



CITY OF SEBASTOPOL

**Water and Wastewater
Rate Study**

REPORT / JUNE 12, 2024



June 12, 2024

Ms. Ana Kwong
Administrative Services Director
City of Sebastopol
7120 Bodega Avenue
Sebastopol, CA 95472

Subject: Water and Wastewater Rate Study Report

Dear Ms. Kwong:

Raftelis is pleased to provide this Water and Wastewater Rate Study report for the City of Sebastopol (City). The study, including the long-range financial plans and rate design, addresses the current financial challenges within the Enterprise funds and establishes water and wastewater rates that are fair and align with California's Proposition 218 requirement.

The major objectives of the study include the following:

- Develop financial plans for the water and wastewater enterprises to build back to financial sufficiency, meet operation and maintenance costs, ensure sufficient funding for capital replacement and refurbishment (R&R) needs, and improve the overall financial health of the enterprises
- Perform a cost-of-service analysis to ensure fair and reasonable allocations of costs to user classes
- Review the current rate structure for the water and wastewater enterprises and propose alternatives that better align with the City's policy goals and community values
- Prepare a five-year schedule of rates for water and wastewater
- Document the technical work in a rate study report to serve as part of the City's administrative record

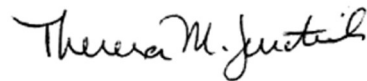
The report summarizes the key findings and recommendations related to developing the financial plans for the water and wastewater enterprises and developing the updated water and wastewater rates.

We thank you and other City staff for the support provided during this study.

Sincerely,



Kevin Kostiuk
Senior Manager



Theresa Jurotich, P.E. (KS, WA), PMP
Manager

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Appendix A: Water O&M Allocation

Appendix B: Wastewater O&M Allocation

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1. Executive Summary

1.1. Background

In 2023 the City of Sebastopol (City) contracted with Raftelis Financial Consultants (Raftelis) to conduct a Water and Wastewater Rate Study including updated ten-year financial plans, cost-of-service analyses, and updated five-year schedules of water and wastewater rates. Given the current distressed state of both enterprises and that master plans are scheduled to be completed in the next five years, this report focuses on the first five years of the financial plans, the cost-of-service analyses, and the resulting water and wastewater rates.

This Executive Summary describes the rate study process, methodology, and recommendations for the City's water and wastewater rates. The City's last rate study was in 2019 and projected rates through FY 2023-24. The City wishes to establish fair and equitable rates that:

- Meet the City's water and wastewater enterprise fiscal needs for operation and maintenance costs, capital replacement and refurbishment (R&R) costs to maintain the system, reserve goals, and to improve the financial health of each enterprise, and
- Prepare a five-year schedule of water and wastewater rates that align with Proposition 218

The City's water enterprise serves the City of Sebastopol. The enterprise provides potable water service to a population of over 7,300 people in the City through almost 3,000 connections. On an annual basis, the City delivers approximately 825 acre-feet (AF) of potable water.

The City provides wastewater collection services, conveying the wastewater to a subregional treatment facility. The City's wastewater enterprise serves most of the City of Sebastopol. The City provides wastewater collection services to approximately 2,700 connections.

1.2. Process

Raftelis developed water and wastewater financial plans for the City by working with City staff to refine inputs and assumptions. The financial plans show the total revenue adjustments needed to meet capital investment, operational expenses, debt service, and rebuild reserves during the five-year rate-setting period. Raftelis worked with City staff to refine inputs and provide revenue adjustment scenarios for the City Council's consideration. After developing the financial plans, Raftelis performed cost-of-service analyses and rate design to determine the water and wastewater rates based on the selected financial plan. The selected financial plan was based on a specific staffing plan, capital improvement projects, and loan payment plan selected by the City Council at public meetings on April 23 and May 21, 2024.

The current water rate consists of a bi-monthly service charge based on meter size and a uniform volumetric rate for all customers. Based on discussions with City staff, Raftelis has developed a new water rate structure incorporating tiered rates for single-family customers and separate uniform rates for commercial and irrigation customers.

The current wastewater rate structure consists of a bi-monthly service charge based on meter size and a volumetric rate. The different meter charges are currently based on safe operating capacity. The average winter water use is used for residential customers and actual bi-monthly water use is used for all other

customers to determine the volumetric charges for customers. Raftelis recommends maintaining this approach. Raftelis proposes using winter average use by meter size instead of safe operating capacity to differentiate fixed wastewater charges, as this is a better indicator of the relative wastewater flow generated at each meter size.

1.3. Proposed Water Financial Plan

Raftelis, with the assistance of City staff, conducted a status quo cash flow analysis to evaluate whether existing water rates can adequately fund the City's various water-related expenses over the study period. The analysis projected annual revenues, operation and maintenance expenses, debt service payments, and capital expenditures through FY 2033-34. Raftelis projects that with no rate increases over the study period, the water enterprise will be operating in a deficit each year and run out of reserves in the first year. This projected outcome demonstrates a clear need for water revenue adjustments to meet annual operating, maintenance, and capital renewal and replacement projects and rebuild reserve levels. Raftelis worked with City staff to develop the following proposed revenue adjustments over the five-year study period (see Table 1-1). The proposed water revenue adjustments were developed to ensure the water operating fund has sufficient funds to cover annual expenses and build reserves to minimum levels by the end of FY 2025-26. Meeting this minimum will be important when obtaining debt for capital projects. The operating reserve minimum is 25 percent of annual operating expenses, including debt service. The City does not have a separate capital reserve. The total operating reserve represents a minimum level of cash on hand. Given the current water enterprise financial status, Raftelis recommends that reserve levels be reviewed during the next rate study.

Table 1-1: Proposed Water Revenue Adjustments

Fiscal Year	Revenue Adjustment
FY 2024-25	37.0%
FY 2025-26	4.0%
FY 2026-27	4.0%
FY 2027-28	3.5%
FY 2028-29	3.5%

Key factors influencing the need for proposed revenue adjustments include:

- Current water rates are insufficient to cover annual operating and maintenance expenses.
- The water operating fund needs to become self-sufficient and meet operating reserves to help manage short-term cashflow and have funds for emergencies.
- Obtaining debt financing will be very difficult given the water enterprise's status. Rating agencies will want to see a clear path towards revenue sufficiency.

Figure 1-1 shows the proposed five-year financial plan. Status Quo revenue is shown by the light blue line. Projected revenue is shown by the black line. Annual expenditures are shown by the columns. The yellow bars above the axis (\$0 line) show the net cash used to build up the reserves and the bars below the axis show any withdrawals from reserves to fund costs. Current rates are insufficient to cover annual operating and maintenance expenses and capital-related expenditures. Therefore, revenue adjustments are required to generate sufficient revenue to cover annual operating and maintenance costs, cash-funded capital projects, and cash reserve funding over the study period.

Figure 1-1: Proposed Water Financial Plan

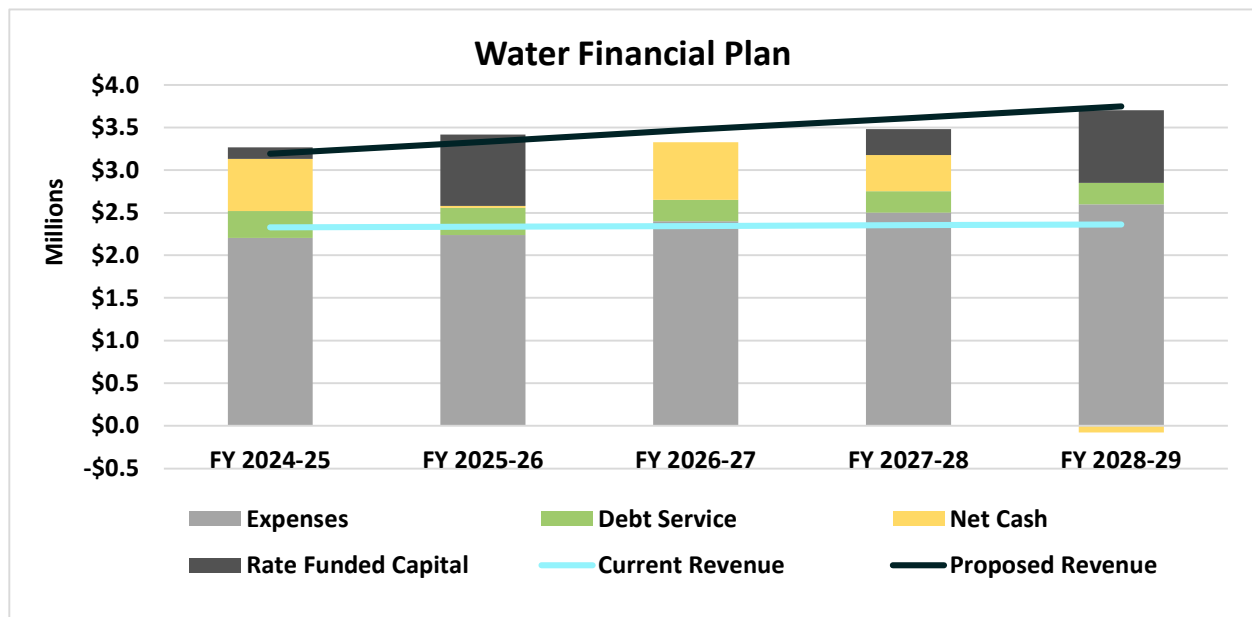


Figure 1-2 shows projected reserve balance over the rate-setting period relative to the City's minimum reserve level under the proposed financial plan. Reserves are projected to return to minimum levels in FY 2024-25 before achieving cash balances greater than the minimum level starting in the third year.

Figure 1-2: Projected Water Reserve Balances

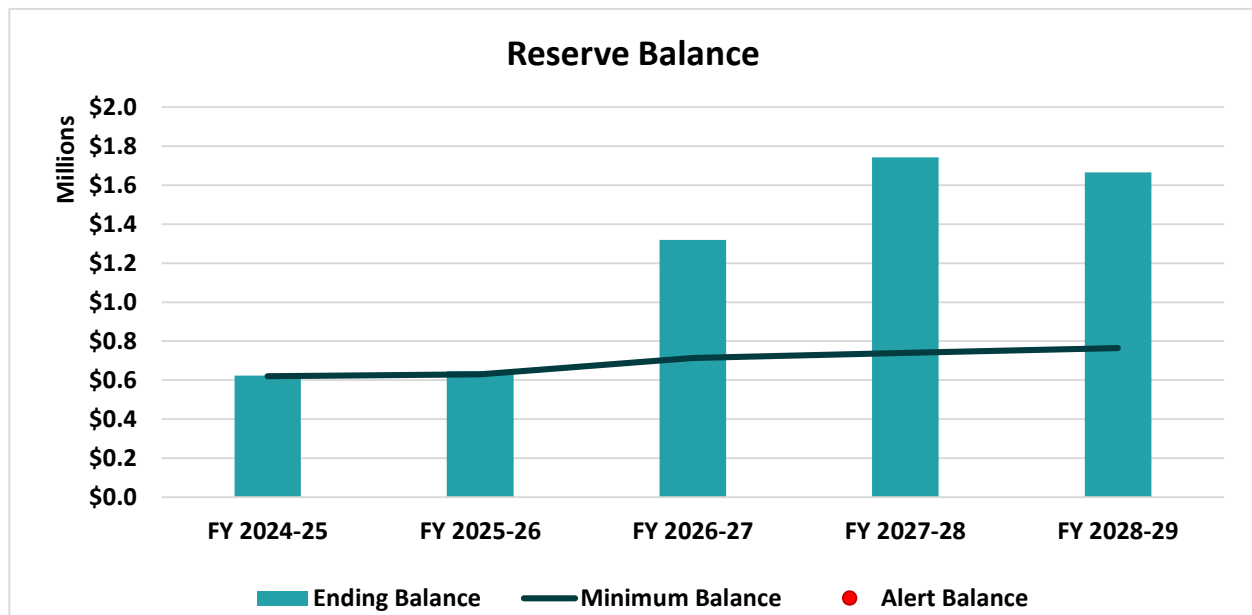
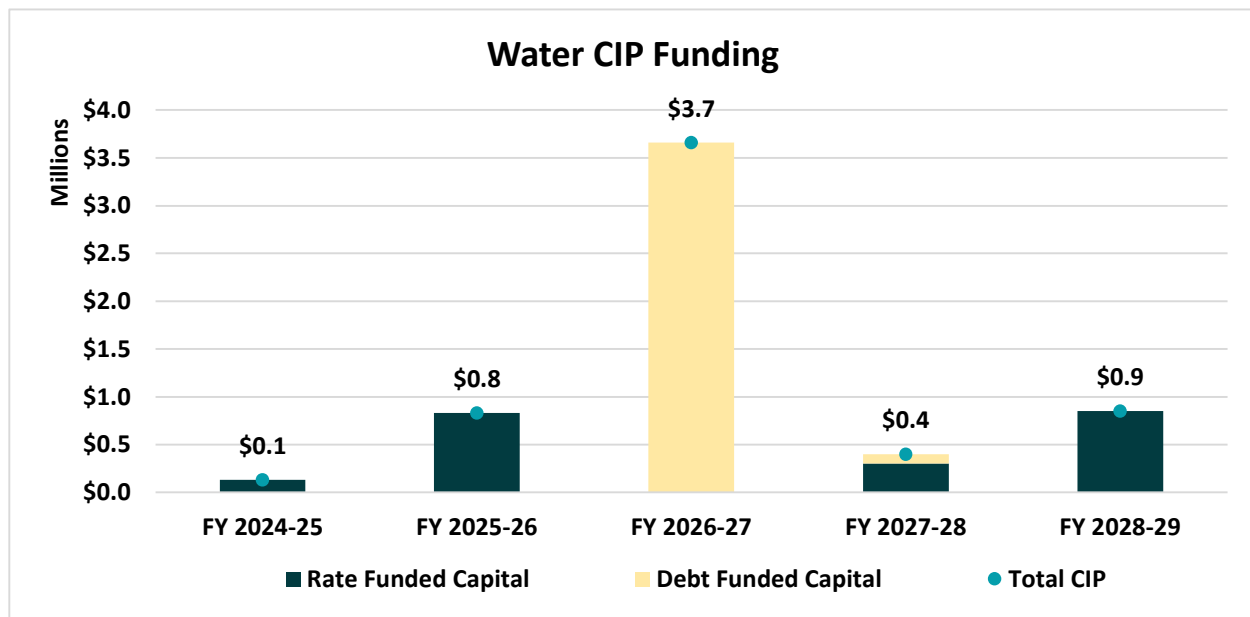


Figure 1-3 shows the proposed water capital financing plan over the rate-setting period. The proposed financial plan assumes that the Well #4 replacement project will be debt financed with external borrowing.

Figure 1-3: Water Capital Financing Plan, Inflated Dollars



1.4. Proposed Water Rates

The City's existing water rate structure consists of a fixed bi-monthly charge (based on meter size) and variable volume rate (per thousand gallons (kgal) of water delivered). Due to City staff concerns regarding the equity of a single uniform volumetric rate and overall guiding principles of financial stability, affordability of service, and equity, Raftelis examined the FY 2021-22 billing data at the customer class level using the customer classes identified in the data. Upon review of the billing data, Raftelis worked closely with City staff to evaluate potential changes to the existing water rate structure. The following changes are proposed:

- Single Family Residential Tiers:** Raftelis proposes that the City introduce a three-tiered rate structure for customers identified as Residential in the billing database. Tier 1 will be defined as the first 7 units of water (kgal) in a two-month period (i.e., bi-monthly), which represents use up to the lowest average water use per billing period during the winter months. Winter use approximates essential indoor water use—for cooking, drinking, and sanitation, and not outdoor irrigation. Over an entire year, 55 percent of residential billed usage falls between 0 - 7 kgal. Tier 2 will include use greater than Tier 1, up to 16 kgal per billing period, which is based on the highest average water use per billing period during the summer months. This tier is designed to approximate water used for outdoor irrigation. Approximately 25 percent of annual residential usage falls between 8 – 16 kgal. Tier 3 will include all use greater than Tier 2, which is approximately 20 percent residential usage. Single family residential is a homogenous customer class, which has similar indoor needs for health and sanitation, similar outdoor irrigation needs, and similar seasonality in these demand patterns. It is therefore appropriate to tier this class of like customers. The three-tier structure will provide lower cost water in the first tier and higher costs in the second and third tiers. This will promote affordability of service for lower to average use residential customers while including a conservation price signal between the tiers. The proposed monthly allotments for residential customers are shown below in Table 1-2.
- All Other Classes:** Raftelis recommends that all other customer classes be billed a uniform rate by class. Based on the billing data, two distinct classes are identified: Commercial (which also includes Apartments, Non-Profit, and Government as identified in the billing data) and Irrigation. Non-

residential classes have highly varying demand patterns based on the type of business or seasonal transient effects. For this reason a uniform rate by class is proposed.

While single family residential and non-single family customers will have different billing structures, all customers will pay roughly the same average rate.

Table 1-2: Proposed Changes to the Water Rate Structure

Description	Current Bi-Monthly Allotment	Proposed Bi-Monthly Allotment
Single Family Residential		
Tier 1		0 - 7 kgal
Tier 2	Single Uniform Rate for All Customers	8 - 16 kgal
Tier 3		> 16 kgal
All Other Classes		Uniform by Class

Table 1-3 and Table 1-4 show the proposed five-year water rate schedule through FY 2028-29 for fixed charges and volume charges, respectively. Proposed FY 2024-25 rates are calculated based on the results of the cost-of-service analysis and the overall revenue adjustment for that year. Proposed rates beginning in FY 2025-26 are calculated by increasing the prior year's proposed rates by the proposed annual revenue adjustments. The City bills customers for service every two months (bi-monthly). Water volume charges (water use) are billed in units of one thousand gallons (kgal).

Table 1-3: Proposed Five-Year Water Rate Schedule, Fixed Charges, \$/Bi-Mo.

Meter Size	Current	7/1/2024	7/1/2025	7/1/2026	7/1/2027	7/1/2028
5/8"x3/4" & 3/4"	\$49.33	\$67.68	\$70.39	\$73.21	\$75.78	\$78.44
1"	\$82.41	\$111.95	\$116.43	\$121.09	\$125.33	\$129.72
1.5"	\$164.13	\$222.59	\$231.50	\$240.76	\$249.19	\$257.92
2"	\$262.77	\$355.37	\$369.59	\$384.38	\$397.84	\$411.77
3"	\$575.37	\$775.82	\$806.86	\$839.14	\$868.51	\$898.91
4"	\$821.78	\$1,395.46	\$1,451.28	\$1,509.34	\$1,562.17	\$1,616.85

Note: Single family on a 1" meter for fire service are charged the 3/4" rate.

Table 1-4: Proposed Five-Year Water Rate Schedule, Volume Charges, \$/kgal

Customer Class	Current	7/1/2024	7/1/2025	7/1/2026	7/1/2027	7/1/2028
Residential						
Tier 1: 0 - 7 kgal	\$4.52	\$5.01	\$5.22	\$5.43	\$5.63	\$5.83
Tier 2: 8 - 16 kgal	\$4.52	\$6.39	\$6.65	\$6.92	\$7.17	\$7.43
Tier 3: > 16 kgal	\$4.52	\$8.87	\$9.23	\$9.60	\$9.94	\$10.29
Commercial	\$4.52	\$5.51	\$5.74	\$5.97	\$6.18	\$6.40
Irrigation	\$4.52	\$9.92	\$10.32	\$10.74	\$11.12	\$11.51

Figure 1-4 shows the bill comparison for a single family customer on a 5/8"x3/4" meter at a range of billed usage levels for FY 2024-25. The single family class has a typical water usage of 9 kgal per billing period.

Figure 1-4: Sample Single Family Water Bill Comparison

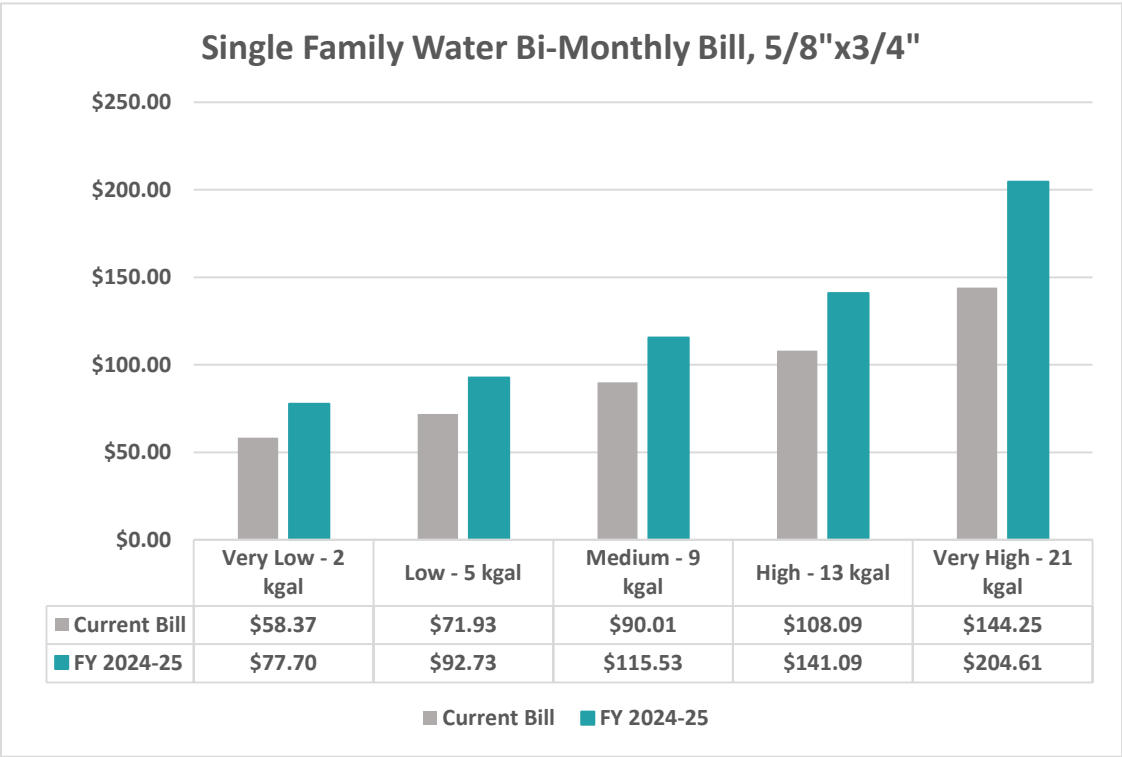


Figure 1-5 shows the bill comparison for a commercial customer on a 5/8"x3/4" meter at a range of billed usage for FY 2024-25.

Figure 1-5: Sample Commercial Water Bill Comparison

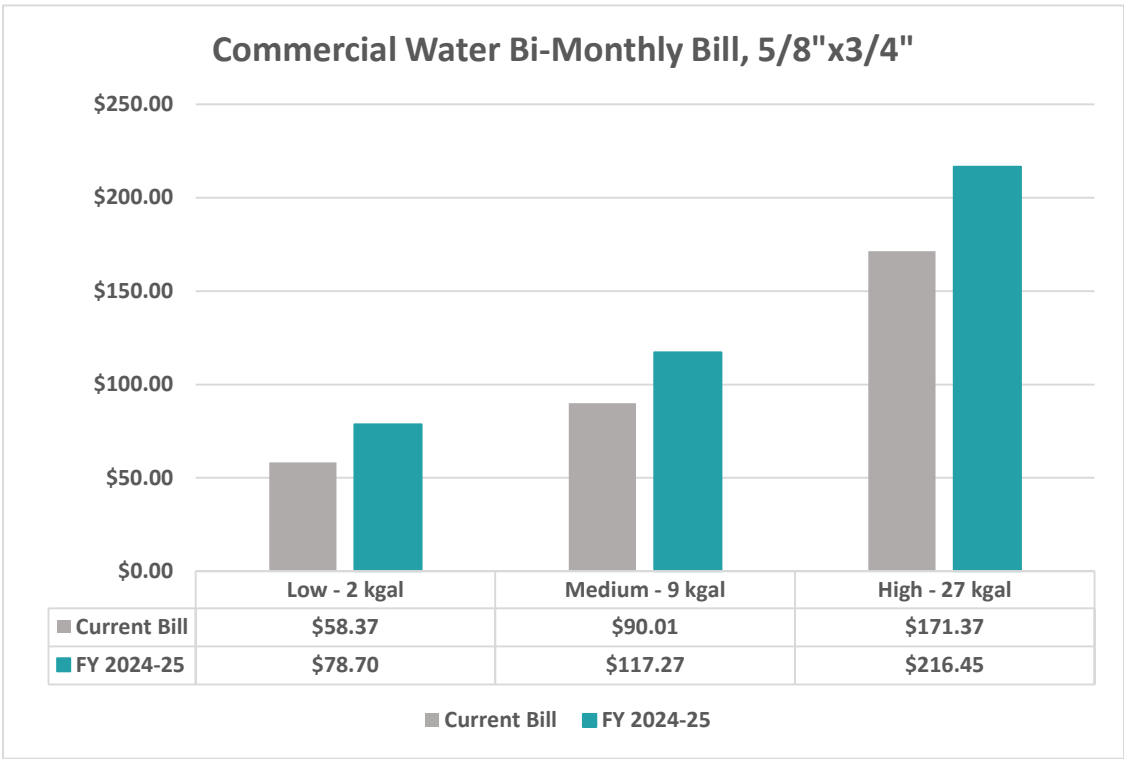
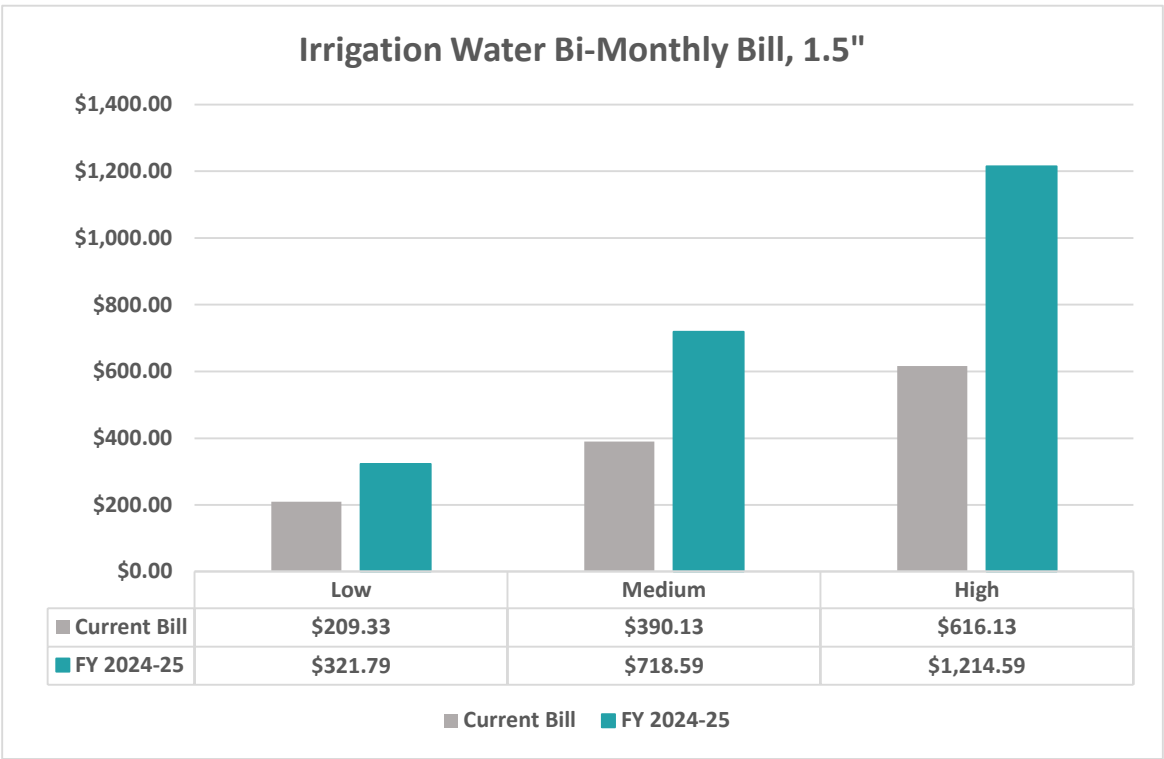


Figure 1-6 shows a bill comparison for an irrigation customer on a 1.5" meter at a range of billed usage for FY 2024-25.

Figure 1-6: Sample Irrigation Water Bill Comparison



1.5. Proposed Wastewater Financial Plan

With the assistance of City staff, Raftelis conducted a Status Quo cash flow analysis to evaluate whether existing wastewater rates can adequately fund the City's collection-system and treatment expenses over the ten-year study period. The analysis projected annual revenues, operation and maintenance expenses, debt service payments, and capital expenditures through FY 2033-34. Raftelis projects that with no rate increases over the study period, the City's wastewater enterprise will continue running in a deficit position each year. This demonstrates a clear need for wastewater revenue adjustments during the rate-setting period to cover annual operating and maintenance costs, debt service, cash-funded capital projects, and cash reserves. Raftelis worked with City staff to develop the following proposed wastewater revenue adjustments over the five-year rate-setting period (Table 1-5). The proposed revenue adjustments were selected to build the wastewater operating fund back to revenue sufficiency to cover annual expenses, and to eventually build reserves to minimum levels within five years.

Table 1-5: Proposed Wastewater Revenue Adjustments

Fiscal Year	Revenue Adjustment
FY 2024-25	50.0%
FY 2025-26	11.0%
FY 2026-27	9.0%
FY 2027-28	9.0%
FY 2028-29	9.0%

Key factors influencing the need for proposed wastewater revenue adjustments include:

- The wastewater enterprise is expected to be in deficit of approximately \$1.1 million by the end of the current fiscal year, FY 2023-24, which will be treated as a loan from the City's General Fund and repaid over time.
- Revenues are insufficient to cover annual operating and maintenance costs, much less capital-related costs.
- Need to return the wastewater enterprise to a self-sufficient enterprise.
- Need to build up reserves to a minimum level for working capital and mitigate system risk.

Figure 1-7 shows the proposed wastewater financial plan. Status Quo revenue is shown by the light blue line. Projected revenue is shown by the black line. Annual expenditures are shown by the columns. Expenses include repayment starting in FY 2026-27 of the estimated \$1.1 million borrowed from the General Fund, presuming a 5-year payback and 3 percent interest rate. The yellow bar represents net cash. If the yellow bar is below the axis, this indicates that reserves are being drawn upon to cover expenses. If the yellow bar is above the axis, it indicates that revenue is being added to reserves. In FY 2028-29 a very small draw on reserves is projected. Current rates are not sufficient to cover annual operating and maintenance expenses nor capital-related expenditures.

Figure 1-7: Proposed Wastewater Financial Plan

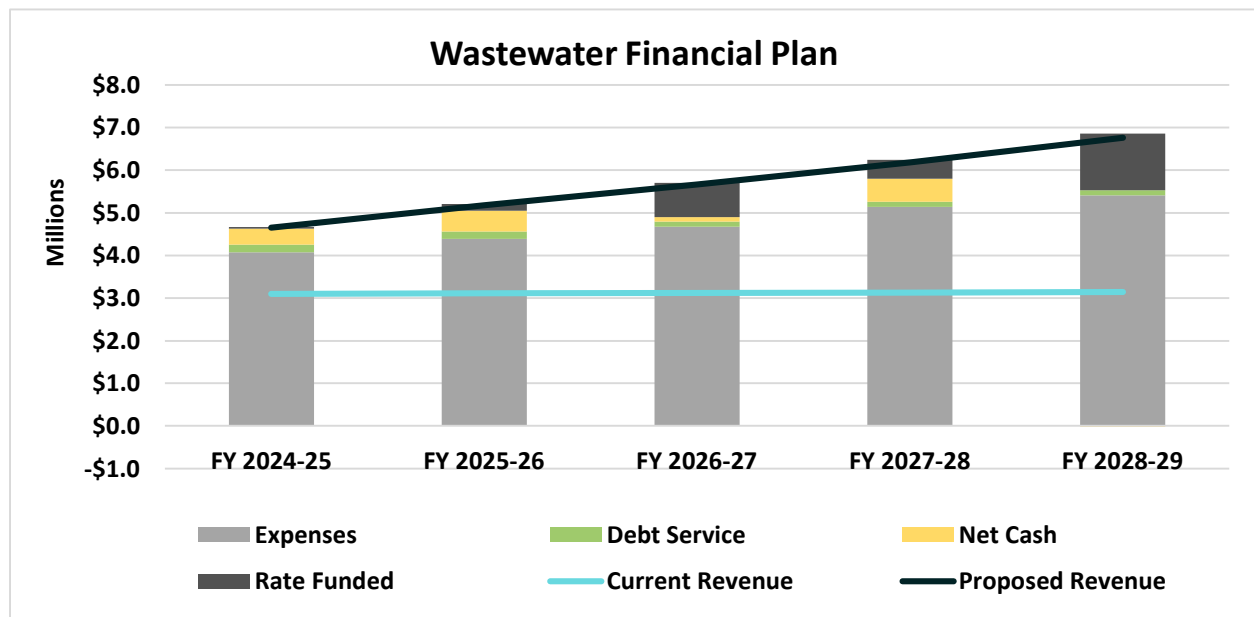


Figure 1-8 shows projected wastewater reserve balances over the rate-setting period relative to the minimum reserve level under the proposed financial plan. The overall balance grows in the first four years, then slightly decreases due to a larger capital plan in the fifth year but is maintained above the minimum balance.

Figure 1-8: Projected Wastewater Reserve Balances

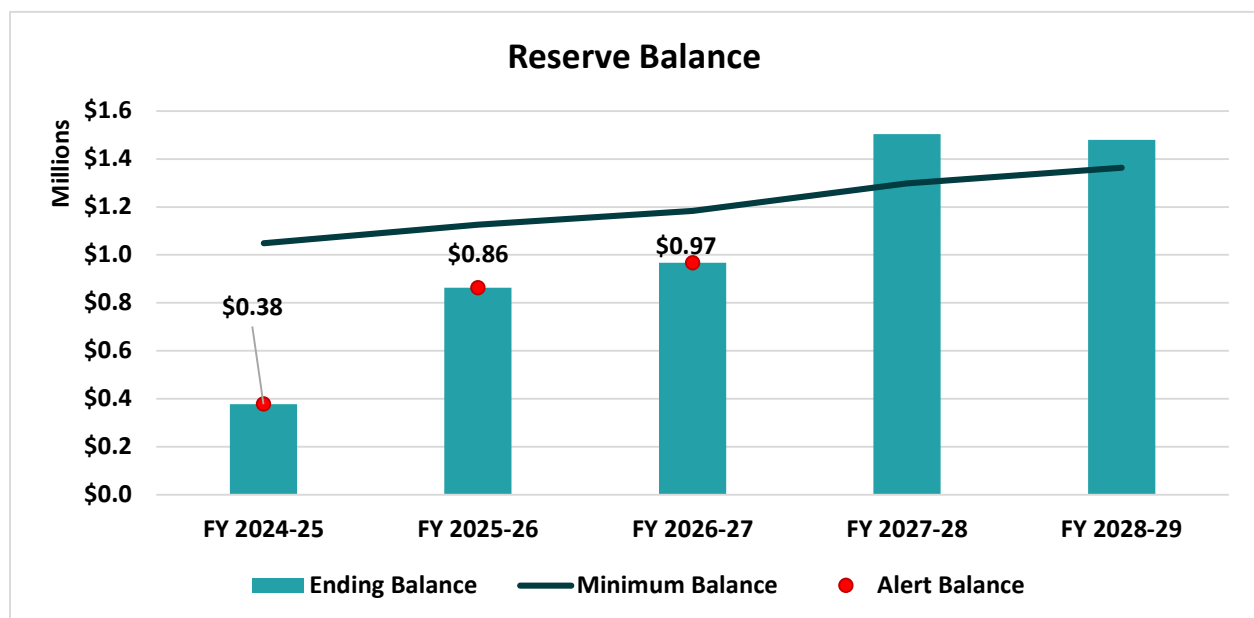
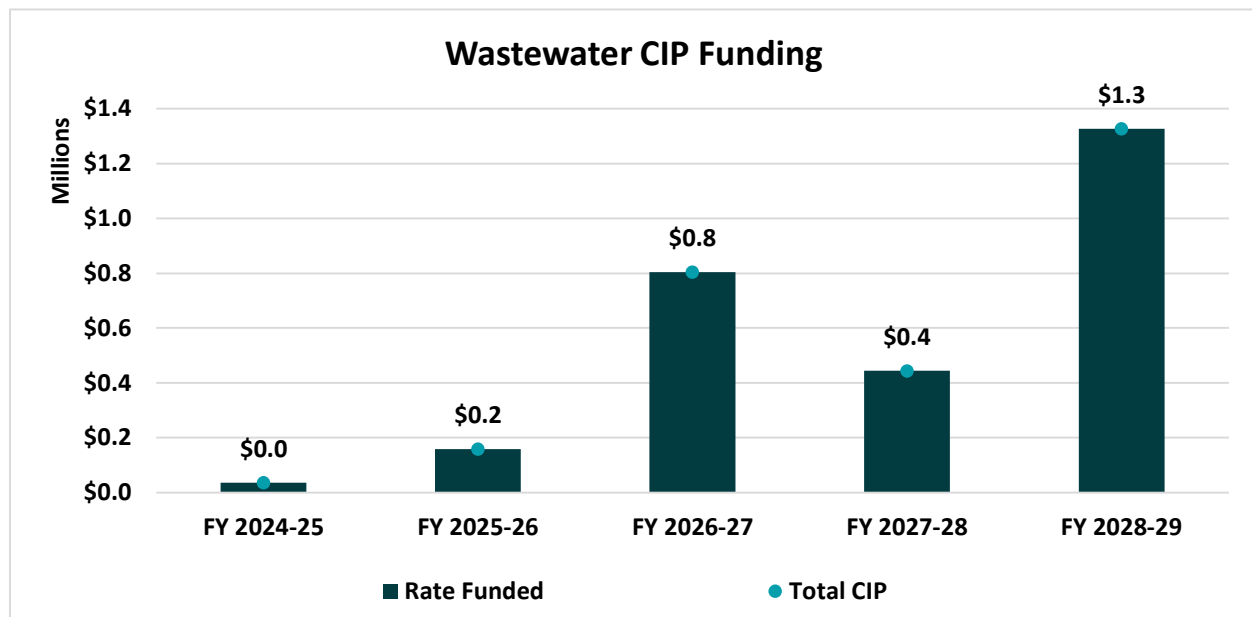


Figure 1-9 shows the proposed wastewater capital financing plan over the rate-setting period. The proposed wastewater financial plan assumes that all capital projects over the study period will be cash-funded through rate revenue.

Figure 1-9: Wastewater Capital Financing Plan, Inflated Dollars



1.6. Proposed Wastewater Rates

Table 1-6 shows the proposed five-year wastewater rate schedule through FY 2028-29. No structural changes are proposed for wastewater service. Customers will still be charged a fixed bi-monthly service charge based on meter size and a volumetric rate based on average winter use for residential customers or billed water use for all other customers. However, the fixed charge has been updated to reflect winter average use by meter size instead of safe operating capacity to differentiate fixed wastewater charges, as this is a better indicator of the relative wastewater flow generated at each meter size. Proposed FY 2024-25 rates are calculated based on the results of the cost-of-service analysis, including proposed updates to the rate differentials at each meter size, and the overall revenue adjustment for that year. Proposed rates beginning in FY 2025-26 are calculated by increasing the prior year's proposed rates by the proposed annual revenue adjustments.

Table 1-6: Proposed Five-Year Wastewater Rate Schedule

Charge	Current	7/1/2024	7/1/2025	7/1/2026	7/1/2027	7/1/2028
Meter Size, \$/bi-mo						
5/8x3/4" & 3/4"	\$76.61	\$95.25	\$105.73	\$115.25	\$125.63	\$136.94
1"	\$127.97	\$258.35	\$286.77	\$312.58	\$340.72	\$371.39
1.5"	\$254.86	\$657.20	\$729.50	\$795.16	\$866.73	\$944.74
2"	\$408.03	\$841.02	\$933.54	\$1,017.56	\$1,109.15	\$1,208.98
3"	\$893.44	\$2,093.81	\$2,324.13	\$2,533.31	\$2,761.31	\$3,009.83
4"	\$1,276.06	\$6,307.17	\$7,000.96	\$7,631.05	\$8,317.85	\$9,066.46
Volume, \$/kgal	\$10.31	\$15.47	\$17.18	\$18.73	\$20.42	\$22.26

Note: Single family on a 1" meter for fire service are charged the 3/4" rate.

Figure 1-10 shows the bill comparison for a single-family customer on a 5/8"x3/4" meter with a typical winter water use of 6 kgal.

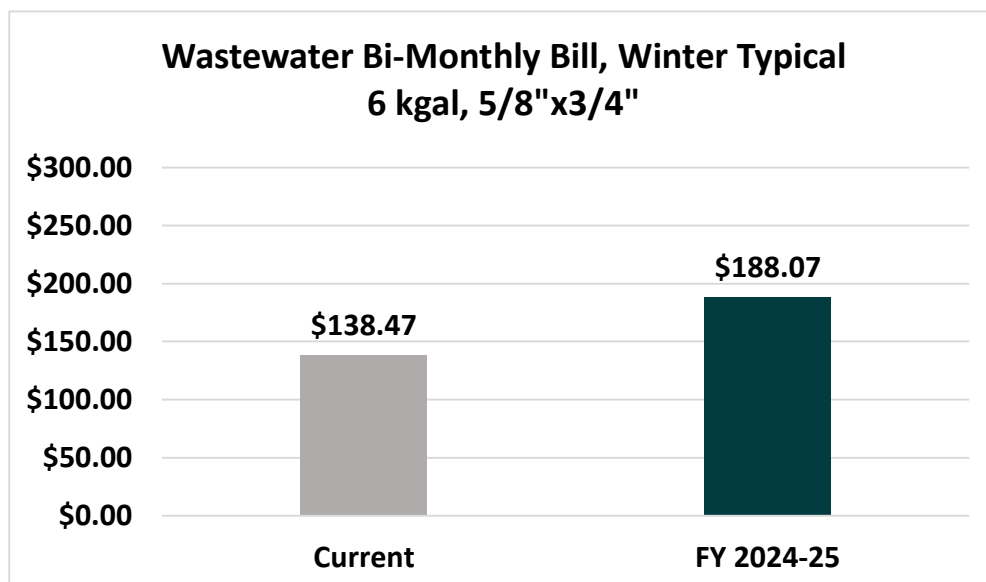
Figure 1-10: Sample Single Family Wastewater Bill Comparison

Figure 1-11 shows commercial bi-monthly wastewater bills at low, medium, and high water use levels.

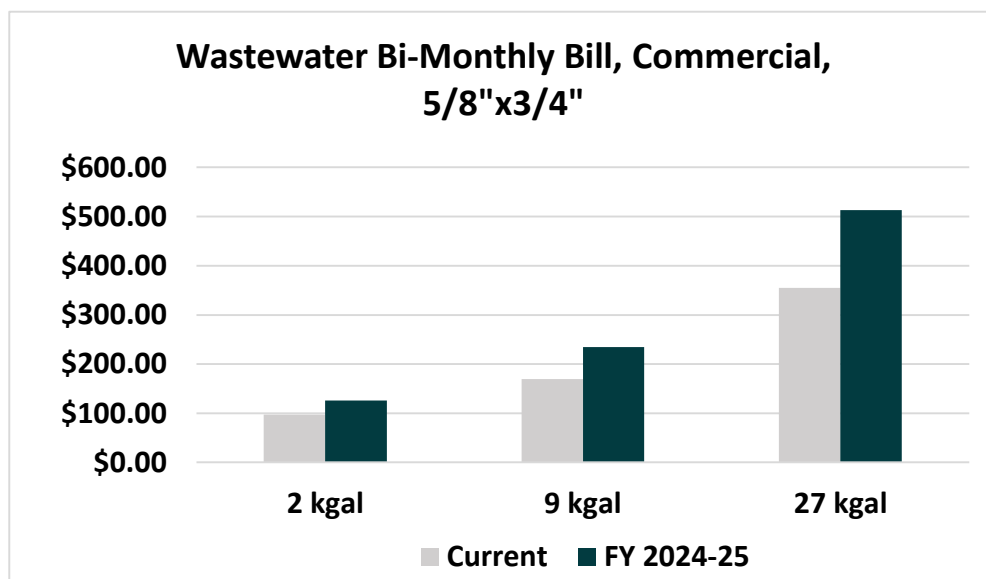
Figure 1-11: Example Commercial Bi-Monthly Wastewater Bills

Figure 1-12 shows the combined bill comparison for a typical single-family customer, using the winter average of 6 kgal per billing period.

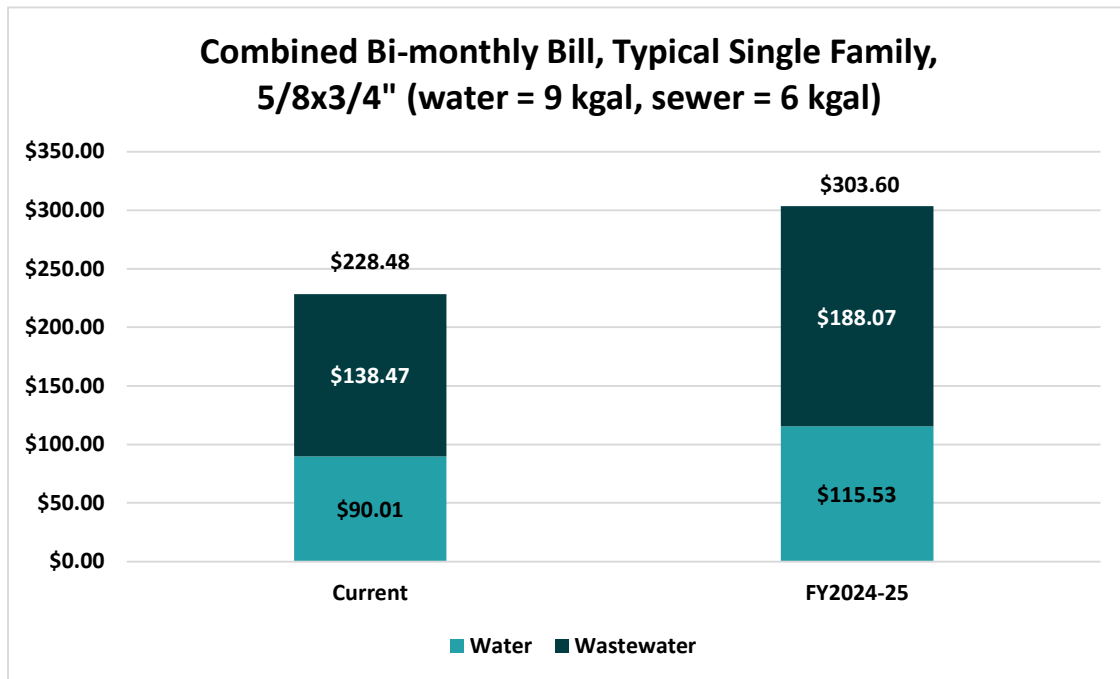
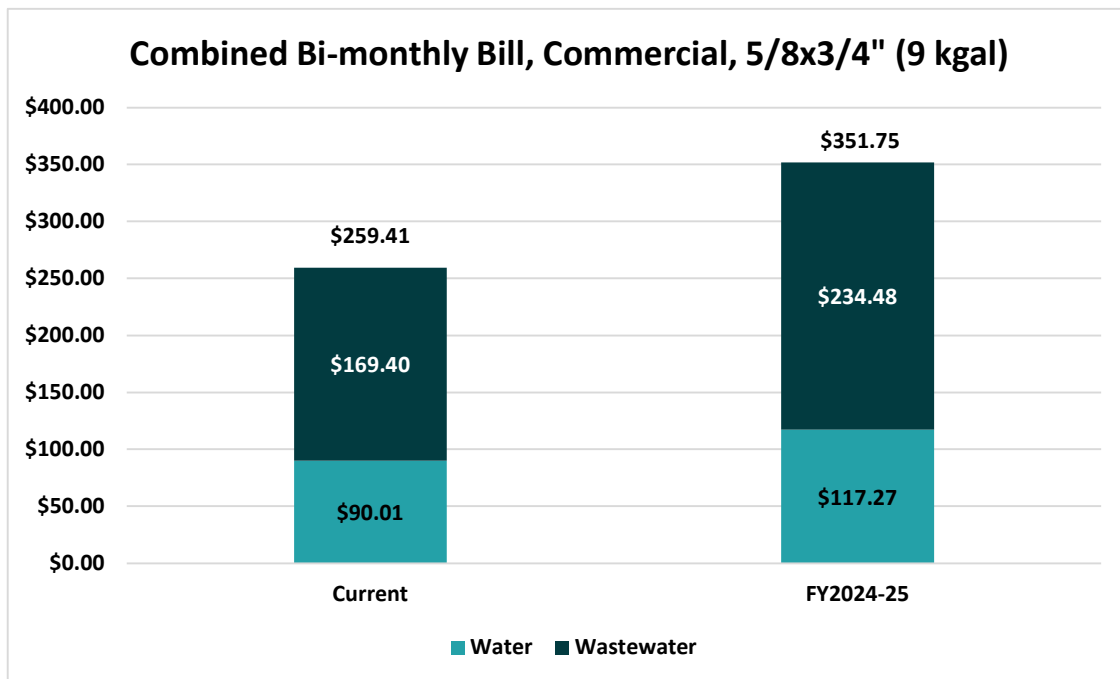
Figure 1-12: Sample Combined Water & Wastewater Single Family Bill

Figure 1-13 shows the combined commercial water and wastewater bill at a medium usage of 9 kgal.

Figure 1-13: Combined Commercial Water and Wastewater Bill, FY 2024-25

2. Rate Setting Methodology

This study was conducted using industry-standard principles outlined by the American Water Works Association (AWWA) Manual M1 and Water Environment Federation (WEF) Manual of Practice No. 27. The process and approach Raftelis used in the study to determine water and wastewater rates was informed by the City's policy objectives, the current water and wastewater systems and rates, and the legal requirements in California (namely, Proposition 218). The resulting financial plans, cost of service analyses, and rate design process follows five key steps, outlined below, to determine proposed rates that fulfill the City's objectives, meet industry standards, and align with relevant regulations.

1. **Financial Plan - Projections:** The first step is to develop a multi-year financial plan that projects the City's revenues, expenses, capital project financing, annual debt service, and reserve funding. The financial plan is used to determine multi-year revenue adjustments, which allow the City to recover adequate revenues to fund expenses and reserves each year.
2. **Financial Plan - Revenue Requirement Determination:** After completing the financial plan, the rate-making process begins by determining the revenue requirement for the test year. The test year for this study is FY 2023-24 which runs from July 1, 2023 through June 30, 2024. The revenue requirement should sufficiently fund the City's operating costs, annual debt service (including coverage requirements), capital expenditures, and reserve funding as projected based on the annual budget estimates.
3. **Cost-of Service-Analysis:** The annual cost of providing water/wastewater service, or the revenue requirement, is then distributed to customer classes commensurate with their use of and burden on the water/wastewater system. A cost-of-service analysis involves the following steps:
 - a. Functionalize costs – the different components of the revenue requirement are categorized into functions such as supply, transmission/collection, storage, customer service, etc.
 - b. Allocate to cost causation components – the functionalized costs are then allocated to cost causation components such as supply, base delivery, peaking, etc. for water and collection, customer service, etc. for wastewater.
 - c. Develop unit costs – unit costs for each cost causation component are determined using units of service, such as total use, peaking units, equivalent meters, number of customers, etc., for each component.
 - d. Distribute cost components – the cost components are allocated to each customer class using the unit costs in proportion to their units of service (demand and burden on the system).

A water cost-of-service analysis also considers both the average water demand and peak demand using the best available data. Peaking costs are incurred during periods of peak consumption, most often coinciding with summer water use. Additional capacity-related costs are associated with designing, constructing, operating, maintaining, and replacing facilities to meet peak demand. Peaking imposes additional costs on a water utility and is used to determine the cost burden on peaking-related facilities such as storage and distribution infrastructure.

4. **Rate Design:** After allocating the revenue requirement to each customer class, the project team designs and calculates rates. Rates do more than simply recover costs; within the legal framework and industry standards, properly designed rates should support and optimize the City's policy objectives.

Rates also act as a public information tool in communicating these policy objectives to customers. This process also includes a rate impact analysis and sample customer bill impacts.

5. **Report Preparation and Rate Adoption:** The final step in a rate study is to develop the report in conjunction with the rate adoption process. The report documents the study results and presents the methodologies, rationale, justifications, and calculations used to determine the proposed rates.

Values shown in report tables and figures are rounded to the digit shown. Therefore, any manual reproduction of the calculations shown may not match the precise results displayed in the report.

3. Key Inputs and Assumptions

Raftelis developed a water and wastewater rate model in Microsoft Excel to project financial and rate calculations over a ten-year study period through FY 2033-34. The City's fiscal year spans from July 1 through June 30. Projections in future years are generally made based on budgeted FY 2023-24 data using the key assumptions outlined below. All assumptions were discussed with and reviewed by City staff to ensure that the City's unique characteristics were incorporated. Note that most table values shown throughout this report are rounded to the last digit shown and, therefore, may not calculate precisely to the values shown.

3.1. Current Water Rates

Table 3-1 shows the current adopted water rates developed during the prior rate study. Customers are currently subject to two charges: 1) bi-monthly Fixed Meter Charges and 2) Volume Charges per one thousand gallons (kgal) of water delivered, which is the same for all classes. The City recently switched from metering in hundred cubic feet (ccf)¹ to kgal, so the table shows the equivalent volumetric charge on a \$/ccf and \$/kgal basis.

Table 3-1: Current Water Rate Structure

Charge Type	Unit Rate
Bi-Monthly Charge, \$/mo	
5/8"x3/4"	\$49.33
3/4"	\$49.33
1"	\$82.41
1.5"	\$164.13
2"	\$262.77
3"	\$575.37
4"	\$821.78
Volumetric Rate	
\$/ccf	\$3.38
\$/kgal	\$4.52
Hydrant Flat Fee, \$/mo	\$36.00

3.2. Current Wastewater Rates

Table 3-2 shows the current adopted wastewater rates. Customers are charged a bi-monthly service charge based on meter size and a volumetric rate based on average winter use for residential customers or billed water use for all other customers. The proposed rates presented in this report maintain a fixed charge by meter but adjust the differentiating ratios based on winter water use (a proxy for wastewater generation) rather than hydraulic capacity, which represents the potential water demand of water *through* the meter. This approach is more representative of wastewater generation patterns and in Raftelis' professional judgment a fairer approach between meter classes.

¹ One ccf is approximately 748 gallons. One kgal is 1,000 gallons.

Table 3-2: Current Wastewater Rates

Charge Type	Unit Rate
Bi-Monthly Charge, \$/mo	
5/8"x3/4"	\$76.61
3/4"	\$76.61
1"	\$127.97
1.5"	\$254.86
2"	\$408.03
3"	\$893.44
4"	\$1,276.06
Volumetric Rate	
\$/ccf	\$7.71
\$/kgal	\$10.31

3.3. Projected Service Connections

3.3.1. Water

Table 3-3 shows the actual number of potable water accounts by meter size for FY 2021-22 and the projected number of accounts through the rate-setting period. Based on discussions with City staff, the total number of residential accounts is projected to increase at 0.5 percent per year. Other customer types are presumed to stay flat. The number of accounts is used to forecast the amount of fixed revenue the City will receive from the monthly meter charges and the annual water use. FY 2021-22 metered connection data was the most recent complete year available at the time the rate study was initiated.

Table 3-3: Projected Number of Water Meters

Meter Size	FY2021-22	FY2022-23	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
5/8"x3/4"	2,547	2,559	2,570	2,582	2,593	2,605	2,617	2,629
3/4"	53	53	54	54	54	54	55	55
1"	207	208	208	209	209	210	210	211
1.5"	82	82	82	82	82	83	83	83
2"	58	58	58	58	58	58	58	58
3"	10	10	10	10	10	10	10	10
4"	3	3	3	3	3	3	3	3
Construction	10	10	10	10	10	10	10	10
Total	2,970	2,982	2,995	3,008	3,020	3,033	3,046	3,059

3.3.2. Wastewater

Table 3-4 shows the current and projected wastewater meters. The number of smaller meter sizes, most common for residential customers, are projected to increase at 0.5 percent per year. The number of other meter sizes are presumed to stay flat. The FY 2021-22 metered connection data was the most recent complete year available at the time the rate study was initiated.

Table 3-4: Projected Wastewater Meters

Meter Size	FY2021-22	FY2022-23	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
5/8"x3/4"	2,493	2,505	2,518	2,531	2,543	2,556	2,569	2,582
3/4"	24	24	24	24	24	25	25	25
1"	100	101	101	102	102	103	103	104
1.5"	52	52	52	52	52	52	52	52
2"	44	44	44	44	44	44	44	44
3"	8	8	8	8	8	8	8	8
4"	3	3	3	3	3	3	3	3
Total	2,724	2,737	2,750	2,763	2,777	2,790	2,803	2,817

3.4. Water Use Assumptions

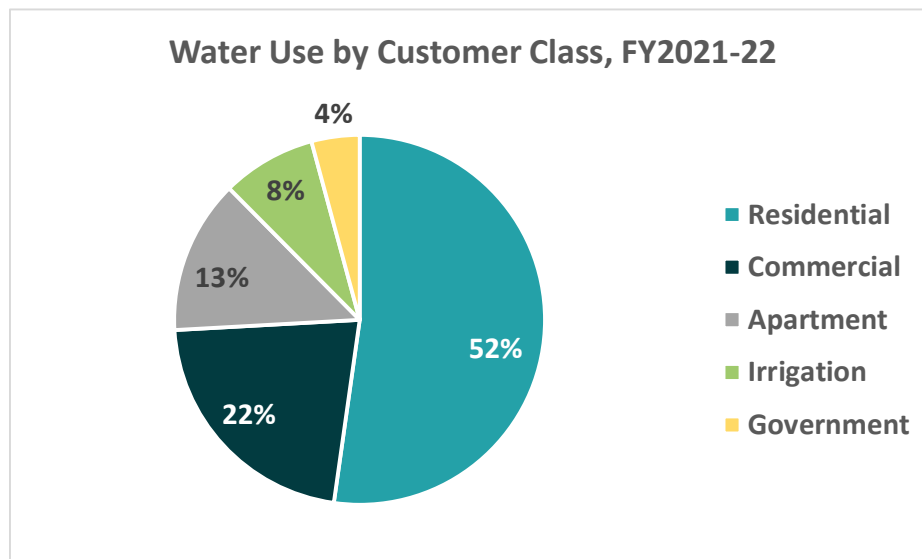
FY 2021-22 water use data was the most recent complete year available at the time the rate study was initiated. Projected water use presumes that customers within each customer class continue to use water similarly to recent, historical water use on an average per account basis. Water utilities across California have experienced significant declines in per capita water use in the past decade with periods of multi-year drought and record or near record winters. Throughout the state, water service providers are being conservative in their per capita projections so as not to overestimate rebounds in customer demands and therefore over-estimate rate revenues.

Account growth is applied to the number of accounts for each class to determine the water sales each year. Assumptions of account growth and resulting water sales are shown in Table 3-5. The “Year-to-Year Change” line shows that fiscal year’s consumption in relation to the previous fiscal year. Since account growth is only anticipated for residential customers, overall water sales are projected to increase at slightly less than the residential account growth.

Table 3-5: Account Growth and Water Use Assumptions

	FY2022-23	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
Account Growth							
Residential	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
Non-Residential	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Water Sold (kgal)	268,311	269,193	270,080	270,972	271,867	272,768	273,673
Year-to-Year Change		0.3%	0.3%	0.3%	0.3%	0.3%	0.3%

Figure 3-1 shows the percent of total use in FY 2021-22 for the different customer classes.

Figure 3-1: Water Use by Customer Class, FY 2021-22

3.5. Wastewater Flow Assumptions

Table 3-6 shows the projected wastewater flows. Flow for residential customers is based on the average winter water use. Flow for other customers equals water use.

Table 3-6: Projected Wastewater Flows, kgal

	FY2021-22	FY2022-23	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
Residential	69,194	69,540	69,888	70,237	70,588	70,941	71,296	71,652
Non-Residential	84,302	84,302	84,302	84,302	84,302	84,302	84,302	84,302
Total	153,496	153,842	154,190	154,539	154,891	155,244	155,598	155,955

3.6. Water and Wastewater Financial Plan Assumptions

Inflationary assumptions shown in Table 3-7 are used to project O&M expenses beyond FY 2023-24.

To ensure that future costs are reasonably projected, Raftelis worked with the City to generate assumptions regarding inflationary factors as shown in Table 3-7. The inflationary factors shown in Table 3-7 were then applied to the FY 2023-24 budgeted cost estimates to develop the FY 2024-25 and subsequent year estimates. Factors for FY 2029-30 through FY 2033-34 are the same as FY 2028-29. These inflationary assumptions are not applied to FY 2023-24, where Raftelis uses the budgeted numbers provided by the City. Subregional represents the wastewater treatment costs incurred by the City for treating water at Santa Rosa Water's Laguna Wastewater Treatment Plant and is applied to wastewater treatment costs.

Table 3-7: Inflationary Assumptions

	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
General	3.0%	3.0%	3.0%	3.0%	3.0%
Salary	3.0%	3.0%	3.0%	3.0%	3.0%
Benefits	7.0%	7.0%	7.0%	5.0%	6.0%
Utilities	10.0%	10.0%	7.0%	7.0%	5.0%
Subregional	6.0%	6.0%	6.0%	6.0%	6.0%
Capital	6.0%	6.0%	6.0%	6.0%	6.0%

Interest earnings on cash reserves are projected, assuming a 3.5 percent annual interest rate.

The financial plans also include additional staffing. In FY 2024-25 one additional laborer is transferred to public works temporarily to support water and wastewater equally. In FY 2026-27 that laborer is transferred back to their original department and one new maintenance worker is added to support water and wastewater equally.

4. Water Financial Plan

This section describes the assumptions used in projecting water enterprise operating and capital expenses as well as reserve coverage requirements for the ten-year study period (FY 2025 – FY 2034) plus the current fiscal year. These assumptions determine the overall revenue adjustments and the total amount of revenue required from rates. The revenue covers operating and maintenance (O&M), capital expenses, and reserve funding. Revenue adjustments represent the average rate increase for the City as a whole; rate changes for individual customers depend on the cost-of-service analysis described in the following chapter.

Financial plan assumptions were provided by and discussed in detail with City staff. The assumptions shown in Table 3-7 were incorporated into the financial plan. To develop the financial plan, Raftelis projected annual expenses and revenues, modeled reserve balances, added planned capital expenditures, and debt coverage. While the water operating fund currently has outstanding debt, according to City staff, the water fund does not have to meet debt coverage ratios associated with this debt. However, the City is planning to debt finance the Well 4 replacement project, which will likely have a minimum coverage requirement which requires the enterprise to generate a minimum amount of net revenues (gross revenues, less operating expenses) relative to the amount of annual debt service. This section of the report provides a discussion of projected revenue, O&M expenses, the CIP, reserve funding under existing rates, and the revenue adjustments needed to achieve fiscal sustainability.

4.1. Current Rate Revenue

The City's revenues consist of rate revenues, interest earnings on cash reserves, and other miscellaneous revenues. The rate revenue projections shown below assume that the current FY 2023-24 (Table 3-1) rates are effective throughout the study period and, therefore, represent estimated revenues in the absence of any rate increase. This status quo scenario provides a baseline from which Raftelis evaluates the need for revenue adjustments.

4.1.1. Calculated Water Rate Revenues

Raftelis projected water rate revenues from fixed meter charges and volume charges for FY 2023-24 through FY 2033-34 based on current FY 2023-24 water rates, the projected number of water meters, and projected annual water use.

The City collects a fixed bi-monthly service charge from its customers based on meter size, as shown in Table 4-1. Fixed charge revenues are calculated by meter size in each year as follows based on current FY 2023-24 water rates and projected number of meters (Table 3-3)².

$$\text{Annual Fixed Charge Revenue for } 5/8'' \times 3/4'' \text{ meter} = [\text{FY 2023-24 fixed bi-monthly rate } 5/8'' \times 3/4'' \text{ meter}] \times [\text{Number of } 5/8'' \times 3/4'' \text{ connections}] \times [6 \text{ Bills per year}]$$

² The example is shown for a 5/8" x 3/4" meter. The same formula is applied for each meter size.

Table 4-1: Projected Fixed Charge Revenues Under Current Rates

Meter Size	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
5/8"x3/4"	\$760,686	\$764,124	\$767,579	\$771,051	\$774,541	\$778,048
3/4"	\$15,838	\$15,914	\$15,991	\$16,068	\$16,145	\$16,223
1"	\$102,894	\$103,166	\$103,439	\$103,714	\$103,990	\$104,268
1.5"	\$80,959	\$81,064	\$81,169	\$81,274	\$81,380	\$81,487
2"	\$91,602	\$91,682	\$91,762	\$91,842	\$91,923	\$92,004
3"	\$34,695	\$34,782	\$34,870	\$34,958	\$35,047	\$35,135
4"	\$14,891	\$14,941	\$14,991	\$15,041	\$15,092	\$15,142
Construction	\$2,160	\$2,160	\$2,160	\$2,160	\$2,160	\$2,160
Total	\$1,103,725	\$1,107,832	\$1,111,960	\$1,116,109	\$1,120,278	\$1,124,468

Table 4-2 shows projected volume charge revenues under current rates over the rate-setting period. Volume charge revenues are calculated by customer class in each year as follows based on current FY 2023-24 water rates³ and projected water use (Table 3-5).

$$\text{Annual Volume Charge Revenue} = [\text{FY 2023-24 rate per unit (kgal)}] \times [\text{Annual Water Use}]$$

Table 4-2: Projected Volume Charge Revenue Under Current Rates

Customer Class	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2027-29
Residential	\$637,278	\$640,464	\$643,666	\$646,885	\$650,119	\$653,370
Apartment	\$164,327	\$165,148	\$165,974	\$166,804	\$167,638	\$168,476
Commercial	\$264,653	\$264,653	\$264,653	\$264,653	\$264,653	\$264,653
Irrigation	\$99,669	\$99,669	\$99,669	\$99,669	\$99,669	\$99,669
Government	\$50,481	\$50,481	\$50,481	\$50,481	\$50,481	\$50,481
Total	\$1,216,408	\$1,220,416	\$1,224,444	\$1,228,492	\$1,232,560	\$1,236,649

4.1.2. Other Revenues

Table 4-3 shows all other revenues over the rate-setting period. All FY 2023-24 other revenues are based on the City's FY 2023-24 budget. Additional revenues from FY 2024-25 through FY 2033-34 were projected by Raftelis. New service fees, water meter sales, and penalties are forecast to increase similarly to the overall increase in the number of meters. Insurance claim costs are presumed to increase at 1.5 percent per year. Interest revenue is estimated beginning in FY 2024-25 based on estimated beginning fund balances, revenues and expenses, and the assumed interest rate. Since the fund is in a deficit under the status quo, no interest revenue is earned. The other items remain flat.

³ The City's existing water rate structure consists of a single, uniform water use rate for all classes and all units of water consumed.

Table 4-3: Projected Other Water Enterprise Revenues

	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2027-29
Interest Income	\$35,000	\$0	\$0	\$0	\$0	\$0
Backflow Inspections	\$643	\$643	\$643	\$643	\$643	\$643
New Service Fee	\$36,460	\$36,614	\$36,769	\$36,925	\$37,081	\$37,238
Water Meter Sales	\$8,579	\$8,615	\$8,652	\$8,688	\$8,725	\$8,762
Penalties	\$15,013	\$15,076	\$15,140	\$15,204	\$15,269	\$15,333
Miscellaneous Income	\$2,145	\$2,145	\$2,145	\$2,145	\$2,145	\$2,145
Total	\$97,840	\$63,094	\$63,349	\$63,605	\$63,863	\$64,122

4.2. Operations and Maintenance Expenses

The City's expenses include operations and maintenance expenses, capital expenses, and transfers to the general fund to pay a share of debt service payments for shared facilities. This section discusses the details of each of these expenses.

4.2.1. Total Operations and Maintenance Budget

The City provided Raftelis with its water enterprise budget and projected general and administration costs for FY 2023-24. The City also provided the general and administration costs for FY 2024-25 based on a revised capital allocation plan. Sebastopol City Council had previously directed staff to complete the City's General and Administrative cost allocation study (also known as G&A Allocation Study) to properly distribute the costs of overhead among City functions. The G&A Allocation Study was accepted by Council at their February 20, 2024 meeting and results in a decrease of allocation to the water and wastewater enterprise funds effective July 1, 2024. To project the City's O&M expenses in future years, Raftelis used the escalation percentages shown in Table 3-7 to project future expenses. A summary of the budgeted and projected O&M expenses over the rate-setting period is shown in Table 4-4. Approximately 68 percent of general and admin (G&A) costs are for finance, engineering, and public works.

Table 4-4: Summary of Projected Water Operations and Maintenance Expenses

Line Item	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
Salaries & Benefits	\$498,327	\$564,063	\$586,907	\$648,049	\$671,283	\$697,396
Materials, Supplies & Equipment	\$163,722	\$168,633	\$173,692	\$178,903	\$184,270	\$189,798
Replacement Program	\$15,226	\$15,734	\$16,260	\$16,803	\$17,364	\$17,945
Utilities	\$272,541	\$300,256	\$330,828	\$354,825	\$380,579	\$400,745
Capital Outlay	\$41,647	\$42,896	\$44,183	\$45,509	\$46,874	\$48,280
Other	\$365,441	\$258,262	\$266,032	\$274,037	\$282,282	\$290,776
G&A Allocation	\$1,363,097	\$852,863	\$823,801	\$882,031	\$919,522	\$955,710
Total	\$2,720,000	\$2,202,707	\$2,241,703	\$2,400,156	\$2,502,175	\$2,600,650

4.2.2. Capital Improvement Plan

Table 4-5 shows the City's plan for water capital improvements over the rate-setting period. The CIP is inflated by 6 percent per year to reflect projected inflationary increases from an uninflated base of FY 2022-23 except for the current year, which is in FY 2023-24 dollars.

Table 4-5: Projected Capital Improvement Projects

Project	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
Parquet Street Water Line Replacement	\$530,000	\$0	\$0	\$0	\$0	\$0
Well 4 Replacement	\$0	\$0	\$400,000	\$2,600,000	\$0	\$0
Water System Master Plan Update	\$0	\$120,000	\$0	\$0	\$0	\$0
Replacement program-set aside	\$0	\$0	\$300,000	\$300,000	\$300,000	\$600,000
Total Uninflated	\$530,000	\$120,000	\$700,000	\$2,900,000	\$300,000	\$600,000
Total Inflated	\$530,000	\$134,832	\$833,711	\$3,661,183	\$401,468	\$851,111

4.2.3. Existing and Proposed Debt Service

The water fund has two outstanding debts and pays a portion of general fund debt related to shared facilities, as shown in Table 4-6. According to City staff, the water fund does not have any debt service coverage requirements for these loans.

Table 4-6: Existing Debt Service

Debt	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28
CREBS	\$62,048	\$0	\$0	\$0	\$0
Well #7 Loan	\$83,955	\$83,954	\$83,954	\$83,954	\$83,955
Infrastructure Lease*	\$66,109	\$66,109	\$66,109	\$0	\$0
TELPA*	\$168,592	\$168,592	\$168,592	\$168,592	\$168,592
Total	\$380,704	\$318,656	\$318,656	\$252,547	\$252,547

* Water Portion

The City plans to debt fund the Well 4 replacement project. Based on discussions with City staff, Raftelis has presumed revenue bond-like terms of 5 percent interest, a 30-year term, and a 1.0 percent issuance cost. The modeled debt service is shown in Table 4-7. As the project gets closer to construction, the City should work with its financial advisor to determine the best financing arrangement and timing.

Table 4-7: Proposed Debt Service

Debt	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
Well 4 Replacement	\$0	\$0	\$0	\$246,964	\$246,964	\$246,964

4.3. Reserve Targets

The City maintains a water operating reserve fund.

Operating Reserve – The Operating Reserve is used primarily to meet ongoing cash flow requirements. The City’s minimum reserve target is set at 25 percent (three months) of water operating and maintenance expenses plus annual debt service.

Capital Reserve – The City does not have a capital reserve.

Recommended Operating Reserve – Given the City bills bi-monthly, Raftelis recommends the City eventually move to a 120-day operating reserve once the fund has become self-sufficient by meeting annual operating,

debt service, and cash-capital needs as well as the current operating reserve target. We recommend that the City evaluate this policy in the intervening years or as part of the next rate cycle.

Recommended Capital Reserve -- A common reserve target is 100 percent – 150 percent of the annual average 5-year capital improvement program. The City may also want to consider an emergency reserve fund. Given the water fund's tenuous position, Raftelis recommends implementing a capital reserve and possibly an emergency reserve target once the fund has become self-sufficient by meeting annual operating, debt service, cash-capital needs, and the current operating reserve target. We recommend that the City evaluate this policy in the intervening years or as part of the next rate cycle, once a Water System Master Plan is completed.

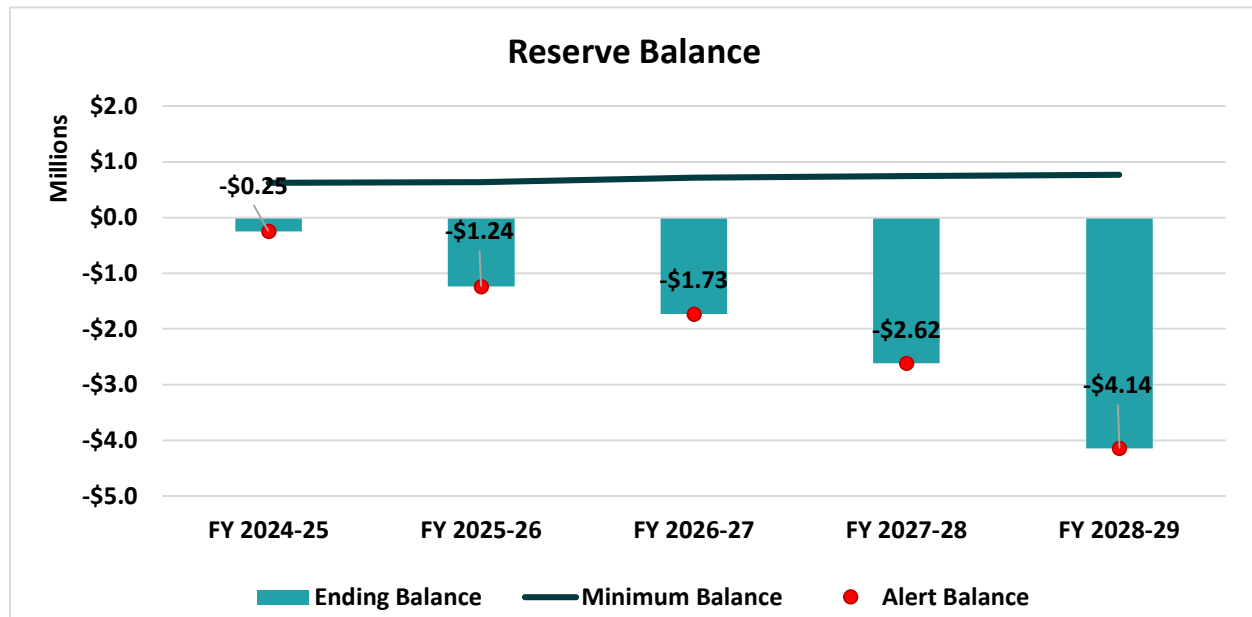
4.4. Status Quo Financial Plan

To demonstrate the importance of increasing revenue to keep up with costs, Raftelis modeled a 'status quo' version of the financial plan. This financial plan scenario examines reserve balances, costs, and revenues. It also assumes that there are no revenue adjustments during the study period to establish a baseline for other model scenarios. Table 4-8 shows a summary cashflow for the water enterprise over the rate-setting period, assuming no rate increases. Without increases existing revenues only recover O&M costs in some years; and even in those years revenues are insufficient to recover debt service and cash funded capital. The water fund balance turns increasingly negative in FY 2024-25 and beyond.

Table 4-8: Status Quo Summary Water Cashflow

Line Item	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
Beginning Balance	\$1,225,855	\$13,123	-\$249,571	-\$1,241,728	-\$1,731,029	-\$2,617,659
Revenues						
Rate-Based	\$2,317,972	\$2,328,248	\$2,336,404	\$2,344,600	\$2,352,838	\$2,361,117
Other	\$100,000	\$65,254	\$65,509	\$65,765	\$66,023	\$66,282
Total Revenue	\$2,417,972	\$2,393,502	\$2,401,913	\$2,410,366	\$2,418,861	\$2,427,399
O&M	\$2,720,000	\$2,202,707	\$2,241,703	\$2,400,156	\$2,502,175	\$2,600,650
Net Revenue	-\$302,028	\$190,794	\$160,209	\$10,209	-\$83,314	-\$173,251
Capital-Related Expenses						
Debt Service	\$380,704	\$318,656	\$318,656	\$499,510	\$499,511	\$499,511
Cash Capital	\$530,000	\$134,832	\$833,711	\$0	\$303,805	\$851,111
Total Capital Expenses	\$910,704	\$453,488	\$1,152,367	\$499,510	\$803,316	\$1,350,622
Annual Surplus/Deficit	-\$1,212,732	-\$262,694	-\$992,158	-\$489,301	-\$886,630	-\$1,523,873
Ending Balance	\$13,123	-\$249,571	-\$1,241,728	-\$1,731,029	-\$2,617,659	-\$4,141,532
Reserve Target	\$764,557	\$621,706	\$631,321	\$714,986	\$740,142	\$764,423

Figure 4-1 shows the projected ending balance versus the target balance. This status quo model shows the need for rate revenue increases since negative ending balances start in FY 2024-25.

Figure 4-1: Reserve Balances Under the Status Quo

4.5. Proposed Financial Plan and Revenue Adjustments

The proposed revenue adjustments help ensure adequate revenue to fund operating expenses, capital expenditures, and meet reserve minimums. The Financial Plan modeling assumes the first revenue adjustment occurs on July 1, 2024 and on July 1 in subsequent years. The proposed revenue adjustments will enable the City to meet operating costs and to execute the CIP shown in Table 4-5, and achieve current reserve minimums in FY 2025-26. Table 4-9 shows the proposed revenue adjustments for the rate-setting period.

Table 4-9: Proposed Water Revenue Adjustments

Fiscal Year	Revenue Adjustment
FY 2024-25	37.0%
FY 2025-26	4.0%
FY 2026-27	4.0%
FY 2027-28	3.5%
FY 2028-29	3.5%

Table 4-10 shows the cash flow detail over the rate-setting period for the water operating fund assuming the revenue adjustments shown above. Line 1 shows the projected rate-revenue under existing rates. Line 2 shows the forecast adjusted revenue from the proposed revenue adjustments. Line 5 shows total water fund revenue including non-operating revenues and interest. Line 8 shows total O&M expenses. Line 9 shows net revenues, or revenues less expenses, which is the result of subtracting Line 8 from Line 5. Line 12 shows the projected debt service payments. Line 13 shows the cash-funded capital. Line 14 shows the annual surplus or deficit, which is Line 9 less Line 12 less Line 13. Line 15 shows the enterprise's operating balance at the start of the fiscal year. The ending fund balance in Line 16 is the beginning balance (Line 14) plus the annual surplus or deficit (Line 14). Line 17 shows the minimum operating reserve level.

Table 4-10: Water Operating Cashflow

No.	Line Item	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
1	Revenue Under Existing Rates	\$2,317,972	\$2,328,248	\$2,336,404	\$2,344,600	\$2,352,838	\$2,361,117
2	Additional Rate-Revenue	\$0	\$861,452	\$992,504	\$1,129,610	\$1,255,603	\$1,386,761
	Other Revenue						
3	Interest	\$35,000	\$11,132	\$22,200	\$34,402	\$53,605	\$59,644
4	Miscellaneous	\$65,000	\$65,254	\$65,509	\$65,765	\$66,023	\$66,282
5	Total Revenue	\$2,417,972	\$3,266,086	\$3,416,617	\$3,574,377	\$3,728,069	\$3,873,804
	O&M Expenses						
6	Operating Expenditure	\$1,356,903	\$1,349,844	\$1,417,902	\$1,518,125	\$1,582,653	\$1,644,940
7	G&A Allocation	\$1,363,097	\$852,863	\$823,801	\$882,031	\$919,522	\$955,710
8	Total O&M Expenses	\$2,720,000	\$2,202,707	\$2,241,703	\$2,400,156	\$2,502,175	\$2,600,650
9	Net Revenue	-\$302,028	\$1,063,378	\$1,174,914	\$1,174,221	\$1,225,894	\$1,273,154
	Debt Service						
10	Existing	\$380,704	\$318,656	\$318,656	\$252,547	\$252,547	\$252,547
11	Proposed	\$0	\$0	\$0	\$246,964	\$246,964	\$246,964
12	Total Debt Service	\$380,704	\$318,656	\$318,656	\$499,510	\$499,511	\$499,511
13	Cash Funded Capital	\$530,000	\$134,832	\$833,711	\$0	\$303,805	\$851,111
14	Annual Surplus/Deficit	-\$1,212,732	\$609,890	\$22,547	\$674,711	\$422,578	-\$77,468
15	Beginning Balance	\$1,225,855	\$13,123	\$623,014	\$645,560	\$1,320,271	\$1,742,849
16	Ending Balance	\$13,123	\$623,014	\$645,560	\$1,320,271	\$1,742,849	\$1,665,381
17	Minimum Reserve Level	\$764,557	\$621,706	\$631,321	\$714,986	\$740,142	\$764,423

Figure 4-2 through Figure 4-4 display the FY 2024-25 through FY 2028-29 Financial Plan in graphical form. Figure 4-2 illustrates the Operating Financial Plan – it compares existing (blue line) and proposed revenues (black line) with projected expenses (stacked columns). The yellow bars above the axis show the net cash used to build up the reserves and the bars below the axis show the withdrawals from reserves to fund costs. Projected revenue from existing rates, if continued unchanged, would not meet future projected total expenses and illustrates the need for revenue adjustments necessary to maintain operations, accomplish the desired CIP, and to eventually meet reserve minimums.

Figure 4-2: Proposed Water Operating Financial Plan

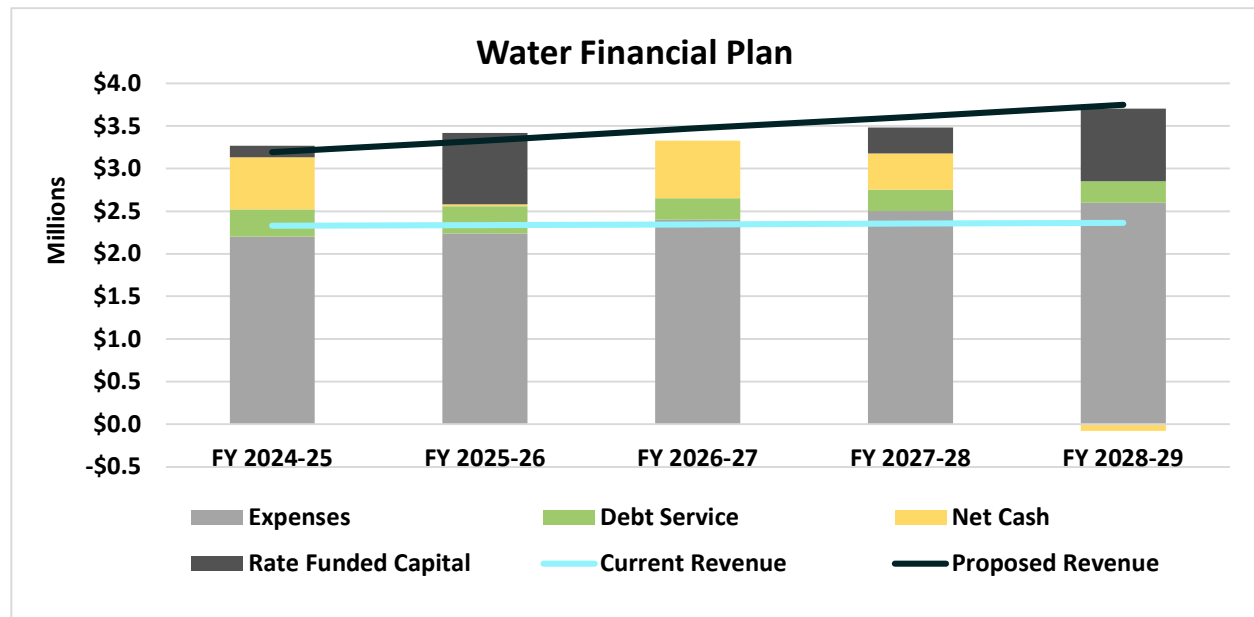


Figure 4-3 summarizes the projected CIP and its funding sources: cash funded (rate-based revenue) and debt financing.

Figure 4-3: Projected Water Capital Plan and Funding Sources

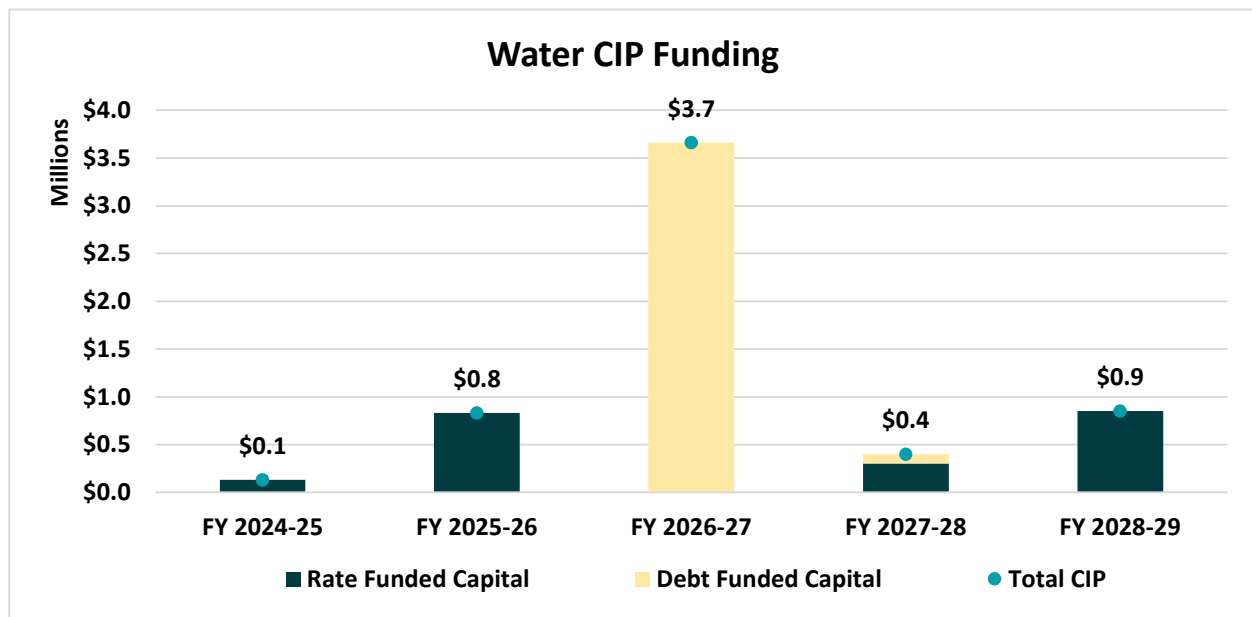
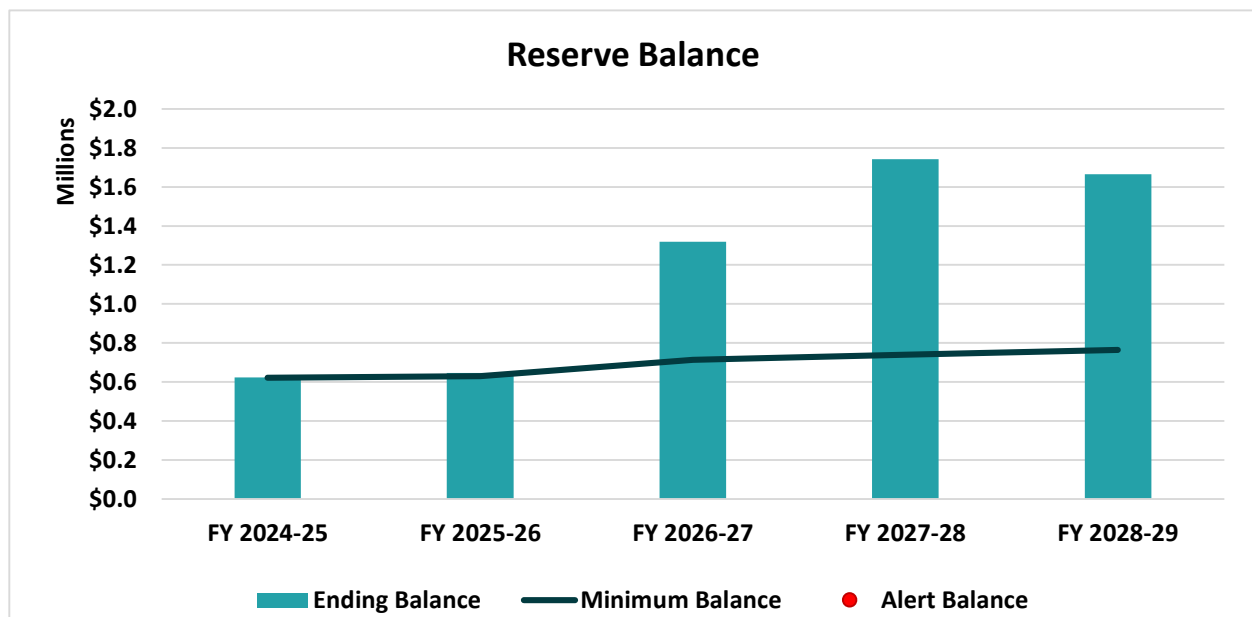


Figure 4-4 displays the projected total yearly ending balance (teal bars). The black line is the minimum fund balance, which is 25 percent of annual operating and maintenance and debt service costs. As shown, the fund is projected to return to the minimum balance in FY 2024-25. While the outyears show the balance remaining above the minimum reserves, Raftelis recommends the City consider increasing the minimum reserves as discussed in Section 4.3 once the fund has become self-sufficient by meeting annual operating, debt service, and cash-capital needs as well as the current operating reserve minimum.

Figure 4-4: Projected Water Enterprise Reserve Balance



5. Water Cost-of-Service Analysis

A cost-of-service analysis distributes a utility's revenue requirement (costs) to each customer class. This section explains the details of the cost-of-service analysis conducted for the City for providing water services to customers.

After determining a utility's revenue requirement, the next step in a cost-of-service analysis is to functionalize its O&M costs to the following functions:

- Wells – cost of supplying groundwater
- Storage – cost associated with storing treated water
- Treatment – cost of treating water to drinking water standards
- Transmission and Distribution (T&D) – cost associated with pipes, pumps, mains, etc
- Meters– costs associated with meter maintenance and replacement
- Customer Service – costs associated with meter reading, billing, and customer service
- General and Administration (G&A) – general and administrative costs incurred by the City
- Fire protection – costs associated with public fire hydrants

The functionalization of costs allows us to better allocate the costs to the rate components: monthly service charge and volumetric charge.

5.1. Revenue Requirement Determination

Table 5-1 shows the net revenue requirement from rates for FY 2024, the test year. The total revenue requirement shown in Line 6 is equal to operating expenses (Table 4-4), capital expenses (Table 4-5), and debt service (Table 4-6). Other operating revenues, totaled in Line 9, comprise miscellaneous revenues and interest income (Table 4-3), which reduce the total revenue required from rates. The adjustment for cash (Line 10) is subtracted to account for the withdrawal from reserves to help cover revenue requirements. The revenue required from rates is equal to the total revenue requirements less other operating revenues and adjustments (Line 12).

Table 5-1: Water Revenue Requirement Determination, FY 2024

No.	Line Item	Operating	Capital	Total
Expenses				
1	Operating Expenditure	\$1,356,903		\$1,356,903
2	G&A Allocation	\$1,363,097		\$1,363,097
3	Existing Debt Service		\$380,704	\$380,704
4	Proposed Debt Service		\$0	\$0
5	Rate Funded Capital Projects		\$530,000	\$530,000
6	Subtotal	\$2,720,000	\$910,704	\$3,630,704
Less: Offsets				
7	Interest Revenue		\$35,000	\$35,000
8	Misc. Revenue	\$65,000		\$65,000
9	Subtotal	\$65,000	\$35,000	\$100,000
Less: Adjustments				
10	Adjustment for Cash Balance	\$1,212,732		\$1,212,732
11	Subtotal	\$1,212,732	\$0	\$1,212,732
12	Net Revenue Requirement from Rates	\$1,442,268	\$875,704	\$2,317,972

5.2. Functionalization of Net Revenue Requirement

Functionalizing expenses allows Raftelis to follow the principles of rate setting theory in which the end goal is to allocate the City's revenue requirements to cost causation components. Table 5-2 shows the resulting functionalization of the City's O&M expenses (Line 6, Table 5-1) and O&M offsets (Lines 9 and 11, Table 5-1). Raftelis worked with City staff to functionalize the test year O&M line items to the functions listed at the beginning of Section 5 (see Appendix A). O&M offsets are allocated in the same proportion as the total O&M revenue requirements excluding supply costs.

Table 5-2: Functionalization of Net O&M

Function	O&M	O&M Offsets	Net O&M
Wells	\$506,864	-\$238,101	\$268,762
Storage	\$92,779	-\$43,583	\$49,195
Meters	\$23,621	-\$11,096	\$12,525
Customer Service	\$14,367	-\$6,749	\$7,618
Public Fire	\$110,100	-\$51,720	\$58,380
T&D	\$351,354	-\$165,050	\$186,304
Treatment	\$307,748	-\$144,566	\$163,182
General & Admin	\$1,313,168	-\$616,867	\$696,302
Total	\$2,720,000	-\$1,277,732	\$1,442,268

Table 5-3 shows the functionalization of net capital costs (Line 12, Table 5-1). The costs are allocated in proportion to the City's water assets.

Table 5-3: Functionalization of Net Capital

Function	Asset	Capital-Related
Wells	\$598,483	\$150,525
Storage	\$368,517	\$92,686
Meters	\$0	\$0
Customer Service	\$7,684	\$1,933
Public Fire	\$0	\$0
T&D	\$970,131	\$243,998
Treatment	\$1,320,938	\$332,230
General & Admin	\$216,028	\$54,333
Total	\$3,481,782	\$875,704

5.3. Allocation of Functionalized Net Revenue Requirements to Cost Components

After functionalizing the net revenue requirements, the next step is to allocate the functionalized net revenue requirements to the following cost causation components.

- Base – fixed costs associated with providing service under average demand conditions
- Peaking (Max Day and Peak Hour) – costs associated with meeting demand in excess of average use
- Equivalent Meters – costs associated with meter maintenance and replacement
- Customer Service – the costs associated with meter reading, billing, and customer service
- Public Fire – costs associated with system fireflow and public fire hydrants
- General and Administration (G&A) – general and administrative costs incurred by the City

5.3.1. Proposed Water Rate Structure Modifications

Raftelis worked closely with City staff to evaluate potential changes to the existing water rate structure. All proposed water rates presented in subsequent sections incorporate the following recommended revisions to the existing water rate structure.

- **Single Family Residential Tiers:** Raftelis proposes that the City introduce a three-tiered rate structure for customers identified as Residential in the billing database. Tier 1 will be defined as the first 7 units (kgal) of water in a two-month period (i.e., bi-monthly), which represents use up to the lowest average water use per billing period during the winter months. Winter use approximates essential indoor water use—for cooking, drinking, and sanitation, and not outdoor irrigation. Over an entire year, 55 percent of residential billed usage falls between 0 - 7 kgal. Tier 2 will include use greater than Tier 1, up to 16 kgal per billing period, which is based on the highest average water use per billing period during the summer months. This tier is designed to approximate water used for outdoor irrigation by Residential users in the City's service area. Approximately 25 percent of annual residential usage falls between 8 – 16 kgal. Tier 3 will include all use greater than Tier 2, which is approximately 20 percent residential usage. Single Family Residential is a homogenous customer class, which has similar indoor needs for health and sanitation, similar outdoor irrigation needs, and similar seasonality in these demand patterns. It is therefore appropriate to tier this class of like customers. The three-tier structure will provide lower cost water in the first tier and higher costs in the second and third tiers. This type of structure promotes affordability of service for lower to average use residential customers while including a conservation price signal between the tiers. It also ensures fairness in rates between those

customers that impose higher peak demands on the water system and those who do not. The proposed monthly allotments for residential customers are shown below in Table 5-4.

- **All Other Classes:** Raftelis recommends that all other customer classes be billed a uniform rate by class. Based on the billing data, two distinct classes are identified: Commercial (which also includes Apartments, Non-Profit, and Government as identified in the billing data) and Irrigation. Non-residential classes have highly varying demand patterns based on the type of business or seasonal transient effects. For this reason a uniform rate by class is an industry standard and proposed in this study.

Table 5-4: Proposed Changes to the Water Rate Structure

Description	Current Bi-Monthly Allotment	Proposed Bi-Monthly Allotment
Single Family Residential		
Tier 1		0 - 7 kgal
Tier 2	Single Uniform Rate for All Customers	8 - 16 kgal
Tier 3		> 16 kgal
All Other Classes		Uniform by Class

Table 5-5 shows estimated water use by class and tier under the proposed structure. All projections are based on detailed account-level analysis of FY 2021-22 actual water use (the most recent complete year of billing data available at the time this study commenced). Raftelis projects that approximately 52 percent of all water use is by Single Family Residential customers, 39 percent by Commercial classified users, and the remaining 9 percent of use by the Irrigation class (dedicated landscape irrigation connections).

Table 5-5: Projected Water Use by Class and Tier, Test Year

Description	Max Bi-Month (kgal)
Residential	
Tier 1: 0 - 7 kgal	76,890
Tier 2: 8 - 16 kgal	35,935
Tier 3: > 16 kgal	28,206
Other Classes	
Commercial	106,106
Irrigation	22,057
Total	269,193

5.3.2. Peaking Factors

Peaking costs are computed for a maximum day and peak hour using best available data. The maximum day (max day) demand is the maximum amount of water used in a single day in a year. The peak hour demand is the maximum amount of water used in a single hour on the maximum day. Different facilities, such as storage, distribution, and treatment facilities (and the O&M costs associated with those facilities), are designed to meet peak hour and max day demands, respectively. Therefore, extra capacity⁴ costs include the

⁴ The terms extra capacity, peaking and capacity costs are used interchangeably.

O&M and capital costs associated with meeting peak customer demand. This method is consistent with the AWWA Manual M1 and is widely used in the water industry to perform cost-of-service analyses.

Table 5-6 shows the system-wide peaking factors used to derive the cost component allocation bases for base and peaking costs. Base costs represent average daily demand during the year, which is normalized to a factor of 1.00 (Column B, Line 1). The max day and peak hour factors come from the prior rate study. The allocation bases (Columns C, D, and E) are calculated using the equations outlined below the table.

Table 5-6: Water System Peaking Factors

No.	Cost Component (A)	Demand Factor (B)	Base (C)	Max Day (D)	Max Hour (E)	Total (F)
1	Base	1.00	100%			100%
2	Max Day	1.21	83%	17%		100%
3	Max Hour	2.79	36%	8%	57%	100%

The max day allocations are calculated as follows:

- Base Delivery: $B1 / B2 \times 100\% = C2$
- Max Day: $100\% - C2 = D2$

The max hour allocations are calculated as follows:

- Base Delivery: $B1 / B3 \times 100\% = C3$
- Max Day: $(B2 - B1) / B3 \times 100\% = D3$
- Max Hour: $100\% - C3 - D3 = E3$

The max day and max hour peaking factors for each customer class and tier are shown in Table 5-7. The peaking calculations attribute peaking costs to specific customer classes and tiers based on actual water use patterns. Raftelis estimated Max Day (Column C) and Max Hour (Column D) factors based on actual FY 2021-22 water use⁵. The Max Day factor is the Max Bi-Monthly kgal (Column A) for a tier or class divided by the Average Bi-Monthly kgal (Column B) for that same tier or class. This ratio becomes the proxy for the max day factor. The Max Hour factor is the max day ratio (Column C) multiplied proportionally by the ratio of the system max hour to max day (Table 5-6).

⁵ As mentioned previously, FY 2021-22 represents the most recent complete fiscal year of data available at the start of the study.

Table 5-7: Max Day and Max Hour Capacity Factors by Class

Customer Class	Max Bi-Month (kgal) (A)	Average Bi-Month (kgal) (B)	Max Day (C)	Max Hour (D)
Single Family				
Tier 1: 0 - 7 kgal	7,211	6,321	1.14	2.63
Tier 2: 8 - 16 kgal	5,144	3,114	1.65	3.81
Tier 3: > 16 kgal	5,637	2,200	2.56	5.91
Commercial (1)	11,706	8,811	1.33	3.07
Irrigation	5,429	1,838	2.95	6.80

(1) Includes Apartment, Commercial, Government, and Non-Profit as identified in the billing database.

5.3.3. Operating and Capital Allocation

Table 5-8 shows the system functions, the rationale for allocating each function to the various cost components, and the percentage allocation to each component. Most functions have a one-to-one relationship with a cost component. All others are allocated based on either the max day or max hour basis.

Table 5-8: Allocation of Functions to Cost Components

Function	Allocation Basis	Base	Max Day	Max Hour	Meter	Customer	Public Fire Protection	General & Admin	Total
Wells	Max Day	83%	17%						100%
Storage	Max Day	83%	17%						100%
Meters	Meters				100%				100%
Customer Service	Customer Service					100%			100%
Public Fire	Public Fire						100%		100%
T&D	Max Hour	36%	8%	57%					100%
Treatment	Max Day	83%	17%	0%					100%
General & Admin	General & Admin							100%	100%

Table 5-9 shows the detailed net operating costs by cost component (Table 5-2) allocated to the cost components using the allocations shown in Table 5-8. General and administrative (G&A) costs are re-allocated like total O&M. Adding the subtotal (Line 9) and reallocating G&A (Line 11) results in the Adjusted Net O&M.

Table 5-9: Allocation of Net Operation & Maintenance to Cost Components

No.	Function	Net O&M	Base	Max Day	Max Hour	Meter	Customer	Public Fire Protection	General & Admin
1	Wells	\$268,762	\$222,118	\$46,645	\$0	\$0	\$0	\$0	\$0
2	Storage	\$49,195	\$40,657	\$8,538	\$0	\$0	\$0	\$0	\$0
3	Meters	\$12,525	\$0	\$0	\$0	\$12,525	\$0	\$0	\$0
4	Customer Service	\$7,618	\$0	\$0	\$0	\$0	\$7,618	\$0	\$0
5	Public Fire	\$58,380	\$0	\$0	\$0	\$0	\$0	\$58,380	\$0
6	T&D	\$186,304	\$66,776	\$14,023	\$105,505	\$0	\$0	\$0	\$0
7	Treatment	\$163,182	\$134,861	\$28,321	\$0	\$0	\$0	\$0	\$0
8	G&A	\$696,302	\$0	\$0	\$0	\$0	\$0	\$0	\$696,302
9	Net O&M	\$1,442,268	\$464,412	\$97,526	\$105,505	\$12,525	\$7,618	\$58,380	\$696,302
10	% Allocation w/o G&A		62%	13%	14%	2%	1%	8%	
11	Reallocate G&A		\$433,493	\$91,033	\$98,481	\$11,691	\$7,111	\$54,493	-\$696,302
12	Adjusted Net O&M		\$897,904	\$188,560	\$203,987	\$24,216	\$14,729	\$112,873	\$0

Table 5-10 shows the allocation of capital-related revenue requirement (Table 5-2, Capital-Related column) to the capital cost component.

Table 5-10: Allocation of Capital-Related Expenses to Cost Components

No.	Function	Net Capital-Related	Base	Max Day	Max Hour	Meter	Customer	Public Fire Protection	General & Admin
1	Wells	\$150,525	\$124,401	\$26,124	\$0	\$0	\$0	\$0	\$0
2	Storage	\$92,686	\$76,600	\$16,086	\$0	\$0	\$0	\$0	\$0
3	Meters	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4	Customer Service	\$1,933	\$0	\$0	\$0	\$0	\$1,933	\$0	\$0
5	Public Fire	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6	T&D	\$243,998	\$87,454	\$18,365	\$138,178	\$0	\$0	\$0	\$0
7	Treatment	\$332,230	\$274,570	\$57,660	\$0	\$0	\$0	\$0	\$0
8	G&A	\$54,333	\$0	\$0	\$0	\$0	\$0	\$0	\$54,333
9	Net Capital	\$875,704	\$563,025	\$118,235	\$138,178	\$0	\$1,933	\$0	\$54,333
10	% Allocation w/o G&A		69%	14%	17%	0%	0%	0%	
11	Reallocate G&A		\$37,244	\$7,821	\$9,140	\$0	\$128	\$0	-\$54,333
12	Adjusted Net Capital-Related		\$600,269	\$126,056	\$147,318	\$0	\$2,060	\$0	\$0

5.4. Derivation of Units of Service

5.4.1. Equivalent Meters

Equivalent meters (EMs) are used to allocate meter-related costs. Larger meters can impose greater demands on the system and are more expensive to install, maintain, and replace than smaller meters. This study uses a hydraulic capacity (capacity) ratio to calculate equivalent meters. The capacity ratio is based on meter hydraulic capacity and is calculated to represent the potential demand on the water system compared to the base meter size. A ratio of hydraulic capacity is calculated by dividing the capacity of a meter at a given size by the base meter capacity using the maximum safe operating flow rates in gallons per minute (gpm). The base meter used in the study is the 3/4" meter.

Table 5-11 shows the meter capacity and capacity ratio for each meter size. The capacity in gpm is based on the safe operating flow rates provided in the AWWA Manual M1. The capacity ratios (Column C) are

calculated by dividing the capacity in gpm (Column B) for each meter size (Column A) by the capacity in gpm for the 3/4" meter (Column B, Line 2). Meter counts (Column D) at each size are multiplied by the capacity ratio (Column C) to arrive at the total number of equivalent meters, shown in Column E. For example, there are 58, 2" meters in the water system; and those 58, 2" meters are equivalent to the system demands of 310, 3/4" meters.

Table 5-11: Equivalent Meters

No.	Meter Size (inches) (A)	AWWA Operating Capacity (B)	Ratio (C)	Total Meters (D)	Total Equivalent Meters (E)
1	5/8"x3/4"	30	1.00	2,570	2,570
2	3/4"	30	1.00	54	54
3	1"	50	1.67	208	347
4	1.5"	100	3.33	82	274
5	2"	160	5.33	58	310
6	3"	350	11.67	10	117
7	4"	630	21.00	3	63
8	Total			2,985	3,735

5.4.2. Unit Costs of Service

Raftelis calculated unit costs for each cost component by assessing the total water demand, peak water demands (max day and peak hour), meter count, or equivalent meters. Table 5-12 shows the units of service for the water system. The Max Day Capacity Factor (Column C) and the Peak Hour Capacity Factor (Column F) are the demand factors shown in Table 5-7, Column B. Max Day Total Capacity (Column D) is the Average Day Use (Column B) multiplied by the Max Day Capacity Factor (Column C). Max Day Extra Capacity (Column E) is the difference between the Max Day Total Capacity (Column D) and the Average Day (Column B). Peak Hour Total Capacity (Column G) is the Average Day (Column B) multiplied by the Peak Hour Capacity Factor (Column F). Peak Hour Extra Capacity (Column H) is the difference between the Peak Hour Total Capacity (Column G) and the Max Day Total Capacity (Column D).

Table 5-12: Units of Service

No.	Customer Class	Tier Width (kgal)	Annual Use (kgal) (A)	Average Day (kgal) (B)	Max Day Requirements			Peak Hour Requirements			Equivalent Meters (I)	Number of Meters (J)
					Capacity Factor (C)	Total Capacity (D)	Extra Capacity (E)	Capacity Factor (F)	Total Capacity (G)	Extra Capacity (H)		
1	Residential										2,350	2,303
2	Tier 1	7.0	76,890	211	1.14	240	30	2.63	554	314		
3	Tier 2	9.0	35,935	98	1.65	163	64	3.81	375	212		
4	Tier 3	>16	28,206	77	2.56	198	121	5.91	457	259		
5	Commercial(1)		106,106	291	1.33	387	96	3.07	891	505	1,141	666
6	Irrigation		22,057	60	2.95	178	118	6.80	411	233	244	16
7	Total		269,193	738		1,166	428		2,688	1,522	3,735	2,985

(1) Includes Apartment, Commercial, Government, and Non-Profit as identified in the billing database.

Table 5-13 shows the total adjusted cost of service and resulting unit costs of service. The total shown in Line 3 and again in Line 6 match the total from the net revenue requirements, Table 5-1. Line 5 shows public fire allocated to meters since public fire is a fixed cost of the system. Part of the peaking costs and base costs are reallocated to meters as these costs are largely fixed and related to the capacity of the water system. Larger

meters have greater potential to peak on the water system and have higher daily demands, on average. Reallocating these shares of base and peak components to the meter component ensures a higher degree of revenue stability, allowing the percentage of rate-based revenue from fixed charges to be maintained at historic levels. The portion of the base, max day, and max hour costs allocated to the meter component are shown in Line 6. Line 7 shows the adjusted cost of service. Line 11 is the adjusted cost of service (Line 7) for each component divided by that component's units of service (Line 9).

Table 5-13: Total Adjusted Water Cost-of-Service and Units of Service

No. Line Item	Base	Max Day	Max Hour	Meter	Customer	Public Fire Protection	General & Admin	Total
1 Net Operating Expenses	\$897,904	\$188,560	\$203,987	\$24,216	\$14,729	\$112,873	\$0	\$1,442,268
2 Net Capital Expenses	\$600,269	\$126,056	\$147,318	\$0	\$2,060	\$0	\$0	\$875,704
3 Subtotal Cost of Service	\$1,498,173	\$314,616	\$351,305	\$24,216	\$16,790	\$112,873	\$0	\$2,317,972
4 Allocation of Public Fire to Meter				\$112,873		-\$112,873		
5 Allocate Peak and Base Cost to Meter Capacity	-\$749,087	-\$94,385	-\$105,392	\$948,863				
6 Total Cost of Service	\$749,087	\$220,231	\$245,914	\$1,085,951	\$16,790	\$0	\$0	\$2,317,972
7 Units	269,193 kgal	428 kgal/day	1,522 kgal/day	3,735 Eq. Mtr. / yr	2,985 No. Mtrs/yr			
8 Unit Cost	\$2.78	\$514.20	\$161.54	\$290.75	\$5.62			

6. Proposed Water Rates and Charges

The City's water service fees are comprised of two parts: (1) a bi-monthly service charge and (2) a volumetric charge. The bi-monthly service charge is a fixed charge based on the size of the meter serving a property. The bi-monthly service charge has been calculated to recover the City's fixed costs, such as the costs of billing and collection, customer service, meter reading, meter maintenance, and a share of capacity-related costs. The volumetric charge has been calculated to recover the balance of remaining costs.

6.1. Proposed Bi-Monthly Water Service Charge

From the calculations in Table 5-13, the proposed fixed bi-monthly service charges are determined for each meter size. Table 6-1 shows the derivation of the bi-monthly service charge. The Billing Charge component (Column B) is equal to the unit rate in Line 8, Customer column of Table 5-13 divided by 6 billing periods per year. As the cost of issuing a bill does not vary by meter size, it remains constant for all meter sizes. The Meter Charge component (Column C) is the Meters unit rate shown in Line 8, Table 5-13, divided by 6 because there are six bi-monthly billing periods in a year. For meters larger than 3/4", this unit rate is multiplied by the meter ratio (Table 5-11, Column C) to derive the meter capacity cost associated with those larger meter sizes. The total test year bi-monthly service charge (Column D) is the sum of Columns B and C.

Table 6-1: Bi-Monthly Service Charge Derivation, Test Year

	Meter No. Size (A)	Billing Charge (B)	Meter Charge (C)	Total Bi- Monthly (D)
1	5/8"x3/4"	\$0.94	\$48.46	\$49.40
2	3/4"	\$0.94	\$48.46	\$49.40
3	1"	\$0.94	\$80.76	\$81.71
4	1.5"	\$0.94	\$161.53	\$162.47
5	2"	\$0.94	\$258.45	\$259.39
6	3"	\$0.94	\$565.35	\$566.29
7	4"	\$0.94	\$1,017.63	\$1,018.58

The test year bi-monthly charges are then multiplied by the revenue adjustments shown in Table 4-9 to derive the proposed charges for the five-year rate setting period. The current, test year, and proposed fixed charges are shown in Table 6-2. The charges for FY 2024-25 are the test year charges multiplied by the revenue adjustment. The subsequent years are the prior year charges multiplied by the applicable revenue adjustment. All rates are rounded up to the nearest whole penny.

Table 6-2: Proposed Bi-Monthly Fixed Water Service Charge

Meter Size	Current	Test Year	7/1/2024	7/1/2025	7/1/2026	7/1/2027	7/1/2028
<i>Revenue Adjustment</i>			37.0%	4.0%	4.0%	3.5%	3.5%
5/8"x3/4" & 3/4"	\$49.33	\$49.40	\$67.68	\$70.39	\$73.21	\$75.78	\$78.44
1"	\$82.41	\$81.71	\$111.95	\$116.43	\$121.09	\$125.33	\$129.72
1.5"	\$164.13	\$162.47	\$222.59	\$231.50	\$240.76	\$249.19	\$257.92
2"	\$262.77	\$259.39	\$355.37	\$369.59	\$384.38	\$397.84	\$411.77
3"	\$575.37	\$566.29	\$775.82	\$806.86	\$839.14	\$868.51	\$898.91
4"	\$821.78	\$1,018.58	\$1,395.46	\$1,451.28	\$1,509.34	\$1,562.17	\$1,616.85

Note: Single family on a 1" meter for fire service are charged the 3/4" rate.

6.2. Volumetric Water Rates

The volumetric rate is comprised of two components: base costs and peaking costs. Base costs are applied uniformly to all customer classes as the rates cover the cost of providing water during average conditions. The base unit costs are shown in Table 5-13, Line 8, Base column.

Peaking unit rates vary by customer class and tier based on peak water use characteristics. They capture the differences in max day and max hour demands the different classes and tiers place on the system, which incur different costs. The individual class/tier peaking rates are developed by taking the total unit cost for Max Day and Max Hour by customer class and tier (Line 8, Table 5-13) and multiplying it by the extra capacity units for each class/tier shown in Table 5-12. That total amount is shown in Table 6-3, Column B. That allocated cost is divided by the annual use (Column C) to obtain the peaking unit cost for each customer class/tier. Table 6-4 shows the derivation of the volumetric charge for each customer class/tier. The total is the sum of the peaking and base components.

Table 6-3: Volumetric Rate Calculation

No.	Class	Peaking Cost	Annual Use (kgal)	Peak Unit Cost
(A)		(B)	(C)	(D)
1	Residential			
2	Tier 1: 0 - 7 kgal	\$65,926	76,890	\$0.86
3	Tier 2: 8 - 16 kgal	\$67,299	35,935	\$1.87
4	Tier 3: > 16 kgal	\$103,841	28,206	\$3.68
5	Commercial	\$130,883	106,106	\$1.23
6	Irrigation	\$98,196	22,057	\$4.45
Total		\$466,145	269,193	

Table 6-4: Test Year Volumetric Rate Derivation

Customer Class	Water Use	Peaking Component	Base	Total Volumetric Rate
Residential				
Tier 1: 0 - 7 kgal	76,890	\$0.86	\$2.78	\$3.65
Tier 2: 8 - 16 kgal	35,935	\$1.87	\$2.78	\$4.66
Tier 3: > 16 kgal	28,206	\$3.68	\$2.78	\$6.47
Commercial	106,106	\$1.23	\$2.78	\$4.02
Irrigation	22,057	\$4.45	\$2.78	\$7.24

The test year volumetric charges are then multiplied by the revenue adjustments shown in Table 4-9 to derive the proposed volumetric charges for the five-year rate setting period. The proposed volumetric charges are shown in Table 6-5. All rates are rounded up to the nearest whole penny.

Table 6-5: Proposed 5-Year Water Volumetric Rate Schedule

Customer Class	Current	Test Year	7/1/2024	7/1/2025	7/1/2026	7/1/2027	7/1/2028
<i>Revenue Adjustment</i>			37.0%	4.0%	4.0%	3.5%	3.5%
Residential							
Tier 1: 0 - 7 kgal	\$4.52	\$3.65	\$5.01	\$5.22	\$5.43	\$5.63	\$5.83
Tier 2: 8 - 16 kgal	\$4.52	\$4.66	\$6.39	\$6.65	\$6.92	\$7.17	\$7.43
Tier 3: > 16 kgal	\$4.52	\$6.47	\$8.87	\$9.23	\$9.60	\$9.94	\$10.29
Commercial	\$4.52	\$4.02	\$5.51	\$5.74	\$5.97	\$6.18	\$6.40
Irrigation	\$4.52	\$7.24	\$9.92	\$10.32	\$10.74	\$11.12	\$11.51

7. Wastewater Financial Plan

This section describes the assumptions used in projecting wastewater enterprise operating and capital expenses as well as reserve coverage requirements for the ten-year study period (FY 2024-25 – FY 2033-34) plus the current fiscal year. These assumptions determine the overall revenue adjustments and the total amount of revenue required from rates. The revenue covers operating and maintenance (O&M) and capital expenses, as well as reserve funding. Revenue adjustments represent the average rate increase for the City as a whole; rate changes for individual customers will depend on the cost-of-service analysis described in the following chapter.

Financial plan assumptions were provided by and discussed in detail with City staff. The assumptions shown in Table 3-7 were incorporated into the financial plan. To develop the financial plan, Raftelis projected annual expenses and revenues and modeled cash reserve balances. The City is not anticipating financing any wastewater capital improvements. While the wastewater operating fund pays its share of general fund debt for shared facilities, the wastewater fund does not have to meet debt coverage ratios associated with this general fund debt. This section of the report provides a discussion of projected revenue, O&M expenses, the CIP, and reserve funding under existing rates and the revenue adjustments needed to return the fund to fiscal sustainability.

7.1. Current Rate Revenue

The City's revenues consist of rate revenues, interest earnings on cash reserves, and other miscellaneous revenues. The rate revenue projections shown below assume that current FY 2023-24 (Table 3-2) rates are effective throughout the study period; and, therefore, represent estimated revenues in the absence of any revenue adjustments. This status quo scenario provides a baseline from which Raftelis evaluates the need for revenue adjustments.

7.1.1. Calculated Wastewater Rate Revenues

Raftelis projected wastewater rate revenues from fixed bi-monthly charges and volumetric charges for FY 2023-24 through FY 2033-34 based on current wastewater rates, the projected number of meters, projected average winter water use (residential), and projected annual metered water (non-residential).

The City collects fixed bi-monthly charges from its customers based on the number and size of meters. Table 7-1 shows projected fixed charge revenues under current rates over the study period. Fixed charge revenues are calculated as shown below.

$$\text{Annual Fixed Charge Revenue for } 5/8'' \times 3/4'' \text{ meter} = [\text{FY 2023-24 fixed bi-monthly rate } 5/8'' \times 3/4'' \text{ meter}] \times [\text{Number of } 5/8'' \times 3/4'' \text{ connections}] \times [6 \text{ Bills per year}]$$

Table 7-1: Projected Fixed Charge Revenues Under Current Wastewater Rates

Meter Size	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
5/8"x3/4"	\$1,157,420	\$1,163,207	\$1,169,023	\$1,174,869	\$1,180,743	\$1,186,647
3/4"	\$11,142	\$11,198	\$11,254	\$11,310	\$11,367	\$11,424
1"	\$77,552	\$77,939	\$78,329	\$78,721	\$79,114	\$79,510
1.5"	\$79,516	\$79,516	\$79,516	\$79,516	\$79,516	\$79,516
2"	\$107,720	\$107,720	\$107,720	\$107,720	\$107,720	\$107,720
3"	\$42,885	\$42,885	\$42,885	\$42,885	\$42,885	\$42,885
4"	\$22,969	\$22,969	\$22,969	\$22,969	\$22,969	\$22,969
Total	\$1,499,205	\$1,505,436	\$1,511,697	\$1,517,990	\$1,524,315	\$1,530,671

Table 7-2 shows projected Volume charge revenues under current rates over the study period. Volume charge revenues are calculated for each year as follows based on current wastewater rates (Table 3-2) and projected water use (Table 3-5).

$$\text{Residential Annual Volume Charge Revenue} = [\text{FY 2023-24 rate per unit}] \times [\text{Winter Average Water Use}] \times 6$$

$$\text{Non-Residential Annual Volume Charge Revenue} = [\text{FY 2023-24 rate per unit}] \times [\text{Annual Water Use}]$$

Table 7-2: Projected Volume Charge Revenue Under Current Wastewater Rates

Customer Class	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
Residential	\$720,366	\$723,968	\$727,588	\$731,225	\$734,882	\$738,556
Non-Residential	\$868,945	\$868,945	\$868,945	\$868,945	\$868,945	\$868,945
Total	\$1,589,311	\$1,592,913	\$1,596,533	\$1,600,171	\$1,603,827	\$1,607,501

7.1.2. Other Revenues

Table 7-3 shows all other revenues over the rate-setting period. All FY 2023-24 other revenues are based on the City's FY 2023-24 budget. Additional revenues from FY 2024-25 through FY 2033-34 were projected by Raftelis. Penalties are forecast to increase similarly to the overall increase in the number of meters. Insurance claims increase based on general inflation. Interest revenue is estimated beginning in FY 2024-25 based on estimated beginning fund balances, revenues and expenses, and the assumed interest rate. Since the fund is in a deficit under the status quo, no interest revenue is earned.

Table 7-3: Projected Other Wastewater Enterprise Revenues, Status Quo

Line Item	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
Interest Income	\$7,400	\$0	\$0	\$0	\$0	\$0
Penalties	\$2,500	\$2,512	\$2,524	\$2,536	\$2,548	\$2,561
Insurance Claims	\$8,600	\$8,729	\$8,860	\$8,993	\$9,128	\$9,265
Miscellaneous Income	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000	\$1,000
Total	\$19,500	\$12,241	\$12,384	\$12,529	\$12,676	\$12,825

7.2. Operations and Maintenance Expenses - Wastewater

The City's expenses include operations and maintenance expenses, capital expenses, and debt service payments. This section discusses the details of each of these expenses.

7.2.1. Total Operations and Maintenance Budget

The City provided Raftelis with its wastewater enterprise budget for FY 2023-24. The City also provided the general and administration costs for FY 2024-25 based on a revised capital allocation plan. To project the City's O&M expenses in future years, Raftelis used the escalation percentages shown in Table 3-7 to project future expenses. A summary of the budgeted and projected O&M during the rate-setting period is shown in Table 7-4. Approximately 62 percent of general and administrative costs are for finance, engineering, and public works.

Table 7-4: Summary of Projected Wastewater Operations and Maintenance Expenses

Line Item	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
Salaries & Benefits	\$454,982	\$519,529	\$541,155	\$601,051	\$622,944	\$647,713
Materials, Supplies & Equipment	\$126,129	\$129,913	\$133,810	\$137,824	\$141,959	\$146,218
Subregional Contract Services	\$1,821,822	\$2,280,000	\$2,416,800	\$2,561,808	\$2,715,516	\$2,878,447
Utilities	\$64,137	\$70,543	\$77,606	\$83,162	\$89,123	\$93,803
Capital Outlay	\$43,380	\$44,681	\$46,022	\$47,403	\$48,825	\$50,289
Other	\$245,144	\$121,696	\$125,347	\$129,107	\$132,980	\$136,970
G&A Allocation	\$1,113,046	\$908,935	\$1,045,651	\$1,114,391	\$1,174,171	\$1,237,427
Total	\$3,868,640	\$4,075,296	\$4,386,390	\$4,674,746	\$4,925,518	\$5,190,867

7.2.2. Capital Improvement Plan

Table 7-5 shows the City's plan for water capital improvements over the rate-setting period. The CIP is inflated by 6 percent per year to reflect projected inflationary increases from an uninflated base of FY 2022-23 except for the current year, which is in FY 2023-24 dollars.

Table 7-5: Projected Wastewater Capital Improvement Projects

Project	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
Zimpher Creek Sewer Relocation Part 1 - Cover Lane Rerouting	\$0	\$32,000	\$1,000	\$222,000	\$0	\$0
Zimpher Creek Sewer Relocation Part 2 - West End	\$0	\$0	\$0	\$115,200	\$1,000	\$604,500
Zimpher Creek Sewer Relocation Part 3 - Repairs at East End	\$0	\$0	\$0	\$0	\$31,000	\$31,000
Parquet Street Sewer Line Replacement	\$530,000	\$0	\$0	\$0	\$0	\$0
Ives Park Project Path Project (Sewer access road)	\$12,000	\$0	\$0	\$0	\$0	\$0
Sewer System Master Plan Update	\$0	\$0	\$132,000	\$0	\$0	\$0
Replacement Program Set-aside	\$0	\$0	\$0	\$300,000	\$300,000	\$300,000
Total Uninflated	\$542,000	\$32,000	\$133,000	\$637,200	\$332,000	\$935,500
Total Inflated	\$542,000	\$35,955	\$158,405	\$804,450	\$444,291	\$1,327,025

7.2.3. Existing and Proposed Debt Service

The wastewater fund pays a portion of general fund debt related to shared facilities, as shown in Table 7-6. According to City staff, the wastewater fund does not have any debt service requirements for these loans. The City plans to use cash to fund capital projects over the study period. Therefore, no proposed debt service is modeled.

Table 7-6: Existing Debt Service

Debt	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
Infrastructure Lease*	\$58,768	\$58,769	\$58,768	\$0	\$0	\$0
TELPA*	\$119,888	\$119,888	\$119,888	\$119,888	\$119,888	\$119,888
Total	\$178,656	\$178,657	\$178,656	\$119,888	\$119,888	\$119,888

* Wastewater Portion

7.3. Reserve Targets

The City maintains a wastewater operating reserve fund.

Operating Reserve – The Operating Reserve is used primarily to meet ongoing cash flow requirements. The City’s minimum reserve target is set at 25 percent (three months) of water operating and maintenance expenses plus annual debt service.

Capital Reserve – The City does not have a capital reserve.

Recommended Operating Reserve – Given the City bills bi-monthly, Raftelis recommends the City eventually move to a 120-day operating reserve once the fund has become self-sufficient by meeting annual operating, debt service, and cash-capital needs as well as the current operating reserve target. We recommend that the City evaluate this policy in the intervening years or as part of the next rate cycle.

Recommended Capital Reserve -- A common reserve target is 100 percent – 150 percent of the annual average 5-year capital improvement program. The City may also want to consider an emergency reserve fund as well. Given the wastewater fund’s tenuous position, Raftelis recommends implementing a capital reserve and possibly an emergency reserve target once the fund has become self-sufficient by meeting annual operating, debt service, and cash-capital needs, as well as the current operating reserve target. We recommend that the City evaluate this policy in the intervening years or as part of the next rate cycle once a Wastewater System Master Plan is completed.

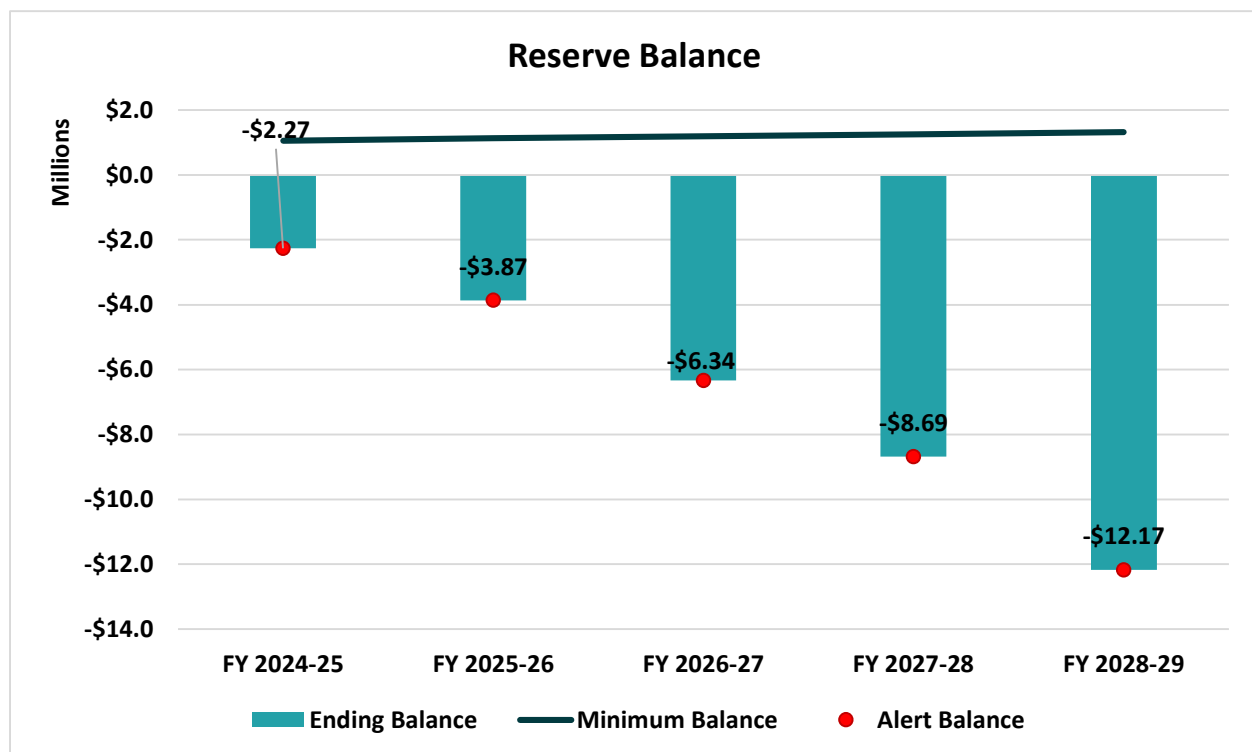
7.4. Status Quo Wastewater Financial Plan

To demonstrate the importance of increasing revenue to keep up with costs, Raftelis modeled a ‘status quo’ version of the financial plan. This financial plan scenario examines reserve balances, costs, and revenues. It also assumes that there are no rate-related revenue increases during the study period to establish a baseline for other model scenarios. Table 7-7 shows a summary cashflow for the wastewater enterprise over the rate-setting period. Total revenues are less than annual operating and maintenance (O&M) expenses each year and net revenues become increasingly negative. This negative cash flow is before debt service and cash funded capital. The wastewater fund balance becomes negative in the current fiscal year and is projected to become increasingly negative absence revenue increases.

Table 7-7: Wastewater Cashflow, Status Quo

Line Item	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
Beginning Balance	\$392,668	-\$1,088,612	-\$2,267,930	-\$3,870,768	-\$6,339,161	-\$8,688,040
Revenues						
Rate-Based	\$3,088,516	\$3,098,349	\$3,108,230	\$3,118,161	\$3,128,142	\$3,138,172
Other	\$19,500	\$12,241	\$12,384	\$12,529	\$12,676	\$12,825
Total Revenue	\$3,108,016	\$3,110,590	\$3,120,614	\$3,130,690	\$3,140,818	\$3,150,998
O&M	\$3,868,640	\$4,075,296	\$4,386,390	\$4,674,746	\$4,925,518	\$5,190,867
Net Revenues	-\$760,624	-\$964,707	-\$1,265,776	-\$1,544,055	-\$1,784,700	-\$2,039,869
Capital-Related						
Debt Service	\$178,656	\$178,657	\$178,656	\$119,888	\$119,888	\$119,888
Cash Capital	\$542,000	\$35,955	\$158,405	\$804,450	\$444,291	\$1,327,025
Total Capital-Related	\$720,656	\$214,612	\$337,061	\$924,338	\$564,179	\$1,446,913
Annual Surplus/Deficit	-\$1,481,280	-\$1,179,318	-\$1,602,837	-\$2,468,394	-\$2,348,879	-\$3,486,782
Ending Balance	-\$1,088,612	-\$2,267,930	-\$3,870,768	-\$6,339,161	-\$8,688,040	-\$12,174,822
Reserve Target	\$997,963	\$1,048,920	\$1,125,628	\$1,182,238	\$1,244,073	\$1,309,501

Figure 7-1, shows the projected ending balance versus the minimum balance. This status quo model shows the need for rate revenue increases since negative balances start in FY 2023-24.

Figure 7-1: Wastewater Reserve Balances Under the Status Quo

7.5. Proposed Financial Plan and Revenue Adjustments

Given the projected deficit shown in Table 7-7, and per the direction of City staff, Raftelis has modeled a transfer from the General Fund into the wastewater fund to bring the projected ending balance for FY 2023-24 to \$0. From this starting point, Raftelis has projected proposed revenue adjustments. The proposed revenue adjustments help ensure adequate revenue to fund operating expenses, capital expenditures, meet reserve minimums, and repay the General Fund. The Financial Plan modeling assumes the first revenue adjustment occurs on July 1, 2024 and the subsequent adjustments start on July 1. The proposed revenue adjustments would enable the City to meet operating costs, capital improvement projects, general fund repayment, and eventually meet reserve minimums. Table 7-8 shows the proposed wastewater revenue adjustments for the rate-setting period.

Table 7-8: Proposed Wastewater Revenue Adjustments

Fiscal Year	Revenue Adjustment
FY 2024-25	50.0%
FY 2025-26	11.0%
FY 2026-27	9.0%
FY 2027-28	9.0%
FY 2028-29	9.0%

Table 7-9, on the following page, shows the cash flow detail over the rate-setting period for the wastewater operating fund assuming the revenue adjustments shown above and a General Fund transfer of approximately \$1.1 million. Line 1 shows the projected rate-revenue under existing rates. Line 2 shows the forecast adjusted revenue from the proposed revenue adjustments. Line 3 shows the projected general fund transfer. Line 6 shows total wastewater fund revenue including non-operating revenues and interest. Line 9 shows total O&M expenses. Line 10 shows net revenues, or revenues less expenses, which is the result of subtracting Line 9 from Line 6. Line 13 shows the projected debt service payments. Line 14 shows the cash-funded capital. Line 15 shows the projected repayments to the general fund presuming a 3-year grace period, no interest, and a 5-year payback. Line 16 shows the annual surplus or deficit, which is Line 10 less Line 13 less Line 14 less Line 15. Line 17 shows the enterprise's operating balance at the start of the fiscal year. The ending fund balance in Line 18 is the beginning balance (Line 17) plus the annual surplus or deficit (Line 16). Line 19 shows the minimum operating reserve level.

Table 7-9: Wastewater Operating Cashflow

No.	Line Item	FY2023-24	FY2024-25	FY2025-26	FY2026-27	FY2027-28	FY2028-29
1	Revenue Under Existing Rates	\$3,088,516	\$3,098,349	\$3,108,230	\$3,118,161	\$3,128,142	\$3,138,172
2	Additional Rate-Revenue	\$0	\$1,549,174	\$2,066,973	\$2,540,834	\$3,059,906	\$3,628,428
	Other Revenue						
3	General Fund Transfer	\$1,088,808	\$0	\$0	\$0	\$0	\$0
4	Interest	\$7,400	\$6,595	\$21,684	\$32,014	\$43,231	\$52,201
5	Miscellaneous	\$12,100	\$12,241	\$12,384	\$12,529	\$12,676	\$12,825
6	Total Revenue	\$4,196,824	\$4,666,359	\$5,209,272	\$5,703,538	\$6,243,955	\$6,831,627
	O&M Expenses						
7	Operating Expenditure	\$2,755,594	\$3,166,361	\$3,340,739	\$3,560,355	\$3,751,347	\$3,953,440
8	G&A Allocation	\$1,113,046	\$908,935	\$1,045,651	\$1,114,391	\$1,174,171	\$1,237,427
9	Total O&M Expenses	\$3,868,640	\$4,075,296	\$4,386,390	\$4,674,746	\$4,925,518	\$5,190,867
10	Net Revenue	\$328,184	\$591,062	\$822,882	\$1,028,792	\$1,318,437	\$1,640,760
	Debt Service						
11	Existing	\$178,656	\$178,657	\$178,656	\$119,888	\$119,888	\$119,888
12	Proposed	\$0	\$0	\$0	\$0	\$0	\$0
13	Total Debt Service	\$178,656	\$178,657	\$178,656	\$119,888	\$119,888	\$119,888
14	Cash Funded Capital	\$542,000	\$35,955	\$158,405	\$804,450	\$444,291	\$1,327,025
15	General Fund Repayment	\$0	\$0	\$0	\$0	\$217,762	\$217,762
16	Annual Surplus/Deficit	-\$392,472	\$376,451	\$485,820	\$104,454	\$536,497	-\$23,914
17	Beginning Balance	\$392,668	\$196	\$376,647	\$862,467	\$966,921	\$1,503,418
18	Ending Balance	\$196	\$376,647	\$862,467	\$966,921	\$1,503,418	\$1,479,503
19	Minimum Reserve Level	\$997,963	\$1,048,920	\$1,125,628	\$1,182,238	\$1,297,767	\$1,363,196

Figure 7-2 through Figure 7-4 display the FY 2024-25 through FY 2028-29 Financial Plan in graphical form. Figure 7-2 illustrates the Wastewater Operating Financial Plan – it compares existing (blue line) and proposed revenues (black line) with projected expenses (stacked columns). The yellow bars above the axis show the net cash used to build up the reserves and the bars below the axis show the withdrawals from reserves to fund costs. Projected revenue from existing rates, if continued unchanged, would not meet future projected total expenses and illustrates the need for revenue adjustments necessary to maintain operations, accomplish the desired CIP, and to meet reserve minimums.

Figure 7-2: Proposed Wastewater Operating Financial Plan

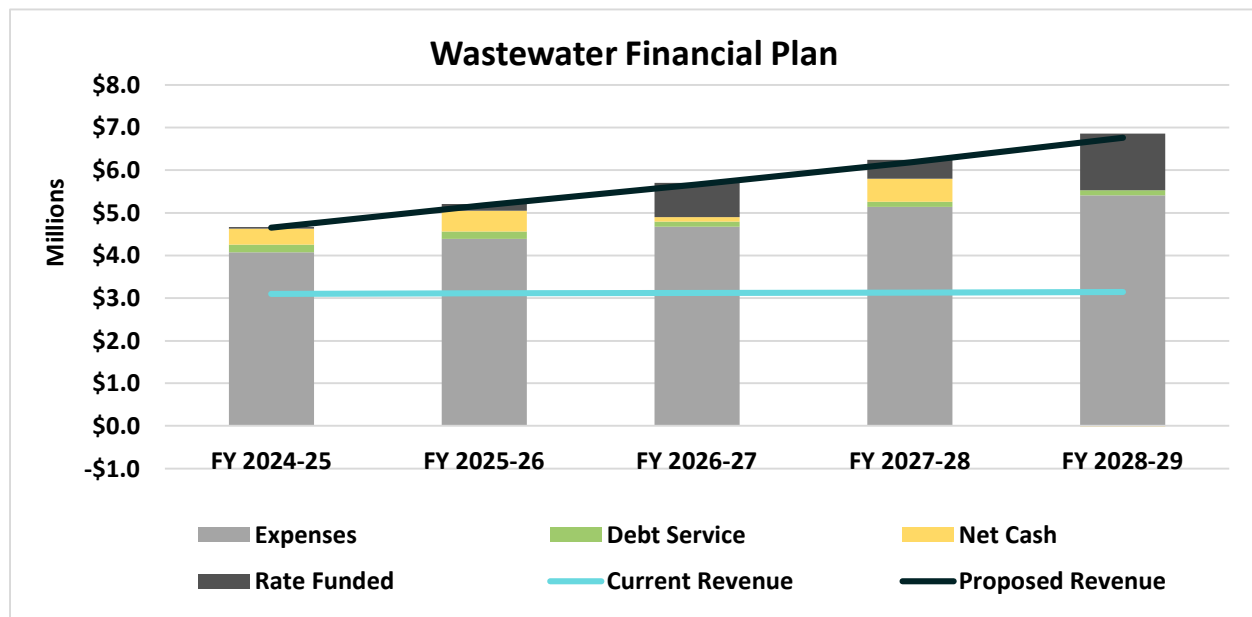


Figure 7-3 summarizes the projected CIP, which is projected to be funded with cash.

Figure 7-3: Projected Wastewater Capital Plan and Funding Sources

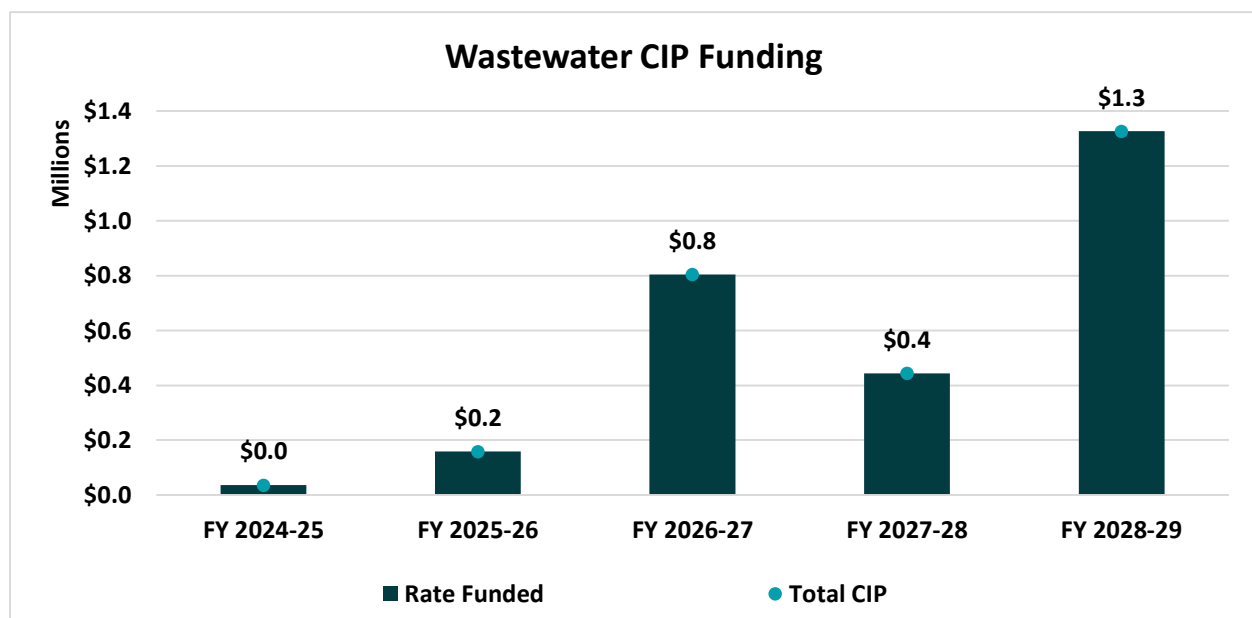
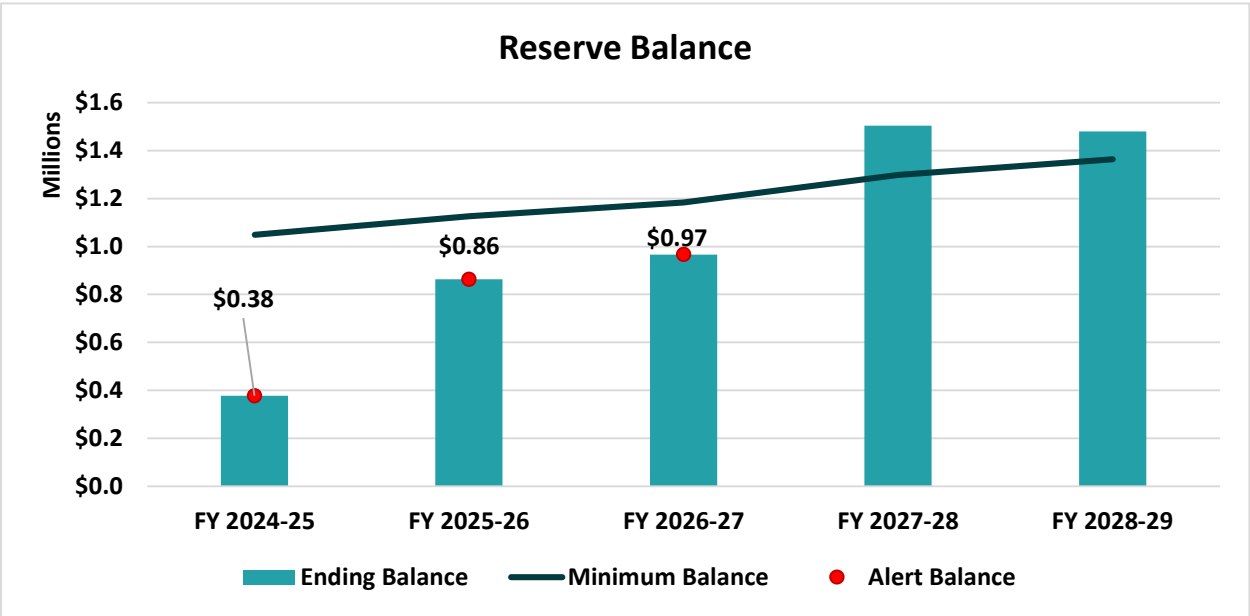


Figure 7-4 displays the projected total wastewater reserve yearly ending balance (teal bars). The black line is the minimum fund balance, which is 25 percent of annual operating and maintenance and debt service costs. As shown, the fund is projected to return to the minimum balance in FY 2027-28. Raftelis recommends the City increase the minimum reserves as discussed in Section 7.3 once the fund has become self-sufficient by meeting annual operating, debt service, and cash-capital needs as well as the current operating reserve minimum.

Figure 7-4: Projected Wastewater Reserve Balance



8. Wastewater Cost-of-Service Analysis

A cost-of-service analysis distributes a utility's revenue requirement (costs) to each customer class. This section explains the details of the cost-of-service analysis conducted for the City for its wastewater system services to customers.

After determining a utility's revenue requirement, the next step in a cost-of-service analysis is to functionalize its O&M costs to the following functions:

- Collection – cost of collecting wastewater and transporting it to the wastewater treatment plant
- Treatment – Subregional cost of treating the wastewater
- Customer – costs associated with billing and customer service
- General and Administration (G&A) – general and administrative costs incurred by the City

The functionalization of costs allows us to better allocate the functionalized costs to the rate components.

8.1. Revenue Requirement Determination

Table 8-1 shows the net revenue requirement from rates for FY 2023-24, the test year. The total revenue requirement shown in Line 5 is equal to operating expenses (Table 7-4), capital expenses (Table 7-5), and debt service (Table 7-6). Other operating revenues, totaled in Line 9, comprise the estimated transfer in from the general fund to have the enterprise have a zero balance at the start of FY 2024-25, miscellaneous revenues and interest income, which reduce the total revenue required from rates. The adjustment for cash (Line 10) is subtracted to account for the withdrawal from reserves. The revenue required from rates is equal to the total revenue requirements less other operating revenues and adjustments.

Table 8-1: Wastewater Revenue Requirement Determination

No.	Line Item	Operating	Capital	Total
Expenses				
1	Operating Expenditure	\$2,755,594		\$2,755,594
2	G&A Allocation	\$1,113,046		\$1,113,046
3	Existing Debt Service		\$178,656	\$178,656
4	Rate Funded Capital Projects		\$542,000	\$542,000
5	Subtotal	\$3,868,640	\$720,656	\$4,589,296
Less: Offsets				
6	Transfer from General Fund	\$1,088,808		\$1,088,808
7	Interest Revenue		\$7,400	\$7,400
8	Misc. Revenue	\$12,100		\$12,100
9	Subtotal	\$1,100,908	\$7,400	\$1,108,308
Less: Adjustments				
10	Adjustment for Cash Balance	\$392,472		\$392,472
11	Subtotal	\$392,472	\$0	\$392,472
12	Net Revenue Requirement from Rates	\$2,375,260	\$713,256	\$3,088,516

8.2. Functionalization of Net Revenue Requirement

Functionalizing expenses allows Raftelis to follow the principles of rate setting theory in which the end goal is to allocate the City's revenue requirements to cost causation components. Table 8-2 shows the resulting functionalization of the City's O&M expenses (Line 5, Table 8-1) and O&M offsets (Lines 6 and 8, Table 8-1). Raftelis worked with City staff to functionalize the test year O&M line items to the functions listed at the beginning of Section 8 (see Appendix B). O&M offsets are allocated the same as the total O&M revenue requirements.

Table 8-2: Functionalization of Net O&M

Function	O&M	O&M Offsets	Net O&M
Collection	\$480,557	-\$185,506	\$295,052
Customer Service	\$4,665	-\$1,801	\$2,864
Sub-regional	\$1,821,822	-\$703,263	\$1,118,559
General & Admin	\$1,561,596	-\$602,810	\$958,786
Total	\$3,868,640	-\$1,493,380	\$2,375,260

Table 8-3 shows the functionalization of net capital costs (Line 12, Table 8-1). The costs are allocated in proportion to the City's wastewater assets.

Table 8-3: Functionalization of Net Capital

Function	Asset	Capital-Related
Collection	\$2,905,831	\$704,036
Customer Service	\$0	\$0
Subregional	\$0	\$0
General & Admin	\$38,055	\$9,220
Total	\$2,943,886	\$713,256

8.3. Allocation of Functionalized Net Revenue Requirements to Cost Components

After functionalizing the net revenue requirements, the next step is to allocate the functionalized net revenue requirements to the following cost components:

- Variable – costs associated with meeting the flow of wastewater through the collection system
- Fixed – the costs associated with billing, customer service, and other fixed costs

8.3.1. Operating and Capital Allocation

Table 8-4 shows the system functions, the rationale for allocating each function to the various cost components, and the percentage allocation to each component.

Table 8-4: Allocation of Functions to Cost Components

Function	Allocation Basis	Variable	Fixed	Total
Collection	Flow & Customer	100%	0%	100%
Customer Service	Customer	0%	100%	100%
Sub-regional	Flow	100%	0%	100%
General & Admin	General & Admin	0%	100%	100%

Table 8-5 shows the detailed net operating costs by cost component (Table 8-2) allocated to the cost components using the allocations shown in Table 8-4.

Table 8-5: Allocation of Net Wastewater Operation & Maintenance to Cost Components

Function	Net O&M	Variable	Fixed
Collection	\$295,052	\$295,052	\$0
Customer Service	\$2,864	\$0	\$2,864
Sub-regional	\$1,118,559	\$1,118,559	\$0
General & Admin	\$958,786	\$0	\$958,786
Net O&M	\$2,375,260	\$1,413,610	\$961,650

Table 8-6 shows the allocation of capital-related revenue requirement (Table 8-3) to the components.

Table 8-6: Allocation of Wastewater Capital-Related Expenses to Cost Components

Function	Net Capital	Variable	Fixed
Collection	\$704,036	\$704,036	\$0
Customer Service	\$0	\$0	\$0
Sub-regional	\$0	\$0	\$0
General & Admin	\$9,220	\$0	\$9,220
Net O&M	\$713,256	\$704,036	\$9,220

8.4. Derivation of Units of Service

8.4.1. Equivalent Meters

The City bills each wastewater customer based on meter size. Raftelis proposes using winter average use by meter size instead of safe operating capacity to differentiate fixed wastewater charges, as this is a better indicator of the relative wastewater flow generated at each meter size. To put these meters on an equivalent basis, Raftelis calculated the winter average usage at each meter size as shown in Table 8-7. The winter average usage in kgal comes from the billing data. The ratios (Column C) are calculated by dividing the winter average (Column B) for each meter size (Column A) by the winter average for the 5/8"x3/4" & 3/4" meters (Column B, Line 1). Meter counts (Column D) at each size are multiplied by the ratio (Column C) to arrive at the total number of equivalent meters, shown in Column E. For example, there are 52, 1.5" meters in the wastewater system; and those 52, 1.5" meters are equivalent to the winter average demands of 359, 3/4" meters.

Table 8-7: Equivalent Meters

No.	Meter Size (inches) (A)	Winter Average (kgal) (B)	Ratio (C)	Total Meters (D)	Total Equivalent Meters (E)
1	5/8x3/4" & 3/4"	7.9	1.00	2,542	2,542
2	1"	21.4	2.71	101	274
3	1.5"	54.5	6.90	52	359
4	2"	69.8	8.83	44	389
5	3"	173.7	21.98	8	176
6	4"	523.2	66.22	3	199
7	Total			2,750	3,938

8.4.2. Unit Costs of Service

Raftelis calculated unit costs for each cost component by assessing the average winter annualized water use for residential customers, annual metered water use for non-residential customers, and equivalent meters. Table 8-8 shows the units of service for the wastewater collection system.

Table 8-8: Units of Service

Annual Flow (kgal)	Equivalent Meters
154,190	3,938

Table 8-9 shows the total unit costs of service. The Net Operating Expenses shown in the first line matches the total allocated to Flow and Customer from Table 8-5. The Net Capital Expenses shown in Line 2 matches Table 8-6. To maintain a similar amount of fixed cost recovery, which helps with revenue stability, a portion of the Variable costs have been allocated to Fixed (Line 4) for revenue stability and that most costs of the system do not vary with flow. Line 5 is the adjusted cost of service. This line is divided by the units (Line 6), which repeats the wastewater flow and accounts from Table 8-8, to determine the unit costs shown in Line 7.

Table 8-9: Total Wastewater Unit Costs of Service

No.	Line Item	Variable	Fixed	Total
1	Net Operating Expenses	\$1,413,610	\$961,650	\$2,375,260
2	Net Capital Expenses	\$704,036	\$9,220	\$713,256
3	Subtotal Cost of Service	\$2,117,647	\$970,870	\$3,088,516
4	Volumetric to Fixed	-\$529,412	\$529,412	\$0
5	Total Cost of Service	\$1,588,235	\$1,500,281	\$3,088,516
6	Units	154,190 kgal	3,938 EMs	
7	Unit Cost	\$10.30	\$380.98	

9. Wastewater Rates

9.1. Wastewater Test Year Rate Derivation

Raftelis has calculated wastewater rates for the test year. Table 9-1 shows the derivation of the test year wastewater fixed charge. The equivalent meter unit rate from Table 8-9 is applied to the 5/8"x3/4" & 3/4" meter sizes (base meter). The charge for other meter sizes is the base meter charge multiplied by the corresponding winter average meter ratios (Table 8-7).

Table 9-1: Wastewater Fixed Charge Derivation, Test Year

Meter Size	Ratio	\$/bi-mo
5/8x3/4" & 3/4"	1.00	\$63.50
1"	2.71	\$172.23
1.5"	6.90	\$438.13
2"	8.83	\$560.68
3"	21.98	\$1,395.87
4"	66.22	\$4,204.78

The test year volumetric charge is the unit rate shown in Table 8-9.

9.2. Proposed 5-Year Wastewater Rate Schedule

Table 9-2 shows the current, test year, and proposed 5-year schedule of wastewater rates. Rates for FY 2024-25 are the test year unit rates multiplied by the revenue adjustment for FY 2024-25 (Table 7-8). Each subsequent year is the prior year unit rate multiplied by the revenue adjustment for that year. All rates are rounded up to the nearest whole penny.

Table 9-2: Proposed 5-Year Wastewater Rate Schedule

Charge	Current	Test Year	7/1/2024	7/1/2025	7/1/2026	7/1/2027	7/1/2028
<i>Revenue Adjustment</i>			50.0%	11.0%	9.0%	9.0%	9.0%
Meter Size, \$/bi-mo							
5/8x3/4" & 3/4"	\$76.61	\$63.50	\$95.25	\$105.73	\$115.25	\$125.63	\$136.94
1"	\$127.97	\$172.23	\$258.35	\$286.77	\$312.58	\$340.72	\$371.39
1.5"	\$254.86	\$438.13	\$657.20	\$729.50	\$795.16	\$866.73	\$944.74
2"	\$408.03	\$560.68	\$841.02	\$933.54	\$1,017.56	\$1,109.15	\$1,208.98
3"	\$893.44	\$1,395.87	\$2,093.81	\$2,324.13	\$2,533.31	\$2,761.31	\$3,009.83
4"	\$1,276.06	\$4,204.78	\$6,307.17	\$7,000.96	\$7,631.05	\$8,317.85	\$9,066.46
Volume, \$/kgal	\$10.31	\$10.31	\$15.47	\$17.18	\$18.73	\$20.42	\$22.26

Note: Single family on a 1" meter for fire service are charged the 3/4" rate.

10. Customer Impact Analysis

10.1. Water

Figure 10-1 shows a comparison of a 5/8"x3/4" single-family bill at different usage levels for the proposed FY 2024-25 rates versus the current rates.

Figure 10-1: Single Family Residential Bi-Monthly Bills, FY 2024-25

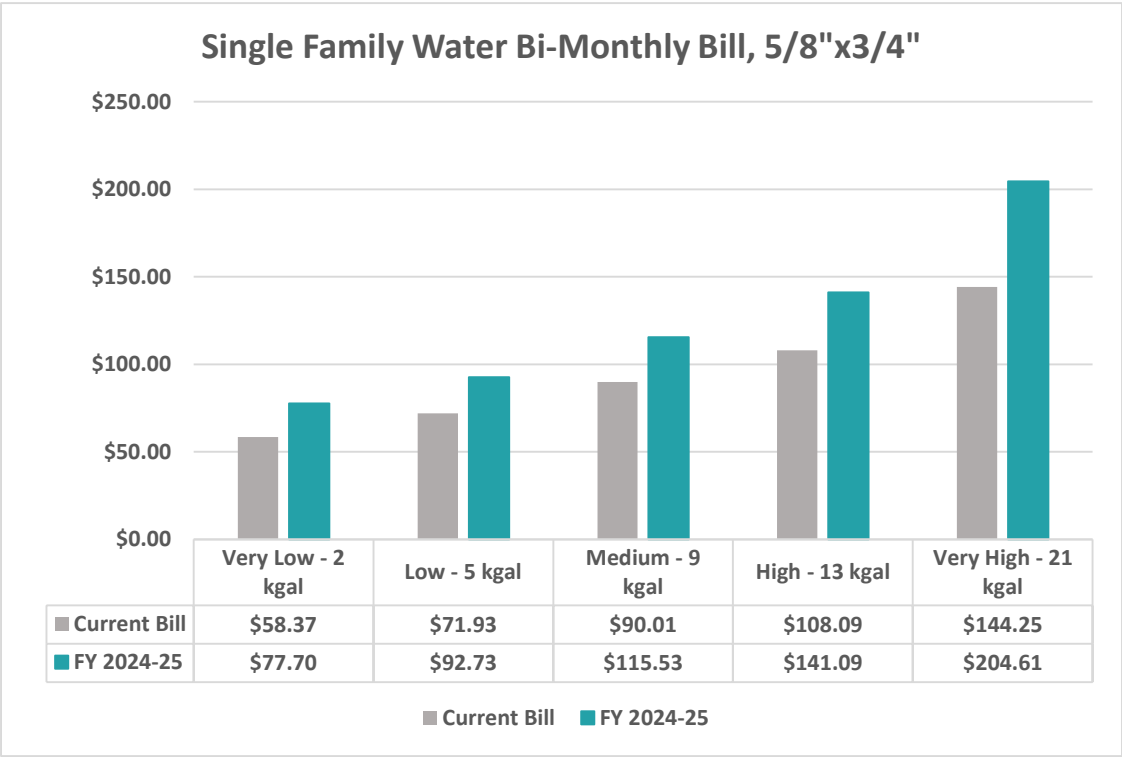


Figure 10-2 shows a comparison of a 5/8"x3/4" commercial bill at different usage levels for the proposed FY 2024-25 rates versus the current rates.

Figure 10-2: Commercial Bi-Monthly Bills, FY 2024-25

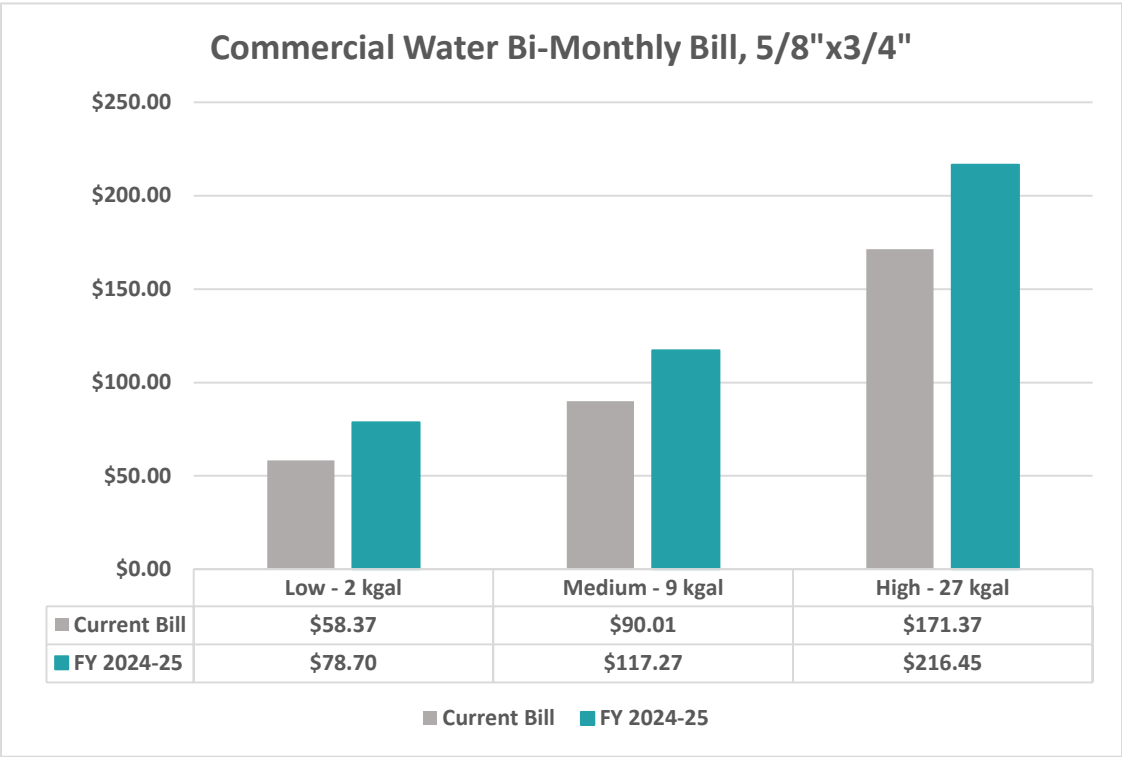
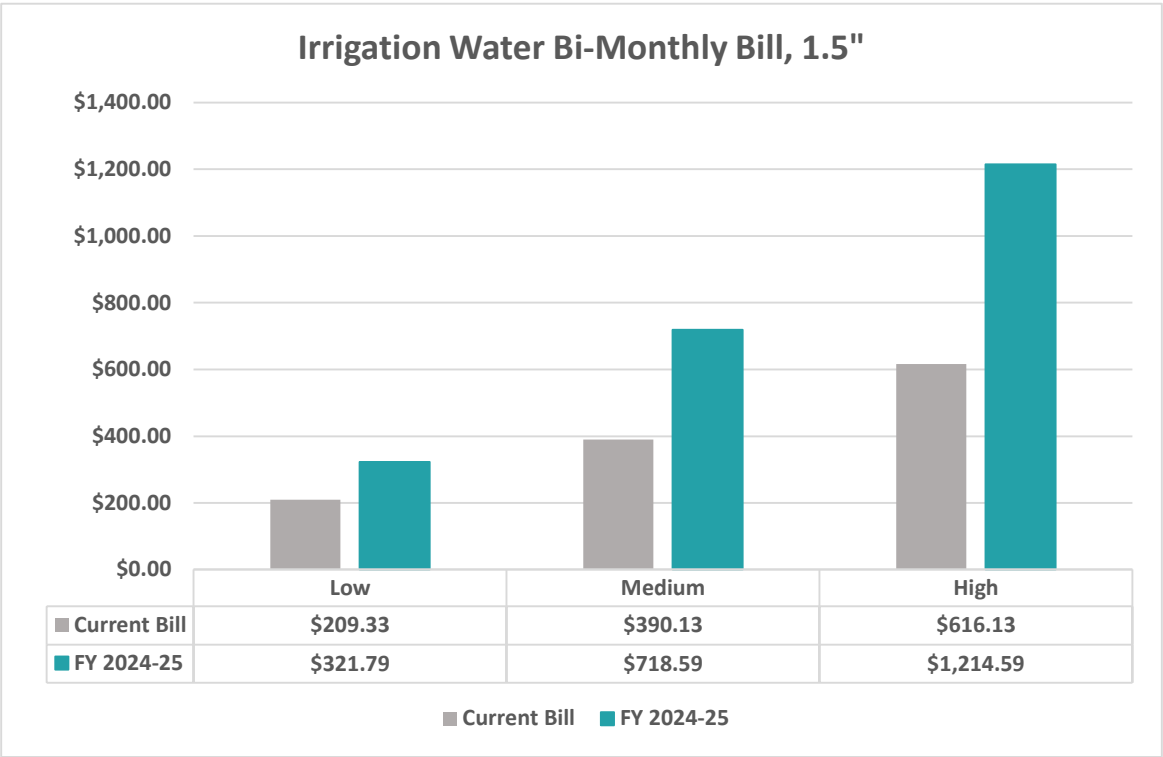


Figure 10-3 shows a comparison of a 1.5” irrigation bill at different usage levels for the proposed FY 2024-25 rates versus the current rates.

Figure 10-3: Irrigation Bi-Monthly Bills, FY 2024-25



10.2. Wastewater

Figure 10- shows a bill comparison for a single family residential wastewater customer, using the typical winter water use for the customer class of 6 kgal and a 5/8"x3/4" meter.

Figure 10-4: Typical Single Family Bi-Monthly Wastewater Bill

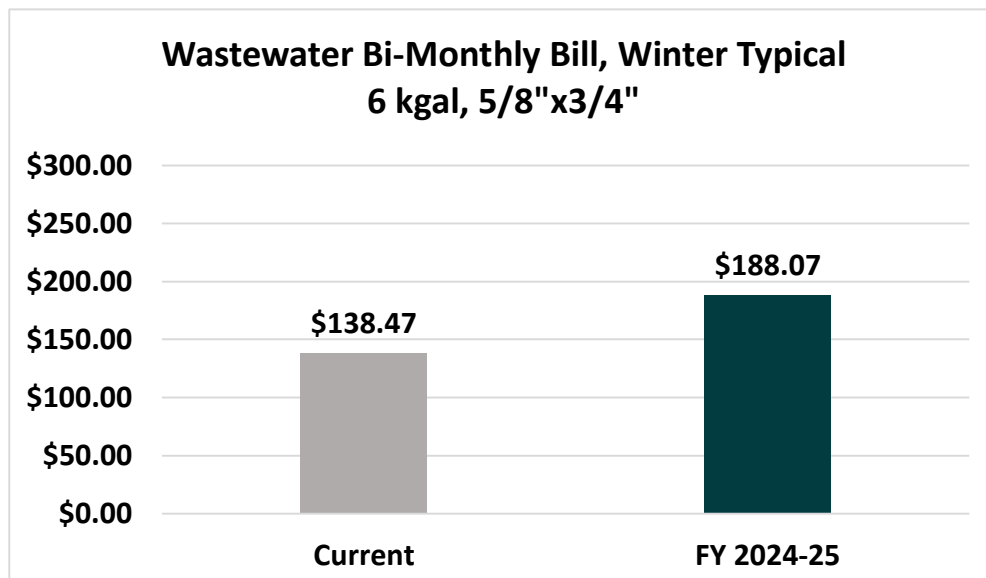
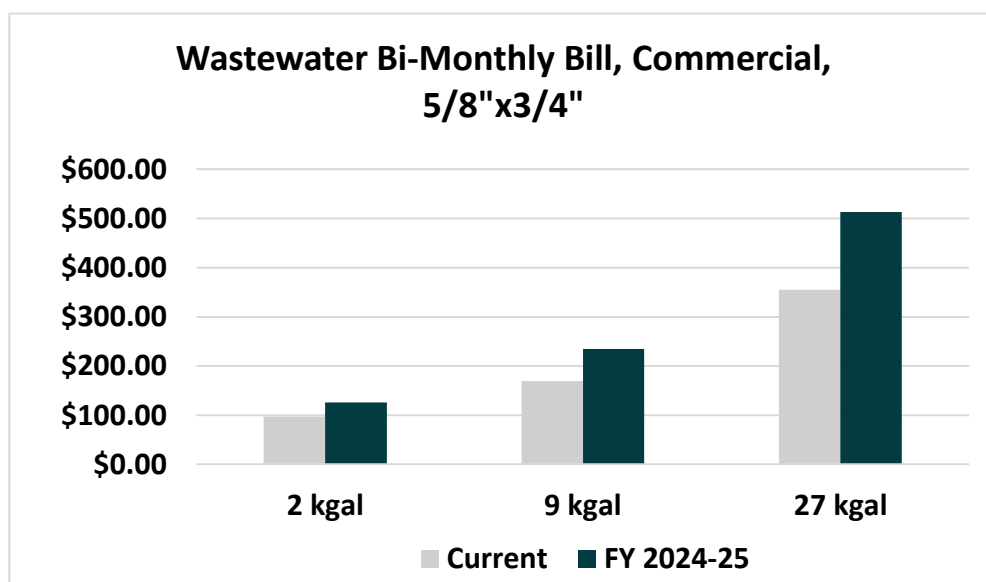


Figure 10-5 shows commercial bi-monthly wastewater bills at low, medium, and high water use levels.

Figure 10-5: Example Commercial Bi-Monthly Wastewater Bills



10.3. Combined Bill – Water and Wastewater Service

Figure 10-6 shows the combined water and wastewater bill for a 5/8"x3/4" single family residential customer typical water use and winter average water use levels.

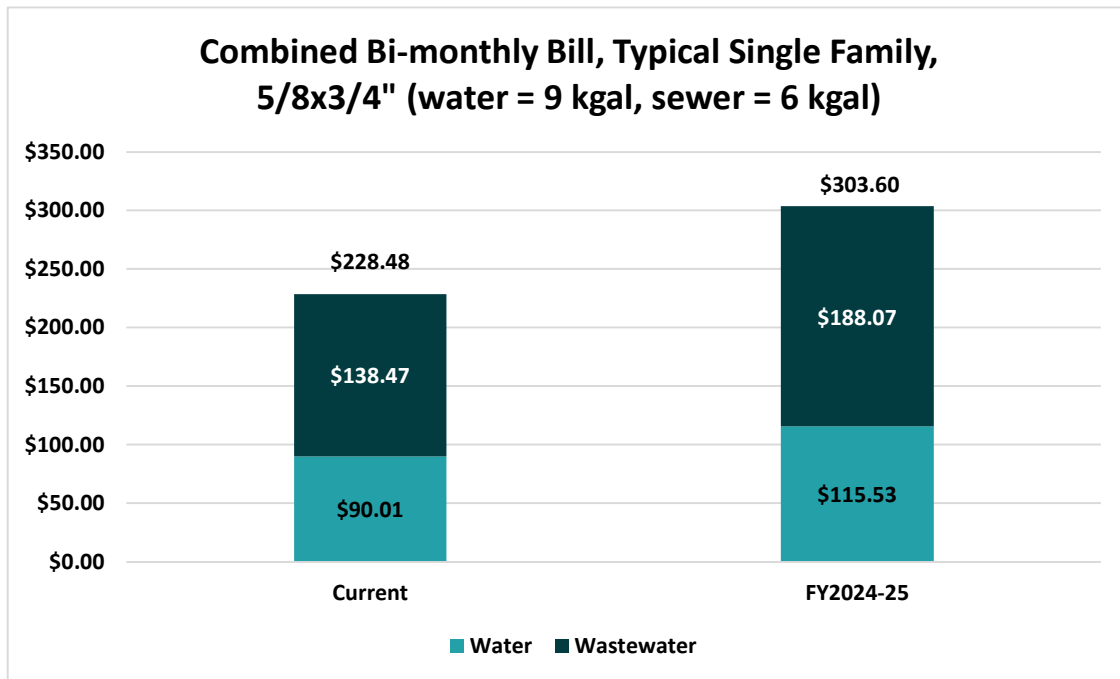
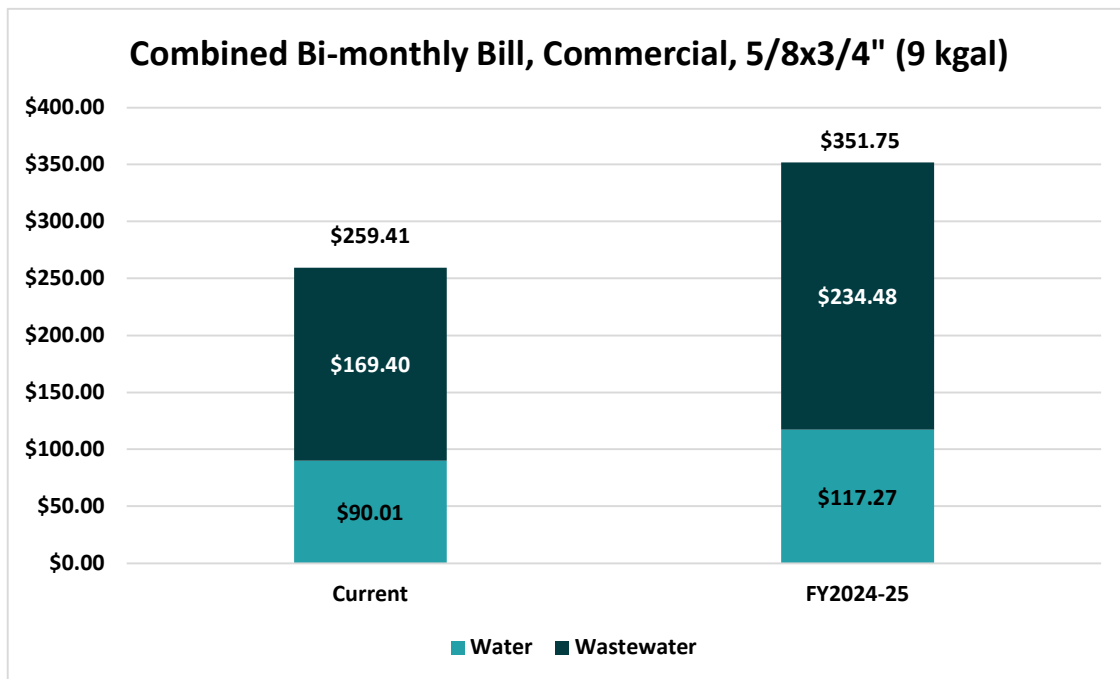
Figure 10-6: Combined Single Family Water and Wastewater Bill, FY 2024-25

Figure 10-7 shows the combined commercial water and wastewater bill at a medium usage of 9 kgal.

Figure 10-7: Combined Commercial Water and Wastewater Bill, FY 2024-25

APPENDIX A:

Water O&M Allocation



Operating Expenditure	Customer								
	Wells	Storage	Meters	Service	Public Fire	T&D	Treatment	G&A	Total
4010 - Salaries - Full Time	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4011 - Salaries - Part Time	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4012 - Overtime	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4013 - Standby	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4017 - Salaries - COVID-19	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4019 - WC- 4850/Temp Disb	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4023 - One Time Payment	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4100 - Employee Benefits	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4101 - Health in Lieu	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4102 - Uniform Allowance	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4105 - Medicare & Fica	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4110 - CalPERS Employer Rate	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4130 - Health Insurance	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4150 - Dental Insurance	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4151 - Vision Insurance	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4181 - Long Term Disability Insurance	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4182 - Short Term Disability Insurance	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4183 - EAP (Employee Asst Prog)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4184 - Life Insurance	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4210 - Professional Contract Services	71.9%	7.3%	0.0%	0.0%	0.0%	16.3%	4.6%	0.0%	100.0%
4211 - Banking Fees	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4301 - Bad Debt Expense	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4302 - Loss due to theft	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4310 - Office Supplies	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4330 - Misc Supplies & Services	17.8%	5.9%	5.9%	8.3%	0.0%	5.9%	56.3%	0.0%	100.0%
4332 - Janitorial & Safety Supplies	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4340 - Postage & Printing	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
4351 - Computer Equip (under \$10 K)	50.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	100.0%
4361 - Meter Replacement Program	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
4365 - Fire Hydrant Replacement Program	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%
4366 - Backflow Prevention Program	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%
4370 - Equipment(under \$10K)	50.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	100.0%
4380 - Vehicle Maintenance	25.0%	25.0%	25.0%	0.0%	0.0%	25.0%	0.0%	0.0%	100.0%
4510 - Conference & Training	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4515 - Meetings & Travel	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4710 - Utilities - Gas & Electric	50.0%	0.0%	0.0%	0.0%	0.0%	50.0%	0.0%	0.0%	100.0%
4750 - Telecommunications	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4996 - Allocated Liability Insurance	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4997 - Allocated Wrkrs Comp Insurance	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
5100 - Capital Outlay	17.2%	10.6%	0.0%	0.2%	0.0%	27.9%	37.9%	6.2%	100.0%
G&A Allocation									
10 - City Council	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
11 - City Manager	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
12 - City Attorney	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
13 - Assistant City Manager/City Clerk	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
14 - Administrative Services (Finance)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
21 - Planning	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
22 - Building	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
23 - Engineering	17.2%	10.6%	0.0%	0.2%	0.0%	27.9%	37.9%	6.2%	100.0%
31 - Fire & Prevention	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	100.0%
41 - Public Works	17.2%	10.6%	0.0%	0.2%	0.0%	27.9%	37.9%	6.2%	100.0%
00 - Non Departmental	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%

APPENDIX B:

Wastewater O&M Allocation



Operating Expenditure	Collection	Lift Station	Customer Service	Sub-regional	General & Admin	Total
4010 - Salaries - Full Time	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4012 - Overtime	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4013 - Standby	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4017 - Salaries - COVID-19	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4019 - WC- 4850/Temp Disb	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4023 - One Time Payment	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4100 - Employee Benefits	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4101 - Health in Lieu	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4102 - Uniform Allowance	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4105 - Medicare & Fica	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4110 - CalPERS Employer Rate	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4130 - Health Insurance	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4150 - Dental Insurance	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4151 - Vision Insurance	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4181 - Long Term Disability Insurance	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4182 - Short Term Disability Insurance	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4183 - EAP (Employee Asst Prog)	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4184 - Life Insurance	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4210 - Professional Contract Services	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4210 - Subregional Contract Services	0.0%	0.0%	0.0%	100.0%	0.0%	100.0%
4211 - Banking Fees	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4227 - Sewer Lateral Grant Program	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4301 - Bad Debt Expense	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4302 - Loss due to theft	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4330 - Misc Supplies & Services	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4332 - Janitorial & Safety Supplies	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4351 - Computer Equip (under \$10 K)	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4360 - Conservation Rebate Program	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4370 - Equipment(under \$10K)	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4380 - Vehicle Maintenance	50.0%	0.0%	50.0%	0.0%	0.0%	100.0%
4510 - Conference & Training	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4515 - Meetings & Travel	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4710 - Utilities - Gas & Electric	100.0%	0.0%	0.0%	0.0%	0.0%	100.0%
4711 - Utilities - City Bill	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4750 - Telecommunications	0.0%	0.0%	100.0%	0.0%	0.0%	100.0%
4996 - Allocated Liability Insurance	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
4997 - Allocated Wrkrs Comp Insurance	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
5100 - Capital Outlay	98.7%	0.0%	0.0%	0.0%	1.3%	100.0%
G&A Allocation						
10 - City Council	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
11 - City Manager	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
12 - City Attorney	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
13 - Assistant City Manager/City Clerk	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
14 - Administrative Services (Finance)	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
21 - Planning	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
22 - Building	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%
23 - Engineering	98.7%	0.0%	0.0%	0.0%	1.3%	100.0%
41 - Public Works	98.7%	0.0%	0.0%	0.0%	1.3%	100.0%
00 - Non Departmental	0.0%	0.0%	0.0%	0.0%	100.0%	100.0%