

# City of Healdsburg

## Water and Wastewater Cost of Service and Rate Design Study

Study Report // March 22, 2024

Corrected May 14, 2024

March 22, 2024

Mr. Terry Crowley  
Public Works Director  
City of Healdsburg  
401 Grove Street  
Healdsburg, CA 95448

**Subject: Water and Wastewater Rate Study**

Dear Mr. Crowley,

Raftelis is pleased to provide this Water and Wastewater Rate Study to the City of Healdsburg. The overall purpose of the study was to develop three years of proposed rates for the City's Water and Wastewater Enterprises for implementation in Fiscal Year (FY) 2024-25 through FY 2026-27. The proposed utility rates were developed following industry standard rate methodologies and in conjunction with the City's legal counsel to ensure that rates are fair, cost-justified, and aligned with the requirements of California's Proposition 218.

The primary objectives of the study were to:

- » Develop a long-range financial plan for both the City's Water and Wastewater Enterprises to ensure financial sufficiency in recovering operating costs, funding long-term capital needs, and maintaining prudent reserves.
- » Conduct water and wastewater cost of service analyses to ensure a nexus between proposed rates and the cost to provide services to customers.
- » Evaluate rate alternatives and proposed rate structure modifications to better align with community values and the City's policy objectives
- » Develop three years of water and wastewater rates in alignment with Proposition 218 requirements.
- » Document the details of the study within a Rate Study report, to support the City's administrative record

This Report outlines the study background, results, and recommendations related to the development of utility financial plans, cost of service analyses, and proposed rates. It has been a pleasure working with you and we thank you and other City staff for the support provided to Raftelis during this study.

Sincerely,



**Kevin Kostiuk**  
*Senior Manager*

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## List of Abbreviations

**AF:** Acre-feet

**AFY:** Acre-feet per year

**AWWA:** American Water Works Association

**BOD:** Biological Oxygen Demand

**CIP:** Capital Improvement Plan

**City:** City of Healdsburg

**COS:** Cost of Service

**CPI:** Consumer Price Index

**CY:** Calendar Year

**FY:** Fiscal year

**GPCD:** Gallons per capita per day

**GPM:** Gallons per minute

**HCF:** One hundred cubic feet

**K:** Thousand

**Lbs:** Pounds

**M:** Million

**Manual M1:** American Water Works Association's *Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices - M1 Seventh Edition*

**Max Day:** Maximum day water demand

**Max Hour:** Maximum hour water demand

**MG:** Million gallons

**Mg/L:** Milligrams per Liter

**MGD:** Million gallons per day

**NPDES Permit:** National Pollutant Discharge Elimination System Permit

**O&M:** Operations and maintenance

**PPM:** Parts per million

**R&R:** Repair and replacement

**RCLD:** Replacement cost less depreciation

**SS:** Suspended Solids

**Study Period:** the rate-setting period of this study which extends through fiscal year 2027-28

**WEF:** Water Environment Federation

**WWTP:** Wastewater treatment plant

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# 1. Executive Summary

## 1.1. Study Overview

Public water and wastewater utilities in California typically perform a Cost-of-Service analysis every three to five years to ensure that customers are appropriately charged for service commensurate with the cost to provide service. The City of Healdsburg last conducted a water and wastewater cost of service study in 2022, which established proposed rates over a five-year period. However, the study did not anticipate recent historic inflation and the significant and sustained water conservation seen through the end of 2022 and into 2023. The City of Healdsburg (City) engaged Raftelis to conduct a water and wastewater cost of service study to develop a long-range financial plan and establish a proposed three-year schedule of water and wastewater rates through FY 2026-27. Note that proposed rates cannot be implemented until formally adopted by City Council after a public hearing, and absent a majority protest by parcels served by the City. Proposition 218 requires that the City customers mail a public hearing notice detailing proposed rate changes no fewer than 45 days before the public hearing.

The major objectives of this study are to:

- » Develop a long-range financial plan for both the City's Water and Wastewater Enterprises to ensure financial sufficiency in recovering operating costs, funding long-term capital needs, and maintaining prudent reserves.
- » Conduct water and wastewater cost of service analyses to ensure a nexus between proposed rates and the cost to provide services to customers.
- » Evaluate rate alternatives and proposed rate structure modifications to better align with community values and the City's policy objectives
- » Develop three years of water and wastewater rates in alignment with Proposition 218 requirements.
- » Document the details of the study within a Rate Study report, to support the City's administrative record

## 1.2. Rate Study Process

This study was conducted using industry-standard principles outlined by the American Water Works Association's (AWWA) *Manual M1* and the Water Environment Federation's (WEF) *Financing and Charges for Wastewater Systems*. The overall process outlined below applies to the development of both water and wastewater rates.

1. **Financial Plan:** Develop cash flow projections for the Water and Wastewater Enterprise to determine the amount of revenue required from water and wastewater rates.
2. **Cost of Service Analysis:** Allocate costs to system components and then to various customer classes based on the costs incurred and user characteristics of each.
3. **Rate Design:** Develop rates that generate sufficient revenues based on the results of the financial plan and cost of service analyses and that communicate the policy preferences of the agency, maintaining that rates are cost-justified.
4. **Administrative Record Preparation:** Develop an administrative record (Study report) to document the results of the rate study.
5. **Rate Adoption:** Proposed rates may be adopted by City Council only after holding a public hearing in accordance with the procedural requirements of Proposition 218.

### 1.3. Proposed Water Financial Plan

Raftelis conducted a status quo cash flow analysis to evaluate whether existing water rates adequately fund the Water Enterprise’s various expenses over a long-range planning period. Annual projections of revenues, O&M costs, debt service payments, and capital expenditures through FY 2032-33 were developed with City staff. Raftelis projects that with no rate increases over the five-year study period, the Water Enterprise’s reserves will quickly turn negative and fail to meet minimum debt coverage requirements in all years. This analysis demonstrates a clear need for revenue adjustments (i.e. gross water rate revenue increases relative to existing rate revenues). Raftelis worked with City staff to develop the following proposed revenue adjustments over the five-year study period, with proposed rates for adoption for the first three years only (see **Table 1-1**).

The proposed rates are predicated on a shift in current adopted reserve policy outlined in the 2022 rate study. Failure to adopt the recommended changes may result in higher projected rates to adhere to the existing minimum coverage requirement. Raftelis recommends transitioning from a capital reserve policy to a rate stabilization policy to streamline the approach, eliminating the earmarking of reserves for specific capital purposes and instead utilizing them to complete preemptive capital replacement and fund maintenance costs in a manner that stabilizes rates support rates. As part of this transition, the City would allocate a portion of the reserve to offset increases over the next three fiscal years. As a result, the proposed financial plan fully funds the operating reserve, but it does not fully fund the rate stabilization reserve. When the City undertakes the next rate study, it is recommended that the City consider fully funding the rate stabilization reserve in the financial plan.

**Table 1-1: Proposed Water Revenue Adjustments**

	PROPOSED INCREASE			FUTURE INCREASES	
Fiscal Year	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
Effective Date	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027	July 1, 2028
Revenue Adjustment	21.0%	20.0%	13.0%	12.0%	12.0%

Key factors influencing the need for proposed revenue adjustments include:

- » **Cost inflation:** Operating costs continue to increase year over year due to general inflationary pressures with higher increases projected for power, labor, and water supply.
- » **Reduction in baseline water demand:** Following two multi-year droughts and associated mandatory conservation and messaging, the City has continued to experience lower overall water consumption relative to historical demands. While conservation is necessary in ensuring reliable long-term water supplies, utility costs must be recovered and reduced water demands generally mean increased rate pressure.
- » **Planned capital expenditures:** Adjusted for inflation, the Water Enterprise has over \$28 M in planned CIP in the next five years. Many projects in the long-term capital plan have been deferred in prior studies due to financial constraints. Continued deferral will challenge overall system reliability and cause larger future rate increases. The City’s utilities have a combined 120 miles of utility pipeline, and a third of those pipes are over 50 years old, resulting in an average of two water service repairs per week. Rate revenues need to be sufficient to execute these projects with cash, future external borrowing (debt proceeds), or a combination of the two. Additionally, the City is facing increasing regulatory mandates to improve water filtration. These mandates include filtering for cryptosporidium and the potential treatment of Per- and Polyfluorinated Substances (PFAS) which requires additional CIP investment.
- » **Cash reserves:** Utilities must have sufficient cash on hand to provide for working capital (paying routine expenses), to mitigate fluctuations in costs, and to mitigate risk, whether from seasonality of revenues and

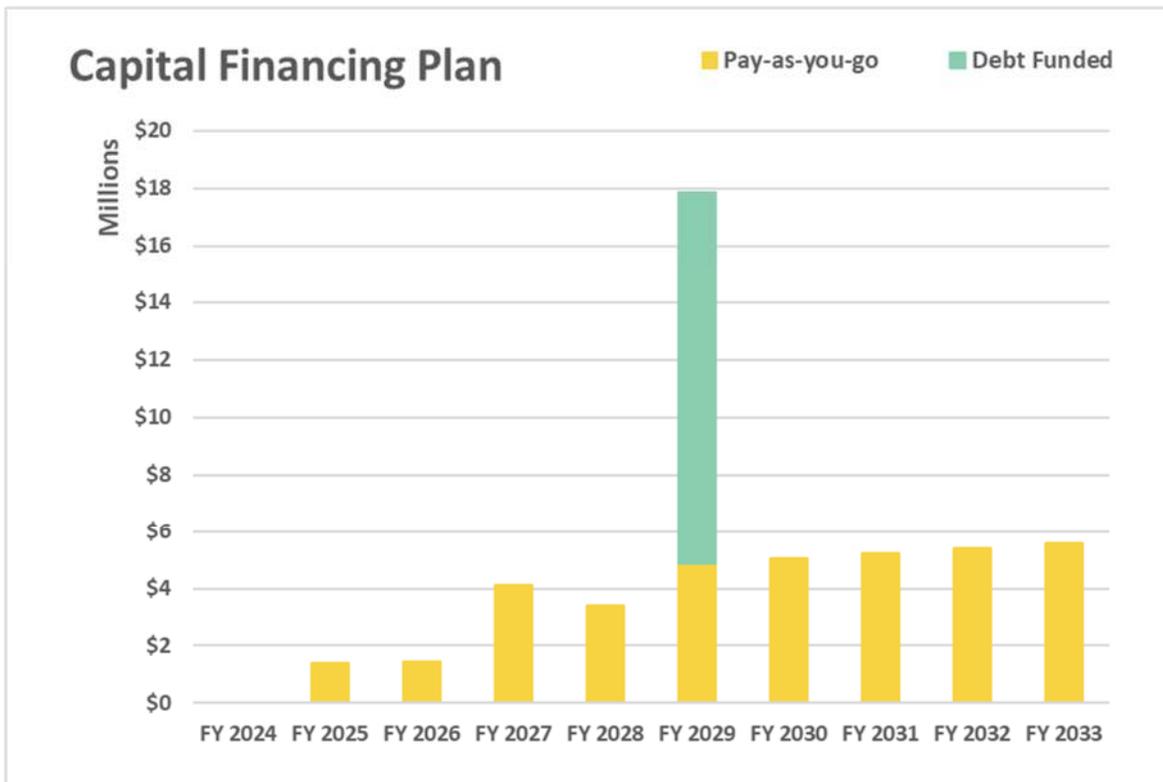
expenses or the risk that comes with providing services that rely on extensive and specialized infrastructure. Recent inflationary pressure coupled with declines in water sales revenues has resulted in a drawdown of operating reserves. Revenue adjustments will help to ensure that the Water Enterprise can maintain minimum operating reserve policy targets to provide sufficient cash flow and mitigate system risk.

- » **Debt Coverage:** The Water Enterprise fund has debt service coverage requirements as a condition of past external borrowing. Proposed rates ensure the Water Enterprise can achieve coverage on existing debt and have sufficient capacity to qualify for future credit extensions.

In this Study, wastewater rates are proposed for adoption for the first three fiscal years (FY25-FY27) only. However, Raftelis developed a long-range financial plan to project revenues and expenses over a 10-year period (current fiscal year through FY 2033). For planning purposes and to provide full transparency on the trajectory of future revenue increases, the following figures present 10 years of projections. In addition to the three years of proposed changes and two years of potential future changes (five years total) shown in Table 1-4, an additional four years of future projected increases for wastewater are required to fully recover projected operating and capital costs, maintain debt service coverage above minimum, and maintain operating cash reserves above minimum levels during the 10 year financial planning period. Specifically, these outer year future increases are 5% in FY 2030 and 3.5% in FY 2031-2033. These projections will be revisited as part of future rate studies and are subject to change based on new information, changes in revenues and expenses, City policies, and regulatory requirements. However, if the predicted future rate increases are not adopted and timely implemented, then cash flows will likely be less than currently depicted.

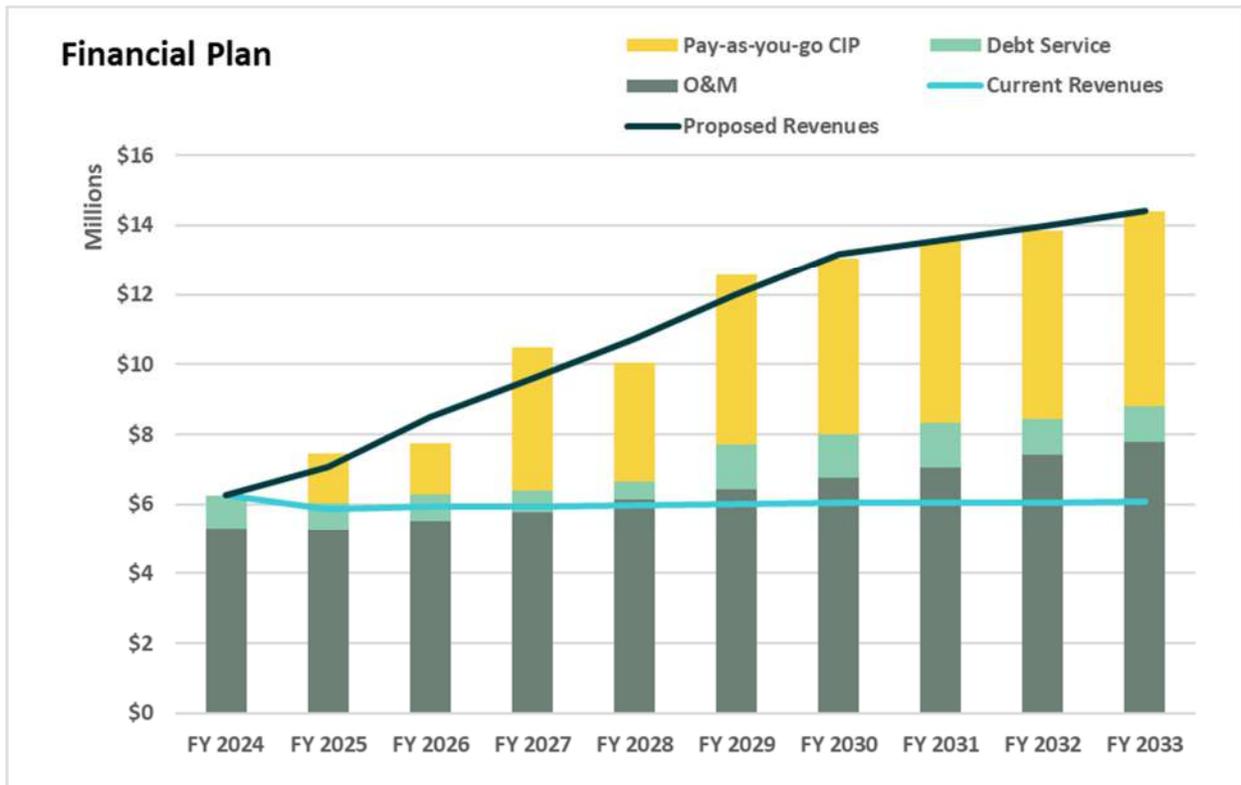
**Figure 1-1** shows the proposed CIP financing plan over the long-range planning period. The City intends to fund future CIP costs through a combination of cash and future debt proceeds. Future debt proceeds are for planning purposes only and would only be required if the City is required to expend funds on a series of projects related to PFAS.

**Figure 1-1: Water Enterprise Capital Improvement Plan**



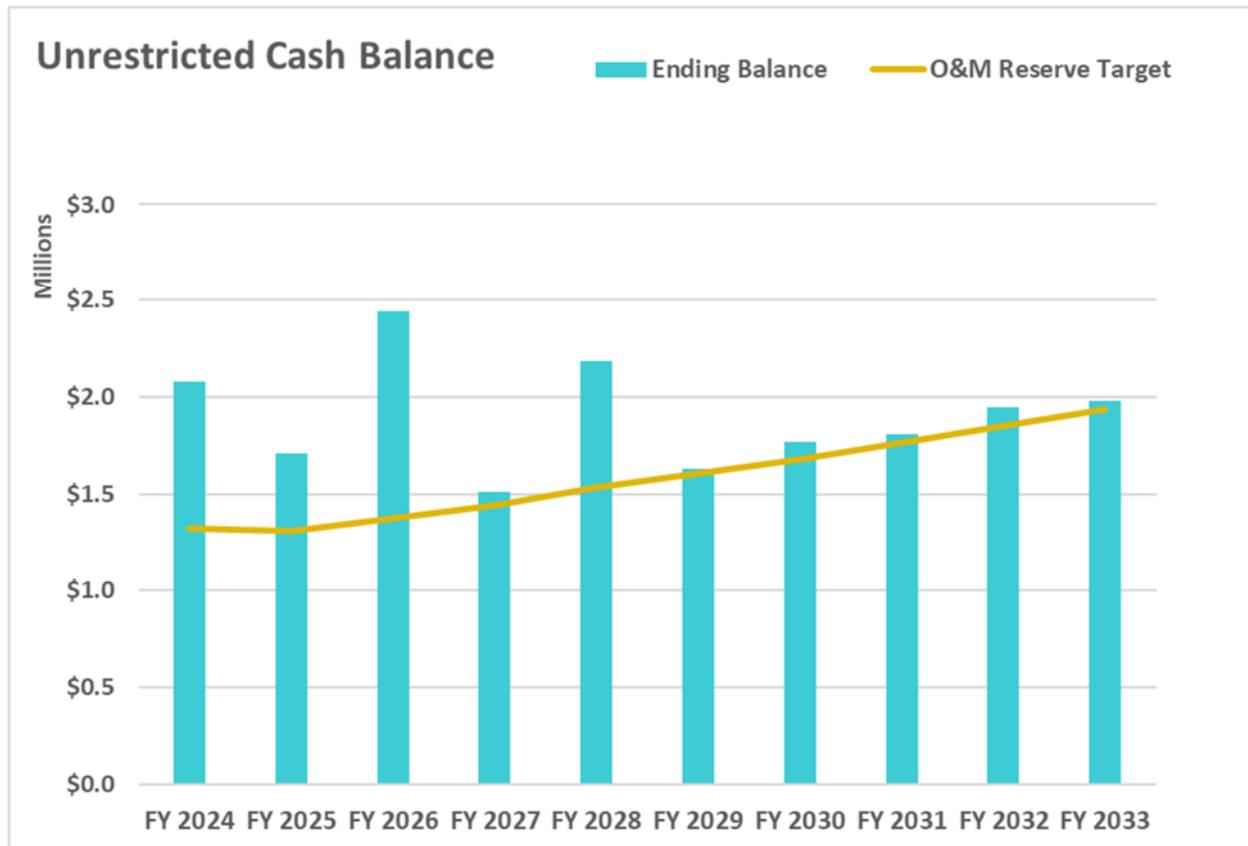
**Figure 1-2** shows the proposed versus status quo Water Enterprise operating financial plan. Revenues under the proposed financial plan and status quo financial plan are represented by the black and blue lines, respectively. Revenue requirements including O&M expenses, debt service, and cash reserve funding (including for CIP) are represented by the various stacked bars. Revenue adjustments (i.e., gross rate revenue increases) are required to generate additional revenue to fully recover O&M expenses, CIP expenditures, debt service payments, and reserve funding over the study period.

**Figure 1-2: Water Enterprise Financial Plan - Proposed vs. Status Quo**



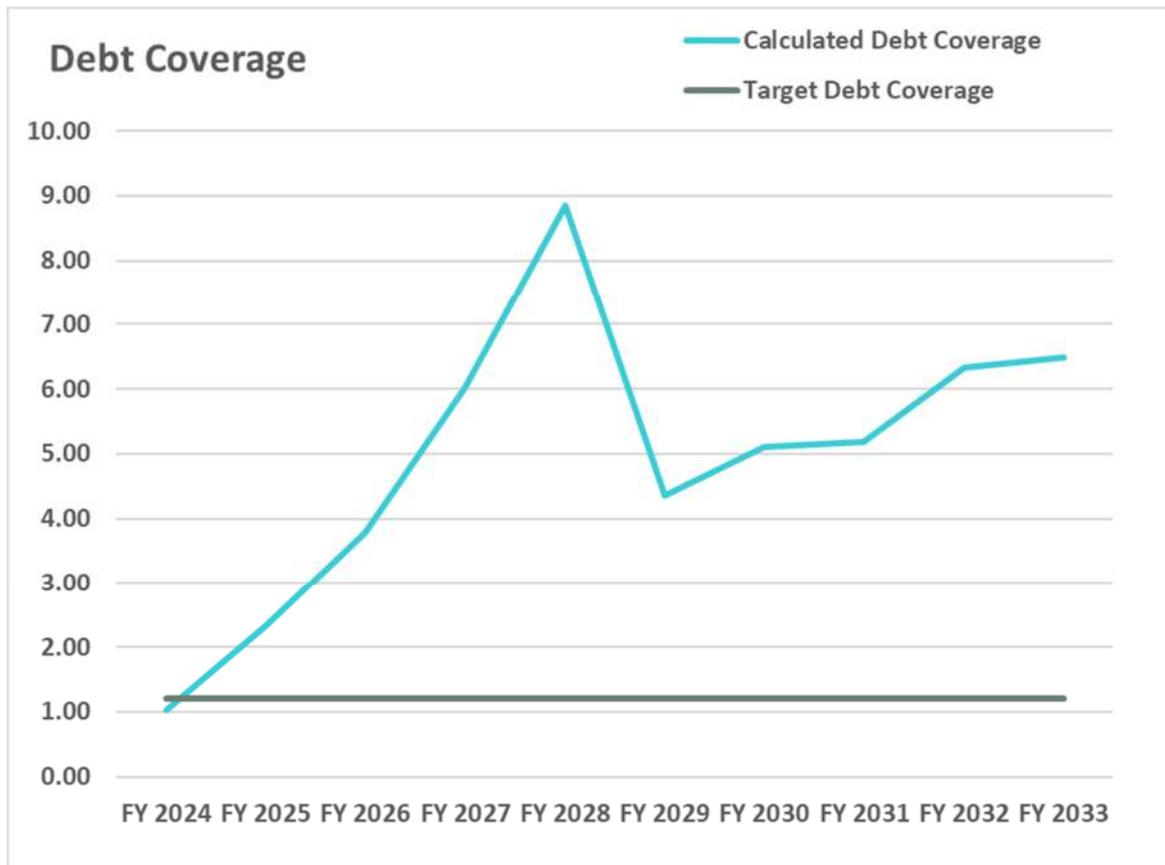
**Figure 1-3** shows the Water Enterprise’s projected fiscal year-end cash balance under the proposed financial plan. The light blue bars indicate the ending balance on June 30 of each year. The minimum operating reserve target is represented by the orange line. The minimum operating reserve is 90 days of operating expenses (including O&M and debt service). The proposed revenue increases shown in **Table 1-1** will allow the City to increase operating reserve funding beginning in FY 2024-25, such that the City’s operating reserve funding will meet its minimum reserve requirement throughout the long-range planning period.

**Figure 1-3: Water Enterprise Projected Ending Cash Balances**



**Figure 1-4** shows projected debt coverage (blue line) relative to the debt coverage minimum requirement (gray line) over the planning period. Debt coverage will increase significantly with the proposed revenue increases shown in **Table 1-1**. The proposed rate increases will allow the City to meet its minimum debt coverage requirement throughout the study period while planning to borrow for future projects. Failure to meet minimum debt service coverage minimums could result in a downgrade of credit rating, higher costs of future borrowing, or even denial of credit.

**Figure 1-4: Water Enterprise Projected Debt Coverage**



## 1.4. Proposed Water Rates

The City of Healdsburg’s existing water rate structure consists of fixed Water Service Charges (based on meter size or dwelling units) and variable Water Volume Rates (per hundred cubic feet [HCF] of water delivered). Raftelis worked closely with City staff and the City’s legal counsel to evaluate potential changes to the existing water rate structure. The following changes are proposed:

### » Water Use Rates

- **Residential Tiered Water Rates:** The Study recommends that the City introduce a three-tiered rate structure for Residential water customers including Single-Family Residential (SFR) and Multi-Family Residential (MFR). MFR customers will receive tier allotments for each dwelling unit served. Tier 1 is defined as the first 5 units of water (HCF) per monthly billing period, reflecting average winter usage (January -March) for a SFR customer rounded up to the nearest whole number. Tier 2 encompasses usage greater than 5 and up to and including 10 HCF,

representing summer peak (75<sup>th</sup> percentile in the July – September periods) demands of SFR customers rounded up to the nearest whole number. Tier 3 comprises of all units of water usage exceeding 10 HCF. Residential users are a homogenous customer class with 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 customers. The proposed monthly allotments for residential customers are shown below in **Table 1-2** and reflect actual demand patterns of City water users. Note that non-residential customers will maintain a uniform rate structure.

- **All Other Classes:** The Study recommends that all other customer classes maintain a uniform rate structure, however, going forward each class will have a distinct uniform rate based on their specific demand characteristics. The new rates by customer class include those customers designated as Commercial, Industrial, and Landscape Irrigation. Non-residential classes have highly varying demand patterns within each class based on the type of business, seasonality, and/or transient effects. Peaking costs, also referred to as *extra capacity* costs, are costs associated with higher demand patterns. These costs are allocated to each customer class based on their specific class demand patterns and calculating peaking. For this reason, uniform rates are proposed for each of the non-residential classes.
  
- » **Monthly Service Charges:** The Study recommends harmonizing the fixed service charges across user classes. This change will align Residential customers with a metered connection of a specific size with Non-Residential customers with the same size meter. The proposed structure relies on meter size alone to distinguish the “class” of customer. This change acknowledges that meter capacity, not customer classification, reflects the best estimate of the costs imposed by a user on the water system that are recovered through fixed charges.

**Table 1-2: Current and Proposed Water Use Rate Structures**

Description	Current Structure	Proposed Structure
<b>Residential (SFR/MFR)</b>		
Tier 1	Uniform Water Use Rate (All Classes)	0-5 HCF
Tier 2	Uniform Water Use Rate (All Classes)	6-10 HCF
Tier 3	Uniform Water Use Rate (All Classes)	>10 HCF
<b>Non-Residential Classes</b>		
Commercial	Uniform Water Use Rate (All Classes)	Uniform Water Use Rate, by Class
Industrial	Uniform Water Use Rate (All Classes)	Uniform Water Use Rate, by Class
Landscape Irrigation	Uniform Water Use Rate (All Classes)	Uniform Water Use Rate, by Class

**Table 1-3** the shows the three years of proposed Water Service Charges and Water Volume Rates (through FY 2026-27). All charges and tier allotments are shown in monthly terms and all rates are rounded up to the nearest penny. All volumetric rates are shown in terms of dollars per hundred cubic feet (\$/HCF). All rates are assumed to be implemented at the beginning of each fiscal year and in effect on or after July 1.

**Table 1-3: Proposed Three-Year Water Rates Schedule**

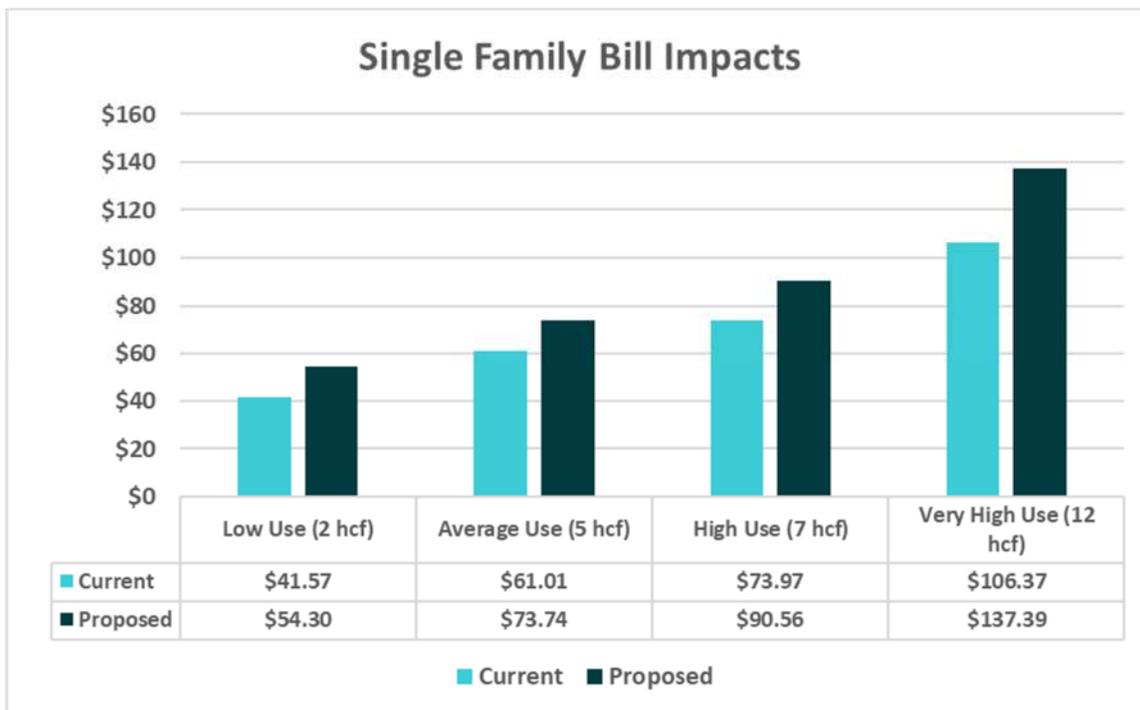
Description	Current	FY 2025	FY 2026	FY 2027
<b>Residential Fixed Monthly Service Charge</b>				
Single Family	\$28.61	By Meter Size	By Meter Size	By Meter Size
Single Family + ADU (per DU)	\$21.84	By Meter Size	By Meter Size	By Meter Size
Multi-Family (Per DU)	\$17.01	By Meter Size	By Meter Size	By Meter Size
<b>Fixed Monthly Service Charges</b>				
Up to 1"	\$45.26	\$41.34	\$49.61	\$56.06
1 1/2"	\$86.90	\$77.94	\$93.53	\$105.69
2"	\$136.86	\$121.86	\$146.24	\$165.26
3"	\$253.46	\$238.98	\$286.78	\$324.07
4"	\$419.91	\$370.75	\$444.90	\$502.74
6"	\$1,127.75	\$736.76	\$884.12	\$999.06
<b>Residential (Single Family &amp; Multi-Family)</b>				
Tier 1 (0-5 HCF)	\$6.48	\$6.48	\$7.78	\$8.80
Tier 2 (6-10 HCF)	\$6.48	\$8.41	\$10.10	\$11.42
Tier 3 >10 HCF	\$6.48	\$10.80	\$12.96	\$14.65
<b>Non-Residential Classes</b>				
Commercial	\$6.48	\$7.61	\$9.14	\$10.33
Industrial	\$6.48	\$9.49	\$11.39	\$12.88
Landscape	\$6.48	\$11.06	\$13.28	\$15.01
Riverview HOA <sup>1</sup>	\$1.59	\$1.93	\$2.32	\$2.63

<sup>1</sup> Only the volumetric rate is applicable to Riverview HOA under the terms of the 1997 order of condemnation. HOA Riverview pays a fixed monthly service charge by meter size that increases based schedule.

## 1.5. Water Bill Impacts

Figure 1-5 shows sample monthly water bills for single family residential customers at varying levels of water use under both current and proposed FY 2024-25 rates. Note that actual bill impacts will vary based on individual water use; however, the values shown below are based on low, high, and typical volumes for single family residential customers in the City of Healdsburg.

Figure 1-5: Single Family Residential Monthly Water Bill Impacts (FY 2024-25)



## 1.6. Proposed Wastewater Financial Plan

Raftelis conducted a status quo cash flow analysis to evaluate whether existing wastewater rates adequately fund the Wastewater Enterprise’s various expenses over the long-range planning period. Annual projections of revenues, O&M expenses, debt service payments, and capital expenditures through FY 2032-33 were developed with City staff. Raftelis projects that with no rate increases the Wastewater Enterprise’s reserves will quickly become negative and fail to meet minimum debt coverage. This demonstrates a clear need for revenue adjustments (i.e. gross wastewater rate revenue increases relative to existing rate revenues). Raftelis worked with City staff to develop the following proposed revenue adjustments over the five-year study period, with proposed rates for adoption for the first three years only (see **Table 1-4**).

The proposed rates are predicated on a shift in current adopted reserve policy outlined in the 2022 rate study. Failure to adopt the recommended changes may result in higher projected rates to adhere to the existing minimum coverage requirement. Raftelis recommends transitioning from a capital reserve policy to a rate stabilization policy to streamline the approach, eliminating the earmarking of reserves for specific capital purposes and instead utilizing them to complete preemptive capital replacement and fund maintenance costs in a manner that stabilizes rates support rates. As part of this transition, the City would allocate a portion of the reserve to offset increases over the next three fiscal years. As a result, the proposed financial plan fully funds the operating reserve, but it does not fully

fund the rate stabilization reserve. When the City undertakes the next rate study, it is recommended that the City consider fully funding the rate stabilization reserve in the financial plan.

**Table 1-4: Proposed Wastewater Revenue Adjustments**

Fiscal Year	PROPOSED INCREASES			FUTURE INCREASES	
	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
Effective Date	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027	July 1, 2028
Revenue Adjustment	18.0%	18.0%	15.0%	9.0%	5.0%

Key factors influencing the need for proposed Wastewater Enterprise revenue adjustments include:

- » **Cost inflation:** Operating costs continue to increase year over year due to general inflationary pressures with higher increases projected for power, labor, chemicals, and treatment costs among others.
- » **Planned capital expenditures:** Adjusted for inflation, the Wastewater Enterprise has over \$15 M in CIP in the next five years. As with the Water Enterprise, many projects in the long-term capital plan have been deferred in prior studies due to financial constraints. Continued deferral will challenge overall system reliability and cause larger future rate increases. The City’s utilities have a combined 120 miles of utility pipeline, and a third of those pipes are over 50 years old. Rate revenues need to be sufficient to execute these projects and . for planning purposes, all Wastewater Enterprise projects in this study are assumed to be cash funded.
- » **Cash reserves:** Utilities must have sufficient cash on hand to provide for working capital (paying routine expenses), to mitigate fluctuations in costs, and to mitigate risk whether from seasonality of revenues and expenses or the risk that comes with providing services that rely on extensive and specialized infrastructure. Recent inflationary pressure on both operating and capital costs has resulted in a drawdown of operating reserves. Revenue adjustments will help to ensure that the Wastewater Enterprise can maintain minimum operating reserve policy targets to provide sufficient cash flow and mitigate system risk.
- » **Debt Coverage:** The utility has debt obligations which require a minimum coverage policy. With the added revenues from proposed rate increases, the Enterprise will have sufficient funds to meet debt coverage requirements.

In this Study, wastewater rates are proposed for adoption for the first three fiscal years (FY25-FY27) only. However, Raftelis developed a long-range financial plan to project revenues and expenses over a 10-year period (current fiscal year through FY 2033). For planning purposes and to provide full transparency on the trajectory of future revenue increases, the following figures present 10 years of projections. In addition to the three years of proposed changes and two years of future changes (five years total) shown in Table 1-4, an additional four years of future projected increases for wastewater are required to fully recover projected operating and capital costs, maintain debt service coverage above minimum, and maintain cash reserves above minimum levels during the 10 year financial planning period. Specifically, these outer year future increases are 5% in FY 2030 and 3.5% in FY 2031-2033. These projections will be revisited as part of future rate studies and are subject to change based on new information, changes in revenues and expenses, City policies, and regulatory requirements. However, if the predicted future rate increases are not adopted and timely implemented, then cash flows will likely be less than currently depicted.

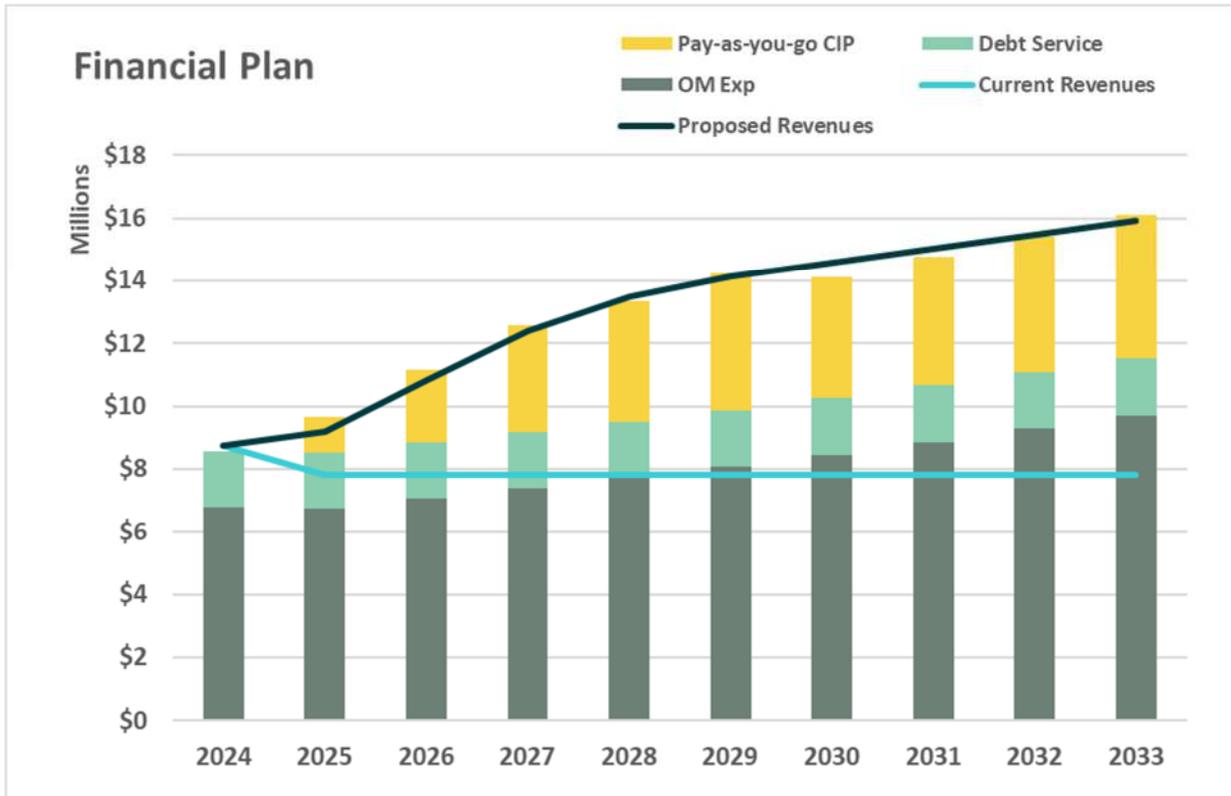
Figure 1-6 shows the proposed CIP financing plan over the study period. Primary wastewater CIP projects include lift station replacements and relocations as well as extensive sewer line replacement. The City plans to finance its wastewater CIP projects through cash.

Figure 1-6: Wastewater Enterprise Capital Improvement Plan



**Figure 1-7** shows the proposed versus status quo Wastewater Enterprise operating financial plan. Revenues under the proposed financial plan and status quo financial plan are represented by the black and blue lines, respectively. Revenue adjustments (i.e., gross rate revenue increases) are required to generate additional revenue to fully recover O&M expenses, CIP project costs, debt service payments, and reserve funding over the long-term planning period.

**Figure 1-7: Wastewater Enterprise Financial Plan - Proposed vs. Status Quo**



**Figure 1-8** shows the Wastewater Enterprise’s projected fiscal year-end cash balance under the proposed financial plan. The light blue bars indicate the ending balance on June 30 of each year. The minimum operating reserve target is represented by the orange line. The minimum operating reserve is 90 days of operating expenses (including O&M and debt service). The proposed wastewater revenue increases shown in **Table 1-4** will allow the City to increase operating reserve funding beginning in FY 2024-25, such that the City’s operating reserve funding will meet its minimum reserve requirement throughout the long-range planning period.

**Figure 1-8: Wastewater Enterprise Projected Ending Cash Balances**

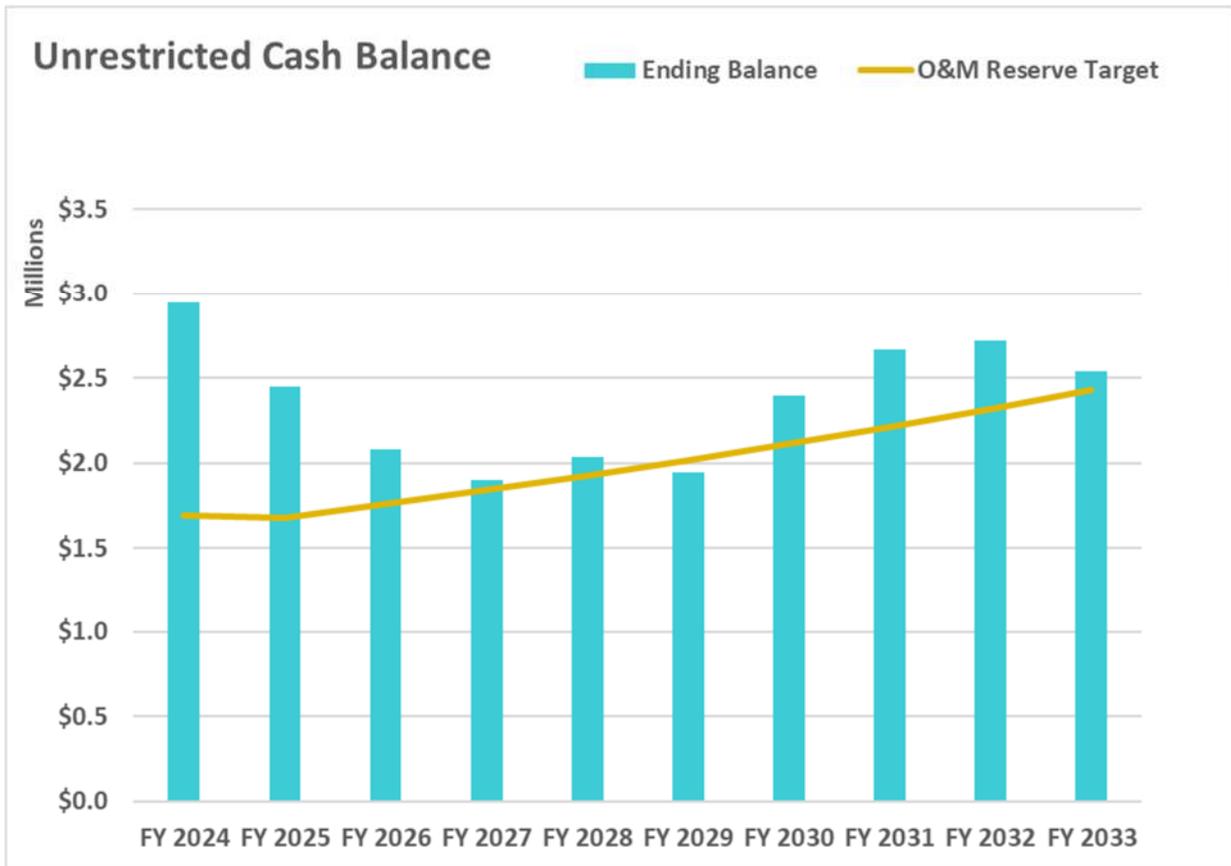
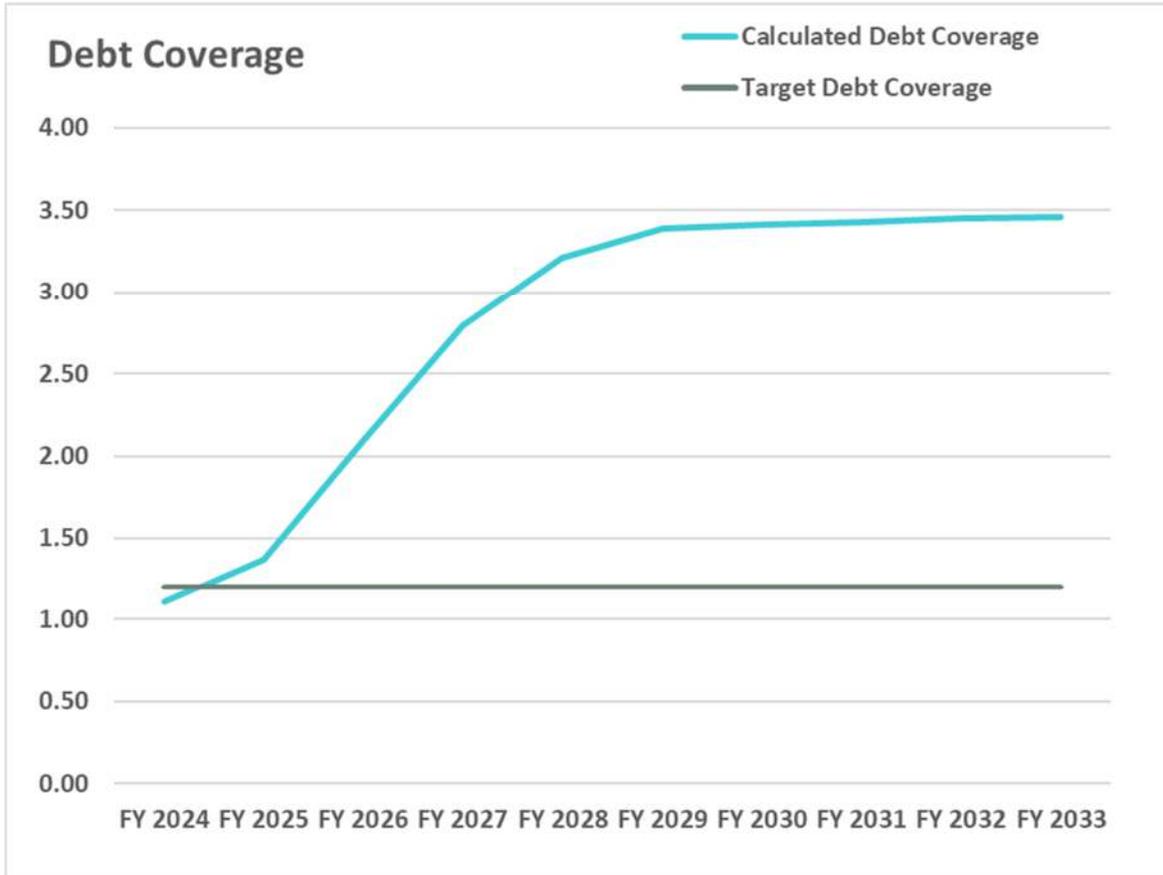


Figure 1-9 shows projected debt coverage (blue line) relative to the debt coverage requirement (gray line) over the study period. The wastewater utility is projected to meet debt coverage requirements and does not intend to issue debt throughout the long-range planning period.

Figure 1-9: Wastewater Enterprise Projected Debt Coverage



## 1.7. Proposed Wastewater Rates

The City of Healdsburg’s current fixed wastewater rate structure consists of Fixed Service Charges per dwelling unit for residential customers, and charges by meter size for non-residential customers. All customers are also charged a per unit (HCF) charge based on estimated wastewater flows and the strength of the flows. Residential customers’ variable charge units are based on their average winter consumption (AWC) whereas Non-Residential customers are charged per billed unit of water.

Proposed rate structure modifications include:

- » **Retire the SFR + ADU Fixed Charge:** any SFR customer with two or more dwelling units per parcel will be treated as a MFR customer and subject to the multifamily charge.
- » **Non-Residential Meter-Based Fixed Charges:** This study maintains the existing non-residential fixed charge structure by meter size, however, the ratios between the meter sizes are proposed to use calculated flow ratios rather than hydraulic capacity ratios. Raftelis used City of Healdsburg sewer user billing data to

calculate average flow per billing period at each meter size. This approach is more representative of wastewater generation by meter size versus ratios which reflect potential water demand by meter size.

Proposed wastewater rates reflect the revenue adjustments in **Table 1-4**, the updated wastewater cost of service analysis, and rate modifications discussed immediately above.

**Table 1-5** shows proposed wastewater rates through FY 2026-27. All Fixed Charges shown are monthly and all volumetric rates are shown in terms of dollars per hundred cubic feet (\$/HCF). All rates are rounded up to the nearest penny. All rates are assumed to be implemented at the beginning of each fiscal year on July 1.

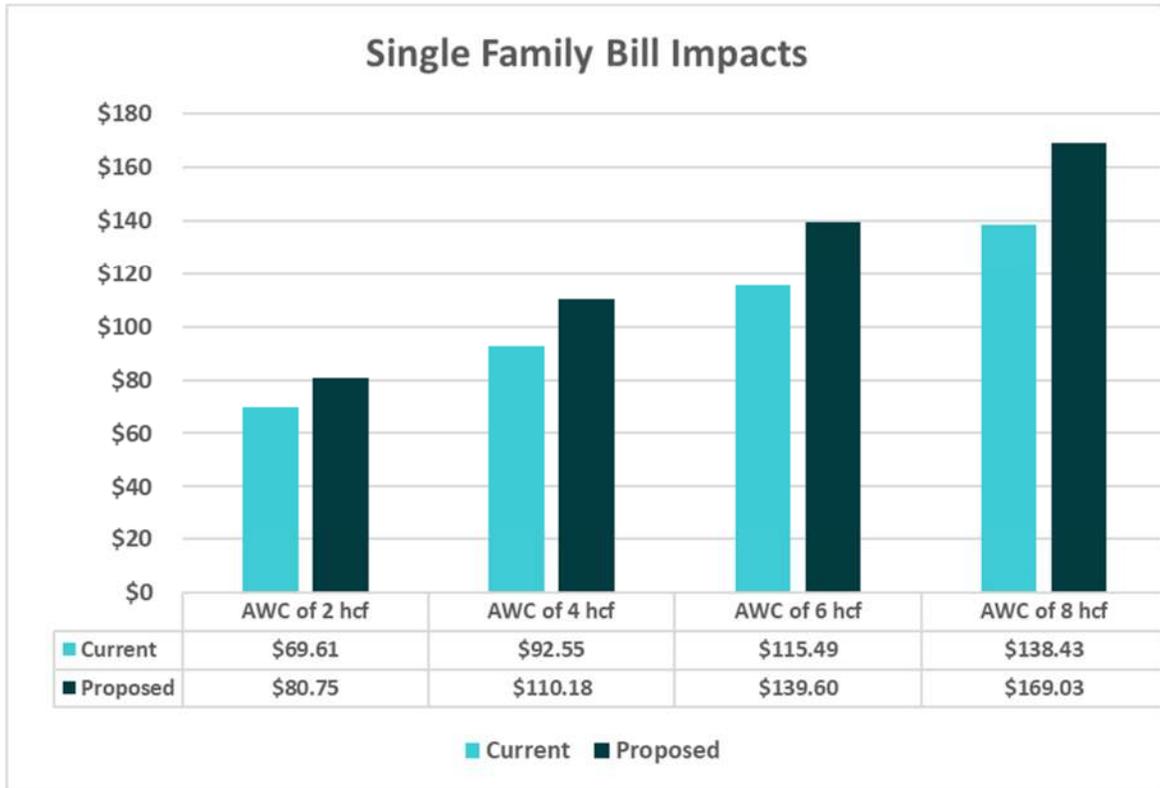
**Table 1-5: Proposed Three-Year Wastewater Rate Schedule**

Description	Current	FY 2025	FY 2026	FY 2027
<b>Residential Service Charges (\$/Month/Dwelling Unit)</b>				
Single Family Residential (SFR)	\$46.67	\$51.33	\$60.57	\$69.66
SFR + ADU	\$31.95	N/A	N/A	N/A
Multi-Family Residential (MFR)	\$37.80	\$36.94	\$43.60	\$50.14
Flat Rate (Sewer Only SFR)	\$104.01	\$110.18	\$130.02	\$149.53
<b>Non Residential Service Charges (\$/Month/Meter)</b>				
Up to 1"	\$75.75	\$83.88	\$98.99	\$113.84
1 1/2"	\$148.49	\$243.37	\$287.18	\$330.26
2"	\$235.77	\$396.68	\$468.09	\$538.31
3"	\$439.44	\$1,279.52	\$1,509.84	\$1,736.32
4"	\$730.39	\$1,405.05	\$1,657.97	\$1,906.67
6"	\$1,966.94	\$1,405.05	\$1,657.97	\$1,906.67
<b>Wastewater Usage Charges (\$/HCF)</b>				
Residential (SFR/MFR)	\$11.47	\$14.71	\$17.37	\$19.98
Non Residential				
Low Strength	\$10.31	\$11.43	\$13.49	\$15.52
Medium Strength	\$15.09	\$15.21	\$17.95	\$20.65
High Strength	\$22.08	\$21.08	\$24.88	\$28.62

## 1.8. Wastewater Bill Impacts

Figure 1-10 shows sample monthly wastewater bills for SFR customers at varying levels of AWC under both current rates and proposed FY 2024-25 rates. The average AWC for a residence in Healdsburg is approximately 4 HCF per month.

Figure 1-10: Single Family Residential Monthly Wastewater Bill Impacts (FY 2024-25)



# 2. Introduction

## 2.1. Agency Overview

The City of Healdsburg (City), situated 70 miles north of San Francisco on Highway 101 within Sonoma County, boasts a population of around 11,183 residents. The city lies at the meeting point of three valleys: Russian River, Dry Creek, and Alexander Valleys. The City provides water and wastewater services to the City's residents and businesses, providing services to around 4,700 accounts. The City's drinking-water is sourced from three well fields: two located along the Russian River and one located on Dry Creek. The potable water distribution system comprises three pressure zones supplied by six storage reservoirs. Meanwhile, the wastewater collection system consists of an underground network of pipelines that gather and transport raw wastewater from individual user connections to the city's tertiary-level treatment plant, known as the City of Healdsburg's Wastewater Treatment, Reclamation, and Disposal Facility (WWTF). At this facility, all wastewater is treated to meet Title 22 recycled water standards before being discharged into a former gravel extraction pit, Basalt Point, where it percolates into the underlying groundwater basin, ultimately connecting to the Russian River.

## 2.2. Study Overview

Public water and wastewater utilities in California typically perform a Cost-of-Service analysis every three to five years to ensure that customers are appropriately charged for service commensurate with the cost to provide service. The City of Healdsburg last conducted a water and wastewater cost of service study in 2022, which established proposed rates over a five-year period. However, the study did not anticipate recent historic inflation and the significant and sustained water conservation seen through the end of 2022 and into 2023. The City of Healdsburg (City) engaged Raftelis to conduct a water and wastewater cost of service study to develop a long-range financial plan and establish a proposed three-year schedule of water and wastewater rates through FY 2026-27. Note that proposed rates cannot be implemented until formally adopted by City Council after a public hearing, and absent a majority protest by parcels served by the City. Proposition 218 requires that the City mail a public hearing notice detailing proposed rate changes no fewer than 45 days before the public hearing.

### Study Objectives

The major objectives of this study are to:

- » Develop a long-range financial plan for both the City's Water and Wastewater Enterprises to ensure financial sufficiency in recovering operating costs, funding long-term capital needs, and maintaining prudent reserves.
- » Conduct water and wastewater cost of service analyses to ensure a nexus between proposed rates and the cost to provide services to customers.
- » Evaluate rate alternatives and proposed rate structure modifications to better align with community values and the City's policy objectives
- » Develop three years of water and wastewater rates in alignment with Proposition 218 requirements.
- » Document the details of the study within a Rate Study report, to support the City's administrative record

## Key Changes Since Prior Rate Study

**Reduction in baseline water demand:** One significant development affecting water demand is the enduring drought conditions in California, which have led to permanent reductions in baseline water consumption across the state. Specifically, the City has experienced a notable decrease of approximately 20% from historical average usage levels. Furthermore, since the last rate study, there has been a consistent decline in both per capita and per connection demands compared to historical baselines. As depicted in **Figure 11**, the annual water demand for the City exceeded 600 million gallons per year from 2017 to 2020 and has not rebounded over the past three years.

**Figure 11: Historical Annual Water Usage (Million Gallons)**



**Cost inflation:** The City's water and wastewater operations are impacted by increasing costs and shocks in system inputs like chemicals and labor. Operating costs continue to increase year over year due to general inflationary pressures with higher increases projected for power, labor, and water supply. Overall, utility operating costs far outpace general inflation rates.

- » **Capital Expenditures:** Many projects in the long-term Capital Improvement Program (CIP) previously included in the prior rate studies were deferred due to financial constraints. Additionally, the City is facing increasing regulatory mandates to improve water filtration. These mandates include filtering for cryptosporidium and the potential treatment of Per- and Polyfluorinated Substances (PFAS) which requires additional CIP investment. Total CIP deferred projects total roughly \$8.1 million excluding the possible cost of PFAS treatment.

# 3. Legal Requirements and Rate Setting Methodology

## 3.1. Legal Requirements

### California Constitution - Article XIII D, Section 6 (Proposition 218)

Proposition 218, reflected in the California Constitution as Article XIII D, was enacted in 1996 to ensure that rates and fees are reasonable and proportional to the cost of providing service. The principal requirements, as they relate to public water and wastewater service are as follows:

1. A property-related charge (which include water or wastewater rates) imposed by a public agency on a parcel shall not exceed the costs required to provide the property-related service.
2. Revenues derived by the charge shall not be used for any purpose other than that for which the charge was imposed.
3. The amount of the charge imposed upon any parcel shall not exceed the proportional cost of service attributable to the parcel.
4. No charge may be imposed for a service unless that service is actually used or immediately available to the owner of the property.
5. No fee or charge may be imposed for general governmental services including, but not limited to, police, fire, ambulance or library services, where the service is available to the public at large in substantially the same manner as it is to property owners.

As stated in the American Water Works Association’s (AWWA) *Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices - M1 Seventh Edition* (Manual M1), “water rates and charges should be recovered from classes of customers in proportion to the cost of serving those customers.” Raftelis follows industry standard rate setting methodologies set forth by the AWWA’s *Manual M1* to ensure the water cost of service analysis presented in this study meets Proposition 218 requirements and establishes rates that do not exceed the proportionate cost of providing water services on a parcel basis. The methodology in the Manual M1 is a nationally recognized industry ratemaking standard which courts have recognized as consistent with Proposition 218. Similarly, the wastewater cost of service presented in this study was conducted in accordance with principles established by the Water Environment Federation (WEF) and described in *Financing and Charges for Wastewater Systems*.

## 3.2. Rate-Setting Methodology

This study was conducted using industry-standard principles outlined by the AWWA’s *Manual M1* and WEF’s *Financing and Charges for Wastewater Systems*. The process and approach Raftelis utilized in the study to determine rates is informed by the City’s policy objectives, the current system of 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 state law. The overall process outlined below applies to the Cost-of-Service analyses for both water and wastewater.

1. **Financial Plan:** The first study step is to develop a multi-year financial plan that projects the Water and Wastewater Enterprises’ revenues, expenses, capital project financing, annual debt service, and reserve

funding. The financial plan is used to determine revenue adjustments needed to recover adequate revenues to fully recover system costs.

2. **Revenue Requirement Determination:** After completing the financial plan, the rate-making process begins with the determination of the revenue requirement for the test year, also known as the Cost-of Service year. The test year for this study is FY 2022-23. The revenue requirement should sufficiently fund the Water and Wastewater Enterprises' operating costs, annual debt service (including coverage requirements), capital expenditures, and reserve funding needs.
3. **Cost-of-Service Analysis:** The annual cost of providing water or wastewater service (i.e. the revenue requirement) is then distributed to customer classes commensurate with their use of and burden on the system. A Cost-of-Service analysis involves the following steps:
  - » Functionalize costs – the different components of the revenue requirement are categorized into functions such as supply, transmission, storage, customer service, etc. (for water) and collection, treatment, customer, etc. (for wastewater)
  - » 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 flow, strength, etc. (for wastewater)
  - » Develop unit costs – unit costs for each cost causation component are determined using units of service
  - » Distribute cost components – the cost components are allocated to each customer class or tier using the unit costs in proportion to their demand and burden on the system.

A water cost of service analysis considers both the average water demand and peak demand. Peaking, or extra-capacity, costs are incurred during periods of peak consumption, most often coinciding with summer water use. There are additional capacity-related costs associated with designing, constructing, operating, maintaining, and replacing facilities to meet peak demand. Patterns of use impose additional costs on a water utility and are used to determine the cost burden on peaking-related facilities. Similarly, a wastewater cost of service analysis considers the amount of wastewater treatment plant influent contributed by each customer class to account for customer differences in the quantity and strength of wastewater discharges.

4. **Rate Design:** After allocating the revenue requirement to each customer class, the rate design and calculation process can begin. Rates do more than simply recover costs; within the legal framework and industry standards, properly designed rates should also support and optimize the City's policy objectives.
5. **Administrative Record Preparation and Rate Adoption:** The final step in a rate study is to develop the administrative record in conjunction with the rate adoption process. This report serves as the administrative record for this study. The administrative record documents the study results and presents the methodologies, rationale, justifications, and calculations used to determine the proposed rates. A thorough and methodological administrative record serves two important functions: maintaining defensibility in a stringent legal environment and communicating the rationale for revenue adjustments and proposed rates to customers and key stakeholders.

# 4. Water Rate Study

## 4.1. Key Inputs and Assumptions

Raftelis developed a water rate model to project financial calculations over the next ten fiscal years with projections shown in this report through the five-year rate-setting period of FY 2028-29 (i.e. the “study period”). While the study period consists of five years, the City is only considering three years of proposed rates for adoption at this time. The City’s fiscal year spans from July 1 through June 30. Projections in future years were generally made based on actual data for FY 2021-22 or FY 2022-23, or the adopted budget for FY 2023-24 using key assumptions outlined below. Assumptions were discussed with, and reviewed by, City of Healdsburg Public Works and Finance staff to ensure that the City water system’s unique characteristics are accurately accounted for. Note that most table values shown throughout this report are rounded to the last digit shown and may therefore not sum precisely to the totals shown.

The proposed rates are predicated on a shift in current adopted reserve policy outlined in the 2022 rate study. Failure to adopt the recommended changes may result in higher projected rates to adhere to the existing minimum coverage requirement. Raftelis recommends transitioning from a capital reserve policy to a rate stabilization policy to streamline the approach, eliminating the earmarking of reserves for specific capital purposes and instead utilizing them to complete preemptive capital replacement and fund maintenance costs in a manner that stabilizes rates support rates. As part of this transition, the City would allocate a portion of the reserve to offset increases over the next three fiscal years. As a result, the proposed financial plan fully funds the operating reserve, but it does not fully fund the rate stabilization reserve. When the City undertakes the next rate study, it is recommended that the City consider fully funding the rate stabilization reserve in the financial plan.

### 4.1.1. CURRENT WATER RATES

**Table 4-1** shows the rates currently in effect from July 1, 2023, which were developed during the prior rate study in 2022. Customers are currently billed monthly for two primary charges: 1) Water Service Charges and 2) Water Volume Rates per hundred cubic feet (HCF)<sup>2</sup> of water delivered. The Water Service Charge is a fixed monthly charge that varies based on meter size for non-residential customers, and per dwelling unit (DU) for residential customers. All customer classes are subject to a uniform Water Volume Rate.

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<sup>2</sup> One HCF equals approximately 748 gallons.

**Table 4-1: Current Water Rates Schedule**

<b>Description</b>	<b>FY 2024</b>
<b>Residential Fixed Monthly Service Charge</b>	
Single Family	\$28.61
Single Family + ADU (per DU)	\$21.84
Multi-Family (Per DU)	\$17.01
<b>Fixed Monthly Service Charges</b>	
Up to 1"	\$45.26
1 1/2"	\$86.90
2"	\$136.86
3"	\$253.46.
4"	\$419.91
6"	\$1,127.75
8"	\$1,502.45
<b>Residential (Single Family &amp; Multi-Family)</b>	
Tier 1 (0-5 HCF)	\$6.48
Tier 2 (6-10 HCF)	\$6.48
Tier 3 >10 HCF	\$6.48
<b>Non-Residential Classes</b>	
Commercial	\$6.48
Industrial	\$6.48
Landscape	\$6.48
Riverview HOA <sup>1</sup>	\$1.59

#### **4.1.2.WATER ENTERPRISE FINANCIAL ASSUMPTIONS**

Inflationary assumptions shown in **Table 4-2** are used to escalate projected operations and maintenance (O&M) expenses beyond FY 2023-24. For O&M expenses, the general inflation rate is consistent with long-term changes in the Consumer Price Index (CPI). Specifically, increases in salaries and cost-of-living adjustments (COLA) match the annual percentage changes in wages and salaries reported by the CPI. At the direction of city staff, adjustments for salary/employee benefits and electricity costs have been made. Electricity cost adjustments directly reflect the estimated rate increases provided by the city's electric suppliers. Utility costs have been updated to mirror the changes in fuel and utilities prices from October 2022 to October 2023, as indicated by the CPI. Capital expenses have been adjusted based on the three-year average from the Engineering News-Record (ENR).

**Table 4-2: Water Enterprise Inflationary Assumptions**

Inflationary Categories	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
<b>Expenses</b>					
General Cost Inflation	3.7%	3.7%	3.7%	3.7%	3.7%
Salary / COLA	4.5%	4.5%	4.5%	4.5%	4.5%
Salary / Employee Benefits	7.0%	7.0%	7.0%	7.0%	7.0%
Utilities	5.2%	5.2%	5.2%	5.2%	5.2%
Capital	5.9%	5.9%	5.9%	5.9%	3.5%
Electricity	14.0%	8.0%	7.0%	5.0%	5.0%

### 4.1.3. PROJECTED WATER SERVICE CONNECTIONS

City staff provided Raftelis with the number of water meters by size for FY 2022-23. The City anticipates negligible growth for the foreseeable future, as the service area is mostly built-out and will not see significant increases in the number of meters for future years. As such, Raftelis used the current actual meter counts – shown below in Table 4-3 for all future years in the study.

**Table 4-3: Current Metered Water Connections**

Description	Current Metered Connections
<b>Meter Sizes – Non Residential</b>	
1"	4,460
1 1/2"	132
2"	157
3"	26
4"	21
6"	0
8"	0
<b>Total</b>	<b>4,796</b>
<b>Residential Monthly Meter Charge ADU's</b>	
Single Family	3,856
Single Family + ADU (per DU)	490
Multi-Family (per DU)	1,094
<b>Total</b>	<b>5,440</b>

[1] Riverview HOA, Fitch Mtn. CSA, and reclaimed metered water are excluded from the cost of service because these rates are set by contract. The rate revenues associated with these customers are used to offset the revenue requirement.

#### 4.1.4. PROJECTED WATER SALES

City staff provided Raftelis with total annual water use data by customer class for FY 2022-23. The City does not expect an increase in water use, and with the trend of conservation in the prior years it was decided to keep water use constant over the study period. Total water use is shown in hundred cubic feet (hcf), which is the billing unit. Excluded from water usage shown below is reclaimed water, water sold to the Fitch Mountain Service Area, and Riverview HOA irrigation water. This excluded usage is provided under contract and not subject to the proposed rates within this study.

Description	Actual FY 2023
Single Family	297,304
Multifamily	44,590
Commercial	122,377
Industrial	13,035
Landscape	42,040
<b>Total</b>	<b>519,346</b>

## 4.2. Water Financial Plan

**Section 4.2** details the development of a proposed Water Enterprise financial plan for City of Healdsburg over the study period. The following subsections include estimates and projections of annual revenues, O&M expenses, debt service payments, capital expenditures, and reserve funding through FY 2028-29. The overall purpose of the financial plan is to determine annual water rate revenues required to achieve sufficient cash flow, execute the capital program, maintain adequate reserves, and meet debt coverage requirements.

### 4.2.1. WATER ENTERPRISE REVENUE UNDER CURRENT RATES

The Water Enterprise’s revenue sources consist of water rates, miscellaneous fees, interest earnings on cash reserves, and other non-rate revenues. The rate revenue projections shown in this section assume that current water rates are effective throughout the study period, and therefore represent estimated revenues in the absence of any water rate increases. This status quo scenario provides a baseline from which Raftelis evaluates the need for revenue adjustments (i.e. gross rate revenue increases).

#### Projected Water Rate Revenues

Raftelis projected annual water rate revenues from Water Service Charges and Water Volume Rates over the study period based on current FY 2023-24 water rates. Per City direction, Raftelis projected rate revenues for future years using no account growth and constant water demand (as described above in Table 1-3 and Table 4-4). The resulting projected revenues under existing rates are shown below in Table 4-5.

**Table 4-5: Projected Revenue from Existing Rates**

Description	Projected FY 2024	Projected FY 2025	Projected FY 2026	Projected FY 2027	Projected FY 2028	Projected FY 2029
<b>Water Rate Revenues</b>						
Fixed	\$2,299,153	\$2,299,153	\$2,299,153	\$2,299,153	\$2,299,153	\$2,299,153
Variable	\$3,365,362	\$3,365,362	\$3,365,362	\$3,365,362	\$3,365,362	\$3,365,362
<b>Total</b>	<b>\$5,664,515</b>	<b>\$5,664,515</b>	<b>\$5,664,515</b>	<b>\$5,664,515</b>	<b>\$5,664,515</b>	<b>\$5,664,515</b>

## Other Water Enterprise Revenues

**Table 4-6** shows all other Water Enterprise revenues. All FY 2021-22 to FY 2023-24 other revenues are based on the City’s actual and budgeted revenues and those are kept constant throughout the forecasted study period with the exception of non-recurring transfer in FY 2023-24. Interest revenue is estimated in the financial plan model beginning in FY 2024-25 based on projected fund balances and the assumed interest rate.

**Table 4-6: Other Water Enterprise Revenues**

Description	Projected FY 2024	Projected FY 2025	Projected FY 2026	Projected FY 2027	Projected FY 2028	Projected FY 2029
<b>Water - Other Revenues</b>						
Interest Income	\$30,797	\$26,967	\$39,121	\$36,903	\$34,081	\$34,921
Other Revenues	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
Transfers In	\$422,161	\$0	\$0	\$0	\$0	\$0
<b>Total</b>	<b>\$462,958</b>	<b>\$36,967</b>	<b>\$49,121</b>	<b>\$46,903</b>	<b>\$44,081</b>	<b>\$44,921</b>

## Summary of Projected Water Enterprise Revenues

**Table 4-7** shows a summary of all projected Water Enterprise revenues under current rates over the study period. This includes all projected revenues shown in **Table 4-5** and **Table 4-6**. This revenue summary represents expected revenues in the absence of any rate increase over the study period.

**Table 4-7: Summary of Projected Water Enterprise Revenues (Current Rates)**

Description	Projected FY 2024	Projected FY 2025	Projected FY 2026	Projected FY 2027	Projected FY 2028	Projected FY 2029
<b>Water Revenues</b>						
Water Sales Revenue	\$3,365,362	\$3,365,362	\$3,365,362	\$3,365,362	\$3,365,362	\$3,365,362
Fixed Charge Revenue	\$2,299,153	\$2,299,153	\$2,299,153	\$2,299,153	\$2,299,153	\$2,299,153
Interest Income	\$30,797	\$26,967	\$39,121	\$36,903	\$34,081	\$34,921
Riverview HOA and Reclaimed Revenue	\$142,781	\$172,765	\$207,318	\$234,270	\$262,382	\$293,868
Other Revenue	\$432,161	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
<b>Total</b>	<b>\$6,270,254</b>	<b>\$5,874,247</b>	<b>\$5,920,954</b>	<b>\$5,945,687</b>	<b>\$5,970,978</b>	<b>\$6,003,304</b>

## 4.2.2. WATER ENTERPRISE OPERATIONS & MAINTENANCE EXPENSES

**Table 4-8** shows a summary of all Water Enterprise O&M expenses over the study period. Raftelis worked closely with City staff to determine reasonable inflationary assumptions that were then used to project O&M expenses through FY 2028-29. O&M expenses are projected to increase by approximately 5 percent per year on average over the study period – excluding the change from FY2023-24 to FY 2024-25 which is due to onetime expenses being removed. All O&M expense projections were provided by City in current dollars and adjusted by Raftelis for estimated future inflation.

**Table 4-8: Projected Water Enterprise O&M Expenses**

O&M Expenses	Budgeted FY 2024	Projected FY 2025	Projected FY 2026	Projected FY 2027	Projected FY 2028	Projected FY 2029
Supply	\$760,318	\$794,533	\$830,287	\$867,649	\$906,694	\$947,495
Reservoir	\$319,038	\$341,371	\$365,266	\$390,835	\$418,194	\$447,467
Treatment	\$276,396	\$288,196	\$300,538	\$313,449	\$326,959	\$341,098
Storage	\$239,936	\$248,862	\$258,119	\$267,721	\$277,681	\$288,010
Distribution	\$130,253	\$135,098	\$140,124	\$145,337	\$150,743	\$156,351
Fire	\$1,028,402	\$1,077,081	\$1,128,119	\$1,181,633	\$1,237,748	\$1,296,593
Meters	\$453,957	\$485,734	\$519,735	\$556,117	\$595,045	\$636,698
Customer	\$35,725	\$37,291	\$38,927	\$40,634	\$42,417	\$44,279
Conservation	\$384,583	\$398,971	\$413,901	\$429,392	\$445,466	\$462,145
General	\$1,668,899	\$1,440,816	\$1,511,069	\$1,582,026	\$1,736,804	\$1,810,877
<b>Total O&amp;M Expenses</b>	<b>\$5,297,507</b>	<b>\$5,247,953</b>	<b>\$5,506,084</b>	<b>\$5,774,793</b>	<b>\$6,137,750</b>	<b>\$6,431,013</b>

### 4.2.3. WATER ENTERPRISE DEBT

Table 4-9 shows the Water Enterprise’s projected debt service obligations over the study period. Existing debt service consists of the City’s 2005 and 2014 debt service. Proposed Water Enterprise debt service associated with future capital project costs are also shown beginning in FY 2029. Note that proposed debt service terms (inflation, loan duration, issuance cost) represent preliminary projections based on the best information available at the time of this study.

**Table 4-9: Water Enterprise Debt Service**

Debt Service	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
<b>Existing Debt Service</b>						
Series 2005 D CSCDA Revenue Bond	\$206,850	\$204,475	\$206,725	\$208,475	\$200,294	\$202,200
Series 2014 Water Refunding Bond	\$739,539	\$575,420	\$577,790	\$423,547	\$317,097	\$315,411
<b>Subtotal</b>	<b>\$946,389</b>	<b>\$779,894</b>	<b>\$784,515</b>	<b>\$632,022</b>	<b>\$517,391</b>	<b>\$517,611</b>
<b>Proposed Debt Service</b>						
2027 Proposed Bonds	\$0	\$0	\$0	\$0	\$0	\$758,333
<b>Subtotal</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$758,333</b>
<b>Total</b>	<b>\$946,389</b>	<b>\$779,894</b>	<b>\$784,515</b>	<b>\$632,022</b>	<b>\$517,391</b>	<b>\$1,275,944</b>

### 4.2.4. WATER ENTERPRISE CAPITAL IMPROVEMENT PROGRAM

Table 4-10 shows the City’s planned capital improvement program (CIP) for the Water Enterprise, amounting to approximately \$28.2M over the five-year study period. No estimates were provided for FY 2023-24. The values shown are based on the most recently prepared multi-year CIP. To reduce immediate financial needs and financial impacts the CIP defers several infrastructure replacement projects for portions of the utility pipeline beyond their useful life. The plan further prioritizes the infrastructure rehabilitation and water treatment at the Dry Creek well

field while deferring the water treatment of the Fitch well field. The City will discontinue use of the Fitch well field in FY 25-26 and will retain sufficient water supply to serve the Utility from the other remaining well fields. The deferral of these projects will not impact the immediate service provided by the Utility. Significant CIP expenditures are anticipated to continue over the next ten years, highlighting the need to maintain adequate reserves for future cash funded, and debt funded, CIP. Capacity-related project costs are not included in the CIP and revenue associated with capital recover fees are excluded from the revenue requirement.

**Table 4-10: Water Enterprise Five-Year Capital Improvement Plan**

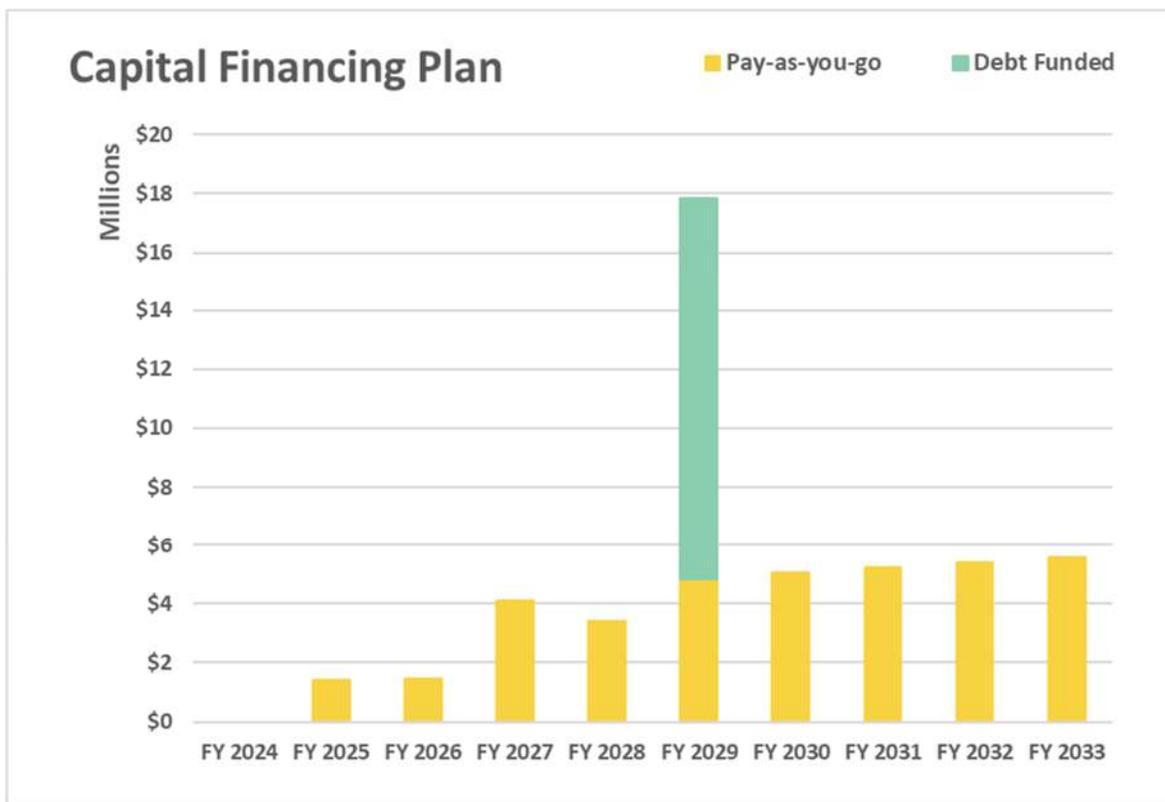
Project Description	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Cryptosporidium treatment At Fitch WTP	\$0	\$0	\$0	\$0	\$1,223,732	\$0
Dry Creek WTP Upgrades - Cryptosporidium	\$0	\$896,737	\$0	\$0	\$0	\$0
Dry Creek WTP Upgrades - Pumping and Clear well Improvements	\$0	\$0	\$0	\$1,477,457	\$0	\$0
Dry Creek Wells Capacity Improvements	\$0	\$0	\$0	\$0	\$0	\$1,456,416
Gauntlett WTP Membranes Replacement	\$0	\$0	\$0	\$301,662	\$319,376	\$330,555
ASR Wells	\$0	\$0	\$0	\$0	\$0	\$0
Fitch Treatment Building Modernization	\$0	\$0	\$0	\$0	\$0	\$631,981
PFAS - Gauntlett	\$0	\$0	\$0	\$0	\$247,510	\$4,057,160
PFAS - Fitch	\$0	\$0	\$0	\$0	\$262,587	\$4,304,231
PFAS - Dry creek	\$0	\$0	\$0	\$0	\$255,049	\$4,179,395
Dry Creek Chlorinator	\$0	\$0	\$0	\$118,671	\$0	\$0
Fitch Chlorinator	\$0	\$102,696	\$0	\$0	\$0	\$0
Gauntlett Reservoir Liner Replacement	\$0	\$0	\$0	\$658,625	\$0	\$0
Passalacqua Pumps Rehab	\$0	\$0	\$0	\$0	\$0	\$0
G2 Well Flow Meter	\$0	\$0	\$0	\$100,871	\$0	\$0
PRV - North street	\$0	\$0	\$0	\$0	\$16,333	\$0
PRV Villa Chanticleer	\$0	\$0	\$0	\$0	\$0	\$16,905
PRV Latimer	\$0	\$0	\$0	\$0	\$0	\$16,905
PRV Grant Street	\$0	\$0	\$0	\$0	\$0	\$0
PRV Larkspur	\$0	\$0	\$0	\$0	\$0	\$0
PRV Hidden Acres	\$0	\$0	\$0	\$0	\$16,333	\$0
WTP Compressor #1 Replacement	\$0	\$0	\$0	\$26,820	\$0	\$0
Water Treatment plant SCADA Computer	\$0	\$7,411	\$0	\$0	\$0	\$0
Reconstruct Corp Yard Lift Station	\$0	\$0	\$0	\$60,399	\$0	\$0
Gauntlett Well Field Pipeline Rehab/Replacement	\$0	\$0	\$0	\$0	\$273,895	\$642,384
Fitch Well Field Pipeline Rehab/Replacement	\$0	\$0	\$0	\$0	\$591,763	\$0
McDonough Water Transmission Main Replacement	\$0	\$0	\$0	\$0	\$182,052	\$2,063,690
Brown Street Sewer & Water Replacement	\$0	\$0	\$1,330,576	\$0	\$0	\$0
Reed Court & Bianca Lane Sewer & Water Replacement	\$0	\$0	\$0	\$0	\$0	\$146,552
University Street Sewer & Water Replacement	\$0	\$0	\$128,258	\$1,352,929	\$0	\$0
Healdsburg Ave Utility Replacement	\$0	\$397,727	\$0	\$0	\$0	\$0
University Street Sewer and Water Replacement (North Street to Mason St	\$0	\$0	\$0	\$0	\$0	\$0
Johnson Street Sewer and Water	\$0	\$0	\$0	\$0	\$0	\$0
Ongoing R&R	\$0	\$0	\$0	\$0	\$0	\$0
<b>Total CIP</b>	<b>\$0</b>	<b>\$1,404,571</b>	<b>\$1,458,834</b>	<b>\$4,097,434</b>	<b>\$3,388,631</b>	<b>\$17,846,173</b>

Table 4-11 shows the funding plan for Water Enterprise CIP projects over the study period. As shown below, the City plans to fund its CIP projects through a combination of debt and cash-funding over the study period. Figure 4-1 shows a summary of total Water Enterprise CIP expenditures by funding source through FY 2028-29.

**Table 4-11: Water Enterprise Capital Improvement Plan, by Funding Source**

Description	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
<b>Capital Improvement Plan</b>						
Rate Funded (PAYGO)	\$0	\$1,404,571	\$1,458,834	\$4,097,434	\$3,388,631	\$4,846,173
Debt Funded	\$0	\$0	\$0	\$0	\$0	\$13,000,000
<b>Total</b>	<b>\$0</b>	<b>\$1,404,571</b>	<b>\$1,458,834</b>	<b>\$4,097,434</b>	<b>\$3,388,631</b>	<b>\$17,846,173</b>

**Figure 4-1: Water Enterprise Capital Improvement Plan**



## 4.2.5. WATER ENTERPRISE FINANCIAL POLICIES

### Required Debt Coverage

The Water Enterprise is required to meet debt service coverage requirements on its outstanding water revenue bonds. Failure to meet debt service coverage results in a technical default, which without foreseeable remedial action such as implementing rate increases, could result in a downgrade of credit rating, higher costs in future debt issuance, or even denial of credit. The required debt coverage ratio is 1.20, meaning that the Water Enterprise’s net operating revenues (i.e. total revenues less operating expenses) must amount to at least 1.20 times the amount of annual debt service.

## Reserve Targets

Adequate cash reserves are required to meet operating, capital, and debt service requirements. The current operating reserve target is equal to 25% percent of annual O&M expenses. Raftelis recommends the City shift the reserve policy outlined in the previous study of establishing a capital reserve policy to a rate stabilization policy to streamline the approach, eliminating the earmarking of reserves for specific capital purposes, and instead utilizing them to support rates. As part of this transition, the City would allocate a portion of the reserve to offset increases over the next three fiscal years. Furthermore, when the City undertakes the next rate studies and adopts the next rate plan, it's recommended that the City consider funding an additional one-million-dollar rate stabilization reserve, which can be used to address major equipment failures and natural disasters. The change will mitigate otherwise higher rate increases over the study period.

Table 4-12 summarizes the Water Enterprise's key financial policies relevant to this rate study. Table 4-13 shows projected operating and capital reserve targets over the study period based on the policies outlined above.

**Table 4-12: Water Enterprise Financial Policies**

Financial Policy	Target/Requirement
<b>Debt Coverage</b>	
Target Debt Coverage Ratio	1.20
<b>Reserve Targets</b>	
Operating Reserve Target	25% of annual O&M expenses
Rate Stabilization Target	\$1,000,000
Total Reserve Target	25% of annual O&M expenses + \$1 million

**Table 4-13: Projected Water Enterprise Reserve Targets**

Reserve Target	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Operating Reserve	\$1,324,377	\$1,311,988	\$1,376,521	\$1,443,698	\$1,534,437	\$1,607,753
Rate Stabilization	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000	\$1,000,000
<b>Total Reserve Target</b>	<b>\$2,324,377</b>	<b>\$2,311,988</b>	<b>\$2,376,521</b>	<b>\$2,443,698</b>	<b>\$2,534,437</b>	<b>\$2,607,753</b>

## 4.2.6.STATUS QUO WATER FINANCIAL PLAN

To evaluate the need for revenue adjustments (i.e. increases to gross rate revenues), Raftelis first developed a status quo financial plan. The status quo financial plan assumes that current rates remain unchanged over the study period. Table 4-14 combines projected water rate revenues (from Table 4-5), O&M expenses (from Table 4-8), and debt service (from Table 4-9) to generate operating cash flow projections under the status quo. In the absence of any revenue adjustments, the Water Enterprise will fail to generate sufficient revenue to recover O&M expenses and debt service, and net cash generation becomes increasingly negative in subsequent years.

**Table 4-14: Water Enterprise Cash Flow – Status Quo Financial Plan**

Line	Description	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	<b>Water Rate Revenue under Current Rates</b>						
2	Water Rates Subject to Revenue Adjustments	\$5,664,515	\$5,664,515	\$5,664,515	\$5,664,515	\$5,664,515	\$5,664,515
3	Non-Rate Revenues <sup>3</sup>	\$605,739	\$209,732	\$256,440	\$281,173	\$306,463	\$338,789
4	<b>Total Revenues</b>	\$6,270,254	\$5,874,247	\$5,920,954	\$5,945,687	\$5,970,978	\$6,003,304
5							
6	O&M Expenses	\$5,297,507	\$5,247,953	\$5,506,084	\$5,774,793	\$6,137,750	\$6,431,013
7	Debt Service	\$946,389	\$779,894	\$784,515	\$632,022	\$517,391	\$1,275,944
8	Rate-Funded CIP	\$0	\$1,404,571	\$1,458,834	\$4,097,434	\$3,388,631	\$4,846,173
9	<b>Total Expenses</b>	\$6,243,896	\$7,432,418	\$7,749,433	\$10,504,249	\$10,043,771	\$12,553,130
24							
25	<b>Net Cash Flow<sup>4</sup></b>	\$26,358	(\$1,558,171)	(\$1,828,479)	(\$4,558,561)	(\$4,072,793)	(\$6,549,826)

<sup>3</sup> Includes miscellaneous revenues and interest income. Note that grant and loan revenue and the capital projects associated with them are excluded in this cashflow on both the revenue and expense side of the calculation.

<sup>4</sup> Equal to [Line 18 – Line 23].

Table 4-15 shows projected reserve balances and debt coverage under the status quo financial plan for the entire Water Enterprise. Sources of funds include both rate revenues and non-rate revenues, but do not include revenues from projected rate increases. Use of funds include O&M expenses (from Table 4-8), debt service (from Table 4-9), and CIP expenditures (from Table 4-11). The FY 2023-24 beginning balance reflects actual Water Enterprise reserve balances as of July 1, 2023. All ending balance and debt coverage figures are projected values. Target reserve balances shown are from Table 4-13.

Under the status-quo financial plan, reserves are projected to fall below target by the end of FY 2024-25. Debt coverage is projected to fall well below the required ratio in all years following FY 2024-25. The status quo financial plan is insufficient to meet the Water Enterprise’s financial needs over the study period. This demonstrates a clear need for revenue adjustments over the study period to increase rate revenues and ensure financial sustainability.

**Table 4-15: Water Enterprise Pro Forma - Status Quo Financial Plan**

Line	Description	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	<b>Projected Beginning Balance</b>	\$2,055,607	\$2,081,965	\$523,793	(\$1,304,685)	(\$5,863,246)	(\$9,936,039)
2							
3	<b>Source of Funds</b>						
4	Status Quo Rate Revenues	\$5,664,515	\$5,664,515	\$5,664,515	\$5,664,515	\$5,664,515	\$5,664,515
5	Other Revenues	\$605,739	\$209,732	\$256,440	\$281,173	\$306,463	\$338,789
9	<b>Total Source of Funds</b>	\$6,270,254	\$5,874,247	\$5,920,954	\$5,945,687	\$5,970,978	\$6,003,304
10							
11	<b>Use of Funds</b>						
12	O&M Expenses	\$5,297,507	\$5,247,953	\$5,506,084	\$5,774,793	\$6,137,750	\$6,431,013
13	Debt Service	\$946,389	\$779,894	\$784,515	\$632,022	\$517,391	\$1,275,944
14	Rate-Funded CIP	\$0	\$1,404,571	\$1,458,834	\$4,097,434	\$3,388,631	\$4,846,173
15	<b>Total Use of Funds</b>	\$6,243,896	\$7,432,418	\$7,749,433	\$10,504,249	\$10,043,771	\$12,553,130
16							
17	Net Cashflow	\$26,358	(\$1,558,171)	(\$1,828,479)	(\$4,558,561)	(\$4,072,793)	(\$6,549,826)
18							
19	<b>Projected Ending Balance<sup>5</sup></b>	\$2,081,965	\$523,793	(\$1,304,685)	(\$5,863,246)	(\$9,936,039)	(16,485,866)
20	<i>Operating Reserve Target</i>	\$1,324,377	\$1,311,988	\$1,376,521	\$1,443,698	\$1,534,437	\$1,607,753
21							
22	<b>Debt Coverage</b>						
23	Projected Debt Coverage <sup>6</sup>	1.03	0.80	0.53	0.27	(0.32)	(0.34)
24	<i>Required Debt Coverage</i>	1.20	1.20	1.20	1.20	1.20	1.20

#### 4.2.7. PROPOSED WATER FINANCIAL PLAN

The Water Enterprise must increase its revenues from water rates over the study period to adequately fund its operating and capital expenditures, meet required debt coverage, and maintain sufficient reserve funding. Raftelis worked closely with City staff to identify financial plan options for the City Council’s consideration. The selected option of proposed annual revenue adjustments are shown in Table 4-16. Revenue adjustments represent annual percent increases in total rate revenue relative to rate revenue generated by the prior year’s water rates. The proposed first-rate increase implementation date is July 1, 2024.

<sup>5</sup> Equal to [Line 1 + Line 17]

<sup>6</sup> Equal to [(Line 9 – Line 12) ÷ Line 13]

**Table 4-16: Proposed Water Enterprise Revenue Adjustments**

Fiscal Year	PROPOSED INCREASE			FUTURE INCREASES	
	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
Effective Date	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027	July 1, 2028
Revenue Adjustment	21.0%	20.0%	13.0%	12.0%	12.0%

Table 4-17 combines projected rate and miscellaneous revenues (from Table 4-7), O&M expenses (from Table 4-8), and debt service (from Table 4-9) to generate operating cash flow projections under the proposed financial plan. By implementing the proposed revenue adjustments, we project that Water Enterprise will maintain sufficient operating cash flow through the end of the study period.

**Table 4-17: Water Enterprise Cash Flow – Proposed Financial Plan**

Line	Description	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	<b>Water Rate Revenue under Current Rates</b>						
2	Water Rates Subject to Revenue Adjustments	\$5,664,515	\$5,664,515	\$5,664,515	\$5,664,515	\$5,664,515	\$5,664,515
3	Non-Rate Revenues <sup>7</sup>	\$605,739	\$209,732	\$256,440	\$281,173	\$306,463	\$338,789
4	<b>Revenue Adjustments</b>						
5	Fiscal Year						
6	FY 2025	21.00%	\$1,189,548	\$1,189,548	\$1,189,548	\$1,189,548	\$1,189,548
7	FY 2026	20.00%		\$1,370,813	\$1,370,813	\$1,370,813	\$1,370,813
8	FY 2027	13.00%			\$1,069,234	\$1,069,234	\$1,069,234
9	FY 2028	12.00%				\$1,115,293	\$1,115,293
10	FY 2029	12.00%					\$1,249,128
11	Total Adjustments	\$0	\$1,189,548	\$2,560,361	\$3,629,595	\$4,744,888	\$5,994,016
12							
13	<b>Total Revenues</b>	<b>\$6,270,254</b>	<b>\$7,063,795</b>	<b>\$8,481,315</b>	<b>\$9,575,282</b>	<b>\$10,715,866</b>	<b>\$11,997,320</b>
14							
15	O&M Expenses	\$5,297,507	\$5,247,953	\$5,506,084	\$5,774,793	\$6,137,750	\$6,431,013
16	Debt Service	\$946,389	\$779,894	\$784,515	\$632,022	\$517,391	\$1,275,944
17	Rate-Funded CIP	\$0	\$1,404,571	\$1,458,834	\$4,097,434	\$3,388,631	\$4,846,173
18	<b>Total Expenses</b>	<b>\$6,243,896</b>	<b>\$7,432,418</b>	<b>\$7,749,433</b>	<b>\$10,504,249</b>	<b>\$10,043,771</b>	<b>\$12,553,130</b>
19							
20	<b>Net Cash Flow<sup>8</sup></b>	<b>\$26,358</b>	<b>(\$368,623)</b>	<b>\$731,882</b>	<b>(\$928,967)</b>	<b>\$672,095</b>	<b>(\$555,811)</b>

Table 4-18 shows projected reserve balances and debt coverage under the proposed financial plan for the entire Water Enterprise. Sources of funds include status quo revenues (from Table 4-7), revenue adjustments (from Table 4-17), and miscellaneous revenues. Use of funds include O&M expenses (from Table 4-8), debt service (from Table 4-9), and rate-funded CIP expenditures (from Table 4-11). The 2024 beginning balances reflects actual Water Enterprise reserve balances as of July 1, 2023. All ending balance and debt coverage figures are projected values. Target reserve balances shown are from Table 4-13. Under the proposed financial plan, reserve balances and debt coverage are projected to achieve target policies over the rate-setting period.

<sup>7</sup> Includes miscellaneous revenues, interest income, and loan/grant revenues.

<sup>8</sup> Equal to [Line 13 – Line 18].

**Table 4-18: Water Enterprise Pro Forma - Proposed Financial Plan**

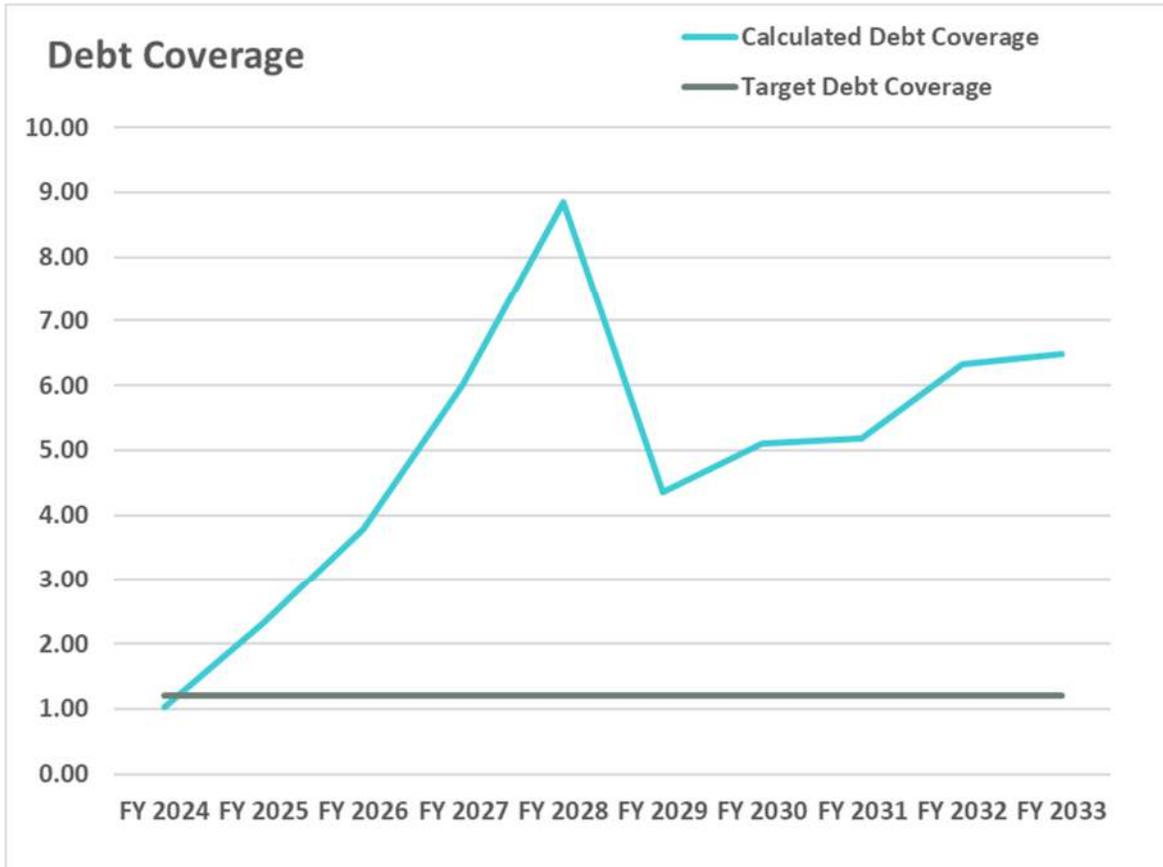
Line	Description	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	<b>Beginning Balance</b>	<b>\$2,055,607</b>	<b>\$2,081,965</b>	<b>\$1,713,342</b>	<b>\$2,445,224</b>	<b>\$1,516,257</b>	<b>\$2,188,352</b>
2							
3	<b>Source of Funds</b>						
4	Rate Revenues (including adjustments)	\$5,664,515	\$6,854,063	\$8,224,875	\$9,294,109	\$10,409,402	\$11,658,531
5	Other Revenues	\$605,739	\$209,732	\$256,440	\$281,173	\$306,463	\$338,789
9	<b>Total Source of Funds</b>	<b>\$6,270,254</b>	<b>\$7,063,795</b>	<b>\$8,481,315</b>	<b>\$9,575,282</b>	<b>\$10,715,866</b>	<b>\$11,997,320</b>
10							
11	<b>Use of Funds</b>						
12	O&M Expenses	\$5,297,507	\$5,247,953	\$5,506,084	\$5,774,793	\$6,137,750	\$6,431,013
13	Debt Service	\$946,389	\$779,894	\$784,515	\$632,022	\$517,391	\$1,275,944
14	Capital Improvement Plan Expenditures	\$0	\$1,404,571	\$1,458,834	\$4,097,434	\$3,388,631	\$4,846,173
15	<b>Total Use of Funds</b>	<b>\$6,243,896</b>	<b>\$7,432,418</b>	<b>\$7,749,433</b>	<b>\$10,504,249</b>	<b>\$10,043,771</b>	<b>\$12,553,130</b>
16							
17	<b>Ending Balance<sup>9</sup></b>	<b>\$2,081,965</b>	<b>\$1,713,342</b>	<b>\$2,445,224</b>	<b>\$1,516,257</b>	<b>\$2,188,352</b>	<b>\$1,632,541</b>
18	<i>Operating Reserve Target</i>	<i>\$1,324,377</i>	<i>\$1,311,988</i>	<i>\$1,376,521</i>	<i>\$1,443,698</i>	<i>\$1,534,437</i>	<i>\$1,607,753</i>
19							
20							
21	<b>Debt Coverage</b>						
22	Projected Debt Coverage <sup>10</sup>	<b>1.03</b>	<b>2.33</b>	<b>3.79</b>	<b>6.01</b>	<b>8.85</b>	<b>4.36</b>
23	<i>Required Debt Coverage</i>	<i>1.20</i>	<i>1.20</i>	<i>1.20</i>	<i>1.20</i>	<i>1.20</i>	<i>1.20</i>

Figure 4-2 shows projected debt coverage (blue line) relative to the debt coverage requirement (grey line) all years after the initial rate-setting year (FY 2024-25). The City will begin meeting its debt coverage requirement of 1.20 in FY 2025 and remain above the minimum coverage requirement for the remainder of the study period.

<sup>9</sup> Equal to [Line 1 + Line 9 – Line 15].

<sup>10</sup> Equal to [(Line 9 – Line 12) / Line 13].

Figure 4-2: Proposed Water Financial Plan – Projected Debt Coverage



**Figure 4-3** shows the Water Enterprise’s projected ending balances under the proposed financial plan. The light blue bars indicate the ending balance. The minimum reserve targets (based on the policies described above in Table 4-12) are shown by the orange line. The Water Enterprise is projected to meet cash reserves over the study period and any additional reserves are used to offset capital expenses in the future years. The Water Enterprise’s reserves are projected to achieve the minimum goal target amount with the proposed and planned rate increases.

**Figure 4-3: Proposed Water Financial Plan – Projected Ending Cash Balances**

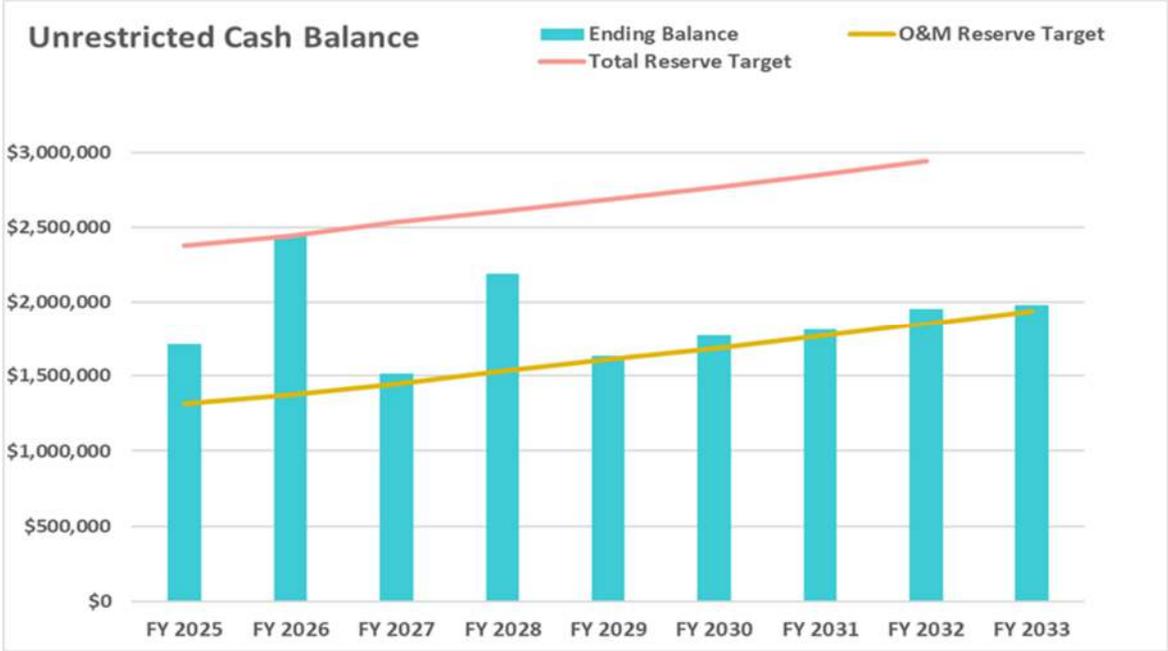
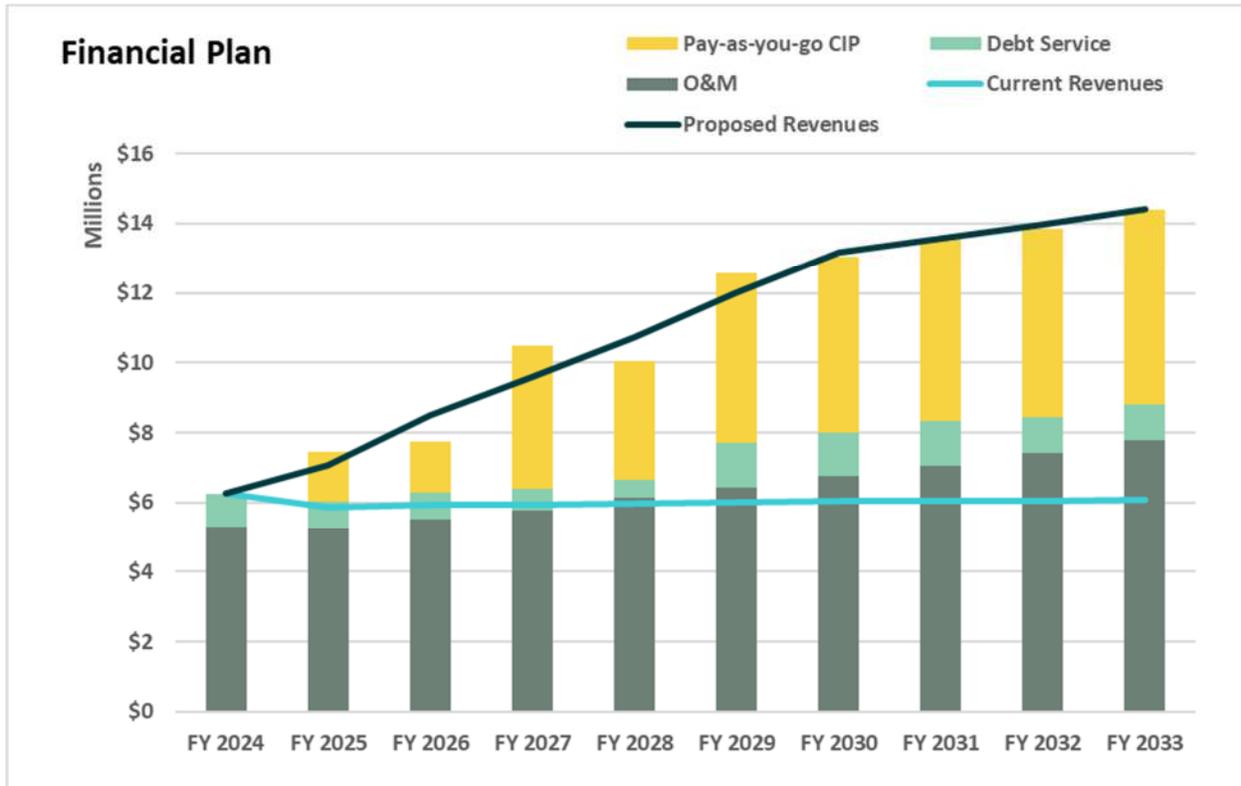


Figure 4-4 shows the proposed versus status quo operating financial plan. Revenues under the status quo and proposed financial plans are represented by the blue and blacklines, respectively. Revenue requirements including O&M expenses, debt service, and reserve funding are represented by the various stacked bars. Revenue adjustments are required to generate sufficient revenue to recover O&M expenses and debt service payments over the study period.

Figure 4-4: Proposed vs. Status Quo Water Financial Plan



## 4.3. 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.

- **Residential Tiered Water Rates:** The Study recommends that the City introduce a three-tiered rate structure for Residential water customers including Single-Family Residential (SFR) and Multi-Family Residential (MFR). MFR customers will receive tier allotments for each dwelling unit served. Tier 1 is defined as the first 5 units of water (HCF) per monthly billing period, reflecting average winter usage (January -March) for SFR customer rounded up to the nearest whole number. Tier 2 encompasses usage greater than 5 units and up to and including 10 HCF, representing summer peak (75<sup>th</sup> percentile in the July – September periods) demands of SFR customers rounded up to the nearest whole number. Tier 3 comprises all units of water usage exceeding 10 HCF. Residential users are a homogenous customer class with 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 customers. The proposed monthly allotments for residential customers are shown below in **Table 1-2** and reflect actual demand patterns of City water users. Note that non-residential customers will maintain a uniform rate structure.
- **All Other Classes:** The Study recommends that all other customer classes maintain a uniform rate structure, however, going forward each class will have a distinct uniform rate based on their specific demand characteristics. The new rates by customer class include those customers designated as Commercial, Industrial, and Landscape Irrigation. Non-residential classes have highly varying demand patterns within each class based on the type of business, seasonality, and/or transient effects. Peaking costs, also referred to as *extra capacity* costs, are costs associated with higher demand patterns. These costs are allocated to each customer class based on their specific class demand patterns and calculating peaking. For this reason, uniform rates are proposed for each of the non-residential classes.
- » **Monthly Service Charges:** The Study recommends harmonizing the fixed service charges across user classes. This change will align Residential customers with a metered connection of a specific size with Non-Residential customers with the same size meter. The proposed structure relies on meter size alone to distinguish the “class” of customer. This change acknowledges that meter capacity, not customer classification, reflects the best estimate of the costs imposed by a user on the water system that are recovered through fixed charges.

**Table 4-19: Proposed Water Rate Structure Changes**

Description	Current Structure	Proposed Structure
<b>Residential (SFR/MFR)</b>		
Tier 1	Uniform Water Use Rate (All Classes)	0-5 HCF
Tier 2	Uniform Water Use Rate (All Classes)	6-10 HCF
Tier 3	Uniform Water Use Rate (All Classes)	>10 HCF
<b>Non-Residential Classes</b>		
Commercial	Uniform Water Use Rate (All Classes)	Uniform Water Use Rate, by Class
Industrial	Uniform Water Use Rate (All Classes)	Uniform Water Use Rate, by Class
Landscape Irrigation	Uniform Water Use Rate (All Classes)	Uniform Water Use Rate, by Class

Table 4-20 shows estimated water use by tier under the proposed two-tier rate structure. All projections are based on detailed account-level analysis of FY 2022-23 actual water use. Raftelis projects that approximately 64% of all residential water use will fall within Tier 1 under the proposed three-tier residential rate structure.

**Table 4-20: Projected Water Use by Class and Tier – Test Year**

Description	Projected FY 2024-25 Water Use (hcf)
<b>Residential</b>	
Tier 1	217,661
Tier 2	62,452
Tier 3	61,781
<b>Subtotal</b>	<b>341,894</b>
<b>Commercial</b>	
<b>Industrial</b>	122,377
<b>Landscape</b>	13,035
<b>Total</b>	<b>42,040</b>
<b>Total</b>	<b>519,346</b>

## 4.4. Water Cost of Service Analysis

This section details the Cost-of-Service (COS) analysis performed for the Water Enterprise. The COS analysis allocates the overall rate revenue requirement to customer classes based on their proportion of use of and burden on the water system. This provides the basis for the development of proposed water rates through FY 2028-29.

### 4.4.1. METHODOLOGY

The first step in a COS analysis is to determine the revenue required from water rates. The total revenue requirement results from the financial plan in Section 4.2. The framework and methodology utilized to develop the COS analysis

and to apportion the revenue requirement to each customer class and tier is informed by the processes outlined in the AWWA's *Manual M1*.

COS analyses are tailored to meet the specific needs of each water system. However, there are four distinct steps in every COS analysis to recover costs from customers in an accurate, equitable, and defensible manner:

1. **Cost functionalization:** O&M expenses and capital assets are categorized by their function in the system. Sample functions may include water supply, treatment, distribution, transmission, customer service, etc.
2. **Cost causation component allocation:** Functionalized costs are then allocated to cost causation components based on their burden on the system. The cost causation components include water supply, base delivery, extra-capacity, meters, and customer, among others. The revenue requirement is allocated accordingly to the cost causation components and results in the total share of the revenue requirement attributable to each cost component.
3. **Unit cost development:** The revenue requirement for each cost causation component is divided by the appropriate units of service to determine the unit cost of each.
4. **Revenue requirement distribution:** The unit cost is utilized to distribute the revenue requirement for each cost causation component to customer classes based on each customer class's individual service units.

This method of functionalizing costs is consistent with the AWWA's *Manual M1* and is widely used in the water industry to perform COS analyses.

#### 4.4.2. WATER RATE REVENUE REQUIREMENT

Table 4-21 shows the rate revenue requirement for FY 2024-25 (referred to throughout as the "test year"). The revenue requirement is divided into operating and capital categories (Columns C and D), which are later allocated based on either O&M expenses or capital assets. The revenue requirements (Lines 2-8) are equal to FY 2024-25 operating expenses, rate-funded CIP, and debt service costs. The revenue offsets (Lines 11-16) include miscellaneous rate revenue not subject to revenue adjustments, grants, and income from loans. These revenues are applied as offsets to the final rate revenue requirement. The reserve transfer adjustment (Line 19) is equal to FY 2024-25 negative net operating cash flow and represents the additional rate revenue required to offset reserve spending in the test year. All values are from the proposed financial plan operating cash flow (Table 4-17). Note that, because there is no adjustment in the test year (FY 2024-25), there is also no adjustment for a mid-year increase. Rate adjustments will instead begin after the test year, in FY 2024-25. The final rate revenue requirement (Line 24) is calculated as follows:

*Total revenue required from rates (Line 24) = Revenue requirements (Line 8) - Revenue offsets (Line 16) - Adjustments (Line 21)*

**Table 4-21: Water Enterprise Rate Revenue Requirement (Test Year)**

[A]	[B]	[C]	[D]	[F]
Line	Description	Operating Revenue Requirement	Capital Revenue Requirement	Total
1	<b>Revenue Requirements</b>			
2	O&M Expenses	\$5,247,953	\$0	\$5,247,953
6	Debt Service	\$0	\$779,894	\$779,894
7	Capital Expenditures - PAYGO	\$0	\$1,404,571	\$1,404,571
8	<b>Total Revenue Requirements</b>	<b>\$5,247,953</b>	<b>\$2,184,465</b>	<b>\$7,432,418</b>
9				
10	<b>Less Revenue Offsets</b>			
11	Miscellaneous Revenues	-\$182,765	\$0	-\$182,765
12	Interest Income – General	-\$26,967	\$0	-\$26,967
13	<b>Total Revenue Offsets</b>	<b>-\$209,732</b>	<b>\$0</b>	<b>-\$209,732</b>
14				
15	<b>Less Adjustments</b>	<b>-\$368,623</b>	<b>\$0</b>	<b>-\$368,623</b>
16	Adjustment for Cash Balance	\$0	\$0	\$0
17	Adjustment for Mid-Year Increase			
18	<b>Total Adjustments</b>	<b>-\$368,623</b>	<b>\$0</b>	<b>-\$368,623</b>
19				
20	Total Revenue Requirement Without Offsets	<b>\$5,247,953</b>	<b>\$2,184,465</b>	<b>\$7,432,418</b>
21	<b>Total Revenue Requirement</b>	<b>\$4,669,598</b>	<b>\$2,184,465</b>	<b>\$6,854,063</b>

### 4.4.3. WATER SYSTEM PEAKING FACTORS

A significant portion of the costs of the water system are based on the peaking characteristics of the different customer classes. A water system is designed to meet different requirements, including average water demands, extra-capacity/peak demands, and fire flow requirements. Peaking costs are divided into maximum day (Max Day) and maximum hour (Max Hour) demand. The Max Day demand is the maximum amount of water used in a single day over a full year. The Max Hour demand is the maximum use in an hour on the Max Day. For example, storage and treatment components of the water system are designed to handle Max Day requirements while the distribution system is designed for Max Hour demands.

Table 4-22 shows system-wide peaking factors for the City’s water system, which are used to derive the cost component allocation bases for Base Delivery, Max Day, and Max Hour costs. Base Delivery use is considered average daily demand over one year, which has been normalized to a factor of 1.00 (Column C, Line 1). The Max Day peaking factor (Column C, Line 2) indicates that the Max Day demand is 1.90 times greater than the average daily demand. Similarly, the Max Hour peaking factor (Column C, Line 3) shows that the Max Hour demand is 3.20 times greater than average demand. The allocation bases (Columns D-F) are calculated using the equations outlined below. Columns are represented in these equations as letters, and lines are represented as numbers. For example, Column D, Line 2 is shown as D2.

The Max Day allocations are calculated as follows:

- » Base Delivery:  $C1 / C2 \times 100\% = D2$
- » Max Day:  $(C2 - C1) / C2 \times 100\% = E2$

The Max Hour allocations are calculated as follows:

- » Base Delivery:  $C1 / C3 \times 100\% = D3$
- » Max Day:  $(C2 - C1) / C3 \times 100\% = E3$
- » Max Hour:  $(C3 - C2) / C3 \times 100\% = F3$

**Table 4-22: Water System Peaking Factors and Allocations**

[A]	[B]	[C]	[D]	[E]	[F]	[G]
Line	Description	Factor <sup>11</sup>	Base	Max Day	Max Hour	Total
1	Base	1.00	100%	0%	0%	100%
2	Max Day	1.90	53%	47%	0%	100%
3	Max Hour	3.20	31%	28%	41%	100%
4	Average Max Day/Max Hour		42%	38%	20%	100%

#### 4.4.4.FUNCTIONALIZATION AND ALLOCATION OF EXPENSES

After determining the revenue requirement and systemwide peaking allocation basis, the next step of the water COS analysis is to allocate O&M expenses and capital assets to the following functional categories:

- » **Water Supply:** costs associated with the utilities supply of water
- » **Treatment:** costs associated with treating water to drinking water standards
- » **Storage:** costs related to water storage tanks and reservoirs
- » **Distribution:** costs related to delivering water to customers through pipelines from storage facilities to the metered connection
- » **Fire Protection:** costs attributable to fireflow sizing for fire protection
- » **Meters:** costs of meter maintenance, servicing, and repair
- » **Customer:** costs of meter reading, billing, and other customer service functions
- » **Conservation:** costs associated with water conservation, outreach, and efficiency programs
- » **General:** operating costs not directly attributable to the above functions are allocated based on the overall cost functionalization

The functionalization of costs allows for the allocation of costs to cost causation components. Some cost causation components correspond directly to a functional category listed above. The cost causation components include:

- » **Water Supply:** directly associated with the Water Supply functional category
- » **Base Delivery:** costs associated with providing water under average water demand conditions
- » **Peaking (Max Day and Max Hour):** extra-capacity costs associated with providing water during peak demand conditions
- » **Fire Protection:** costs associated with providing fire flow capacity for fire protection
- » **Meters:** directly associated with the Meters functional category
- » **Customer:** directly associated with the Customer functional category
- » **Conservation:** directly associated with the Conservation functional category
- » **General:** directly associated with the General/Admin functional category
- » **Revenue Offsets:** miscellaneous revenues applied as offsets to the rate revenue requirement

<sup>11</sup> Max Day and Max Hour assumptions were developed from the City’s most recent master plan, which was completed in 2016 and summarized peak data from 2010 to 2014. 5-year average peaks were used for this study.

Table 4-23 shows the basis for allocating each functional category to the various cost causation components. This provides the basis for allocating O&M and capital expenses in the following subsections. Most functional categories are allocated entirely to the corresponding cost causation component. The allocation basis for functional categories not allocated entirely to a single cost causation component is as follows:

- » **Functional categories allocated based on Max Day demand:** Storage, treatment, and transmission infrastructure is designed to accommodate maximum day water demand. Therefore, all Storage, Treatment, Storage/Treatment, and Transmission costs are allocated to the Base Delivery and Max Day cost causation components based on the Max Day allocation from Table 4-22.
- » **Functional categories allocated based on Max Hour demand:** Distribution infrastructure is designed to accommodate maximum hour water demand, therefore all Distribution costs are allocated to the Base Delivery, Max Day, and Max Hour cost causation components based on the Max Hour allocation from Table 4-22.

**Table 4-23: Allocation of Functional Categories to Water Cost Causation Components**

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]
Line	Functional Category	Base	Max Day	Max Hour	Supply	Conservation	Meters	Customer	General	Total
1	Water Supply	0%	0%	0%	100%	0%	0%	0%	0%	100%
2	Treatment	53%	47%	0%	0%	0%	0%	0%	0%	100%
3	Storage	53%	47%	0%	0%	0%	0%	0%	0%	100%
4	Distribution	31%	28%	41%	0%	0%	0%	0%	0%	100%
5	Fire <sup>12</sup>	42%	38%	20%	0%	0%	0%	0%	0%	100%
6	Meters	0%	0%	0%	0%	0%	100%	0%	0%	100%
7	Customer	0%	0%	0%	0%	0%	0%	100%	0%	100%
8	Conservation	0%	0%	0%	0%	100%	0%	0%	0%	100%
9	General	0%	0%	0%	0%	0%	0%	0%	100%	100%

<sup>12</sup> Fire expenses are reallocated from max day and max hour to meter for public fire protection based on system capacity required for fire vs customer demand.

#### 4.4.5.WATER ENTERPRISE O&M EXPENSE ALLOCATION

The next step of the COS analysis is to develop an allocation basis for the operating revenue requirement based on the functionalization of the Water Enterprise’s O&M expenses. Raftelis worked with City staff to assign O&M expenses, by line item, to the most closely associated functional category. **Table 4-24** shows a summary of FY 2024-25 O&M expenses by functional category. This intermediate step is necessary to allocate total O&M expenses to individual cost causation components.

**Table 4-24: Water Enterprise O&M Expenses by Functional Category**

[A]	[B]	[C]	[D]
Line	Functional Category	FY 2024-25 O&M Expenses	Percent of Total
1	Water Supply	\$436,652	8.3%
2	Treatment	\$2,142,743	40.8%
3	Storage	\$108,073	2.1%
4	Distribution	\$1,398,346	26.6%
5	Meters	\$345,839	6.6%
6	Customer	\$286,181	5.5%
7	Conservation	\$31,116	0.6%
8	General	\$499,003	9.5%
9	<b>Total O&amp;M Expenses</b>	<b>\$5,247,953</b>	<b>100%</b>

Table 4-25 shows the allocation of FY 2024-25 O&M expenses by functional category to each cost causation component. The percentage allocation of each functional category (Columns C-J) to the various cost causation components were determined in Table 4-23. Total O&M expenses associated with each functional category (Column K) were determined in Table 4-24. The total dollar amount allocated to each cost causation component (Line 9) is determined by multiplying the total expense associated with each functional category by the corresponding percentage allocation and summing across all functional categories.

**Table 4-25: Allocation of Water Enterprise O&M Expenses to Cost Causation Components**

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]
Line	Functional Category	Base	Max Day	Max Hour	Supply	Conservation	Meters	Customer	General	Total O&M
1	Water Supply	\$0	\$0	\$0	\$436,652	\$0	\$0	\$0	\$0	\$436,652
2	Treatment	\$1,127,759	\$1,014,983	\$0	\$0	\$0	\$0	\$0	\$0	\$2,142,743
3	Storage	\$56,881	\$51,192	\$0	\$0	\$0	\$0	\$0	\$0	\$108,073
4	Distribution	\$436,983	\$393,285	\$568,078	\$0	\$0	\$0	\$0	\$0	\$1,398,346
5	Meters	\$0	\$0	\$0	\$0	\$0	\$345,839	\$0	\$0	\$345,839
6	Customer	\$0	\$0	\$0	\$0	\$0	\$0	\$286,181	\$0	\$286,181
7	Conservation	\$0	\$0	\$0	\$0	\$31,116	\$0	\$0	\$0	\$31,116
8	General	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$499,003	\$499,003
9	<b>Total O&amp;M</b>	<b>\$1,621,623</b>	<b>\$1,459,461</b>	<b>\$568,078</b>	<b>\$436,652</b>	<b>\$31,116</b>	<b>\$345,839</b>	<b>\$286,181</b>	<b>\$499,003</b>	<b>\$5,247,953</b>
10										
11	<i>O&amp;M Allocation</i>	<i>30.9%</i>	<i>27.8%</i>	<i>10.8%</i>	<i>8.3%</i>	<i>0.6%</i>	<i>6.6%</i>	<i>5.5%</i>	<i>9.5%</i>	<i>100%</i>

#### 4.4.6. WATER ENTERPRISE CAPITAL ALLOCATION

Capital assets are utilized in COS analyses to allocate the capital revenue requirement to the various cost causation components. The distribution of short-term CIP project costs can be heavily weighted to specific cost causation components based on the type of projects. Use of short-term plans to allocate capital costs may cause rates to fluctuate and result in customer confusion. The overall water asset base, however, is considerably stable in the long-term, and therefore is more representative of long-term capital investment in the City’s water system. Thus, functionalized capital assets are used to allocate capital costs.

City staff provided Raftelis with a detailed capitalized asset database that included the original cost of each individual asset. Raftelis calculated the replacement cost less depreciation (RCLD) of each asset based on net book value using the Engineering News-Record’s 20-City Average Cost Construction Index (CCI) to account for capital cost inflation. As part of the capital asset analysis and with assistance from City staff, Raftelis assigned each individual asset to a functional category. Total water asset value (RCLD) by functional category is shown in Table 4-26. Percentages are rounded to the nearest one-tenth of one percent.

**Table 4-26: Summary of Water Enterprise Capital Assets by Functional Category**

[A] Line	[B] Functional Category	[C] Asset Value (RCLD)	[D] Percent of Total
1	Water Supply	\$0	0%
2	Treatment	\$6,600,000	31%
3	Storage	\$900,000	4%
4	Distribution	\$9,535,414	44%
5	Fire	\$4,407,417	21%
6	Meters	\$11,648	0%
7	Customer	\$0	0%
8	Conservation	\$0	0%
9	General	\$0	0%
10	Customer	\$0	0%
11	<b>Total Asset Value (RCLD)</b>	<b>\$21,454,479</b>	<b>100%</b>

Table 4-27 shows the allocation of capital assets by functional category to each cost causation component. The percentage allocation of each functional category (Columns C-J) to the various cost causation components was determined in Table 4-23. Total asset value associated with each functional category (Column K) was determined in Table 4-26. The total dollar amount allocated to each cost causation component (Line 10) is determined by multiplying the total asset value associated with each functional category by the corresponding percentage allocation and summing across all functional categories. This is consistent with the methodology used to determine the allocation of O&M expenses to cost causation components in Table 4-25 (described in detail in Section 4.4.5). The initial capital allocation percentages (Line 12) represent the proportion of total capital assets allocated to each cost causation component (Line 10). The total capital revenue requirement (Column K, Line 14) equals the capital revenue requirement from Table 4-21, Column D, Line 21.

**Table 4-27: Allocation of Functionalized Water Capital Assets to Cost Causation Components**

[A] Line	[B] Functional Category	[C] Base	[D] Max Day	[E] Max Hour	[F] Supply	[G] Conservation	[H] Meters	[I] Customer	[J] General	[K] Asset Value
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										(RCLD)
1	Supply	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
2	Treatment	\$3,473,684	\$3,126,316	\$0	\$0	\$0	\$0	\$0	\$0	\$6,600,000
3	Storage	\$473,684	\$426,316	\$0	\$0	\$0	\$0	\$0	\$0	\$900,000
4	Distribution	\$2,979,817	\$2,681,835	\$3,873,762	\$0	\$0	\$0	\$0	\$0	\$9,535,414
5	Fire	\$1,848,505	\$1,663,655	\$895,257	\$0	\$0	\$0	\$0	\$0	\$4,407,417
6	Meters	\$0	\$0	\$0	\$0	\$0	\$11,648	\$0	\$0	\$11,648
7	Customer	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
8	Conservation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
9	General	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
10	<b>Total Assets</b>	<b>\$8,775,691</b>	<b>\$7,898,122</b>	<b>\$4,769,019</b>	<b>\$0</b>	<b>\$0</b>	<b>\$11,648</b>	<b>\$0</b>	<b>\$0</b>	<b>\$21,454,479</b>
11										
12	<i>Capital Allocation</i>	40.9%	36.8%	22.2%	0.0%	0.0%	0.1%	0.0%	0.0%	100.0%
13										
14	<i>Capital Revenue Requirement</i>	\$893,529	\$804,176	\$485,575	\$0	\$0	\$1,186	\$0	\$0	\$2,184,465

#### 4.4.7. PEAKING UNITS OF SERVICE

Peaking units of service are developed to calculate unit peaking costs (Max Day and Max Hour) for each customer class and tier and provide a basis to reallocate the extra-capacity costs of Fire Protection in subsequent steps of the COS analysis. Fire protection, like hydrants, contribute to system capacity-related costs (i.e. peaking costs), and therefore are reallocated a portion of Max Day and Max Hour costs.

Table 4-28 shows the calculation of peaking units of service for non-fire related water service. These calculations attribute peaking costs to specific customer classes based on actual water use patterns. Raftelis estimates Max Day (Column E) and Max Hour (Column H) factors based on actual FY 2022-23 water use and system-wide peaking factors (from Table 4-22). The Max Day factor is derived using the max month factor calculated from the customer billing data. Utilizing the actual water use data, organized by billing period, and accounting for use by class and tier, Raftelis derives a ratio of maximum period to average period. This ratio becomes the proxy for the max day factor. The Max Hour factor is the max day ratio multiplied proportionally by the ratio of system max hour to max day. Projected FY 2022-23 water use in Column C (from **Table 4-4**) is divided by 365 days to determine average daily water use (Column D). Average daily use in Column D is then multiplied by the Max Day factor (Column E) to determine Max Day demand (Column F). Max Day requirements (Column G) are determined by subtracting average daily water use (Column D) from Max Day demand (Column F). Max Hour requirements (Column J) are similarly calculated. Max Hour demand (Column I) equals average daily water use (Column D) multiplied by the Max Hour factor (Column H). Max Hour requirements (Column J) equal Max Hour demand (Column I) less Max Day demand (Column F).

**Table 4-28: Peaking Units of Service by Customer Class**

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]
Line	Customer Class	Annual Water Use (hcf)	Average Daily Water Use (hcf)	Max Day Factor	Max Day Demand (hcf/day)	Max Day Requirements (hcf/day)	Max Hour Factor	Max Hour Demand (hcf/day)	Max Hour Requirements (hcf/day)
1	<b>Residential</b>								
2	Tier 1	217,661	596	1.12	669	72	1.89	1,126	457
3	Tier 2	62,452	171	1.53	261	90	2.57	440	179
3	Tier 3	61,781	169	1.97	333	164	3.31	561	228
4	Subtotal	341,894	937	1.35	1,263	326	2.27	2,127	864
5									
6	<b>Non-Residential</b>								
7	Commercial	122,377	335	1.35	452	117	2.27	761	309
8	Industrial	13,035	36	1.74	62	27	2.94	105	43
9	Landscape	42,040	115	2.08	239	124	3.50	403	164
10	<b>Total</b>	<b>519,346</b>	<b>1,423</b>		<b>2,016</b>	<b>593</b>		<b>3,396</b>	<b>1,380</b>

Table 4-29 shows the methodology<sup>13</sup> used to calculate peaking units of service associated with fire protection based on a hypothetical fire duration and flow rate in gallons per minute (gpm):

$$\text{Max Day Requirements (HCF/day)} = \text{Duration of Fire (hrs)} \times \text{Water Use Rate (gpm)} \times 60 \text{ mins/hr} \div 748.05 \text{ gallons/HCF}$$

$$\text{Max Hour Requirements (HCF/day)} = [\text{Water Use Rate (gpm)} \times 60 \text{ mins/hr} \times 24 \text{ hrs/day} \div 748.05 \text{ gallons/HCF}] - \text{Max Day Requirements (HCF/day)}$$

<sup>13</sup> Per the AWWA Manual M1.

**Table 4-29: Fireflow Analysis**

[A] Line	[B] Description	[C] Value
1	Duration of Fire (Hours)	2.0
2	Water Use Rate (gallons per minute)	1,500
3	Max Day Requirements (HCF/Day)	241
4	Max Hour Requirements (HCF/Day)	2,647

Table 4-30 shows the distribution of Fire Protection Max Day and Max Hour requirements (from Table 4-29) to customer Max Day and Max Hour requirements (Table 4-28) to determine the proportion of system capacity reserved for fire protection.

**Table 4-30: Allocation of Peaking Units to Fire Protection**

[A] Line	[B] Description	[C] Max Day	[D] Max Hour
1	Fire Protection Capacity Requirements	241	2,647
2	Customer Demand Capacity Requirements	593	1,380
4	<b>Total Capacity Requirements</b>	<b>834</b>	<b>4,027</b>
5			
6	<b>Proportion of System Capacity</b>		
	Fire Protection Capacity	28.9%	65.7%
	Customer Demand Capacity	71.1%	34.3%
6	<b>Total</b>	<b>100.0%</b>	<b>100.0%</b>

Peaking units of service (from Table 4-28 and Table 4-30) are summarized below in Table 4-31. The percentage of Max Day and Max Hour Requirements attributed to each customer class is shown in Columns D and F respectively.

**Table 4-31: Summary of Total Customer Demand Peaking Units**

[A] Line	[B] Customer Class	[C] Max Day Requirements (HCF/Day)	[D] % of Max Day Requirements	[E] Max Hour Requirements (HCF/Day)	[F] % of Max Hour Requirements
1	<b>SFR</b>				
2	Tier 1	72	9%	457	11%
3	Tier 2	90	11%	179	4%
4	Tier 3	164	20%	228	6%
5	Subtotal	326	39%	864	21%
6					
7	<b>Non-Residential</b>				
8	Commercial	117	14%	309	8%
9	Industrial	27	3%	43	1%
10	Landscape	124	15%	164	4%
11	Fire Capacity	241	29%	2,647	66%
12	<b>Total</b>	<b>593</b>	<b>100%</b>	<b>1,380</b>	<b>100%</b>

#### 4.4.8. DEVELOPMENT OF UNIT COSTS

The next step in the COS is to allocate total revenue requirement costs to cost components using the allocation methods developed above in Table 4-23,

Table 4-25, and Table 4-27. These costs include FY 2024-25 operating expenses, capital expenditures, and revenue offsets (including miscellaneous revenues, and loan/grant revenues for FY 2024-25). The total revenue requirement (including operating expenses, capital expenses, and revenue offset) is distributed to cost causation components based on the allocation percentages described above.

**Table 4-32: Allocation of Revenue Requirement to Cost Components**

[A]	[B]	[C]	[D]
Line	Description	Test Year Revenue Requirement	Allocation Basis
1	Operating Expenses	\$4,669,598	O&M (see Table 4-25)
2	Capital Expenses	\$2,184,465	Capital allocation (see Table 4-27)
3	<b>Total Revenue Requirement</b>	<b>\$6,854,063</b>	

The allocations above provide the basis for the adjusted COS shown below in line 1 of the table. These costs are then divided by relevant units of service (total water use, max day/hour use, equivalent meters, or annualized bills) to produce the unit cost shown below in line 6. In the next section, these unit costs are applied to customer classes based on each classes' respective units of service.

**Table 4-33: Derivation of Cost-of-Service Unit Rates**

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]
Line	Description	Base	Max Day	Max Hour	Supply	Conservation	Meters	Customer	Fire	General	Total
1	Total Adjusted COS	\$2,498,279	\$959,798	\$217,831	\$415,443	\$29,605	\$2,460,826	\$272,280	\$0 <sup>14</sup>	\$0 <sup>15</sup>	\$6,854,063
2											
3	Units of Service	519,346	593	1,380	519,346	519,346	67,234	57,552	0	57,552	
4	Units	hcf	hcf	hcf/day	hcf/day	hcf	equivalent meters	annualized bills	Fire Capacity	annualized bills	
5											
6	Unit Cost	\$4.81	\$1,617.64	\$157.91	\$0.80	\$0.06	\$36.60	\$4.73	\$0.00	\$0.00	
7	Units	\$/hcf	\$/hcf	\$/hcf/day	\$/hcf/day	\$/private fire lines	\$/equivalent meters	\$/annualized bills	\$/hcf/day	\$/annualized bills	

<sup>14</sup> Public fire costs are reallocated to the meter component and recovered from the meter service charges, by meter size.

<sup>15</sup> Per industry standard, general costs are reallocated proportionally to the other cost components.

#### 4.4.9. WATER COST ALLOCATION TO CUSTOMER CLASSES

The final cost of service allocation determines how much revenue must be recovered from the City’s water rates and charges. Each cost causation component is recovered by either a fixed charge (in monthly terms) or volumetric rate (per hcf). Table 4-34 details which cost components are recovered by which type of rate.

**Table 4-34: Recovery of Cost Causation Components by Charge Type**

[A]	[B]	[C]
Line	Cost Causation Component	Associated Charge
1	Water Supply	Volumetric Rates
2	Base Delivery	Volumetric Rates
3	Max Day	Fixed & Volumetric Rates
4	Max Hour	Fixed & Volumetric Rates
5	Fire	Fixed Charges
6	Meter	Fixed Charges
7	Customer	Fixed Charges
8	Conservation	Volumetric Charges
9	General	Reallocated Pro Rata

**Table 4-35** shows the projected COS values by customer class and tier. These values are developed by taking the units of service for each customer class (equivalent meters, customer bills, annual average demand, and max day/max hour demands by customer class) and multiplying by the unit rates derived in Table 4-33. These provide the basis for the total cost-to-serve each class, which are then used to develop fixed and variable rates for each customer class/tier in later sections. Note that the total cost to serve in Line 10, Column M is equal to the total revenue requirement derived for FY 2023-24 in Table 4-21.

**Table 4-35: Cost to Serve by Water Customer Class**

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[I]	[J]	[M]
Line	Description	Base	Max Day	Max Hour	Supply	Conservation	Meters	Customer	Total
1	<b>SFR</b>						\$1,934,648	\$234,129	\$2,168,777
2	Tier 1	\$1,047,044	\$116,820	\$72,230	\$174,115	\$12,407			\$1,422,617
3	Tier 2	\$300,421	\$146,022	\$28,239	\$49,958	\$3,560			\$528,199
4	Tier 3	\$297,193	\$264,828	\$35,975	\$49,421	\$3,522			\$650,939
5	<b>Subtotal</b>	<b>\$1,644,658</b>	<b>\$527,671</b>	<b>\$136,444</b>	<b>\$273,493</b>	<b>\$19,489</b>	<b>\$1,934,648</b>	<b>\$234,129</b>	<b>\$4,770,532</b>
6									
7	Commercial	\$588,686	\$188,528	\$48,815	\$97,894	\$6,976	\$373,244	\$28,216	\$1,332,359
8	Industrial	\$62,704	\$43,012	\$6,731	\$10,427	\$743	\$40,847	\$2,157	\$166,621
9	Landscape	\$202,231	\$200,588	\$25,841	\$33,629	\$2,396	\$112,087	\$7,778	\$584,550
10	<b>Total</b>	<b>\$2,498,279</b>	<b>\$959,798</b>	<b>\$217,831</b>	<b>\$415,443</b>	<b>\$29,605</b>	<b>\$2,460,826</b>	<b>\$272,280</b>	<b>\$6,854,063</b>

## 4.5. Proposed Water Rates

Section 4.5 shows detailed calculations of proposed water rates through FY 2028-29. All proposed rates are first calculated directly from the results of the COS analysis (in Section 4.4) for FY 2024-25 (i.e. the “test year”). All FY 2024-25 “COS” rates and charges shown represent intermediate, revenue neutral results of the rate design process. FY 2022-24 “COS” rates and charges must be calculated to provide a basis for proposed rates for FY 2024-25 through FY 2028-29 which rely on the results of the financial plan.

### 4.5.1. WATER SERVICE CHARGES (TEST YEAR FY 2024-25)

Table 4-36 shows the calculation of equivalent meters, which is necessary to differentiate Water Service Charges by meter size. Meter capacity ratios (Column D) are first calculated by dividing meter capacity (Column C) by 50 gallons per minute (gpm). Meter capacity ratios (Column D) are then multiplied by the number of water meters at each meter size in Column E to determine equivalent meters (Column F). Equivalent meters in this study are based on AWWA-rated hydraulic capacities<sup>16</sup> and are calculated to represent the potential demand on the water system relative to a base meter size.

**Table 4-36: Equivalent Water Meters (Test Year)**

[A] Line	[B] Meter Size	[C] Meter Capacity (gpm)	[D] Meter Capacity Ratio	[E] Number of Meters	[F] Number of Equivalent Meters
1	3/4-inch water meter	30	1.00	0	0
2	1-inch water meter	50	1.00	4,460	4,460
3	1.5-inch water meter	100	2.00	132	264
4	2-inch water meter	160	3.20	157	502
5	3-inch water meter	320	6.40	26	166
6	4-inch water meter	500	10.00	21	210
7	6-inch water meter	1000	20.00	0	0
9	<b>Total</b>			<b>4,796</b>	<b>5,603</b>

Water Service Charges are designed to recover costs associated with the Customer and Meters cost causation components. **Table 4-37** shows the calculation of unit charges for the Customer and Meters cost causation components by dividing the total revenue requirement associated with each cost causation component (from Table 4-32) by the number of billing units.

Customer unit charges are calculated per customer bill. Meter unit charges are calculated per equivalent meter. Equivalent meters are used to allocate meter-related costs appropriately and equitably. Larger meters impose larger demand, are more expensive to install, maintain, and replace than smaller meters, and have greater capacity potential within the water system. The resulting unit costs are shown below.

<sup>16</sup> From the AWWA’s *Manual of Water Supply Practices M22: Sizing Water Service Lines and Meters (Third Edition)*.

**Table 4-37: Water Service Charge Calculation (Test Year)**

Description	Customer	Meters
<b>COS Allocation</b>	\$272,280	\$2,460,826
<b>Billing Units</b>	57,552 Bills	67,234 Annual Equivalent Meters
<b>Unit Charge (per Month)</b>	\$4.73 per Bill	\$36.60 per Equivalent Meter

Table 4-38 shows the detailed calculation of monthly Water Service Charges for the test year based on Customer and Meters unit charges. Customer costs do not vary by meter size. Therefore, the Customer unit rate is applied uniformly to all Water Service Charges (Column F). Because Meters costs vary by meter size based on hydraulic capacity, AWWA capacity ratios in Column C (from Table 4-36) are used to differentiate Meters unit charges by meter size. The Meters charges (Column D) are calculated by multiplying the Meters unit charge (from Table 4-37) by the AWWA capacity ratio (Column C). COS monthly Water Service Charges (Column G) equal the sum of Columns D-F, and are compared to current FY 2022-23 charges in Columns I and J.

**Table 4-38: Water Service Charges Calculation (Test Year)**

[A]	[B]	[C]	[D]	[F]	[G]	[H]	[I]	[J]
Line	Meter Size	Meter Capacity Ratio	Meter	Customer	COS Monthly Charge	Current Monthly Charge	Difference (\$)	Difference (%)
1	3/4"	1.00	\$36.60	\$4.73	\$41.34	\$45.26	-\$3.92	-9%
2	1"	1.00	\$36.60	\$4.73	\$41.34	\$45.26	-\$3.92	-9%
3	1 1/2"	2.00	\$73.20	\$4.73	\$77.94	\$86.90	-\$8.96	-10%
4	2"	3.20	\$117.12	\$4.73	\$121.86	\$136.86	-\$15.00	-11%
5	3"	6.40	\$234.25	\$4.73	\$238.98	\$253.46	-\$14.48	-6%
6	4"	10.00	\$366.01	\$4.73	\$370.75	\$419.91	-\$49.16	-12%
7	6"	20.00	\$732.02	\$4.73	\$736.76	\$1,127.75	-\$390.99	-35%

#### 4.5.2. WATER VOLUME RATES (TEST YEAR)

Water Volume Rates are designed to recover the portion of the rate revenue requirement allocated to the following cost causation components: Water Supply, Base Delivery, Peaking (Max Day and Max Hour), and Conservation. Supply rates are applied uniformly to all customer classes as the rates cover the cost of water supply. This rate is calculated by taking the total adjusted COS value for Base (shown in Table 4-33 above) and dividing by the total number of billing units (in hcf).

**Table 4-39: Calculation of Supply Rates by Customer Class and Tier**

Description	Base Delivery
<b>COS Allocation</b>	\$415,443
<b>Billing Units (HCF)</b>	519,346
<b>Unit Rate (\$ / HCF)</b>	\$0.80

### Base Delivery Unit Rate

Base Delivery unit rates are applied uniformly to all customer classes and tiers as these are costs incurred to provide water service during average daily demand conditions. This rate is calculated by taking the total adjusted COS value for Base (shown in Table 4-33 above) and dividing by the total number of billing units (in hcf). Table 4-40 shows the calculation of Base Delivery unit rates.

**Table 4-40: Calculation of Base Delivery Rate**

Description	Base Delivery
<b>COS Allocation</b>	\$2,498,279
<b>Billing Units (HCF)</b>	519,346
<b>Unit Rate (\$ / HCF)</b>	\$4.81

### Peaking Unit Rate

Peaking unit rates vary by customer class and tier based on peak water use characteristics. The allocation of these costs is based on the COS allocation of Max Day and Max Hour factors by customer class and tier, developed earlier in Table 4-35. The individual class/tier peaking rates are developed by taking the total allocation for Max Day and Max Hour by customer class and tier (Column C) and dividing by the total water use in each tier/class (Column B). Table 4-41 shows this calculation and the resulting rates (Column D).

**Table 4-41: Calculation of Peaking Unit Rates**

[A] Description	[B] Water Use (hcf)	[C] Capacity Costs (Max Day + Max Hour)	[D] Unit Rate (\$/hcf)
SFR			
Tier 1	217,661	\$189,051	\$0.87
Tier 2	62,452	\$174,261	\$2.79
Tier 3	61,781	\$300,803	\$4.87
Commercial	122,377	\$237,344	\$1.94
Industrial	13,035	\$49,743	\$3.82
Landscape	42,040	\$226,429	\$5.39
<b>Total</b>	<b>519,346</b>	<b>\$1,177,630</b>	

### Conservation Unit Rate

Conservation costs are the costs associated with customer outreach, messaging, and direct conservation programs. The total COS costs for conservation, by customer class (from Table 4-35) is divided by the total demands for each tier to determine a per HCF rate. Conservation costs are first allocated to both rate classes and then differentiated by residential tier. Because conservation efforts are aimed at curtailing high volume water use, the costs of SFR conservation are allocated entirely to Tier 3. Non-Residential's share of conservation is recovered uniformly over

every unit of water since this class has a uniform rate structure; the conservation calculation is simply the total cost divided by the total water use for that class. Table 4-42 shows the calculation of conservation rates.

**Table 4-42: Calculation of Conservation Unit Rates**

Description	Water Demand (hcf)	Conservation Costs	Unit Rate (\$/hcf)
<b>SFR</b>			
Tier 1	217,661	\$0	\$0.00
Tier 2	62,452	\$0	\$0.00
Tier 3	61,781	\$19,489	\$0.32
<b>Non-Residential</b>			
Commercial	122,377	\$6,976	\$0.06
Industrial	13,035	\$743	\$0.06
Landscape	42,040	\$2,396	\$0.06
<b>Total</b>	<b>519,346</b>	<b>\$29,605</b>	

**Water Volume Rate Calculation (Test Year)**

Table 4-43 shows the calculation of Water Volume Rates for the test year. The final rate is summing the individual class/tier rates for each component developed above (water supply, base, peaking, and conservation). No revenue adjustments are incorporated into the COS rates shown, which are designed to collect the same amount of revenue as current water rates. The relevant tables for the calculation of each component are shown below:

- » Water Supply Unit Rates (from Table 4-39)
- » Base Delivery Unit Rates (from Table 4-40)
- » Peaking Unit Rates (from Table 4-41)
- » Conservation Unit Rates (from Table 4-42)

**Table 4-43: Water Use Rates Calculation (Test Year)**

[A] Line	[B] Customer Class	[C] By Class/ Tier (HCF)	[D] Water Supply Unit Rate	[E] Base Cost Unit Rate	[F] Peaking Unit Rate	[G] Conservation Unit Rate	[H] Proposed COS Rate (\$/hcf)	[I] Current Rate (\$/hcf)	[J] Difference (\$)	[K] Difference (%)
1	<b>SFR</b>									
2	Tier 1	217,661	\$0.80	\$4.81	\$0.87	\$0.00	<b>\$6.48</b>	\$6.48	\$0.00	0.0%
3	Tier 2	62,452	\$0.80	\$4.81	\$2.79	\$0.00	<b>\$8.41</b>	\$6.48	\$1.93	29.8%
4	Tier 3	61,781	\$0.80	\$4.81	\$4.87	\$0.32	<b>\$10.80</b>	\$6.48	\$4.32	66.7%
5										
6	Commercial	122,377	\$0.80	\$4.81	\$1.94	\$0.06	<b>\$7.61</b>	\$6.48	\$1.13	17.4%
7	Industrial	13,035	\$0.80	\$4.81	\$3.82	\$0.06	<b>\$9.49</b>	\$6.48	\$3.01	46.5%
8	Landscape	42,040	\$0.80	\$4.81	\$5.39	\$0.06	<b>\$11.06</b>	\$6.48	\$4.58	70.7%

## Proposed Five-Year Rates Schedule

Table 4-44 shows the proposed three-year schedule of water rates for implementation July 1, 2024 through July 2026. July 2024 rates are calculated by taking the final proposed rate in Table 4-43 and multiplying by the proposed revenue adjustment shown in Table 4-16. The rates for the remaining years of the study are calculated by multiplying each year's rate by the proposed adjustment shown for that year in Table 4-16.

**Table 4-44: Proposed Three-Year Water Rates Schedule**

Description	Current	FY 2025	FY 2026	FY 2027
<b>Residential Fixed Monthly Service Charge</b>				
Single Family	\$28.61	By Meter Size	By Meter Size	By Meter Size
Single Family + ADU (per DU)	\$21.84	By Meter Size	By Meter Size	By Meter Size
Multi-Family (Per DU)	\$17.01	By Meter Size	By Meter Size	By Meter Size
<b>Fixed Monthly Service Charges</b>				
Up to 1"	\$45.26	\$41.34	\$49.61	\$56.06
1 1/2"	\$86.90	\$77.94	\$93.53	\$105.69
2"	\$136.86	\$121.86	\$146.24	\$165.26
3"	\$253.46	\$238.98	\$286.78	\$324.07
4"	\$419.91	\$370.75	\$444.90	\$502.74
6"	\$1,127.75	\$736.76	\$884.12	\$999.06
<b>Residential (Single Family &amp; Multi-Family)</b>				
Tier 1 (0-5 HCF)	\$6.48	\$6.48	\$7.78	\$8.80
Tier 2 (6-10 HCF)	\$6.48	\$8.41	\$10.10	\$11.42
Tier 3 >10 HCF	\$6.48	\$10.80	\$12.96	\$14.65
<b>Non-Residential Classes</b>				
Commercial	\$6.48	\$7.61	\$9.14	\$10.33
Industrial	\$6.48	\$9.49	\$11.39	\$12.88
Landscape	\$6.48	\$11.06	\$13.28	\$15.01
Riverview HOA <sup>17</sup>	\$1.59	\$1.93	\$2.32	\$2.63

<sup>17</sup> Only the volumetric rate applicable to Riverview HOA under the terms of the 1997 order of condemnation. HOA Riverview pays a fixed monthly service charge by meter size that increases based schedule.

# 5. Wastewater Rate Study

## 5.1. Key Inputs and Assumptions

Raftelis developed a wastewater rate model to project financial calculations over the next ten fiscal years with projections shown in this report through the five-year rate-setting period of FY 2028-29 (i.e. the “study period”). While the study period consists of five years, the proposed rates for adoption are for only the first three years only. The City’s fiscal year spans from July 1 through June 30. Projections in future years were informed by actual data for FY 2021-22 or FY 2022-23, or the adopted budget for FY 2023-24 using key assumptions outlined below. Assumptions were discussed with, and reviewed by, City of Healdsburg Public Works and Finance staff to ensure that the City wastewater system’s unique characteristics are accurately accounted for. Note that most table values shown throughout this report are rounded to the last digit shown and may therefore not sum precisely to the totals shown.

The proposed rates are predicated on a shift in current adopted reserve policy outlined in the 2022 rate study. Failure to adopt the recommended changes may result in higher projected rates to adhere to the existing minimum coverage requirement. Raftelis recommends transitioning from a capital reserve policy to a rate stabilization policy to streamline the approach, eliminating the earmarking of reserves for specific capital purposes and instead utilizing them to complete preemptive capital replacement and fund maintenance costs in a manner that stabilizes rates support rates. As part of this transition, the City would allocate a portion of the reserve to offset increases over the next three fiscal years. As a result, the proposed financial plan fully funds the operating reserve, but it does not fully fund the rate stabilization reserve. When the City undertakes the next rate study, it is recommended that the City consider fully funding the rate stabilization reserve in the financial plan.

### 5.1.1.CURRENT WASTEWATER RATES

Table 5-1 shows the wastewater rates currently in effect in FY 2023-24, which were developed during the prior rate study in 2022. Rates and charges vary by customer class. Residential customers are subject to a monthly Fixed Charge per dwelling unit and a variable flow charge per Average Winter Consumption (AWC) over January to April, with highest month usage being omitted; non-residential customers are subject to a fixed charge by meter size and a variable Flow Charge based on actual water use and strength category for each billing period. All current charges are shown on a monthly basis.

**Table 5-1: Current Wastewater Rates Schedule**

Description	FY 2024
<b>Residential Service Charges (\$/Month/Dwelling Unit)</b>	
Single Family Residential (SFR)	\$46.67
SFR + ADU	\$31.95
Multi-Family Residential (MFR)	\$37.80
Flat Rate (Sewer Only SFR)	\$104.01
<b>Non Residential Service Charges (\$/Month/Meter)</b>	
5/8"	\$75.75
1"	\$75.75
1 1/2"	\$148.49
2"	\$235.77
3"	\$439.44
4"	\$730.39
6"	\$1,966.94
<b>Wastewater Usage Charges (\$/HCF)</b>	
Residential (SFR/MFR)	\$11.47
<b>Non Residential</b>	
Low Strength	\$10.31
Medium Strength	\$15.09
High Strength	\$22.08

### 5.1.2.WASTEWATER ENTERPRISE FINANCIAL ASSUMPTIONS

Inflationary assumptions shown in Table 5-2 are used to escalate projected non-rate revenues and operations and maintenance (O&M) expenses beyond FY 2023-24. For O&M expenses, the general inflation rate is consistent with long-term changes in the Consumer Price Index (CPI). Specifically, increases in salaries and cost-of-living adjustments (COLA) match the annual percentage changes in wages and salaries reported by the CPI. At the direction of city staff, adjustments for salary/employee benefits and electricity costs have been made. Electricity cost adjustments directly reflect the estimated rate increases provided by the city's electric suppliers. Utility costs have been updated to mirror the changes in fuel and utilities prices from October 2022 to October 2023, as indicated by the CPI. Capital expenses have been adjusted based on the three-year average from the Engineering News-Record (ENR). All inflationary assumptions are consistent with inflationary assumptions used in the water rate study.

**Table 5-2: Wastewater Enterprise Inflationary Assumptions**

Inflationary Categories	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
<b>Expenses</b>					
General Cost Inflation	3.7%	3.7%	3.7%	3.7%	3.7%
Salary / COLA	4.5%	4.5%	4.5%	4.5%	4.5%
Salary / Employee Benefits	7%	7%	7%	7%	7%
Utilities	5.2%	5.2%	5.2%	5.2%	5.2%
Capital	5.9%	5.9%	5.9%	5.9%	5.9%
Electricity	14.0%	8.0%	7.0%	5.0%	5.0%

**5.1.3.PROJECTED WASTEWATER BILLING UNITS OF SERVICE**

City staff provided Raftelis with wastewater billing data to gather customer counts and usage per class and meter size. Similar to the water utility, the City's wastewater utility isn't expecting an increase in accounts. This, coupled with a strong emphasis on water conservation, resulted in overall usage and revenues remaining stable. Therefore, for the study period, Raftelis didn't project any growth in accounts but relied on current estimates of actual meter counts for all future years.

Table 5-3 displays the current values for wastewater meters. To ensure conservative rate revenue projections and align with water demand projections, no additional demand factor was applied to billed wastewater flows. All billing units provided below are based on the current wastewater rate structure.

**Table 5-3: Current Wastewater Enterprise Connections**

Description	Current Number of Meters
<b>Residential (Dwelling Units)</b>	
Single Family Residential (SFR)	3,774
SFR + ADU	316
Multi-Family Residential (MFR)	811
<b>Subtotal - Residential</b>	<b>4,901</b>
<b>Non-Residential Accounts</b>	
Low Strength	369
Medium Strength	97
High Strength	75
<b>Subtotal – Non-Residential</b>	<b>541</b>
<b>Total Dwelling Units &amp; Accounts</b>	<b>5,442</b>

Table 5-4 shows the projected wastewater flows for the City’s customers over the study period. Note that, because the City assumed constant water demand, all flows remain constant throughout the study period. As such, only FY 2022-23 actual flows are shown and are the estimate for future years`; all other years in the study (through FY 2032-33) are equivalent to those shown in Table 5-4 below. All flows are shown in hundred cubic feet (hcf).

**Table 5-4: Estimated Non-Residential Wastewater Flows (hcf), Existing Rate Structure**

Description	Projected FY 2025
<b>Residential</b>	
Single Family Residential (SFR)	156,948
SFR + ADU	9,256
Multi-Family Residential (MFR)	25,760
<b>Subtotal – Residential</b>	<b>191,964</b>
<b>Non-Residential</b>	
Low Strength	68,244
Medium Strength	27,349
High Strength	39,944
<b>Subtotal – Non-Residential</b>	<b>135,537</b>
<b>Total Flows</b>	<b>327,501</b>

## 5.2. Wastewater Financial Plan

**Section 5.2** details the development of a proposed Wastewater Enterprise financial plan over the study period. The following subsections include estimates and projections of annual revenues, O&M expenses, debt service payments, capital expenditures, and reserve funding through FY 2028-29. The overall purpose of the financial plan is to determine annual wastewater rate revenues required to achieve sufficient cash flow, maintain adequate reserves, and meet debt coverage requirements.

### 5.2.1. WASTEWATER ENTERPRISE REVENUE UNDER CURRENT RATES

The Wastewater Enterprise’s revenue sources consist of wastewater rates, interest earnings on cash reserves, and other non-rate revenues. The rate revenue projections shown in this section assume that current FY 2023-24 wastewater rates are effective throughout the study period, and therefore represent estimated revenues in the absence of any wastewater rate increases. This status quo scenario provides a baseline from which Raftelis evaluated the need for revenue adjustments (i.e. gross rate revenue increases).

**Table 5-5: Projected Rate Revenues with Current Wastewater Rates**

Description	Projected FY 2024	Projected FY 2025	Projected FY 2026	Projected FY 2027	Projected FY 2028	Projected FY 2029
<b>Wastewater Rate Revenues</b>						
Variable	\$4,200,083	\$4,200,083	\$4,200,083	\$4,200,083	\$4,200,083	\$4,200,083
Fixed	\$3,436,715	\$3,436,715	\$3,436,715	\$3,436,715	\$3,436,715	\$3,436,715
<b>Total</b>	<b>\$7,636,798</b>	<b>\$7,636,798</b>	<b>\$7,636,798</b>	<b>\$7,636,798</b>	<b>\$7,636,798</b>	<b>\$7,636,798</b>

### Other Wastewater Enterprise Revenues

**Table 5-6** shows all other Wastewater Enterprise revenues. All FY 2023-24 other revenues are based on the City’s FY 2023-24 adopted budget which includes non-recurring transfers and a one-time adjustment to account for available capital funding. Projected future miscellaneous revenues represent scheduled loan repayments.. Interest revenue is estimated in the financial plan model beginning in FY 2024-25 based on projected fund balances and the assumed interest rate.

**Table 5-6: Other Wastewater Enterprise Revenues**

Description	Projected FY 2024	Projected FY 2025	Projected FY 2026	Projected FY 2027	Projected FY 2028	Projected FY 2029
<b>Wastewater - Other Revenues</b>						
Miscellaneous Revenues	\$1,070,403	\$123,313	\$123,313	\$123,313	\$123,313	\$123,313
Interest Income	\$37,810	\$40,159	\$44,829	\$39,427	\$38,969	\$39,409
<b>Total</b>	<b>\$1,108,213</b>	<b>\$163,472</b>	<b>\$168,142</b>	<b>\$162,740</b>	<b>\$162,282</b>	<b>\$162,722</b>

**Summary of Projected Wastewater Enterprise Revenues**

Table 5-7 shows a summary of all projected Wastewater Enterprise revenues under current rates over the study period. This includes all projected revenues shown in Table 5-5 and Table 5-6. This revenue summary represents expected revenues in the absence of any rate increase over the study period.

**Table 5-7: Projected Wastewater Enterprise Revenues Under Current Rates**

Description	Projected FY 2024	Projected FY 2025	Projected FY 2026	Projected FY 2027	Projected FY 2028	Projected FY 2029
<b>Wastewater Revenues</b>						
Variable Revenues	\$4,200,083	\$4,200,083	\$4,200,083	\$4,200,083	\$4,200,083	\$4,200,083
Fixed Revenues	\$3,436,715	\$3,436,715	\$3,436,715	\$3,436,715	\$3,436,715	\$3,436,715
Miscellaneous Revenues	\$1,070,403	\$123,313	\$123,313	\$123,313	\$123,313	\$123,313
Interest Income	\$37,810	\$40,159	\$44,829	\$39,427	\$38,969	\$39,409
<b>Total</b>	<b>\$8,745,011</b>	<b>\$7,800,270</b>	<b>\$7,804,940</b>	<b>\$7,799,538</b>	<b>\$7,799,080</b>	<b>\$7,799,520</b>

**5.2.2.WASTEWATER ENTERPRISE OPERATIONS & MAINTENANCE EXPENSES**

**Table 5-8** shows a summary of all Wastewater Enterprise O&M expenses over the study period. O&M expenditures include the cost of operating and maintaining wastewater collection, treatment, and disposal facilities. O&M expenses also include the costs of providing technical services such as laboratory services and other administrative costs of the wastewater system. These costs are a normal obligation of the system and are met from operating revenues as they are incurred. The projection indicates that operation and maintenance (O&M) expenses will rise by an average of 5% each year throughout the study period. However, there is an exception between 2024 and 2025, when costs are expected to decrease. This decrease is attributed to several one-time expenses, including legal services, and equipment repairs that were funded by non-recurring transfers in the 2024 budget but will not continue into subsequent years. The City provided Raftelis with projected actuals for FY 2022-23 and budgeted values for FY 2023-24. Raftelis then used the inflation factors shown above in Table 5-2 to escalate O&M costs in the out years.

**Table 5-8: Projected Wastewater Enterprise O&M Expenses**

O&M Expenses	Projected FY 2024	Projected FY 2025	Projected FY 2026	Projected FY 2027	Projected FY 2028	Projected FY 2029
Collection	\$2,187,114	\$2,310,089	\$2,415,419	\$2,524,975	\$2,637,152	\$2,761,448
Treatment	\$3,550,677	\$3,407,584	\$3,582,147	\$3,760,612	\$3,935,847	\$4,119,726
Customer	\$215,468	\$225,246	\$235,497	\$246,245	\$257,516	\$269,337
General	\$812,296	\$776,103	\$812,145	\$849,976	\$889,691	\$931,390
<b>Total O&amp;M Expenses</b>	<b>\$6,765,555</b>	<b>\$6,719,022</b>	<b>\$7,045,209</b>	<b>\$7,381,809</b>	<b>\$7,720,206</b>	<b>\$8,081,902</b>

### 5.2.3.WASTEWATER ENTERPRISE DEBT

Table 5-9 shows the Wastewater Enterprise’s projected debt service obligations over the study period. Existing debt service consists of the City’s Series 2015 In July 2015, the City issued the 2015 Wastewater Revenue Refunding Bonds, which defeased the remaining Sewer Bonds of the 2005 CSDA Bonds of \$2,440,000. The 2005 CSDA Sewer Bonds are considered to be defeased and the liability has been removed from long-term debt. The wastewater utility received a \$425,000 loan from the general fund to be paid back over the next 4 years which is considered O&M in the budget. The City does not plan to issue new debt for its wastewater enterprise during the study period.

**Table 5-9: Wastewater Enterprise Debt Service**

Debt Service	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
<b>Existing Debt Service</b>						
Series 2015 Revenue Refunding Bond	\$1,791,350	\$1,794,750	\$1,791,250	\$1,795,750	\$1,794,925	\$1,793,416
<b>Subtotal</b>	<b>\$1,791,350</b>	<b>\$1,794,750</b>	<b>\$1,791,250</b>	<b>\$1,795,750</b>	<b>\$1,794,925</b>	<b>\$1,793,416</b>
<b>Proposed Debt Service</b>						
New Debt	\$0	\$0	\$0	\$0	\$0	\$0
<b>Subtotal</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>Total</b>	<b>\$1,791,350</b>	<b>\$1,794,750</b>	<b>\$1,791,250</b>	<b>\$1,795,750</b>	<b>\$1,794,925</b>	<b>\$1,793,416</b>

### 5.2.4.WASTEWATER ENTERPRISE CAPITAL IMPROVEMENT PLAN

Table 5-10 shows the City’s capital improvement plan (CIP) for the Wastewater Enterprise over the study period. The values shown are based on the most recently prepared multi-year CIP. . To reduce immediate financial needs and financial impacts the CIP defers several infrastructure replacement projects for portions of the utility pipeline beyond their useful life and several rehabilitation projects for aging lift stations. The deferral of these projects will not impact the immediate service provided by the Utility, but it will continue to challenge overall system reliability in the long-term. Significant CIP expenditures are anticipated to continue over the next ten years, with approximately \$3.7M in capital spending per year for the duration of the ten-year planning period. This highlights the need to maintain adequate reserves to fund substantial CIP projects beyond FY 2028-29. Capacity-related project costs are not included in the CIP and revenue associated with capital recover fees are excluded from the revenue requirement.

**Table 5-10: Wastewater Enterprise Capital Improvement Plan**

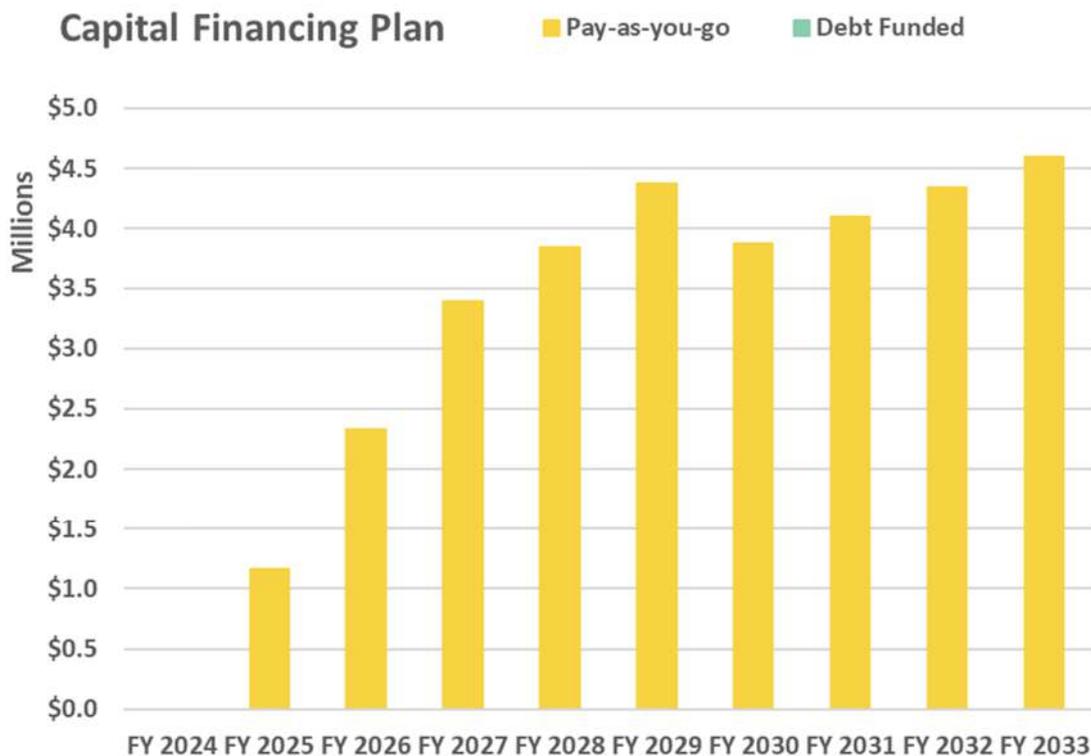
Project Description	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Orchard Lift Station Rehabilitation	\$0	\$0	\$277,981	\$0	\$0	\$0
Heron Lift Station Relocation	\$0	\$0	\$0	\$0	\$1,706,188	\$0
Magnolia LS Structure Rehabilitation	\$0	\$0	\$216,332	\$0	\$0	\$0
Hendricks Lift Station / Westside Road Gravity Sewer	\$0	\$0	\$0	\$0	\$0	\$1,557,636
Spare centrifuge rotating assembly	\$0	\$0	\$183,826	\$0	\$0	\$0
Pond 1 Liner Repairs	\$0	\$80,463	\$0	\$0	\$0	\$0
Membrane Feed Pumps	\$0	\$0	\$95,276	\$0	\$0	\$123,706
Storm Drain Pumps	\$0	\$0	\$0	\$0	\$75,384	\$0
Plant Drain Pumps	\$0	\$0	\$0	\$0	\$77,897	\$0
WRF membrane replacement	\$0	\$281,620	\$0	\$0	\$0	\$0
Reconstruct Corp Yard Lift Station	\$0	\$0	\$0	\$0	\$63,946	\$0
WRF Fence / Trees	\$0	\$0	\$0	\$0	\$97,999	\$0
WRF Compressors	\$0	\$29,644	\$32,506	\$0	\$0	\$0
A-Basin Diffusers Replacement	\$0	\$0	\$68,374	\$0	\$0	\$0
Air actuators for Filtration gallery 10-inch valves	\$0	\$0	\$0	\$0	\$0	\$17,292
Air actuators for Filtration gallery 14-inch valves	\$0	\$0	\$0	\$0	\$0	\$21,283
Mixers	\$0	\$0	\$0	\$0	\$0	\$0
Magnolia Pump Station Pump 1 Replacement	\$0	\$0	\$0	\$0	\$131,922	\$0
Wastewater and Programming Computer	\$0	\$7,411	\$0	\$0	\$0	\$0
Boeger Pump Rehab	\$0	\$0	\$0	\$0	\$18,846	\$19,953
UV Wiper hydraulic Hoses	\$0	\$0	\$0	\$31,391	\$0	\$0
Inflow and Infiltration Investigation	\$0	\$0	\$0	\$0	\$332,945	\$0
Drainage Improvements at Industrial Group Building	\$0	\$0	\$0	\$0	\$37,692	\$0
McDonough Water Transmission Main Replacement	\$0	\$0	\$0	\$0	\$45,513	\$527,747
Brown Street Sewer & Water Replacement	\$0	\$0	\$1,330,576	\$0	\$0	\$0
Reed Court & Bianca Lane Sewer & Water Replacement	\$0	\$0	\$0	\$0	\$0	\$107,079
University Street Sewer & Water Replacement	\$0	\$0	\$128,258	\$1,352,929	\$0	\$0
Healdsburg Ave Sewer Replacement	\$0	\$0	\$0	\$2,007,053	\$0	\$0
Healdsburg Ave Utility Replacement	\$0	\$760,956	\$0	\$0	\$0	\$0
Ongoing R&R	\$0	\$0	\$0	\$0	\$0	\$1,995,264
Inflow and Infiltration Repairs	\$0	\$0	\$0	\$0	\$1,256,398	\$0
<b>Total CIP</b>	<b>\$0</b>	<b>\$1,160,094</b>	<b>\$2,333,129</b>	<b>\$3,391,373</b>	<b>\$3,844,730</b>	<b>\$4,369,960</b>

Table 5-11 shows the assumed funding sources for Wastewater Enterprise CIP projects over the five-year study period. The City plans to fund its capital expenditures through rates (e.g., PAYGO). The rate study does not project the need for additional debt issuances for the study period; as such, the capital funding plan for the Wastewater Enterprise assumes cash-funding for the duration of the study period. Figure 5-11 shows a summary of total Wastewater Enterprise CIP expenditures by funding source through FY 2032-33.

**Table 5-11: Wastewater Enterprise Capital Improvement Plan, by Funding Source**

Description	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Rate Funded	\$1,160,094	\$2,333,129	\$3,391,373	\$3,844,730	\$4,369,960
Bond Funded	\$0	\$0	\$0	\$0	\$0
Grant Funded	\$0	\$0	\$0	\$0	\$0
<b>Total</b>	<b>\$1,160,094</b>	<b>\$2,333,129</b>	<b>\$3,391,373</b>	<b>\$3,844,730</b>	<b>\$4,369,960</b>

**Figure 5-1: Wastewater Enterprise Capital Improvement Plan**



## 5.2.5. WASTEWATER ENTERPRISE FINANCIAL POLICIES

### Required Debt Coverage

The Wastewater Enterprise is required to meet debt service coverage requirements on its outstanding wastewater revenue bonds. Failure to meet debt service coverage results in a technical default, which, without foreseeable remedial action such as implementing rate increases, could result in a downgrade of credit rating, higher costs in future debt issuance or even denial of credit. This is consistent with the requirements for the City’s Water

Enterprise. The required debt coverage ratio is 1.20, meaning that the Wastewater Enterprise’s net operating revenues (i.e. total revenues less operating expenses) must amount to at least 1.20 times the amount of annual debt service.

### Reserve Targets

Adequate cash reserves are required to meet operating, capital, and debt service requirements. The current operating reserve target is equal to 25% percent of annual O&M expenses. Raftelis recommends the City shift the reserve policy outlined in the previous study of establishing a capital reserve policy to a rate stabilization policy to streamline the approach, eliminating the earmarking of reserves for specific capital purposes, and instead utilizing them to support rates. As part of this transition, the City would allocate a portion of the reserve to offset increases over the next three fiscal years. Furthermore, when the City undertakes the next rate studies and adopts the next rate plan, it’s recommended that the City consider funding an additional one-million-dollar rate stabilization reserve, which can be used to address major equipment failures and natural disasters. The change will mitigate otherwise higher rate increases over the study period.

**Table 5-12: Wastewater Enterprise Financial Policies**

Financial Policy	Target/Requirement
<b>Debt Coverage</b>	
Target Debt Coverage Ratio	1.20
<b>Reserve Targets</b>	
Operating Reserve Target	25% of annual O&M expenses
Rate Stabilization Target	\$1 Million
Total Reserve Target	25% of annual O&M expenses + \$1 million

**Table 5-13: Projected Wastewater Enterprise Reserve Targets**

Reserve Target	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Operating Reserve	\$1,691,389	\$1,679,756	\$1,761,302	\$1,845,452	\$1,930,051	\$2,020,475
Rate Stabilization Reserve	\$1,000,000	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
<b>Total Reserve Target</b>	<b>\$2,691,389</b>	<b>\$2,679,756</b>	<b>\$2,761,302</b>	<b>\$2,845,452</b>	<b>\$2,930,051</b>	<b>\$3,020,475</b>

### 5.2.6.STATUS QUO WASTEWATER FINANCIAL PLAN

To evaluate the need for revenue adjustments (i.e. increases to gross rate revenues), Raftelis first developed a status quo financial plan. The status quo financial plan assumes that current FY 2023-24 rates remain unchanged over the study period. Table 5-14 combines projected revenues (from Table 5-7), O&M expenses (from Table 5-8), and debt service (from Table 5-9) to generate operating cash flow projections under the status quo. In the absence of any revenue adjustments, the Wastewater Operating Fund will fail to generate sufficient revenue to recover O&M expenses and debt service over the study period.

**Table 5-14: Wastewater Cash Flow – Status Quo Financial Plan**

Line	Description	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	<b>Wastewater Rate Revenue under Current Rates</b>						
2	Wastewater Rates Subject to Revenue Adjustments	\$7,636,798	\$7,636,798	\$7,636,798	\$7,636,798	\$7,636,798	\$7,636,798
3	Non-Rate revenues <sup>18</sup>	\$1,108,213	\$163,472	\$168,142	\$162,740	\$162,282	\$162,722
4	<b>Total Revenues</b>	\$8,745,011	\$7,800,270	\$7,804,940	\$7,799,538	\$7,799,080	\$7,799,520
5							
6	O&M Expenses	\$6,765,555	\$6,719,022	\$7,045,209	\$7,381,809	\$7,720,206	\$8,081,902
7	Debt Service	\$1,791,350	\$1,794,750	\$1,791,250	\$1,795,750	\$1,794,925	\$1,793,416
8	Rate-Funded CIP	\$0	\$1,160,094	\$2,333,129	\$3,391,373	\$3,844,730	\$4,369,960
9	<b>Total Expenses</b>	\$8,556,905	\$9,673,867	\$11,169,588	\$12,568,931	\$13,359,860	\$14,245,277
10							
11	<b>Net Cash Flow<sup>19</sup></b>	\$188,105	(\$1,873,597)	(\$3,364,648)	(\$4,769,394)	(\$5,560,780)	(\$6,445,757)

Table 5-15 shows projected reserve balances and debt coverage under the status quo financial plan for the entire Wastewater Enterprise. Sources of funds include both rate and non-rate revenues but exclude revenues from rate increases. Use of funds include O&M expenses (from Table 5-8), debt service (from Table 5-9), and CIP expenditures (from Table 5-11). The FY 2023-24 beginning balance reflects actual Wastewater Enterprise reserve balances as of July 1, 2023. All ending balance and debt coverage figures are projected values. Target reserve balances shown are from Table 5-13.

<sup>18</sup> Includes miscellaneous revenues and interest income.

<sup>19</sup> Equal to [Line 4 – Line 9].

**Table 5-15: Wastewater Enterprise Pro Forma – Status Quo Financial Plan**

Line	Description	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	<b>Projected Beginning Balance</b>	\$2,758,739	\$2,946,844	\$1,073,248	(\$2,291,400)	(\$7,060,794)	(\$12,621,574)
2							
3	<b>Source of Funds</b>						
4	Status Quo Rate Revenues	\$7,636,798	\$7,636,798	\$7,636,798	\$7,636,798	\$7,636,798	\$7,636,798
5	Other Revenues	\$1,108,213	\$163,472	\$168,142	\$162,740	\$162,282	\$162,722
9	<b>Total Source of Funds</b>	\$8,745,011	\$7,800,270	\$7,804,940	\$7,799,538	\$7,799,080	\$7,799,520
10							
11	<b>Use of Funds</b>						
12	O&M Expenses	\$6,765,555	\$6,719,022	\$7,045,209	\$7,381,809	\$7,720,206	\$8,081,902
13	Debt Service	\$1,791,350	\$1,794,750	\$1,791,250	\$1,795,750	\$1,794,925	\$1,793,416
14	Rate-Funded CIP	\$0	\$1,160,094	\$2,333,129	\$3,391,373	\$3,844,730	\$4,369,960
15	<b>Total Use of Funds</b>	\$8,556,905	\$9,673,867	\$11,169,588	\$12,568,931	\$13,359,860	\$14,245,277
16							
17	Net Cashflow	\$188,105	(\$1,873,597)	(\$3,364,648)	(\$4,769,394)	(\$5,560,780)	(\$6,445,757)
18							
19	<b>Projected Ending Balance<sup>20</sup></b>	\$2,946,844	\$1,073,248	(\$2,291,400)	(\$7,060,794)	(\$12,621,574)	(\$19,067,331)
20	<i>Operating Reserve Target</i>	\$2,691,388	\$2,679,755	\$2,761,302	\$2,845,452	\$2,930,051	\$3,020,475
22							
23	<b>Debt Coverage</b>						
24	Projected Debt Coverage <sup>21</sup>	1.11	0.60	0.42	0.23	0.04	(0.16)
25	<i>Required Debt Coverage</i>	1.20	1.20	1.20	1.20	1.20	1.20

### 5.2.7. PROPOSED WASTEWATER FINANCIAL PLAN

Wastewater Enterprise must increase its revenues from wastewater rates over the study period to adequately fund its operating and capital expenditures, meet required debt coverage, and maintain sufficient reserve funding. Raftelis worked closely with City staff to identify financial plan options for the Board’s consideration. The selected option of proposed annual revenue adjustments is shown in Table 5-16. Revenue adjustments represent annual percentage increases in total rate revenue relative to rate revenue generated by the prior year’s wastewater rates.

**Table 5-16: Proposed Wastewater Enterprise Revenue Adjustments**

Fiscal Year	Proposed			Future Increases	
	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28	FY 2028-29
Effective Date	July 1, 2024	July 1, 2025	July 1, 2026	July 1, 2027	July 1, 2028
Revenue Adjustment	18.0%	18.0%	15.0%	9.0%	5.0%

Table 5-17 combines projected wastewater rate and non-rate revenues (from Table 5-7), O&M expenses (from Table 5-8), and debt service (from Table 5-9) to generate operating cash flow projections under the proposed financial plan. By implementing the proposed revenue adjustments, we project that the Wastewater Operating Fund will maintain sufficient operating cash flow through the end of the study period.

<sup>20</sup> Equal to [Line 1 + Line 17]

<sup>21</sup> Equal to [(Line 9 – Line 12) ÷ Line 13]

**Table 5-17: Wastewater Cash Flow – Proposed Financial Plan**

Line	Description	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	<b>Wastewater Rate Revenue under Current Rates</b>						
	Wastewater Rates						
2	Subject to Revenue Adjustments	\$7,636,798	\$7,636,798	\$7,636,798	\$7,636,798	\$7,636,798	\$7,636,798
3	Non-Rate Revenues <sup>22</sup>	\$1,108,213	\$163,472	\$168,142	\$162,740	\$162,282	\$162,722
4	<b>Revenue Adjustments</b>						
5	Fiscal Year	Rev. Adj.					
6	FY 2025	18.00%	\$1,374,624	\$1,374,624	\$1,374,624	\$1,374,624	\$1,374,624
7	FY 2026	18.00%		\$1,622,056	\$1,622,056	\$1,622,056	\$1,622,056
8	FY 2027	15.00%			\$1,595,022	\$1,595,022	\$1,595,022
9	FY 2028	9.00%				\$1,100,565	\$1,100,565
10	FY 2029	5.00%					\$666,453
11	Total Adjustments	\$0	\$1,374,624	\$2,996,679	\$4,591,701	\$5,692,266	\$6,358,719
12							
13	<b>Total Revenues</b>	\$8,745,011	\$9,174,893	\$10,801,620	\$12,391,239	\$13,491,346	\$14,158,239
14							
15	O&M Expenses	\$6,765,555	\$6,719,022	\$7,045,209	\$7,381,809	\$7,720,206	\$8,081,902
16	Debt Service	\$1,791,350	\$1,794,750	\$1,791,250	\$1,795,750	\$1,794,925	\$1,793,416
17	Rate-Funded CIP	\$0	\$1,160,094	\$2,333,129	\$3,391,373	\$3,844,730	\$4,369,960
18	<b>Total Expenses</b>	\$8,556,905	\$9,673,867	\$11,169,588	\$12,568,931	\$13,359,860	\$14,245,277
19							
20	<b>Net Operating Cash Flow<sup>23</sup></b>	\$188,105	(\$498,973)	(\$367,968)	(\$177,693)	\$131,486	(\$87,038)

Table 5-18 shows projected reserve balances and debt coverage under the proposed financial plan for the entire Wastewater Enterprise. Sources of funds include revenues (from Table 5-7), revenue adjustments (from Table 5-17), use of funds include O&M expenses (from Table 5-8), debt service (from Table 5-9), and CIP expenditures (from Table 5-11). The FY 2023-24 beginning balance reflects actual Wastewater Enterprise reserve balances as July 1, 2023. All ending balance and debt coverage figures are projected values. Target reserve balances shown are from Table 5-13. Under the proposed financial plan, reserve balances and debt coverage are projected to achieve target policies in all years of the rate-setting period.

<sup>22</sup> Includes miscellaneous revenues, interest income, and loan/grant revenues.

<sup>23</sup> Equal to [Line 13 – Line 18].

**Table 5-18: Wastewater Enterprise Pro Forma – Proposed Financial Plan**

Line	Description	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	<b>Beginning Balance</b>	\$2,758,739	\$2,946,844	\$2,447,871	\$2,079,903	\$1,902,210	\$2,033,696
2							
3	<b>Source of Funds</b>						
4	Rate Revenues (including adjustments)	\$7,636,798	\$9,011,421	\$10,633,477	\$12,228,499	\$13,329,064	\$13,995,517
5	Other Revenues	\$1,108,213	\$163,472	\$168,142	\$162,740	\$162,282	\$162,722
9	<b>Total Source of Funds</b>	\$8,745,011	\$9,174,893	\$10,801,620	\$12,391,239	\$13,491,346	\$14,158,239
10							
11	<b>Use of Funds</b>						
12	O&M Expenses	\$6,765,555	\$6,719,022	\$7,045,209	\$7,381,809	\$7,720,206	\$8,081,902
13	Debt Service	\$1,791,350	\$1,794,750	\$1,791,250	\$1,795,750	\$1,794,925	\$1,793,416
14	Capital Improvement Plan Expenditures	\$0	\$1,160,094	\$2,333,129	\$3,391,373	\$3,844,730	\$4,369,960
15	<b>Total Use of Funds</b>	\$8,556,905	\$9,673,867	\$11,169,588	\$12,568,931	\$13,359,860	\$14,245,277
16							
17	<b>Ending Balance<sup>24</sup></b>	\$2,946,844	\$2,447,871	\$2,079,903	\$1,902,210	\$2,033,696	\$1,946,658
18	<i>Operating Reserve Target</i>	\$2,691,388	\$2,679,755	\$2,761,302	\$2,845,452	\$2,930,051	\$3,020,475
19							
20	<b>Debt Coverage</b>						
23	Projected Debt Coverage <sup>25</sup>	1.11	1.37	2.10	2.79	3.22	3.39
24	<i>Required Debt Coverage</i>	1.20	1.20	1.20	1.20	1.20	1.20

<sup>24</sup> Equal to [Line 1 + Line 9 – Line 15].

<sup>25</sup> Equal to [(Line 9 – Line 12) / Line 13].

Figure 5-2 shows projected debt coverage (blue line) relative to the debt coverage requirement (gray line) over the study period. As shown below, debt coverage remains far above the requirement throughout the study period due to the minimal amount of existing debt and absence of future debt issuances for this study.

**Figure 5-2: Proposed Wastewater Financial Plan – Projected Debt Coverage**

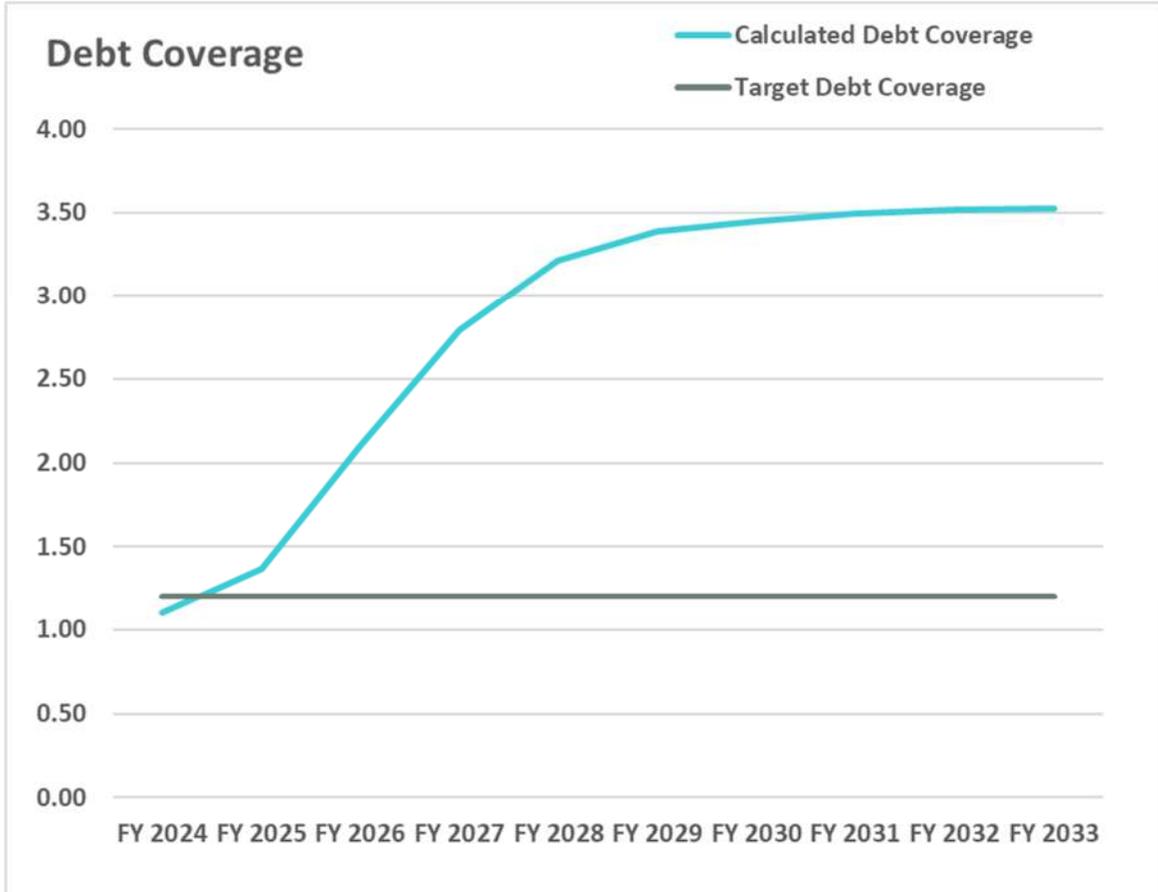


Figure 5-3 shows the Wastewater Enterprise’s projected ending balance under the proposed financial plan. The light blue bars indicate the ending balance. Minimum targets (based on the policies described in Table 5-12) are shown by the orange line and red line.

Figure 5-3: Proposed Wastewater Financial Plan – Projected Ending Cash Balances

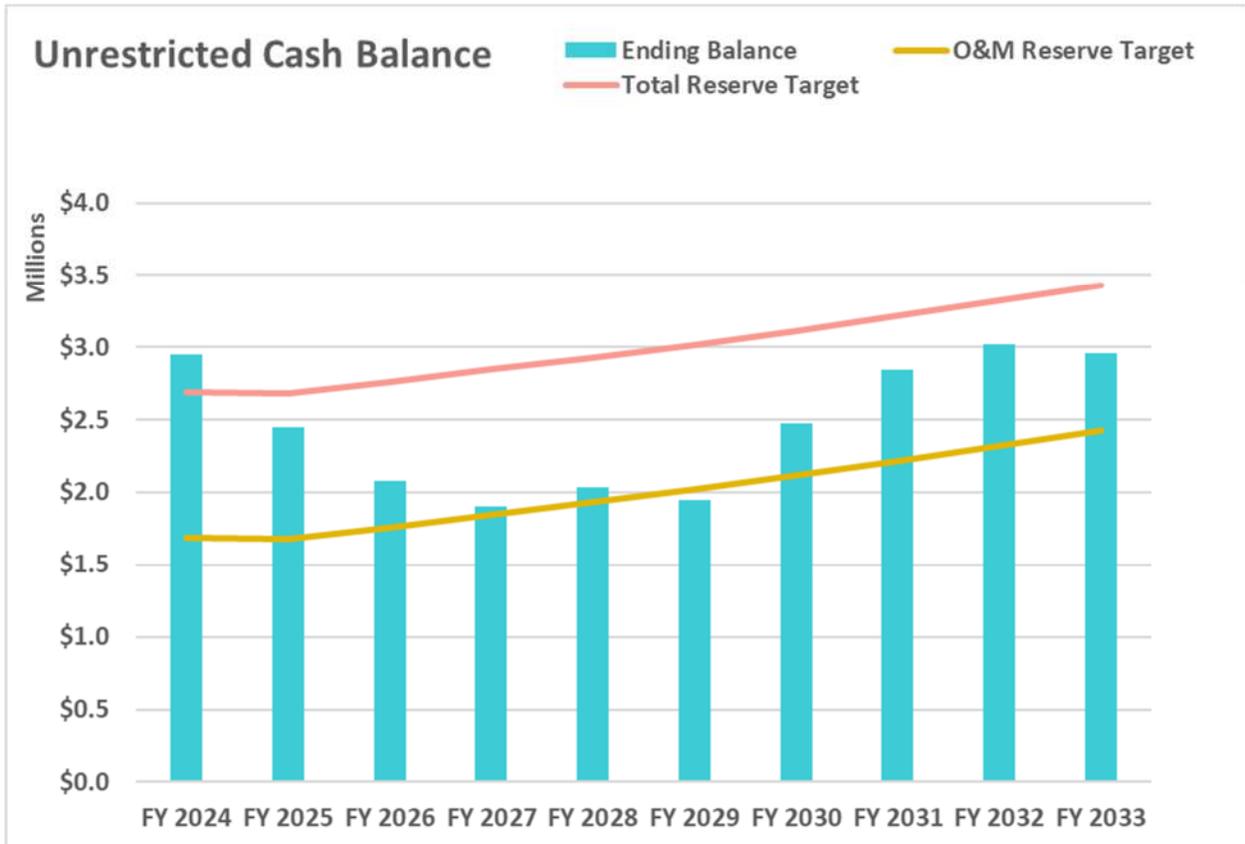
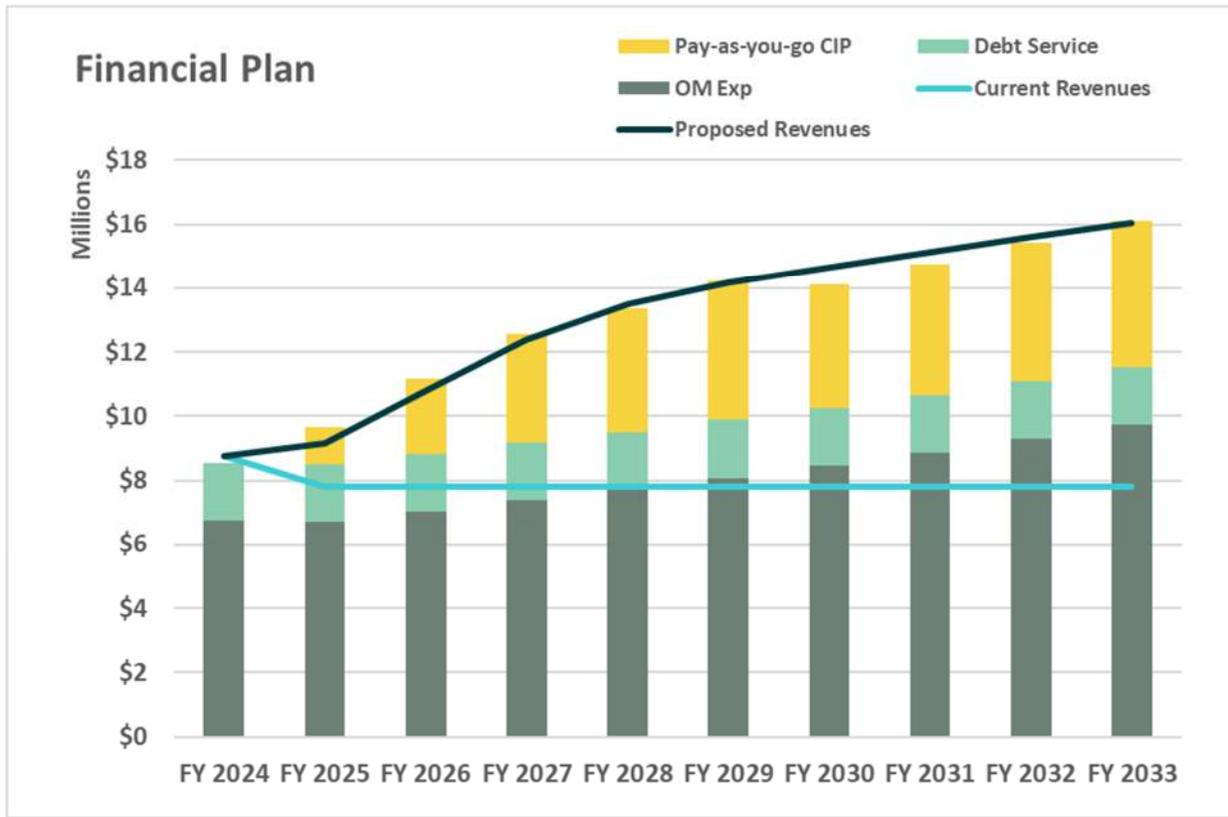


Figure 5-4 shows the proposed versus status quo operating financial plan. Revenues under the status quo and proposed financial plans are represented by the blue and black lines, respectively. Revenue requirements including O&M expenses, debt service, and reserve funding for CIP/other purposes are represented by the various stacked bars. Revenue adjustments are required to generate sufficient revenue to recover O&M expenses and debt service payments over the study period.

Figure 5-4: Proposed vs. Status Quo Wastewater Enterprise Financial Plan



### 5.3. Wastewater Cost-of-Service Analysis

Section 5.3 details the Cost-of-Service (COS) analysis performed for the Wastewater Enterprise for FY 2024-25. The COS analysis allocates the overall rate revenue requirement to customer classes based on their proportion of use of and burden on the wastewater system. This provides the basis for the development of proposed wastewater rates through FY 2028-29.

#### 5.3.1. METHODOLOGY

The first step in a COS analysis is to determine the revenue required from wastewater rates. The total revenue requirement results from the wastewater financial plan in Section 5.2. The methodology to develop the COS analysis and to apportion the revenue requirement to user classes is informed by the WEF’s Manual of Practice (MOP) No. 27 *Financing and Charges for Wastewater Systems*. COS analyses are tailored to meet the specific needs of each wastewater system. However, there are distinct steps in every COS analysis to recover costs from customers in an accurate, equitable, and defensible manner:

1. **Cost Functionalization:** O&M expenses and capital assets are categorized by their function in the wastewater system. Sample functions may include collection, treatment, and customer service, among others.
2. **Cost Causation Component Allocation:** Functionalized costs are then allocated to cost causation components based on their burden on the wastewater system. The cost causation components include flow, biological oxygen demand (BOD), and suspended solids (SS), among other specific cost components. The

revenue requirement is allocated accordingly to the cost causation components and results in the total share of the revenue requirement attributable to each cost component.

3. **Mass Balance Analysis:** The flow and strength (BOD and SS) of wastewater treatment plant (WWTP) influent is attributed to each customer class based on water use data and estimated wastewater generation and strength assumptions that vary by user classification. However, due to the unique characteristics of pipelines and treatment facilities, this analysis may not always yield precise service units by class but can confirm the total volume of treated wastewater. In this study, Raftelis relied on industry standard strength and average plant strength data.
4. **Revenue Requirement Distribution:** The unit cost is utilized to distribute the revenue requirement for each cost causation component unit cost to customer classes based on each customer class's individual burden on the wastewater system.

### 5.3.2. WASTEWATER RATE REVENUE REQUIREMENT

Table 5-19 shows the calculation of the wastewater rate revenue requirement for FY 2024-25 (also referred to as the test year). The revenue requirement is split into operating and capital categories (Columns C-D), which are later allocated based on O&M expenses and capital assets. The revenue requirements (Lines 2-4) include FY 2024-25 O&M expenses, debt service, and capital projects. The revenue offsets (Lines 8-10) include all non-rate revenues. These revenues are applied as offsets to the final rate revenue requirement. The adjustment for cash balance (Line 14) is equal to FY 2024-25 negative net operating cash flow under the proposed financial plan, and accounts for the drawdown of operating reserves in FY 2024-25. All values are from the proposed wastewater financial plan operating cash flow (Table 5-17). The final rate revenue requirement (Line 19) is calculated as follows:

$$\text{Total revenue required from rates (Line 19)} = \text{Revenue requirements (Line 5)} - \text{Revenue offsets (Line 11)} - \text{Adjustments (Line 16)}$$

**Table 5-19: Wastewater Rate Revenue Requirement (Test Year)**

[A]	[B]	[C]	[D]	[E]
Line	Description	Operating Revenue Requirement	Capital Revenue Requirement	Total
1	<b>Revenue Requirements</b>			
2	O&M Expenses	\$6,719,022		\$6,719,022
3	Debt Service		\$1,794,750	\$1,794,750
4	Capital Expenditures – PAYGO		\$1,160,094	\$1,160,094
5	<b>Total Revenue Requirements</b>	<b>\$6,719,022</b>	<b>\$2,954,844</b>	<b>\$9,673,867</b>
6				
7	<b>Less: Revenue Offsets</b>			
8	Miscellaneous Revenues	\$123,313		\$123,313
9	Interest Income	\$40,159		\$40,159
10	<b>Total Revenue Offsets</b>	<b>\$163,472</b>	<b>\$0</b>	<b>\$163,472</b>
11				
12	<b>Less: Adjustments</b>			
13	Adjustment for Cash Balance		\$498,973	\$498,973
14	Adjustment for Mid-Year Increase		\$0	\$0
15	<b>Total Adjustments</b>	<b>\$0</b>	<b>\$498,973</b>	<b>\$498,973</b>
16				
17	Total Revenue Requirement w/o Offsets	\$6,719,022	\$2,455,871	\$9,174,893
18	<b>Total - Revenue Requirement</b>	<b>\$6,555,550</b>	<b>\$2,455,871</b>	<b>\$9,011,421</b>

### 5.3.3.FUNCTIONALIZATION AND ALLOCATION OF EXPENSES

After determining the revenue requirement, the next step of the wastewater COS analysis is to allocate O&M expenses and capital assets to the following functional categories:

- » **Collection:** costs associated with the collection and transport of wastewater discharges from customers to the wastewater treatment plant
- » **Treatment:** costs associated with the treatment and disposal of wastewater from customers
- » **Customer:** costs of billing, revenue collections, and other customer services functions
- » **General:** costs for general administration and operational expenses or any other costs that do not clearly relate to another functional category (i.e. indirect costs)

The functionalization of costs allows for the allocation of costs to cost causation components. Some cost causation components correspond directly to a functional category listed above. The cost causation components include:

- » **Flow:** costs associated with the volume of wastewater generated, collected, and treated
- » **BOD/SS:** costs associated with the strength of wastewater treated and disposed of in terms of the following parameters: suspended solids (SS) and biochemical oxygen demand (BOD)
- » **Customer:** costs of billing, revenue collections, and other customer services functions
- » **General:** costs for general administration and operational expenses or any other costs that do not clearly relate to another functional category (i.e. indirect costs)

### 5.3.4.WASTEWATER ENTERPRISE O&M EXPENSE ALLOCATION

Table 5-20 shows the basis for allocating each functional category to the various cost causation components. This provides the basis for allocating O&M and capital expenses in the following subsections.

The collection costs are directly assigned to the flow category. General costs are initially allocated to a general category, which is later redistributed based on overall allocations. Treatment costs are allocated in three ways: 52% to flow, 31% to biological oxygen demand, and 17% to suspended solids. This allocation reflects the treatment plant reclaimed system for flow and the pounds of effluent treated.

**Table 5-20: Allocation of Functional Categories to Wastewater Cost Causation Components**

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Line	Functional Category	Flow	Biological Oxygen Demand	Suspended Solids	General	Billing	Total
1	Collection	100%	0%	0%	0%	0%	<b>100%</b>
2	Treatment	52%	31%	17%	0%	0%	<b>100%</b>
3	Customer	0%	0%	0%	0%	100%	<b>100%</b>
4	General	0%	0%	0%	100%	0%	<b>100%</b>

The next step of the COS analysis is to develop an allocation basis for the operating revenue requirement based on the functionalization of the Wastewater Enterprise’s O&M expenses. Table 5-21 shows the allocation of FY 2024-25 O&M expenses by functional category to each cost causation component. The percentage allocation of each functional category (Columns C-H) to the various cost causation components was determined in Table 5-20. The total dollar amount allocated to each cost causation component (Line 5) is determined by multiplying the total expense associated with each functional category by the corresponding percentage allocation and summing across all functional categories.

**Table 5-21: Wastewater Enterprise O&M Expenses – Allocation to Cost Causation Components**

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Line	Functional Category	Flow	BOD	SS	General	Billing	FY 2024-25 O&M
1	Collection	\$2,310,089	\$0	\$0	\$0	\$0	<b>\$2,310,089</b>
2	Treatment	\$1,771,944	\$1,056,351	\$579,289	\$0	\$0	<b>\$3,407,584</b>
3	Customer	\$0	\$0	\$0	\$0	\$225,246	<b>\$225,246</b>
4	General	\$0	\$0	\$0	\$776,103	\$0	<b>\$776,103</b>
5	Total O&M	<b>\$4,082,033</b>	<b>\$1,056,351</b>	<b>\$579,289</b>	<b>\$776,103</b>	<b>\$225,246</b>	<b>\$6,719,022</b>
6							
7	<i>O&amp;M Allocation</i>	60%	16%	9%	12%	3%	<b>100%</b>

### 5.3.5.WASTEWATER ENTERPRISE CAPITAL ALLOCATION

Capital assets are utilized in COS analyses to allocate the capital revenue requirement to the various cost causation components. The distribution of short-term CIP project costs can be heavily weighted to specific cost causation components based on the type of projects. Use of short-term plans to allocate capital costs may cause rates to fluctuate and result in customer confusion. The overall wastewater asset base, however, is considerably stable in the long-term, and therefore is more representative of long-term capital investment in the City’s wastewater system. Thus, functionalized capital assets are used to allocate capital costs.

City staff provided Raftelis with a detailed asset listing that included the original cost of each individual wastewater asset. Raftelis calculated the replacement cost less depreciation (RCLD) of each asset based on net book value using the Engineering News-Record’s 20-City Average Cost Construction Index (CCI) to account for capital cost inflation. RCLD is the most common valuation method for deriving functional values for a utility system as it is the best point in time estimate of a system for a cost of service analysis. As infrastructure is reinvested in over time, the asset base will change, with changes accounted for in subsequent cost of service analyses. As part of the capital asset analysis, Raftelis assigned each individual asset to a functional category with the assistance of City staff. Total wastewater asset value (RCLD) by functional category is shown in Table 5-22. Percentages are rounded to the nearest one-tenth of one percent.

**Table 5-22: Wastewater Enterprise Capital Assets by Functional Category**

[A]	[B]	[C]	[D]
Line	Functional Category	Asset Value (RCLD)	Percent of Total
1	Collection	\$9,664,590	22.2%
2	Lift Stations	\$270,000	0.6%
3	Treatment	\$32,200,000	73.9%
4	Customer	\$0	0.0%
5	General	\$1,434,416	3.3%
6	<b>Total Asset Value (RCLD)</b>	<b>\$43,569,006</b>	<b>100.0%</b>

Table 5-23 shows the allocation of capital assets by functional category to each cost causation component. The percentage allocation of each functional category (Columns C-H) to the various cost causation components was determined in Table 5-20. Total capital assets associated with each functional category (Column I) were determined in Table 5-22. The total dollar amount allocated to each cost causation component (Line 6) is determined by multiplying the total asset value associated with each functional category by the corresponding percentage allocation and summing across all functional categories. This is consistent with the methodology used to determine the allocation of O&M expenses to cost causation components in Table 5-21. The initial capital line allocation percentages (line 8) represent the proportion of total capital assets allocated to each cost causation component (line 6). The total capital revenue requirement (Column I, line 11) equals the capital revenue requirement from Table 5-19 (Column D, line 18).

**Table 5-23: Functionalized Wastewater Capital Assets Allocation to Cost Causation Components**

[A]	[B]	[C]	[D]	[E]	[G]	[H]	[I]
-----	-----	-----	-----	-----	-----	-----	-----

Line	Functional Category	Flow	Biological Oxygen Demand	Suspended Solids	General	Billing	Asset Value (RCLD)
1	Collection	\$9,664,590	\$0	\$0	\$0	\$0	\$9,664,590
2	Lift Stations	\$270,000	\$0	\$0	\$0	\$0	\$270,000
3	Treatment	\$16,744,000	\$9,982,000	\$5,474,000	\$0	\$0	\$32,200,000
4	Customer	\$0	\$0	\$0	\$0	\$0	\$0
5	General	\$0	\$0	\$0	\$1,434,416	\$0	\$1,434,416
6	<b>Total Assets</b>	<b>\$26,678,590</b>	<b>\$9,982,000</b>	<b>\$5,474,000</b>	<b>\$1,434,416</b>	<b>\$0</b>	<b>\$43,569,006</b>
7	<b>Total Assets – General Reallocated</b>	\$27,586,827	\$10,321,824	\$5,660,355	\$0	\$0	\$43,569,006
8	<i>Capital Allocation before General Reallocation</i>	61.23%	22.91%	12.56%	3.29%	0.00%	100%
9	<i>Final Capital Allocation</i>	63.32%	23.69%	12.99%	0.00%	0.00%	100%
10							
11	<b>Capital Revenue Requirement</b>	\$1,554,997	\$581,814	\$319,059	\$0	\$0	\$2,455,871

### 5.3.6.ALLOCATION OF REVENUE REQUIREMENT TO COST COMPONENTS

Utilizing the cost allocations developed above in Table 5-20, Table 5-21, and

Table 5-23, we can now allocate the operating, capital, and revenue offset portions of the revenue requirement to the various cost components. As with Water Enterprise COS, we allocate the revenue offset (non-rate revenues) according to the capital allocation for interest income; and the operating allocation for miscellaneous revenues. The resulting distributions of costs are listed below in Table 5-24. Note that the total revenue requirement in Line 4, Column G, is equal to the total revenue requirement developed in Table 5-19.

**Table 5-24: Allocation of Test Year Revenue Requirement to Cost Causation Components**

[A] Line	[B] Description	[C] Flow	[D] BOD	[E] SS	[F] Customer	[H] Bills	[G] FY 2024-25 Rev. Req.
1	Operating Expenses	\$4,504,989	\$1,162,870	\$637,703	\$0	\$249,988	\$6,555,550
2	Capital Expenses	\$1,554,997	\$581,814	\$319,059	\$0	\$0	\$2,455,871
3	<b>Total</b>	<b>\$6,059,986</b>	<b>\$1,744,684</b>	<b>\$956,762</b>	<b>\$0</b>	<b>\$249,988</b>	<b>\$9,011,421</b>

### 5.3.7. PLANT MASS BALANCE ANALYSIS

The next step of the wastewater COS analysis is to attribute flow and strength loadings entering the City’s wastewater treatment plant to various user classifications. This is necessary to allocate the Flow, Biological Oxygen Demand, and Suspended Solids cost causation components to each customer class for recovery by the proposed wastewater rates.

Table 5-25 shows Raftelis’ mass balance analysis of the City’s wastewater treatment plant based on plant influent data for FY 2021-22. The result is attribution of flow and strength loadings to each customer class. Key inputs and assumptions include:

- » Estimated total FY 2022-23 wastewater flows entering the wastewater treatment plant
- » Estimated strength concentration for BOD and SS based on previous wastewater rate analyses, SWRCB guidelines, and adjustments to better match actual treatment plant flows and loadings.
- » FY 2022-23 water use associated with non-residential wastewater customers (from City billing data)
- » Estimated return-to-sewer factors for non-residential classes based on an analysis of monthly metered water use.
- » Residential class wastewater generation is aligned with average plant influent strength.

**Table 5-25: Mass Balance Analysis**

[B]	[C]	[D]	[E]	[F]	[G]	[H]
Description	Flow (HCF)	BOD (mg/L)	SS (mg/L)	Flow (MG) <sup>26</sup>	BOD (lbs) <sup>27</sup>	SS (lbs)
<b>Total Plant Influent</b>	535,925	508	299	401	1,699,409	1,000,485
<i>Net influent</i>	353,711	608	399	265	1,585,656	886,732
<b>Non-Residential Influent</b>						
Low	61,420	240	200	46	92,017	76,681
Medium	24,614	500	400	18	76,825	61,640
High	35,950	1,000	600	27	224,413	134,648
<b>Total Non-Residential Influent</b>	<b>121,984</b>	<b>1,740</b>	<b>1,200</b>	<b>91</b>	<b>393,255</b>	<b>272,789</b>
<b>Net Residential Flow</b>	<b>231,727</b>	<b>508</b>	<b>299</b>	<b>173</b>	<b>734,911</b>	<b>432,556</b>
SFR	156,948	508	299	142	600,857	353,654
MFR	35,016	508	299	32	134,055	78,902

<sup>26</sup> Conversion factor: one (1) hundred cubic feet = 0.000748 million gallons.

<sup>27</sup> Conversion factor: one (1) milligram per liter = 8.35 pounds per million gallons.

### 5.3.8.WASTEWATER UNIT COSTS

The next step of the wastewater COS analysis is to develop unit costs for each cost causation component. This is necessary to allocate the revenue requirement to each customer class in subsequent steps of the COS analysis. Table 5-26 shows the calculation of unit costs (Line 6). This is developed by taking the total COS allocation for each cost component (Line 1) and dividing by the corresponding total units of service for flow, BOD, SS, customer, and bills shown in Line 3. The resulting unit rates may then be applied to customer classes based on the number of units in each respective class. Flow is recovered across all units of wastewater. BOD and SS unit rates are derived by dividing across the total estimated BOD and SS in pounds per year. Customer costs are divided by the total number of equivalent meters, and billing cost are divided by the number of bills

**Table 5-26: Wastewater Unit Costs Calculation (Test Year)**

[A]	[B]	[C]	[D]	[E]	[F]	[H]	[G]
Line	Description	Flow	BOD	SS	Customer	Bills	Test Year Revenue Requirement
1	<b>Total COS</b>	<b>\$6,059,986</b>	<b>\$1,744,684</b>	<b>\$956,762</b>	<b>\$0</b>	<b>\$249,988</b>	<b>\$9,011,421</b>
2							
3	Total Units of Service	313,948	1,128,166	705,345	5,775	53,712	
4	Units	hcf/yr	lb/yr	lb/yr	equivalent meters	annualized bills	
5							
6	<b>Unit Cost</b>	<b>\$19.30</b>	<b>\$1.55</b>	<b>\$1.36</b>	<b>\$0.00</b>	<b>\$4.65</b>	
7	Units	hcf	lb	lb	per bill	Per bill	

### 5.3.9.WASTEWATER COST ALLOCATION TO CUSTOMER CLASSES

Table 5-27 shows the allocation of the rate revenue requirement, by cost causation component, to each customer class based on the unit rates developed above in Table 5-26. The units of service shown for each customer class for the Flow, Biological Oxygen Demand, and Suspended Solids (Columns C-E) were previously determined as part of the mass balance analysis (see Table 5-25). The unit rate for each of these components is multiplied by the corresponding number of flow/BOD/SS units determined in Table 5-25 for each class to calculate the total cost for that component, by customer class. The number of equivalent meters per class is multiplied by the unit rate for each Customer to determine the total cost component. Similarly, the total number of bills (e.g., number of accounts multiplied by the number of bills per year) for each class is multiplied by the unit rate for Billing to determine the total cost component for Billing, for each class. This allows for the development of customer-specific COS allocations, as shown below in Table 5-27. Note again that the total amount of revenue to be recovered (the last line of Column H) is the same as the total revenue requirement originally developed in Table 5-19.

**Table 5-27: Wastewater Cost Allocation to Customer Classes (Test Year)**

[A] Line	[B] Customer Class	[C] Flow	[D] BOD	[E] SS	[F] Customer	[G] Billing	[H] Total
1	<b>Residential</b>	<b>\$3,705,388</b>	<b>\$1,136,524</b>	<b>\$586,739</b>	<b>\$0</b>	<b>\$219,773</b>	<b>\$5,648,424</b>
2	Single Family	\$3,029,491	\$929,212	\$479,712	\$0	\$210,781	\$4,649,196
3	Multifamily Residential	\$675,897	\$207,312	\$107,027	\$0	\$8,992	\$999,228
5							
6	<b>Non-Residential</b>	<b>\$2,354,598</b>	<b>\$608,160</b>	<b>\$370,023</b>	<b>\$0</b>	<b>\$30,215</b>	<b>\$3,362,997</b>
7	Low Strength	\$1,185,561	\$142,303	\$104,014	\$0	\$20,609	\$1,452,486
8	Medium Strength	\$475,112	\$118,808	\$83,367	\$0	\$5,418	\$682,704
9	High Strength	\$693,925	\$347,050	\$182,642	\$0	\$4,189	\$1,227,806
10	<b>Total</b>	<b>\$6,059,986</b>	<b>\$1,744,684</b>	<b>\$956,762</b>	<b>\$0</b>	<b>\$249,988</b>	<b>\$9,011,421</b>

## 5.4. Proposed Wastewater Rates

Section 5.4 shows detailed calculations of proposed wastewater rates through FY 2026-27. The City of Healdsburg's current fixed wastewater rate structure consists of Fixed Service Charges per dwelling unit for residential customers, and charges by meter size for non-residential customers. All customers are also charged a per unit (HCF) charge based on estimated wastewater flows and the strength of the flows. Residential customers' variable charge units are based on their average winter consumption (AWC) whereas Non-Residential customers are charged per billed unit of water.

Proposed rate structure modifications include:

- » **Retire the SFR + ADU Fixed Charge:** any SFR customer with two or more dwelling units per parcel will be treated as a MFR customer and subject to the multifamily charge.
- » **Non-Residential Meter-Based Fixed Charges:** This study maintains the existing non-residential fixed charge structure by meter size, however, the ratios between the meter sizes are proposed to use calculated flow ratios rather than hydraulic capacity ratios. Raftelis used City of Healdsburg sewer user billing data to calculate average flow per billing period at each meter size. This approach is more representative of wastewater generation by meter size versus ratios which reflect potential water demand by meter size.

Proposed wastewater rates reflect the revenue adjustments and the updated wastewater cost of service analysis, and rate modifications. All Fixed Charges shown are monthly and all volumetric rates are shown in terms of dollars per hundred cubic feet (\$/HCF). All rates are rounded up to the nearest penny. All rates are assumed to be implemented at the beginning of each fiscal year on July 1.

### 5.4.1. PROPOSED WASTEWATER RATES (TEST YEAR)

Table 5-28 shows the calculation of COS wastewater rates for the test year. The revenue requirement associated with each charge Column C was determined from customer class cost allocations in Table 5-27.

The Cost-of-Service analysis identifies the total amount to be recovered from each customer class. The city enlisted Raftelis to evaluate the existing rate structures and propose any modifications that better align with the City's policy objectives. Currently, the city's rate structure recovers 45% of wastewater costs from fixed service charges, with the remaining 55% recovered from volumetric charges based on water use and wastewater generation. This cost recovery share is to ensure an adequate amount of revenue comes from fixed sources to guard against revenue insufficiency. The proposed cost of service analysis maintains this 45/55 split of fixed and variable rate revenue while better harmonizing the degree of fixed revenue between Residential and Non-Residential users.

Currently, the City's Wastewater Enterprise recovers 54% of Residential costs from fixed dwelling unit charges and 29% of Non-Residential costs from fixed meter-based charges. In order to promote fairness in cost recovery across classes while maintaining revenue stability, the proposed rate structures recover the following share of each class's cost of service:

- » 50% of Residential costs are recovered through fixed, dwelling unit-based charges. The remaining 50% of the costs to serve Residential users are recovered from the wastewater flow rate, based on each connection's average winter consumption (AWC).
- » 39% of Non-Residential costs are recovered through fixed, meter-based charges. The remaining 61% of the costs to serve Non-Residential users are recovered from the wastewater flow rates, based on actual metered water use, and the relative strength (i.e., Low, Medium, or High) of the wastewater generated. Non-Residential users pay different wastewater usage rates based on the strength of the wastewater generated. Given the variability in water use among non-residential users and declining water demands, increasing

fixed revenue recovery promotes revenue stability while moving towards the same share of fixed/variable cost recovery as Residential users.

These varying rates reasonably recover costs from customers in a manner consistent with how costs are incurred by the wastewater system in collecting, treating, and disposing of wastewater. Overall, the City will maintain the same level of fixed cost recovery which, in conjunction with proposed rate revenue increases, will provide the city with adequate revenues to fully recover projected operational and capital expenditures.

**Table 5-28: Proposed Wastewater Rate Calculation (Test Year)**

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]
Line	Description	Fixed COS Costs <sup>28</sup>	Variable COS Costs <sup>29</sup>	DU/ Acct <sup>30</sup>	Units (HCF)	Adjusted Fixed COS Costs	Adjusted Variable COS Costs	Fixed Charge	Volume Charge (per hcf)
1	<b>Residential</b>								
2	Single Family	\$210,781	\$4,438,415	3,774	156,948	\$2,324,598	\$2,324,598	\$51.33	\$14.71
3	Multifamily	\$8,992	\$990,236	1,227	35,016	\$499,614	\$499,614	\$36.94	\$14.71
5									
6	<b>Non-Residential</b>								
7	Low	\$20,609	\$1,431,877	369	68,244	\$672,667	\$779,819	Per Meter Size	\$11.43
8	Medium	\$5,418	\$677,286	97	27,349	\$266,729	\$415,975	Per Meter Size	\$15.21
9	High	\$4,189	\$1,223,617	75	39,944	\$385,848	\$841,958	Per Meter Size	\$21.08

Table 5-29 shows the proposed three-year schedule of wastewater rates for implementation July 2024 through July 2026. All proposed rates in subsequent years are then increased by the proposed revenue adjustments from Table 5-16. All proposed rates are rounded up to the nearest whole cent.

<sup>28</sup> Includes customer component costs only.

<sup>29</sup> Includes all other cost components (flow, BOD, SS, and Recycled – Treatment).

<sup>30</sup> Dwelling Units (DU) applies to residential and Account apply to non-residential

**Table 5-29: Proposed Three-Year Wastewater Rates Schedule**

Description	Current	FY 2025	FY 2026	FY 2027
<b>Residential Service Charges (\$/Month/Dwelling Unit)</b>				
Single Family Residential (SFR)	\$46.67	\$51.33	\$60.57	\$69.66
SFR + ADU	\$31.95	N/A	N/A	N/A
Multi-Family Residential (MFR)	\$37.80	\$36.94	\$43.60	\$50.14
Flat Rate (Sewer Only SFR)	\$104.01	\$110.18	\$130.02	\$149.53
<b>Non Residential Service Charges (\$/Month/Meter)</b>				
Up to 1"	\$75.75	\$83.88	\$98.99	\$113.84
1 1/2"	\$148.49	\$243.37	\$287.18	\$330.26
2"	\$235.77	\$396.68	\$468.09	\$538.31
3"	\$439.44	\$1,279.52	\$1,509.84	\$1,736.32
4"	\$730.39	\$1,405.05	\$1,657.97	\$1,906.67
6"	\$1,966.94	\$1,405.05	\$1,657.97	\$1,906.67
<b>Wastewater Usage Charges (\$/HCF)</b>				
Residential (SFR/MFR)	\$11.47	\$14.71	\$17.37	\$19.98
Non Residential				
Low Strength	\$10.31	\$11.43	\$13.49	\$15.52
Medium Strength	\$15.09	\$15.21	\$17.95	\$20.65
High Strength	\$22.08	\$21.08	\$24.88	\$28.62

# 6. Customer Bill Impacts

## 6.1. Combined Water & Wastewater Monthly Bill Impacts, SFR

Table 6-1 shows the combined monthly bill impacts for a Single Family Residential customer using 7 hcf of water and an Average Winter Consumption of 4 hcf under current versus proposed rates. This usage level was determined using actual billing data for single family residential customers in FY 2022-23. This impact includes the changes proposed for both water and wastewater, so the total dollar difference is the entire change for a customer receiving both water and wastewater service from the City.

**Table 6-1: FY 2023-24 Single Family Residential Bill Impacts (7 HCF water, 4 HCF AWC)**

Customer Class	Proposed July 2024 Bill	Current Bill	Difference (\$)	Difference (%)
Single Family Residential	\$200.73	\$166.52	\$34.21	21%