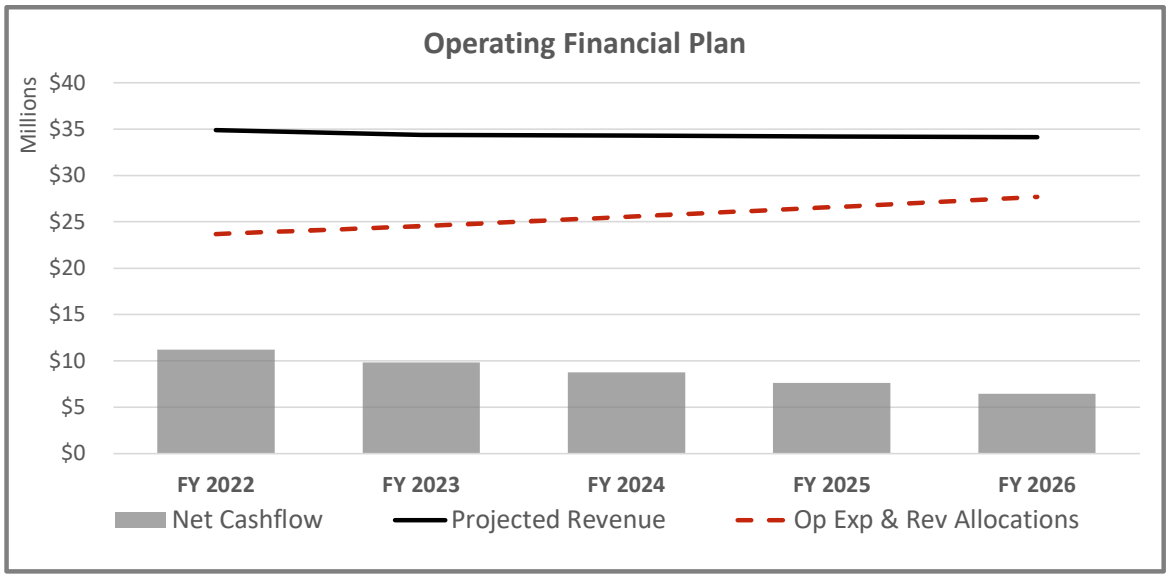


Figure 10: Current Operating Financial Position After Direct Transfers

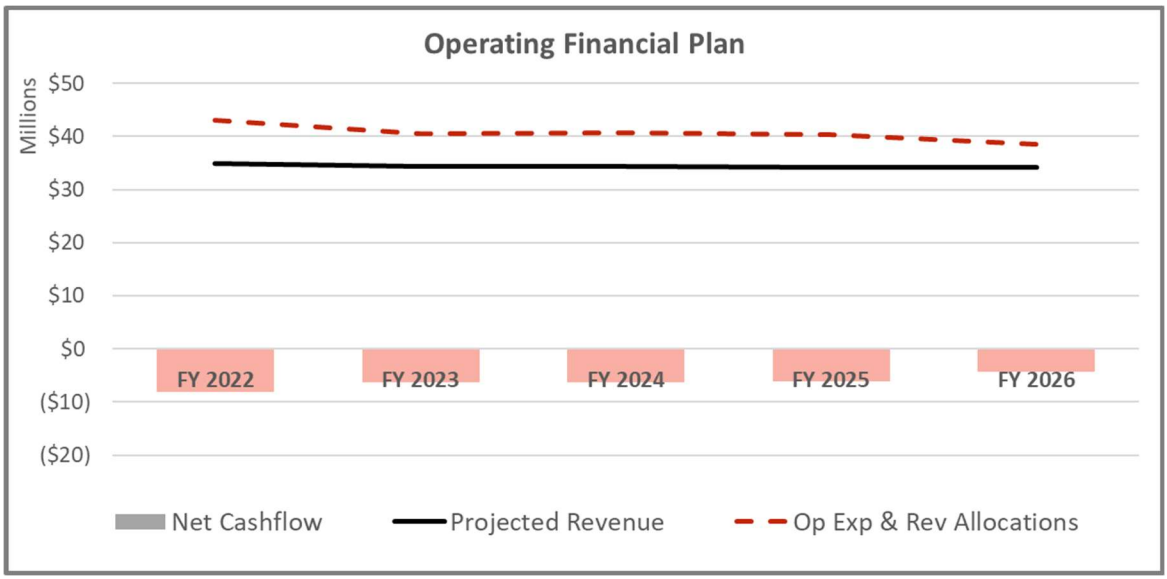
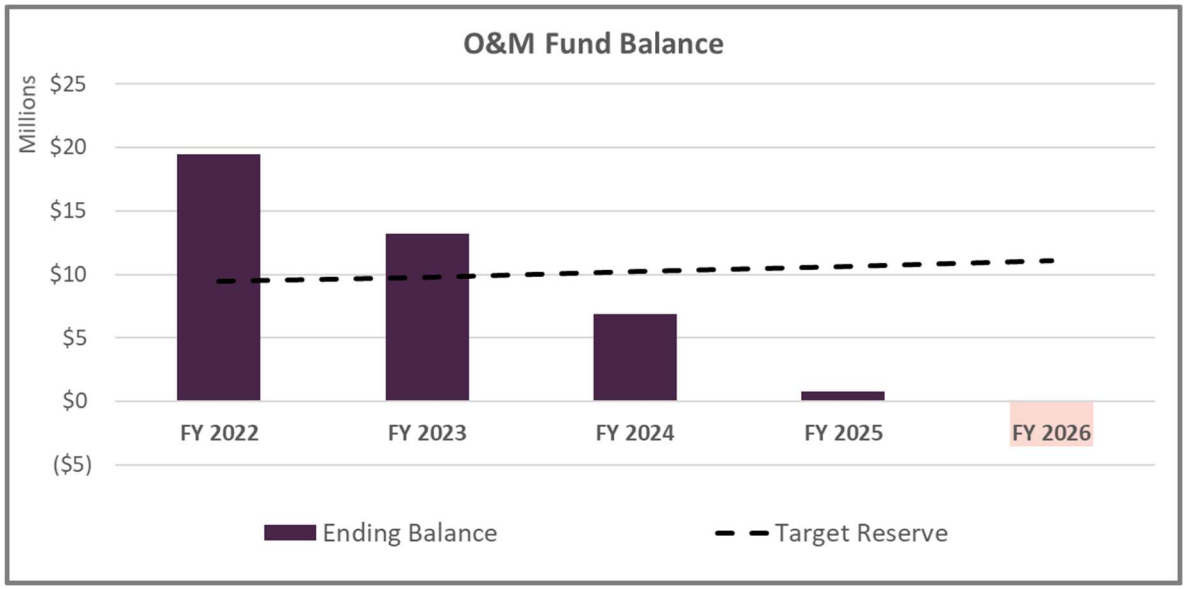


Figure 11 reflects the projected ending balances of the District's operating reserve after direct transfers are funded through FY25/26. By FY23/24, the operating reserve is below the minimum target.

Figure 11: Projected Ending Operating Reserve at Existing Rates



Proposed Financial Plan

Based on existing revenues, projected expenses, the District's updated CIP, and reserves, a proposed financial plan can be developed to meet the District's overall revenue requirements over the next Financial Plan Period. Based on additional capital reinvestment and the new Secondary Process Improvements, Table 9 forecasts projected revenues and expenses through FY25/26. Proposed revenue adjustments for FY21/22 through FY25/26 are 4.75%, 5.75%, 5.75%, 2.5%, and 2.0%, respectively. The proposed FY21/21 SSC rate adjustments also include cost-of-service study findings that result in a reallocation of cost to the District's customer classes. Therefore SSCs increases will vary by customer and not necessarily be equivalent to the 4.75% revenue adjustment.

Table 9: Proposed Financial Plan

Revenue	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Rate Revenue						
SSCs	$32,700,000	$33,175,000	$33,175,000	$33,175,000	$33,175,000	$33,175,000
Total Rate Revenue	$32,700,000	$33,175,000	$33,175,000	$33,175,000	$33,175,000	$33,175,000
Additional Revenue *(from revenue adjustments)*:						
Fiscal Year / Revenue Adjs						
FY 2022 4.75%		$1,575,000	$1,575,000	$1,575,000	$1,575,000	$1,575,000
FY 2023 5.75%			$1,998,000	$1,998,000	$1,998,000	$1,998,000
FY 2024 5.75%				$2,113,000	$2,113,000	$2,113,000
FY 2025 2.50%					$971,000	$971,000
FY 2026 2.00%						$796,000
Total Additional Revenue	$0	$1,575,000	$3,573,000	$5,686,000	$6,657,000	$7,453,000
Projected Rate Revenues *(with adjustments)*	**$32,700,000**	**$34,750,000**	**$36,748,000**	**$38,861,000**	**$39,832,000**	**$40,628,000**
Other Revenues						
Discharge Permit & Fees	$250,000	$250,000	$250,000	$250,000	$250,000	$250,000
Overhead (from Capital Projects)	$700,000	$700,000	$700,000	$700,000	$700,000	$700,000
Miscellaneous	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000
Utility Rebates (from Calpine)	$200,000	$200,000	$200,000	$200,000	$200,000	$200,000
Interest	$205,000	$266,000	$238,000	$179,000	$141,000	$114,000
Subtotal Other Revenues	$1,555,000	$1,616,000	$1,588,000	$1,529,000	$1,491,000	$1,464,000
Other Financing Sources						
Interfund Transfer	($370,000)	($381,000)	($392,000)	($404,000)	($416,000)	($428,000)
Interfund Loan	$0	$478,000	$0	$0	$0	$0
Subtotal Other Financing Sources	($370,000)	$97,000	($392,000)	($404,000)	($416,000)	($428,000)
Total Revenues	***$33,885,000***	***$36,463,000***	***$37,944,000***	***$39,986,000***	***$40,907,000***	***$41,664,000***

O&M Expenses	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025	FY 2026
Operating Expenses						
Administration Division	$1,870,000	$2,229,000	$2,304,000	$2,396,000	$2,492,000	$2,592,000
Board of Directors Division	$68,000	$32,000	$33,000	$35,000	$37,000	$39,000
Public Information Division	$200,000	$46,000	$47,000	$48,000	$49,000	$50,000
Human Resources Division	$928,000	$1,133,000	$1,170,000	$1,214,000	$1,260,000	$1,307,000
Finance Division	$1,597,000	$2,077,000	$2,145,000	$2,227,000	$2,312,000	$2,401,000
Information Technology Division	$1,226,000	$1,404,000	$1,452,000	$1,507,000	$1,563,000	$1,621,000
Purchasing Division	$192,000	$623,000	$644,000	$670,000	$698,000	$727,000
Engineering Division	$2,551,000	$2,077,000	$2,149,000	$2,239,000	$2,333,000	$2,431,000
Maintenance Division	$4,677,000	$5,107,000	$5,281,000	$5,493,000	$5,715,000	$5,946,000
Operations/Plant Division	$6,430,000	$6,936,000	$7,208,000	$7,521,000	$7,851,000	$8,196,000
Laboratory Divison	$1,118,000	$1,209,000	$1,251,000	$1,304,000	$1,361,000	$1,422,000
Lab Pretreatment Division	$341,000	$437,000	$452,000	$470,000	$489,000	$509,000
Lab Pollution Prevention Division	$0	$5,000	$5,000	$5,000	$5,000	$5,000
Safety Division	$282,000	$368,000	$380,000	$395,000	$410,000	$426,000
Subtotal Operating Expenses	$21,480,000	$23,683,000	$24,521,000	$25,524,000	$26,575,000	$27,672,000
Net Income (before transfers)	***$12,405,000***	***$12,780,000***	***$13,423,000***	***$14,462,000***	***$14,332,000***	***$13,992,000***
Direct Transfers						
Capital Asset - 120	$0	$0	$0	$0	$298,740	$406,280
Capital Replacement - 130	$9,156,000	$19,112,500	$16,536,600	$16,321,620	$14,737,840	$11,375,840
Bay Point - 520 & 550	$1,173,930	$1,216,250	$1,286,180	$1,360,135	$1,394,120	$1,421,980
Subtotal Direct Transfers	$10,329,930	$20,328,750	$17,822,780	$17,681,755	$16,430,700	$13,204,100
Net Income (after transfers)	$2,075,070	($7,548,750)	($4,399,780)	($3,219,755)	($2,098,700)	$787,900

Figure 12 identifies the operating position based on the proposed financial plan. Although operating reflects an annual deficit due to direct transfers, the operating reserve can absorb the transfers while maintaining the 40% operating reserve requirement. Figure 13 through Figure 16 identifies the capital plan of each fund with funding sources. Debt financing is anticipated for the Wastewater Capital Asset Replacement Fund to finance a portion of the Secondary Process Improvements ($30 million in debt) and Bay Point to fund collection system repairs ($3 million).

Figure 12: Proposed Operating Position After Direct Transfers

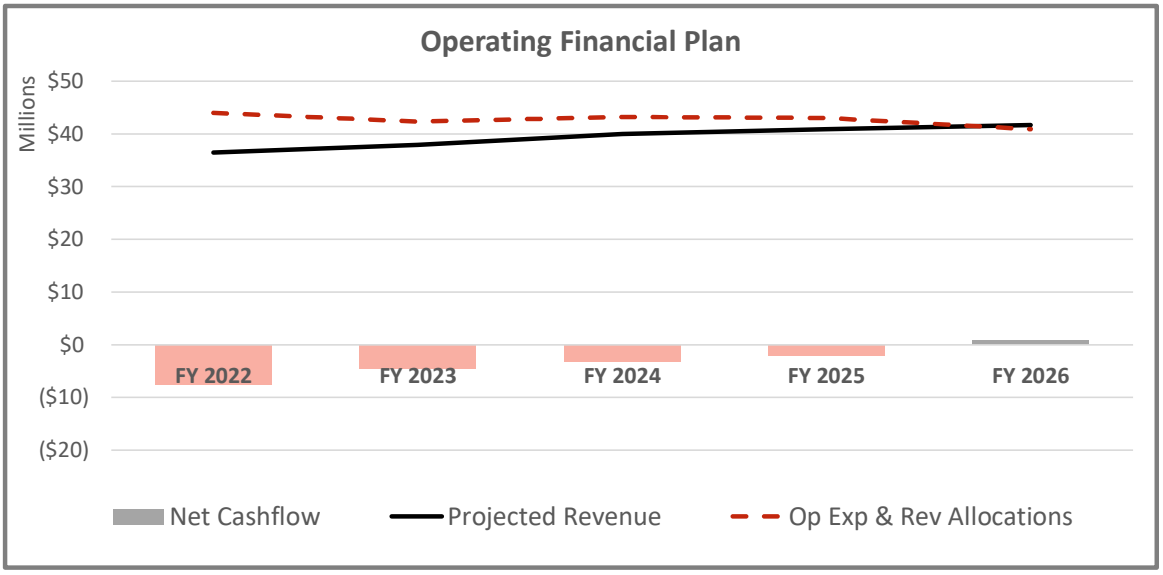


Figure 13: Capital Funding Plan – Capital Assets

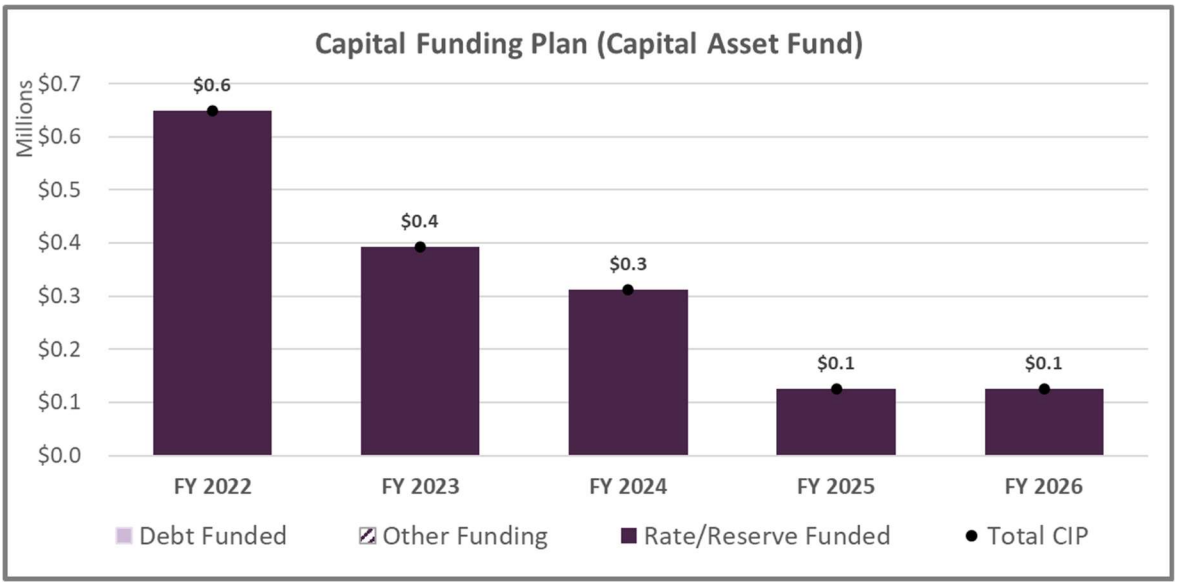


Figure 14: Capital Funding Plan – Advanced Treatment

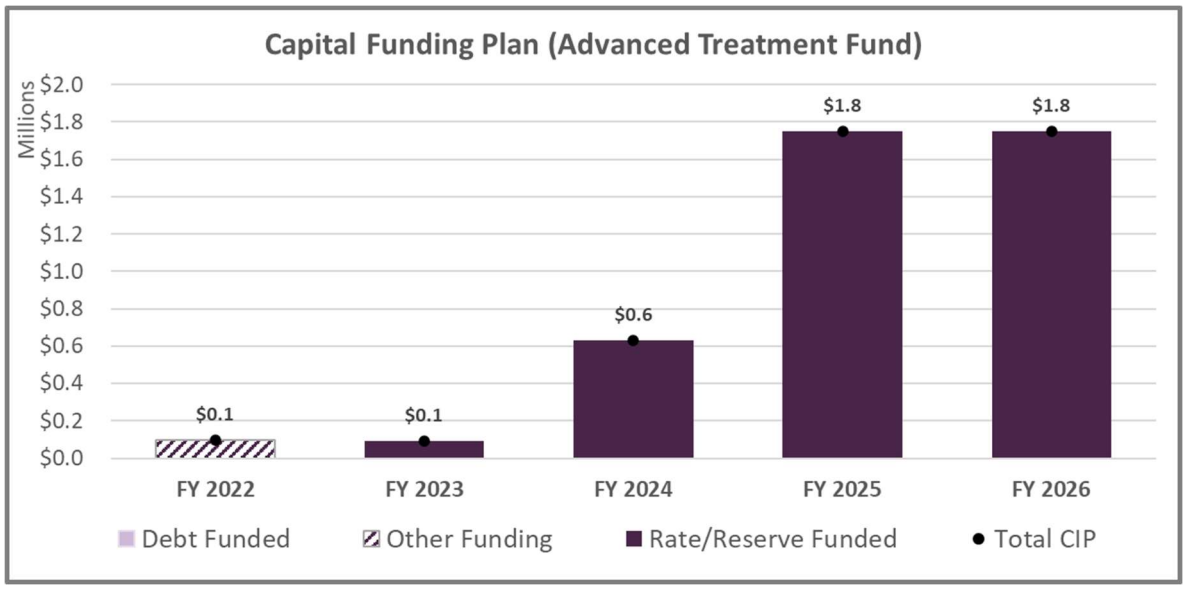


Figure 15: Capital Funding Plan – Capital Asset Replacement

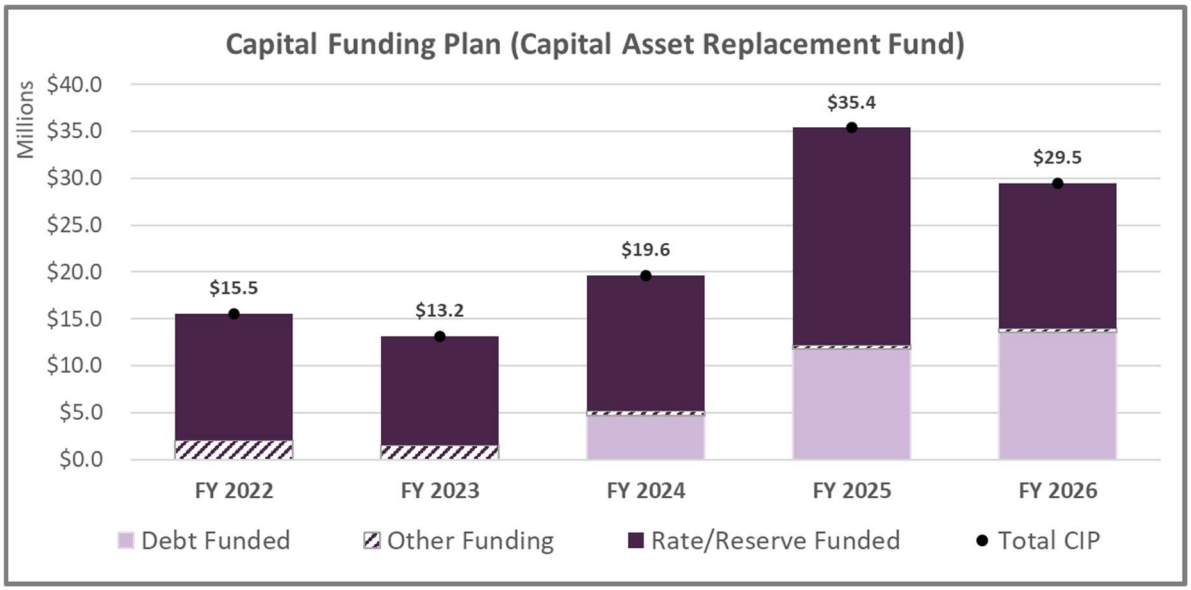


Figure 16: Capital Funding Plan – Bay Point Collection

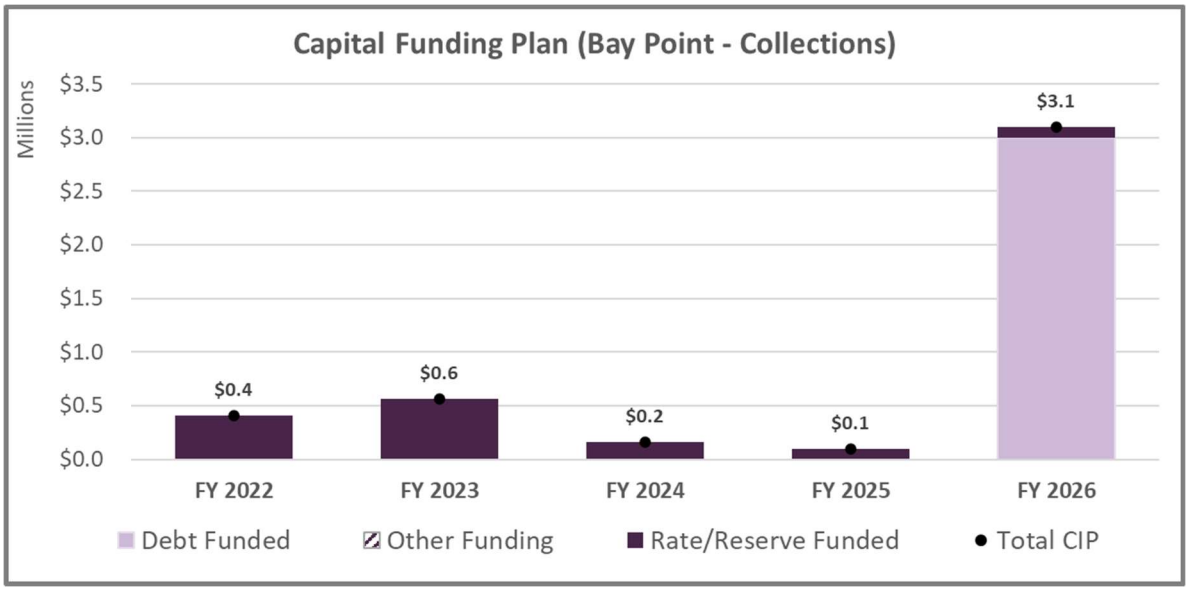


Figure 17 identifies projected ending reserve balances for the operating fund, and Figure 18 identifies projected ending reserve balances for all funds combined.

Figure 17: Projected Ending Reserves - Operating

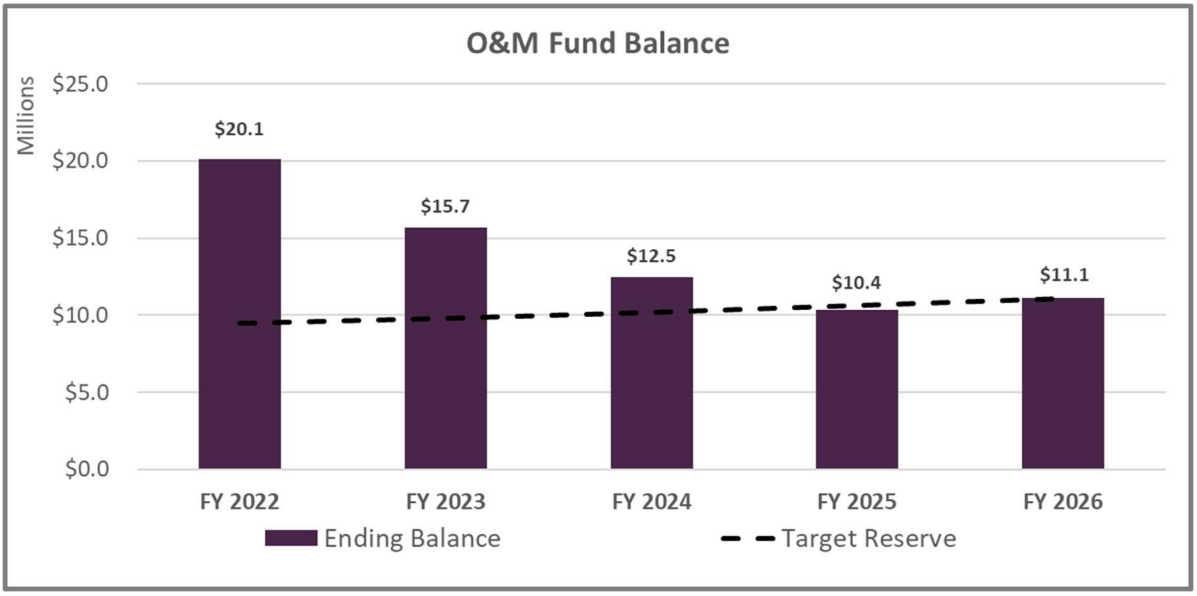
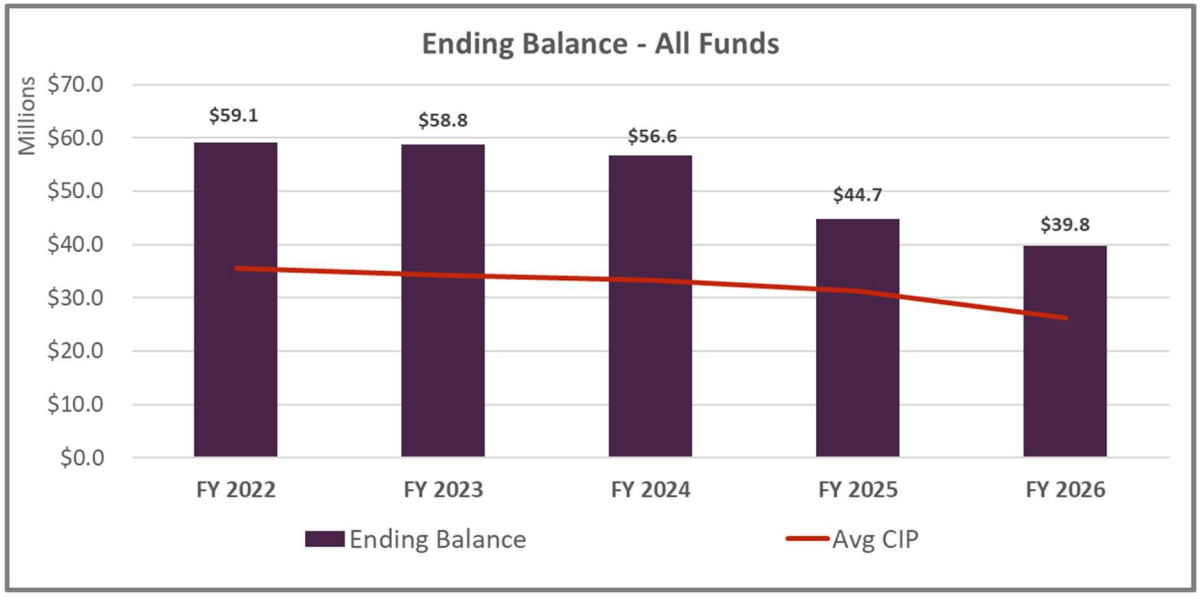


Figure 18: Projected Ending Reserves – All Funds



Cost-of-Service Analysis

Cost-of-Service Process

The next step in developing wastewater rates is to perform a cost of service analysis. Through this process, costs incurred are allocated to customer classes based on their proportional share. As a result, proposed rates are cost-based and reflect the costs incurred to provide service to customers. Critical components of this study were to restructure wastewater rates to reflect current flow trends, eliminate zones for treatment-related expenses, recalibrate SSCs, and set minimum charges based on new minimum flow amounts.

Revenue Requirements

FY21/22 revenue requirements were used for the cost-of-service analysis. Revenue requirements include O&M expenses, debt service, available revenue offsets, non-rate revenues, and annual net income. The proposed revenue adjustment for FY21/22 and corresponding rates accumulate the necessary funding to fund O&M, capital projects, and comply with minimum reserve requirements. The results of the financial plan analysis are summarized in Table 10 and represent the revenue required from rates for FY21/22.

Table 10: FY21/22 Wastewater Revenue Requirements

Revenue Requirements	Total
Operating Expenses	
Administration Division	$2,229,665
Board of Directors Division	$31,941
Public Information Division	$46,000
Human Resources Division	$1,133,164
Finance Division	$2,077,016
Information Technology Division	$1,405,344
Purchasing Division	$622,791
Engineering Division	$2,076,928
Maintenance Division	$5,106,204
Operations/Plant Division	$6,936,349
Laboratory Divison	$1,209,100
Lab Pretreatment Division	$436,966
Lab Pollution Prevention Division	$5,000
Safety Division	$367,318
Subtotal Operating Expenses	**$23,683,786**
Direct Transfers	
Capital Replacement - 130	$19,112,997
Bay Point - 520 & 550	$1,216,282
Subtotal Direct Transfers	**$20,329,279**
Revenue Offsets / Reserve Funding	
Other Revenues	
Discharge Permit & Fees	($250,000)
Overhead (from Capital Projects)	($700,000)
Miscellaneous	($200,000)
Utility Rebates (from Calpine)	($200,000)
Interest	($266,316)
Subtotal Other Revenues	($1,616,316)
Other Financing Sources	
Interfund Transfer	$381,594
Interfund Loan	($478,600)
Subtotal Other Financing Sources	($97,006)
Reserve Funding (Fund 110 Net Income)	($7,548,839)
Subtotal Revenue Offsets / Reserve Funding	**($9,262,161)**
Revenue Required from Rates	**$34,750,904**

Define Cost Components

Cost-of-service requirements were allocated to cost components and then to customer classes utilizing a cost causation approach endorsed by the Water Environment Federation (WEF) rate-setting manual - Financing and Charges for Wastewater Systems (Manual of Practice 27). The utility incurs costs to accommodate total flow demand and various strength concentrations of influent generated by different customer classes. Therefore, to determine the most appropriate way to recover the utility's expenses, cost components are identified and used to allocate expenses based on how they are incurred. Through the review of the revenue requirements and based on an understanding of the wastewater system, the cost-of-service allocation documented in this Report is based on total accounts, flow (volume influent in HCF), and the strength characteristics of the District's customer classes. Strength loading factors for biochemical oxygen demand (BOD) and total suspended solids (TSS) are identified by customer class. Strength factors are based on previous constituent testing performed by the District and the State Water Resources Control Board (SWRCB) *Revenue Program Guidelines, Appendix G*. Using this approach, revenue requirements are allocated to the different customer classes proportionate to their demand on the WWTP.

The cost-of-service analysis accounts for system costs to meet both the total volume of influent and the strength of influent from customers. The cost components shown in Figure 19 are used within the cost-of-service to allocate costs to customer classes based on the demand each place on the system.

Figure 19: Cost Components

Treatment Flow | BOD | TSS | Bay Point Collection

Treatment Flow – Expenses associated with operating and maintaining the District's WWTP, including overhead, central service expenses, staffing, and a portion of capital and reserves.
BOD – Expenses incurred to treat BOD at the WWTP, including a portion of capital and reserves.
TSS – Expenses incurred to treat TSS at the WWTP, including a portion of capital and reserves.
Bay Point Collection – Expenses associated with operating and maintaining the Bay Point wastewater collection system.

Allocate Expenses to Cost Components

When allocating expenses to the defined cost components, it is vital to have a sound basis for why an expense was allocated to a specific cost component. The distribution of expenses to the cost components should be straightforward to ensure the method of apportionment is **understandable** and easily **correlates to how expenses are incurred**. A description of each expense category is identified below.

Expense Categories:

Operating Expenses – The annual operating costs include general overhead, District central services, and expenses directly related to the daily operations of the WWTP. Therefore, specific line items associated with overhead and District central services were allocated to total flow, and treatment-related expenses were allocated between flow, BOD, and TSS based on the configuration of the WWTP processes that were provided by District staff.

Direct Transfers – Annual fund transfers necessary to meet the District's capital needs, including debt.

Revenue Offsets – Non-operating revenues available to offset SSCs.

Reserve Funding – Net income (+/-) applied to operating reserves.

Table 11 summarizes the percent allocation of operating expenses to the cost components. The percentages shown in Table 11 were based on discussions with District staff. Based on the District staff's experience and direct knowledge of the treatment plant processes, 74.2% of the cost incurred is to move flow, 14.8% is associated with BOD treatment, and 11% is associated with TSS treatment. Table 12 uses the percent allocations in Table 11 to allocate expenses in dollars to each cost component.

Table 11: O&M Expense Allocation to Cost Components (%)

Expense Category	Methodology /	Flow	BOD	TSS	BP Collection	Total
Administration Division	Specific	100.0%	0.0%	0.0%	0.0%	100%
Board of Directors Division	Specific	100.0%	0.0%	0.0%	0.0%	100%
Public Information Division	Specific	100.0%	0.0%	0.0%	0.0%	100%
Human Resources Division	Specific	100.0%	0.0%	0.0%	0.0%	100%
Finance Division	Specific	100.0%	0.0%	0.0%	0.0%	100%
Information Technology Division	Specific	100.0%	0.0%	0.0%	0.0%	100%
Purchasing Division	Specific	100.0%	0.0%	0.0%	0.0%	100%
Engineering Division	Treatment Plant	74.2%	14.8%	11.0%	0.0%	100%
Maintenance Division	Treatment Plant	74.2%	14.8%	11.0%	0.0%	100%
Operations/Plant Division	Treatment Plant	74.2%	14.8%	11.0%	0.0%	100%
Laboratory Divison	Treatment Plant	74.2%	14.8%	11.0%	0.0%	100%
Lab Pretreatment Division	Treatment Plant	74.2%	14.8%	11.0%	0.0%	100%
Lab Pollution Prevention Division	Treatment Plant	74.2%	14.8%	11.0%	0.0%	100%
Safety Division	Treatment Plant	74.2%	14.8%	11.0%	0.0%	100%

Table 12: O&M Expense Allocation to Cost Components ($)

Expense Category	Methodology /	Flow	BOD	TSS	BP Collection	Total
Administration Division	*Specific*	$2,229,665	$0	$0	$0	$2,229,665
Board of Directors Division	*Specific*	$31,941	$0	$0	$0	$31,941
Public Information Division	*Specific*	$46,000	$0	$0	$0	$46,000
Human Resources Division	*Specific*	$1,133,164	$0	$0	$0	$1,133,164
Finance Division	*Specific*	$2,077,016	$0	$0	$0	$2,077,016
Information Technology Division	*Specific*	$1,405,344	$0	$0	$0	$1,405,344
Purchasing Division	*Specific*	$622,791	$0	$0	$0	$622,791
Engineering Division	*Treatment Plant*	$1,541,081	$307,385	$228,462	$0	$2,076,928
Maintenance Division	*Treatment Plant*	$3,788,803	$755,718	$561,682	$0	$5,106,204
Operations/Plant Division	*Treatment Plant*	$5,146,771	$1,026,580	$762,998	$0	$6,936,349
Laboratory Divison	*Treatment Plant*	$897,152	$178,947	$133,001	$0	$1,209,100
Lab Pretreatment Division	*Treatment Plant*	$324,229	$64,671	$48,066	$0	$436,966
Lab Pollution Prevention Division	*Treatment Plant*	$3,710	$740	$550	$0	$5,000
Safety Division	*Treatment Plant*	$272,550	$54,363	$40,405	$0	$367,318
Total Allocation ($)		**$19,520,217**	**$2,388,404**	**$1,775,165**	**$0**	**$23,683,786**
Operating Expenses Allocation (%)		**82.4%**	**10.1%**	**7.5%**	**0.0%**	**100%**

Table 13 summarizes the percent allocation of direct transfers for FY21/22. Table 14 uses the percent allocations in Table 13 to allocate expenses in dollars to each cost component.

Table 13: Direct Transfer Expense Allocation to Cost Components (%)

Expense Category	Methodology /	Flow	BOD	TSS	BP Collection	Total
Capital Asset - 120	Treatment Plant	74.2%	14.8%	11.0%	0.0%	100%
Advanced Treatment - 125	Treatment Plant	74.2%	14.8%	11.0%	0.0%	100%
Capital Replacement - 130	Treatment Plant	74.2%	14.8%	11.0%	0.0%	100%
Bay Point - 520 & 550	Specific	0.0%	0.0%	0.0%	100.0%	100%

Table 14: Direct Transfer Expense Allocation to Cost Components ($)

Expense Category	Methodology /	Flow	BOD	TSS	BP Collection	Total
Capital Asset - 120	*Treatment Plant*	$0	$0	$0	$0	$0
Advanced Treatment - 125	*Treatment Plant*	$0	$0	$0	$0	$0
Capital Replacement - 130	*Treatment Plant*	$14,181,844	$2,828,724	$2,102,430	$0	$19,112,997
Bay Point - 520 & 550	*Specific*	$0	$0	$0	$1,216,282	$1,216,282
Total Allocation ($)		**$14,181,844**	**$2,828,724**	**$2,102,430**	**$1,216,282**	**$20,329,279**

Table 15 summarizes the percent allocation of District revenue offsets and operating reserve funding. For general non-operating revenues, such as other operating charges and interest income, the percentages identified in Table 12 were used to allocate a portion to each cost component. Interfund transfers were allocated based on the Treatment allocations because the HHW program mitigates significant constituent impacts to the treatment plant, and Reserve Funding was allocated using the percentages of O&M expenses identified in Table 12. Table 16 uses the percent allocations in Table 15 to allocate expenses in dollars to each cost component.

Table 15: Revenue Offsets and Capital / Reserve Funding (%)

Expense Category	Methodology /	Flow	BOD	TSS	BP Collection	Total
Discharge Permit & Fees	Operating Allocation	82.4%	10.1%	7.5%	0.0%	100%
Overhead (from Capital Projects)	Operating Allocation	82.4%	10.1%	7.5%	0.0%	100%
Miscellaneous	Operating Allocation	82.4%	10.1%	7.5%	0.0%	100%
Utility Rebates (from Calpine)	Operating Allocation	82.4%	10.1%	7.5%	0.0%	100%
Interest	Operating Allocation	82.4%	10.1%	7.5%	0.0%	100%
Interfund Transfer	Treatment Plant	74.2%	14.8%	11.0%	0.0%	100%
Interfund Loan	Operating Allocation	82.4%	10.1%	7.5%	0.0%	100%
Reserve Funding (Fund 110 Net Income)	Operating Allocation	82.4%	10.1%	7.5%	0.0%	100%

Table 16: Revenue Offsets and Capital / Reserve Funding ($)

Expense Category	Methodology /	Flow	BOD	TSS	BP Collection	Total
Discharge Permit & Fees	*Operating Allocation*	($206,050)	($25,211)	($18,738)	$0	($250,000)
Overhead (from Capital Projects)	*Operating Allocation*	($576,941)	($70,592)	($52,467)	$0	($700,000)
Miscellaneous	*Operating Allocation*	($164,840)	($20,169)	($14,991)	$0	($200,000)
Utility Rebates (from Calpine)	*Operating Allocation*	($164,840)	($20,169)	($14,991)	$0	($200,000)
Interest	*Operating Allocation*	($219,498)	($26,857)	($19,961)	$0	($266,316)
Interfund Transfer	*Treatment Plant*	$283,143	$56,476	$41,975	$0	$381,594
Interfund Loan	*Operating Allocation*	($394,463)	($48,265)	($35,872)	$0	($478,600)
Reserve Funding (Fund 110 Net Income)	*Operating Allocation*	($6,221,766)	($761,267)	($565,806)	$0	($7,548,839)
Total Allocation ($)		**($7,665,257)**	**($916,054)**	**($680,851)**	**$0**	**($9,262,161)**

Table 17 summarizes the wastewater revenue requirements by cost component for FY21/22.

Table 17: FY21/22 Cost of Service Requirements by Cost Component

Revenue Requirements	Flow	BOD	TSS	BP Collection	Total
Operating Expenses	$19,520,217	$2,388,404	$1,775,165	$0	$23,683,786
Designated Funds	$14,181,844	$2,828,724	$2,102,430	$1,216,282	$20,329,279
Other Financing Sources	($7,665,257)	($916,054)	($680,851)	$0	($9,262,161)
COS Requirement	**$26,036,804**	**$4,301,074**	**$3,196,744**	**$1,216,282**	**$34,750,904**

Rate Design

Develop Units of Service

Residential customer flows were projected using expected indoor use for Single-Family and Multi-Family based on a gallons per capita per day (gpcd) basis. Single-Family persons per household (pph) was based on the Department of Finance E-5 Report for 2020, reflecting an average household size of 3.3 pph within the Antioch and Pittsburg areas. Residential projected flows were based on 55 gpcd for indoor use with a 90% return factor (55 gpcd x 0.90 = 50 gpcd, rounded to the nearest whole number), which generates an annual flow of 80 HCF (rounded down to nearest whole number). The 10% reduction accounts for indoor water use that does not return to the collection system. Taking the product of the average household size, 50 gpcd, and number of residential units, results in a total projected Residential flow of 5.52 million HCF as shown in Table 18.

Table 18: Residential Projected Flows

Line	Residential Flow Projections	Assumptions [A]	Annual HCF [B]	Formula
1	Gallons per capita per day	50.0 gpcd	24.40	*(A x 365)÷748.052*
2	People per Residential household	3.3 pph	3.3 pph	
3	Number of Residential parcels	68,598	68,598	
4	Projected Residential Flow		5,522,788	*(B1 x B2 x B3)*

Non-Residential customer flows were determined by estimating flow return factors. To determine the appropriate flow return factor, we reviewed the amount of total influent treated at the WWTP for FY19/20. The total treated influent was reduced by the projected amount of flow from Residential and infiltration/inflow (known as I/I, which is a measure of the amount of water that enters the collection system that is not sewage, such as stormwater or groundwater that infiltrates into the collection system). The remainder is the estimated amount of influent generated by Non-Residential customers. Table 19 provides the calculations used to derive the amount of projected flow expected from Non-Residential customers.

Table 19: Non-Residential Projected Flows

Flow Assumptions		HCF
Total Flow to Treatment Plant		6,328,437
Less: Inflow and Infiltration (I&I)	2.0%	(126,569)
Projected Flows from Customers		6,201,868
Less: Projected Residential Flows		(5,522,788)
Projected Non-Residential Flows		679,080

Residential customers' projected flow is based on gallons per capita per day (gpcd) of indoor use, and a flow return factor is used to project flows from Non-Residential customers based on their water usage. With expected flows generated by Non-Residential customers derived in Table 19, a connection between Non-Residential water usage and generated flows is determined by identifying a return factor for Non-Residential customer classes. Applying a return factor of 85% to Non-Residential water use generates a total projected flow equal to 684k HCF. Table 20 identified FY19/20 water usage by Non-Residential customer class and influent to the treatment plant based on the 85% return factor. The variance between projected flows using the return factors and the expected flow from Table 19 is less than 1% (684,603 / 679,080 – 1 = 0.81%). Wastewater flows are not metered and the comparison between treated flow at the plant versus estimated Non-Residential influent using an 85% assures that the projected Non-Residential flows are reasonable. Therefore, an 85% return factor is applied to projected Non-Residential water usage for FY21/22 and beyond.

Table 20: Non-Residential Flow Return Factors

	FY 19/20 Actual Water Usage (HCF)				FY 19/20 Projected Flow @ 85% Return Factor (HCF)			
Customer Class	Zone 1 Usage Bay Point	Zone 2 Usage Pittsburg	Zone 3 Usage Antioch	Water Usage Combined	Zone 1 Flow Bay Point	Zone 2 Flow Pittsburg	Zone 3 Flow Antioch	Projected Flow Combined
Bakeries & Restaurants	4,942	46,892	51,328	103,162	4,201	39,858	43,629	87,688
Dow Chemical		63,062		63,062	-	53,603	-	53,603
G&K Services		19,877		19,877	-	16,895	-	16,895
Hotel/Motel		17,937	8,066	26,003	-	15,246	6,856	22,103
Institutional	5,014	59,015	135,177	199,206	4,262	50,163	114,900	169,325
Light Industry	9,532	48,549	28,546	86,627	8,102	41,267	24,264	73,633
Marinas		556	-	556	-	473	-	473
Generon IGS		5,943		5,943	-	5,052	-	5,052
Misc. Commercial	12,647	85,346	187,329	285,322	10,750	72,544	159,230	242,524
Mortuaries		495	752	1,247	-	421	639	1,060
Praxair		12,332		12,332	-	10,482	-	10,482
Premark Packaging	304			304	258	-	-	258
U.S. Army	1,774			1,774	1,508	-	-	1,508
Total	34,213	360,004	411,198	805,415	29,081	306,003	349,518	684,603

The 85% return factor derived in Table 20 was applied to the projected FY21/22 usage to determine the units of service for the cost-of-service analysis. Unit rates for the cost components are calculated by determining the units of service for each cost component (distribution basis). The distribution basis varies by cost component and includes total projected flow, weighted BOD, and weighted TSS. Table 21 summarizes the projected flow and loading characteristics of each customer class. Table 22 derives the units of service for BOD by taking the strength concentrations of BOD weighted by projected flow (Weighted BOD). Table 23 derives the units of service for TSS by taking the strength concentrations of TSS weighted by projected flow (Weighted TSS).

Table 21: Units of Service – Projected Water Usage and Projected Flow

	Projected Usage w/ Min (HCF)					FY 21/22 Projected Flow (HCF)					
Customer Class	Zone 1 Usage Bay Point	Zone 2 Usage Pittsburg	Zone 3 Usage Antioch	Water Usage Combined	Return Factor	Zone 1 Flow Bay Point	Zone 2 Flow Pittsburg	Zone 3 Flow Antioch	Projected Flow Combined	BOD (ppm)	TSS (ppm)
Residential	582,161	1,936,751	3,003,875	5,522,788	-	582,161	1,936,751	3,003,875	5,522,788	220	220
Bakeries & Restaurants	5,072	47,275	53,203	105,550	85%	4,311	40,184	45,223	89,718	1,000	600
Dow Chemical	-	63,062	-	63,062	85%	-	53,603	-	53,603	25	56
G&K Services	-	19,877	-	19,877	85%	-	16,895	-	16,895	481	132
Hotel/Motel	-	17,937	8,146	26,083	85%	-	15,246	6,924	22,171	310	120
Institutional	3,079	50,836	136,672	190,587	85%	2,617	43,211	116,171	161,999	150	150
Light Industry	9,852	54,529	32,631	97,012	85%	8,374	46,350	27,736	82,460	130	80
Marinas	-	556	80	636	85%	-	473	68	541	500	600
Generon IGS	-	5,943	-	5,943	85%	-	5,052	-	5,052	559	5
Misc. Commercial	15,818	114,065	242,194	372,077	85%	13,445	96,955	205,865	316,265	150	150
Mortuaries	-	545	752	1,297	85%	-	463	639	1,102	500	500
Praxair	-	12,332	-	12,332	85%	-	10,482	-	10,482	3	23
Premark Packaging	304	-	-	304	85%	258	-	-	258	150	150
U.S. Army	1,774	-	-	1,774	85%	1,508	-	-	1,508	13	9
Total	618,060	2,323,708	3,477,553	6,419,322		612,676	2,265,665	3,406,502	6,284,842		

Table 22: Units of Service – Weighted BOD

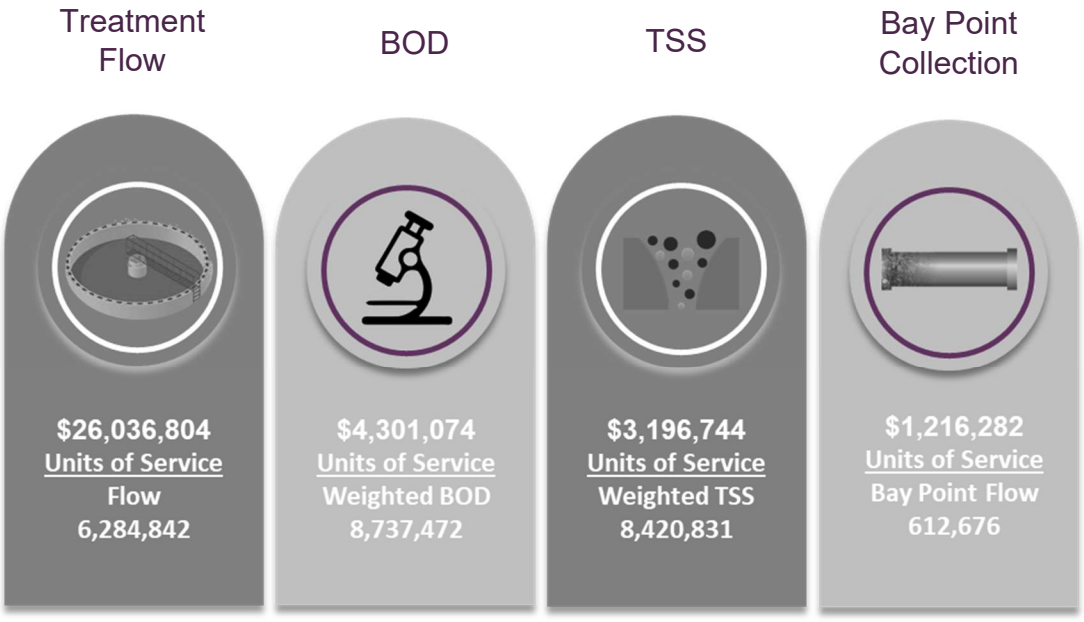
	FY 21/22 Projected Flow (HCF)				Weighted BOD (lbs)						
Customer Class	Zone 1 Flow Bay Point [A]	Zone 2 Flow Pittsburg [B]	Zone 3 Flow Antioch [C]	Projected Flow Combined [D] = A+B+C	BOD (ppm) [E]	TSS (ppm) [F]	Conversion Factor (HCF to lbs) [G]	Zone 1 BOD Bay Point [H] = A x E x G	Zone 2 BOD Pittsburg [I] = B x E x G	Zone 3 BOD Antioch [J] = C x E x G	Weighted BOD Combined [K] = H+I+J
Residential	582,161	1,936,751	3,003,875	5,522,788	220	220	0.00620883	795,199	2,645,492	4,103,122	7,543,813
Bakeries & Restaurants	4,311	40,184	45,223	89,718	1,000	600	0.00620883	26,768	249,494	280,779	557,041
Dow Chemical	-	53,603	-	53,603	25	56	0.00620883	-	8,320	-	8,320
G&K Services	-	16,895	-	16,895	481	132	0.00620883	-	50,457	-	50,457
Hotel/Motel	-	15,246	6,924	22,171	310	120	0.00620883	-	29,345	13,327	42,672
Institutional	2,617	43,211	116,171	161,999	150	150	0.00620883	2,437	40,243	108,193	150,874
Light Industry	8,374	46,350	27,736	82,460	130	80	0.00620883	6,759	37,411	22,387	66,558
Marinas	-	473	68	541	500	600	0.00620883	-	1,467	211	1,678
Generon IGS	-	5,052	-	5,052	559	5	0.00620883	-	17,533	-	17,533
Misc. Commercial	13,445	96,955	205,865	316,265	150	150	0.00620883	12,522	90,297	191,727	294,546
Mortuaries	-	463	639	1,102	500	500	0.00620883	-	1,438	1,984	3,422
Praxair	-	10,482	-	10,482	3	23	0.00620883	-	195	-	195
Premark Packaging	258	-	-	258	150	150	0.00620883	241	-	-	241
U.S. Army	1,508	-	-	1,508	13	9	0.00620883	122	-	-	122
Total	612,676	2,265,665	3,406,502	6,284,842				844,048	3,171,693	4,721,732	8,737,472

Table 23: Units of Service – Weighted TSS

Customer Class	FY 21/22 Projected Flow (HCF)							Weighted TSS (lbs)			
	Zone 1 Flow Bay Point [A]	Zone 2 Flow Pittsburg [B]	Zone 3 Flow Antioch [C]	Projected Flow Combined [D] = A+B+C	BOD (ppm) [E]	TSS (ppm) [F]	Conversion Factor (HCF to lbs) [G]	Zone 1 TSS Bay Point [L] = A x F x G	Zone 2 TSS Pittsburg [M] = B x F x G	Zone 3 TSS Antioch [N] = C x F x G	Weighted TSS Combined [O] = L+M+N
Residential	582,161	1,936,751	3,003,875	5,522,788	220	220	0.00620883	795,199	2,645,491	4,103,121	7,543,811
Bakeries & Restaurants	4,311	40,184	45,223	89,718	1,000	600	0.00620883	16,061	149,696	168,467	334,224
Dow Chemical	-	53,603	-	53,603	25	56	0.00620883	-	18,637	-	18,637
G&K Services	-	16,895	-	16,895	481	132	0.00620883	-	13,847	-	13,847
Hotel/Motel	-	15,246	6,924	22,171	310	120	0.00620883	-	11,360	5,159	16,518
Institutional	2,617	43,211	116,171	161,999	150	150	0.00620883	2,437	40,243	108,193	150,874
Light Industry	8,374	46,350	27,736	82,460	130	80	0.00620883	4,160	23,022	13,777	40,959
Marinas	-	473	68	541	500	600	0.00620883	-	1,761	253	2,014
Generon IGS	-	5,052	-	5,052	559	5	0.00620883	-	157	-	157
Misc. Commercial	13,445	96,955	205,865	316,265	150	150	0.00620883	12,522	90,297	191,727	294,546
Mortuaries	-	463	639	1,102	500	500	0.00620883	-	1,438	1,984	3,422
Praxair	-	10,482	-	10,482	3	23	0.00620883	-	1,497	-	1,497
Premark Packaging	258	-	-	258	150	150	0.00620883	241	-	-	241
U.S. Army	1,508	-	-	1,508	13	9	0.00620883	84	-	-	84
Total	612,676	2,265,665	3,406,502	6,284,842				830,703	2,997,446	4,592,682	8,420,831

The distribution basis can be identified for each cost component with the units of service shown in Table 21 through Table 23. Figure 20 identifies the total revenue requirements by cost component from Table 17 and the corresponding units of service.

Figure 20: Distribution Basis and Units of Service by Cost Component



Allocate to Customer Class

Using the FY21/22 revenue requirements, the cost of service allocates expenses to customer classes based on the service demands that each place on the system (cost causation). This approach provides a clear connection between costs incurred and the proportionate share attributable to each customer class. When designing rates, the most critical component is to connect costs to the proposed rates, resulting in a cost-based rate structure and compliance with Proposition 218. In the previous section, costs were summarized by expense category and allocated to cost components based on how each cost was incurred. The next step in designing rates is to allocate each cost component to customers in relation to their use of the system and facilities. The District is required to charge each customer an SSC that is proportional to the cost of providing service to, or making service immediately available to, each parcel. Through the cost of service analysis, each customer proportionately shares in the financial obligation of the wastewater utility. For each cost component's following unit rate computations, unit rates were rounded up to the nearest penny.

Treatment Flow

The cost associated with influent treated at the WWTP is a function of total volume and does not vary based on the type or strength concentration of influent. Therefore, the revenue requirement for Treatment Flow is apportioned to each customer class based on their percentage of total projected flow into the treatment plant as summarized within Table 24.

Table 24: FY21/22 Treatment Flow – Cost of Service by Customer Class

Customer Class	Projected Flow (HCF)	% Allocation	Revenue Requirement
Residential	5,522,788	87.9%	$22,879,772
Bakeries & Restaurants	89,718	1.4%	$371,681
Dow Chemical	53,603	0.9%	$222,065
G&K Services	16,895	0.3%	$69,994
Hotel/Motel	22,171	0.4%	$91,848
Institutional	161,999	2.6%	$671,128
Light Industry	82,460	1.3%	$341,616
Marinas	541	0.0%	$2,240
Generon IGS	5,052	0.1%	$20,928
Misc. Commercial	316,265	5.0%	$1,310,223
Mortuaries	1,102	0.0%	$4,567
Praxair	10,482	0.2%	$43,426
Premark Packaging	258	0.0%	$1,070
U.S. Army	1,508	0.0%	$6,247
Total	6,284,842	100.0%	$26,036,804

BOD

BOD costs relate to the treatment process of breaking down organic material in the wastewater. Higher BOD strengths require increased costs and extended treatment periods to reduce the high BOD levels before discharging effluent into waterways. Therefore, the revenue requirement for BOD is apportioned based on Weighted BOD for each customer class, as shown in Table 25.

Table 25: BOD Cost of Service by Customer Class

Customer Class	Weighted BOD	% Allocation	Revenue Requirement
Residential	7,543,813	86.3%	$3,713,488
Bakeries & Restaurants	557,041	6.4%	$274,207
Dow Chemical	8,320	0.1%	$4,096
G&K Services	50,457	0.6%	$24,838
Hotel/Motel	42,672	0.5%	$21,006
Institutional	150,874	1.7%	$74,268
Light Industry	66,558	0.8%	$32,763
Marinas	1,678	0.0%	$826
Generon IGS	17,533	0.2%	$8,631
Misc. Commercial	294,546	3.4%	$144,992
Mortuaries	3,422	0.0%	$1,685
Praxair	195	0.0%	$96
Premark Packaging	241	0.0%	$118
U.S. Army	122	0.0%	$60
Total	8,737,472	100.0%	$4,301,074

TSS

TSS costs relate to the treatment process of removing solids from wastewater through settling, screening, and filtering. Higher TSS strengths require increased costs and additional filtration to treat and remove the high levels of TSS before discharging effluent into waterways. Therefore, the revenue requirement for TSS is apportioned based on Weighted TSS for each customer class, as shown in Table 26.

Table 26: TSS Cost of Service by Customer Class

Customer Class	Weighted TSS	% Allocation	Revenue Requirement
Residential	7,543,811	89.6%	$2,863,807
Bakeries & Restaurants	334,224	4.0%	$126,879
Dow Chemical	18,637	0.2%	$7,075
G&K Services	13,847	0.2%	$5,257
Hotel/Motel	16,518	0.2%	$6,271
Institutional	150,874	1.8%	$57,275
Light Industry	40,959	0.5%	$15,549
Marinas	2,014	0.0%	$765
Generon IGS	157	0.0%	$60
Misc. Commercial	294,546	3.5%	$111,816
Mortuaries	3,422	0.0%	$1,299
Praxair	1,497	0.0%	$568
Premark Packaging	241	0.0%	$91
U.S. Army	84	0.0%	$32
Total	8,420,831	100.0%	$3,196,744

Bay Point Collection

The cost associated with the operating and maintenance of the Bay Point Collection system is a function of the total volume conveyed through the collection system. It does not vary based on the strength concentration of the influent. Therefore, the revenue requirement for Bay Point Collection is apportioned solely to Bay Point customers based on their percentage of total Projected Flow, as summarized within Table 27.

Table 27: FY21/22 Bay Point Collection – Cost of Service by Customer Class

Customer Class	Zone 1 Flow (HCF)	% Allocation	Revenue Requirement
Residential	582,161	95.0%	$1,155,705
Bakeries & Restaurants	4,311	0.7%	$8,559
Institutional	2,617	0.4%	$5,196
Light Industry	8,374	1.4%	$16,624
Misc. Commercial	13,445	2.2%	$26,692
Premark Packaging	258	0.0%	$513
U.S. Army	1,508	0.2%	$2,993
Total	612,676	100.0%	$1,216,282

Collectively, the total allocation of costs associated with Treatment Flow, BOD, TSS, and Bay Point Collection (Total Revenue Requirement) derives the cost of providing service to each customer class. However, given that Residential customers exhibit a relatively constant amount of wastewater flows per month, the total Residential Revenue Requirement may be recovered as an annual charge. For Non-Residential customer classes, flow rates are derived for the variable components by dividing the total allocated cost by total water usage as wastewater flows are not metered. Table 28 summarizes the combined Revenue Requirement by customer class and updated SSCs for treatment. Table 29 summarizes the updated SSCs for Bay Point Collection.

Table 28: Revenue Requirement by Customer Class

Customer Class	Flow [A]	BOD [B]	TSS [C]	Variable Allocation ($) [D] = A+B+C	Billing Units Residential = Dwelling Units Non-Res = Water Usage (HCF)	Unit Rate [E] = D ÷ Billing Units
Residential	$22,879,772	$3,713,488	$2,863,807	$29,457,067	68,598	$429.42
Bakeries & Restaurants	$371,681	$274,207	$126,879	$772,767	105,550	$7.33
Dow Chemical	$222,065	$4,096	$7,075	$233,236	63,062	$3.70
G&K Services	$69,994	$24,838	$5,257	$100,089	19,877	$5.04
Hotel/Motel	$91,848	$21,006	$6,271	$119,125	26,083	$4.57
Institutional	$671,128	$74,268	$57,275	$802,672	190,587	$4.22
Light Industry	$341,616	$32,763	$15,549	$389,928	97,012	$4.02
Marinas	$2,240	$826	$765	$3,830	636	$6.03
Generon IGS	$20,928	$8,631	$60	$29,618	5,943	$4.99
Misc. Commercial	$1,310,223	$144,992	$111,816	$1,567,031	372,077	$4.22
Mortuaries	$4,567	$1,685	$1,299	$7,551	1,297	$5.83
Praxair	$43,426	$96	$568	$44,090	12,332	$3.58
Premark Packaging	$1,070	$118	$91	$1,280	304	$4.22
U.S. Army	$6,247	$60	$32	$6,339	1,774	$3.58

Table 29: Bay Point Collection SSCs

Customer Class	BP Collection [A]	Zone 1 Billing Units Residential = Dwelling Units Non-Res = Water Usage (HCF)	Unit Rate [B] = A ÷ Billing Units
Residential	$1,155,705	7,231	$159.83
Bakeries & Restaurants	$8,559	5,072	$1.69
Institutional	$5,196	3,079	$1.69
Light Industry	$16,624	9,852	$1.69
Misc. Commercial	$26,692	15,818	$1.69
Premark Packaging	$513	304	$1.69
U.S. Army	$2,993	1,774	$1.69

Sewer Service Charge Summary

Financial Plan Summary

The financial plan developed for the District identifies revenue adjustments for FY21/22 through FY25/26. The District will conduct a Public Hearing to consider adjuasting SSCs for the upcoming fiscal year. Based on the review of the District's current SSC revenue and multi-year revenue requirements, SSC rates for FY21/22 need to recover approximately $1.6 million in additional annual revenue. Forward-looking through FY25/26, future revenue adjustments for the subsequent four fiscal years are projected to be 5.75%, 5.75%, 2.5%, and 2.0%, respectively. These recommended revenue adjustments will allow the District to cover its multi-year revenue requirements while maintaining the District's 40% WW O&M Fund minimum reserve requirement. In addition, the revenue adjustments will provide sufficient funding for each capital-related fund to cover a year's worth of upcoming capital expenses based on the current 5-year CIP. These recommended capital-related funding targets will ensure that the District has a starting fund balance each fiscal year that is sufficient to cover its planned capital needs. This financial plan also anticipates debt financing for the Secondary Process Improvements ($30 million in FY23/24) and Collection Improvements for Bay Point ($3 million in FY25/26). Both improvements will have a useful life of over 30-years, and the proposed debt issues are amortized over a 30-year term. The financial plan should be updated annually to review actual revenue recovered, capture new accounts, update changes in water usage and influent, and track capital expenses as estimates change. As the baseline assumptions change, the proposed revenue adjustments may also need to be revised to reflect updated conditions.

Cost-of-Service and Rate Summary

Projected flows were compared to actual influent treated at the WWTP, and existing flow assumptions were adjusted to better align to the amount of influent actually treated. Residential flows reflect a net amount of 50 gpcd, which results in an annual influent amount of 80 HCF versus 90 HCF. Based on the updated 80 HCF from each Single-Family residential unit and the amount of influent treated at the WWTP in FY19/20, a return factor of 85% was derived for Non-Residential customers.

The updated cost-of-service analysis includes these updated flow projections and a redistribution of costs between customer classes as existing service areas, for WWTP expenses, are unnecessary for Non-Residential customers. Similar commercial uses discharge characteristics in one service area do not vary when compared to another service area. For example, a Starbucks within the service area of Pittsburg will generate similar influent to a Starbucks within the Antioch or Bay Point service areas. Therefore, non-Residential SSCs do not need to vary by service area. However, the Bay Point service area includes the additional operating and maintenance costs of the collection system that serves Bay Point. These specific costs are only allocated to Bay Point customers.

The proposed Residential SSCs for FY21/22 are based on a flow amount of 80 HCF, irrespective of the amount of indoor water actually used because flows are not metered, and expected indoor usage is based on water efficiency standards outlined by the state. Therefore, to establish equity between all customers and account for the District administrative code of a minimum charge to Non-Residential, Non-Residential

customers are also charged a minimum flow of 80 HCF to account for a minimum capacity. The 80 HCF minimum charge is applied to the corresponding Non-Residential SSC flow rates.

The comprehensive cost-of-service analysis and rate development meet the requirements of Proposition 218, which includes:

1. An agency cannot collect revenue beyond what is necessary to provide service.

   The long-term financial plan identifies the District's revenue requirements including operating expense, capital improvement program, debt coverage, and reserves. Projected revenues do not exceed to cost of providing service.

2. Revenues derived by the charge shall not be used for any other purpose other than that for which the charge was imposed

   The District does not use SSCs for any other purpose. SSCs pay for the WWTP, with Bay Point SSCs covering the cost to operate and maintain the collection system that serves Bay Point.

3. The amount of the fee may not exceed the proportional cost of service for the parcel

   The comprehensive cost-of-service analysis and updated SSCs reapportions costs to customers classes and corresponding parcels based on the demand each place on the WWTP. Through this update, each parcel is paying its proportionate share in line with the cost of providing service.

4. No charge may be imposed for a service unless that service is actually used or immediately available to the owner of property

   Each parcel is paying for a minimum capacity in the WWTP. Residential parcels are charged based on a projected annual influent of 80 HCF and Non-Residential parcels are charged based on actual water usage with a minimum charge based on 80 HCF of annual flow.

5. A written notice of the proposed charge shall be mailed to the record owner of each parcel at least 45 days prior to the public hearing

   Notices were mailed to each affected parcel at least 45 days prior to the June 9, 2021 Public Hearing.

Cost-Based Wastewater Rate Schedule

Proposed FY21/22 SSCs

Table 30 provides a comparison of existing SSCs and FY21/22 Proposed SSCs by zone. The Proposed FY21/22 SSCs are equivalent across all zones for WWTP expenses, and Bay Point includes an additional charge for the wastewater collection system. Non-Residential customers are charged a minimum flow amount equivalent to the projected flow assumed for a Residential dwelling unit, equal to 80 HCF.

Table 30: Proposed Wastewater Fixed Charges and Variable Rates

Sewer Service Charges		Zone 1 - Bay Point		Zone 2 - Pittsburg		Zone 3 - Antioch	
Residential		Existing	FY 2022	Existing	FY 2022	Existing	FY 2022
Residential Dwelling Unit	($/Year)	$556.47	$589.25	$403.10	$429.42	$403.10	$429.42
Non-Residential Charges		Existing	FY 2022	Existing	FY 2022	Existing	FY 2022
Bakeries & Restaurants	($/HCF)	$9.47	$9.02	$8.01	$7.33	$7.94	$7.33
Dow Chemical	($/HCF)	-	$3.70	$4.66	$3.70	-	$3.70
G&K Services	($/HCF)	-	$5.04	$5.46	$5.04	-	$5.04
Hotel/Motel	($/HCF)	-	$4.57	$4.27	$4.57	$4.64	$4.57
Institutional	($/HCF)	$6.52	$5.91	$4.89	$4.22	$4.85	$4.22
Light Industry	($/HCF)	$6.52	$5.71	$4.89	$4.02	$4.85	$4.02
Marinas	($/HCF)	-	$6.03	$6.30	$6.03	$6.34	$6.03
Generon IGS	($/HCF)	-	$4.99	$9.11	$4.99	-	$4.99
Misc. Commercial	($/HCF)	$6.52	$5.91	$4.89	$4.22	$4.79	$4.22
Mortuaries	($/HCF)	-	$5.83	$5.53	$5.83	$5.55	$5.83
Praxair	($/HCF)	-	$3.58	$4.62	$3.58	-	$3.58
Premark Packaging	($/HCF)	$6.58	$5.91	-	$4.22	-	$4.22
U.S. Army	($/HCF)	$6.38	$5.27	-	$3.58	-	$3.58