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CITY OF REDLANDS

Water, Wastewater, and Non-Potable Water Financial Plan and Rate Study

FINAL REPORT / MARCH 27, 2024

RAFTELIS

RAFTELIS

March 27, 2024

John R. Harris
Municipal Utilities & Engineering Director
City of Redlands
Municipal Utilities and Engineering
35 Cajon Street
Redlands, CA 92373

Subject: Water, Wastewater, and Non-Potable Water Financial Plan and Rate Study Report

Dear Mr. Harris:

Raftelis is pleased to provide this Water, Wastewater, and Non-Potable Water Financial Plan Study Report (Report) for the City of Redlands (City). This report presents the analyses, rationales, and methodologies utilized in the study to determine utility rates that align with the requirements of Proposition 218. The study was developed with feedback and input from City staff.

The study involved a comprehensive review of the City's current water, wastewater, and non-potable water cost requirements to determine rates that meet the City's objectives. The main objectives that informed the study include:

- Adequately recovering all costs to ensure the financial sufficiency of the City's utilities
- Determining feasible capital financing plans for all three utilities
- Developing long-term financial plans for all three utilities
- Calculating cost of service-based rates for all three utilities
- Minimizing customer impacts from rate adjustments

We are confident that the proposed rates developed during this study are fair and equitable for the City's customers and are in alignment with the requirements of Proposition 218. We appreciate the input provided by City staff which helped guide the final recommendations of the financial plan and resulting rates. It was a pleasure working with you and your team, and we wish to express our gratitude for the support you and other City staff provided during the study.

Sincerely,

Sudhir Pardiwala
Executive Vice President

Lindsay Roth
Consultant

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1. Executive Summary

1.1. Study Background

In 2022, the City of Redlands (City) contracted Raftelis to conduct a Water, Wastewater, and Non-Potable Water Rate Study, which included developing long-term financial plans and cost of service rates.

This report presents the three financial plans and resulting rates for the water, wastewater, and non-potable water utilities for a five-year period to ensure fairness and equity for its customers and the financial stability of the three enterprises.

This Executive Summary outlines the proposed financial plans and resulting rates and contains a description of the rate study process, methodology, and recommendations for the City's rates. The main objectives that informed the Study include:

- Adequately recovering all costs to ensure the financial sufficiency of the City's utilities
- Determining feasible capital financing plans for all three utilities
- Developing long-term financial plans for all three utilities
- Calculating cost of service-based rates for the three utilities
- Minimizing customer impacts from changes to the rate structures

1.2. Current Rates

The City's current water rates were adopted on July 1, 2018 and include a bi-monthly service charge based on meter size for water service, fire protection service, fire hydrant service, and tiered water usage rates per hundred cubic feet (ccf) of water by customer class. **Table 1-1** shows current bi-monthly service charges and fire protection and hydrant service charges, and **Table 1-2** shows the water usage rates by customer class.

Table 1-1: Current Bi-Monthly Water Service Charges ($/meter size)

	A	B	C	D
Line	Meter Size	Water Service Charge	Fire Protection Water Service Charge	Fire Hydrant Service Charge
1	5/8"	$32.10		
2	3/4"	$43.17		
3	1"	$64.67		
4	1 1/2"	$116.79		
5	2"	$172.83	$10.19	$73.60
6	3"	$299.23	$18.10	$73.60
7	4"	$462.10	$31.75	$73.60
8	6"	$853.02	$80.73	$73.60
9	8"	$1,256.97	$165.22	$73.60
10	10"	$2,977.00	$292.32	$73.60
11	12"	$3,915.20	$468.46	$73.60

Table 1-2: Current Water Usage rates ($/ccf of water)

	A	B
Line	Customer Class	Water Usage Rate
1	Building Water Usage	
2	Tier 1	$1.46
3	Tier 2	$1.78
4	Tier 3	$2.69
5		
6	Non-Building Water Usage	
7	Tier 1	$1.78
8	Tier 2	$2.69
9		
10	Other Water Usage	
11	B Contract	$100.46
12	Recycled	$110.00
13		
14	Fire Protection Water Usage	
15	All Units	$2.69

The current wastewater rates were implemented on July 1, 2018, and include a bi-monthly service charge for residential customers and schools and non-residential wastewater usage rates per ccf of water usage. **Table 1-3** shows the current bi-monthly residential service charges, **Table 1-4** shows the non-residential wastewater usage rates for all non-residential customer classes, and **Table 1-5** shows the bi-monthly schools service charge by school type.

Table 1-3: Current Bi-Monthly Residential Wastewater Service Chargers ($/dwelling unit)

	A	B
Line	Residential Customer Class	Wastewater Service Rate
1	Single Family	$62.43
2	Multiple Family	$48.08

Table 1-4: Current Non-Residential Wastewater Usage Rates ($/ccf of water)

	A	B
Line	Non-Residential Customer Class	Wastewater Usage Rate
1	Low Strength I	$2.42
2	Low Strength II	$2.87
3	Low Strength III	$3.32
4	Medium Strength I	$3.77
5	Medium Strength II	$4.22
6	Medium Strength III	$4.67
7	High Strength I	$5.12
8	High Strength II	$5.56
9	Large Volume User	$3.32
10	Minimum Charge ($)	$48.08
11		
12	Septage Charge ($/gal)	$0.11

Table 1-5: Current Bi-Monthly Schools Wastewater Service Charge ($/100 students)

	A	B
Line	Schools Customer Class	Wastewater Service Rate
1	Elementary	$134.38
2	Secondary & High	$215.02

The current non-potable water rates include a bi-monthly service charge and a usage rate per ccf of non-potable water usage. **Table 1-6** and **Table 1-7** show the bi-monthly non-potable water service charges and non-potable water usage rates, respectively.

Table 1-6: Current Bi-Monthly Non-Potable Water Service Charges ($/meter size)

	A	B
Line	Meter Size	Non-Potable Water Service Charge
1	3/4"	$13.81
2	1"	$20.65
3	1 1/2"	$37.29
4	2"	$55.16
5	3"	$95.50
6	4"	$147.45
7	6"	$272.16
8	8"	$401.04

Table 1-7: Current Non-Potable Water Usage Rates ($/ccf of water)

	A	B
Line	Non-Potable Customer Class	Non-Potable Water Usage Rate
1	Non-Potable Water	$0.99
2	Conversion Customer	$0.64

1.3. Process and Approach

The City's rate-setting process involves participation and feedback from City staff. During the study, Raftelis met with City staff to discuss and understand the challenges the City's three utilities face and to provide guidance to finalize the rate recommendations, which are detailed in this report.

During these meetings, Raftelis presented the various assumptions, inputs, and scenario analyses that were utilized to determine the water, wastewater, and non-potable water financial plans. City staff discussed the upcoming capital project requirements, which are some of the main drivers for the revenue adjustments in the final recommendations presented in this report. Raftelis designed and presented the financial plan and rate models to analyze various scenarios, such as those related to debt issuances, revenue adjustments, and capital funding.

The proposed financial plans detailed in this report followed industry standard practices for long-term financial planning and utilized commonly accepted assumptions in the absence of specified assumptions from the City, such as general inflation based on the Consumer Price Index (CPI). Raftelis worked closely with City staff to determine the most accurate methodology to project future revenues and expenses to reinforce sound fiscal management practices.

The City opted for no revenue adjustments for non-potable water. The cost of service analysis utilized to develop the water rates followed the guidelines for allocating costs outlined in the American Water Works Association's (AWWA) "Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices M1, 6th edition" (M1 Manual). Wastewater rates followed the guidelines for allocating costs outlined in the Water Environment Federation (WEF) *Manual of Practice No. 27, Financing and Charges for Wastewater (2018)*. The cost of service analysis and rate design process consists of seven major steps, as outlined below:

1. Determine the revenue requirement, equal to the revenue to be recovered from rates.
2. Functionalize operations and maintenance (O&M) expenses and capital assets into functional categories such as supply, distribution, treatment, laboratory, collection, engineering, etc.
3. Allocate each functional category into cost components such as supply, base delivery, peaking, meter and customer service for water, and wastewater flow and strength, which includes biochemical oxygen demand (BOD) and total suspended solids (TSS) for wastewater.
4. Develop customer class characteristics and units of service by cost component.
5. Calculate the unit cost component rates by dividing the total cost in each component by the total units of service for that component. For example, wastewater service units include flow which is measured in ccf and BOD and TSS which are measured in pounds (lbs) per year.
6. Calculate the cost for each customer class by multiplying the unit cost by the units of service for each customer class.

7. Design rates to meet the City's objectives.

The financial plans for the three utilities include the five-year Study period from fiscal year (FY) 2025[1] to FY 2029. The proposed rates were developed for implementation on July 1, 2024 (beginning of FY 2025) and in July of every year thereafter until 2029.

1.4. Legal Framework

California Constitution Article XIII D, Section 6, commonly referred to as Proposition 218, was enacted in 1996 to ensure that rates and fees are reasonable and proportionate to the cost of providing service. The principal requirements for the fairness of the fees, as they relate to public wastewater service are as follows:

1. A property-related charge (such as water and 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 other 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. A written notice of the proposed charge shall be mailed to the record owner of each parcel at least 45 days prior to the public hearing, when the agency considers all written protests against the charge.

Proposition 218 requires that rates cannot be "arbitrary and capricious," meaning that the rate-setting methodology must be sound and there must be a nexus between the costs and the rates charged. Raftelis follows industry standard rate setting methodologies to perform the cost of service analysis for the water utility based on the M1 Manual and for the wastewater utility based on WEF's Manual No. 27.

1.5. Results and Recommendations

Raftelis worked closely with City staff to define the final results and recommendations of the water, wastewater, and non-potable water rate Study. The recommendations presented in this report will ensure the financial sufficiency and stability of the City's three utilities to fund all necessary operating costs, capital costs, and to maintain sufficient cash balances. To minimize customer impacts due to changes in rate structure, which is a key objective that informed the Study approach, Raftelis recommends that the City maintain the same rate structure for the water, wastewater, and non-potable water systems.

1.5.1. Water Utility

- The water O&M expenses are expected to increase, on average, by 3.6 percent each year of the Study based on the City's FY 2024 budget and inflationary assumptions.
- The City plans to spend approximately $52.8 million on capital projects from FY 2025 to FY 2029.
- Raftelis recommends 2..0 percent revenue adjustments per year in FY 2025 through FY 2029 to fund its capital project spending and to maintain a sufficient cash balance.

[1] FY 2025 is the period from July 1, 2024 to June 30, 2025.

1.5.2. Wastewater Utility

- The wastewater O&M expenses are expected to increase, on average, by 3.7 percent each year of the Study based on the City's FY 2024 budget and inflationary assumptions.
- The City plans to spend $66.3 million in capital projects from FY 2025 to FY 2029, the majority of which is to refurbish and modify the City's current wastewater treatment plant.
- The City plans to obtain an SRF loan of $45 million in FY 2026 to fund most of the wastewater treatment plant project costs.
- Raftelis recommends 10 percent revenue adjustments per year in FY 2025 through FY 2028 and 8 percent revenue adjustment in FY 2029 to fund capital projects and debt service and to meet debt coverage requirements. The wastewater financial plan will be reviewed again in the next rate cycle.

1.5.3. Non-Potable Water Utility

- The non-potable O&M expenses are expected to increase, on average, by 3 percent each year of the Study based on the City's FY 2024 budget and inflationary assumptions.
- The City plans to spend $1.5 million in capital projects for the non-potable water utility from FY 2025 to FY 2029.
- Raftelis recommends no revenue adjustments for FY 2025 through FY 2029 as the utility has sufficient cash balance to fund capital project costs and operating expenses.

1.6. Proposed Rates

Table 1-8 and **Table 1-9** show the proposed bi-monthly water service charges and water usage rates for the City's water utility, respectively, based on the above recommendations. The proposed water rates for FY 2025 are determined by the cost of service analysis, and rates for the following years are increased from those rates based on the proposed revenue adjustments.

Table 1-8: Proposed Bi-Monthly Water Service Charges ($/meter size)

	A	B	C	D	E	F	G
Line	Bi-Monthly Water Service Charges	Current Rates	July 2024	July 2025	July 2026	July 2027	July 2028
1	**Water Service**						
2	5/8"	$32.10	$32.94	$33.60	$34.28	$34.97	$35.67
3	3/4"	$43.17	$44.01	$44.90	$45.80	$46.72	$47.66
4	1"	$64.67	$65.50	$66.81	$68.15	$69.52	$70.92
5	1 1/2"	$116.79	$117.60	$119.96	$122.36	$124.81	$127.31
6	2"	$172.83	$173.62	$177.10	$180.65	$184.27	$187.96
7	3"	$299.23	$299.97	$305.97	$312.09	$318.34	$324.71
8	4"	$462.10	$462.79	$472.05	$481.50	$491.13	$500.96
9	6"	$853.02	$853.56	$870.64	$888.06	$905.83	$923.95
10	8"	$1,256.97	$1,257.36	$1,282.51	$1,308.17	$1,334.34	$1,361.03
11	10"	$2,977.00	$2,976.76	$3,036.30	$3,097.03	$3,158.98	$3,222.16
12	12"	$3,915.20	$3,914.61	$3,992.91	$4,072.77	$4,154.23	$4,237.32
13							
14	**Fire Protection Service**						
15	2"	$10.19	$11.81	$12.05	$12.30	$12.55	$12.81
16	3"	$18.10	$21.20	$21.63	$22.07	$22.52	$22.98
17	4"	$31.75	$37.39	$38.14	$38.91	$39.69	$40.49
18	6"	$80.73	$95.48	$97.39	$99.34	$101.33	$103.36
19	8"	$165.22	$195.69	$199.61	$203.61	$207.69	$211.85
20	10"	$292.32	$346.42	$353.35	$360.42	$367.63	$374.99
21	12"	$468.46	$555.33	$566.44	$577.77	$589.33	$601.12
22							
23	**Fire Hydrant Service**						
24	All Meters	$73.60	$299.97	$305.97	$312.09	$318.34	$324.71

Table 1-9: Proposed Water Usage Rates ($/ccf of water)

	A	B	C	D	E	F	G	H
Line	Water Usage Rates	Bi-Monthly Tiers	Current Rates	July 2024	July 2025	July 2026	July 2027	July 2028
1	**Building Water Usage**							
2	Tier 1	16	$1.46	$1.57	$1.61	$1.65	$1.69	$1.73
3	Tier 2	27	$1.78	$1.86	$1.90	$1.94	$1.98	$2.02
4	Tier 3	Over 27	$2.69	$2.79	$2.85	$2.91	$2.97	$3.03
5								
6	**Non-Building Water Usage**							
7	Tier 1	27	$1.78	$1.77	$1.81	$1.85	$1.89	$1.93
8	Tier 2	Over 27	$2.69	$2.49	$2.54	$2.60	$2.66	$2.72
9								
10	**Fire Protection Water Usage**							
11	All Units		$2.69	$2.79	$2.85	$2.91	$2.97	$3.03

Table 1-10 and **Table 1-11** show the proposed bi-monthly residential and schools wastewater service charges and non-residential water usage rates for the wastewater utility, respectively. The proposed wastewater rates are based on the cost of service analysis.

Table 1-10: Proposed Bi-Monthly Residential and Schools Wastewater Service Charges

	A	B	C	D	E	F	G
Line	Bi-Monthly Wastewater Service Charges	Current Rates	July 2024	July 2025	July 2026	July 2027	July 2028
1	Residential ($/dwelling unit)						
2	Single Family	$62.43	$66.04	$72.65	$79.92	$87.92	$94.96
3	Multiple Family	$48.08	$52.40	$57.64	$63.41	$69.76	$75.35
4							
5	Schools ($/100 students)						
6	Elementary	$134.38	$143.11	$157.43	$173.18	$190.50	$205.74
7	Secondary & High	$215.02	$238.52	$262.38	$288.62	$317.49	$342.89

Table 1-11: Proposed Non-Residential Wastewater Usage Rates ($/ccf of water)

	A	B	C	D	E	F	G
Line	Wastewater Usage Rates	Current Rates	July 2024	July 2025	July 2026	July 2027	July 2028
1	Non-Residential Usage ($/ccf)						
2	Low Strength I	$2.42	$2.82	$3.11	$3.43	$3.78	$4.09
3	Low Strength II	$2.87	$3.41	$3.76	$4.14	$4.56	$4.93
4	Low Strength III	$3.32	$3.99	$4.39	$4.83	$5.32	$5.75
5	Medium Strength I	$3.77	$4.58	$5.04	$5.55	$6.11	$6.60
6	Medium Strength II	$4.22	$5.16	$5.68	$6.25	$6.88	$7.44
7	Medium Strength III	$4.67	$5.75	$6.33	$6.97	$7.67	$8.29
8	High Strength I	$5.12	$6.34	$6.98	$7.68	$8.45	$9.13
9	High Strength II	$5.56	$6.92	$7.62	$8.39	$9.23	$9.97
10	Large Volume User	$3.32	$3.99	$4.39	$4.83	$5.32	$5.75
11	Minimum Charge ($)	$48.08	$52.40	$57.64	$63.41	$69.76	$75.35
12							
13	Septage Charge ($/gal) *	$0.11	$0.10	$0.11	$0.13	$0.15	$0.17
14	Minimum Septage Charge		$15.00	$16.50	$18.15	$19.97	$21.57

Table 1-12 and **Table 1-13** show the bi-monthly non-potable water service charges and non-potable water usage rates, respectively. Raftelis recommends no revenue adjustments for the study period. The proposed rates for FY 2025 are based on the cost of service analysis and remain the same through FY 2029.

Table 1-12: Proposed Bi-Monthly Non-Potable Water Service Charges ($/meter size)

	A	B	C	D	E	F	G
Line	Bi-Monthly Non-Potable Water Service Charges	Current Rates	July 2024	July 2025	July 2026	July 2027	July 2028
1	Non-Potable Water Service						
2	3/4"	$13.81	$13.81	$13.81	$13.81	$13.81	$13.81
3	1"	$20.65	$20.65	$20.65	$20.65	$20.65	$20.65
4	1 1/2"	$37.29	$37.29	$37.29	$37.29	$37.29	$37.29
5	2"	$55.16	$55.16	$55.16	$55.16	$55.16	$55.16
6	3"	$95.50	$95.50	$95.50	$95.50	$95.50	$95.50
7	4"	$147.45	$147.45	$147.45	$147.45	$147.45	$147.45
8	6"	$272.16	$272.16	$272.16	$272.16	$272.16	$272.16
9	8"	$401.04	$401.04	$401.04	$401.04	$401.04	$401.04

Table 1-13: Proposed Non-Potable Water Usage Rates ($/ccf of water)

	A	B	C	D	E	F	G
Line	Non-Potable Water Usage Rates	Current Rates	July 2024	July 2025	July 2026	July 2027	July 2028
1	**Non-Potable Water Usage**						
2	Non-Potable Water	$0.99	$0.99	$0.99	$0.99	$0.99	$0.99
3	Conversion Customer	$0.64	$0.64	$0.64	$0.64	$0.64	$0.64

1.7. Combined Customer Impacts

Table 1-14 outlines the proposed customer bi-monthly impacts for a Single Family customer with a ¾" meter using 40 ccf of water each billing period. The customer impacts show the water, wastewater, non-potable water, and combined bill impacts. A typical Single Family customer will have water and wastewater service, and the total impact for this typical customer does not exceed $8 per bi-monthly billing period in the first year (Column B, Line 15).

Table 1-14: Proposed Single Family Customer Bi-Monthly Impacts (3/4" meter, 40 ccf)

	A	B	C	D	E	F
Line	**Bi-Monthly Impacts**	**Proposed July 2024**	**Proposed July 2025**	**Proposed July 2026**	**Proposed July 2027**	**Proposed July 2028**
1	Current Water Bill	$121.08	$121.08	$121.08	$121.08	$121.08
2	Proposed Water Bill	$125.86	$128.61	$131.37	$134.15	$136.95
3	*Difference ($)*	*$4.78*	*$7.53*	*$10.29*	*$13.07*	*$15.87*
4						
5	Current Wastewater Bill	$62.43	$62.43	$62.43	$62.43	$62.43
6	Proposed Wastewater Bill	$66.04	$72.65	$79.92	$87.92	$94.96
7	*Difference ($)*	*$3.61*	*$10.22*	*$17.49*	*$25.49*	*$32.53*
8						
9	Current Non-Potable Water Bill	$53.41	$53.41	$53.41	$53.41	$53.41
10	Proposed Non-Potable Water Bill	$53.41	$53.41	$53.41	$53.41	$53.41
11	*Difference ($)*	*$0.00*	*$0.00*	*$0.00*	*$0.00*	*$0.00*
12						
13	Current Water and Wastewater Bill	$183.51	$183.51	$183.51	$183.51	$183.51
14	Proposed Water and Wastewater Bill	$191.90	$201.26	$211.29	$222.07	$231.91
15	*Difference ($)*	*$8.39*	*$17.75*	*$27.78*	*$38.56*	*$48.40*
16						
17	Current Combined Bill	$236.92	$236.92	$236.92	$236.92	$236.92
18	Proposed Combined Bill	$245.31	$254.67	$264.70	$275.48	$285.32
19	*Difference ($)*	*$8.39*	*$17.75*	*$27.78*	*$38.56*	*$48.40*

1.8. Regional Rate Survey

Figure 1-1 shows the bi-monthly sewer bill comparison for a Single Family Dwelling Unit customer. The graph shows the City's proposed wastewater charge to be implemented in July of 2024.

Figure 1-2 shows the bi-monthly water bill comparison for a Single Family Dwelling Unit customer using a 3/4" meter and 40 ccf of water use per bi-monthly billing period. The graph shows the City's proposed water rates to be implemented in July of 2024.

Figure 1-1: Regional Single Family Customer Bi-Monthly Sewer Bill Comparison

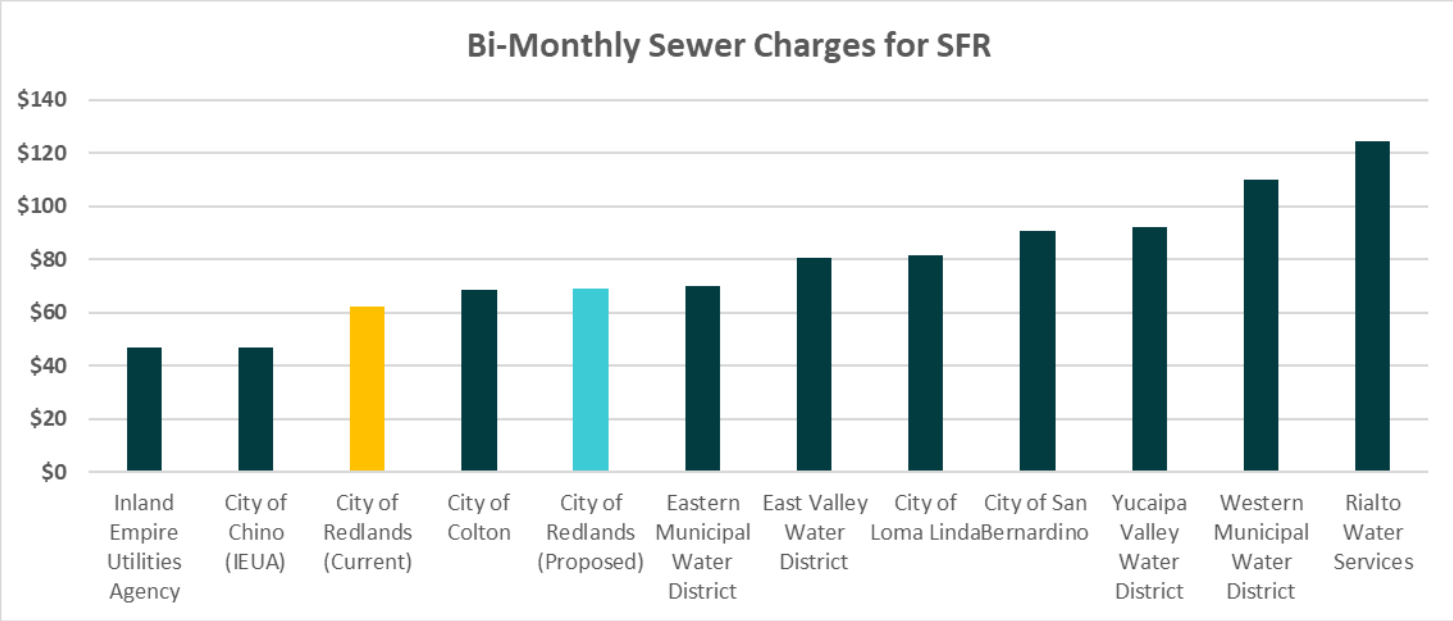
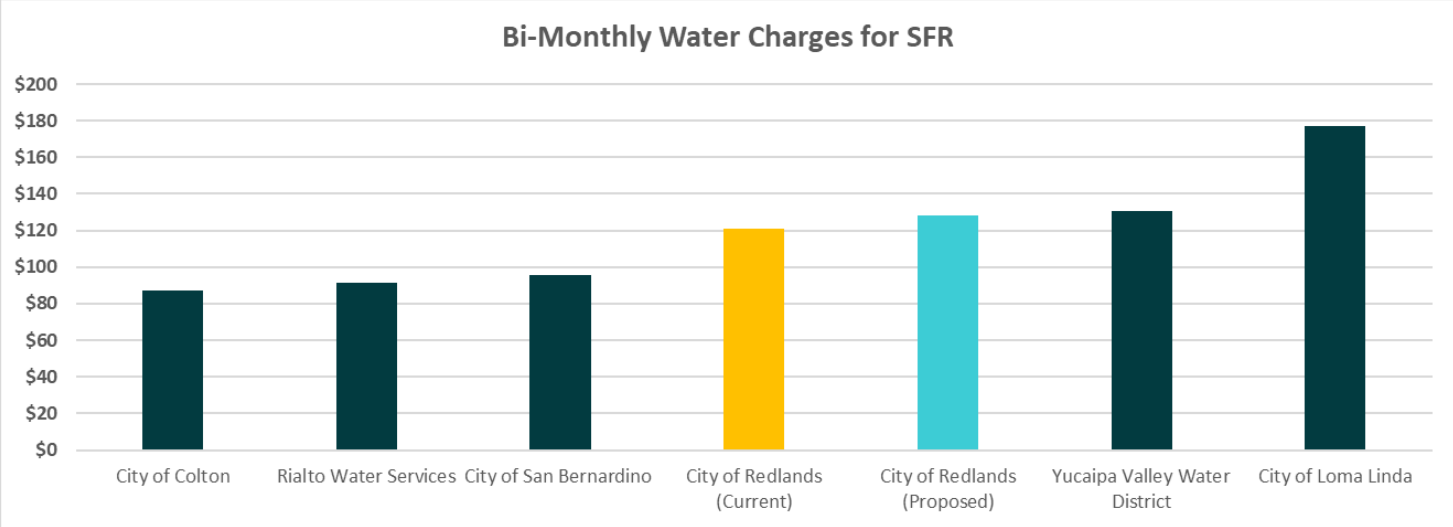


Figure 1-2: Regional Single Family Customer Bi-Monthly Water Bill Comparison



2. Key Assumptions

The key assumptions outlined in this section of the report represent the global assumptions utilized in the Study to project the number of customer accounts, revenues, and expenses for future years. City staff provided data on customer accounts, usage, and actual revenues and expenses for FY 2022 and budgeted revenues and expenses for FY 2023 and FY 2024. The remaining years of the Study, from FY 2025 to FY 2029, were projected based on this information and the key assumptions shown in this section.

2.1. Customer Account Growth

Table 2-1 shows the customer account growth projections for each customer class based on recommendations from City staff. The values from the 2015 Urban Water Management Plan (UWMP) were maintained for this rate study cycle. This conservative value was used as a prudent fiscal practice to ensure that adequate revenues are collected to fund the City's utilities in the event that large growth does not occur.

Table 2-1: Customer Account Growth Projections

	A	B	C	D	E	F	G
Line	Customer Account Growth	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	Single Family	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
2	Multiple Family	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
3	Commercial	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
4	Municipal	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
5	Non-Building	0.6%	0.6%	0.5%	0.5%	0.5%	0.5%
6	Fire Service	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
7	School	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%
8	Non-Potable	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%

2.2. Revenue Inflation Factors

Table 2-2 shows the revenue inflation factors utilized to project future revenues and calculate investment income. Projections assume no increase in miscellaneous, non-rate revenues throughout the study period. The reserve interest rate is used to calculate the investment income based on projected fund balances and is based on conservative estimates.

Table 2-2: Revenue Inflation Factors

	A	B	C	D	E	F	G
Line	Revenue Inflation Factors	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	Non-Rate Revenues	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
2	Reserve Interest Rate	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%

2.3. Expense Inflation Factors

Table 2-3 shows the expense inflation factors, which are used to project future operating and capital project expenses for the study period. These factors were determined with input from City staff and reference industry standard escalations and commonly used price indices. The general inflation factor is based on the long-term change in the CPI. Water supply, utilities, power, and chemical costs are based on industry averages. The capital inflation factor is based on the Engineering News Record Construction Cost Index (CCI).

Table 2-3: Expense Inflation Factors

	A	B	C	D	E	F	G
Line	Expense Inflation Factors	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	General	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
2	Salary/Benefits	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
3	Water Supply	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
4	Utilities/Power	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
5	Chemicals	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
6	Supplies/Materials	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
7	Capital	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%

3. Water – Financial Plan

This section of the report details the water enterprise's long-term financial plan, based on the projected revenues, expenses, debt service, and capital project costs. Raftelis modeled the financial plan without revenue (status quo) and with proposed revenue adjustments to ensure the financial sustainability and solvency of the water utility. The results of the water financial plan are the proposed rates for five years based on the proposed revenue adjustments.

3.1. Projected Revenues

City staff provided the actual FY 2022 revenues and budgeted FY 2023 and FY 2024 revenues for the water utility, which were used to project revenues for the remainder of the study period. **Table 3-1** shows the projected water revenues for each of the water funds.

The water rate revenues (Lines 4, 6, 8-10) are calculated for future years based on the weighted customer account growth assumptions for each customer class (**Table 2-1**). The City expects modest increases in water rate revenues for all years of the study. The investment income (Lines 13, 27) is calculated using the reserve interest rate (**Table 2-2** , Line 2). The remaining revenues are inflated using the non-rate revenue inflation factor (**Table 2-2**, Line 1).

Table 3-1: Projected Water Revenues

	A	B	C	D	E	F	G
Line	Projected Revenues	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	**Water Service (501)**						
2	Cost Recover/Reimb Expenditure	$25	$25	$25	$25	$25	$25
3	Plan Check	$21,000	$21,000	$21,000	$21,000	$21,000	$21,000
4	Water Usage	$26,337,835	$26,482,428	$26,624,274	$26,766,879	$26,910,248	$27,054,385
5	Fire Flow Testing	$3,000	$3,000	$3,000	$3,000	$3,000	$3,000
6	"B" Contract Water Usage	$105,000	$82,423	$82,860	$83,299	$83,741	$84,185
7	Water Meter Install	$30,000	$30,000	$30,000	$30,000	$30,000	$30,000
8	Irrigation Water Usage	$3,100,000	$3,146,152	$3,162,826	$3,179,589	$3,196,441	$3,213,382
9	Fire Hydrant Water Usage	$155,000	$140,931	$141,689	$142,451	$143,218	$143,988
10	Fire Protection Water Usage	$420,000	$541,627	$544,541	$547,470	$550,415	$553,376
11	Conservation Violation Penalty	$525	$525	$525	$525	$525	$525
12	Frontage Charge	$45,000	$45,000	$45,000	$45,000	$45,000	$45,000
13	Investment Income	$510,297	$286,933	$227,614	$215,110	$202,470	$201,514
14	Returned Check Charge	$50	$50	$50	$50	$50	$50
15	Rental Income	$130,000	$130,000	$130,000	$130,000	$130,000	$130,000
16	Miscellaneous Receipts	$105,000	$105,000	$105,000	$105,000	$105,000	$105,000
17	**Total - Water Service (501)**	**$32,917,731**	**$32,970,095**	**$33,073,404**	**$33,224,399**	**$33,376,133**	**$33,540,430**
18							
19	**Source Acquisition (508)**						
20	Water Source Acq Residential	$437,000	$437,000	$437,000	$437,000	$437,000	$437,000
21	Water Source Acquisition Non-Resident	$46,000	$46,000	$46,000	$46,000	$46,000	$46,000
22	**Total - Source Acquisition (508)**	**$500,297**	**$505,300**	**$510,353**	**$515,457**	**$520,611**	**$525,818**
23							
24	**Water CIP (509)**						
25	Capital Improv Chrg Non-Res	$345,000	$345,000	$345,000	$345,000	$345,000	$345,000
26	Capital Improv Chrg Resident	$1,610,000	$1,610,000	$1,610,000	$1,610,000	$1,610,000	$1,610,000
27	Investment Income	$0	$0	$0	$0	$0	$0
28	**Total - Water CIP (509)**	**$1,955,000**	**$1,955,000**	**$1,955,000**	**$1,955,000**	**$1,955,000**	**$1,955,000**
29							
30	**Total - Revenues**	**$35,373,029**	**$35,430,395**	**$35,538,757**	**$35,694,856**	**$35,851,745**	**$36,021,248**

3.2. Projected O&M Expenses

City staff provided the actual FY 2022 and budgeted FY 2023 and FY 2024 O&M expenses for the water utility based on expense function. **Table 3-2** shows the projected O&M expenses for the study period, inflated for FY 2025 and beyond using the expense inflation factors (**Table 2-3**).

Table 3-2: Projected Water O&M Expenses

Line	A Projected O&M Expenses	B FY 2024	C FY 2025	D FY 2026	E FY 2027	F FY 2028	G FY 2029
1	**Water Service (501)**						
2	Salaries and Benefits	$7,678,736	$7,985,885	$8,305,321	$8,637,534	$8,983,035	$9,342,356
3	Services - Power	$2,330,125	$2,459,708	$2,596,497	$2,740,467	$2,892,419	$3,052,796
4	Services	$11,441,234	$11,784,471	$12,138,005	$12,502,145	$12,877,210	$13,263,526
5	Supplies - Purchased Water	$0	$0	$0	$0	$0	$0
6	Supplies - Treatment	$475,500	$501,944	$529,858	$559,237	$590,245	$622,973
7	Supplies	$3,179,750	$3,275,143	$3,373,397	$3,474,599	$3,578,837	$3,686,202
8	Debt Service	$0	$0	$0	$0	$0	$0
9	**Total - Water Service (501)**	**$25,105,345**	**$26,007,150**	**$26,943,078**	**$27,913,981**	**$28,921,745**	**$29,967,853**
10							
11	**Water Project (503)**						
12	Salaries and Benefits	$7,035	$7,316	$7,609	$7,913	$8,230	$8,559
13	Services - Power	$0	$0	$0	$0	$0	$0
14	Services	$500,000	$515,000	$530,450	$546,364	$562,754	$579,637
15	Supplies - Purchased Water	$0	$0	$0	$0	$0	$0
16	Supplies - Treatment	$0	$0	$0	$0	$0	$0
17	Supplies	$0	$0	$0	$0	$0	$0
18	Fixed Assets	$0	$0	$0	$0	$0	$0
19	Debt Service	$0	$0	$0	$0	$0	$0
20	**Total - Water Project (503)**	**$507,035**	**$522,316**	**$538,059**	**$554,277**	**$570,984**	**$588,196**
21							
22	**Source Acquisition (508)**						
23	Fixed Assets	$0	$0	$0	$0	$0	$0
24	**Total - Water Project (503)**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
25							
26	**Total - O&M Expenses**	**$25,612,380**	**$26,529,467**	**$27,481,137**	**$28,468,258**	**$29,492,730**	**$30,556,049**

3.3. Debt Service

The City currently has two existing debt issues for the water utility. **Table 3-3** shows the annual principal and interest payments for the existing debts.

Table 3-3: Existing Water Debt Service

	A	B	C	D	E	F	G
Line	Existing Debt Service	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	**Safe Drinking Water (Tate)**						
2	Principal	$355,782	$364,156	$926,522	$0	$0	$0
3	Interest	$27,937	$19,563	$32,773	$0	$0	$0
4	**Total - Safe Drinking Water (Tate)**	**$383,719**	**$383,719**	**$959,295**	**$0**	**$0**	**$0**
5							
6	**Hinkley SRF Loan**						
7	Principal	$499,951	$512,536	$525,439	$538,666	$552,226	$566,127
8	Interest	$153,165	$146,912	$134,169	$121,105	$107,713	$93,983
9	**Total - Hinkley SRF Loan**	**$653,116**	**$659,448**	**$659,607**	**$659,771**	**$659,938**	**$660,110**
10							
11	**Total - Existing Debt Service**	**$1,036,834**	**$1,043,167**	**$1,618,902**	**$659,771**	**$659,938**	**$660,110**

3.4. Capital Projects

City staff provided the capital improvement plan (CIP) for the water utility for the study period.

Table 3-4 shows the CIP costs for the study period, escalated by the capital expense inflation factor (**Table 2-3**, Line 7) to determine CIP costs in future years' dollars. Replacement projects are funded through a combination of water rate revenues, cash reserves, and bond proceeds, and expansion projects are funded entirely through Development Impact Fee (DIF) revenues.

Table 3-4: Inflated Water Capital Projects

	A	B	C	D	E	F	G
Line	Capital Projects (Inflated)	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	**Replacement**						
2	Annual Citywide Water Pipeline Replacement	$4,635,000	$4,774,050	$4,917,272	$5,064,790	$5,216,733	$5,373,235
3	Highline Replacement Project - Final Phase	$206,000	$3,182,700	$0	$0	$0	$0
4	Citywide Pavement Repair for Water	$309,000	$318,270	$327,818	$0	$0	$0
5	Water System SCADA Design & Integration (14 sites)	$0	$0	$0	$0	$0	$0
6	Water System SCADA Design & Integration (18 sites fy 21/22; 13 sites fy 22/23)	$0	$0	$0	$0	$0	$0
7	Annual Citywide Potable Water Meter Replacements	$0	$0	$0	$0	$0	$0
8	Water Infrastructure Seismic Assessment	$0	$0	$0	$0	$0	$0
9	HAWC Booster Pump Rehab	$515,000	$0	$0	$0	$0	$0
10	1750 Blend Manifold Replacement	$0	$0	$0	$0	$0	$0
11	Booster #2310 Replacement	$0	$0	$0	$0	$0	$0
12	Booster #2311 Replacement	$0	$0	$0	$0	$0	$0
13	Booster Stations & MCC Upgrade Master Plan - Tesco	$0	$318,270	$546,364	$844,132	$869,456	$895,539
14	Booster Pump Replacement (Booster Pump Repl Order TBD)	$0	$530,450	$546,364	$337,653	$347,782	$358,216
15	Sunset Reservoir Rehab / Repl to meet current seismic standards	$0	$6,365,400	$0	$0	$0	$0
16	Margarita, Sand Cyn., Smiley, 5th Ave. Tank Mixers Installation	$0	$0	$0	$0	$0	$0
17	Texas Grove Reservoir stair installation & mixer	$0	$0	$0	$0	$0	$0
18	AWIA Reservoir Risk Mitigation (R3 Thru R7)	$0	$0	$0	$1,042,221	$0	$0
19	AWIA Reservoir Risk Mitigation (R8 Thru R13)	$0	$0	$0	$0	$585,433	$0
20	Agate Reservoir curtin anchor replacement	$0	$0	$0	$0	$98,538	$298,513
21	Hinckley WTP Transmission Line Repl (Cost shared with B.V.)	$2,060,000	$0	$0	$0	$0	$0
22	Hinckley/Tate Roof Repair	$0	$0	$0	$0	$0	$0
23	Hinckley WTP Safety Fencing	$0	$0	$0	$0	$0	$0
24	Hinckley Sludge Press	$0	$0	$0	$0	$0	$0
25	Hinckley Generator Replacement	$0	$0	$0	$0	$0	$0
26	Hinckley WTP Paving	$0	$0	$0	$0	$0	$0
27	AWIA HWTP Resilience Improvements (R1)	$0	$0	$0	$272,373	$0	$0
28	Tate WTP Transmission Line Assessment	$4,120,000	$0	$0	$0	$0	$0
29	Tate ACH Tank Replacement	$0	$0	$0	$0	$0	$0
30	Tate WTP Clarifier Recoating & Cover Installation	$0	$0	$0	$0	$0	$0
31	Tate Influent Static Mixer	$0	$0	$163,909	$0	$0	$0
32	Tate PLC Replacement (End of Life Hardware)	$0	$0	$0	$0	$0	$0

	A	B	C	D	E	F	G
Line	Capital Projects (Inflated)	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
33	PRV Station Replacement (Redlands Blvd. & New Jersey)	$257,500	$0	$0	$0	$0	$0
34	AWIA TWTP Resilience Improvements (R2)	$257,500	$0	$0	$160,948	$0	$0
35	Tate Disinfection System Upgrade Cl2 Gas to NaOCl	$257,500	$0	$163,909	$1,688,263	$0	$0
36	Maint. - Airport 1	$0	$0	$0	$168,826	$0	$0
37	Maint. - S.B. MUNI	$0	$0	$0	$258,867	$0	$0
38	Maint. - E.L. 3	$0	$0	$0	$47,271	$0	$0
39	Maint. - E.L. 6	$0	$0	$0	$92,292	$0	$0
40	Maint. - N. Orange 1	$0	$0	$0	$174,454	$0	$0
41	Maint. - Madeira	$0	$0	$0	$0	$165,776	$0
42	Maint. - Mentone 2	$0	$0	$0	$0	$192,439	$0
43	Maint. - Well 38	$0	$0	$0	$0	$173,891	$0
44	Maint. - Well 39	$0	$0	$0	$0	$185,484	$0
45	Maint. - Airport 2	$137,773	$0	$0	$0	$0	$191,048
46	Maint. - Mill Creek 2A	$69,216	$0	$0	$0	$0	$95,524
47	Maint. - Rees	$116,019	$0	$0	$0	$0	$161,197
48	Maint. - Church St.	$143,483	$0	$0	$0	$0	$202,989
49	Maint. - Crafton	$0	$196,267	$0	$0	$0	$0
50	Maint. - Orange ST	$0	$201,571	$0	$0	$0	$0
51	Maint. - N. Orange 2	$0	$212,180	$0	$0	$0	$0
52	Maint. - Well 10	$0	$0	$218,545	$0	$0	$0
53	Maint. - Well 13	$0	$0	$218,545	$0	$0	$0
54	Maint. - Mill Creek 2	$0	$0	$147,518	$0	$0	$0
55	Agate 2 Liner	$0	$249,312	$0	$0	$0	$0
56	E.L. 6 Liner	$0	$201,571	$0	$196,964	$0	$0
57	E.L.3 Drill New Well	$103,000	$2,652,250	$0	$0	$0	$0
58	AWIA Resilience Improvements (R18)	$0	$58,350	$0	$0	$0	$0
59	Wellhead Perchlorate Treatment Evaluation - Church Street/Orange/Well #38/Well #39	$0	$0	$0	$0	$0	$0
60	Wellhead Perchlorate Treatment Evaluation - Well #10/Well #13/Agate #1/Agate #2/Crafton	$0	$0	$0	$0	$0	$0
61	Entrained Air Treatment System Assessment	$0	$530,450	$0	$0	$0	$0
62	**Total - Replacement**	**$13,186,991**	**$19,791,090**	**$7,250,244**	**$10,349,054**	**$7,835,533**	**$7,576,262**

Table 3-5 shows the proposed capital financing plan for the water utility. The City plans to fully fund its water CIP for all years of the study (Line 1). The inflated project costs (Line 3) are the total project costs (

Table 3-4, Line 13). The CIP expenditures will be funded through rate revenue and reserves.

Table 3-5: Proposed Water Capital Financing Plan

	A	B	C	D	E	F	G
Line	Capital Financing Plan	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	**CIP to Spend**	100%	100%	100%	100%	100%	100%
2							
3	**Inflated Project Costs**	$13,186,991	$19,791,090	$7,250,244	$10,349,054	$7,835,533	$7,576,262
4							
5	Bond Proceeds	$0	$0	$0	$0	$0	$0
6	Balance	$0	$0	$0	$0	$0	$0
7							
8	**Capital Financing**						
9	Rate Funded	$13,186,991	$19,791,090	$7,250,244	$10,349,054	$7,835,533	$7,576,262
10	Bond Funded	$0	$0	$0	$0	$0	$0
11	Loan Funded	$0	$0	$0	$0	$0	$0
12							
13	**Total - Capital Financing**	**$13,186,991**	**$19,791,090**	**$7,250,244**	**$10,349,054**	**$7,835,533**	**$7,576,262**

3.5. Current Financial Plan – Status Quo

Table 3-6 shows the projected water financial plan without revenue adjustments (also referred to as status quo). Rate revenues and other revenues are derived from projected revenues (**Table 3-1**). O&M expenses are derived from projected O&M expenses (**Table 3-2**); existing debt service is from the annual debt service payments for outstanding debt (**Table 3-3**); rate funded capital projects (Line 22) are from the capital financing plan (**Table 3-5**, Line 9).

The net cash flow (Line 26) is calculated by subtracting O&M expenses (Line 17) and debt and capital costs (Line 24) from the total revenues (Line 6). Net operating revenue (Line 27) is equal to total revenues (Line 6) less O&M expenses (Line 17). Debt coverage (Line 29) is calculated by dividing the net operating revenue (Line 27) by the total debt service (Lines 20 and 21) and is well over the required debt coverage (Line 30).

Net cash flow is negative for all years of the rate study, which means that the water utility does not have enough revenue from rates to fund its operating expenses, debt, and capital costs. If there are no revenue adjustments for the water utility, the fund cash balance (Line 33) will be depleted by FY 2030.

Table 3-6: Projected Water Financial Plan (Status Quo)

	A	B	C	D	E	F	G

Line	Water Financial Plan	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	**Revenues**						
2	Rate Revenues	$30,012,835	$30,311,138	$30,473,330	$30,636,390	$30,800,322	$30,965,132
3	Revenue Adjustments	$0	$0	$0	$0	$0	$0
4	Investment Income	$510,297	$283,902	$215,366	$187,208	$152,218	$121,950
5	Other Revenues	$4,702,600	$4,680,023	$4,680,460	$4,680,899	$4,681,341	$4,681,785
6	**Total - Revenues**	**$35,225,731**	**$35,275,063**	**$35,369,156**	**$35,504,497**	**$35,633,881**	**$35,768,867**
7							
8	**O&M Expenses**						
9	Salaries and Benefits	$7,685,771	$7,993,202	$8,312,930	$8,645,447	$8,991,265	$9,350,916
10	Services - Power	$2,330,125	$2,459,708	$2,596,497	$2,740,467	$2,892,419	$3,052,796
11	Services	$11,941,234	$12,299,471	$12,668,455	$13,048,509	$13,439,964	$13,843,163
12	Supplies - Purchased Water	$0	$0	$0	$0	$0	$0
13	Supplies - Treatment	$475,500	$501,944	$529,858	$559,237	$590,245	$622,973
14	Supplies	$3,179,750	$3,275,143	$3,373,397	$3,474,599	$3,578,837	$3,686,202
15	Fixed Assets	$0	$0	$0	$0	$0	$0
16	Debt Service	$0	$0	$0	$0	$0	$0
17	**Total - O&M Expenses**	**$25,612,380**	**$26,529,467**	**$27,481,137**	**$28,468,258**	**$29,492,730**	**$30,556,049**
18							
19	**Debt and Capital**						
20	Existing Debt Service	$1,036,834	$1,043,167	$1,618,902	$659,771	$659,938	$660,110
21	Proposed Debt Service	$0	$0	$0	$0	$0	$0
22	Rate Funded Capital Projects	$13,186,991	$19,791,090	$7,250,244	$10,349,054	$7,835,533	$7,576,262
23	DIF Funded Capital Projects	$0	$0	$0	$0	$0	$0
24	**Total - Debt and Capital**	**$14,223,825**	**$20,834,256**	**$8,869,146**	**$11,008,824**	**$8,495,472**	**$8,236,372**
25							
26	**Net Cash Flow**	**($4,480,474)**	**($11,958,659)**	**($851,127)**	**($3,842,585)**	**($2,224,320)**	**($2,893,554)**
27	Net Operating Revenue	$9,743,351	$8,875,597	$8,018,019	$7,166,239	$6,271,152	$5,342,818
28							
29	**Calculated Debt Coverage**	**9.40**	**8.51**	**4.95**	**10.86**	**9.50**	**8.09**
30	Required Debt Coverage	1.25	1.25	1.25	1.25	1.25	1.25
31							
32	Beginning Balances	$55,254,771	$36,741,518	$24,805,159	$23,981,386	$20,171,257	$17,984,549
33	Ending Balances	$36,741,518	$24,805,159	$23,981,386	$20,171,257	$17,984,549	$15,133,812

Figure 3-1 shows the proposed water capital financing plan in graphical format, based on the capital projects shown in

Table 3-4 and with no debt issuances. The dark teal bars represent the rate funded CIP costs.

Figure 3-1: Proposed Water Capital Financing Plan (Status Quo)

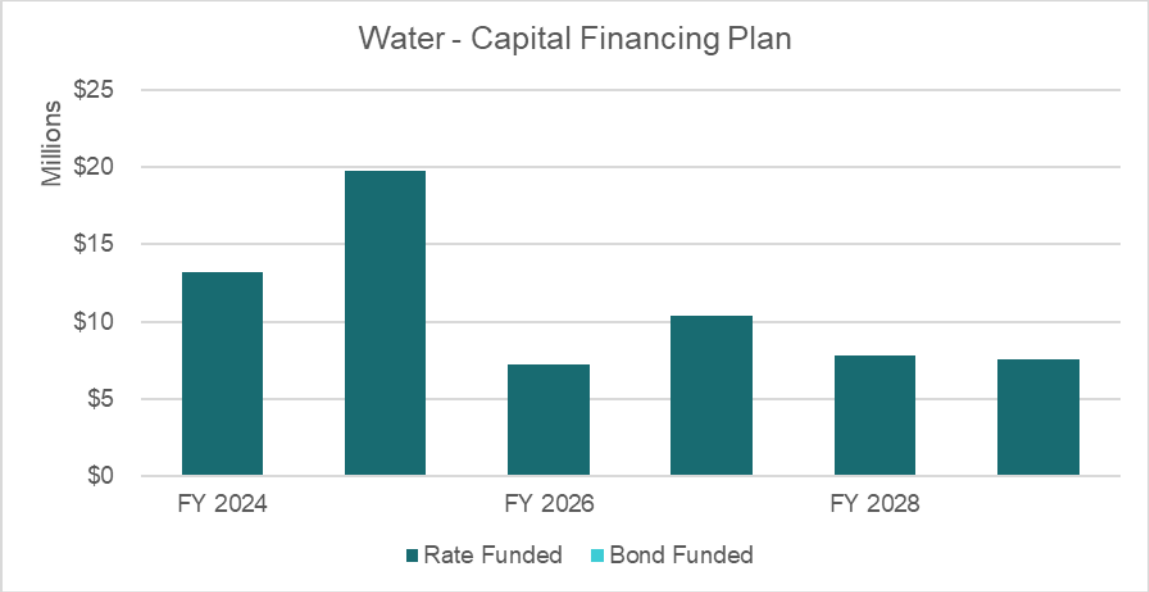


Figure 3-2 shows the projected water financial plan under the status quo scenario in graphical format. The stacked bars represent the O&M expenses (light gray), supply, treatment, and power (dark teal), debt service (yellow), and capital projects (dark gray). The green bars show the changes to cash balances: if the green bars are below the stacked bars, then the City will be drawing from cash reserves, and vice versa. The current and proposed revenue lines overlap since there is no revenue adjustment. Since the line, which represents current revenues, is below the stacked bars, this means that the City's current water revenues are not sufficient to fund its costs.

Figure 3-2: Projected Water Financial Plan (Status Quo)

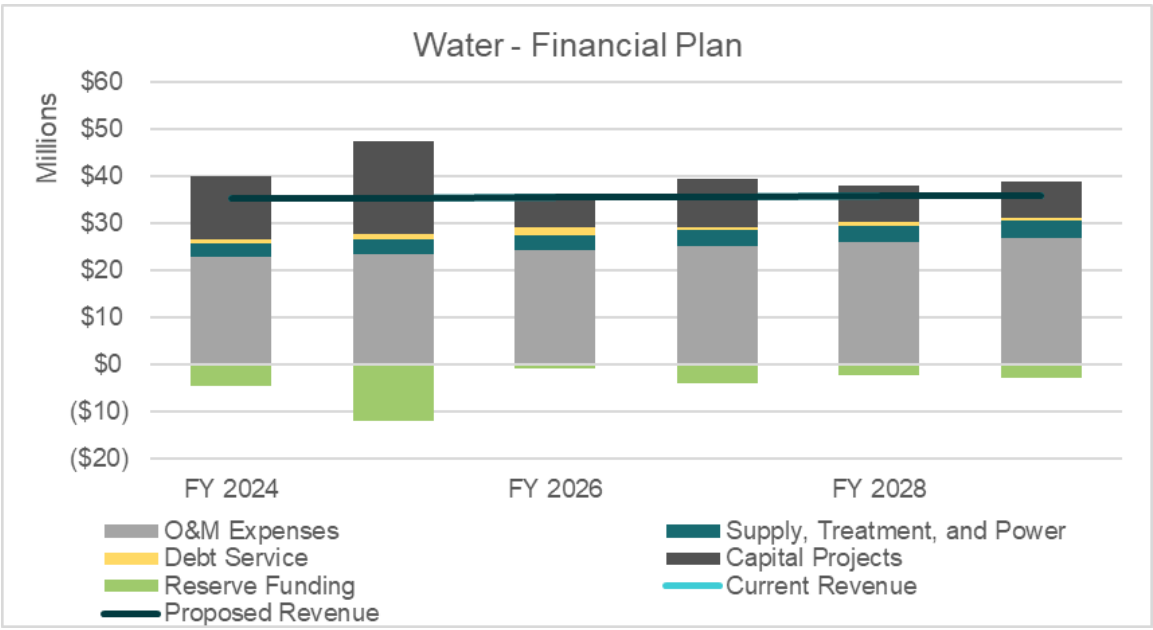
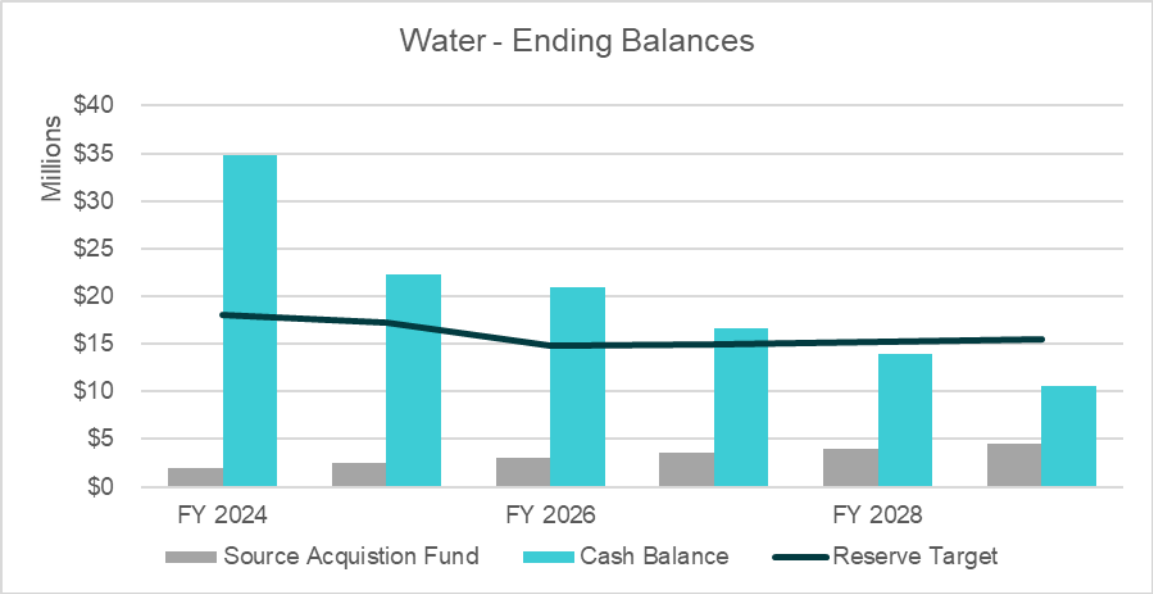


Figure 3-3 shows the projected water fund cash balance under the status quo scenario in graphical format. Without revenue adjustments, the cash balances (shown as turquoise bars) will be significantly drawn down over the Study period and will be depleted by FY 2030.

Figure 3-3: Projected Water Fund balances (Status Quo)



3.6. Proposed Financial Plan

The projected financial plan under the status quo scenario in **Table 3-6** shows that the City's current water rate revenues are not sufficient to sustain financial sufficiency for the water utility beginning in FY 2027. **Table 3-7** shows the proposed revenue adjustments for the study period, effective in July of each fiscal year, which will allow the City to fund all necessary operating and capital costs.

Table 3-7: Proposed Water Revenue Adjustments

	A	B	C
Line	Fiscal Year	Revenue Adjustment	Month Effective
1	FY 2025	2.0%	July
2	FY 2026	2.0%	July
3	FY 2027	2.0%	July
4	FY 2028	2.0%	July
5	FY 2029	2.0%	July

Table 3-8 shows the projected water financial plan with the proposed revenue adjustments from FY 2025 through FY 2029. The net cash flow (Line 26) is negative for all years as the water utility draws down cash reserves to minimize rate impacts. The ending cash balance (Line 33) is positive throughout the study period.

Table 3-8: Projected Water Financial Plan (Proposed Revenue Adjustments)

	A	B	C	D	E	F	G
Line	Water Financial Plan	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	**Revenues**						
2	Rate Revenues	$30,012,835	$30,311,138	$30,473,330	$30,636,390	$30,800,322	$30,965,132
3	Revenue Adjustments	$0	$606,223	$1,231,123	$1,875,192	$2,538,937	$3,222,876
4	Investment Income	$510,297	$286,933	$227,614	$215,110	$202,470	$201,514
5	Other Revenues	$4,702,600	$4,680,023	$4,680,460	$4,680,899	$4,681,341	$4,681,785
6	**Total - Revenues**	**$35,225,731**	**$35,884,317**	**$36,612,527**	**$37,407,592**	**$38,223,070**	**$39,071,306**
7							
8	**O&M Expenses**						
9	Salaries and Benefits	$7,685,771	$7,993,202	$8,312,930	$8,645,447	$8,991,265	$9,350,916
10	Services - Power	$2,330,125	$2,459,708	$2,596,497	$2,740,467	$2,892,419	$3,052,796
11	Services	$11,941,234	$12,299,471	$12,668,455	$13,048,509	$13,439,964	$13,843,163
12	Supplies - Purchased Water	$0	$0	$0	$0	$0	$0
13	Supplies - Treatment	$475,500	$501,944	$529,858	$559,237	$590,245	$622,973
14	Supplies	$3,179,750	$3,275,143	$3,373,397	$3,474,599	$3,578,837	$3,686,202
15	Fixed Assets	$0	$0	$0	$0	$0	$0
16	Debt Service	$0	$0	$0	$0	$0	$0
17	**Total - O&M Expenses**	**$25,612,380**	**$26,529,467**	**$27,481,137**	**$28,468,258**	**$29,492,730**	**$30,556,049**
18							
19	**Debt and Capital**						
20	Existing Debt Service	$1,036,834	$1,043,167	$1,618,902	$659,771	$659,938	$660,110
21	Proposed Debt Service	$0	$0	$0	$0	$0	$0
22	Rate Funded Capital Projects	$13,186,991	$19,791,090	$7,250,244	$10,349,054	$7,835,533	$7,576,262
23	DIF Funded Capital Projects	$0	$0	$0	$0	$0	$0
24	**Total - Debt and Capital**	**$14,223,825**	**$20,834,256**	**$8,869,146**	**$11,008,824**	**$8,495,472**	**$8,236,372**
25							
26	**Net Cash Flow**	**($4,480,474)**	**($11,349,406)**	**$392,244**	**($1,939,491)**	**$364,869**	**$408,885**
27	Net Operating Revenue	$9,743,351	$9,484,850	$9,261,390	$9,069,333	$8,860,341	$8,645,257
28							
29	**Calculated Debt Coverage**	**9.40**	**9.09**	**5.72**	**13.75**	**13.43**	**13.10**
30	Required Debt Coverage	1.25	1.25	1.25	1.25	1.25	1.25
31							
32	Beginning Balances	$55,254,771	$36,741,518	$25,414,413	$25,834,010	$23,926,976	$24,329,457
33	Ending Balances	$36,741,518	$25,414,413	$25,834,010	$23,926,976	$24,329,457	$24,781,159

Figure 3-4 shows the proposed water capital financing plan in graphical format, based on the capital financial plan shown in **Table 3-5**. The dark teal bars show that all CIP is funded by rates and reserves.

Figure 3-4: Proposed Water Capital Financing Plan

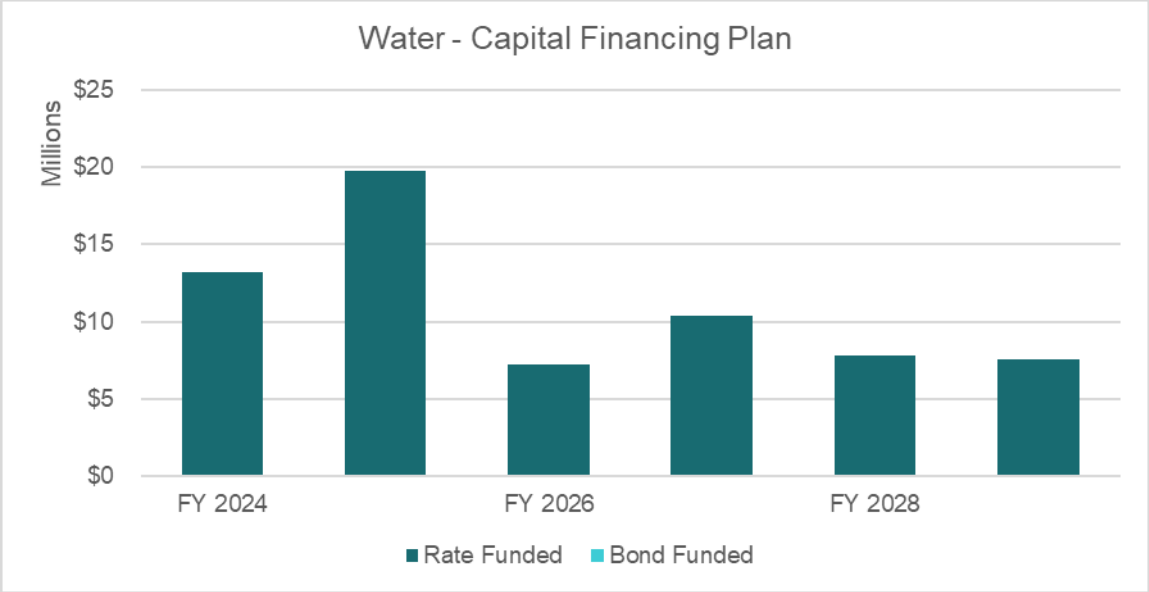


Figure 3-5 shows the proposed financial plan in graphical format with the revenue adjustments in **Table 3-7**. The proposed revenues shown as the dark teal line, along with the draw down of the reserves (green bars), allow the City to fund its operating and capital costs for the study period.

Figure 3-5: Projected Water Financial Plan (Proposed Revenue Adjustments)

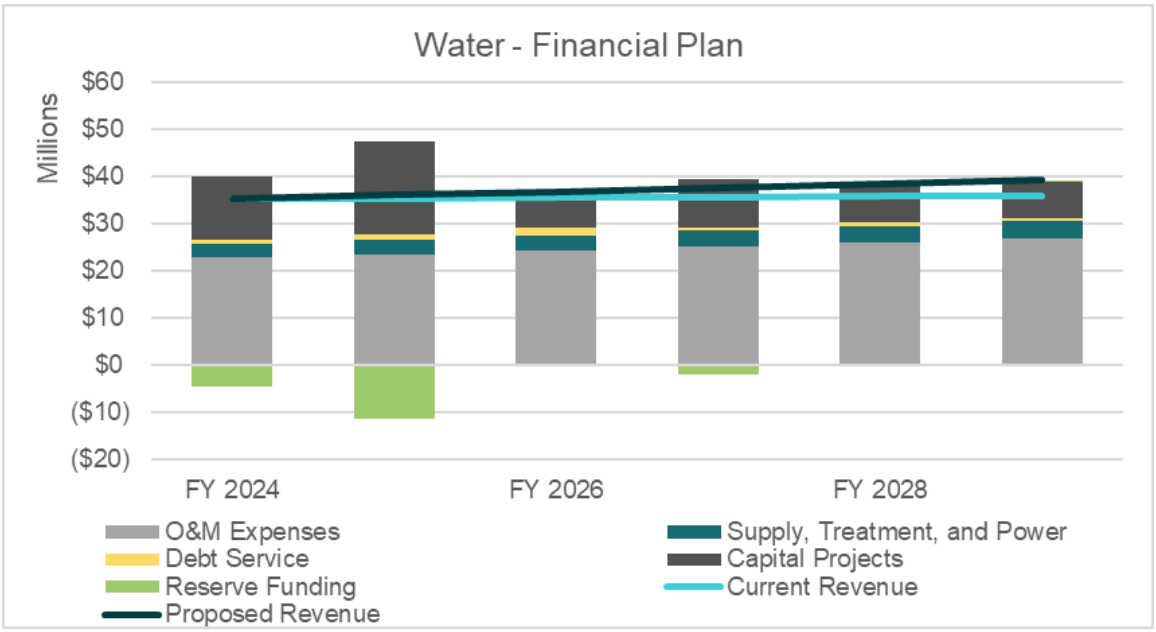
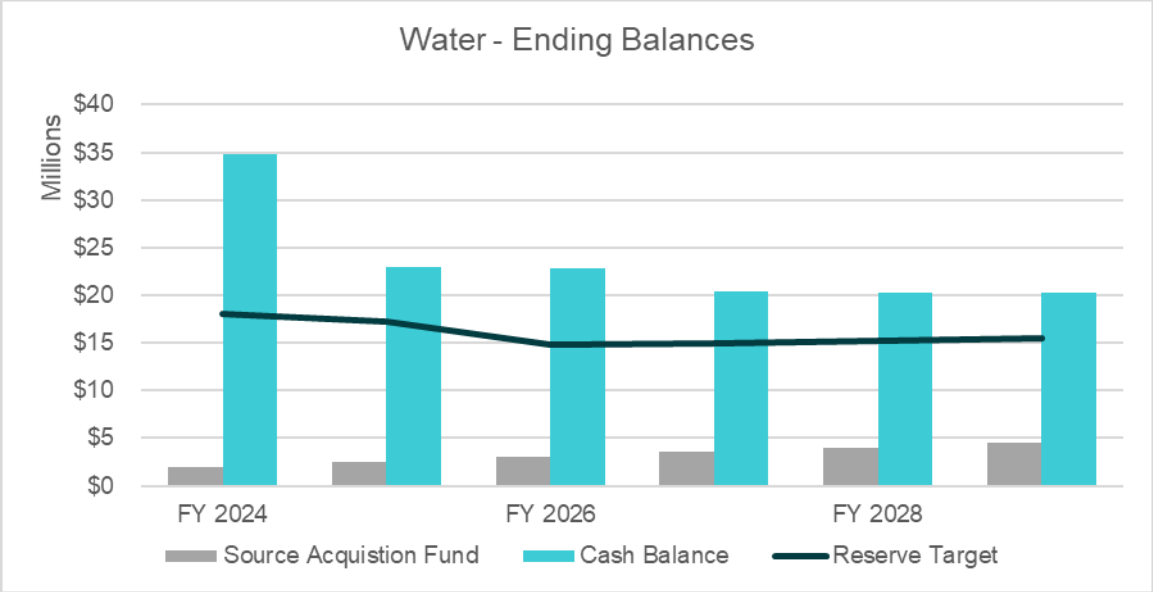


Figure 3-6 shows the projected water fund balances with the proposed revenue adjustments in **Table 3-7**. The City's restricted reserves are for the source acquisition fund and are represented by the gray bars. The unrestricted reserves or cash balance is comprised of operating and capital reserves. The blue bars represent the unrestricted cash balance available to finance operating expenses and capital projects. While the

unrestricted reserves are being drawn down through the study period, the ending balance remains at or above target through FY 2029.

Figure 3-6: Projected Water Fund Balances (Proposed Revenue Adjustments)



4. Water – Cost-of-Service Analysis and Rates

This section of the report details the cost-of-service analysis and rate calculation process to determine the proposed water rates. The goal of this process is to determine the cost of providing water service to each of the City's water customer classes and to ensure equity and fairness among the various classes.

4.1. Process and Approach

The cost-of-service analysis utilized to develop the water rates followed the guidelines for allocating costs outlined in the AWWA M1 manual. The cost of service analysis and rate design process consists of seven major steps, as outlined below:

1. Determine the revenue requirement, equal to the revenue to be recovered from rates
2. Functionalize O&M expenses and capital assets into functional categories such as supply, pumping, transmission & distribution, customer service & billing, etc.
3. Allocate each functional category into cost components such as supply, meters, customer service, conservation, base delivery, etc.
4. Develop customer class characteristics and units of service by cost component
5. Calculate the cost component unit rates by dividing the total cost in each cost component by the total units of service for that component. For example, base delivery costs are divided by the annual water demand and customer billing costs are divided by the annual number of bills.
6. Calculate the cost for each customer class by multiplying the unit cost by the units of service for each customer class.
7. Design rates to meet City's objectives.

4.2. Revenue Requirement

The first step of the cost-of-service analysis is to determine the revenue requirement for the test year, or rate-making year. The test year of this study is FY 2025.
Table 4-1 shows the revenue requirement calculations for the water utility.

The revenue requirements (Lines 2-3) are equal to the O&M expense and debt and capital costs for FY 2025 (**Table 3-8**, Column C, Lines 17 and 24). The revenues from other sources (Lines 7-10), also known as non-rate revenues or revenue offsets, are equal to all non-rate revenues (**Table 3-8**, Column C, Lines 4-5). The adjustment for cash from/(to) reserves (Line 14) is equal to the negative value of net cash flow (**Table 3-8**, Column C, Line 26) excluding the source acquisition fund revenue of $437,000.

The revenue to be recovered from rates excluding interest income (Line 19) is divided between operating (Column B) and capital (Column C) based on the function of each line item. For example, debt and capital costs (Line 3) are allocated to capital, while O&M expenses (Line 2) are allocated to operating. Note that the total revenue requirement (Column D, Line 18) is equal to rate revenues increased by a full year of the revenue adjustment for FY 2025. Interest income is excluded in Line 19 to be used as an offset for the Tier 1 building variable rate and therefore is excluded from the total rate revenue requirement for FY 2025.

Table 4-1: Water Revenue Requirement Calculation

	A	B	C	D
Line	Revenue Requirement Calculation	Operating	Capital	Total
1	**Revenue Requirements**			
2	O&M Expenses	$26,529,467	$0	$26,529,467
3	Debt and Capital	$0	$20,834,256	$20,834,256
4	**Total - Revenue Requirements**	**$26,529,467**	**$20,834,256**	**$47,363,723**
5				
6	**Revenue from Other Sources**			
7	Investment Income	$0	$286,933	$286,933
8	Water Service (501)	$2,242,023	$0	$2,242,023
9	Water Capital Improvement (509)	$0	$1,955,000	$1,955,000
10	B Contract Water Revenue	$130,000	$0	$130,000
11	**Total - Revenue from Other Sources**	**$2,372,023**	**$2,241,933**	**$4,613,957**
12				
13	**Adjustments**			
14	Cash from Reserves	$0	$11,832,406	$11,832,406
15	Midyear Increase	$0	$0	$0
16	**Subtotal - Adjustments**	**$0**	**$11,832,406**	**$11,832,406**
17				
18	**Revenue to be Recovered from Rates**	**$24,157,443**	**$6,759,917**	**$30,917,361**
19	**Revenue to be recovered Excluding Interest Income**	**$24,157,443**	**$7,046,850**	**$31,204,294**

4.3. Peaking Factors

One of the major factors in cost allocation is allocation of peaking costs. To do so, we must identify system-wide peaking factors. The maximum day demand is the maximum amount of water used in a single day in a year. The maximum hour demand is the maximum usage in an hour on the maximum usage day. Different facilities, such as distribution and storage facilities and infrastructure, and the capital and O&M costs associated with those facilities, are designed to meet the peak demands placed on the system by customers. Therefore, extra capacity costs include the O&M and capital costs associated with meeting peak customer demand in excess of average rate of use, or base use, requirements. The system-wide factors for maximum day and maximum hour were provided by the City's UWMP. Maximum day and maximum hour factors are shown in **Table 4-2** relative to the base factor. Base, or average daily demand, is represented by the factor of 1.00.

Table 4-2: System Peaking

	A	B
Line	Allocation Factor	System Peaking Factor
1	Base	1.00
2	Max Day	1.70
3	Max Hour	2.75

Calculated water system peaking factors from Table 4-2 are shown in Column B of **Table 4-3**. The system-wide peaking factors are used to derive the cost causation component allocation base (i.e., percentages) shown

in Columns of **Table 4-3**. The numbers and calculations outlined in the following sections are rounded and may not be equal to the exact amounts shown.

Line 1 "Base" represents the average day demand throughout the year and is, therefore assigned a factor of 1.00.

- Base = 1.00 / 1.00 = 100%

Line 2 "Max Day" is the ratio of maximum day demand relative to base demand, or 1.33. The percentage allocated to maximum day is the incremental responsibility above base demand.

- Base = 1.00 / 1.70 = 59%
- Max Day = (1.70 – 1.00) / 1.70 = 41%

Similarly, Line 3, "Max Hour" is the ratio of maximum hour demand, on the maximum day, relative to base demand. The max hour factor is 1.65.

- Base = 1.00 / 2.75 = 36%
- Max Day = (1.70 – 1.00) / 2.75 = 26%
- Max Hour = (2.75 – 1.70) / 2.75 = 38%

These factors indicate how much additional capacity is required to meet demand above average daily use. As demand, and therefore capacity, increases, so must the sizing of facilities and pipelines, which incur greater costs to construct, maintain, and replace. To understand the interpretation of the percentages shown in columns C through E, "Base" is established as the average daily demand during the year. These allocation bases are used to assign certain functionalized costs to the cost causation components including reservoir, transmission, treatment, and distribution functions.

Table 4-3: System-Wide Peaking Factors

	A	B	C	D	E	F
Line	Allocation Factor	System Peaking Factor	Base	Max Day	Max Hour	Total
1	Base	1.00	100%	0%	0%	100%
2	Max Day	1.70	59%	41%	0%	100%
3	Max Hour	2.75	36%	26%	38%	100%
4	Average Max Day/Max Hour		48%	33%	19%	100%

4.4. Operating and Capital Cost Allocation

The next step in the cost-of-service analysis is to determine the operating and capital cost allocations by cost component. The cost components for water include Base, Max Day, Max Hour, Meters, Customer, Fire Protection, Conservation and General.

Table 4-4 shows the water operating cost allocation. The allocation basis for each function is listed in Column B. For the purpose of allocating operating costs, City staff provided the O&M expense budget estimates by function (Column A, Lines 14-25). This is representative of the distribution of operating costs shown in **Table 3-2**. Functions include General and Administration, Engineering, Production & Operations, Production Maintenance, Water Treatment, Water Quality, Water Distribution, Water Conservation Program, B Contract (Reimbursable and City), and South Mountain Water. The operating costs are allocated to each cost component based on the percentage allocation (Lines 1-12) for each component. The final O&M expense allocation (Line 27) is determined by taking the weighted proportion of total operating costs by cost component based on the percentage allocations.

Table 4-4: Water Operating Cost Allocation

	A	B	C	D	E	F	G	H	I	J	K
Line	O&M Allocation	Allocation Basis	Base	Max Day	Max Hour	Meters	Customer	Fire Protection	Conservation	General	Total
1	Water Admin & General	General	0%	0%	0%	0%	11%	0%	0%	89%	100%
2	Water Engineering	Max Hour Fire	25%	18%	27%	15%	0%	15%	0%	0%	100%
3	Water Production & Operations - General	Max Day	59%	41%	0%	0%	0%	0%	0%	0%	100%
4	Water Production Maintenance	Max Day	59%	41%	0%	0%	0%	0%	0%	0%	100%
5	Water Treatment - HTWTP	Max Day	59%	41%	0%	0%	0%	0%	0%	0%	100%
6	Water Treatment - HHWTP	Max Day	59%	41%	0%	0%	0%	0%	0%	0%	100%
7	Water Quality - General	Base	95%	0%	0%	5%	0%	0%	0%	0%	100%
8	Water Distribution - General	Max Hour Fire	25%	18%	27%	15%	0%	15%	0%	0%	100%
9	Water Conservation Program	Conservation	0%	0%	0%	0%	0%	0%	100%	0%	100%
10	B' Contract (Reimbursable)	Base	95%	0%	0%	5%	0%	0%	0%	0%	100%
11	B' Contract (City)	Base	95%	0%	0%	5%	0%	0%	0%	0%	100%
12	South Mountain Water (Reimbursable)	Base	95%	0%	0%	5%	0%	0%	0%	0%	100%
13											
14	Water Admin & General	General	$0	$0	$0	$0	$925,279	$0	$0	$7,486,349	$8,411,628
15	Water Engineering	Max Hour Fire	$302,904	$212,852	$317,640	$178,585	$0	$178,585	$0	$0	$1,190,566
16	Water Production & Operations - General	Max Day	$3,019,621	$2,121,896	$0	$0	$0	$0	$0	$0	$5,141,518
17	Water Production Maintenance	Max Day	$1,859,120	$1,306,409	$0	$0	$0	$0	$0	$0	$3,165,529
18	Water Treatment - HTWTP	Max Day	$493,743	$346,954	$0	$0	$0	$0	$0	$0	$840,697
19	Water Treatment - HHWTP	Max Day	$681,909	$479,179	$0	$0	$0	$0	$0	$0	$1,161,088
20	Water Quality - General	Base	$458,256	$0	$0	$24,119	$0	$0	$0	$0	$482,375
21	Water Distribution - General	Max Hour Fire	$1,416,314	$995,248	$1,485,216	$835,024	$0	$835,024	$0	$0	$5,566,826
22	Water Conservation Program	Conservation	$0	$0	$0	$0	$0	$0	$452,935	$0	$452,935
23	B' Contract (Reimbursable)	Base	$93,653	$0	$0	$4,929	$0	$0	$0	$0	$98,582
24	B' Contract (City)	Base	$12,412	$0	$0	$653	$0	$0	$0	$0	$13,066
25	South Mountain Water (Reimbursable)	Base	$4,425	$0	$0	$233	$0	$0	$0	$0	$4,658
26	**Total O&M Expenses**		**$8,342,358**	**$5,462,538**	**$1,802,856**	**$1,043,543**	**$925,279**	**$1,013,609**	**$452,935**	**$7,486,349**	**$26,529,467**
27	*O&M Allocation*		*31%*	*21%*	*7%*	*4%*	*3%*	*4%*	*2%*	*28%*	*100%*

Table 4-5 shows the water capital cost allocation. To minimize fluctuations in the capital cost allocation as capital projects change from year to year, capital costs are allocated on the basis of capital assets. For the purpose of allocating capital costs, City staff provided the water capital assets listed by function (Column A, Lines 16-29). This is representative of the distribution of capital costs shown in **Table 3-5**. Functions include Source of Supply, Wells, Pumping, Treatment, Transmission, Distribution, Storage, Meters, Fire Protection, Customer Billing, Land, Building Improvements, Rolling Stock (Vehicles), and General Plant. The capital asset costs are allocated into each cost component based on the percentage allocation (Lines 1-14) for each component. The final capital expense allocation (Line 31) is determined by taking the weighted proportion of total capital asset costs by cost component.

Table 4-5: Water Asset Allocation

	A	B	C	D	E	F	G	H	I	J	K
Line	Assets Allocation	Allocation Basis	Base	Max Day	Max Hour	Meters	Customer	Fire Protection	Conservation	General	Total
1	Source of Supply	Base	95%	0%	0%	5%	0%	0%	0%	0%	100%
2	Wells	Max Day	59%	41%	0%	0%	0%	0%	0%	0%	100%
3	Pumping	Max Day	59%	41%	0%	0%	0%	0%	0%	0%	100%
4	Treatment	Max Day	59%	41%	0%	0%	0%	0%	0%	0%	100%
5	Transmission	Max Day Fire	47%	33%	0%	5%	0%	15%	0%	0%	100%
6	Distribution	Max Hour Fire	25%	18%	27%	15%	0%	15%	0%	0%	100%
7	Storage	Max Day Fire	47%	33%	0%	5%	0%	15%	0%	0%	100%
8	Meters	Meters	0%	0%	0%	100%	0%	0%	0%	0%	100%
9	Fire Protection	Fire Service	0%	0%	0%	0%	0%	100%	0%	0%	100%
10	Customer Billing	Billing & Customer Service	0%	0%	0%	0%	100%	0%	0%	0%	100%
11	Land	Max Day Fire	47%	33%	0%	5%	0%	15%	0%	0%	100%
12	Building and Improvements	General	0%	0%	0%	0%	11%	0%	0%	89%	100%
13	Rolling Stock (Vehicles)	Base	95%	0%	0%	5%	0%	0%	0%	0%	100%
14	General Plant	Max Day	59%	41%	0%	0%	0%	0%	0%	0%	100%
15											
16	Source of Supply	Base	$9,387,387	$0	$0	$494,073	$0	$0	$0	$0	$9,881,460
17	Wells	Max Day	$1,504,123	$1,056,951	$0	$0	$0	$0	$0	$0	$2,561,074
18	Pumping	Max Day	$329,162	$231,303	$0	$0	$0	$0	$0	$0	$560,466
19	Treatment	Max Day	$42,208	$29,660	$0	$0	$0	$0	$0	$0	$71,867
20	Transmission	Max Day Fire	$29,223,535	$20,535,457	$0	$3,109,937	$0	$9,329,811	$0	$0	$62,198,740
21	Distribution	Max Hour Fire	$2,240,016	$1,574,065	$2,348,990	$1,320,658	$0	$1,320,658	$0	$0	$8,804,388
22	Storage	Max Day Fire	$2,815,532	$1,978,482	$0	$299,626	$0	$898,878	$0	$0	$5,992,518
23	Meters	Meters	$0	$0	$0	$0	$0	$0	$0	$0	$0
24	Fire Protection	Fire Service	$0	$0	$0	$0	$0	$0	$0	$0	$0
25	Customer Billing	Billing & Customer Service	$0	$0	$0	$0	$0	$0	$0	$0	$0
26	Land	Max Day Fire	$3,307,469	$2,324,167	$0	$351,977	$0	$1,055,932	$0	$0	$7,039,545
27	Building and Improvements	General	$0	$0	$0	$0	$1,562,036	$0	$0	$12,638,289	$14,200,325
28	Rolling Stock (Vehicles)	Base	$383,718	$0	$0	$20,196	$0	$0	$0	$0	$403,913
29	General Plant	Max Day	$0	$0	$0	$0	$0	$0	$0	$0	$0
30	**Total Assets**		**$49,233,150**	**$27,730,086**	**$2,348,990**	**$5,596,467**	**$1,562,036**	**$12,605,279**	**$0**	**$12,638,289**	**$111,714,296**
31	*Asset Allocation*		*44%*	*25%*	*2%*	*5%*	*1%*	*11%*	*0%*	*11%*	*100%*

4.5. Allocation of Fire Protection Costs – Public vs. Private

Water systems provide two types of fire protection: public fire protection for firefighting, which is generally visible as hydrants on a street, and private fire protection which provides fire flow to building and other structure sprinkler systems for fire suppression within private improvements. To determine the share of total fire costs responsible to each, Raftelis performs an analysis of the public hydrants and private fire lines.

Table 4-6 shows the steps of allocating costs between public and private fire service Each fire connection size has a fire flow demand factor similar to a hydraulic capacity factor of a water meter. The diameter of the connection is raised to the 2.63 power to determine the fire flow demand factor[2]. The number of connections of a specific size is multiplied by the fire flow demand factor to derive total equivalent fire connections. Total fire costs are allocated based on the percentage share of total equivalent fire connections between public and private. The analysis estimates that 75 percent of fire costs relate to public fire and will be included and recovered on the monthly fixed charges. The remaining 25 percent is attributable to private fire service and will be recovered through private fire service charges.

Table 4-6: Fire Analysis

	A	B	C	D
Line	Fire Line/Hydrant Size	Fire Ratio	Number of Lines/Hydrants	Equivalent Demand
1	**Private Fire Line Size**			
2	2"	6.19	10	64
3	3"	17.98	0	0
4	4"	38.32	153	5,868
5	6"	111.31	151	16,817
6	8"	237.21	183	43,394
7	10"	426.58	127	54,363
8	12"	689.04	0	0
9	**Total Fire Lines**	**0.00**	**625**	**120,505**
10				25%
11	**Public Fire Hydrant Size**			
12	**6"**	**111.31**	**3,236**	**360,202**
13				75%

4.6. Final Cost Allocation of Revenue Requirement

The total revenue recoverable from each cost causation component through water rates is shown in

[2] Hazen-Williams equation via AWWA M1 Manual

Table 4-7 using the revenue requirement from **Table** 4-1, the O&M and Capital allocations in

Table 4-4 and

Table 4-5, and the fire cost analysis in **Table 4-6**. Since public fire protection costs are a function of system capacity, they are reallocated to the Meter component. Interest earnings, shown separately, will be used to offset some rates. Five percent of Base costs and 33 percent of Peaking costs (Max Day plus Max Hour) are allocated to the meter charge to preserve the utility's current fixed revenue recovery of 30 percent.

Table 4-7: Revenue Requirement by Cost Component

	A	B	C	D	E	F	G	H	I	J	K
Line	Cost Allocation	Base	Max Day	Max Hour	Meters	Customer	Fire Protection	Conservation	General	Offset	Total
1	Operating Revenue Requirement	$7,596,460	$4,974,127	$1,641,661	$950,239	$842,549	$922,981	$412,437	$6,816,988	$0	$24,157,443
2	Capital Revenue Requirement	$3,105,589	$1,749,192	$148,172	$353,021	$98,532	$795,131	$0	$797,213	$0	$7,046,850
3	Revenue Offset	$0	$0	$0	$0	$0	$0	$0	$0	-$286,933	-$286,933
4	**Total Cost of Service**	**$10,702,049**	**$6,723,320**	**$1,789,834**	**$1,303,259**	**$941,081**	**$1,718,112**	**$412,437**	**$7,614,201**	**-$286,933**	**$30,917,361**
5	Allocation of General Cost	$3,597,842	$2,260,262	$601,711	$438,133	$0	$577,599	$138,654	-$7,614,201	$0	$0
6	Allocation to Public Fire	$0	$0	$0	$1,720,216	$0	-$1,720,216	$0	$0	$0	$0
7	Allocation of Base to Meter	-$714,995	$0	$0	$714,995	$0	$0	$0	$0	$0	$0
8	Allocation of Peak to Meter	$0	-$2,964,582	-$789,210	$3,753,792	$0	$0	$0	$0	$0	$0
9	**Total Adjusted Cost of Service**	**$13,584,896**	**$6,019,000**	**$1,602,335**	**$7,930,394**	**$941,081**	**$575,496**	**$551,092**	**$0**	**-$286,933**	**$30,917,361**

4.7. Unit Cost Components

Unit costs for each component must be calculated, which starts by assessing the total water demand (or equivalent service units) for each cost component. Projected water use (base units of service) for FY 2025 is shown in **Table 4-8**. Daily use is calculated as annual use is divided by 365 days. Demand is detailed by rate class. Values are rounded to the nearest ccf and may not be equal to the exact values shown.

Table 4-8: FY 2025 Projected Water Usage by Class

	A	B	C
Line	Customer Class	Annual Use (ccf)	Average Daily Use (ccf/day)
1	Building Water Usage		
2	Tier 1	3,215,034	8,808
3	Tier 2	282,597	774
4	Tier 3	4,665,284	12,782
5	Non-Building Water Usage		
6	Tier 1	76,156	209
7	Tier 2	1,119,180	3,066
8	**Total**	**9,358,251**	**25,639**

Table 4-9 shows the total equivalent meters and annual number of bills. **Table 4-10** shows the total equivalent fire line connections. These totals are used as the denominator in developing unit costs for the rate components of the monthly fixed service charges and private fire service charges.

Table 4-9: Derivation of Equivalent Meters

	A	B	C	D	E
Line	Meter Size	Meter Count	Hydraulic Capacity Factor	Equivalent Meters	Annual Bi-monthly Bills
1	5/8"	179	1.00	179	1,073
2	3/4"	8,284	1.43	11,804	49,703
3	1"	11,981	2.25	26,957	71,884
4	1 1/2"	778	4.25	3,307	4,668
5	2"	775	6.40	4,960	4,650
6	3"	78	11.25	879	469
7	4"	54	17.50	953	327
8	6"	28	32.50	902	166
9	8"	13	48.00	641	80
10	10"	0	114.00	0	0
11	12"	1	150.00	154	6
12	**Total**	**22,171**		**50,735**	**133,026**

Table 4-10: Derivation of Equivalent Fire Lines

	A	B	C	D	E
Line	Fire Line Size	Fire Line Count	Demand Factor	Equivalent Fire Lines	Annual Bi-monthly Bills
1	2"	10	6.19	64	62
2	3"	0	17.98	0	0
3	4"	153	38.32	5,868	919
4	6"	151	111.31	16,817	906
5	8"	183	237.21	43,394	1,098
6	10"	127	426.58	54,363	765
7	12"	0	689.04	0	0
8	**Total**	**625**		**120,505**	**3,749**

Table 4-11 shows the total and extra capacity calculation by class and tier for maximum day and maximum hour demand. The class and tier specific maximum day peaking factors were calculated by dividing the maximum billing period usage by the average billing period usage. The class and tier specific maximum hour peaking factors were calculated by multiplying the maximum day peaking factors by the ratio of the system-wide maximum hour to maximum day peaking factors shown in **Table 4-3**.

Table 4-11: Calculation of Peak Capacity

	A	B	C	D	E	F	G	H	I
				Max Day			Max Hour		
Line	Customer Class	Annual Use (ccf)	Average Daily Use (ccf/day)	Capacity Factor	Total Capacity (ccf/day)	Extra Capacity (ccf/day)	Capacity Factor	Total Capacity (ccf/day)	Extra Capacity (ccf/day)
1	**Building Water Usage**								
2	Tier 1	3,215,034	8,808	1.33	11,683	2,875	2.14	18,879	7,195
3	Tier 2	282,597	774	1.48	1,149	375	2.40	1,856	708
4	Tier 3	4,665,284	12,782	2.41	30,742	17,961	3.89	49,676	18,933
5	**Non-Building Water Usage**								
6	Tier 1	76,156	209	1.55	322	114	2.50	521	199
7	Tier 2	1,119,180	3,066	2.26	6,923	3,857	3.65	11,187	4,264

Utilizing the final cost of service from

Table 4-7 as the numerator and **Table 4-8**, **Table 4-9**, **Table 4-10**, and

Table 4-11 as the denominators allows us to derive the unit costs of service in

Table 4-12. The total cost of service is divided by the respective units of service to calculate the unit cost of each cost component.

Meter costs are divided by the total meter equivalencies from **Table 4-9** multiplied by 6 bi-monthly bills to determine a cost per equivalent meter and annual customer costs are divided by the estimated number of annual monthly bills, also from **Table 4-9**. Fire protection costs are divided by total fire line equivalencies from **Table 4-10** to determine a cost per equivalent inch of fire line. Base delivery costs are divided by total annual water demand from **Table 4-8** to determine a cost per unit of water usage. Similarly, Conservation costs are divided by annual Tier 3 water demand and Offset savings are divided by Building Tier 1 usage as those are the units from **Table 4-8** over which those costs and savings, respectively, are being recovered. The unit costs are used to distribute the cost components to the meter classes and commodity classes and tiers.

Table 4-12: Cost Causation Component Unit Cost Calculation

	A	B	C	D	E	F	G	H	I
Line	Cost of Service	Base	Max Day	Max Hour	Meters	Customer	Fire Protection	Conservation	Offset
1	Cost of Service	$13,584,896	$6,019,000	$1,602,335	$7,930,394	$941,081	$575,496	$551,092	($286,933)
2	Units of Service	9,358,251	25,181	31,299	304,412	136,775	723,031	4,665,284	3,215,034
3	Unit of Measure	ccf	ccf/day	ccf/day	equiv. meter/yr	bills/yr	equiv. line/yr	ccf	
4	**Unit Cost**	**$1.45**	**$239.03**	**$51.19**	**$26.05**	**$6.88**	**$0.80**	**$0.12**	**($0.09)**

4.8. Distribution of Cost Components to Customer Classes

The final step in a cost-of-service analysis is to distribute the cost components to the customer classes using the unit costs derived in

Table 4-12. This is the end goal of a cost-of-service analysis and yields the cost to serve each class.

Table 4-13 shows the derivation of the costs to serve each class. The supply, base, max day, max hour, conservation, and offset cost components are collected through the commodity charges ($/ccf). Fire protection, meters, and customer cost components are collected through the City's bi-monthly fixed service charge ($/2 months) and private fire service charge ($/2 months). The interest revenue, which is a non-rate revenue and over which the City Council has discretion, is applied as an offset to Tier 1 rate for building usage to provide affordability for low volume customers. All building users will benefit from the lower rate in Tier 1.

To derive the cost to serve each class, the unit costs from

Table 4-12 are multiplied by the respective units of service for each class (**Table 4-8**, **Table 4-9**, **Table 4-10**, and

Table 4-11). With the cost to serve each user class calculated, we can proceed to derive rates to collect the cost to serve each commodity class, tier, and meter size.

Table 4-13: Derivation of Costs to Serve Each Class

	A	B	C	D	E	F	G	H	I	J
Line	Customer Class	Base	Max Day	Max Hour	Meters	Customer	Fire Protection	Conservation	Offset	Total
1	Building Water Usage				$7,930,394	$915,285				$8,845,679
2	Tier 1	$4,667,102	$687,190	$368,367					($286,933)	$5,435,726
3	Tier 2	$410,232	$89,549	$36,224						$536,005
4	Tier 3	$6,772,354	$4,293,149	$969,294				$551,092		$12,585,888
5	Non-Building Water Usage									
6	Tier 1	$110,551	$27,213	$10,168						$147,933
7	Tier 2	$1,624,657	$921,899	$218,282						$2,764,838
8	Fire Protection	$0	$0	$0		$25,796	$575,496			$601,292
9	**Total Cost of Service**	**$13,584,896**	**$6,019,000**	**$1,602,335**	**$7,930,394**	**$941,081**	**$575,496**	**$551,092**	**($286,933)**	**$30,917,361**

4.9. Rate Calculation

4.9.1. Proposed Bi-Monthly Fixed Charges

Table 4-14 shows the bi-monthly service charge calculation, which consists of the Meter and Customer cost components. The Meter cost component is derived based on total equivalent meters. Therefore, the meter unit cost (**Table 4-12**, Column E, Line 4) is multiplied by the capacity ratio for each meter size (Column B) to appropriately reflect the share of cost by meter size (Column C). The Customer cost does not vary with meter size, and therefore the Customer unit cost (**Table 4-12**, Column F, Line 4) is applied uniformly across all meter sizes (Column D). These components added together determine the proposed bi-monthly service charge (Column E).

Table 4-14: Proposed Bi-Monthly Service Charge (FY 2025)

	A	B	C	D	E	F
Line	Bi-Monthly Service Charge	Capacity Ratio	Meter	Customer	Proposed Charge	Current Charge
1	5/8"	1.00	$26.05	$6.88	$32.94	$32.10
2	3/4"	1.43	$37.12	$6.88	$44.01	$43.17
3	1"	2.25	$58.62	$6.88	$65.50	$64.67
4	1 1/2"	4.25	$110.72	$6.88	$117.60	$116.79
5	2"	6.40	$166.73	$6.88	$173.62	$172.83
6	3"	11.25	$293.08	$6.88	$299.97	$299.23
7	4"	17.50	$455.90	$6.88	$462.79	$462.10
8	6"	32.50	$846.67	$6.88	$853.56	$853.02
9	8"	48.00	$1,250.47	$6.88	$1,257.36	$1,256.97
10	10"	114.00	$2,969.87	$6.88	$2,976.76	$2,977.00
11	12"	150.00	$3,907.73	$6.88	$3,914.61	$3,915.20

4.9.2. Proposed Bi-Monthly Fire Service Charges

Table 4-15 shows the bi-monthly service charge calculation, which consists of the Private Fire and Customer cost components. The Private Fire unit cost (**Table 4-12**, Column G, Line 4) is multiplied by the fire ratio for each fire line diameter (Column B) to appropriately reflect the share of cost by fire line (Column C). A connection's share of the Customer cost does not vary with fire line size, and therefore the Customer unit cost (**Table 4-12**, Column F, Line 4) is applied uniformly across all meter sizes (Column D). These components added together arrive at the proposed bi-monthly fire service charge (Column E).

Table 4-15: Proposed Bi-Monthly Fire Service Charge (FY 2025)

	A	B	C	D	E	F
Line	Bi-Monthly Fire Service Charge	Capacity Ratio	Fire	Customer	Proposed Charge	Current Charge
1	2"	6.19	$4.93	$6.88	$11.81	$10.19
2	3"	17.98	$14.31	$6.88	$21.20	$18.10
3	4"	38.32	$30.50	$6.88	$37.39	$31.75
4	6"	111.31	$88.60	$6.88	$95.48	$80.73
5	8"	237.21	$188.80	$6.88	$195.69	$165.22
6	10"	426.58	$339.54	$6.88	$346.42	$292.32
7	12"	689.04	$548.44	$6.88	$555.33	$468.46

4.9.3. Proposed Water Usage Rates

The City's water usage rates consist of five components: Base, Peaking, Supply, Conservation, and Offset. The following subsections will present the calculations for each of the components.

4.9.3.1. Base Component

The Base component is applied uniformly across all units of water and is equal to the Base unit cost (**Table 4-12**, Column B, Line 4).

4.9.3.2. Peaking Component

Table 4-16 shows the Peaking unit cost calculation for each customer class and tier. Peaking costs (Column C) are the sum of Max Day and Max Hour costs for each class and tier (**Table 4-13**, Columns C and D). Peaking costs are divided by annual use (Column B) to determine the Peaking unit cost for each class and tier (Column D).

Table 4-16: Peaking Unit Cost Calculation

	A	B	C	D
Line	Customer Class	Annual Use (ccf)	Peaking Costs	Unit Cost
1	**Building Water Usage**			
2	Tier 1	3,215,034	$1,055,557	$0.33
3	Tier 2	282,597	$125,773	$0.45
4	Tier 3	4,665,284	$5,262,443	$1.13
5	**Non-Building Water Usage**			
6	Tier 1	76,156	$37,381	$0.49
7	Tier 2	1,119,180	$1,140,181	$1.02

4.9.3.3. Supply Component

Table 4-17 shows the calculation of the unit cost for each source of water (Line 6). The percentage from each source (Line 2) is determined by the proportion of volume purchased from each source in Line 1. These proportions are used to determine the proportion of demand from each source (Line 3). The direct water

purchase costs (provided by City staff) on Line 4 are divided by the estimated potable demand (Line 3) to calculate the unit costs in Line 6.

Table 4-18 shows supply component unit cost calculation for each customer class and tier. The lowest cost water source is used for Tier 1, if that source does not meet the demand, then water from the next lowest source is used and so on. Once the Tier 1 demand is met then Tier 2 is allocated the remaining lowest cost water and so on. The uses for each class and tier from each source (Columns E through H) are multiplied by their respective unit costs (**Table 4-17**, Line 6) to calculate the total supply cost for each class and tier in Column J. The total costs (Column J) are divided by the total use (Column I) to calculate the supply unit cost for each class and tier (Column K).

Table 4-17: Potable Water Supply Cost

	A	B	C	D	E	F
Line	Potable Water Supply Cost	MC Surface	SAR Surface (BV)	Groundwater	SWP Water	Total
1	Volume (AF)	5,700	5,466	10,767	1,342	23,275
2	% from Source	24%	23%	46%	6%	100%
3	Estimated Potable Demand	2,291,939	2,197,531	4,329,091	539,690	9,358,251
4	Direct Water Purchase Costs	$148,209	$431,779	$1,453,551	$200,000	$2,233,539
5	% of Water Purchase Costs	7%	19%	65%	9%	100%
6	Unit Cost ($/ccf)	$0.06	$0.20	$0.34	$0.37	$0.24

Table 4-18: Supply Component Calculation

Line	A Customer Class	B Tier Definitions	C Annual Use (ccf)	D % of Annual Use	E MC Surface	F SAR Surface (BV)	G Groundwater	H SWP Water	I Total Use (ccf)	J Total Cost	K Supply Unit Cost
1	**Building Water Usage**										
2	Tier 1	16	3,215,034	34%	1,999,188	1,215,847	0	0	3,215,034	$368,173	$0.11
3	Tier 2	27	282,597	3%	0	282,597	0	0	282,597	$55,526	$0.20
4	Tier 3	Over 27	4,665,284	50%	0	418,395	3,776,134	470,755	4,665,284	$1,524,549	$0.33
5	**Non-Building Water Usage**										
6	Tier 1	27	76,156	1%	76,156	0	0	0	76,156	$4,925	$0.06
7	Tier 2	Over 27	1,119,180	12%	216,595	280,692	552,958	68,935	1,119,180	$280,367	$0.25
8	**Total Potable Use**		**9,358,251**	**100%**	**2,291,939**	**2,197,531**	**4,329,091**	**539,690**	**9,358,251**	**$2,233,539**	

4.9.3.4. Conservation Component

The Conservation component is applied to Building Tier 3 use and is equal to the Conservation unit cost (**Table 4-12**, Column H, Line 4) for that class and tier only.

4.9.3.5. Offset Component

The Offset component is applied to Building Tier 1 use and is equal to the Offset unit cost (**Table 4-12**, Column I, Line 4) for that class and tier only. The offset helps to provide affordability in Tier 1 and benefits all building customers.

4.9.3.6. Water Usage Rates

Table 4-19 shows the calculation of proposed water usage rates (Column H) for each customer class and tier based on the five rate components (Columns C through G) described previously.

Table 4-19: Proposed Water Usage Rates (FY 2025)

	A	B	C	D	E	F	G	H
Line	Customer Class	Bi-monthly Tiers, ccf	Supply	Base Delivery	Peaking	Conservation	Offset	Proposed Rate
1	**Building Water Usage**							
2	Tier 1	16	$0.11	$1.21	$0.33	$0.00	($0.09)	$1.57
3	Tier 2	27	$0.20	$1.21	$0.45	$0.00	$0.00	$1.86
4	Tier 3	Over 27	$0.33	$1.21	$1.13	$0.12	$0.00	$2.79
5	**Non-Building Water Usage**							
6	Tier 1	27	$0.06	$1.21	$0.49	$0.00	$0.00	$1.77
7	Tier 2	Over 27	$0.25	$1.21	$1.02	$0.00	$0.00	$2.49

4.9.3.7. Proposed Rate Schedule

Table 4-20 and **Table 4-21** show the proposed bi-monthly water service charges, private fire service charges, and water usage rates, respectively. The proposed water rates after the FY 2025 test year are increased across the board by the revenue adjustments in **Table 3-7**.

Table 4-20: Proposed Bi-Monthly Service Charges

	A	B	C	D	E	F	G
Line	Bi-Monthly Water Service Charges	Current Rates	July 2024	July 2025	July 2026	July 2027	July 2028
1	**Water Service**						
2	5/8"	$32.10	$32.94	$33.60	$34.28	$34.97	$35.67
3	3/4"	$43.17	$44.01	$44.90	$45.80	$46.72	$47.66
4	1"	$64.67	$65.50	$66.81	$68.15	$69.52	$70.92
5	1 1/2"	$116.79	$117.60	$119.96	$122.36	$124.81	$127.31
6	2"	$172.83	$173.62	$177.10	$180.65	$184.27	$187.96
7	3"	$299.23	$299.97	$305.97	$312.09	$318.34	$324.71
8	4"	$462.10	$462.79	$472.05	$481.50	$491.13	$500.96
9	6"	$853.02	$853.56	$870.64	$888.06	$905.83	$923.95
10	8"	$1,256.97	$1,257.36	$1,282.51	$1,308.17	$1,334.34	$1,361.03
11	10"	$2,977.00	$2,976.76	$3,036.30	$3,097.03	$3,158.98	$3,222.16
12	12"	$3,915.20	$3,914.61	$3,992.91	$4,072.77	$4,154.23	$4,237.32
13							
14	**Fire Protection Service**						
15	2"	$10.19	$11.81	$12.05	$12.30	$12.55	$12.81
16	3"	$18.10	$21.20	$21.63	$22.07	$22.52	$22.98
17	4"	$31.75	$37.39	$38.14	$38.91	$39.69	$40.49
18	6"	$80.73	$95.48	$97.39	$99.34	$101.33	$103.36
19	8"	$165.22	$195.69	$199.61	$203.61	$207.69	$211.85
20	10"	$292.32	$346.42	$353.35	$360.42	$367.63	$374.99
21	12"	$468.46	$555.33	$566.44	$577.77	$589.33	$601.12
22							
23	**Fire Hydrant Service**						
24	All Meters	$73.60	$299.97	$305.97	$312.09	$318.34	$324.71

Table 4-21: Proposed Water Usage Rates

	A	B	C	D	E	F	G	H
Line	Water Usage Rates	Bi-Monthly Tiers	Current Rates	July 2024	July 2025	July 2026	July 2027	July 2028
1	**Building Water Usage**							
2	Tier 1	16	$1.46	$1.57	$1.61	$1.65	$1.69	$1.73
3	Tier 2	27	$1.78	$1.86	$1.90	$1.94	$1.98	$2.02
4	Tier 3	Over 27	$2.69	$2.79	$2.85	$2.91	$2.97	$3.03
5								
6	**Non-Building Water Usage**							
7	Tier 1	27	$1.78	$1.77	$1.81	$1.85	$1.89	$1.93
8	Tier 2	Over 27	$2.69	$2.49	$2.54	$2.60	$2.66	$2.72
9								
10	**Fire Protection Water Usage**							
11	All Units		$2.69	$2.79	$2.85	$2.91	$2.97	$3.03

5. Wastewater – Financial Plan

This section of the report details the wastewater enterprise's long-term financial plan, based on the projected revenues, expenses, debt service, and capital project costs. Raftelis modeled the financial plan without revenue adjustments (status quo) and with proposed revenue adjustments to ensure the financial sustainability and solvency of the wastewater utility. The result of the wastewater financial plan is the total revenue requirement utilized as the basis for the cost-of-service analysis and resulting rates in the next section of the report.

5.1. Customer Accounts and Usage

Table 5-1 shows the projected wastewater customer accounts and water usage for the study period. City staff provided wastewater customer accounts and usage data for FY 2022, which are then projected based on the customer account growth rates from **Table 2-1**. Typical types of users that fall within the non-residential classes include:

- Low Strength I – Car Wash
- Low Strength II – Office Building
- Low Strength III – Hotel (rooms only, no restaurant)
- Medium Strength I – Laundromat (linen & general)
- Medium Strength II – Mini-Mall
- Medium Strength III – Hotel (with restaurant)
- High Strength I – Laundry (industrial)
- High Strength II - Bakery

Table 5-1: Projected Wastewater Customer Accounts and Usage

	A	B	C	D	E	F	G
Line	Wastewater Customer Data	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	**Residential (dwelling units)**						
2	Single Family	16,661	16,752	16,842	16,932	17,022	17,113
3	Multiple Family	10,017	10,072	10,126	10,180	10,234	10,289
4	**Total - Residential**	**26,678**	**26,824**	**26,967**	**27,111**	**27,256**	**27,402**
5							
6	**Non-Residential (ccf)**						
7	Low Strength I	43,850	44,091	44,328	44,567	44,806	45,047
8	Low Strength II	411,018	413,274	415,497	417,732	419,979	422,239
9	Low Strength III	89,331	89,821	90,305	90,790	91,279	91,770
10	Medium Strength I	26,055	26,198	26,339	26,480	26,623	26,766
11	Medium Strength II	37,882	38,090	38,295	38,501	38,708	38,916
12	Medium Strength III	19,582	19,689	19,795	19,902	20,009	20,117
13	High Strength I	10,217	10,273	10,328	10,383	10,439	10,495
14	High Strength II	135,769	136,514	137,248	137,987	138,729	139,475
15	Large Volume User	33,116	33,298	33,477	33,657	33,838	34,020
16	**Total - Non-Residential**	**806,821**	**811,248**	**815,612**	**820,000**	**824,411**	**828,846**
17							
18	**Schools (students)**						
19	Elementary	4,821	4,848	4,874	4,900	4,927	4,953
20	Secondary & High	8,145	8,189	8,233	8,278	8,322	8,367
21	**Total - Schools**	**12,966**	**13,037**	**13,107**	**13,178**	**13,249**	**13,320**

5.2. Current Rates

The City's current wastewater rates include bi-monthly wastewater service charges for residential customers by type of dwelling unit, a non-residential wastewater usage rate based on ccf of water usage per customer class, and for schools by 100 students. **Table 5-2** shows the current wastewater rates effective July 1, 2021.

Table 5-2: Current Bi-Monthly Wastewater Service Charges and Usage Rates

	A	B
Line	Current Wastewater Rates	FY 2024
1	**Bi-Monthly Residential Rate ($/dwelling unit)**	
2	Single Family	$62.43
3	Multiple Family	$48.08
4		
5	**Non-Residential Rate ($/ccf)**	
6	Low Strength I	$2.42
7	Low Strength II	$2.87
8	Low Strength III	$3.32
9	Medium Strength I	$3.77
10	Medium Strength II	$4.22
11	Medium Strength III	$4.67
12	High Strength I	$5.12
13	High Strength II	$5.56
14	Large Volume User	$3.32
15		
16	**Bi-Monthly Schools Rate ($/100 students)**	
17	Elementary	$134.38
18	Secondary & High	$215.02

5.3. Calculated Rate Revenues at Current Rates

Table 5-3 shows the calculated wastewater rate revenues by customer class. To calculate rate revenues, the current wastewater rates (**Table 5-2**) are multiplied by the customer account and usage data (**Table 5-1**) for all years of the study.

Residential rate revenues (Lines 2-3) = Residential wastewater service charge x Residential dwelling units x 6 billing periods

Non-residential rate revenues (Lines 7-15) = Non-residential wastewater usage rate x Non-residential water usage in ccf

Schools rate revenues (Lines 19-20) = Schools wastewater service charge x (Number of students / 100 students) x 6 billing periods

Table 5-3: Calculated Wastewater Rate Revenues at Current Rates

	A	B	C	D	E	F	G
Line	Calculated Rate Revenues	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	**Residential (dwelling units)**						
2	Single Family	$6,240,804	$6,275,056	$6,308,577	$6,342,276	$6,376,156	$6,410,216
3	Multiple Family	$2,889,669	$2,905,522	$2,921,037	$2,936,634	$2,952,315	$2,968,079
4	**Total - Residential**	**$9,130,473**	**$9,180,579**	**$9,229,613**	**$9,278,910**	**$9,328,470**	**$9,378,295**
5							
6	**Non-Residential (ccf)**						
7	Low Strength I	$106,118	$106,700	$107,274	$107,851	$108,432	$109,015
8	Low Strength II	$1,179,622	$1,186,095	$1,192,476	$1,198,891	$1,205,340	$1,211,825
9	Low Strength III	$296,580	$298,207	$299,811	$301,424	$303,046	$304,676
10	Medium Strength I	$98,227	$98,765	$99,297	$99,831	$100,368	$100,908
11	Medium Strength II	$159,863	$160,740	$161,605	$162,474	$163,348	$164,227
12	Medium Strength III	$91,448	$91,949	$92,444	$92,941	$93,441	$93,944
13	High Strength I	$52,309	$52,596	$52,879	$53,163	$53,449	$53,737
14	High Strength II	$754,876	$759,018	$763,101	$767,206	$771,334	$775,483
15	Large Volume User	$109,946	$110,549	$111,144	$111,741	$112,343	$112,947
16	**Total - Non-Residential**	**$2,848,988**	**$2,864,620**	**$2,880,031**	**$2,895,524**	**$2,911,101**	**$2,926,762**
17							
18	**Schools (students)**						
19	Elementary	$38,875	$39,088	$39,298	$39,510	$39,722	$39,936
20	Secondary & High	$105,076	$105,652	$106,221	$106,792	$107,367	$107,944
21	**Total - Schools**	**$143,950**	**$144,740**	**$145,519**	**$146,302**	**$147,089**	**$147,880**
22							
23	**Total - Non-Residential and Schools**	**$2,992,938**	**$3,009,360**	**$3,025,550**	**$3,041,826**	**$3,058,190**	**$3,074,642**

5.4. Projected Revenues at Current Rates

Table 5-4 shows the projected wastewater revenues for the study period. City staff provided actual revenues for FY 2022 and budgeted revenues for FY 2023 and FY 2024. The wastewater rate revenues (Lines 3-4) from FY 2024 and beyond are from the rate revenue calculations (**Table 5-3**, Lines 4 and 23). Investment income (Lines 8, 16, 23, and 27) are calculated using the reserve interest rate (**Table 2-2**, Line 2). All other revenues are inflated for future years based on the non-rate revenue inflation factor (**Table 2-2**, Line 1).

Table 5-4: Projected Wastewater Revenues at Current Rates

	A	B	C	D	E	F	G
Line	Projected Revenues	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	**Wastewater Service (521)**						
2	Cost Recover/Reimb Expenditure	$3,100	$3,100	$3,100	$3,100	$3,100	$3,100
3	Sewer Residential	$9,130,473	$9,180,579	$9,229,613	$9,278,910	$9,328,470	$9,378,295
4	Sewer Non-Residential	$2,992,938	$3,009,360	$3,025,550	$3,041,826	$3,058,190	$3,074,642
5	Recycled Water Usage	$330,000	$330,000	$330,000	$330,000	$330,000	$330,000
6	Septage Charge	$48,000	$48,000	$48,000	$48,000	$48,000	$48,000
7	Frontage Charge	$69,000	$69,000	$69,000	$69,000	$69,000	$69,000
8	Investment Income	$164,714	$137,328	$104,710	$83,431	$79,585	$75,754
9	Miscellaneous Receipts	$25,000	$25,000	$25,000	$25,000	$25,000	$25,000
10	**Total - Wastewater Service (521)**	**$12,763,225**	**$12,802,367**	**$12,834,973**	**$12,879,268**	**$12,941,345**	**$13,003,791**
11							
12	**Wastewater Project (523)**						
13	State Grants	$0	$0	$0	$0	$0	$0
14	Federal Grants	$0	$0	$0	$0	$0	$0
15	Other Grants	$0	$0	$0	$0	$0	$0
16	Investment Income	$0	$0	$0	$0	$0	$0
17	Sale of Surplus Property	$0	$0	$0	$0	$0	$0
18	Miscellaneous Receipts	$0	$0	$0	$0	$0	$0
19	Misc Taxable Sales	$0	$0	$0	$0	$0	$0
20	**Total - Wastewater Project (523)**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
21							
22	**Wastewater Debt Service (526)**						
23	Investment Income	$0	$0	$0	$0	$0	$0
24	**Total - Wastewater Debt Service (526)**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
25							
26	**Wastewater Capital Improvement (529)**						
27	Investment Income	$18,297	$18,480	$18,665	$18,852	$19,040	$19,231
28	**Total - Wastewater Capital Improvement (529)**	**$18,297**	**$18,480**	**$18,665**	**$18,852**	**$19,040**	**$19,231**
29							
30	**Total - Revenues**	**$12,781,523**	**$12,820,848**	**$12,853,639**	**$12,898,120**	**$12,960,385**	**$13,023,022**

5.5. Projected O&M Expenses

Table 5-5 shows the projected wastewater O&M expenses for the study period. City staff provided the actual O&M expenses for FY 2022 and budgeted O&M expenses for FY 2023 and FY 2024, which are escalated for future years of the study based on the expense inflation factors (**Table 2-3**).

Table 5-5: Projected Wastewater O&M Expenses

	A	B	C	D	E	F	G
Line	Projected O&M Expenses	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	**Wastewater Service (521)**						
2	Salaries and Benefits	$4,660,205	$4,846,613	$5,040,478	$5,242,097	$5,451,781	$5,669,852
3	Services - Power	$850,000	$897,270	$947,169	$999,687	$1,055,118	$1,113,621
4	Services	$5,440,159	$5,500,364	$5,665,375	$5,835,336	$6,010,396	$6,190,708
5	Supplies - Treatment	$1,054,400	$1,113,037	$1,174,936	$1,240,083	$1,308,842	$1,381,414
6	Supplies	$1,353,450	$1,394,054	$1,435,875	$1,478,951	$1,523,320	$1,569,019
7	**Total - Wastewater Service (521)**	**$13,358,214**	**$13,751,338**	**$14,263,832**	**$14,796,154**	**$15,349,457**	**$15,924,615**
8							
9	**Wastewater Project (523)**						
10	Services	$250,000	$257,500	$265,225	$273,182	$281,377	$289,819
11	Supplies	$0	$0	$0	$0	$0	$0
12	**Total - Wastewater Project (523)**	**$250,000**	**$257,500**	**$265,225**	**$273,182**	**$281,377**	**$289,819**
13							
14	**Wastewater Debt Service (526)**						
15	Services	$17,590	$18,117	$18,661	$19,221	$19,797	$20,391
16	**Total - Wastewater Debt Service (526)**	**$17,590**	**$18,117**	**$18,661**	**$19,221**	**$19,797**	**$20,391**
17							
18	**Total - O&M Expenses**	**$13,625,804**	**$14,026,955**	**$14,547,718**	**$15,088,557**	**$15,650,631**	**$16,234,825**

5.6. Debt Service

The City currently has one existing debt issue for the wastewater utility. **Table 5-6** shows the annual principal and interest payments for the existing debt. This debt will be paid off in FY 2025.

Table 5-6: Existing Wastewater Debt Service

	A	B	C	D	E	F	G
Line	Existing Debt Service	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	**CA Recycled Water Project**						
2	Principal	$347,449	$356,136	$0	$0	$0	$0
3	Interest	$17,590	$8,903	$0	$0	$0	$0
4	**Total - CA Recycled Water Project**	**$365,039**	**$365,039**	**$0**	**$0**	**$0**	**$0**
5							
6	**Total - Existing Debt Service**	**$365,039**	**$365,039**	**$0**	**$0**	**$0**	**$0**

To fund the wastewater capital program, the City plans on obtaining an SRF loan in FY 2026. The SRF loan is a 30-year term at 2.1% interest. The proposed loan proceeds would be used to fund most of the wastewater treatment plant rehabilitation capital costs. The proposed annual debt service is shown in **Table 5-7**. Because the SRF loan is paid off after completion of the project it is funding, repayment will start in FY 2028.

Table 5-7: Proposed Wastewater Debt Service

	A	B	C	D	E	F	G
Line	Proposed Debt Service	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	Proposed Loan Issuance	$0	$0	$45,000,000	$0	$0	$0
2	Loan Proceeds	$0	$0	$45,000,000	$0	$0	$0
3							
4	**Annual Debt Service**						
5	FY 2024 Bond Issuance	$0	$0	$0	$0	$0	$0
6	FY 2025 Bond Issuance		$0	$0	$0	$0	$0
7	FY 2026 Bond Issuance			$0	$0	$2,036,979	$2,036,979
8	FY 2027 Bond Issuance				$0	$0	$0
9	FY 2028 Bond Issuance					$0	$0
10	FY 2029 Bond Issuance						$0
11							
12	**Total - Proposed Debt Service**	**$0**	**$0**	**$0**	**$0**	**$2,036,979**	**$2,036,979**

5.7. Capital Projects

City staff provided the CIP for the wastewater utility for the study period.

Table 5-8 shows the CIP costs for the study period, escalated by the capital expense inflation factor (**Table 2-3**, Line 7) to determine CIP costs in future years' dollars. The CIP provided consists of projects totaling $66.3 million for the five years FY 2025 through FY 2029. Projects are funded through a combination of wastewater rate revenues, cash reserves, DIF revenues, and debt proceeds.

Table 5-8: Inflated Wastewater Capital Projects

	A	B	C	D	E	F	G
Line	**Capital Projects (Inflated)**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**
1	**Replacement**						
2	Annual Citywide Sewer Pipeline Replacement	$3,090,000	$3,182,700	$3,278,181	$3,376,526	$3,477,822	$3,582,157
3	Citywide Sewer Manhole Adjustment	$0	$318,270	$0	$0	$0	$0
4	WWTP Rehabilitation - MBR System Equipment - Phase 1	$0	$0	$0	$0	$0	$0
5	WWTP Rehabilitation - MBR System Equipment Installation- Phase 1A	$0	$0	$0	$0	$0	$0
6	WWTP Rehabilitation - MBR & Digester Improvements - Phase 1B	$0	$0	$0	$0	$0	$0
7	WWTP Rehabilitation - Phase 2 (Design)	$0	$0	$0	$0	$0	$0
8	WWTP Rehabilitation - Phase 2A, 2B, 2C & 2D (Construction)	$0	$0	$48,565,640	$0	$0	$0
9	Alabama Septage Pond Remediation	$0	$0	$0	$0	$0	$0
10	WWTP Drying bed leachate remediation	$0	$0	$0	$0	$0	$0
11	Brine Cap Rehabilitation	$0	$0	$0	$112,551	$0	$0
12	Storm water-Hillside stabilization and parking lot rehab/expansion	$103,000	$0	$0	$0	$0	$0
13	WW Composite Samplers	$0	$0	$0	$0	$0	$0
14	Laboratory Instruments	$56,650	$63,654	$71,027	$78,786	$86,946	$95,524
15	Centrifuge Conveyor	$0	$0	$0	$0	$0	$0
16	Chemical Tank Lining Project	$0	$0	$0	$0	$0	$0
17	Centrifuge HMI Upgrade Phase 1&2	$0	$0	$0	$0	$0	$0
18	WWTP Sign- Front Entrance	$0	$31,827	$0	$0	$0	$0
19	Chemical Feed Skids (Polymer/Sodium Hypochlorite/Ferric)	$0	$0	$0	$0	$0	$0
20	WW Operations Facility Improvement	$0	$0	$0	$0	$0	$0
21	Climate Controlled Storage Units	$0	$0	$0	$0	$0	$0
22	Chemical Storage Tank (Ferric)	$0	$0	$0	$0	$0	$0
23	Citywide Sewer Manhole REHAB	$515,000	$0	$0	$0	$0	$0
24	**Total - Replacement**	**$3,764,650**	**$3,596,451**	**$51,914,848**	**$3,567,863**	**$3,564,768**	**$3,677,681**

Table 5-9 shows the proposed wastewater capital financing plan based on the CIP (

Table 5-8). The City plans to fully fund its wastewater CIP for all years of the study (Line 1). The debt proceeds (Line 11) are from the proposed Debt issues (**Table 5-7**, Line 2).

Table 5-9: Proposed Wastewater Capital Financing Plan

	A	B	C	D	E	F	G
Line	Capital Financing Plan	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	**CIP to Spend**	100%	100%	100%	100%	100%	100%
2							
3	**Inflated Project Costs**	$3,764,650	$3,596,451	$51,914,848	$3,567,863	$3,564,768	$3,677,681
4							
5	Bond Proceeds	$0	$0	$0	$0	$0	$0
6	Balance	$0	$0	$0	$0	$0	$0
7							
8	**Capital Financing**						
9	Rate Funded	$3,764,650	$3,596,451	$6,914,848	$3,567,863	$3,564,768	$3,677,681
10	Bond Funded	$0	$0	$0	$0	$0	$0
11	Loan Funded	$0	$0	$45,000,000	$0	$0	$0

5.8. Current Financial Plan – Status Quo

Table 5-10 shows the projected wastewater financial plan under the status quo scenario. Revenues (Lines 2-7) are equal to projected revenues (**Table 5-4**). The O&M expenses (Lines 10-18) are equal to projected O&M expenses for the study period (**Table 5-5**). Existing debt service (Line 21) is equal to the principal and interest payments for the City's outstanding wastewater debt (**Table 5-6**). Rate funded CIP (Line 23) is derived from the capital financing plan (**Table 5-9**).

The net cash flow (Line 27) is negative for all years of the Study under the status quo scenario, signifying that the City's current wastewater rate revenues are not sufficient to fund the operating expenses, debt and capital costs associated with the proposed CIP. In addition, the calculated debt coverage (Line 30) is well below the required coverage (Line 31), which will put the City's wastewater utility into technical default. In FY 2026 and FY 2027, there is no calculated debt coverage because the wastewater utility will not have any debt service payments.

Table 5-10: Projected Wastewater Financial Plan (Status Quo)

Line	A Wastewater Financial Plan	B FY 2024	C FY 2025	D FY 2026	E FY 2027	F FY 2028	G FY 2029
1	**Revenues**						
2	Rate Revenues	$12,171,411	$12,237,939	$12,303,163	$12,368,736	$12,434,660	$12,500,937
3	Revenue Adjustments	$0	$0	$0	$0	$0	$0
4	Investment Income	$183,011	$149,690	$98,158	$43,425	$19,040	$19,231
5	Sale of Surplus Property	$0	$0	$0	$0	$0	$0
6	Other Revenues	$2,152,100	$2,152,100	$2,152,100	$2,152,100	$2,152,100	$2,152,100
7	**Total - Revenues**	**$14,506,523**	**$14,539,729**	**$14,553,421**	**$14,564,261**	**$14,605,801**	**$14,672,268**
8							
9	**O&M Expenses**						
10	Salaries and Benefits	$4,660,205	$4,846,613	$5,040,478	$5,242,097	$5,451,781	$5,669,852
11	Services - Power	$850,000	$897,270	$947,169	$999,687	$1,055,118	$1,113,621
12	Services	$5,707,749	$5,775,981	$5,949,261	$6,127,738	$6,311,570	$6,500,918
13	Supplies - Purchased Water	$0	$0	$0	$0	$0	$0
14	Supplies - Treatment	$1,054,400	$1,113,037	$1,174,936	$1,240,083	$1,308,842	$1,381,414
15	Supplies	$1,353,450	$1,394,054	$1,435,875	$1,478,951	$1,523,320	$1,569,019
16	Fixed Assets	$0	$0	$0	$0	$0	$0
17	Debt Service	$0	$0	$0	$0	$0	$0
18	**Total - O&M Expenses**	**$13,625,804**	**$14,026,955**	**$14,547,718**	**$15,088,557**	**$15,650,631**	**$16,234,825**
19							
20	**Debt and Capital**						
21	Existing Debt Service	$365,039	$365,039	$0	$0	$0	$0
22	Proposed Debt Service	$0	$0	$0	$0	$2,036,979	$2,036,979
23	Rate Funded Capital Projects	$3,764,650	$3,596,451	$6,914,848	$3,567,863	$3,564,768	$3,677,681
24	DIF Funded Capital Projects	$0	$0	$0	$0	$0	$0
25	**Total - Debt and Capital**	**$4,129,689**	**$3,961,490**	**$6,914,848**	**$3,567,863**	**$5,601,747**	**$5,714,660**
26							
27	**Net Cash Flow**	**($3,248,970)**	**($3,448,717)**	**($6,909,145)**	**($4,092,158)**	**($6,646,577)**	**($7,277,217)**
28	Net Operating Revenue	$880,719	$512,773	$5,703	($524,295)	($1,044,830)	($1,562,557)
29							
30	**Calculated Debt Coverage**	**2.41**	**1.40**	**#N/A**	**#N/A**	**(0.51)**	**(0.77)**
31	Required Debt Coverage	1.25	1.25	1.25	1.25	1.25	1.25
32							
33	Beginning Balances	$20,017,133	$16,768,163	$13,319,447	$6,410,302	$2,318,143	($4,328,434)
34	Ending Balances	$16,768,163	$13,319,447	$6,410,302	$2,318,143	($4,328,434)	($11,605,650)

Figure 5-1 shows the proposed wastewater capital financing plan in graphical format, based on the capital projects shown in

Table 5-8. The dark teal bars represent the portion of CIP funded by rates.

Figure 5-1: Proposed Wastewater Capital Financing Plan

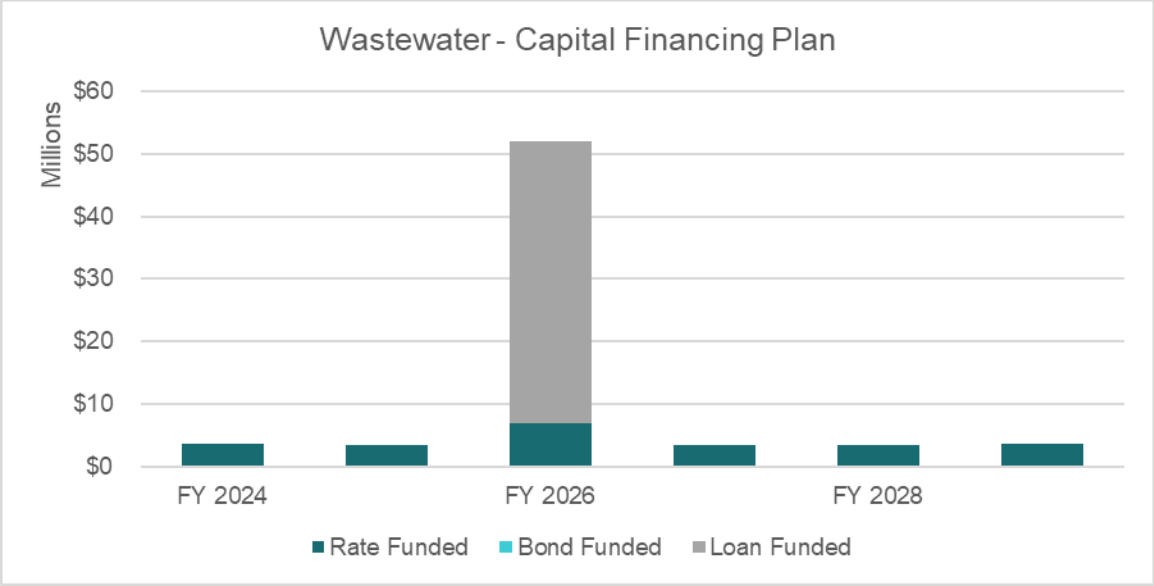


Figure 5-2 shows the projected wastewater financial plan without revenue adjustments in graphical format. The turquoise line, representing current wastewater revenues, is well below the stacked bars representing the O&M (light grey), treatment and power (teal), debt service (yellow), and capital (dark grey) expenses. The green bars, which are below the stacked bars, show that the City will be drawing down its wastewater cash balances significantly without revenue adjustments.

Figure 5-2: Projected Wastewater Financial Plan (Status Quo)

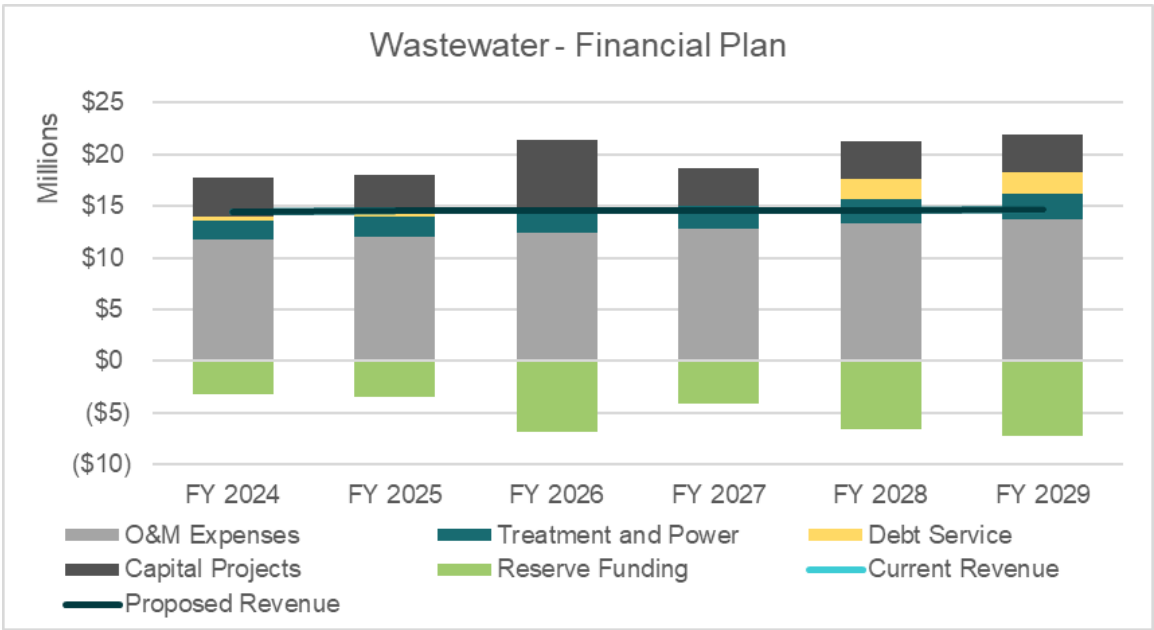
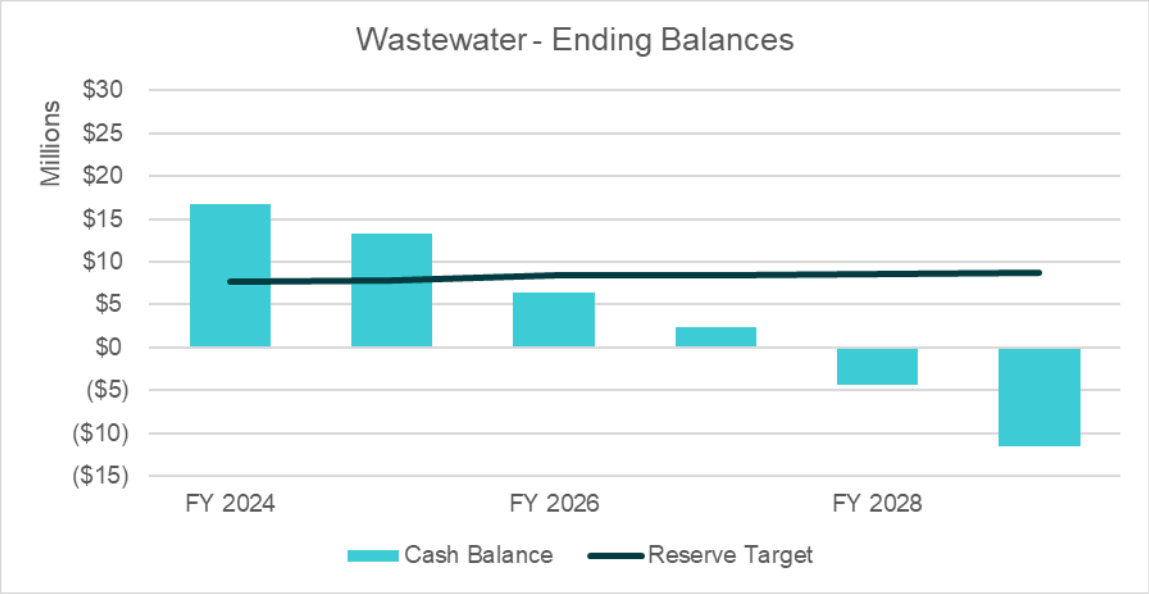


Figure 5-3 shows the projected wastewater fund cash balance without revenue adjustments in graphical format. In FY 2028, the wastewater unrestricted cash balance (shown as turquoise bars) will be negative and become further depleted at the end of the study period. The grey bars represent the restricted reserves including operating, capital, equipment replacement and treatment plant reserves.

Figure 5-3: Projected Wastewater Fund Balances (Status Quo)



5.9. Proposed Financial Plan

Table 5-11 shows the proposed revenue adjustments necessary to maintain the financial sufficiency of the City's wastewater utility. The revenue adjustments will be effective starting July 2024 and in July every year thereafter.

Table 5-11: Proposed Wastewater Revenue Adjustments

Line	A Fiscal Year	B Revenue Adjustment	C Month Effective
1	FY 2025	10.0%	July
2	FY 2026	10.0%	July
3	FY 2027	10.0%	July
4	FY 2028	10.0%	July
5	FY 2029	8.0%	July

Table 5-12 shows the projected wastewater financial plan with the proposed revenue adjustments (**Table 5-11**). The net cash flow (Line 27) is negative in some years of the study period but will reduce the wastewater cash balances significantly less than under the status quo scenario. With the proposed revenue adjustments and debt issuance, the wastewater utility will meet its debt coverage ratio requirements (Line 30) and have positive ending balances (Line 34).

Table 5-12: Projected Wastewater Financial Plan (Proposed Revenue Adjustments)

Line	A Wastewater Financial Plan	B FY 2024	C FY 2025	D FY 2026	E FY 2027	F FY 2028	G FY 2029
1	**Revenues**						
2	Rate Revenues	$12,171,411	$12,237,939	$12,303,163	$12,368,736	$12,434,660	$12,500,937
3	Revenue Adjustments	$0	$1,223,794	$2,583,664	$4,094,052	$5,770,926	$7,265,895
4	Investment Income	$183,011	$155,809	$123,375	$102,283	$98,625	$94,985
5	Sale of Surplus Property	$0	$0	$0	$0	$0	$0
6	Other Revenues	$2,152,100	$2,152,100	$2,152,100	$2,152,100	$2,152,100	$2,152,100
7	**Total - Revenues**	**$14,506,523**	**$15,769,642**	**$17,162,303**	**$18,717,171**	**$20,456,311**	**$22,013,917**
8							
9	**O&M Expenses**						
10	Salaries and Benefits	$4,660,205	$4,846,613	$5,040,478	$5,242,097	$5,451,781	$5,669,852
11	Services - Power	$850,000	$897,270	$947,169	$999,687	$1,055,118	$1,113,621
12	Services	$5,707,749	$5,775,981	$5,949,261	$6,127,738	$6,311,570	$6,500,918
13	Supplies - Purchased Water	$0	$0	$0	$0	$0	$0
14	Supplies - Treatment	$1,054,400	$1,113,037	$1,174,936	$1,240,083	$1,308,842	$1,381,414
15	Supplies	$1,353,450	$1,394,054	$1,435,875	$1,478,951	$1,523,320	$1,569,019
16	Fixed Assets	$0	$0	$0	$0	$0	$0
17	Debt Service	$0	$0	$0	$0	$0	$0
18	**Total - O&M Expenses**	**$13,625,804**	**$14,026,955**	**$14,547,718**	**$15,088,557**	**$15,650,631**	**$16,234,825**
19							
20	**Debt and Capital**						
21	Existing Debt Service	$365,039	$365,039	$0	$0	$0	$0
22	Proposed Debt Service	$0	$0	$0	$0	$2,036,979	$2,036,979
23	Rate Funded Capital Projects	$3,764,650	$3,596,451	$6,914,848	$3,567,863	$3,564,768	$3,677,681
24	DIF Funded Capital Projects	$0	$0	$0	$0	$0	$0
25	**Total - Debt and Capital**	**$4,129,689**	**$3,961,490**	**$6,914,848**	**$3,567,863**	**$5,601,747**	**$5,714,660**
26							
27	**Net Cash Flow**	**($3,248,970)**	**($2,218,804)**	**($4,300,263)**	**$60,752**	**($796,066)**	**$64,432**
28	Net Operating Revenue	$880,719	$1,742,686	$2,614,585	$3,628,615	$4,805,680	$5,779,092
29							
30	**Calculated Debt Coverage**	**2.41**	**4.77**	**#N/A**	**#N/A**	**2.36**	**2.84**
31	Required Debt Coverage	1.25	1.25	1.25	1.25	1.25	1.25
32							
33	Beginning Balances	$20,017,133	$16,768,163	$14,549,359	$10,249,096	$10,309,848	$9,513,781

34	Ending Balances	$16,768,163	$14,549,359	$10,249,096	$10,309,848	$9,513,781	$9,578,214

Figure 5-4 shows the proposed wastewater capital financing plan in graphical format, based on the capital financial plan shown in **Table 5-9**. The dark teal bars represent the portion of replacement CIP funded by rates and the turquoise bars represent the portion of replacement CIP funded by bond proceeds. Most of the capital projects in FY 2026 are funded from SRF Loan proceeds.

Figure 5-4: Proposed Wastewater Capital Financing Plan

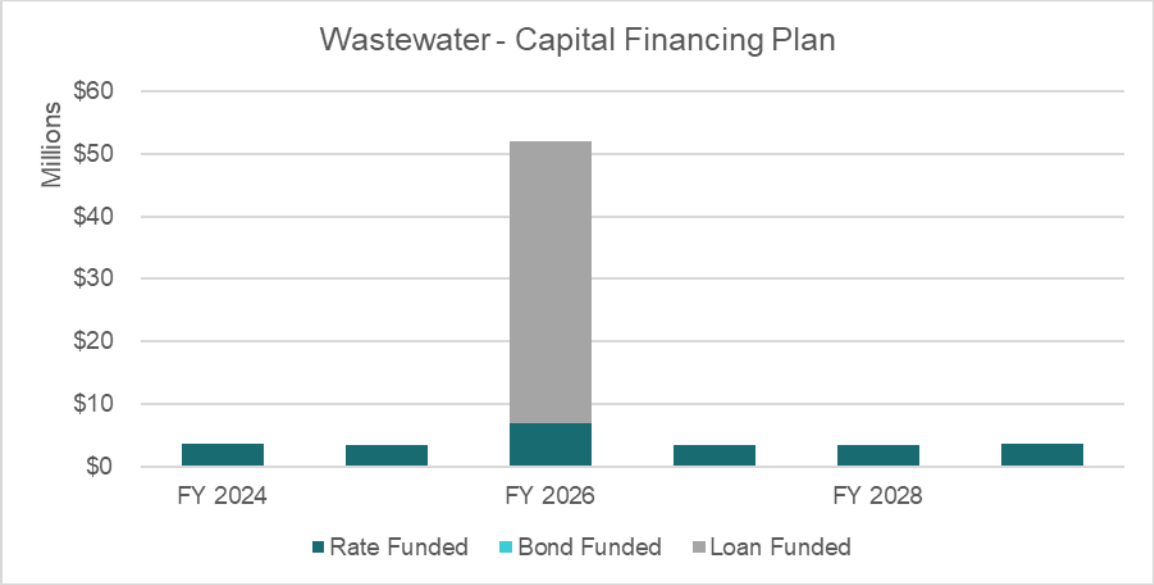


Figure 5-5 shows the projected wastewater financial plan with the proposed revenue adjustments. Although the net cash flow is still negative in some years of the study, shown by the green bars under the stacked grey, yellow, and teal bars, the additional revenue will allow the wastewater utility to meet its debt coverage requirements and fund its operating and capital costs for the Study period.

Figure 5-5: Projected Wastewater Financial Plan (Proposed Revenue Adjustments)

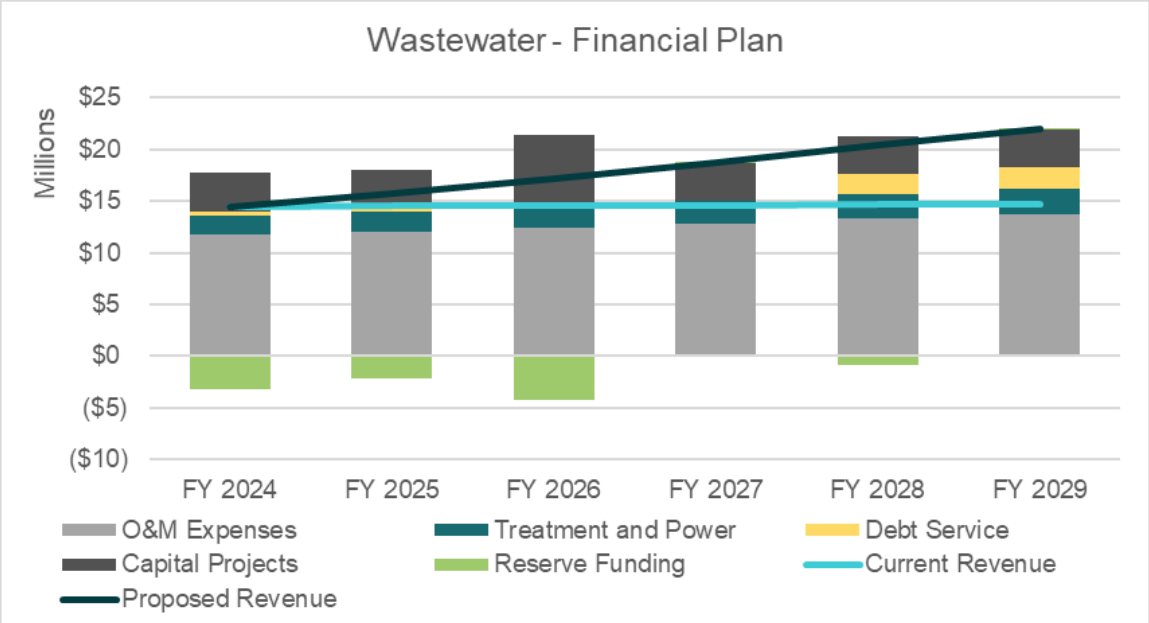


Figure 5-6 shows the projected wastewater fund balances with the proposed revenue adjustments. The cash balances are positive for all years of the Study. These balances are drawn down to fund the City's capital projects in FY 2025, FY 2026, and FY 2028.

Figure 5-6: Projected Wastewater Fund Balances (Proposed Revenue Adjustments)

6. Wastewater – Cost of Service Analysis and Rates

This section of the report details the cost-of-service analysis and rate calculation process to determine the proposed wastewater rates. The goal of this process is to determine the cost of providing wastewater service to each of the City's wastewater customer classes and to ensure equity and fairness among the various classes.

6.1. Process and Approach

The cost-of-service analysis utilized to develop the wastewater rates followed the guidelines for allocating costs outlined in the WEF Manual No. 27. The cost-of-service analysis and rate design process consists of eight major steps, as outlined below:

1. Determine the revenue requirement, equal to the revenue to be recovered from rates.
2. Conduct a treatment plant mass balance analysis to estimate the flows and strength characteristics of each customer class.
3. Functionalize O&M expenses and capital assets into functional categories such as treatment, laboratory, collection, engineering, etc.
4. Allocate each functional category into cost components such as wastewater flow and strength, which includes BOD and TSS.
5. Develop customer class characteristics and units of service by cost component.
6. Calculate the cost component unit rates by dividing the total cost in each cost component by the total units of service for that component. For example, wastewater flow is measured in ccf and BOD and TSS are measured in lbs per year.
7. Calculate the cost for each customer class by multiplying the unit cost by the units of service for each customer class.
8. Design rates to meet City's objectives.

6.2. Revenue Requirement

The first step of the cost-of-service analysis is to determine the revenue requirement for the test year, or rate-making year. The test year of this study is FY 2025. **Table 6-1** shows the revenue requirement calculation for the wastewater utility.

The revenue requirements (Lines 2-4) are equal to the O&M expenses and debt and capital costs for FY 2025 (**Table 5-12**, Column C, Lines 18 and 25). The revenues from other sources (Lines 7-11), also known as non-rate revenues or revenue offsets, are equal to all non-rate revenues (**Table 5-12**, Column C, Lines 4-6). The adjustment for cash from/(to) reserves (Line 15) is equal to the negative value of net cash flow (**Table 5-12**, Column C, Line 27).

The revenue to be recovered from rates (Line 19) is divided between operating (Column B) and capital (Column C) based on the function of each line item. For example, debt and capital costs (Line 3) are allocated to capital, while O&M expenses (Line 2) are allocated to operating. Note that the total revenue requirement (Column D, Line 19) is equal to rate revenues for a full year of the revenue adjustment for FY 2025.

Table 6-1: Wastewater Revenue Requirement Calculation

	A	B	C	D
Line	Revenue Requirement (FY 2025)	Operating	Capital	Total
1	**Revenue Requirements**			
2	O&M Expenses	$14,008,838	$0	$14,008,838
3	Debt and Capital	$0	$3,979,607	$3,979,607
4	**Total - Revenue Requirements**	**$14,008,838**	**$3,979,607**	**$17,988,445**
5				
6	**Revenue from Other Sources**			
7	Investment Income	$0	$137,328	$137,328
8	Sale of Surplus Property	$0	$0	$0
9	Other Revenues	$0	$0	$0
10	Wastewater Service (521)	$427,100	$0	$427,100
11	Wastewater Project (523)	$0	$0	$0
12	**Total - Revenue from Other Sources**	**$427,100**	**$137,328**	**$564,428**
13				
14	**Adjustments**			
15	Cash from Reserves	$0	$3,962,284	$3,962,284
16	Midyear Increase	$0	$0	$0
17	**Subtotal - Adjustments**	**$0**	**$3,962,284**	**$3,962,284**
18				
19	**Revenue to be Recovered from Rates**	**$13,581,738**	**($120,005)**	**$13,461,733**

6.3. Plant Mass Balance

The second step of the cost-of-service analysis is to conduct a plant mass balance analysis. The plant mass balance analysis is used to estimate and validate the wastewater loadings (flow and strength) generated by each customer class. While wastewater discharged into sewers for most users is not metered when it enters the wastewater system, the total amount of flow and strength entering the treatment plant is a known quantity. The quantity entering into the wastewater system is called total plant influent.

From the total plant influent, a portion is subtracted for inflows and infiltration (I&I). Non-residential customer flows can be estimated based on their water usage and using industry-accepted return factors. From there, residential customer loadings can be calculated by subtracting I&I and estimated non-residential loadings from total plant influent to determine the reasonableness of residential loadings.

Table 6-2 shows the wastewater flow estimates for elementary and secondary schools. The estimated wastewater flow per student (Line 1) in gallons per capita per day (gpcd) is based on industry standards, with some conservation factored in for secondary schools. This is multiplied by the projected number of students for FY 2025 (**Table 5-1**, Column D, Lines 19-20). The annual flow in gallons (Line 3) is converted to ccf (Line 4) to determine the total wastewater flow in ccf for elementary and secondary schools.

Table 6-2: Schools Wastewater Flow Estimate

	A	B	C
Line	Schools	Elementary	Secondary
1	Per Student Flow (gcpd)	5	8
2	Students	4,848	8,189
3	Annual Flow (gal)	7,962,732	22,418,316
4	Annual Flow (ccf)	10,645	29,971

Table 6-3 shows the plant balance analysis for all customer classes. There is no change to the customer classes which are grouped by the strength of their wastewater flow. The left-most columns (Columns B to D) represent the same values as the right-most columns (Columns F to H) in converted values. Flow is measured in million gallons per day (MGD) and converted to ccf per year. BOD and TSS are measured in milligrams per liter (mg/L) and converted to lbs per year.

City staff provided total plant influent (Line 1) and estimated approximately 7 percent of total influent to be from I&I (Line 2). Customers are grouped based on their strength and estimated strength - BOD and TSS in mg/L (Columns C and D, Lines 2-17) - are based on industry standards. The non-residential return factors (Column E) are estimated for the City's characteristics. The wastewater flows for non-residential customers (Column F, Lines 6-14) are calculated by multiplying the non-residential water usage (**Table 5-1**, Column C, Lines 7-15) by the return factors. The estimated wastewater flows for schools (Column D, Lines 16-17) were calculated in

Table 6-2. Septage loadings (Line 20) represent a small portion of total plant loadings; flow is derived from data provided by City staff, and strength is based on industry standards.

The net residential loadings (Line 22) are determined by subtracting non-residential loadings (Lines 5-17), septage (Line 20), and I&I (Line 2) from total plant influent (Line 1).

Table 6-3: Wastewater Plan Balance Calculation

	A	B	C	D	E	F	G	H
Line	**Plant Balance**	**Flow (MGD)**	**BOD (mg/L)**	**TSS (mg/L)**	**Return Factor**	**Flow (ccf)**	**BOD (lbs/yr)**	**TSS (lbs/yr)**
1	Total Plant Influent	5.85	329	248		2,852,760	5,863,450	4,423,940
2	Less: I&I	0.41	100	100		199,693	124,656	124,656
3	**Net Plant Influent**	**5.44**	**346**	**260**		**2,653,067**	**5,738,795**	**4,299,284**
4								
5	**Non-Residential**							
6	Low Strength I	0.08	50	50	84%	37,036	11,560	11,560
7	Low Strength II	0.71	150	150	84%	347,150	325,055	325,055
8	Low Strength III	0.15	250	250	84%	75,450	117,747	117,747
9	Medium Strength I	0.05	350	350	84%	22,006	48,079	48,079
10	Medium Strength II	0.07	450	450	84%	31,996	89,878	89,878
11	Medium Strength III	0.03	550	550	84%	16,539	56,784	56,784
12	High Strength I	0.02	650	650	84%	8,629	35,013	35,013
13	High Strength II	0.23	750	750	84%	114,672	536,867	536,867
14	Large Volume User	0.06	250	250	84%	27,970	43,650	43,650
15								
16	Elementary School	0.02	130	130	100%	10,645	8,639	8,639
17	Secondary & High School	0.06	130	130	100%	29,971	24,322	24,322
18	**Subtotal Non-Residential Flow**	**1.48**	**288**	**288**		**722,064**	**1,297,592**	**1,297,592**
19								
20	Septage	0.001	5,400	12,000		583	19,665	43,700
21								
22	**Net Residential Flow**	**3.96**	**367**	**245**		**1,930,419**	**4,421,538**	**2,957,993**

The plant mass balance analysis in

Table 6-3 results in total estimated residential loadings. **Table 6-4** shows the number of total single family and multiple family dwelling units. To allocate the total flow and strength between single and multiple family customers, the dwelling units (**Table 5-1**, Column D, Lines 2-3) are multiplied by the dwelling unit (DU) ratio (Column C) to determine the adjusted units (Column D). The dwelling unit ratio represents the amount of wastewater flow compared to the average flow from a single family customer. The ratio for multiple family dwelling units is lower than that of single family because multiple family units tend to have a smaller household size based on housing density data. The proportion of adjusted units (Column E), or equivalent dwelling units (EDU), is used to allocate the estimated residential loadings between single and multiple family.

Table 6-4: Residential Proportion of Wastewater Flow

	A	B	C	D	E
Line	Residential Customer Classes	Dwelling Units	DU Ratio	Adjusted Units	Proportion of Total Units
1	Single Family	16,752	1.00	16,752	67.7%
2	Multiple Family	10,072	0.79	7,991	32.3%
3	**Total - Residential**	**26,824**		**24,744**	**100.0%**

Table 6-5 shows the estimated residential wastewater loadings, allocated using the EDU ratios (**Table 6-4**, Column E). The total residential flow (Line 3) is equal to that calculated in the plant mass balance analysis (

Table 6-3, Columns F to H, Line 22). To validate the results of the plant mass balance analysis, the total estimated residential flow is divided by the total population estimate, equal to 70,130 people, to determine that each resident in the City uses 56 gpcd. The residential wastewater strength shown in **Table 6-3**, Line 22, is also reasonable given the reduced wastewater flow. This is a reasonable estimate based on industry standard wastewater flow and strength estimates.

Table 6-5: Estimated Residential Wastewater Loadings

	A	B	C	D
Line	Residential Customer Classes	Flow (ccf)	BOD (lbs/yr)	TSS (lbs/yr)
1	Single Family	1,306,953	2,993,516	2,002,651
2	Multiple Family	623,467	1,428,022	955,342
3	**Total - Residential**	**1,930,419**	**4,421,538**	**2,957,993**

The estimated flow from a single family dwelling unit is 160 gpd. The wastewater strength is higher because of lower wastewater flow due to conservation. This is now common for residential flow and strength. The estimated flow is calculated as follows:

1,306,953 ccf per year / 16,752 units x 748 ccf per gallon / 365 days per year = 160 gpd

6.4. Operating and Capital Cost Allocation

The next step in the cost-of-service analysis is to determine the operating and capital cost allocations by cost component. The cost components in this Study include flow, BOD, TSS, and general.

Table 6-6 shows the wastewater operating cost allocation. The flow cost component represents costs associated with wastewater flow, such as collection. The BOD and TSS cost components represent costs associated with wastewater strength, such as treatment and laboratory analyses. General costs, such as administration or engineering costs, do not have a specific function.

For the purpose of allocating operating costs, City staff provided the O&M expense budget estimates by function (Column F, Lines 13-21). This is representative of the distribution of operating costs shown in **Table 5-5**. Functions include administration, engineering, treatment and operations, treatment plant maintenance, quality control, industrial waste monitoring, collection, and laboratory. The operating costs are allocated to each cost component based on the percentage allocation (Lines 2-10) for each component. The final O&M expense allocation (Line 23) is determined by taking the weighted proportion of total operating costs by cost component based on the percentage allocations.

Table 6-6: Wastewater Operating Cost Allocation

	A	B	C	D	E	F
Line	O&M Expense Allocation	Flow	BOD	TSS	General	Total
1	**Percentage Allocation**					
2	Wastewater Admin & General				100%	100%
3	Wastewater Engineering				100%	100%
4	Wastewater Treatment and Operations	50%	25%	25%		100%
5	Wastewater Treatment Plant Maintenance	50%	25%	25%		100%
6	Wastewater Quality Control		50%	50%		100%
7	Wastewater Industrial Waste Monitoring	100%				100%
8	Wastewater Collection System - General	100%				100%
9	WW Joint Laboratory - Water		50%	50%		100%
10	WW Joint Laboratory - Solid Waste		50%	50%		100%
11						
12	**Dollar Allocation**					
13	Wastewater Admin & General	$0	$0	$0	$3,365,775	$3,365,775
14	Wastewater Engineering	$0	$0	$0	$734,148	$734,148
15	Wastewater Treatment and Operations	$2,372,907	$1,186,454	$1,186,454	$0	$4,745,814
16	Wastewater Treatment Plant Maintenance	$604,593	$302,297	$302,297	$0	$1,209,186
17	Wastewater Quality Control	$0	$361,003	$361,003	$0	$722,006
18	Wastewater Industrial Waste Monitoring	$930,789	$0	$0	$0	$930,789
19	Wastewater Collection System - General	$1,990,298	$0	$0	$0	$1,990,298
20	WW Joint Laboratory - Water	$0	$160,103	$160,103	$0	$320,206
21	WW Joint Laboratory - Solid Waste	$0	$4,366	$4,366	$0	$8,732
22	**Total - O&M Expenses**	**$5,898,587**	**$2,014,222**	**$2,014,222**	**$4,099,924**	**$14,026,955**
23	*O&M Expense Allocation*	*42.1%*	*14.4%*	*14.4%*	*29.2%*	*100.0%*

Table 6-7 shows the wastewater capital cost allocation. To minimize fluctuations in the capital cost allocation as capital projects change from year to year, capital costs are allocated on the basis of capital assets. For the purpose of allocating capital costs, City staff provided the wastewater capital assets listed by function (Column F, Lines 10-15). This is representative of the distribution of capital costs shown in

Table 5-8. Functions include land, wastewater facilities, construction in progress, machinery and equipment, collection system, and vehicles. The capital asset costs are allocated into each cost component based on the percentage allocation (Lines 2-7) for each component. The final capital expense allocation (Line 17) is determined by taking the weighted proportion of total capital asset costs by cost component.

Table 6-7: Wastewater Capital Allocation

	A	B	C	D	E	F
Line	Capital Expense Allocation	Flow	BOD	TSS	General	Total
1	**Percentage Allocation**					
2	Land (For WWTP and Perc Ponds)	50%	25%	25%		100%
3	Wastewater Facilities/Plant	50%	25%	25%		100%
4	Construction in Progress				100%	100%
5	Machinery and Equipment	50%	25%	25%		100%
6	Collection System	100%				100%
7	Vehicles	100%				100%
8						
9	**Dollar Allocation**					
10	Land (For WWTP and Perc Ponds)	$2,219,416	$1,109,708	$1,109,708	$0	$4,438,832
11	Wastewater Facilities/Plant	$5,307,140	$2,653,570	$2,653,570	$0	$10,614,280
12	Construction in Progress	$0	$0	$0	$0	$0
13	Machinery and Equipment	$82,840	$41,420	$41,420	$0	$165,680
14	Collection System	$18,220,858	$0	$0	$0	$18,220,858
15	Vehicles	$186,819	$0	$0	$0	$186,819
16	**Total - Capital Assets**	**$26,017,073**	**$3,804,698**	**$3,804,698**	**$0**	**$33,626,469**
17	*Capital Expense Allocation*	*77%*	*11%*	*11%*	*0%*	*100%*

6.5. Unit Cost Components

Table 6-8 shows the wastewater service units by cost component, which are from the plant mass balance analysis (

Table 6-3).

Table 6-8: Wastewater Service Units by Cost Components

	A	B	C	D
Line	Customer Class	Flow (ccf)	BOD (lbs/yr)	TSS (lbs/yr)
1	**Residential**			
2	Single Family Residence	1,306,953	2,993,516	2,002,651
3	Multi-Family Residence	623,467	1,428,022	955,342
4	**Total - Residential**	**1,930,419**	**4,421,538**	**2,957,993**
5				
6	**Non-Residential**			
7	Low Strength I	37,036	11,560	11,560
8	Low Strength II	347,150	325,055	325,055
9	Low Strength III	75,450	117,747	117,747
10	Medium Strength I	22,006	48,079	48,079
11	Medium Strength II	31,996	89,878	89,878
12	Medium Strength III	16,539	56,784	56,784
13	High Strength I	8,629	35,013	35,013
14	High Strength II	114,672	536,867	536,867
15	Large Volume User	27,970	43,650	43,650
16	**Total - Non-Residential**	**681,448**	**1,264,632**	**1,264,632**
17				
18	**Schools**			
19	Elementary School	10,645	8,639	8,639
20	Secondary & High School	29,971	24,322	24,322
21	**Total - Schools**	**40,616**	**32,960**	**32,960**
22				
23	**Septage**	**583**	**19,665**	**43,700**
24				
25	**Total**	**2,653,067**	**5,738,795**	**4,299,284**

Table 6-9 shows the calculation of unit costs by cost component. The operating revenue requirement (**Table 6-1**, Column B, Line 19) is allocated based on the O&M expense allocation (**Table 6-6**, Line 23) for each cost component. Similarly, the capital revenue requirement (**Table 6-1**, Column C, Line 19) is allocated based on the capital asset allocation (**Table 6-7**, Line 17). Then, the general costs (Column E, Line 3) are reallocated to the flow, BOD, and TSS cost components proportionately to the remaining cost of service. The adjusted cost of service for each cost component (Line 5) is divided by the units of service (Line 7) derived from **Table 6-8**, resulting in the unit cost component.

Table 6-9: Wastewater Cost of Service and Unit Costs

	A	B	C	D	E	F
Line	**Cost of Service Allocation**	**Flow**	**BOD**	**TSS**	**General**	**Total**
1	Operating Cost	$5,711,365	$1,950,291	$1,950,291	$3,969,792	$13,581,738
2	Capital Cost	($92,849)	($13,578)	($13,578)	$0	($120,005)
3	**Total Cost of Service**	**$5,618,516**	**$1,936,713**	**$1,936,713**	**$3,969,792**	**$13,461,733**
4	Allocation of General Costs	$2,349,818	$809,987	$809,987	($3,969,792)	$0
5	**Adjusted Cost of Service**	**$7,968,335**	**$2,746,699**	**$2,746,699**	**$0**	**$13,461,733**
6						
7	Units of Service	2,653,067	5,738,795	4,299,284		
8		ccf	lbs/yr	lbs/yr		
9						
10	Unit Cost	$3.00	$0.48	$0.64		
11		ccf	lbs/yr	lbs/yr		

6.6. Revenue Requirement Allocation

The final step in the cost-of-service analysis is to allocate the revenue requirement to each customer class based on their share of burden in the wastewater system. **Table 6-10** shows the revenue requirement allocated to each customer class based on the cost components, which is calculated by multiplying the unit costs of each cost component (**Table 6-9**, Line10) by the units of service for each customer class (**Table 6-8**). Note that the total cost of service (Column E, Line 25) is equal to the total revenue required from rates (**Table 6-1**, Column D, Line 19). The calculations in the table may not be equal to the precise number shown due to rounding within the tables.

Table 6-10: Allocation of Wastewater Revenue Requirement to Customer Classes

	A	B	C	D	E
Line	Customer Class	Flow	BOD	TSS	Total
1	**Residential**				
2	Single Family Residence	$3,925,357	$1,432,755	$1,279,441	$6,637,553
3	Multi-Family Residence	$1,872,546	$683,479	$610,342	$3,166,368
4	**Total - Residential**	**$5,797,903**	**$2,116,234**	**$1,889,783**	**$9,803,921**
5					
6	**Non-Residential**				
7	Low Strength I	$111,237	$5,533	$7,385	$124,155
8	Low Strength II	$1,042,644	$155,578	$207,669	$1,405,891
9	Low Strength III	$226,610	$56,356	$75,225	$358,191
10	Medium Strength I	$66,094	$23,012	$30,717	$119,823
11	Medium Strength II	$96,097	$43,017	$57,421	$196,535
12	Medium Strength III	$49,674	$27,178	$36,278	$113,130
13	High Strength I	$25,917	$16,758	$22,369	$65,043
14	High Strength II	$344,410	$256,955	$342,990	$944,355
15	Large Volume User	$84,007	$20,892	$27,887	$132,785
16	**Total - Non-Residential**	**$2,046,690**	**$605,277**	**$807,940**	**$3,459,907**
17					
18	**Schools**				
19	Elementary School	$31,973	$4,135	$5,519	$41,627
20	Secondary & High School	$90,016	$11,641	$15,538	$117,196
21	**Total - Schools**	**$121,989**	**$15,776**	**$21,058**	**$158,822**
22					
23	**Septage**	**$1,752**	**$9,412**	**$27,918**	**$39,083**
24					
25	**Total**	**$7,968,335**	**$2,746,699**	**$2,746,699**	**$13,461,733**

6.7. Rate Calculation

Table 6-11 shows the rate calculation for the City's proposed wastewater rates for the FY 2025 test year.

Bi-monthly residential service charge = Residential cost of service / dwelling units / 6 billing periods

Non-residential wastewater usage rate = Non-residential cost of service / ccf of water usage

Bi-monthly schools service charge = Schools cost of service / students x 100 students / 6 billing periods

The City's wastewater utility incurs additional costs (Line 22) to serve septage customers above and beyond the allocated cost of service. These additional costs are equal to the total burdened labor cost for administrative work related to collecting septage. Note that the revenues from septage charges were estimated in the projected wastewater revenues (**Table 5-4**, Line 5). The additional costs are calculated as follows:

$30 per hour x 0.25 hours x 2 for overhead costs / 2,000 gallons per load x 363,636 gallons of septage per year

Table 6-11: Wastewater Bi-Monthly Rate Calculation

	A	B	C	D
Line	Customer Class	Cost of Service	FY 2025 Units	Proposed Bi-Monthly Rate
1	**Residential**		*dwelling units*	*per dwelling unit*
2	Single Family Residence	$6,637,553	16,752	$66.04
3	Multi-Family Residence	$3,166,368	10,072	$52.40
4				
5	**Non-Residential**		*ccf of water*	*per ccf*
6	Low Strength I	$124,155	44,091	$2.82
7	Low Strength II	$1,405,891	413,274	$3.41
8	Low Strength III	$358,191	89,821	$3.99
9	Medium Strength I	$119,823	26,198	$4.58
10	Medium Strength II	$196,535	38,090	$5.16
11	Medium Strength III	$113,130	19,689	$5.75
12	High Strength I	$65,043	10,273	$6.34
13	High Strength II	$944,355	136,514	$6.92
14	Large Volume User	$132,785	33,298	$3.99
15				
16	**Schools**		*students*	*per 100 students*
17	Elementary School	$41,627	4,848	$143.11
18	Secondary & High School	$117,196	8,189	$238.52
19				
20	**Septage**		*gallons*	*per gallon*
21	Cost of Service	$39,083	436,364	$0.09
22	Additional Costs	$3,273	436,364	$0.01
23	Total Septage	$42,355	436,364	$0.10

Table 6-12 shows the bi-monthly rate comparison between the proposed rates calculated in **Table 6-11** and the City's current wastewater rates.

Table 6-12: Wastewater Bi-Monthly Rate Comparison

	A	B	C	D
Line	Customer Class	Proposed Bi-Monthly Rate	Current Bi-Monthly Rate	Difference ($)
1	**Residential**	*per dwelling unit*		
2	Single Family Residence	$66.04	$62.43	$3.61
3	Multi-Family Residence	$52.40	$48.08	$4.32
4				
5	**Non-Residential**	*per ccf*		
6	Low Strength I	$2.82	$2.42	$0.40
7	Low Strength II	$3.41	$2.87	$0.54
8	Low Strength III	$3.99	$3.32	$0.67
9	Medium Strength I	$4.58	$3.77	$0.81
10	Medium Strength II	$5.16	$4.22	$0.94
11	Medium Strength III	$5.75	$4.67	$1.08
12	High Strength I	$6.34	$5.12	$1.22
13	High Strength II	$6.92	$5.56	$1.36
14	Large Volume User	$3.99	$3.32	$0.67
15				
16	**Schools**	*per 100 students*		
17	Elementary School	$143.11	$134.38	$8.73
18	Secondary & High School	$238.52	$215.02	$23.50
19				
20	**Septage**	*per gallon*		
21	Septage Charge *	$0.10	$0.11	($0.01)

* minimum septage charge is $15

6.8. Proposed Rates

Table 6-13 and **Table 6-14** show the proposed bi-monthly wastewater service charges and the non-residential wastewater rates, respectively. The proposed wastewater rates for July 2024 are from **Table 6-11**. The proposed wastewater rates in the following years are increased across the board by the revenue adjustments in **Table 5-11**.

Table 6-13: Proposed Bi-Monthly Wastewater Service Charges

	A	B	C	D	E	F	G
Line	Bi-Monthly Wastewater Service Charges	Current Rates	July 2024	July 2025	July 2026	July 2027	July 2028
1	Residential ($/dwelling unit)						
2	Single Family	$62.43	$66.04	$72.65	$79.92	$87.92	$94.96
3	Multiple Family	$48.08	$52.40	$57.64	$63.41	$69.76	$75.35
4							
5	Schools ($/100 students)						
6	Elementary	$134.38	$143.11	$157.43	$173.18	$190.50	$205.74
7	Secondary & High	$215.02	$238.52	$262.38	$288.62	$317.49	$342.89

Table 6-14: Proposed Non-Residential Wastewater Rates

	A	B	C	D	E	F	G
Line	Wastewater Usage Rates	Current Rates	July 2024	July 2025	July 2026	July 2027	July 2028
1	Non-Residential Usage ($/ccf)						
2	Low Strength I	$2.42	$2.82	$3.11	$3.43	$3.78	$4.09
3	Low Strength II	$2.87	$3.41	$3.76	$4.14	$4.56	$4.93
4	Low Strength III	$3.32	$3.99	$4.39	$4.83	$5.32	$5.75
5	Medium Strength I	$3.77	$4.58	$5.04	$5.55	$6.11	$6.60
6	Medium Strength II	$4.22	$5.16	$5.68	$6.25	$6.88	$7.44
7	Medium Strength III	$4.67	$5.75	$6.33	$6.97	$7.67	$8.29
8	High Strength I	$5.12	$6.34	$6.98	$7.68	$8.45	$9.13
9	High Strength II	$5.56	$6.92	$7.62	$8.39	$9.23	$9.97
10	Large Volume User	$3.32	$3.99	$4.39	$4.83	$5.32	$5.75
11	Minimum Charge ($)	$48.08	$52.40	$57.64	$63.41	$69.76	$75.35
12							
13	Septage Charge ($/gal)	$0.11	$0.10	$0.11	$0.13	$0.15	$0.17
14	Minimum Septage Charge		$15.00	$16.50	$18.15	$19.97	$21.57

7. Non-Potable Water – Financial Plan

This section of the report details the non-potable enterprise's long-term financial plan, based on the projected revenues, expenses, debt service, and capital project costs. Raftelis modeled the financial plan without revenue adjustments (status quo) and with proposed revenue adjustments to ensure the financial sustainability and solvency of the non-potable water utility.

7.1. Projected Revenues

City staff provided the actual FY 2022 revenues and budgeted FY 2023 and FY 2024 revenues for the non-potable water utility, which were used to project revenues for the remainder of the Study period. **Table 7-1** shows the projected water revenues for each of the non-potable water funds.

The non-potable water rate revenues (Lines 2-3) are inflated for future years based on the weighted customer account growth assumptions for each customer class (**Table 2-1**). The City expects modest increases in non-potable water rate revenues for all years of the Study. The investment incomes (Lines 4 and 9) are calculated using the reserve interest rate (**Table 2-2**, Line 2). The remaining revenues are inflated using the non-rate revenue inflation factor (**Table 2-2**, Line 1).

Table 7-1: Projected Non-Potable Water Revenues

	A	B	C	D	E	F	G
Line	Projected Revenues	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	**Non-Potable Water Service (531)**						
2	Non-Potable Water Usage	$360,000	$608,911	$612,105	$615,315	$618,542	$621,785
3	Non-Potable Water Service Chrg	$230,000	$47,990	$48,241	$48,494	$48,749	$49,004
4	Investment Income	$21,034	$17,488	$17,202	$15,547	$13,559	$11,281
5	**Total - Non-Potable Water Service (531)**	**$611,034**	**$674,389**	**$677,548**	**$679,356**	**$680,850**	**$682,071**
6							
7	**Non-Potable Capital Improvement (549)**						
8	Capital Improv Chrg Non-Res	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000
9	Investment Income	$12,987	$13,117	$13,248	$13,381	$13,515	$13,650
10	**Total - Non-Potable Capital Improvement (549)**	**$92,987**	**$93,117**	**$93,248**	**$93,381**	**$93,515**	**$93,650**
11							
12	**Total - Revenues**	**$704,022**	**$767,506**	**$770,796**	**$772,737**	**$774,364**	**$775,721**

7.2. Projected O&M Expenses

City staff provided the non-potable water O&M actual expenses for FY 2022 and budgeted O&M expenses for FY 2023 and FY 2024. **Table 7-2** shows the projected O&M expenses for the study period, inflated for FY 2025 and beyond using the expense inflation factors (**Table 2-3**).

Table 7-2: Projected Non-Potable Water O&M Expenses

	A	B	C	D	E	F	G
Line	Projected O&M Expenses	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	**Non-Potable Water Service (531)**						
2	Salaries and Benefits	$100,356	$104,370	$108,545	$112,887	$117,402	$122,098
3	Services - Power	$20,200	$21,323	$22,509	$23,757	$25,075	$26,465
4	Services	$175,740	$181,012	$186,443	$192,036	$197,797	$203,731
5	Supplies	$50,000	$51,500	$53,045	$54,636	$56,275	$57,964
6	**Total - Non-Potable Water Service (531)**	**$346,296**	**$358,206**	**$370,542**	**$383,316**	**$396,549**	**$410,258**
7							
8	**Non-Potable Projects (543)**						
9	Salaries and Benefits	$0	$0	$0	$0	$0	$0
10	Services - Power	$0	$0	$0	$0	$0	$0
11	Services	$150,000	$154,500	$159,135	$163,909	$168,826	$173,891
12	Supplies	$44,542	$45,878	$47,255	$48,672	$50,132	$51,636
13	**Total - Non-Potable Projects (543)**	**$194,542**	**$200,378**	**$206,390**	**$212,581**	**$218,959**	**$225,527**
14							
15	**Total - O&M Expenses**	**$540,838**	**$558,584**	**$576,931**	**$595,898**	**$615,508**	**$635,785**

7.3. Debt Service

The City does not have any existing debt for the non-potable water utility and does not plan to incur new debt to fund capital projects for the study period.

7.4. Capital Projects

Table 7-3 shows the inflated non-potable water capital project costs, based on CIP provided from City staff inflated by the capital expense inflation factor (**Table 2-3**, Line 7). The City plans to fund all CIP for the non-potable water system through rates.

Table 7-3: Inflated Non-Potable Water Capital Projects

	A	B	C	D	E	F	G
Line	**Capital Projects (Inflated)**	**FY 2024**	**FY 2025**	**FY 2026**	**FY 2027**	**FY 2028**	**FY 2029**
1	**Replacement**						
2	Texas St. Reservoir & booster station	$51,500	$0	$0	$0	$0	$0
3	Recycled Water Reservoirs	$824,000	$0	$0	$0	$0	$0
4	Well 31A maintenance rehab	$0	$0	$0	$0	$0	$0
5	Redlands Heights Well Rehabilitation	$77,250	$0	$0	$0	$0	$0
6	California Street Well Rehab	$0	$106,090	$0	$0	$0	$0
7	Citywide Non-Potable Water Meter Replacements	$0	$0	$0	$0	$0	$0
8	Chicken Hill Well Rehabilitation	$0	$0	$109,273	$0	$0	$0
9	Well #30A Rehabilitation	$0	$0	$109,273	$0	$0	$0
10	Well 32 liner rehab	$0	$0	$109,273	$348,908	$0	$0
11	Projection	$0	$0	$0	$0	$359,375	$370,156
12	**Total - Replacement**	**$952,750**	**$106,090**	**$327,818**	**$348,908**	**$359,375**	**$370,156**

7.5. Current Financial Plan – Status Quo

Table 7-4 shows the projected non-potable water financial plan under the status quo scenario. Revenues (Line 6) are derived from **Table 7-1**. O&M expenses (Line 15) are from **Table 7-2**. Rate funded capital projects (Line 12) are from **Table 7-3**. The net cash flow (Line 18) is positive for FY 2025 through FY 2029, indicating that the City's non-potable water revenues are sufficient to fund operating and capital project costs and the cash balance at or above the target over the Study period. Therefore, Raftelis does not recommend any rate increases for the Non-Potable water rates for the next five years.

Table 7-4: Projected Non-Potable Water Financial Plan (Status Quo)

	A	B	C	D	E	F	G
Line	Non-Potable Water Financial Plan	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
1	**Revenues**						
2	Rate Revenues	$590,000	$656,901	$660,346	$663,809	$667,290	$670,790
3	Revenue Adjustments	$0	$0	$0	$0	$0	$0
4	Investment Income	$34,022	$30,605	$30,450	$28,928	$27,074	$24,931
5	Other Revenues	$80,000	$80,000	$80,000	$80,000	$80,000	$80,000
6	**Total - Revenues**	**$704,022**	**$767,506**	**$770,796**	**$772,737**	**$774,364**	**$775,721**
7							
8	**O&M Expenses**						
9	Salaries and Benefits	$100,356	$104,370	$108,545	$112,887	$117,402	$122,098
10	Services - Power	$20,200	$21,323	$22,509	$23,757	$25,075	$26,465
11	Services	$325,740	$335,512	$345,578	$355,945	$366,623	$377,622
12	**Total - O&M Expenses**	**$446,296**	**$461,206**	**$476,632**	**$492,589**	**$509,100**	**$526,185**
13							
14	**Debt and Capital**						
15	Rate Funded Capital Projects	$952,750	$106,090	$327,818	$348,908	$359,375	$370,156
16	**Total - Debt and Capital**	**$952,750**	**$106,090**	**$327,818**	**$348,908**	**$359,375**	**$370,156**
17							
18	**Net Cash Flow**	($789,566)	$102,832	($133,953)	($172,069)	($200,519)	($230,221)
19	Net Operating Revenue	$163,184	$208,922	$193,865	$176,839	$158,856	$139,935
20							
21	Beginning Balances	$3,853,955	$3,064,389	$3,167,221	$3,033,268	$2,861,199	$2,660,680
22	Ending Balances	$3,064,389	$3,167,221	$3,033,268	$2,861,199	$2,660,680	$2,430,460

Figure 7-1 shows the proposed non-potable water capital financing plan in graphical format, based on the capital projects shown in **Table 7-3** and with no debt issues. The dark teal bars represent the rate funded replacement CIP costs.

Figure 7-1: Proposed Water Capital Financing Plan (Status Quo)

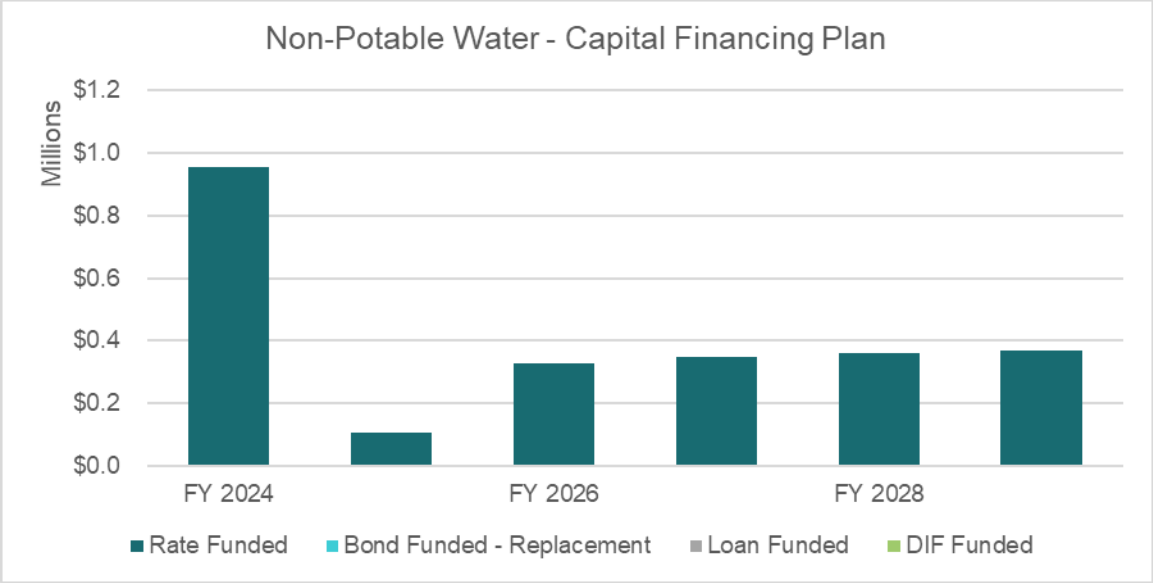


Figure 7-2 shows the projected non-potable water financial plan under the status quo scenario. The green bars, which represent net cash flow, are below the stacked gray bars from FY 2025 to FY 2029, which represents the reduction to the cash balance in those years of the study.

Figure 7-2: Projected Non-Potable Water Financial Plan (Status Quo)

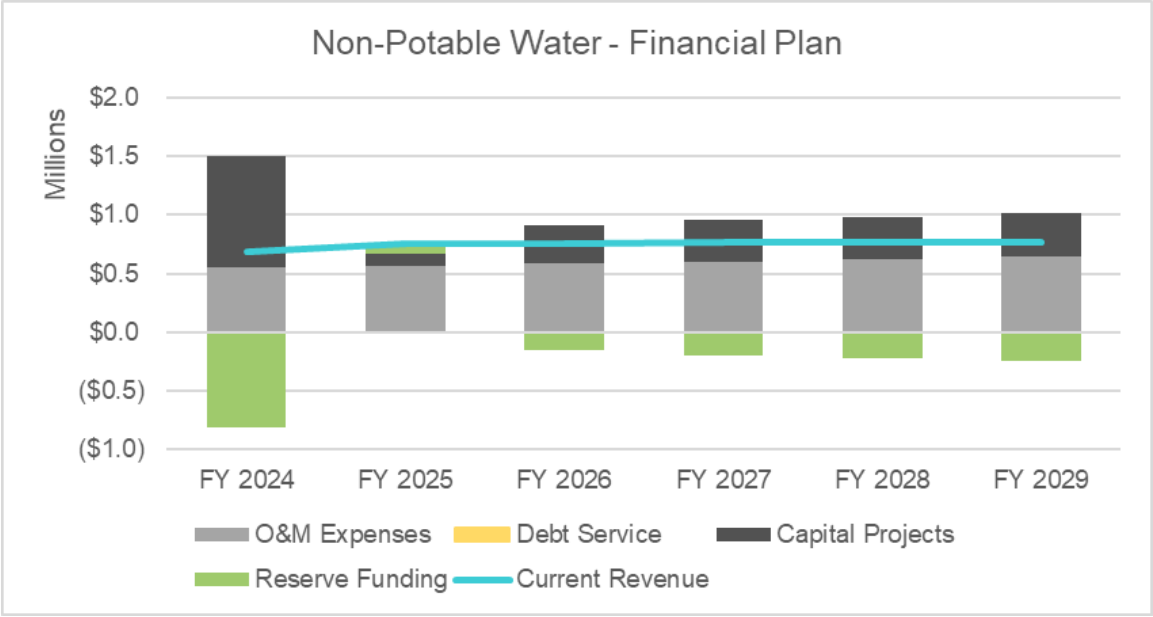
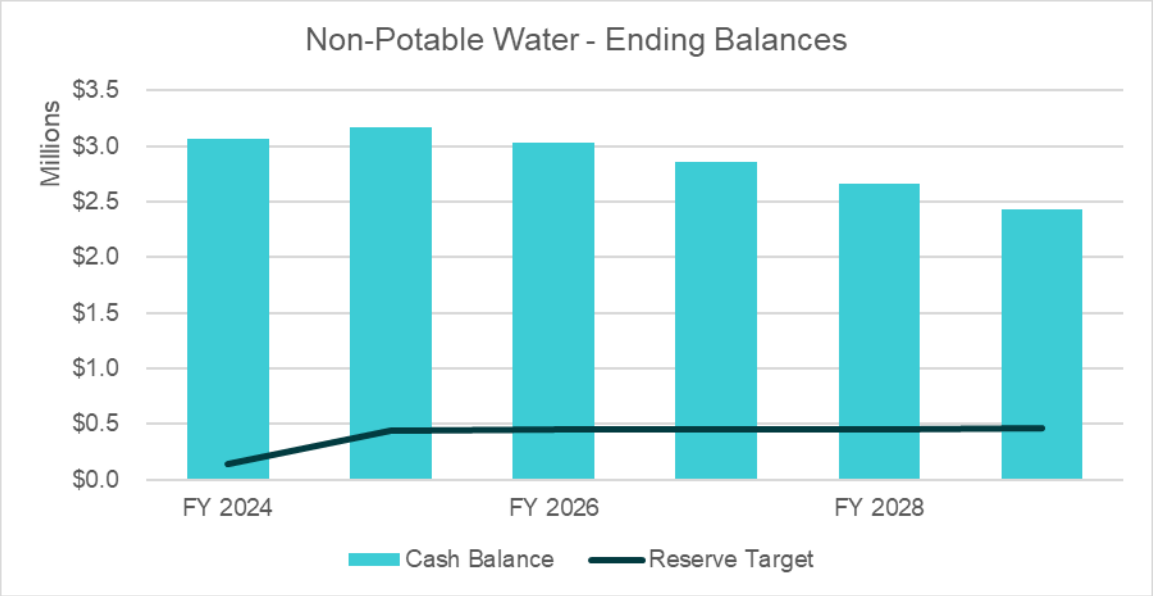


Figure 7-3 shows the projected non-potable water fund cash balance under the status quo scenario. The turquoise bars, which represent the ending cash balance for the non-potable water system, fall above target in FY 2025 through FY 2029.

Figure 7-3: Projected Non-Potable Water Fund Balances (Status Quo)



7.6. Proposed Financial Plan

Table 7-5 shows the proposed non-potable water revenue adjustments over the study period. Currently, Raftelis does not recommend any revenue adjustments.

Table 7-5: Proposed Non-Potable Water Revenue Adjustments

	A	B	C
Line	Fiscal Year	Revenue Adjustment	Month Effective
1	FY 2025	0.0%	July
2	FY 2026	0.0%	July
3	FY 2027	0.0%	July
4	FY 2028	0.0%	July
5	FY 2029	0.0%	July

7.7. Proposed Rates

Since there are no revenue adjustments proposed for the non-potable system, the current non-potable water rates will remain in effect as shown in in **Table 7-6** and **Table 7-7**.

Table 7-6: Proposed Bi-Monthly Non-Potable Water Service Charges ($/meter size)

	A	B	C	D	E	F	G
Line	Bi-Monthly Non-Potable Water Service Charges	Current Rates	July 2024	July 2025	July 2026	July 2027	July 2028
1	Non-Potable Water Service						
2	3/4"	$13.81	$13.81	$13.81	$13.81	$13.81	$13.81
3	1"	$20.65	$20.65	$20.65	$20.65	$20.65	$20.65
4	1 1/2"	$37.29	$37.29	$37.29	$37.29	$37.29	$37.29
5	2"	$55.16	$55.16	$55.16	$55.16	$55.16	$55.16
6	3"	$95.50	$95.50	$95.50	$95.50	$95.50	$95.50
7	4"	$147.45	$147.45	$147.45	$147.45	$147.45	$147.45
8	6"	$272.16	$272.16	$272.16	$272.16	$272.16	$272.16
9	8"	$401.04	$401.04	$401.04	$401.04	$401.04	$401.04

Table 7-7: Proposed Non-Potable Water Usage Rates ($/ccf of water)

	A	B	C	D	E	F	G
Line	Non-Potable Water Usage Rates	Current Rates	July 2024	July 2025	July 2026	July 2027	July 2028
1	**Non-Potable Water Usage**						
2	Non-Potable Water	$0.99	$0.99	$0.99	$0.99	$0.99	$0.99
3	Conversion Customer	$0.64	$0.64	$0.64	$0.64	$0.64	$0.64

8. Appendix A – Alternative Wastewater Rate Scenario

Raftelis is proposing a second financial plan and rates scenario for the wastewater utility. This scenario includes an additional $3 million bond issuance in FY 2025 to pay for capital expenditures. The purpose of this scenario is to spread costs out over a longer period of time to reduce the necessary rate increase. This scenario would lower the rate revenue increase in FY 2027 and FY 2028 from 10 percent to 8 percent. **Table 8-1** and **Table 8-2** show the proposed wastewater rates under this alternative scenario.

Table 8-1: Proposed Bi-Monthly Residential and Schools Wastewater Service Charges

	A	B	C	D	E	F	G
Line	Bi-Monthly Wastewater Service Charges	Current Rates	July 2024	July 2025	July 2026	July 2027	July 2028
1	Residential ($/dwelling unit)						
2	Single Family	$62.43	$66.04	$72.65	$78.47	$84.75	$91.53
3	Multiple Family	$48.08	$52.40	$57.64	$62.26	$67.25	$72.63
4							
5	Schools ($/100 students)						
6	Elementary	$134.38	$143.11	$157.43	$170.03	$183.64	$198.34
7	Secondary & High	$215.02	$238.52	$262.38	$283.38	$306.06	$330.55

Table 8-2: Proposed Non-Residential Wastewater Usage Rates ($/ccf of water)

	A	B	C	D	E	F	G
Line	Wastewater Usage Rates	Current Rates	July 2024	July 2025	July 2026	July 2027	July 2028
1	Non-Residential Usage ($/ccf)						
2	Low Strength I	$2.42	$2.82	$3.11	$3.36	$3.63	$3.93
3	Low Strength II	$2.87	$3.41	$3.76	$4.07	$4.40	$4.76
4	Low Strength III	$3.32	$3.99	$4.39	$4.75	$5.13	$5.55
5	Medium Strength I	$3.77	$4.58	$5.04	$5.45	$5.89	$6.37
6	Medium Strength II	$4.22	$5.16	$5.68	$6.14	$6.64	$7.18
7	Medium Strength III	$4.67	$5.75	$6.33	$6.84	$7.39	$7.99
8	High Strength I	$5.12	$6.34	$6.98	$7.54	$8.15	$8.81
9	High Strength II	$5.56	$6.92	$7.62	$8.23	$8.89	$9.61
10	Large Volume User	$3.32	$3.99	$4.39	$4.75	$5.13	$5.55
11	Minimum Charge ($)	$48.08	$52.40	$57.64	$62.26	$67.25	$72.63
12							
13	Septage Charge ($/gal)	$0.11	$0.10	$0.11	$0.12	$0.13	$0.15