

CITY OF  
**Pleasanton**

**Water and Recycled Water Rate Study**

Final Report / August 4, 2023







August 4, 2023

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P.O. Box 520  
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**Subject: Water and Recycled Water Rate Study Report**

Dear Tamara Baptista,

Raftelis Financial Consultants, Inc. (Raftelis) is pleased to provide this Water and Recycled Water Rate Study Report (Report) for the City of Pleasanton (City).

The primary objectives of the Study include the following:

- Developing a long-term financial plan that sufficiently funds operating expenses, capital replacement and improvement costs, and prudent reserve balances
- Conducting a cost of service analysis that fairly and equitably allocates costs among customer classes
- Designing water and recycled water rates that fully recover costs to serve customers while minimizing rate impacts to the extent possible, and promoting affordability for essential needs
- Preparing a Study Report, or administrative record, that clearly and comprehensively explains each step of the rate study process
- Developing water and recycled water rates that are in alignment with cost of service principles and Proposition 218 requirements

The Report details the long-term financial plan, cost of service analysis, and proposed rates for the City's water and recycled water utilities. It was a pleasure working with you and your team, and we wish to express our gratitude for the support you and the other City staff provided us during the study.

Sincerely,

A blue ink signature of Brian Bass, written in a cursive style.

**Brian Bass**  
*Project Manager*

A blue ink signature of Lindsay Roth, written in a cursive style.

**Lindsay Roth**  
*Lead Analyst*

# Table of Contents

1.1.	LIST OF TABLES .....	7
1.2.	LIST OF FIGURES .....	9
1.	EXECUTIVE SUMMARY .....	1
1.1.	STUDY BACKGROUND.....	1
1.2.	OBJECTIVES OF THE STUDY .....	1
1.3.	CURRENT RATES .....	1
1.4.	PROCESS AND APPROACH .....	2
1.5.	LEGAL FRAMEWORK .....	3
1.5.1.	California Constitution – Article XIII D, Section 6 (Proposition 218) .....	3
1.5.2.	California Constitution – Article X, Section 2 .....	3
1.6.	COST-BASED RATE SETTING METHODOLOGY .....	4
1.6.1.	Revenue Requirement Calculation.....	4
1.6.2.	Cost of Service Analysis.....	4
1.6.3.	Rate Design and Derivation.....	5
1.6.4.	Preparation of Administrative Record and Rate Adoption .....	5
1.7.	FINANCIAL PLAN RESULTS AND RECOMMENDATIONS .....	5
1.7.1.	Factors Affecting Revenue Requirements .....	5
1.7.2.	Financial Plan Results .....	6
1.8.	PROPOSED WATER RATES .....	8
1.9.	CUSTOMER IMPACTS .....	9
1.10.	DROUGHT RATES .....	9
1.10.1.	Process and Approach.....	10
1.10.2.	Proposed Drought Rates .....	11
1.10.3.	Customer Impacts .....	12
2.	FINANCIAL PLAN .....	15
2.1.	INFLATIONARY ASSUMPTIONS .....	15
2.2.	CURRENT WATER RATES .....	15
2.3.	CUSTOMER ACCOUNTS AND USAGE .....	16
2.4.	PROJECTED REVENUES AT CURRENT RATES .....	17

2.5.	PROJECTED REVENUES .....	20
2.6.	ESTIMATED PURCHASED WATER COSTS .....	20
2.7.	PROJECTED O&M EXPENSES .....	22
2.8.	EXISTING DEBT SERVICE .....	23
2.9.	CAPITAL PROJECT FUNDING .....	23
2.10.	STATUS QUO FINANCIAL PLAN .....	24
2.11.	PROPOSED FINANCIAL PLAN .....	27
3.	COST OF SERVICE ANALYSIS .....	32
3.1.	PROCESS AND APPROACH .....	32
3.2.	REVENUE REQUIREMENT.....	33
3.3.	WATER SYSTEM FUNCTIONS.....	34
3.4.	COST COMPONENTS.....	37
3.5.	PEAKING FACTORS .....	37
3.6.	PEAK CAPACITY .....	38
3.7.	EQUIVALENT METERS.....	41
3.8.	COST ALLOCATIONS .....	42
3.9.	REVENUE REQUIREMENT DISTRIBUTION .....	45
3.10.	UNIT COST DERIVATION .....	47
4.	RATE DESIGN AND DERIVATION.....	50
4.1.	PROPOSED ADJUSTMENTS.....	50
4.2.	BI-MONTHLY SERVICE CHARGES.....	50
4.3.	WATER USAGE RATES .....	51
4.3.1.	Peaking Component.....	51
4.3.2.	Recycled Water Surcharge.....	51
4.3.3.	Zone 7 Variable Costs .....	51
4.3.4.	Recycled Water Variable Rate .....	52
4.3.5.	Water Usage Rates .....	53
4.4.	PROPOSED RATE SCHEDULE .....	55
4.5.	CUSTOMER IMPACTS .....	56
5.	DROUGHT RATES .....	59
5.1.	PROCESS AND APPROACH .....	59
5.2.	DROUGHT ALLOCATIONS AND COSTS .....	59

5.2.1. Water Allocations .....59  
5.2.2. Financial Impacts .....61  
5.3. DROUGHT RATES .....65  
5.3.1. Drought Rate Calculation & Proposed Drought Rates.....65  
5.3.2. Customer Impacts .....67

# List of Tables

Table 1-1: Current Bi-Monthly Service Charge .....	2
Table 1-2: Current Consumption Charges.....	2
Table 1-3: Reserve Policy .....	5
Table 1-4: Proposed Revenue Adjustments.....	6
Table 1-5: Proposed Meter Service Charges.....	8
Table 1-6: Proposed Consumption Charges .....	9
Table 1-7: Drought Stages and Reduction.....	10
Table 1-8: Estimated Water Sales by Stage (ccf).....	10
Table 1-9: FY 2024 Proposed Drought Rates (\$/ccf).....	11
Table 1-10: FY 2025 Proposed Drought Rates (\$/ccf) .....	11
Table 1-11: FY 2026 Proposed Drought Rates (\$/ccf) .....	12
Table 2-1: Revenue Inflation Factors .....	15
Table 2-2: Expense Inflation Factors.....	15
Table 2-3: Current Bi-Monthly Service Charge .....	16
Table 2-4: Current Consumption Charges.....	16
Table 2-5: Projected Customer Accounts.....	17
Table 2-6: Projected Water Usage .....	17
Table 2-7: Calculated Bi-Monthly Service Charge Revenue.....	18
Table 2-8: Calculated Water Consumption Revenue.....	18
Table 2-9: Calculated Discount Program Revenue Reductions.....	19
Table 2-10: Calculated Water Revenues .....	19
Table 2-11: Calculated Recycled Water Revenues .....	19
Table 2-12: Projected Revenue Summary.....	20
Table 2-13: Calculated Zone 7 Water Supply Cost .....	21
Table 2-14: Calculated Recycled Water Cost .....	22
Table 2-15: Projected O&M Expenses.....	23
Table 2-16: Existing Debt Service Summary .....	23
Table 2-17: Projected CIP .....	24
Table 2-18: Status Quo Financial Plan .....	25
Table 2-19: Proposed Revenue Adjustments.....	28
Table 2-20: Proposed Financial Plan.....	29
Table 3-1: FY 2024 Water Revenue Requirement.....	33
Table 3-2: FY 2024 Recycled Water Revenue Requirement.....	34
Table 3-3: FY 2024 Passthrough Revenue Requirement .....	34
Table 3-4: O&M Expense Functions .....	36
Table 3-5: Capital Expenditure Functions .....	36
Table 3-6: System-Wide Peaking Factors .....	38
Table 3-7: Class-Specific Peaking Factors .....	38
Table 3-8: Peak Capacity Calculation.....	40
Table 3-9: Meter Capacity Ratios.....	41
Table 3-10: Meter Counts by Class.....	42
Table 3-11: Equivalent Meters .....	42
Table 3-12: Operating Cost Allocation .....	44
Table 3-13: Capital Cost Allocation .....	44
Table 3-14: Zone 7 Cost Allocation .....	45
Table 3-15: Revenue Requirement by Cost Component.....	46

Table 3-16: Units of Service .....	48
Table 3-17: Unit Cost by Cost Component .....	48
Table 3-18: Cost of Service by Customer Class .....	49
Table 4-1: Proposed Revenue Adjustments .....	50
Table 4-2: Proposed Bi-Monthly Service Charge (FY 2023).....	50
Table 4-3: Peaking Unit Cost Calculation .....	51
Table 4-4: Recycled Water Surcharge Unit Cost Calculation .....	51
Table 4-5: Zone 7 Variable Unit Cost Calculation by Class .....	52
Table 4-6: Recycled Water Rate Calculation .....	53
Table 4-7: Proposed Water Usage Rates (FY 2024).....	54
Table 4-8: Proposed Bi-Monthly Service Charges.....	55
Table 4-9: Proposed Water Usage Rates .....	56
Table 5-1: Drought Stages and Reduction.....	60
Table 5-2: Drought Rate Exempt Allotment by Customer Class.....	60
Table 5-3: Estimated Water Usage by Stage .....	61
Table 5-4: Expected Revenue Loss by Stage (Excluding Allotment Revenue).....	63
Table 5-5: Additional O&M Costs by Stage .....	63
Table 5-6: Zone 7 Variable Cost Savings by Stage.....	63
Table 5-7: Total Drought Costs by Stage.....	64
Table 5-8: Drought Rate Percentage Calculation.....	66
Table 5-9: Proposed FY 2024 Drought Rates .....	66



# List of Figures

Figure 1-1: Proposed Water Financial Plan ..... 6

Figure 1-2: Proposed Recycled Water Financial Plan ..... 7

Figure 1-3: Proposed Fund Balances ..... 7

Figure 1-4: Planned CIP Expenditures ..... 8

Figure 1-5: Single Family Residential Bill Impacts ..... 9

Figure 1-6: Single Family Residential Bill Impacts ..... 12

Figure 1-7: Multi-Family Residential Bill Impacts ..... 13

Figure 1-8: Commercial Bill Impacts ..... 13

Figure 1-9: Irrigation Bill Impacts ..... 14

Figure 2-1: Status Quo Financial Plan – Water ..... 26

Figure 2-2: Status Quo Financial Plan – Recycled Water ..... 26

Figure 2-3: Status Quo Debt Service Coverage ..... 27

Figure 2-4: Status Quo Scenario Fund Balances ..... 27

Figure 2-5: Proposed Water Financial Plan ..... 30

Figure 2-6: Proposed Recycled Water Financial Plan ..... 30

Figure 2-7: Proposed Debt Service Coverage ..... 31

Figure 2-8: Proposed Ending Fund Balances ..... 31

Figure 4-1: Single Family Residential Bill Impacts ..... 57

Figure 4-2: Commercial Bill Impacts ..... 57

Figure 4-3: Multi-Family Residential Bill Impacts ..... 58

Figure 4-4: Irrigation Bill Impacts ..... 58

Figure 5-1: Single Family Residential Bill Impacts ..... 67

Figure 5-2: Multi-Family Residential Bill Impacts ..... 68

Figure 5-3: Commercial Bill Impacts ..... 68

Figure 5-4: Irrigation Bill Impacts ..... 69

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# 1. Executive Summary

## 1.1. Study Background

In 2019, the City of Pleasanton contracted with Raftelis to conduct a Water and Recycled Water Rate Study, which includes the development of a long-term financial plan, cost of service (COS) analysis, proposed water rates, recycled water rates, and drought rates. The Study culminates in five years of cost-based water and recycled water rate recommendations based on the results of the financial planning exercise, the COS analysis, and the calculation of drought rates based on the most recent Water Shortage Contingency Plan. This Executive Summary outlines the rate proposal and contains a description of the Study process, methodology, and recommendations for the City's water rates, recycled water rates, and drought rates.

## 1.2. Objectives of the Study

The significant component and objectives of the Study include:

1. Develop a long-term financial plan that meets the water utility's revenue requirements, including operations and maintenance (O&M) expenses and the capital improvement plan (CIP), while adequately funding reserves in accordance with industry best practices and the City's adopted financial practices
2. Conduct a COS analysis that establishes a nexus between the cost to serve customers and the responsibility of each class aligning with Proposition 218 requirements and based on industry standards
3. Develop five years of water and recycled water rates that align with Proposition 218 requirements and ensure financial sufficiency to fund operating and capital costs over the Study period
4. Develop drought rates that recover the financial impacts of each drought stage based on the cost of providing service

## 1.3. Current Rates

The City's current water rates were implemented on February 1, 2023 and include a bi-monthly service charge based on meter size, a tiered usage rate for single family residential (SFR) customers charged for every hundred cubic feet (ccf) of water used, a uniform rate for all other customer classes charged for every ccf of water used, and a surcharge for recycled water charged for every ccf of recycled water used. The recycled water surcharge is assessed to SFR customers using Tier 2 or higher water usage and all other customers. The recycled water surcharge has already been included in the rates shown below.

**Table 1-1** shows the current bi-monthly service charges by meter size. **Table 1-2** shows the current tiered usage rate by customer class and bi-monthly tiers.

**Table 1-1: Current Bi-Monthly Service Charge**

<b>Meter Size</b>	<b>FY 2023</b>
5/8 inch	\$19.93
3/4 inch	\$29.89
1 inch	\$49.84
1-1/2 inch	\$99.67
2 inch	\$159.48
3 inch	\$348.90
4 inch	\$996.83
6 inch	\$1,993.67
8 inch	\$3,488.91
10 inch	\$5,482.57

**Table 1-2: Current Consumption Charges**

<b>Consumption Charge (\$/ccf)</b>	<b>FY 2023</b>
Single Family Residential	
Tier 1 - 20 ccf	\$3.93
Tier 2 - 40 ccf	\$4.42
Tier 3 - 60 ccf	\$4.68
Tier 4 - 60+ ccf	\$5.53
Multi-Family Residential	\$4.44
Commercial	\$4.44
Industrial	\$4.44
Irrigation	\$4.60
Recycled Water Irrigation	\$4.05

## **1.4. Process and Approach**

Raftelis held several meetings with City staff to discuss and understand the objectives, characteristics, and challenges of the City’s water and recycled water utilities to provide the recommendations and results detailed in this report. Raftelis confirmed various assumptions and inputs and used an iterative process to view several scenarios to determine the recommended financial plan and water and recycled water rates. City staff discussed the capital project requirements and water purchase cost estimates over a 10-year horizon, which are two primary drivers of the future revenue needs of the utility. Raftelis then designed and presented a COS and rate model to analyze various rate scenarios which fully fund the utility’s revenue requirements through fair, equitable, and cost-based rates.

The proposed financial plan detailed in this report follows industry standards for long-term financial planning. The financial plan relies on reasonable assumptions based on industry indices, such as general inflation based on the Consumer Price Index (CPI) and input from City staff. 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 financial plan includes the current fiscal year (FY) 2023 and the five years between FY 2024 to FY 2028. Each fiscal year begins on July 1 and ends on July 30. For example, FY 2023 is defined as the year beginning on July 1, 2022 and ending on June 30, 2023. The proposed rates were developed for implementation on November 1, 2023 in FY 2024 and in January every year after that through FY 2026.

The COS analysis and resulting water rates are developed using the principles established by the American Water Works Association’s (AWWA) *Principles of Water Rates, Fees, and Charges, 7<sup>th</sup> edition* (M1 Manual). The water and recycled water rates developed in this Study were designed based on the industry standard Base-Extra Capacity methodology and the legal requirements set forth in the following section. This methodology allocates costs consistent with demand patterns of each customer class and for tiered rates, the demand patterns of each tier.

## 1.5. Legal Framework<sup>1</sup>

### 1.5.1. CALIFORNIA CONSTITUTION – ARTICLE XIII D, SECTION 6 (PROPOSITION 218)

Proposition 218 was enacted by voters in 1996 to ensure, in part, that fees and charges imposed for ongoing delivery of a service to a property (property-related fees and charges) are proportional to, and do not exceed, the cost of providing service. Water service fees and charges are property-related fees and charges subject to the provisions of California Constitution Article XIII D, Section 6 (Proposition 218). The principal requirements, as they relate to public water service fees and charges are as follows:

1. Revenues derived from the fee or charge shall not exceed the costs required to provide the property-related service.
2. Revenues derived by the fee or charge shall not be used for any purpose other than that for which the fee or charge was imposed.
3. The amount of the fee or charge imposed upon any parcel shall not exceed the proportional cost of service attributable to the parcel.
4. No fee or charge may be imposed for a service unless that service is actually used or immediately available to the owner of property.
5. A written notice of the proposed fee or charge shall be mailed to the record owner of each parcel not less than 45 days prior to a public hearing, when the agency considers all written protests against the charge.

As stated in the M1 Manual, “water rates and charges should be recovered from classes of customers in proportion to the cost of serving those customers.” Raftelis follows industry standard rate setting methodologies set forth by the AWWA M1 Manual to ensure that the results of this Study align with Proposition 218 requirements and create rates that do not exceed the proportionate cost of providing water service.

### 1.5.2. CALIFORNIA CONSTITUTION – ARTICLE X, SECTION 2

Article X, Section 2 of the California Constitution states the following:

*“It is hereby declared that because of the conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare.”*

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<sup>1</sup> Raftelis does not practice law, nor does it provide legal advice. The above discussion provides a general overview of Raftelis’ understanding as rate practitioners and is labeled “legal framework” for literary convenience only. The City should consult with its legal counsel for clarification and/or specific guidance.

Article X, Section 2 of the State Constitution establishes the need to preserve the state’s water supplies and to discourage the waste or unreasonable use of water by encouraging conservation. Public agencies are constitutionally mandated to maximize the beneficial use of water, prevent waste, and encourage conservation.

In addition, Section 106 of the California Water Code declares that the highest priority use of water is for domestic purposes, with irrigation water secondary. To meet the objectives of Article X, Section 2 and the California Water Code, a water purveyor may utilize its water rate design to incentivize the efficient use of water. The City established tiered water rates (also known as “inclining tier” or “inclining block”) water rates to incentivize customers to use water in an efficient manner. The inclining tier rates (as well as rates for uniform rate classes) need to be based on the proportionate costs incurred to provide water to, and within, each customer class to align with Proposition 218.

Tiered water rate structures, when properly designed and differentiated by customer class, allow a water utility to send conservation price signals to customers while proportionately allocating the costs of service. Due to a necessity in reducing water waste and increasing efficiency, tiered water rates are ubiquitous, especially in relatively water-scarce regions like California. Tiered rates align with the requirements of Proposition 218 if the tiered rates reflect the proportionate cost of providing service *within* each tier.

## 1.6. Cost-Based Rate Setting Methodology

To develop water rates that align with Proposition 218, meet industry standards, and accomplish the City’s goals for the Study, Raftelis follows the four major steps discussed below.

### 1.6.1. REVENUE REQUIREMENT CALCULATION

The first step in the rate-making process is to determine the adequate and appropriate level of funding for a given utility. This is referred to as determining the “revenue requirement” for the base year, which for this Study is FY 2024 and runs from July 1, 2023 to June 30, 2024. This analysis considers the short-term and long-term service objectives of the utility over a given planning horizon, including capital facilities, O&M, and financial reserve policies to determine the adequacy of a utility’s existing rates to recover its costs. Several factors affect these projections, including the number of customers served, water use trends, non-recurring revenues, conservation, use restrictions, inflation, interest rates, capital financing needs, and other changes in operating and economic conditions, among others.

### 1.6.2. COST OF SERVICE ANALYSIS

The annual cost of providing water service is distributed among customer classes commensurate with their service requirements. A COS analysis involves the following:

1. **Categorize Costs into System Functions:** Utilizing an agency’s approved budget, financial reports, operating data, engineering data, and CIP, a rate study generally categorizes (i.e., functionalizes) the operating and capital costs of the water system among major system functions. Examples of system functions include but are not limited to water supply, storage, treatment, pumping, and transmission and distribution.
2. **Allocate Functionalized Costs to the Appropriate System Cost Components:** Cost components represent the major pieces of a water system that the agency incurs specific costs related to, with one or more functions attributable to one or more system components. For example, distribution costs (system function) are allocated to base and maximum hour (cost components) since distribution lines are sized to accommodate maximum day (peak) demands. The City’s water system cost components include

groundwater, recycled water, base delivery, maximum day, maximum hour, meter servicing, and customer service.

3. **Determine Units of Service and Unit Costs for Cost Components:** Each cost component is associated with a specific unit of service; costs within each component are divided by the total units of service to determine the unit cost. For example, customer service costs are associated with the total number of customer accounts. Dividing total annual costs by total customer accounts yields the unit cost of customer service.
4. **Distribute Cost Components to Customer Class:** The cost of the system, allocated by system component unit costs, are distributed to customer classes and tiers in proportion to their respective demands and burdens on the system using the units of service and unit costs for each component.

### 1.6.3. RATE DESIGN AND DERIVATION

Rates do more than simply recover costs. Within the legal framework and industry standards, properly designed rates should support and optimize a blend of objectives, such as conservation, affordability for essential needs, and revenue stability, among others. Rates can act as a public information tool in communicating these objectives to customers.

### 1.6.4. PREPARATION OF ADMINISTRATIVE RECORD AND RATE ADOPTION

Rate adoption is the last step of the rate-making process. Raftelis documents the Study results in this Report (also known as the administrative record), which reflects the basis upon which the rates were calculated, the rationale and justifications behind the proposed charges, any changes to the rate structures, and anticipated financial impacts to ratepayers.

## 1.7. Financial Plan Results and Recommendations

### 1.7.1. FACTORS AFFECTING REVENUE REQUIREMENTS

The following items affect the water utility’s revenue requirement (i.e., costs) and thus its water rates. The utility’s expenses include O&M expenses, capital project costs, debt service, and reserve funding.

- **O&M Funding:** There are a few factors influencing the increase in spending on O&M. First, higher than usual inflation has led to higher O&M costs than were previously planned for under the current water rates. Next, because of recent drought conditions, Zone 7 purchased water costs are expected to increase in the coming years. Finally, the water system will be bringing on three new full-time employees (FTEs) at the start of the Study period.
- **Capital Funding:** The water utility has approximately \$37.9M in planned capital expenditures from FY 2024 through FY 2028 (accounting for inflation). Planned capital project costs are anticipated to be entirely cash funded through net rate revenues and existing and future reserves.
- **Reserve Funding:** Reserve targets are adopted to ensure enough cash on hand to meet routine cash flow needs, provide adequate for planned repairs and replacements (R&R) CIP, navigate emergencies in the event of asset failure or natural disaster, and to protect ratepayers from rate spikes. **Table 1-3** summarizes the City’s current reserve policy.

**Table 1-3: Reserve Policy**

Reserve Policy	Target Policy	FY 2024 Target
Water Operating and Capital	35% of O&M Expenses	\$11,533,550
Recycled Water Operating	35% of O&M Expenses	\$918,997
<b>Total</b>		<b>\$12,452,547</b>

### 1.7.2. FINANCIAL PLAN RESULTS

**Table 1-4** shows the proposed revenue adjustments that allows the City to maintain financial sufficiency, fund operating and capital expenses, and achieve recommended cash reserves for the water utility. The proposed adjustments apply to the City’s rate revenues, which were projected for future years assuming no growth in customer accounts or demand during the Study period. Water demand in FY 2022 represents estimated baseline use for the City’s customers. We assume an annual increase in demand of 2.5% from FY 2025 through FY 2026 for all customer classes except recycled water irrigation, which is assumed to remain at constant demand for the study period. The assumed account growth is 1.0% annually across all customer classes. Demand and account growth assumptions based on the most recent Water Master Plan.

The proposed revenue adjustments represent the increase to total rate revenues required to recover the water utility’s costs and not the expected impact to each customer class. Water rates developed for the base year (FY 2024) reflect the results of the COS analysis, which impacts each customer class, and tier, differently. Revenue adjustments in subsequent years are applied across all charges, classes, and tiers proportional to the base year rates.

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

Revenue Adjustments (All Revenues)	FY 2024	FY 2025	FY 2026
Effective Month	January	January	January
Percent Adjustment	30.0%	20.0%	12.0%

**Figure 1-1** and **Figure 1-2** show the three-year financial plans for FY 2024 through FY 2026 for water and recycled water, respectively. The stacked bars represent the costs of the water utility: O&M expenses make up most of the water financial plan (light gray bars). Debt service (dark gray bars) is only part of the recycled water financial plan and takes up the majority of expenses in the first two years of the Study period. CIP costs (yellow bars) represent the costs of the rate funded capital program. Purchased water from Zone 7 (blue bars) will be recovered through passthrough charges. Net cash flow (light green bars) represent revenue used to contribute to reserve targets and is a large portion of the recycled water financial plan in the last three years of the Study period. Current revenues (solid line) equal the projected revenues at the City’s existing water rates and proposed revenues (dotted line) equal the projected revenues with the proposed revenue adjustments in **Table 1-4** applied.

**Figure 1-1: Proposed Water Financial Plan**

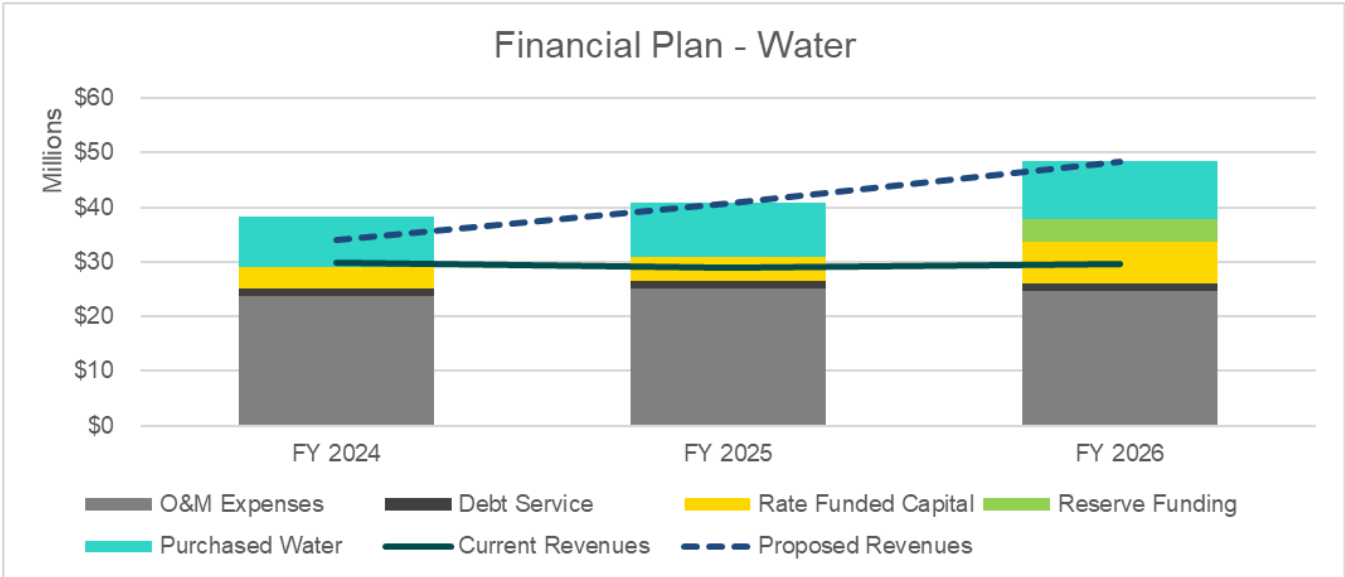




Figure 1-2: Proposed Recycled Water Financial Plan

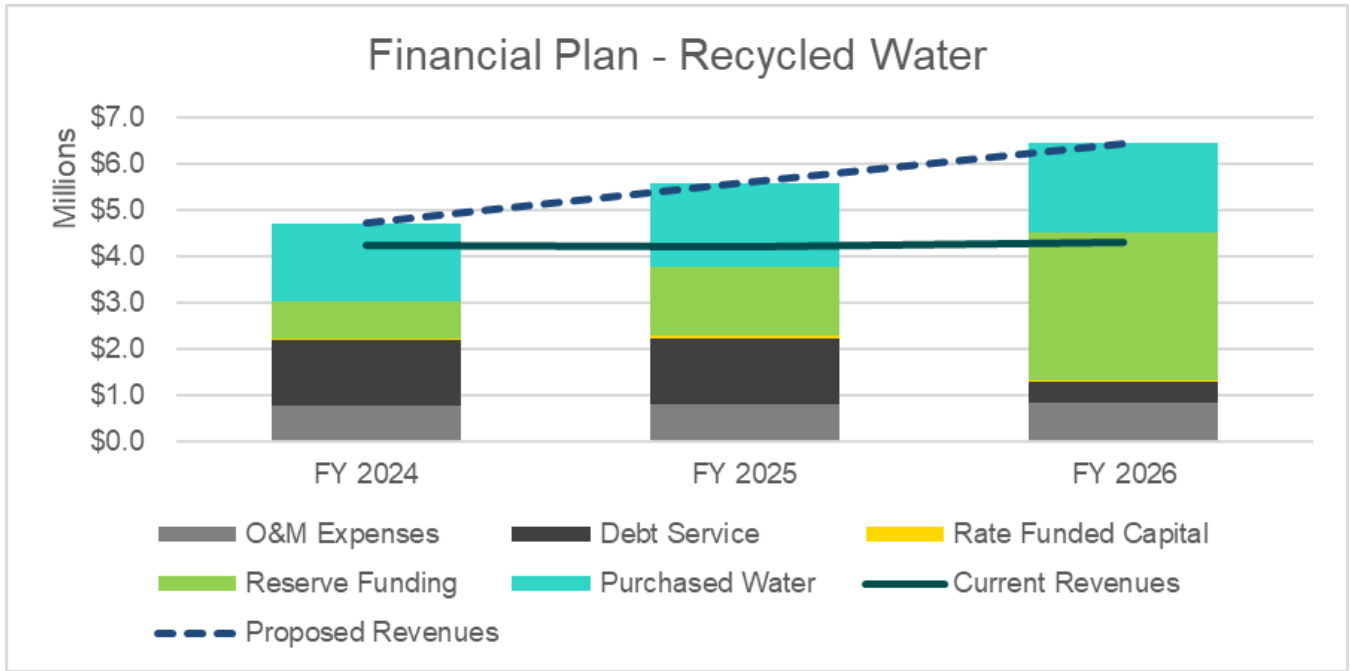


Figure 1-3 shows the combined ending fund balances for water and recycled water from FY 2024 to FY 2026. The reserve target (dark blue line) is determined based on the recommended reserve policy targets in Table 1-3. The ending fund balances fall below the reserve targets in FY 2023 and FY 2024 before recovering and meeting the reserve target by FY 2027.

Figure 1-3: Proposed Fund Balances

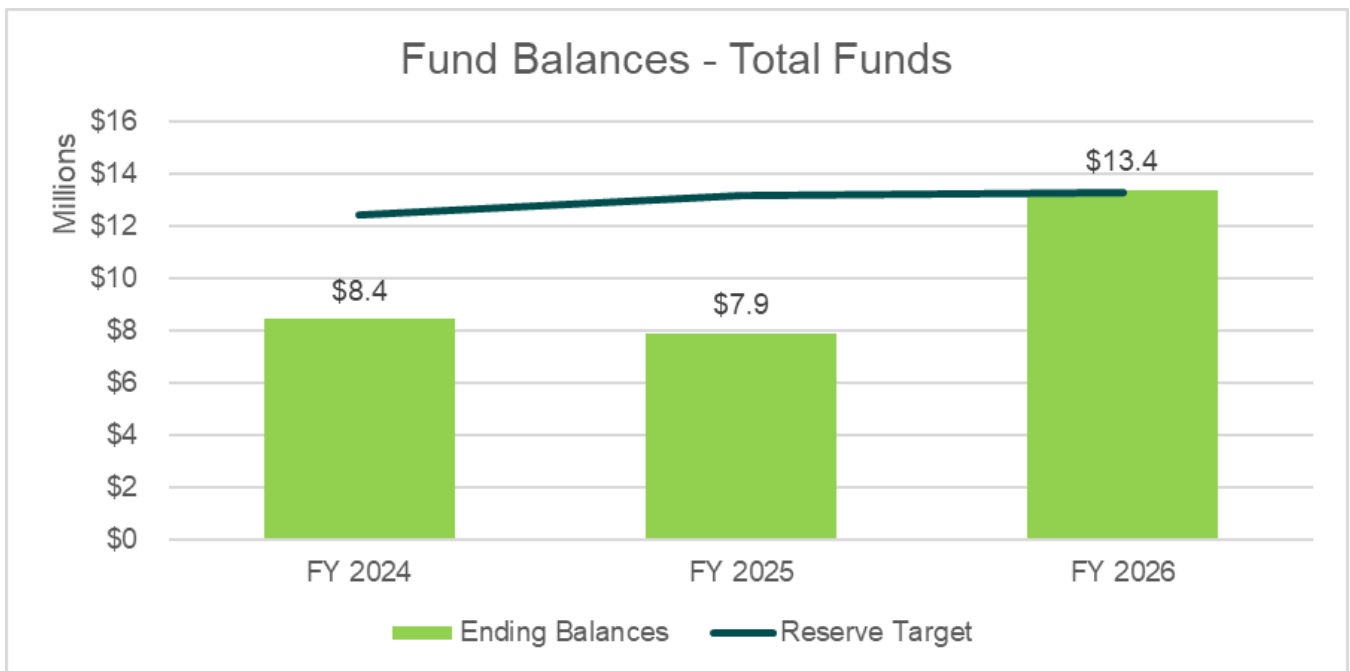
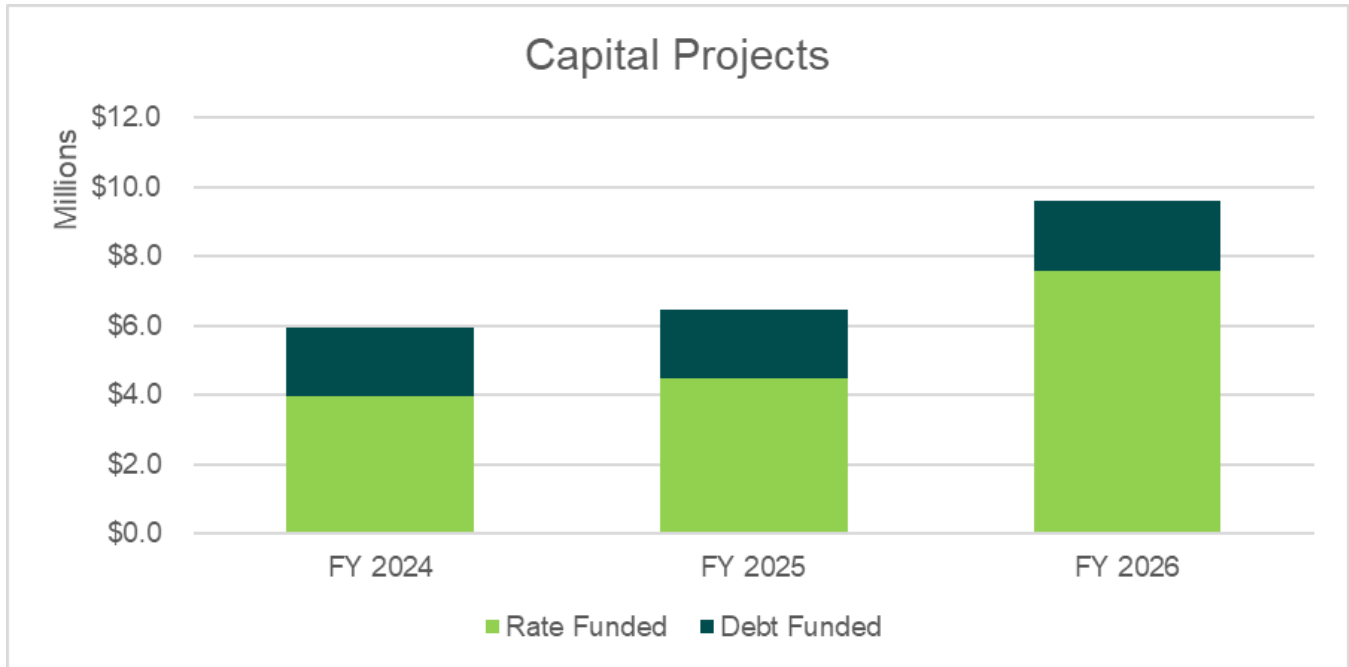


Figure 1-4 shows the three-year CIP expenditures from FY 2024 through FY 2026. Most planned CIP expenses for the three-year period are anticipated to be cash funded through rate revenues and existing capital reserves. The City plans to take out a \$6M loan in FY 2024, the proceeds of which will be spread out over the three-year period to fund the remainder of the CIP expenditures.

Figure 1-4: Planned CIP Expenditures



### 1.8. Proposed Water Rates

Table 1-5 and Table 1-6 show the proposed bi-monthly meter service charge consumption charges, respectively, for FY 2024 through FY 2026 based on the above recommendations. Rates for FY 2024 are determined based on the results of the COS analysis. The overall revenue collected in FY 2024 will match the rate adjustment for that year but impacts to individual customer classes may differ. Rates for all subsequent years are determined based on the corresponding revenue adjustments in Table 1-4. Please note that rates for January 2024 and beyond include assumptions for Zone 7 water purchase costs; however, the Zone 7 passthrough rates will be calculated based on actual costs paid to Zone 7 in any given year. The proposed rates shown for these years may differ based on changes to Zone 7’s wholesale water rates.

Table 1-5: Proposed Meter Service Charges

Bi-Monthly Meter Service Charge	Current	January 2024	January 2025	January 2026
5/8 inch	\$19.93	\$21.90	\$24.96	\$26.50
3/4 inch	\$29.89	\$31.43	\$35.43	\$37.16
1 inch	\$49.84	\$55.27	\$61.64	\$63.87
1-1/2 inch	\$99.67	\$117.23	\$129.75	\$133.25
2 inch	\$159.48	\$155.37	\$171.68	\$175.97
3 inch	\$348.90	\$431.84	\$475.59	\$485.60
4 inch	\$996.83	\$755.97	\$831.89	\$848.61
6 inch	\$1,993.67	\$1,337.52	\$1,471.17	\$1,499.93
8 inch	\$3,488.91	\$3,339.54	\$3,671.91	\$3,742.08

10 inch \$5,482.57 \$5,246.23 \$5,767.86 \$5,877.48

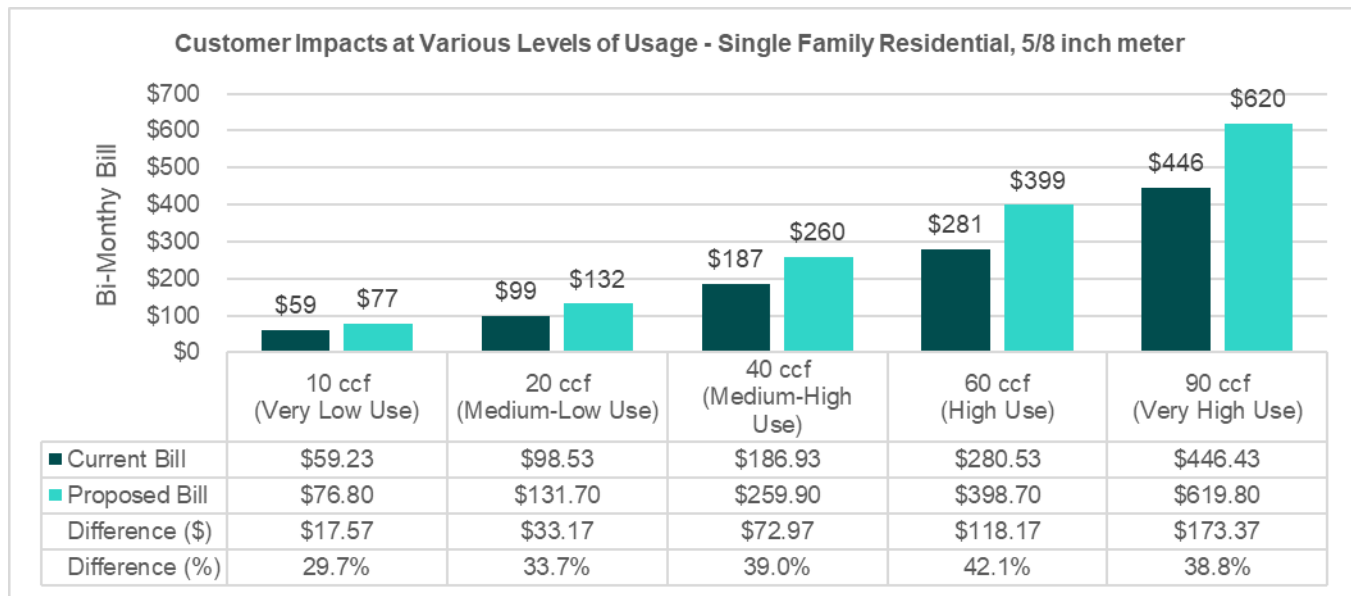
**Table 1-6: Proposed Consumption Charges**

Consumption Charge	Current	January 2024	January 2025	January 2026
Single Family Residential				
Tier 1 - 20 ccf	\$3.93	\$5.49	\$6.58	\$7.35
Tier 2 - 40 ccf	\$4.42	\$6.41	\$7.87	\$9.00
Tier 3 - 60 ccf	\$4.68	\$6.94	\$8.62	\$9.97
Tier 4 - 60+ ccf	\$5.53	\$7.24	\$9.04	\$10.50
Multi-Family Residential	\$4.44	\$5.47	\$6.55	\$7.31
Commercial/Industrial	\$4.44	\$5.60	\$6.73	\$7.54
Irrigation	\$4.60	\$6.43	\$7.90	\$9.04
Recycled Water Irrigation	\$4.05	\$4.29	\$6.04	\$7.75

### 1.9. Customer Impacts

Figure 1-5 shows the proposed FY 2024 bi-monthly bill impacts for SFR customers at various levels of water usage. The impacts show bills for a 5/8” meter, the most common meter size for SFR customers. Bill increases fall between a 30 and 40% per bi-monthly bill depending on the amount of water used.

**Figure 1-5: Single Family Residential Bill Impacts**



### 1.10. Drought Rates

The City engaged Raffelis to conduct a Drought Rate Study as part of the Water and Recycled Water Cost of Service and Rate Study. The City adopted its latest water shortage contingency plan in June of 2021, which details the six drought stages and the corresponding water usage reductions. The resulting drought rates align with Proposition 218 requirements and allow the City to reliably recover the necessary revenue to fully fund the water system in times of drought.

The major objectives when developing drought rates include:

- Determine water allocations for each customer class during each drought stage based on the 2021 Water Shortage Contingency Plan
- Calculate the financial impacts of reduced water sales and changes to water supply sources
- Evaluate various drought rate structures to determine the structure best suited to meet the City’s needs
- Develop drought rates that recover the financial impacts of each drought stage based on the cost of providing service

### 1.10.1. PROCESS AND APPROACH

Drought rates are governed by the requirements of Proposition 218 and Article X of the California Constitution. The development of the drought rates must show the nexus between the costs of providing water service and the rates charged to customers, must maximize the beneficial use of water (often defined as indoor use for health and hygiene), and must encourage conservation.

Drought rates are designed to recover lost revenue due to reduction in water use during each stage, to incorporate the potential changes to the City’s water supply sources and their corresponding costs, to align with specific drought stages outlined in the 2021 Water Shortage Contingency Plan, and to provide financial flexibility for the City when declaring drought stages and implementing the appropriate drought rates. The proposed rates are based on the City’s proposed water rates for FY 2024, which will go into effect January 1, 2024.

There are four steps to conducting a drought rate study, which include:

1. Allocating water reductions between various customer classes based on defined drought stages
2. Calculating financial impacts to the City in each stage
3. Determining the most appropriate drought cost recovery mechanism (rate structure)
4. Evaluating financial impacts to customers

For the first step of the drought rate study, City staff provided the Water Shortage Contingency Plan which was adopted in 2021. **Table 1-7** shows the overall reduction targets for the entire water system.

**Table 1-7: Drought Stages and Reduction**

Line	A Water Reduction	B Baseline	C Stage 1	D Stage 2	E Stage 3	F Stage 4	G Stage 5	H Stage 6
1	Target Reduction Goal	0%	≤10%	≤20%	≤30%	≤40%	≤50%	>50%

The water sales by drought stage are calculated using the target reductions developed in the Water Shortage Contingency Plan. **Table 1-8** shows the estimated water sales in ccf for each stage of drought that aligns with the percent reductions shown above in **Table 1-7**. Baseline is defined as water usage estimated in FY 2024.

**Table 1-8: Estimated Water Sales by Stage (ccf)**

Line	A Water Sales in ccf (FY 2024)	B Baseline	C Stage 1	D Stage 2	E Stage 3	F Stage 4	G Stage 5	H Stage 6
1	<b>Total</b>	5,031,962	4,528,766	4,025,570	3,522,373	3,019,177	2,515,981	2,258,585
2	<i>Percent Reduction</i>		-10%	-20%	-30%	-40%	-50%	-54%

A key step in a drought rate study is to calculate the financial implications for the City during a drought. Considerations include:

- How much commodity revenue is expected due to cutbacks?
- How much will this change the City’s water supply mix and the costs associated with each source?

- How will this change the City’s operating costs, if at all?

For the City, the most significant financial consequence is the loss of consumption-based revenue, the severity of which depends on the drought stage. Drought conditions will also require more staff to be hired to handle conservation efforts and respond to an increase in customer service requests. There will be additional costs associated with drought including increased printing and mailing costs for noticing customers of changes to their rates and other miscellaneous equipment. Conversely, the City can expect cost savings for Zone 7 water purchases and groundwater pumping since less water will be purchased and circulated through the system.

Based on direction provided by City staff, the drought rates were developed as a proportional commodity charge increase to the proposed water usage charges for FY 2024, which allows for the ability of customers to change their water bill, encourages conservation, and promotes affordability. To prevent increasing water bills for those users already conserving, each customer will be allowed a bi-monthly allotment of 10 ccf that will be exempt from the drought rates.

### 1.10.2. PROPOSED DROUGHT RATES

Table 1-9 through Table 1-11 show the proposed drought rates by customer class and tier for Stages 1 through 6. The drought rates for each stage are calculated based on the proportion of drought costs that need to be recovered in each stage multiplied by the base water usage rates. Based on Proposition 218 requirements, the resulting drought rates are the maximum that the City Council can implement. When officially declaring a drought stage, the Council has the discretion to implement a lower drought rate, use reserves to make up for lost revenue, defer capital projects to reduce total expenditures, or a combination of those three strategies to best meet the needs of the City.

**Table 1-9: FY 2024 Proposed Drought Rates (\$/ccf)**

Line	A Drought Rate Schedule	B Stage 1	C Stage 2	D Stage 3	E Stage 4	F Stage 5	G Stage 6
1	10 ccf allotment (all classes)						
2	Single Family Residential						
3	Tier 1	\$0.64	\$1.60	\$2.95	\$5.28	\$9.92	\$14.91
4	Tier 2	\$0.75	\$1.86	\$3.45	\$6.16	\$11.58	\$17.41
5	Tier 3	\$0.81	\$2.02	\$3.73	\$6.67	\$12.54	\$18.84
6	Tier 4	\$0.84	\$2.10	\$3.89	\$6.96	\$13.08	\$19.66
7	Multi-Family Residential	\$0.64	\$1.59	\$2.94	\$5.26	\$9.89	\$14.85
8	Commercial/Industrial	\$0.65	\$1.63	\$3.01	\$5.38	\$10.12	\$15.21
9	Irrigation	\$0.75	\$1.87	\$3.46	\$6.18	\$11.62	\$17.46

**Table 1-10: FY 2025 Proposed Drought Rates (\$/ccf)**

Line	A Drought Rate Schedule	B Stage 1	C Stage 2	D Stage 3	E Stage 4	F Stage 5	G Stage 6
1	10 ccf allotment (all classes)						
2	Single Family Residential						
3	Tier 1	\$0.77	\$1.92	\$3.54	\$6.34	\$11.91	\$17.90
4	Tier 2	\$0.90	\$2.24	\$4.14	\$7.40	\$13.90	\$20.90
5	Tier 3	\$0.98	\$2.43	\$4.48	\$8.01	\$15.05	\$22.61
6	Tier 4	\$1.01	\$2.52	\$4.67	\$8.36	\$15.70	\$23.60
7	Multi-Family Residential	\$0.77	\$1.91	\$3.53	\$6.32	\$11.87	\$17.82

8	Commercial/Industrial	\$0.78	\$1.96	\$3.62	\$6.46	\$12.15	\$18.26
9	Irrigation	\$0.90	\$2.25	\$4.16	\$7.42	\$13.95	\$20.96

**Table 1-11: FY 2026 Proposed Drought Rates (\$/ccf)**

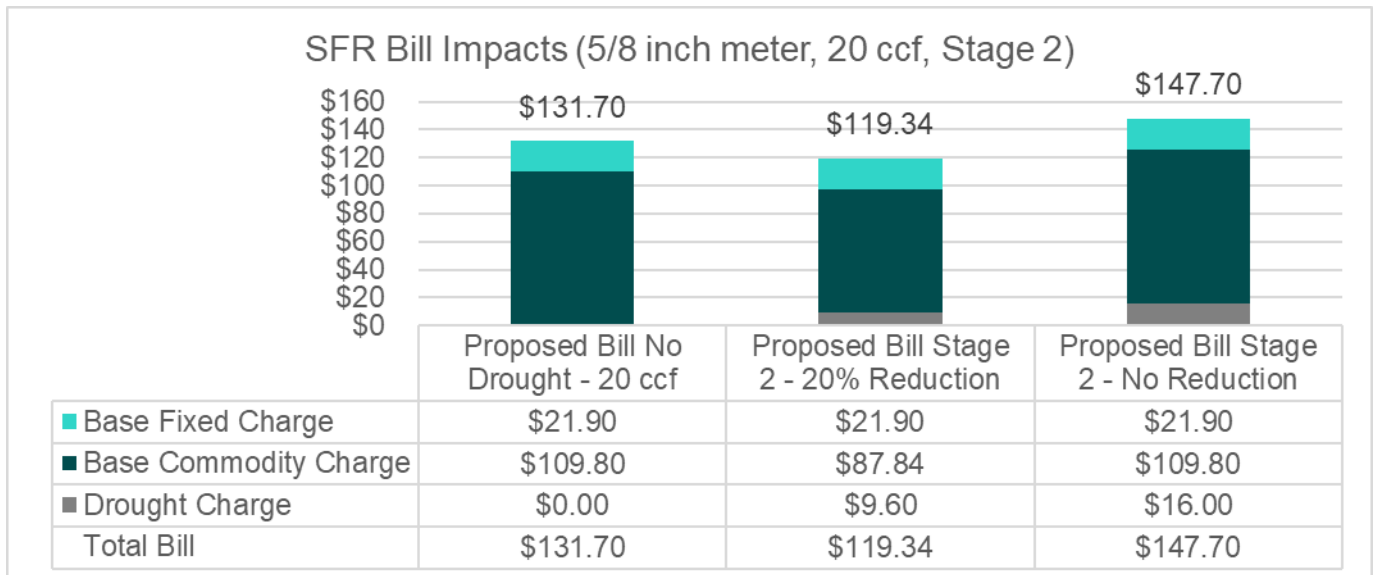
Line	A Drought Rate Schedule	B Stage 1	C Stage 2	D Stage 3	E Stage 4	F Stage 5	G Stage 6
1	10 ccf allotment (all classes)						
2	Single Family Residential						
3	Tier 1	\$0.87	\$2.16	\$3.97	\$7.11	\$13.34	\$20.05
4	Tier 2	\$1.01	\$2.51	\$4.64	\$8.29	\$15.57	\$23.41
5	Tier 3	\$1.10	\$2.73	\$5.02	\$8.98	\$16.86	\$25.33
6	Tier 4	\$1.14	\$2.83	\$5.24	\$9.37	\$17.59	\$26.44
7	Multi-Family Residential	\$0.87	\$2.14	\$3.96	\$7.08	\$13.30	\$19.96
8	Commercial/Industrial	\$0.88	\$2.20	\$4.06	\$7.24	\$13.61	\$20.46
9	Irrigation	\$1.01	\$2.52	\$4.66	\$8.32	\$15.63	\$23.48

### 1.10.3. CUSTOMER IMPACTS

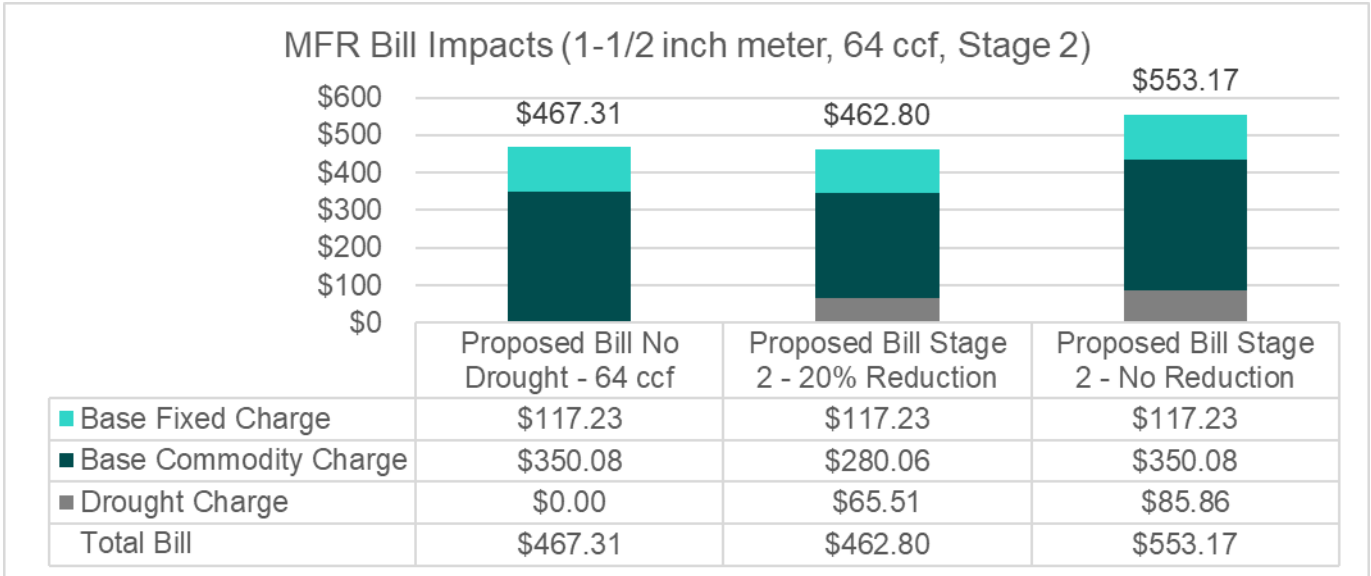
Figure 1-6 through Figure 1-9 show the bill impacts for a Single Family, Multi-Family, Commercial, and Irrigation customer, respectively. Each bill calculation uses the most common meter size and the median usage for that customer class.

The figures demonstrate that when the City’s customers comply with the recommended water usage reductions as defined by the Water Shortage Contingency Plan, the customer’s water bill during a drought will not exceed their baseline water bill. However, if customers do not comply with the recommended water usage reductions, then the impact to their water bill can be significant.

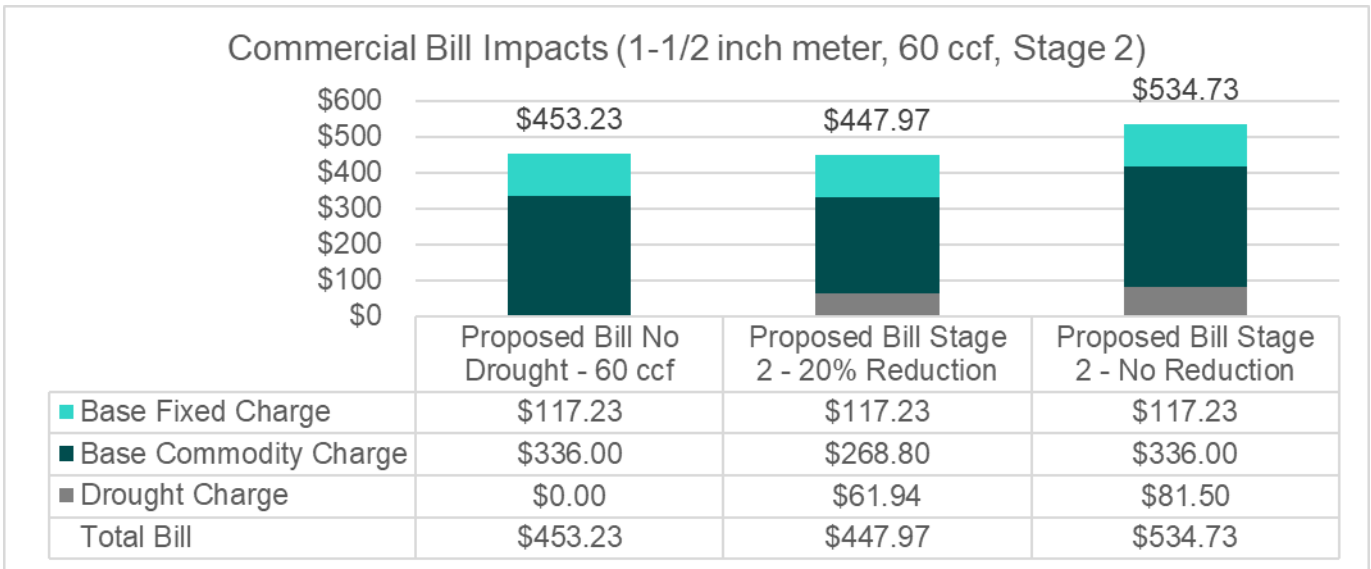
**Figure 1-6: Single Family Residential Bill Impacts**



**Figure 1-7: Multi-Family Residential Bill Impacts**

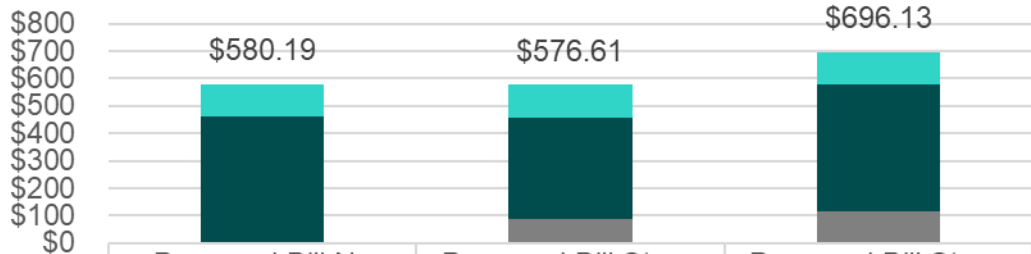


**Figure 1-8: Commercial Bill Impacts**



**Figure 1-9: Irrigation Bill Impacts**

Irrigation Bill Impacts (1-1/2 inch meter, 72 ccf, Stage 2)



	Proposed Bill No Drought - 72 ccf	Proposed Bill Stage 2 - 20% Reduction	Proposed Bill Stage 2 - No Reduction
■ Base Fixed Charge	\$117.23	\$117.23	\$117.23
■ Base Commodity Charge	\$462.96	\$370.37	\$462.96
■ Drought Charge	\$0.00	\$89.01	\$115.94
<b>Total Bill</b>	<b>\$580.19</b>	<b>\$576.61</b>	<b>\$696.13</b>



## 2. Financial Plan

This section of the Report describes the proposed financial plan for the water and recycled water enterprise funds. To develop the financial plan, Raftelis projected annual revenues and expenses, modeled reserve balances, projected capital expenditures, and calculated debt service coverage to estimate the amount of additional rate revenue needed each year. Numbers shown in the tables of this section are rounded. Therefore, hand calculations based on the displayed numbers, such as summing or multiplying, may not equal the exact results shown.

### 2.1. Inflationary Assumptions

Inflationary factors are used to escalate the revenue and cost categories across the planning period, which for this Study is from FY 2024 to FY 2026. The City’s most recent adopted revenue and expense budgets are for FY 2024. Raftelis worked with City staff to escalate individual budget line items according to the appropriate escalation factor. The escalation factors used to project revenues are shown in **Table 2-1** and expenses for the Study period are shown in **Table 2-2**. These factors are based on industry indices, such as general inflation based on the CIP, and input from City staff.

**Table 2-1: Revenue Inflation Factors**

Line	A Revenue Escalation Factors	B FY 2024	C FY 2025	D FY 2026
1	Miscellaneous Revenues	0.0%	0.0%	0.0%
2	Meter Sales	1.7%	1.7%	1.7%
3	Reimbursements	0.0%	0.0%	0.0%
4	Reserve Interest Rate	1.0%	1.0%	1.0%

**Table 2-2: Expense Inflation Factors**

Line	A Expense Escalation Factors	B FY 2024	C FY 2025	D FY 2026
1	General	5.0%	5.0%	5.0%
2	Salaries	3.0%	3.0%	3.0%
3	Health Benefits	7.8%	10.0%	6.0%
4	Other Benefits	3.0%	3.0%	3.0%
5	Water	6.0%	6.0%	6.0%
6	Utilities	5.0%	5.0%	4.0%
7	Capital	12.5%	12.5%	10.0%

### 2.2. Current Water Rates

The City’s current water rates were implemented February 1, 2023 and include a bi-monthly service charge based on meter size, a tiered usage rate charged for every ccf of water used, and a surcharge for recycled water charged for every ccf of water used. The recycled water surcharge is charged to SFR customers using Tier 2 or higher water usage and all other customers with their water usage. The City also has a water rate discount program for senior citizen and low income customers. Those who qualify and use at or below 30 ccf of water every bi-monthly billing period are discounted 30% for low income customers and 20% for senior customers. The discount program applies to the City’s water fixed and variable charges and Zone 7 charges.

**Table 2-3** shows the current bi-monthly service charges by meter size. **Table 2-4** shows the current tiered usage rate by customer class and by bi-monthly tiers.

**Table 2-3: Current Bi-Monthly Service Charge**

	A	B
Line	Bi-Monthly Meter Service Charge	Current FY 2023
1	5/8 inch	\$19.93
2	3/4 inch	\$29.89
3	1 inch	\$49.84
4	1-1/2 inch	\$99.67
5	2 inch	\$159.48
6	3 inch	\$348.90
7	4 inch	\$996.83
8	6 inch	\$1,993.67
9	8 inch	\$3,488.91
10	10 inch	\$5,482.57

**Table 2-4: Current Consumption Charges**

	A	B
Line	Consumption Charge	Current FY 2023
1	Single Family Residential	
2	Tier 1 - 20 ccf	\$3.93
3	Tier 2 - 40 ccf	\$4.42
4	Tier 3 - 60 ccf	\$4.68
5	Tier 4 - 60+ ccf	\$5.53
6	Multi-Family Residential	\$4.44
7	Commercial	\$4.44
8	Industrial	\$4.44
9	Irrigation	\$4.60
10	Recycled Water Irrigation	\$4.05

### 2.3. Customer Accounts and Usage

City Staff provided detailed customer billing data for FY 2022, which included information such as customer class, billed consumption in ccf, and meter size for each of the bi-monthly billing periods. Future usage and accounts were projected based off of FY 2022 data.

**Table 2-5** shows the projected meter counts by customer class and meter size for the Study period. **Table 2-6** shows the projected water usage in ccf by customer class and tier for the Study period. We assume an annual increase in demand of 2.5% from FY 2025 through FY 2026 for all customer classes except recycled water irrigation, which is assumed to remain at constant demand for the study period. The assumed account growth is 1.0% annually across all customer classes.

**Table 2-5: Projected Customer Accounts**

	A	B	C	D	E
Line	Water Accounts	Current	FY 2024	FY 2025	FY 2026
1	5/8 inch	18,944	19,133	19,324	19,518
2	3/4 inch	2,484	2,508	2,533	2,559
3	1 inch	3,661	3,698	3,735	3,772
4	1-1/2 inch	756	763	771	779
5	2 inch	579	584	590	596
6	3 inch	100	101	102	103
7	4 inch	25	26	26	26
8	6 inch	10	10	10	10
9	8 inch	3	3	3	3
10	10 inch	0	0	0	0
11	<b>Total - Accounts</b>	<b>26,561</b>	<b>26,827</b>	<b>27,095</b>	<b>27,366</b>

**Table 2-6: Projected Water Usage**

	A	B	C	D	E
Line	Water Usage	Current	FY 2024	FY 2025	FY 2026
1	Single Family Residential				
2	Tier 1	1,835,089	1,529,088	1,582,988	1,638,789
3	Tier 2	653,553	544,573	563,769	583,642
4	Tier 3	267,866	223,199	231,067	239,212
5	Tier 4	428,356	356,928	369,510	382,535
6	Total - Single Family Residential	<b>3,184,864</b>	<b>2,653,788</b>	<b>2,747,334</b>	<b>2,844,177</b>
7					
8	Multi-Family Residential	595,978	496,599	514,104	532,226
9	Low Income Single Family Residential	22,631	18,858	19,522	20,210
10	Low Income Multi-Family Residential	2,216	1,847	1,912	1,979
11	Senior Citizen Single Family Residential	408,407	340,305	352,301	364,719
12	Senior Citizen Multi-Family Residential	35,450	29,538	30,580	31,658
13	Commercial	548,442	456,989	473,098	489,775
14	Industrial	20,265	16,886	17,481	18,097
15	Irrigation	1,220,706	1,017,153	1,053,008	1,090,127
16	Recycled Water Irrigation	663,591	670,227	676,930	683,699
17					
18	<b>Total - Water Usage</b>	<b>6,702,550</b>	<b>5,702,189</b>	<b>5,886,268</b>	<b>6,076,667</b>

## 2.4. Projected Revenues at Current Rates

Rate revenues for FY 2023 through FY 2026 were calculated based on the City’s current water rates. The projected annual rate revenues from the bi-monthly service charges are shown in **Table 2-7** and **Table 2-8** shows the projected revenue collected from current consumption charges by customer class. **Table 2-9** shows the projected revenue reductions for low income and senior customers. **Table 2-10** shows the total projected revenues including the service charges, consumption charges, and discount reductions. **Table 2-11** shows the revenue from the resale of recycled water and the recycled water surcharge.

**Table 2-7: Calculated Bi-Monthly Service Charge Revenue**

Line	Calculated Revenues	A	B	C	D	E
			Current	FY 2024	FY 2025	FY 2026
1	<b>Bi-Monthly Water Service Charge</b>					
2	Single Family Residential		\$3,116,033	\$3,147,193	\$3,178,665	\$3,210,452
3	Multi-Family Residential		\$409,700	\$413,797	\$417,935	\$422,114
4	Low Income Single Family Residential		\$31,560	\$31,876	\$32,194	\$32,516
5	Low Income Multi-Family Residential		\$1,338	\$1,351	\$1,365	\$1,379
6	Senior Citizen Single Family Residential		\$449,690	\$454,187	\$458,729	\$463,316
7	Senior Citizen Multi-Family Residential		\$26,397	\$26,661	\$26,928	\$27,197
8	Commercial		\$660,834	\$667,442	\$674,116	\$680,858
9	Industrial		\$5,535	\$5,591	\$5,647	\$5,703
10	Irrigation		\$506,643	\$511,709	\$516,826	\$521,994
11	Recycled Water Irrigation		\$149,624	\$151,121	\$152,632	\$154,158
12	<b>Total - Bi-Monthly Water Service Charge</b>		<b>\$5,357,353</b>	<b>\$5,410,927</b>	<b>\$5,465,036</b>	<b>\$5,519,687</b>

**Table 2-8: Calculated Water Consumption Revenue**

Line	Calculated Revenues	A	B	C	D	E
			Current	FY 2024	FY 2025	FY 2026
1	<b>Pleasanton Consumption Charge</b>					
2	Single Family Residential		\$12,993,539	\$11,322,240	\$11,721,349	\$12,134,526
3	Multi-Family Residential		\$2,475,296	\$2,155,239	\$2,231,211	\$2,309,862
4	Low Income Single Family Residential		\$84,717	\$74,110	\$76,722	\$79,427
5	Low Income Multi-Family Residential		\$9,204	\$8,014	\$8,296	\$8,589
6	Senior Citizen Single Family Residential		\$1,528,803	\$1,337,399	\$1,384,542	\$1,433,347
7	Senior Citizen Multi-Family Residential		\$147,234	\$128,196	\$132,715	\$137,394
8	Commercial/Industrial		\$2,277,861	\$1,983,332	\$2,053,245	\$2,125,622
9	Industrial		\$84,166	\$73,283	\$75,867	\$78,541
10	Irrigation		\$5,265,312	\$4,577,190	\$4,738,536	\$4,905,570
11	Recycled Water Irrigation		\$2,575,288	\$2,714,421	\$2,741,565	\$2,768,981
12	<b>Total - Pleasanton Consumption Charge</b>		<b>\$27,441,420</b>	<b>\$24,373,425</b>	<b>\$25,164,049</b>	<b>\$25,981,858</b>

**Table 2-9: Calculated Discount Program Revenue Reductions**

Line	Calculated Revenues	A	B	C	D	E
			Current	FY 2024	FY 2025	FY 2026
1	<b>Revenue Reductions</b>					
2	Low Income Single Family Residential		(\$34,883)	(\$31,796)	(\$32,675)	(\$33,583)
3	Low Income Multi-Family Residential		(\$3,163)	(\$2,810)	(\$2,898)	(\$2,990)
4	Senior Citizen Single Family Residential		(\$395,699)	(\$358,317)	(\$368,654)	(\$379,333)
5	Senior Citizen Multi-Family Residential		(\$34,726)	(\$30,971)	(\$31,929)	(\$32,918)
6	<b>Total - Revenue Reductions</b>		<b>(\$468,470)</b>	<b>(\$423,894)</b>	<b>(\$436,156)</b>	<b>(\$448,824)</b>

**Table 2-10: Calculated Water Revenues**

Line	Calculated Revenues	A	B	C	D	E
			Current	FY 2024	FY 2025	FY 2026
1	Bi-Monthly Water Service Charge		\$5,357,353	\$5,410,927	\$5,465,036	\$5,519,687
2	Pleasanton Consumption Charge		\$27,441,420	\$24,373,425	\$25,164,049	\$25,981,858
3	Revenue Reductions		(\$468,470)	(\$423,894)	(\$436,156)	(\$448,824)
4	<b>Water Revenues</b>		<b>\$29,605,391</b>	<b>\$26,494,917</b>	<b>\$27,298,732</b>	<b>\$28,129,581</b>

**Table 2-11: Calculated Recycled Water Revenues**

Line	Recycled Water Revenues	A	B	C	D	E
			Current	FY 2024	FY 2025	FY 2026
1	Resale Of Recycled Water		\$2,724,912	\$2,865,542	\$2,894,197	\$2,923,139
2	Recycled Water Surcharge		\$373,517	\$311,233	\$322,204	\$333,561
3	<b>Total - Recycled Water Revenues</b>		<b>\$3,098,429</b>	<b>\$3,176,774</b>	<b>\$3,216,401</b>	<b>\$3,256,700</b>

## 2.5. Projected Revenues

**Table 2-12** shows the utility’s projected revenues for both water and recycled water for the Study period. City staff provided budgeted revenues for FY 2023 and FY 2024 (Column B and C). Water and recycled water rate revenues (Lines 2 and 8) are equal to the calculated rate revenues at current rates for FY 2023 and beyond.

Miscellaneous, non-rate revenues are considered other revenue (Lines 3 and 9) and are inflated using the corresponding revenue escalation factor (**Table 2-1**). Interest income (Lines 4 and 10) is calculated based on the reserve interest rate (**Table 2-1**, Line 4) and projected fund balances.

**Table 2-12: Projected Revenue Summary**

Line	A Revenue Summary	B Current	C FY 2024	D FY 2025	E FY 2026
1	<b>Water</b>				
2	Rate Revenues	\$26,000,000	\$26,918,811	\$27,734,889	\$28,578,405
3	Other Revenues	\$2,383,041	\$2,720,041	\$1,021,041	\$1,047,000
4	Interest Income	\$275,000	\$275,000	\$84,406	\$85,804
5	<b>Total - Water</b>	<b>\$28,658,041</b>	<b>\$29,913,852</b>	<b>\$28,840,336</b>	<b>\$29,711,209</b>
6					
7	<b>Recycled Water</b>				
8	Rate Revenues	\$3,100,000	\$3,255,500	\$3,216,401	\$3,256,700
9	Other Revenues	\$930,330	\$969,462	\$987,962	\$1,036,462
10	Interest Income	\$0	\$0	(\$3,225)	\$20,085
11	<b>Total - Recycled Water</b>	<b>\$4,030,330</b>	<b>\$4,224,962</b>	<b>\$4,201,137</b>	<b>\$4,313,248</b>

## 2.6. Estimated Purchased Water Costs

The City purchases most of its water supply from the Zone 7 Water Agency. The water utility’s annual purchased water cost includes an annual fixed charge and a variable rate per ccf of water. Zone 7 rates are set based on the calendar year, so fixed and variable rates for the FY are an average between the calendar year rates for July-December and January-June of the following year.

**Table 2-13** shows the purchased water cost calculations for the Study period. The City estimates 10% water loss for the system (Line 1). Water demand (Line 19) is equal to the total water demand for all customers. The amount of water produced (Line 20) is based on water demand accounting for water loss.

City staff provided current Zone 7 fixed and variable water costs for FY 2019 through FY 2023. These rates are inflated for future years using the water escalation factor (**Table 2-2**, Line 5). Zone 7 water costs (Line 30) are calculated by multiplying the water produced (Line 20) by the variable water cost (Line 12) plus the annual fixed charge for each year (Line 7).

**Table 2-13: Calculated Zone 7 Water Supply Cost**

Line	A Water Supply Cost	B Current	C FY 2024	D FY 2025	E FY 2026
1	Water Loss	10%	10%	10%	10%
2					
3	<b>Zone 7 Water Agency Rates</b>				
4	Fixed Charge (\$/year)				
5	First Half	\$7,785,058	\$9,107,878	\$9,654,351	\$10,233,612
6	Second Half	\$9,107,878	\$9,654,351	\$10,233,612	\$10,847,628
7	Average	<b>\$8,446,468</b>	<b>\$9,381,114</b>	<b>\$9,943,981</b>	<b>\$10,540,620</b>
8					
9	<b>Variable Charge (\$/ccf)</b>				
10	First Half	\$2.06	\$2.27	\$2.34	\$2.44
11	Second Half	\$2.27	\$2.34	\$2.44	\$2.47
12	Average	\$2.17	\$2.31	\$2.39	\$2.46
13					
14	<b>Water Available (AF)</b>				
15	City Wells	3,500	0	0	1,750
16	Zone 7 Water Agency	0	0	0	0
17	<b>Total - Water Available (AF)</b>	<b>3,500</b>	<b>0</b>	<b>0</b>	<b>1,750</b>
18					
19	Water Demanded (AF)	13,864	11,552	11,959	12,381
20	Water Produced (AF)	15,404	12,835	13,288	13,756
21					
22	<b>Water Production (AF)</b>				
23	City Wells	3,500	0	0	1,750
24	Zone 7 Water Agency	11,904	12,835	13,288	12,006
25	<b>Total - Water Production (AF)</b>	<b>15,404</b>	<b>12,835</b>	<b>13,288</b>	<b>13,756</b>
26					
27	<b>Water Supply Costs</b>				
28	Zone 7 Fixed Charges	\$8,446,468	\$9,381,114	\$9,943,981	\$10,540,620
29	Zone 7 Variable Charges	\$11,226,290	\$12,887,414	\$13,833,688	\$12,839,371
30	<b>Total - Water Supply Costs</b>	<b>\$19,672,758</b>	<b>\$22,268,528</b>	<b>\$23,777,669</b>	<b>\$23,379,991</b>

The City purchases its recycled water from the Livermore Water Reclamation Plant (Livermore) and the DSRSD-EBMUD Recycled Water Authority (DERWA). The water utility is charged a variable rate per ccf of recycled water purchased from both agencies. **Table 2-14** shows the reclaimed water cost. Recycled water demand is equal to the total recycled water irrigation demand (**Table 2-6**). Recycled water produced is based on recycled water demand accounting for water loss (**Table 2-13**, Line 1). The proportion of demand is based on the proportion of recycled water purchased from each source. The production from each agency is calculated by multiplying the total recycled water production with the percentage proportion of demand for each agency.

City staff provided Livermore and DERWA variable costs for FY 2023. These rates are inflated for future years using the water escalation factor (**Table 2-2**, Line 5). Recycled water costs are calculated by multiplying the recycled water produced from each source (Lines 13 and 14) by the variable recycled water cost for each agency.

**Table 2-14: Calculated Recycled Water Cost**

Line	A Recycled Water Cost	B Current	C FY 2024	D FY 2025	E FY 2026
1	<b>Variable Charges (\$/ccf)</b>				
2	Livermore	\$4.61	\$4.89	\$5.18	\$5.49
3	DERWA	\$1.51	\$1.60	\$1.70	\$1.80
4					
5	<b>Proportion of Demand</b>				
6	Livermore	10%	10%	10%	10%
7	DERWA	90%	90%	90%	90%
8					
9	Recycled Water Demand (ccf)	663,591	670,227	676,930	683,699
10	Recycled Water Produced (ccf)	737,324	744,697	752,144	759,666
11					
12	<b>Recycled Water Production (ccf)</b>				
13	Livermore	73,732	74,470	75,214	75,967
14	DERWA	663,591	670,227	676,930	683,699
15	<b>Total - Recycled Water Production (ccf)</b>	<b>737,324</b>	<b>744,697</b>	<b>752,144</b>	<b>759,666</b>
16					
17	<b>Recycled Water Supply Cost</b>				
18	Livermore	\$339,906	\$363,904	\$389,595	\$417,101
19	DERWA	\$1,002,023	\$1,072,766	\$1,148,503	\$1,229,588
20	<b>Total - Recycled Water Supply Cost</b>	<b>\$1,341,929</b>	<b>\$1,436,670</b>	<b>\$1,538,099</b>	<b>\$1,646,688</b>

## 2.7. Projected O&M Expenses

**Table 2-15** summarizes the projected O&M expenses for the Study period. City staff provided the adopted budget for FY 2024, which was inflated for future years using the expense escalation factors (**Table 2-2**). Water purchase costs (Line 4 and 11) are equal to the calculated costs (**Table 2-13** and **Table 2-14**) from FY 2025 and beyond.



**Table 2-15: Projected O&M Expenses**

Line	A O&M Expenses	B Current	C FY 2024	D FY 2025	E FY 2026
1	<b>Water</b>				
2	Labor	\$5,171,351	\$6,068,377	\$6,321,562	\$6,555,501
3	Electricity	\$1,075,000	\$800,000	\$848,400	\$891,159
4	Purchased Water	\$17,660,000	\$22,110,000	\$23,608,398	\$23,213,551
5	Other Expenses	\$3,739,313	\$4,095,990	\$4,314,900	\$4,548,436
6	Attrition Savings	(\$103,427)	(\$121,368)	(\$126,431)	(\$131,110)
7	<b>Total - Water</b>	<b>\$27,542,237</b>	<b>\$32,952,999</b>	<b>\$34,966,828</b>	<b>\$35,077,537</b>
8					
9	<b>Recycled Water</b>				
10	Labor	\$572,442	\$616,410	\$643,650	\$668,318
11	Purchased Water	\$1,115,000	\$1,690,021	\$1,809,337	\$1,937,076
12	Other Expenses	\$210,219	\$157,975	\$165,854	\$174,038
13	Attrition Savings	(\$11,449)	(\$12,328)	(\$12,873)	(\$13,366)
14	<b>Total - Recycled Water</b>	<b>\$1,886,212</b>	<b>\$2,452,078</b>	<b>\$2,605,968</b>	<b>\$2,766,066</b>
15					
16	<b>Total - O&amp;M Expenses</b>	<b>\$29,428,449</b>	<b>\$35,405,077</b>	<b>\$37,572,796</b>	<b>\$37,843,602</b>

## 2.8. Existing Debt Service

Table 2-16 shows the City’s existing debt service. Water does not currently have any existing lines of debt. Recycled water has two lines of debt, one of which will end after FY 2025. The City plans to take out a \$6M loan in FY 2024. The debt scenario used in this Study includes a 5% interest rate and a 5-year repayment period. Annual debt service payments of approximately \$1.4M annually will begin in FY 2024. The City does not expect to issue any additional debt to fund capital projects for this Study period.

**Table 2-16: Existing Debt Service Summary**

Line	A Existing Debt Service	B FY 2024	C FY 2025	D FY 2026
1	<b>Water</b>			
2	N/A	\$0	\$0	\$0
3	<b>Total - Water</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
4				
5	<b>Recycled Water</b>			
6	Recycled Water State Loan	\$434,895	\$434,895	\$434,895
7	Recycled Water Bank Note	\$980,640	\$980,640	\$0
8	<b>Total - Recycled Water</b>	<b>\$1,415,535</b>	<b>\$1,415,535</b>	<b>\$434,895</b>
9				
10	<b>Total - Existing Debt Service</b>	<b>\$1,415,535</b>	<b>\$1,415,535</b>	<b>\$434,895</b>

## 2.9. Capital Project Funding

Table 2-17 details the City’s capital improvement plan for water and recycled water. City staff provided five-year CIP based on current year dollars. From FY 2023 onward, CIP costs are inflated using the expense escalation

factor for capital (Table 2-2, Line 7). The City expects to fully fund its water and recycled water capital program using cash from rate revenues and reserves.

**Table 2-17: Projected CIP**

Line	A Capital Improvement Plan	B FY 2024	C FY 2025	D FY 2026
1	<b>Water Replacement</b>			
2	Emergency Power Improvements	\$0	\$0	\$0
3	Water Capacity Evaluation	\$50,000	\$56,250	\$61,875
4	Water System Management Plan	\$0	\$0	\$0
5	Annual Water Distribution System Improvements	\$1,000,000	\$1,125,000	\$1,237,500
6	SCADA and Controls Master Plan	\$0	\$0	\$0
7	Santa Rita & Hopyard Piping Impv	\$0	\$0	\$0
8	Foothill and Sycamore RCS	\$0	\$0	\$0
9	West Las Positas Boulevard Reconstruction	\$205,000	\$0	\$0
10	Infrastructure Improvements	\$2,000,000	\$2,250,000	\$4,950,000
11	Water Supply Alternatives Design Phase	\$2,000,000	\$2,250,000	\$2,475,000
12	<b>Total - Water Replacement</b>	<b>\$5,255,000</b>	<b>\$5,681,250</b>	<b>\$8,724,375</b>
13				
14	<b>Water R&amp;R</b>			
15	Machinery And Equipment	\$0	\$0	\$0
16	Buildings & Structures	\$0	\$0	\$0
17	CIP Projection	\$700,000	\$787,500	\$866,250
18	<b>Total - Water R&amp;R</b>	<b>\$700,000</b>	<b>\$787,500</b>	<b>\$866,250</b>
19				
20	<b>Recycled Water</b>			
21	Annual Recycled Water System Repairs and Improvements	\$50,000	\$56,250	\$61,875
22	Recycled Water System Management Plan	\$0	\$0	\$0
23	Regional Fill Station	\$0	\$0	\$0
24	<b>Total - Recycled Water</b>	<b>\$50,000</b>	<b>\$56,250</b>	<b>\$61,875</b>
25				
26	<b>Total - Capital Projects</b>	<b>\$6,005,000</b>	<b>\$6,525,000</b>	<b>\$9,652,500</b>

## 2.10. Status Quo Financial Plan

Table 2-18 shows the projected financial plan based on revenues at existing rates with no adjustments, or the “status quo” scenario. Revenues (Line 10) are derived from Table 2-12. Note that the revenues from interest income in the status quo scenario is lower due to a decrease in fund balances. O&M expenses (Line 18) are derived from Table 2-15. Existing and proposed debt service (Lines 21 and 22) and cash funded CIP (Lines 23 and 24) are derived from Table 2-16 and Table 2-17, respectively.

Net revenue is equal to total revenues (Line 10) less O&M expenses (Line 18). Net cash flow (Line 27) is equal to net revenue less debt service and cash funded CIP (Line 25). Debt coverage (Line 31) is calculated by dividing net revenue by debt service. The water utility will default on debt coverage starting in FY 2024. City staff provided projected beginning fund balances for FY 2024 (Column B, Lines 35 and 40). Ending balances (Lines 36, 41, and 46) are calculated by adding beginning balances to net cash flow. The reserve targets of 35% of annual water and recycled water O&M expenses are derived from the City’s existing reserve policies. Under the status quo scenario, the water utility as a whole will not meet reserve targets in any year of the Study period.

**Table 2-18: Status Quo Financial Plan**

Line	A Financial Plan	B FY 2024	C FY 2025	D FY 2026
1	<b>Revenues</b>			
2	Rate Revenues			
3	Water	\$26,918,811	\$27,734,889	\$28,578,405
4	Recycled Water	\$3,255,500	\$3,216,401	\$3,256,700
5	Revenue Adjustments	\$0	\$0	\$0
6	Other Revenues - Water	\$2,720,041	\$1,021,041	\$1,047,000
7	Other Revenues - Recycled Water	\$969,462	\$987,962	\$1,036,462
8	Interest Income - Water	\$275,000	\$0	\$0
9	Interest Income - Recycled Water	\$0	\$0	\$0
10	<b>Total - Revenues</b>	<b>\$34,138,814</b>	<b>\$32,960,292</b>	<b>\$33,918,568</b>
11				
12	<b>O&amp;M Expenses</b>			
13	Purchased Water Fixed - Water	\$9,314,331	\$9,873,191	\$10,465,582
14	Purchased Water Variable - Water	\$12,795,669	\$13,735,207	\$12,747,969
15	Purchased Water - Recycled Water	\$1,690,021	\$1,809,337	\$1,937,076
16	O&M Expenses - Water	\$10,842,999	\$11,358,431	\$11,863,986
17	O&M Expenses - Recycled Water	\$762,057	\$796,631	\$828,990
18	<b>Total - O&amp;M Expenses</b>	<b>\$35,405,077</b>	<b>\$37,572,796</b>	<b>\$37,843,602</b>
19				
20	<b>Debt and Capital</b>			
21	Debt Service - Water	\$1,385,849	\$1,385,849	\$1,385,849
22	Debt Service - Recycled Water	\$1,415,535	\$1,415,535	\$434,895
23	Rate Funded CIP - Water	\$3,955,000	\$4,468,750	\$7,590,625
24	Rate Funded CIP - Recycled Water	\$50,000	\$56,250	\$61,875
25	<b>Total - Debt and Capital</b>	<b>\$6,806,384</b>	<b>\$7,326,384</b>	<b>\$9,473,244</b>
26				
27	<b>Net Cash Flow</b>	<b>(\$8,072,648)</b>	<b>(\$11,938,888)</b>	<b>(\$13,398,278)</b>
28	Net Revenue	(\$1,266,264)	(\$4,612,504)	(\$3,925,035)
29				
30	<b>Debt Coverage</b>			
31	Calculated	(0.89)	(3.26)	(9.03)
32	Required	1.25	1.25	1.25
33				
34	<b>Water Operating and Capital</b>			
35	Beginning Balance	\$9,852,554	\$5,472,557	(\$8,592,940)
36	Ending Balance	\$5,472,557	(\$8,592,940)	(\$25,021,546)
37	Reserve Target	\$11,533,550	\$12,238,390	\$12,277,138
38				
39	<b>Recycled Water Operating</b>			
40	Beginning Balance	(\$1,873,039)	(\$1,565,690)	(\$1,439,080)
41	Ending Balance	(\$1,565,690)	(\$1,439,080)	(\$408,753)
42	Reserve Target	\$918,997	\$962,858	\$1,007,642
43				
44	<b>Combined Financial Plan</b>			
45	Beginning Balances	\$7,979,515	\$3,906,867	(\$10,032,020)
46	Ending Balances	\$3,906,867	(\$10,032,020)	(\$25,430,299)
47	Reserve Target	\$12,452,547	\$13,201,248	\$13,284,780

**Figure 2-1** and **Figure 2-2** show the projected status quo financial plans for water and recycled water in graphical format, respectively. The bars represent the water utility’s cash needs: O&M expenses (light gray), debt service (dark gray), rate funded capital (yellow), reserve funding (green), and purchased water (blue). The solid line represents the current revenues, which is below the stacked bars for each for water, signifying that the City’s current water revenues are not sufficient to fund its costs.

Figure 2-1: Status Quo Financial Plan – Water

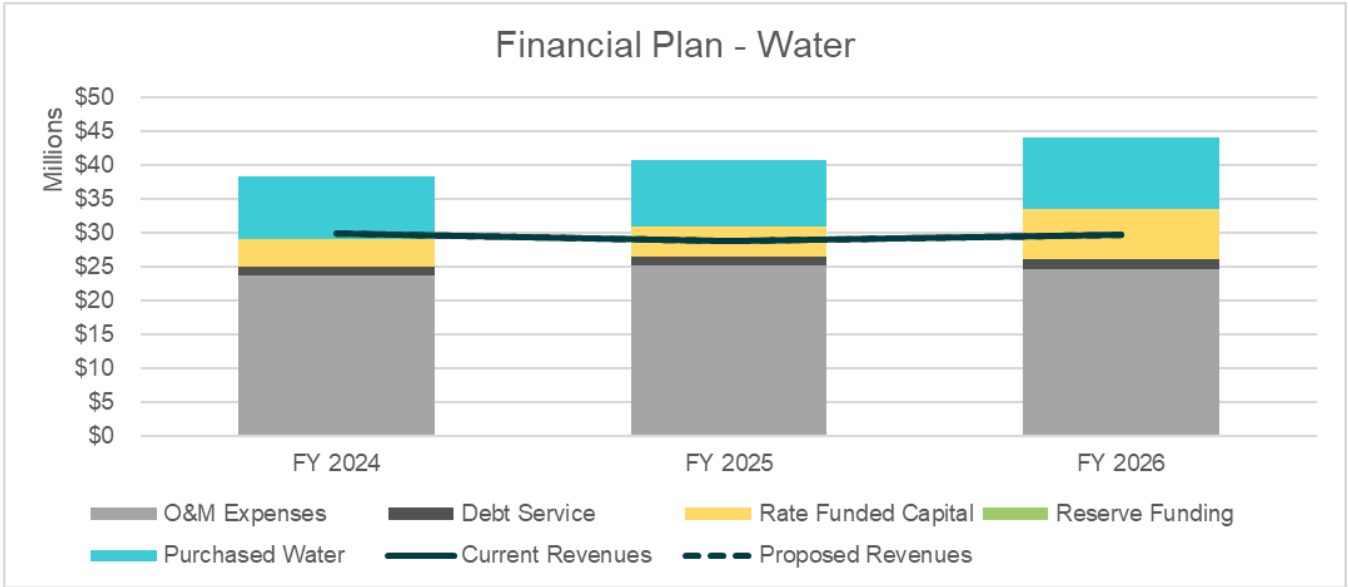


Figure 2-2: Status Quo Financial Plan – Recycled Water

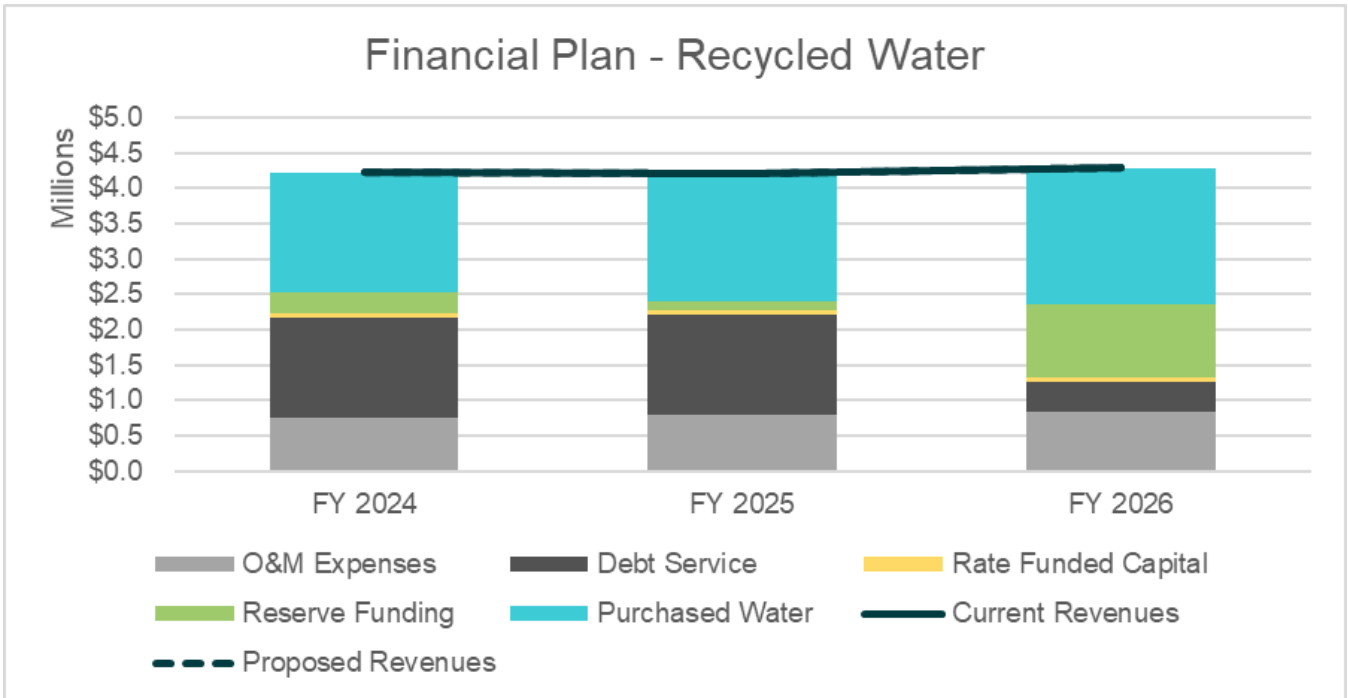
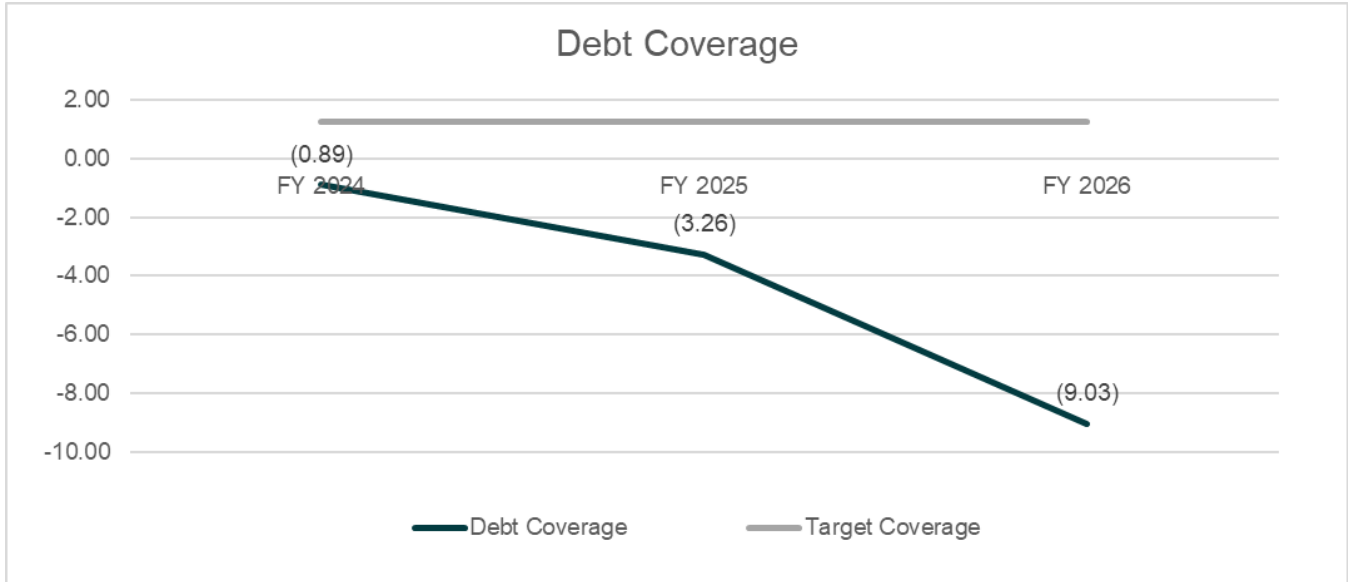


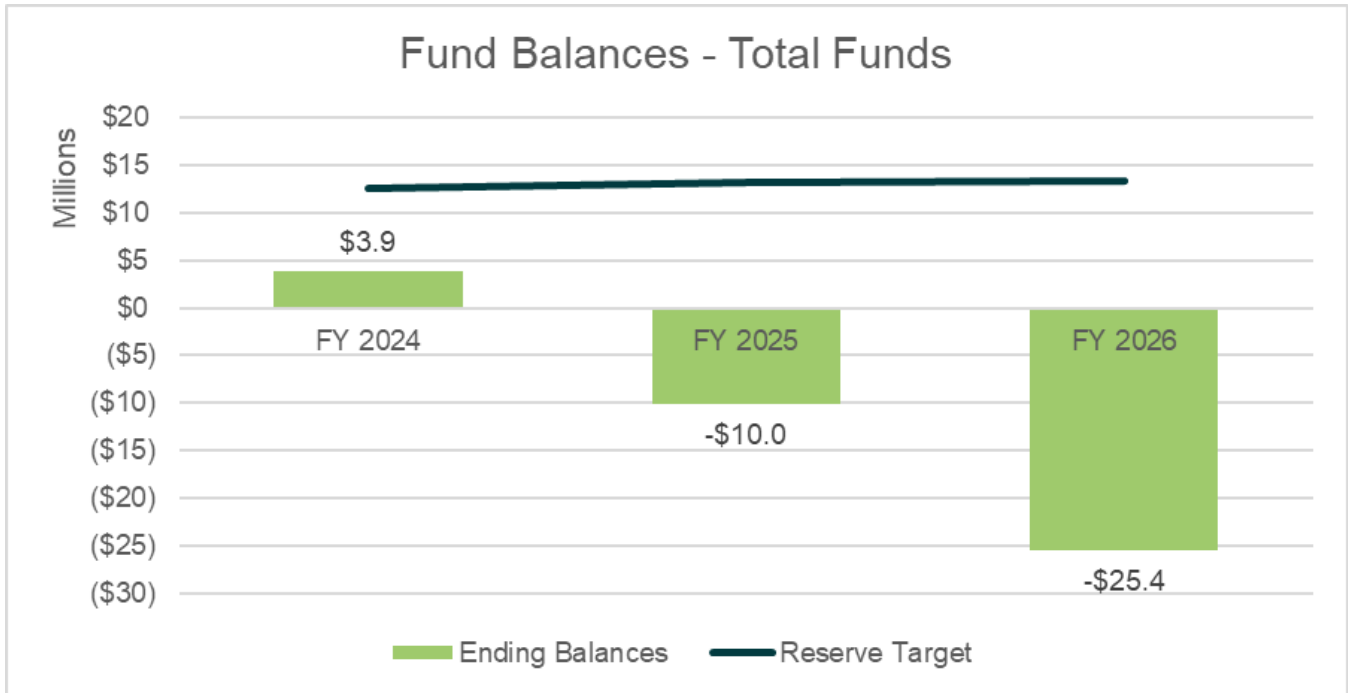
Figure 2-3 shows the projected debt service coverage under the status quo scenario for the Study period. The gray line represents the target debt service coverage of 1.25 and the dark blue line represents the calculated debt service coverage. The water utility will default on debt service coverage beginning in FY 2024 and each year thereafter.

**Figure 2-3: Status Quo Debt Service Coverage**



**Figure 2-4** shows the projected combined fund balances under the status quo scenario for the Study period. The green bars represent the ending balances and the solid line represents the reserve target amounts. The water fund will be under target in every year of the rate Study and fall below zero in FY 2025 and beyond.

**Figure 2-4: Status Quo Scenario Fund Balances**



## 2.11. Proposed Financial Plan

**Table 2-19** shows the proposed revenue adjustments that allow the City to maintain financial sufficiency, fund operating and capital expenses, and build up cash reserves to achieve target fund balances by the end of the Study period. The proposed revenue adjustments represent the increase to total rate revenues required to recover the

water utility’s costs and not the expected impact to each customer class. Revenue adjustments in subsequent years are applied across all charges, classes, and tiers proportional to the base year rates developed for FY 2024. The revenue adjustments are effective on January 1 of every year.

**Table 2-19: Proposed Revenue Adjustments**

<b>Revenue Adjustments (All Revenues)</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>
Effective Month	January	January	January
Percent Adjustment	30%	20%	12%

**Table 2-20** shows the projected financial plan with the proposed revenue adjustments in **Table 2-19** applied to the water rate revenues. Revenues from interest income (Lines 8 and 9) are greater than those shown in the status quo scenario (**Table 2-18**, Lines 8 and 9) due to additional cash from the proposed adjustments. O&M expenses (Line 18), debt service (Lines 21 and 22), and cash funded CIP (Lines 23 and 24) are the same as the status quo scenario. Net cash flow (Line 27) is positive in FY 2025 and beyond which means that the city will be funding its reserves in those years. Net cash flow is negative in FY 2024, which means that the City will be drawing down its water fund to pay for capital costs. The combined ending balance (Line 46) will not meet the reserve target (Line 47) in FY 2024 and FY 2025. The City recovers its reserves and meets the reserve target by FY 2026. Calculated debt service coverage (Line 31) exceeds target debt service coverage (Line 32) in all years through FY 2026.

**Table 2-20: Proposed Financial Plan**

Line	A Financial Plan	B FY 2024	C FY 2025	D FY 2026
1	<b>Revenues</b>			
2	Rate Revenues			
3	Water	\$26,918,811	\$27,734,889	\$28,578,405
4	Recycled Water	\$3,255,500	\$3,216,401	\$3,256,700
5	Revenue Adjustments	\$4,526,147	\$13,309,054	\$20,807,425
6	Other Revenues - Water	\$2,720,041	\$1,021,041	\$1,047,000
7	Other Revenues - Recycled Water	\$969,462	\$987,962	\$1,036,462
8	Interest Income - Water	\$275,000	\$84,406	\$85,804
9	Interest Income - Recycled Water	\$0	\$0	\$20,118
10	<b>Total - Revenues</b>	<b>\$38,664,960</b>	<b>\$46,353,753</b>	<b>\$54,831,914</b>
11				
12	<b>O&amp;M Expenses</b>			
13	Purchased Water Fixed - Water	\$9,314,331	\$9,873,191	\$10,465,582
14	Purchased Water Variable - Water	\$12,795,669	\$13,735,207	\$12,747,969
15	Purchased Water - Recycled Water	\$1,690,021	\$1,809,337	\$1,937,076
16	O&M Expenses - Water	\$10,842,999	\$11,358,431	\$11,863,986
17	O&M Expenses - Recycled Water	\$762,057	\$796,631	\$828,990
18	<b>Total - O&amp;M Expenses</b>	<b>\$35,405,077</b>	<b>\$37,572,796</b>	<b>\$37,843,602</b>
19				
20	<b>Debt and Capital</b>			
21	Debt Service - Water	\$1,385,849	\$1,385,849	\$1,385,849
22	Debt Service - Recycled Water	\$1,415,535	\$1,415,535	\$434,895
23	Rate Funded CIP - Water	\$3,955,000	\$4,468,750	\$7,590,625
24	Rate Funded CIP - Recycled Water	\$50,000	\$56,250	\$61,875
25	<b>Total - Debt and Capital</b>	<b>\$6,806,384</b>	<b>\$7,326,384</b>	<b>\$9,473,244</b>
26				
27	<b>Net Cash Flow</b>	<b>(\$3,546,501)</b>	<b>\$1,454,573</b>	<b>\$7,515,068</b>
28	Net Revenue	\$3,259,883	\$8,780,957	\$16,988,312
29				
30	<b>Debt Coverage</b>			
31	Calculated	2.30	6.20	39.06
32	Required	1.25	1.25	1.25
33				
34	<b>Water Operating and Capital</b>			
35	Beginning Balance	\$9,852,554	\$9,510,379	\$7,455,290
36	Ending Balance	\$9,510,379	\$7,455,290	\$9,791,334
37	Reserve Target	\$11,533,550	\$12,238,390	\$12,277,138
38				
39	<b>Recycled Water Operating</b>			
40	Beginning Balance	(\$1,873,039)	(\$1,077,365)	\$432,297
41	Ending Balance	(\$1,077,365)	\$432,297	\$3,611,321
42	Reserve Target	\$918,997	\$962,858	\$1,007,642
43				
44	<b>Combined Financial Plan</b>			
45	Beginning Balances	\$7,979,515	\$8,433,014	\$7,887,587
46	Ending Balances	\$8,433,014	\$7,887,587	\$13,402,655
47	Reserve Target	\$12,452,547	\$13,201,248	\$13,284,780

Figure 2-5 and Figure 2-6 show the projected financial plans with the proposed revenue adjustments for water and recycled water, respectively. The dotted line represents the proposed revenues with the adjustments applied.

Figure 2-5: Proposed Water Financial Plan

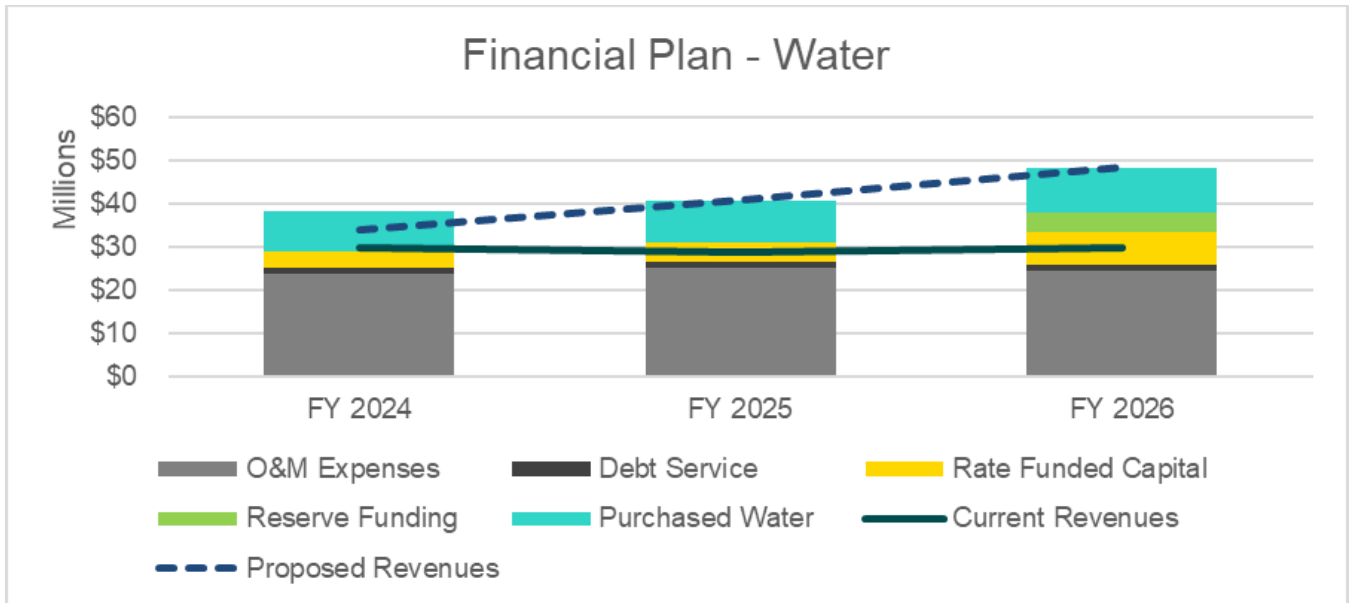


Figure 2-6: Proposed Recycled Water Financial Plan

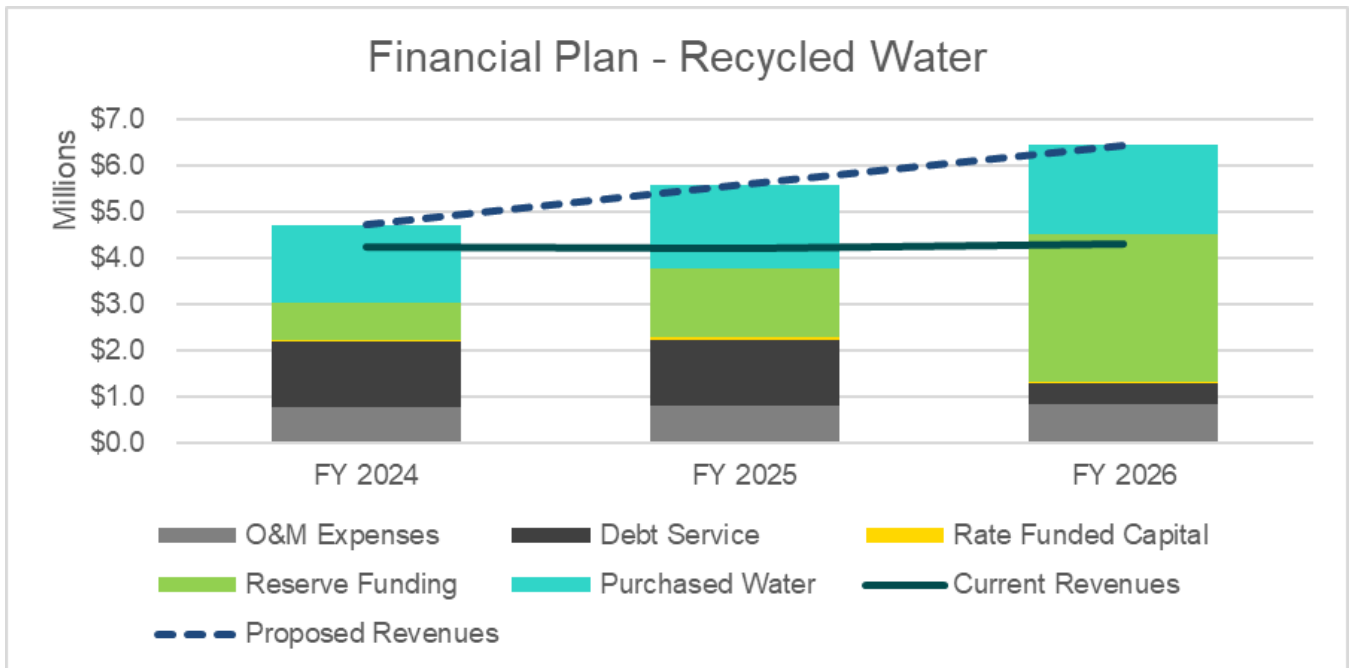


Figure 2-7 shows the projected debt service coverage for the water utility with the proposed adjustments in Table 2-19 applied over the Study period. The water utility is expected to meet its debt service coverage target in each year through FY 2026.



Figure 2-7: Proposed Debt Service Coverage

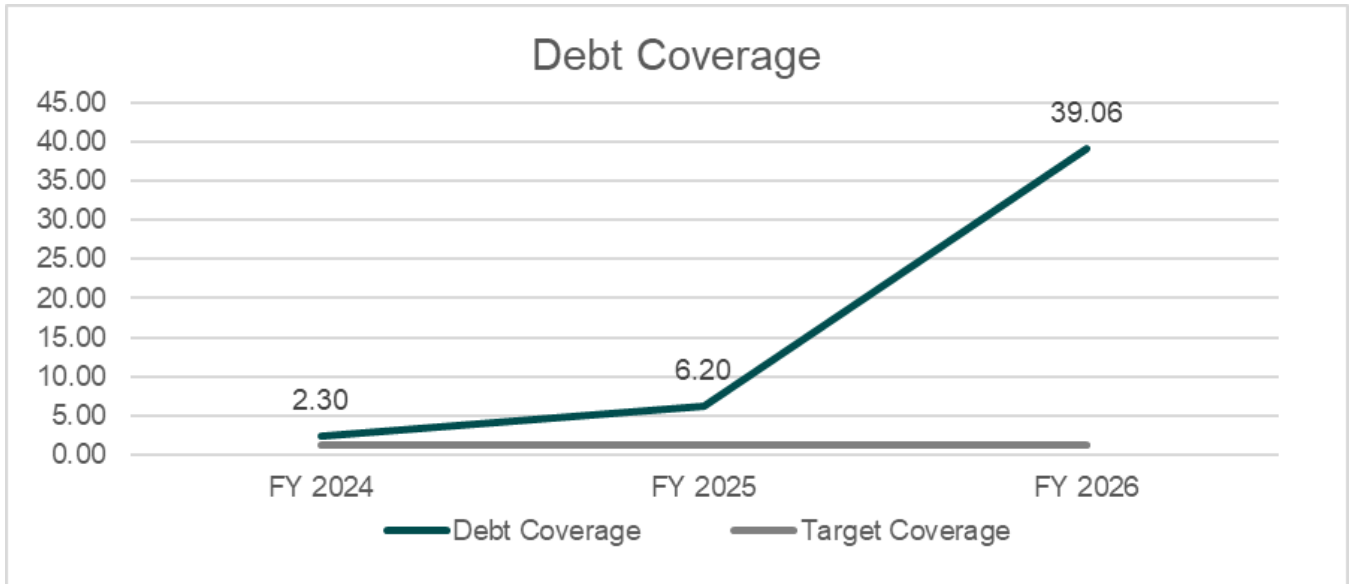
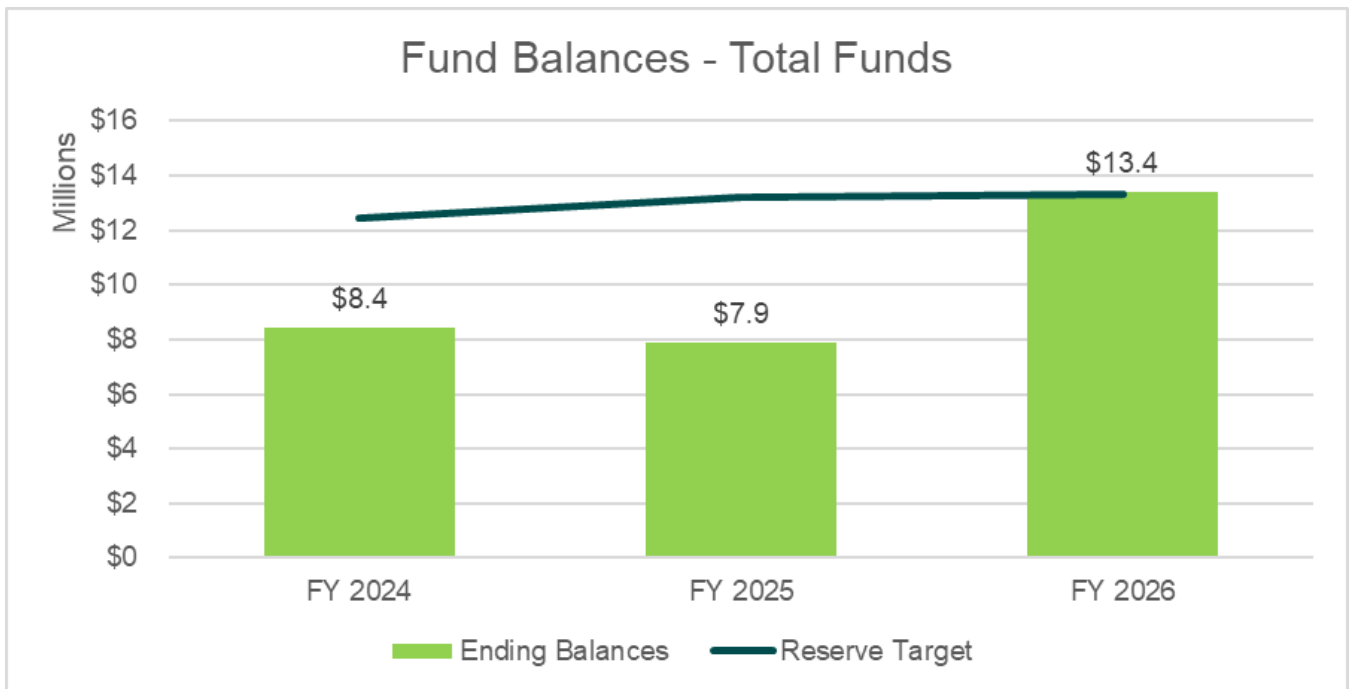


Figure 2-8 shows the projected combined fund balances with the proposed adjustments in Table 2-19 applied over a 3-year period. The City’s water fund expected to meet its reserve target by FY 2026.

Figure 2-8: Proposed Ending Fund Balances



# 3. Cost of Service Analysis

This section of the Report describes the COS analysis. The purpose of a COS is to proportionately allocate costs to the various customer classes and tiers based on their cost burden on the water system. Numbers shown in the tables of this section are rounded. Therefore, hand calculations based on the displayed numbers, such as summing or multiplying, may not equal the exact results shown.

## 3.1. Process and Approach

The COS analysis was developed using the principles established by the AWWA’s M1 Manual, using the Base-Extra Capacity methodology, and are in line with industry standards and align with legal requirements for water rate-setting (namely, Proposition 218). The Base-Extra Capacity methodology allocates costs consistent with demand patterns of each customer class and for tiered rates, the demand patterns of each tier.

The purpose of a COS analysis is to align the annual cost of providing water service with the customer classes and tiers commensurate with their service requirements. A COS analysis involves the following steps:

- 1. Determine Revenue Requirement:** The first step in the COS analysis is determining the adequate and appropriate level of funding for the water utility. This is referred to as determining the “revenue requirement” for the base year, which for this Study is FY 2024. This analysis considers the short-term and long-term service objectives of the water utility over a given planning horizon, including capital facilities, O&M, and financial reserve policies to determine the adequacy of a utility’s existing rates to recover its costs.
- 2. Categorize Costs into System Functions:** Utilizing an agency’s approved budget, financial reports, operating data, engineering data, and CIP, a rate study generally categorizes (i.e., functionalizes) the operating and capital costs of the water system among major system functions. Examples of system functions include but are not limited to water supply, storage, treatment, pumping, and transmission and distribution. Since the City operates a water distribution system, most of the system costs other than water purchase costs are related to transmission and distribution.
- 3. Allocate Functionalized Costs to the Appropriate System Cost Components:** Cost components represent the major pieces of a water system that the agency incurs specific costs related to, with one or more functions attributable to one or more system components. For example, distribution costs (system function) are allocated to base and maximum hour (cost components) since distribution lines are sized to accommodate maximum day (peak) demands. The City’s water system cost components include recycled water, base delivery, maximum day, maximum hour, meter servicing, and customer service.
- 4. Determine Units of Service and Unit Costs for Cost Components:** Each cost component is associated with a specific unit of service; costs within each component are divided by the total units of service to determine the unit cost. For example, customer service costs are associated with the total number of customer accounts. Dividing total annual costs by total customer accounts yields the unit cost of customer service.
- 5. Distribute Cost Components to Customer Class:** The cost of the system, allocated by system component unit costs, are distributed to customer classes and tiers in proportion to their respective demands and burdens on the system using the units of service and unit costs for each component.

## 3.2. Revenue Requirement

**Table 3-1** shows the water revenue requirement for the base year, FY 2024. The revenue requirements (Line 5) are comprised of the O&M expenses (Column D, Line 2), debt service (Column D, Line 3), and rate funded CIP (Column D, Line 4). The revenue offsets (Line 10) represent the miscellaneous, non-rate revenues (Lines 8 and 9) that are used to offset the revenue requirement. The adjustments for cash balance (Line 13) is equal to net cash flow for FY 2024 (**Table 2-20**, Column C, Line 27) and represents the amount that is drawn down from reserves to fund costs. The adjustment to annualize rate increase (Line 14) represents the difference in additional revenue that would have been collected had the rate adjustments been implemented at the start of the fiscal year. The total revenue requirement (Line 17) is equal to revenue requirements (Line 5) less revenue offsets (Line 10) and adjustments (Line 15). The revenue requirement is comprised of two components: operating costs (Column B) and capital costs (Column C). The operating and capital components will be allocated based on O&M expenses and long-term asset values.

**Table 3-1: FY 2024 Water Revenue Requirement**

Line	A Water Revenue Requirement - FY 2024	B Operating	C Capital	D Total
1	<b>Revenue Requirements</b>			
2	O&M Expenses (Less Zone 7 Costs)	\$10,842,999		\$10,842,999
3	Debt Service		\$1,385,849	\$1,385,849
4	Rate Funded Capital Projects		\$3,955,000	\$3,955,000
5	<b>Total - Revenue Requirements</b>	<b>\$10,842,999</b>	<b>\$5,340,849</b>	<b>\$16,183,848</b>
6				
7	<b>Revenue Offsets</b>			
8	Other Revenues	(\$2,720,041)		(\$2,720,041)
9	Interest Income	(\$275,000)		(\$275,000)
10	<b>Total - Revenue Offsets</b>	<b>(\$2,995,041)</b>	<b>\$0</b>	<b>(\$2,995,041)</b>
11				
12	<b>Adjustments</b>			
13	Adjustment for Cash Balance	(\$3,163,870)		(\$3,163,870)
14	Adjustment to Annualize Rate Increase	\$4,037,822		\$4,037,822
15	<b>Total - Adjustments</b>	<b>\$873,952</b>	<b>\$0</b>	<b>\$873,952</b>
16				
17	<b>Revenue Required From Rates</b>	<b>\$8,721,910</b>	<b>\$5,340,849</b>	<b>\$14,062,759</b>

**Table 3-2** shows the recycled water revenue requirement for the base year, FY 2023. The revenue requirements (Line 5) are comprised of the O&M expenses (Column D, Line 2), debt service (Column D, Line 3), and rate funded CIP (Column D, Line 4). The revenue offsets (Line 10) represent the miscellaneous, non-rate revenues (Lines 8 and 9) that are used to offset the revenue requirement. The adjustments for cash balance (Line 13) is equal to net cash flow for FY 2023 (**Table 2-20**, Column C, Line 28) minus the proportionate share of adjustments for recycled water and represents the amount that is drawn down from reserves to fund costs. The adjustment to annualize rate increase (Line 14) represents the difference in additional revenue that would have been collected had the rate adjustments been implemented at the start of the fiscal year. The total revenue requirement (Line 17) is equal to revenue requirements (Line 5) less revenue offsets (Line 10) and adjustments (Line 15).

The revenue requirement is comprised of two components: operating costs (Column B) and capital costs (Column C). The operating and capital components will be allocated based on O&M expenses and long-term asset values, respectively.

**Table 3-2: FY 2024 Recycled Water Revenue Requirement**

Line	A RW Revenue Requirement - FY 2024	B Operating	C Capital	D Total
1	<b>Revenue Requirements</b>			
2	O&M Expenses	\$2,452,078		\$2,452,078
3	Debt Service		\$1,415,535	\$1,415,535
4	Rate Funded Capital Projects		\$50,000	\$50,000
5	<b>Total - Revenue Requirements</b>	<b>\$2,452,078</b>	<b>\$1,465,535</b>	<b>\$3,917,613</b>
6				
7	<b>Revenue Offsets</b>			
8	Other Revenues	(\$969,462)		(\$969,462)
9	Interest Income	\$0		\$0
10	<b>Total - Revenue Offsets</b>	<b>(\$969,462)</b>	<b>\$0</b>	<b>(\$969,462)</b>
11				
12	<b>Adjustments</b>			
13	Adjustment for Cash Balance	(\$382,631)		(\$382,631)
14	Adjustment to Annualize Rate Increase	\$488,325		\$488,325
15	<b>Total - Adjustments</b>	<b>\$105,694</b>	<b>\$0</b>	<b>\$105,694</b>
16				
17	<b>Revenue Required From Rates</b>	<b>\$1,588,310</b>	<b>\$1,465,535</b>	<b>\$3,053,845</b>

**Table 3-3** shows the revenue requirement for Zone 7 fixed and variable charges. Since these costs are recovered through a separate passthrough rate, their revenue requirement is excluded from the other water and recycled water revenue requirements. The revenue requirements are composed of the Zone 7 Fixed Charges (Column D, Line 2) and the Zone 7 Variable Charges (Column D, Line 3), which are placed into the corresponding fixed and variable cost components. The total passthrough revenue requirement is shown in Line 4.

**Table 3-3: FY 2024 Passthrough Revenue Requirement**

Line	A Passthrough - FY 2024	B Fixed	C Variable	D Total
1	<b>Revenue Requirements</b>			
2	Zone 7 Fixed Charges	\$9,314,331		\$9,314,331
3	Zone 7 Variable Charges		\$12,795,669	\$12,795,669
4	<b>Total - Revenue Requirements</b>	<b>\$9,314,331</b>	<b>\$12,795,669</b>	<b>\$22,110,000</b>

### 3.3. Water System Functions

After determining the water utility’s revenue requirement, the next step in a COS analysis is to categorize operating and capital costs into system functions. Raftelis worked with City staff to determine the appropriate functions for the operating and capital. The functions for O&M include labor, electricity, other expenses, and attrition savings. The function for capital costs is water capital costs related to the City’s water distribution system.

Operating costs are functionalized based on actual costs and spreading costs between base, max day, and max hour. For Labor, Electricity, and Other Expenses, actual cost estimates provided by City staff were allocated to Meter and Customer functions. The remaining costs were allocated based on average max day/max hour proportions since the water system is primarily transmission and distribution. This is seen in **Table 3-4**.

Capital costs are functionalized based on average max day/max hour allocations because the future capital assets will be contributing to transmission and distribution. **Table 3-5** shows the distribution of the capital revenue requirement to base, max day, and max hour.

**Table 3-4: O&M Expense Functions**

Line	A O&M Expenses	B Recycled Water	C Recycled Water Surcharge	D Base	E Max Day	F Max Hour	G Meter	H Customer	I Total
1	<b>Water</b>								
2	Labor			47%	19%	18%	7%	9%	100%
3	Electricity			56%	22%	22%			100%
4	Other Expenses			53%	21%	21%	5%		100%
5	Attrition Savings			56%	22%	22%			100%
6									
7	<b>Water</b>								
8	Labor			\$2,831,842	\$1,132,737	\$1,118,215	\$420,000	\$565,583	\$6,068,377
9	Electricity			\$445,714	\$178,286	\$176,000			\$800,000
10	Other Expenses			\$2,172,294	\$868,918	\$857,778	\$197,000		\$4,095,990
11	Attrition Savings			(\$67,619)	(\$27,048)	(\$26,701)			(\$121,368)
12	<b>Total - Water</b>	<b>\$0</b>	<b>\$0</b>	<b>\$5,382,232</b>	<b>\$2,152,893</b>	<b>\$2,125,292</b>	<b>\$617,000</b>	<b>\$565,583</b>	<b>\$10,842,999</b>
13									
14	<b>Total - O&amp;M Expenses</b>	<b>\$0</b>	<b>\$0</b>	<b>\$5,382,232</b>	<b>\$2,152,893</b>	<b>\$2,125,292</b>	<b>\$617,000</b>	<b>\$565,583</b>	<b>\$10,842,999</b>
15	% O&M Allocation	0.0%	0.0%	49.6%	19.9%	19.6%	5.7%	5.2%	100.0%
16	% O&M Allocation Less Supply	0.0%	0.0%	49.6%	19.9%	19.6%	5.7%	5.2%	100.0%

**Table 3-5: Capital Expenditure Functions**

Line	A Capital Expenses	B Recycled Water	C Recycled Water Surcharge	D Base	E Max Day	F Max Hour	G Meter	H Customer	I Total
1	<b>Capital Costs</b>								
2	Water Replacement			56%	22%	22%			100%
3	Water R&R			56%	22%	22%			100%
4									
5	<b>Assets</b>								
6	Water Replacement			\$2,499,608	\$999,843	\$987,025			\$4,486,476
7	Water R&R			\$308,253	\$123,301	\$121,720			\$553,274
8	<b>Total - Assets</b>	<b>\$0</b>	<b>\$0</b>	<b>\$2,807,861</b>	<b>\$1,123,144</b>	<b>\$1,108,745</b>	<b>\$0</b>	<b>\$0</b>	<b>\$5,039,750</b>
9	% Capital Allocation	0.0%	0.0%	55.7%	22.3%	22.0%	0.0%	0.0%	100.0%

### 3.4. Cost Components

The next step in the COS analysis involves allocating the functionalized operating and capital costs to each of the cost causation components (also called cost components). The cost components represent the link between the costs of the various system functions and the reason why those costs are incurred. The cost components used in this Study include:

- **Meter:** represents the costs of purchasing, servicing, and replacing meters
- **Customer:** represents the costs of providing customer service and billing customers
- **Base (Average Delivery):** represents the costs of delivering water to customers under average demand conditions
- **Maximum Day (Max Day):** represents the costs of delivering water to customers on the day with the highest demand
- **Maximum Hour (Max Hour):** represents the costs of delivering water to customers on the hour with the highest demand on the day with the day with the highest demand
- **Recycled Water:** represents the costs of distributing recycled water
- **Recycled Water Surcharge:** represents the capital costs going toward the recycled water system.

Before allocating functionalized costs to each cost component, we must determine the allocation basis for certain components. These allocations are derived in the following subsections.

### 3.5. Peaking Factors

Peaking factors represent water demand during peak times of use. As customer classes peak demands increase, so must the size of facilities and pipelines to meet their demands. The larger facilities cost more to construct, maintain, and replace. The point of identifying peaking factors is to charge each class in proportion to the peak demands they place on the water system. Functionalized costs are then allocated to the Base, Max Day, and Max hour cost components using the allocation bases derived from the peaking factors, shown in **Table 3-6**.

City staff provided the Max Day and Max Hour peaking factors (Column B, Lines 2-3) for the water system, normalized to average day (Base) demand. The allocation bases (Columns C to E) are calculated using the equations outlined in this section. Columns are represented in these equations as letters and rows are represented as numbers. For example, Column C, Line 2 is shown as C2.

The Max Day allocations are calculated as follows:

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

The Max Hour allocations are calculated as follows:

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

Average Max Day/Max Hour allocations (Columns C to E, Line 4) are equal to the average of the two allocation bases derived above. These allocations are used when system costs are not distinguished between a Max Day or Max Hour function; for example, transportation and distribution (T&D) costs are allocated based on this average.

**Table 3-6: System-Wide Peaking Factors**

Line	A System Peaking Factors	B Peaking Factor	C Base	D Max Day	E Max Hour	F Total
1	Base	1.00	100%	0%	0%	100%
2	Max Day	1.40	71%	29%	0%	100%
3	Max Hour	2.50	40%	16%	44%	100%
4	Average Max Day/Max Hour		56%	22%	22%	100%

**Table 3-7** shows the customer class-specific peaking factors based on the maximum bi-monthly usage divided by average bi-monthly usage for each class and tier. This peaking factor is used as a proxy for the class and tier-specific Max Day peaking factors (Column B), which are based on the current tiers. The Max Hour peaking factor is calculated based on the relative factor from the system-wide peaking factors.

For example, the Residential class Max Hour peaking factor (Column C, Line 1) is calculated as follows:

$$\text{Residential Max Day Peaking Factor [B1]} \times (\text{System-wide Max Hour peaking factor [Table 3-6, B3]} / \text{System-side Max Day peaking factor [Table 3-6, B2]}) = \text{Residential Max Hour peaking factor [C1]}$$

**Table 3-7: Class-Specific Peaking Factors**

Line	A Customer Class	B Max Day Peaking Factor	C Max Hour Peaking Factor
1	Single Family Residential	1.71	3.05
2	Tier 1	1.22	2.18
3	Tier 2	1.98	3.53
4	Tier 3	2.42	4.32
5	Tier 4	2.62	4.68
6	Multi-Family Residential	1.19	2.13
7	Commercial/Industrial	1.30	2.33
8	Irrigation	1.99	3.55
9	Recycled Water Irrigation	2.17	3.87

### 3.6. Peak Capacity

**Table 3-8** shows the calculation of additional capacity required to meet Max Day and Max Hour demands. The Max Day (Column D) and Max Hour (Column G) were derived in the previous subsection (**Table 3-7**) for each customer class and tier.

Annual use (Column B) is derived from the water usage projections (**Table 2-6**) based on the current tiers. Note that the total annual use for each class (Column B, Lines 1, 6-10) are equal to the total water use for each class in the projections. Annual use is then converted to average daily use (Column C), assuming 365 days in a year.

The Max Day capacity in ccf per day (Column E) is calculated by multiplying the average daily use (Column C) by the Max Day peaking factors (Column D). The Max Day extra capacity in ccf per day (Column F) is equal to the Max Day capacity (Column E) less average daily use (Column C).



Similarly, the Max Hour capacity in ccf per day (Column H) is calculated by multiplying the average daily use (Column C) by the Max Hour peaking factors (Column G). The Max Hour extra capacity in ccf per day (Column I) is equal to the Max Hour capacity (Column H) less Max Day capacity (Column E).

**Table 3-8: Peak Capacity Calculation**

Line	A Customer Class	B Annual Use (ccf)	C Average Daily Use (ccf/day)	D Capacity Factor	E		G Capacity Factor	H		I
					Max Day Total Capacity (ccf/day)	Extra Capacity (ccf/day)		Max Hour Total Capacity (ccf/day)	Extra Capacity (ccf/day)	
1	<b>Single Family Residential</b>	<b>3,012,950</b>								
2	Tier 1	1,642,987	4,501	1.22	5,491	990	2.18	9,806	4,315	
3	Tier 2	610,595	1,673	1.98	3,310	1,637	3.53	5,910	2,601	
4	Tier 3	279,195	765	2.42	1,852	1,087	4.32	3,306	1,455	
5	Tier 4	480,174	1,316	2.62	3,448	2,132	4.68	6,157	2,709	
6	Multi-Family Residential	527,984	1,447	1.19	1,722	275	2.13	3,074	1,353	
7	Commercial	456,989	1,252	1.30	1,631	379	2.33	2,913	1,282	
8	Industrial	16,886	46	1.30	60	14	2.33	108	47	
9	Irrigation	1,017,153	2,787	1.99	5,542	2,755	3.55	9,896	4,354	
10	Recycled Water Irrigation	670,227	1,836	2.17	3,977	2,141	3.87	7,102	3,125	
11	<b>Total</b>	<b>5,702,189</b>	<b>15,622</b>		<b>27,033</b>	<b>11,410</b>		<b>48,272</b>	<b>21,240</b>	

### 3.7. Equivalent Meters

Equivalent meter units (EMUs) are used to allocate meter-related costs appropriately and equitably. Larger meters have the capacity to impose larger demands on the system and are more expensive to install, maintain, and replace than smaller meters.

EMUs are based on meter hydraulic capacity and are calculated to represent the potential demand on the water system compared to a base meter size. A ratio of hydraulic capacity is calculated by dividing larger meter capacities by the base meter capacity. The base meter in this Study is the 5/8” meter, which is also the most common meter size.

**Table 3-9** shows the calculation of meter capacity ratios for each meter size. The capacity in gallons per minute (gpm) shows the actual meter capacity of the City’s AMI meters and was provided by City Staff.

**Table 3-9: Meter Capacity Ratios**

Line	A Meter Size	B Capacity (gpm)	C AWWA Ratio
1	5/8 inch	20	1.0
2	3/4 inch	30	1.5
3	1 inch	55	2.5
4	1-1/2 inch	120	5.0
5	2 inch	160	8.0
6	3 inch	450	17.5
7	4 inch	790	31.5
8	6 inch	1,400	65.0
9	8 inch	3,500	140.0
10	10 inch	5,500	210.0

**Table 3-10** shows the meter counts by customer class and meter size, derived from the customer account data (**Table 2-5**). **Table 3-11** shows the derivation of equivalent meters based on the capacity ratios (**Table 3-9**) and the meter counts (**Table 3-10**). The capacity ratio for each meter size is multiplied by the meter count in each class to determine the equivalent meters per class.

**Table 3-10: Meter Counts by Class**

Line	A Meter Size	B SFR	C MFR	D Commercial/ Industrial	E Industrial	F Irrigation	G RW Irrigation	H Total Meters
1	5/8 inch	18,577	83	262	0	205	5	19,133
2	3/4 inch	2,446	11	33	0	17	1	2,508
3	1 inch	3,139	107	214	1	223	14	3,698
4	1-1/2 inch	14	221	197	0	247	84	763
5	2 inch	1	120	251	1	179	33	584
6	3 inch	3	24	38	2	27	7	101
7	4 inch	1	5	10	0	5	4	26
8	6 inch	1	4	2	0	1	2	10
9	8 inch	0	1	2	0	0	0	3
10	10 inch	0	0	0	0	0	0	0
11	<b>Total - Meters</b>	<b>24,183</b>	<b>576</b>	<b>1,009</b>	<b>4</b>	<b>904</b>	<b>151</b>	<b>26,827</b>

**Table 3-11: Equivalent Meters**

Line	A Meter Size	B AWWA Ratio	C Total Meters	D Equiv. Meters
1	5/8 inch	1	19,133	19,133
2	3/4 inch	1.5	2,508	3,763
3	1 inch	2.5	3,698	10,169
4	1-1/2 inch	5	763	4,579
5	2 inch	8	584	4,676
6	3 inch	17.5	101	2,265
7	4 inch	31.5	26	1,014
8	6 inch	65	10	719
9	8 inch	140	3	539
10	10 inch	210	0	0
11	<b>Total - Meters</b>		<b>26,827</b>	<b>46,857</b>

### 3.8. Cost Allocations

After determining the various allocation bases in the previous subsections, we can then determine the operating and capital cost allocations. **Table 3-12** and

**Table 3-13** show the operating and capital cost allocations, respectively. The functions are allocated as follows:

- **Labor:** The meter and customer components are allocated based on actual expenses identified by City staff. The remaining expenses are allocated based on Average Max Day/Max hour because the main function of the utility is transmission and distribution.
- **Electricity:** The groundwater component is allocated based on actual expenses identified by City staff. The remaining expenses are allocated based on Average Max Day/Max hour because the main function of the utility is transmission and distribution.

- **Other Expenses:** The groundwater and meter components are allocated based on actual expenses identified by City staff. The remaining expenses are allocated based on Average Max Day/Max hour because the main function of the utility is transmission and distribution.
- **Attrition Savings:** Expenses are allocated based on Average Max Day/Max hour because the main function of the utility is transmission and distribution.
- **Capital:** Expenses are allocated based on Average Max Day/Max hour because the main function of the utility is transmission and distribution.

**Table 3-12: Operating Cost Allocation**

Line	A O&M Expenses	B Recycled Water	C Recycled Water Surcharge	D Base	E Max Day	F Max Hour	G Meter	H Customer	I Total
1	<b>Water</b>								
2	Labor			47%	19%	18%	7%	9%	100%
3	Electricity			56%	22%	22%			100%
4	Other Expenses			53%	21%	21%	5%		100%
5	Attrition Savings			56%	22%	22%			100%
6									
7	<b>Water</b>								
8	Labor			\$2,831,842	\$1,132,737	\$1,118,215	\$420,000	\$565,583	\$6,068,377
9	Electricity			\$445,714	\$178,286	\$176,000			\$800,000
10	Other Expenses			\$2,172,294	\$868,918	\$857,778	\$197,000		\$4,095,990
11	Attrition Savings			(\$67,619)	(\$27,048)	(\$26,701)			(\$121,368)
12	<b>Total - Water</b>	<b>\$0</b>	<b>\$0</b>	<b>\$5,382,232</b>	<b>\$2,152,893</b>	<b>\$2,125,292</b>	<b>\$617,000</b>	<b>\$565,583</b>	<b>\$10,842,999</b>
13									
14	<b>Total - O&amp;M Expenses</b>	<b>\$0</b>	<b>\$0</b>	<b>\$5,382,232</b>	<b>\$2,152,893</b>	<b>\$2,125,292</b>	<b>\$617,000</b>	<b>\$565,583</b>	<b>\$10,842,999</b>
15	% O&M Allocation	0.0%	0.0%	49.6%	19.9%	19.6%	5.7%	5.2%	100.0%
16	% O&M Allocation Less Supply	0.0%	0.0%	49.6%	19.9%	19.6%	5.7%	5.2%	100.0%

**Table 3-13: Capital Cost Allocation**

Line	A Capital Expenses	B Recycled Water	C Recycled Water Surcharge	D Base	E Max Day	F Max Hour	G Meter	H Customer	I Total
1	<b>Capital Costs</b>								
2	Water Replacement			56%	22%	22%			100%
3	Water R&R			56%	22%	22%			100%
4									
5	<b>Assets</b>								
6	Water Replacement			\$2,499,608	\$999,843	\$987,025			\$4,486,476
7	Water R&R			\$308,253	\$123,301	\$121,720			\$553,274
8	<b>Total - Assets</b>	<b>\$0</b>	<b>\$0</b>	<b>\$2,807,861</b>	<b>\$1,123,144</b>	<b>\$1,108,745</b>	<b>\$0</b>	<b>\$0</b>	<b>\$5,039,750</b>
9	% Capital Allocation	0.0%	0.0%	55.7%	22.3%	22.0%	0.0%	0.0%	100.0%

**Table 3-14** shows the way that Zone 7 costs were allocated to the proposed Zone 7 Fixed and Variable rates. Zone 7 costs are approximately 40% fixed and 60% variable. In the current rates structure, 100% of Zone 7 costs are being recovered through a variable rate. The City wanted to move a portion of the Zone 7 costs to be recovered through a fixed rate to allow for more revenue stability. Column D shows that 22% of Zone 7 costs will be recovered through a fixed charge, while the remaining 78% will be recovered through the Zone 7 component of the water usage charge. This was done in order to keep the fixed and variable revenue recovery for the water utility as a whole approximately the same as it is under the current rates. The City collects approximately 14% of its revenue through fixed charges.

**Table 3-14: Zone 7 Cost Allocation**

Line	A Zone 7 Costs	B FY 2023	C Cost Percentage	D Revenue Recovery
1	Fixed	\$9,314,331	42.1%	22.0%
2	Variable	\$12,795,669	57.9%	78.0%
3	<b>Total</b>	<b>\$22,110,000</b>	<b>100.0%</b>	<b>100.0%</b>
4				
5	<b>Reallocated</b>			
6	Fixed	\$4,864,200		
7	Variable	\$17,245,800		

### 3.9. Revenue Requirement Distribution

**Table 3-15** shows the distribution of the revenue requirement to each cost component and all reallocation of costs, resulting in the final cost of service by component (Line 5).

The operating costs (Column L, Line 1) are equal to the operating revenue requirement less offsets (**Table 3-1**, Column B, Line 18) multiplied with the % O&M Allocation (**Table 3-12**, Line 15). The operating costs (Column L, Line 1) also include the reallocated Zone 7 fixed and variable costs (**Table 3-14**, Column B, Lines 6 and 7). The capital costs (Column L, Line 2) are equal to the capital revenue requirement less offsets (**Table 3-1**, Column C, Line 18). Recycled water capital expenses (**Table 3-2**, Column C, Line 4) are allocated to the recycled water surcharge cost component (Column C), with the remaining revenue requirement less offsets (**Table 3-2**, Column D, Line 17) allocated to the recycled water cost component (Column B). The total cost of service for each cost component is shown in Line 5.

**Table 3-15: Revenue Requirement by Cost Component**

Line	A Revenue Requirement	B Recycled Water	C Recycled Water Surcharge	D Base	E Max Day	F Max Hour	G Meter	H Customer	I Total - Pleasanton	J Zone 7 Fixed	K Zone 7 Variable	L Total - All
1	Operating Expenses	\$0	\$0	\$4,329,369	\$1,731,747	\$1,709,546	\$496,304	\$454,945	\$8,721,910	\$4,864,200	\$17,245,800	\$30,831,910
2	Capital Expenses	\$0	\$0	\$2,975,616	\$1,190,246	\$1,174,987	\$0	\$0	\$5,340,849			\$5,340,849
3	Recycled Water Total - Cost of Service	\$3,003,845	\$50,000						\$3,053,845			\$3,053,845
4		<b>\$3,003,845</b>	<b>\$50,000</b>	<b>\$7,304,984</b>	<b>\$2,921,994</b>	<b>\$2,884,532</b>	<b>\$496,304</b>	<b>\$454,945</b>	<b>\$17,116,604</b>	<b>\$4,864,200</b>	<b>\$17,245,800</b>	<b>\$39,226,604</b>



### 3.10. Unit Cost Derivation

After deriving the cost of service by cost component, we then determine the unit cost for each component. The unit cost is derived by dividing the revenue requirement for each cost component by the corresponding units of service. **Table 3-16** shows the units of service for each customer class and tier for each cost component. The units of service are derived as follows:

- **Recycled Water:** annual recycled water irrigation use
- **Recycled Water Surcharge:** annual water use by class and tier
- **Base:** annual water use by class and tier
- **Max Day:** Max Day extra capacity
- **Max Hour:** Max Hour extra capacity
- **Meter:** EMUs by customer class
- **Customer:** accounts by customer class
- **Zone 7 Fixed:** EMUs by customer class
- **Zone 7 Variable:** annual water use by class and tier excluding groundwater use

**Table 3-17** derives the unit cost by cost component. The costs of service (**Table 3-15**, Line 5) are multiplied by the units of service for each cost component (**Table 3-16**) to derive the final revenue requirement distribution. Note that the Meter, Customer, and Zone 7 Fixed unit costs are multiplied by bi-monthly billing periods per year to determine the annual cost to serve each class for those components. The final proposed revenue (Column M, Line 11) is equal to the total revenue requirement (**Table 3-15**, Column M, Line 5), and the final costs in each cost component (Line 10) are equal to their corresponding costs of service (**Table 3-15**, Columns B through L, Line 5).

**Table 3-16: Units of Service**

Line	A Customer Class	B Recycled Water	C Recycled Water Surcharge	D Base	E Max Day	F Max Hour	G Meter	H Customer	I Zone 7 Fixed	J Zone 7 Variable
1	Single Family Residential		\$29,938				\$329,986	\$410,107	\$8,750,950	\$3,325,151
2	Tier 1			\$2,385,152	\$312,066	\$687,026				
3	Tier 2			\$886,410	\$516,014	\$414,097				
4	Tier 3			\$405,312	\$342,528	\$231,647				
5	Tier 4			\$697,076	\$672,207	\$431,384				
6	Multi-Family Residential		\$5,246	\$766,483	\$86,746	\$215,407	\$41,120	\$9,772	\$1,124,774	\$414,349
7	Commercial		\$4,541	\$663,419	\$119,512	\$204,076	\$61,976	\$17,106	\$1,070,630	\$624,511
8	Industrial		\$168	\$24,513	\$4,416	\$7,541	\$607	\$70	\$37,314	\$6,112
9	Irrigation		\$10,107	\$1,476,619	\$868,506	\$693,355	\$49,032	\$15,329	\$3,112,948	\$494,078
10	Recycled Water Irrigation	\$3,003,845					\$13,583	\$2,561	\$3,019,989	
11	<b>Total</b>	<b>\$3,003,845</b>	<b>\$50,000</b>	<b>\$7,304,984</b>	<b>\$2,921,994</b>	<b>\$2,884,532</b>	<b>\$496,304</b>	<b>\$454,945</b>	<b>\$17,116,604</b>	<b>\$4,864,200</b>

**Table 3-17: Unit Cost by Cost Component**

Line	A Revenue Requirement	B Recycled Water	C Recycled Water Surcharge	D Base	E Max Day	F Max Hour	G Meter	H Customer	I Zone 7 Fixed	J Zone 7 Variable
1	<b>Total - Cost of Service</b>	<b>\$3,003,845</b>	<b>\$50,000</b>	<b>\$7,304,984</b>	<b>\$2,921,994</b>	<b>\$2,884,532</b>	<b>\$496,304</b>	<b>\$454,945</b>	<b>\$17,116,604</b>	<b>\$4,864,200</b>
2										
3	Units of Service	670,227	5,031,962	5,031,962	9,269	18,115	281,142	160,960		273,447
4	Units	hcf	hcf	hcf	hcf/day	hcf/day	EMUs/yr	bills/yr		EMUs/yr
5										
6	Unit Cost	\$4.48	\$0.01	\$1.45	\$315.23	\$159.23	\$1.77	\$2.83		\$17.79
7	Units	hcf	hcf	hcf	hcf/day	hcf/day	EMU	bills		EMU

**Table 3-18: Cost of Service by Customer Class**

Line	A Customer Class	B Recycled Water	C Recycled Water Surcharge	D Base	E Max Day	F Max Hour	G Meter	H Customer	I Total City COS	J Zone 7 Fixed	K Zone 7 Variable	L Proposed Revenues
1	Single Family Residential		\$29,938				\$329,986	\$410,107	<b>\$8,750,950</b>	\$3,325,151	\$10,326,139	<b>\$22,402,239</b>
2	Tier 1			\$2,385,152	\$312,066	\$687,026						
3	Tier 2			\$886,410	\$516,014	\$414,097						
4	Tier 3			\$405,312	\$342,528	\$231,647						
5	Tier 4			\$697,076	\$672,207	\$431,384						
6	Multi-Family Residential		\$5,246	\$766,483	\$86,746	\$215,407	\$41,120	\$9,772	<b>\$1,124,774</b>	\$414,349	\$1,809,533	<b>\$3,348,656</b>
7	Commercial		\$4,541	\$663,419	\$119,512	\$204,076	\$61,976	\$17,106	<b>\$1,070,630</b>	\$624,511	\$1,566,216	<b>\$3,261,357</b>
8	Industrial		\$168	\$24,513	\$4,416	\$7,541	\$607	\$70	<b>\$37,314</b>	\$6,112	\$57,871	<b>\$101,297</b>
9	Irrigation Recycled Water		\$10,107	\$1,476,619	\$868,506	\$693,355	\$49,032	\$15,329	<b>\$3,112,948</b>	\$494,078	\$3,486,041	<b>\$7,093,066</b>
10	Irrigation	\$3,003,845					\$13,583	\$2,561	<b>\$3,019,989</b>			<b>\$3,019,989</b>
11	<b>Total</b>	<b>\$3,003,845</b>	<b>\$50,000</b>	<b>\$7,304,984</b>	<b>\$2,921,994</b>	<b>\$2,884,532</b>	<b>\$496,304</b>	<b>\$454,945</b>	<b>\$17,116,604</b>	<b>\$4,864,200</b>	<b>\$17,245,800</b>	<b>\$39,226,604</b>

# 4. Rate Design and Derivation

This section of the Report details the calculation of the proposed water rates that were developed in the Study. Numbers shown in the tables of this section are rounded. Therefore, hand calculations based on the displayed numbers, such as summing or multiplying, may not equal the exact results shown in this Report. All rates shown in this section are rounded up to the nearest cent.

## 4.1. Proposed Adjustments

**Table 4-1** shows the proposed revenue adjustments from the financial plan. Water rates developed for the base year (FY 2024) reflect the results of the COS analysis, which impacts each customer class and tier differently. Revenue adjustments in subsequent years are applied across all charges, classes, and tiers proportional to the base year rates.

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

Line	A Revenue Adjustments (All Revenues)	B FY 2024	C FY 2025	D FY 2026
1	Effective Month	January	January	January
2	Percent Adjustment	30%	20%	12%

## 4.2. Bi-Monthly Service Charges

**Table 4-2** shows the bi-monthly service charge calculation, which consists of the Meter, Customer, and Zone 7 Fixed cost components. The Meter and Zone 7 Fixed cost components are derived based on total EMUs. Therefore, the Meter and Zone 7 unit costs (**Table 3-17**, Columns H and J, Line 6) are multiplied by the capacity ratio for each meter size (Column B) to appropriately reflect the share of cost by meter size (Columns C and E). A connection's share of the Customer cost does not vary with meter size, and therefore the Customer unit cost (**Table 3-17**, Column I, Line 6) is applied uniformly across all meter sizes (Column D).

**Table 4-2: Proposed Bi-Monthly Service Charge (FY 2023)**

Line	A Meter Size	B Capacity Ratio	C Meter Charge	D Customer Charge	E Zone 7 Fixed Charge	F Total Charge	G Current Charge	H Difference (\$)
1	5/8 inch	1.00	\$1.77	\$2.83	\$17.30	<b>\$21.90</b>	\$19.93	\$1.97
2	3/4 inch	1.50	\$2.65	\$2.83	\$25.95	<b>\$31.43</b>	\$29.89	\$1.54
3	1 inch	2.75	\$4.85	\$2.83	\$47.58	<b>\$55.27</b>	\$49.84	\$5.43
4	1-1/2 inch	6.00	\$10.59	\$2.83	\$103.81	<b>\$117.23</b>	\$99.67	\$17.56
5	2 inch	8.00	\$14.12	\$2.83	\$138.41	<b>\$155.37</b>	\$159.48	(\$4.11)
6	3 inch	22.50	\$39.72	\$2.83	\$389.29	<b>\$431.84</b>	\$348.90	\$82.94
7	4 inch	39.50	\$69.73	\$2.83	\$683.41	<b>\$755.97</b>	\$996.83	(\$240.86)
8	6 inch	70.00	\$123.57	\$2.83	\$1,211.11	<b>\$1,337.52</b>	\$1,993.67	(\$656.15)
9	8 inch	175.00	\$308.93	\$2.83	\$3,027.78	<b>\$3,339.54</b>	\$3,488.91	(\$149.37)
10	10 inch	275.00	\$485.46	\$2.83	\$4,757.94	<b>\$5,246.23</b>	\$5,482.57	(\$236.34)

### 4.3. Water Usage Rates

The City’s water usage rates consist of five components: Zone 7 Supply, Base, Peaking, and Recycled Water Surcharge. The recycled water usage rate is solely made up of the recycled water cost component. The following sections will present the calculations for each of the components.

#### 4.3.1. PEAKING COMPONENT

Error! Reference source not found. shows the Peaking unit cost calculation for each customer class and tier. Peaking costs (Column B) are the sum of Max Day and Max Hour costs for each class and tier (Table 3-18, Columns F and G). Peaking costs are divided by annual use (Column C) to determine the Peaking unit cost for each class and tier (Column D).

**Table 4-3: Peaking Unit Cost Calculation**

Line	A Customer Class	B Peaking Costs	C Annual Use (ccf)	D Peaking Unit Cost
1	Single Family Residential			
2	Tier 1	\$999,092	1,642,987	\$0.61
3	Tier 2	\$930,110	610,595	\$1.52
4	Tier 3	\$574,175	279,195	\$2.06
5	Tier 4	\$1,103,591	480,174	\$2.30
6	Multi-Family Residential	\$302,153	527,984	\$0.57
7	Commercial	\$323,588	456,989	\$0.71
8	Industrial	\$11,956	16,886	\$0.71
9	Irrigation	\$1,561,861	1,017,153	\$1.54

#### 4.3.2. RECYCLED WATER SURCHARGE

Table 4-4 shows the Recycled Water Surcharge unit cost calculation. The surcharge is charged to Single Family Residential Tier 4 usage and all other customer classes. The surcharge costs (Column B) are divided by the annual use (Column D) to derive the unit cost (Column E).

**Table 4-4: Recycled Water Surcharge Unit Cost Calculation**

Line	A Customer Class	B RW Surcharge	C Applied Usage	D Annual Use (ccf)	E RW Surcharge Unit Cost
1	Single Family Residential	\$29,938		480,174	\$0.06
2	Tier 1		0%	1,642,987	\$0.00
3	Tier 2		0%	610,595	\$0.00
4	Tier 3		0%	279,195	\$0.00
5	Tier 4		100%	480,174	\$0.06
6	Multi-Family Residential	\$5,246		527,984	\$0.01
7	Commercial	\$4,541		456,989	\$0.01
8	Industrial	\$168		16,886	\$0.01
9	Irrigation	\$10,107		1,017,153	\$0.01

#### 4.3.3. ZONE 7 VARIABLE COSTS

Table 4-5 shows the unit cost calculation for each customer class for the Zone 7 variable cost component. Zone 7 use (Column C) is equal to Annual Use (Column B). Zone 7 costs are divided into each customer class by their

proportionate use of Zone 7 water. These Zone 7 costs by customer class (Column D) are then divided by the total annual water use by class (Column B) to derive the Zone 7 unit cost by customer class (Column E)

**Table 4-5: Zone 7 Variable Unit Cost Calculation by Class**

Line	A Customer Class	B Annual Use (ccf)	C Zone 7 Use (ccf)	D Zone 7 Costs	E Zone 7 Unit Cost
1	Single Family Residential				
2	Tier 1	1,642,987	1,642,987	\$5,630,929	\$3.43
3	Tier 2	610,595	610,595	\$2,092,661	\$3.43
4	Tier 3	279,195	279,195	\$956,872	\$3.43
5	Tier 4	480,174	480,174	\$1,645,676	\$3.43
6	Multi-Family Residential	527,984	527,984	\$1,809,533	\$3.43
7	Commercial	456,989	456,989	\$1,566,216	\$3.43
8	Industrial	16,886	16,886	\$57,871	\$3.43
9	Irrigation	1,017,153	1,017,153	\$3,486,041	\$3.43
10	<b>Total</b>	<b>5,031,962</b>	<b>5,031,962</b>	<b>\$17,245,800</b>	

#### 4.3.4. RECYCLED WATER VARIABLE RATE

**Table 4-6** shows the calculation of the recycled water variable water usage rate. The fixed revenue (Column B, Line 2) is calculated by multiplying the recycled water meter bills per year with their corresponding fixed meter charge. The remaining revenue (Column B) to be collected through the variable rate is divided by the annual recycled water use (Column B, Line 4) to derive the recycled water variable rate (Column B, Line 5).

**Table 4-6: Recycled Water Rate Calculation**

	A	B
Line	Recycled Water Rates	Calculation
1	Total Cost of Service	\$3,019,989
2	Fixed Revenue	\$149,272
3	Variable Revenue	\$2,870,717
4	Annual Use (hcf)	670,227
5	<b>Recycled Water Rate (\$/hcf)</b>	<b>\$4.28</b>

### 4.3.5. WATER USAGE RATES

Table 4-7 shows the calculation of proposed water usage rates (Column H) for each customer class and tier based on the four rate components (Column B through E). The Base variable rate component comes directly from the Base unit cost derived in the COS analysis (Table 3-17, Column E, Line 6).

**Table 4-7: Proposed Water Usage Rates (FY 2024)**

Line	A Customer Class	B Zone 7 Supply	C Base	D Peaking	E RW Surcharge	F Recycled Water	G Total Charge	H Current Charge	I Difference (\$)
1	Single Family Residential								
2	Tier 1	\$3.43	\$1.45	\$0.61	\$0.00		<b>\$5.49</b>	\$3.93	\$1.56
3	Tier 2	\$3.43	\$1.45	\$1.52	\$0.00		<b>\$6.41</b>	\$4.42	\$1.99
4	Tier 3	\$3.43	\$1.45	\$2.06	\$0.00		<b>\$6.94</b>	\$4.68	\$2.26
5	Tier 4	\$3.43	\$1.45	\$2.30	\$0.06		<b>\$7.24</b>	\$5.53	\$1.71
6	Multi-Family Residential	\$3.43	\$1.45	\$0.57	\$0.01		<b>\$5.47</b>	\$4.44	\$1.03
7	Commercial	\$3.43	\$1.45	\$0.71	\$0.01		<b>\$5.60</b>	\$4.44	\$1.16
8	Industrial	\$3.43	\$1.45	\$0.71	\$0.01		<b>\$5.60</b>	\$4.44	\$1.16
9	Irrigation	\$3.43	\$1.45	\$1.54	\$0.01		<b>\$6.43</b>	\$4.60	\$1.83
10	Recycled Water Irrigation					\$4.28	<b>\$4.29</b>	\$4.05	\$0.24



## 4.4. Proposed Rate Schedule

The rates shown in this subsection are increased for FY 2024 and beyond based on the proposed revenue adjustments shown in **Table 4-1**. **Table 4-8** shows the five-year rate schedule for the proposed bi-monthly service charges. **Table 4-9** shows the five-year rate schedule for Pleasanton water usage rates. Both tables show the rates separated out into the Pleasanton and Zone 7 components and combined into the total rates. Since Zone 7 rates will be based on actual costs passed through to customers, those charges will change year to year. Therefore, the Zone 7 and combined rates after FY 2024 are subject to change.

**Table 4-8: Proposed Bi-Monthly Service Charges**

Line	A Bi-Monthly Meter Service Charge	B Current	C January 2024	D January 2025	E January 2026
1	<b>Pleasanton Charges</b>				
2	5/8 inch	\$19.93	\$4.60	\$6.48	\$8.32
3	3/4 inch	\$29.89	\$5.48	\$7.72	\$9.91
4	1 inch	\$49.84	\$7.69	\$10.83	\$13.90
5	1-1/2 inch	\$99.67	\$13.42	\$18.90	\$24.25
6	2 inch	\$159.48	\$16.96	\$23.88	\$30.64
7	3 inch	\$348.90	\$42.55	\$59.91	\$76.87
8	4 inch	\$996.83	\$72.56	\$102.16	\$131.08
9	6 inch	\$1,993.67	\$126.41	\$177.98	\$228.36
10	8 inch	\$3,488.91	\$311.76	\$438.93	\$563.17
11	10 inch	\$5,482.57	\$488.29	\$687.47	\$882.05
12					
13	<b>Zone 7 Charges</b>				
14	5/8 inch	\$0.00	\$17.30	\$18.48	\$18.18
15	3/4 inch	\$0.00	\$25.95	\$27.71	\$27.25
16	1 inch	\$0.00	\$47.58	\$50.81	\$49.97
17	1-1/2 inch	\$0.00	\$103.81	\$110.85	\$109.00
18	2 inch	\$0.00	\$138.41	\$147.80	\$145.33
19	3 inch	\$0.00	\$389.29	\$415.68	\$408.73
20	4 inch	\$0.00	\$683.41	\$729.73	\$717.53
21	6 inch	\$0.00	\$1,211.11	\$1,293.19	\$1,271.57
22	8 inch	\$0.00	\$3,027.78	\$3,232.98	\$3,178.91
23	10 inch	\$0.00	\$4,757.94	\$5,080.39	\$4,995.43
24					
25	<b>Combined Charges</b>				
26	5/8 inch	\$19.93	\$21.90	\$24.96	\$26.50
27	3/4 inch	\$29.89	\$31.43	\$35.43	\$37.16
28	1 inch	\$49.84	\$55.27	\$61.64	\$63.87
29	1-1/2 inch	\$99.67	\$117.23	\$129.75	\$133.25
30	2 inch	\$159.48	\$155.37	\$171.68	\$175.97
31	3 inch	\$348.90	\$431.84	\$475.59	\$485.60
32	4 inch	\$996.83	\$755.97	\$831.89	\$848.61
33	6 inch	\$1,993.67	\$1,337.52	\$1,471.17	\$1,499.93
34	8 inch	\$3,488.91	\$3,339.54	\$3,671.91	\$3,742.08
35	10 inch	\$5,482.57	\$5,246.23	\$5,767.86	\$5,877.48

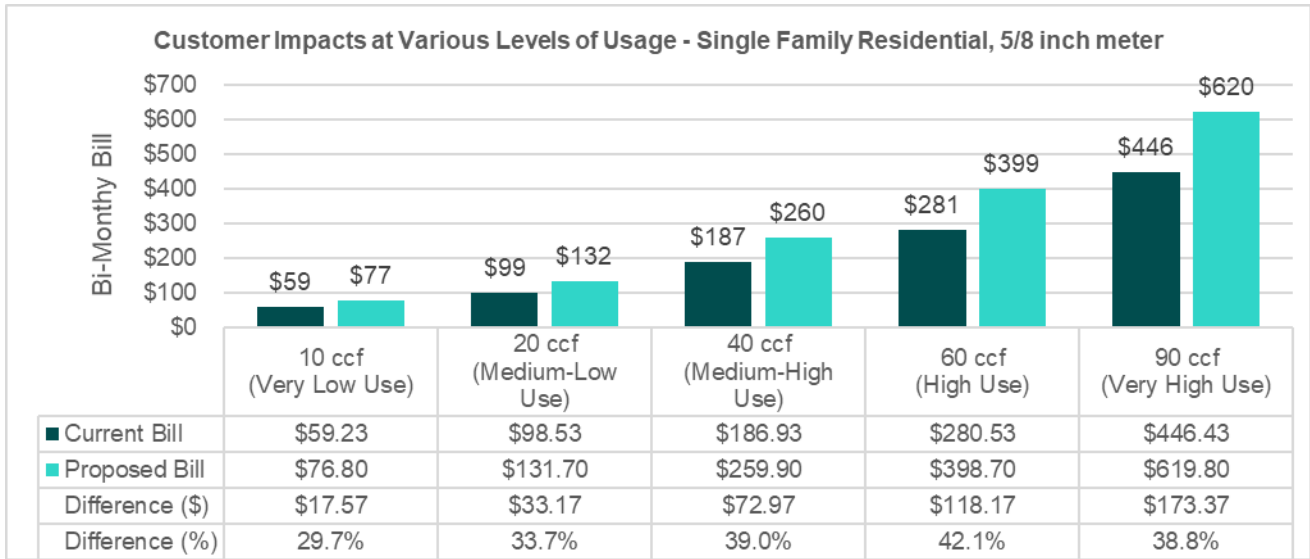
**Table 4-9: Proposed Water Usage Rates**

Line	A Consumption Charge	B Current	C January 2024	D January 2025	E January 2026
1	<b>Pleasanton Charges</b>				
2	Single Family Residential				
3	Tier 1 - 20 ccf	\$0.00	\$2.06	\$2.91	\$3.74
4	Tier 2 - 40 ccf	\$0.49	\$2.98	\$4.20	\$5.39
5	Tier 3 - 60 ccf	\$0.75	\$3.51	\$4.95	\$6.36
6	Tier 4 - 60+ ccf	\$1.60	\$3.81	\$5.37	\$6.89
7	Multi-Family Residential	\$0.51	\$2.04	\$2.88	\$3.70
8	Commercial	\$0.51	\$2.17	\$3.06	\$3.93
9	Irrigation	\$0.67	\$3.00	\$4.23	\$5.43
10	Recycled Water Irrigation	\$4.05	\$4.29	\$6.04	\$7.75
11					
12	<b>Zone 7 Charges</b>				
13	Single Family Residential				
14	Tier 1 - 20 ccf	\$3.93	\$3.43	\$3.67	\$3.61
15	Tier 2 - 40 ccf	\$3.93	\$3.43	\$3.67	\$3.61
16	Tier 3 - 60 ccf	\$3.93	\$3.43	\$3.67	\$3.61
17	Tier 4 - 60+ ccf	\$3.93	\$3.43	\$3.67	\$3.61
18	Multi-Family Residential	\$3.93	\$3.43	\$3.67	\$3.61
19	Commercial	\$3.93	\$3.43	\$3.67	\$3.61
20	Irrigation	\$3.93	\$3.43	\$3.67	\$3.61
21	Recycled Water Irrigation	\$0.00	\$0.00	\$0.00	\$0.00
22					
23	<b>Combined Charges</b>				
24	Single Family Residential				
25	Tier 1 - 20 ccf	\$3.93	\$5.49	\$6.58	\$7.35
26	Tier 2 - 40 ccf	\$4.42	\$6.41	\$7.87	\$9.00
27	Tier 3 - 60 ccf	\$4.68	\$6.94	\$8.62	\$9.97
28	Tier 4 - 60+ ccf	\$5.53	\$7.24	\$9.04	\$10.50
29	Multi-Family Residential	\$4.44	\$5.47	\$6.55	\$7.31
30	Commercial	\$4.44	\$5.60	\$6.73	\$7.54
31	Industrial	\$4.44	\$5.60	\$6.73	\$7.54
32	Irrigation	\$4.60	\$6.43	\$7.90	\$9.04

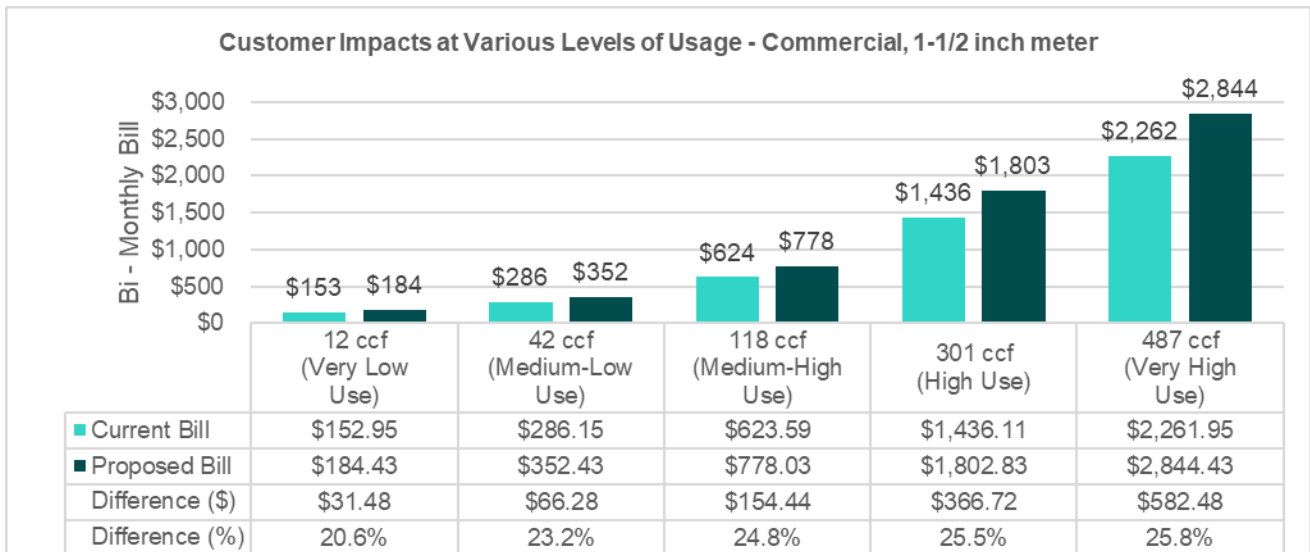
## 4.5. Customer Impacts

Figure 4-1 through Figure 4-4 show the impacts for Single Family Residential, Commercial, Multi-Family Residential, and Irrigation customers, respectively. The bi-monthly bills are calculated using the most common meter size for each customer class at various levels of usage.

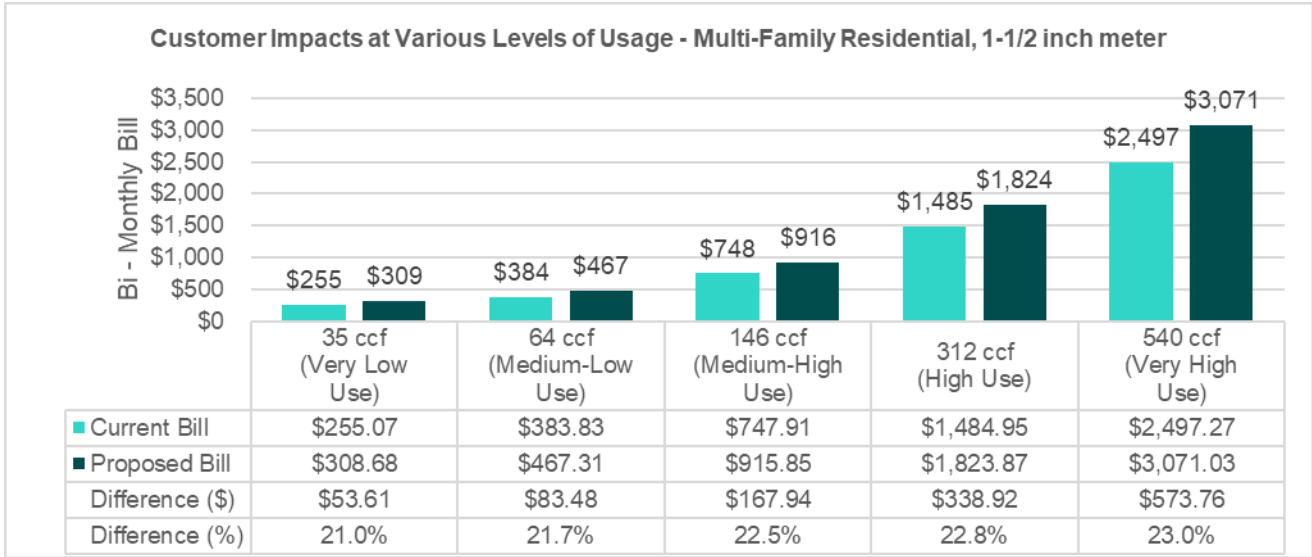
**Figure 4-1: Single Family Residential Bill Impacts**



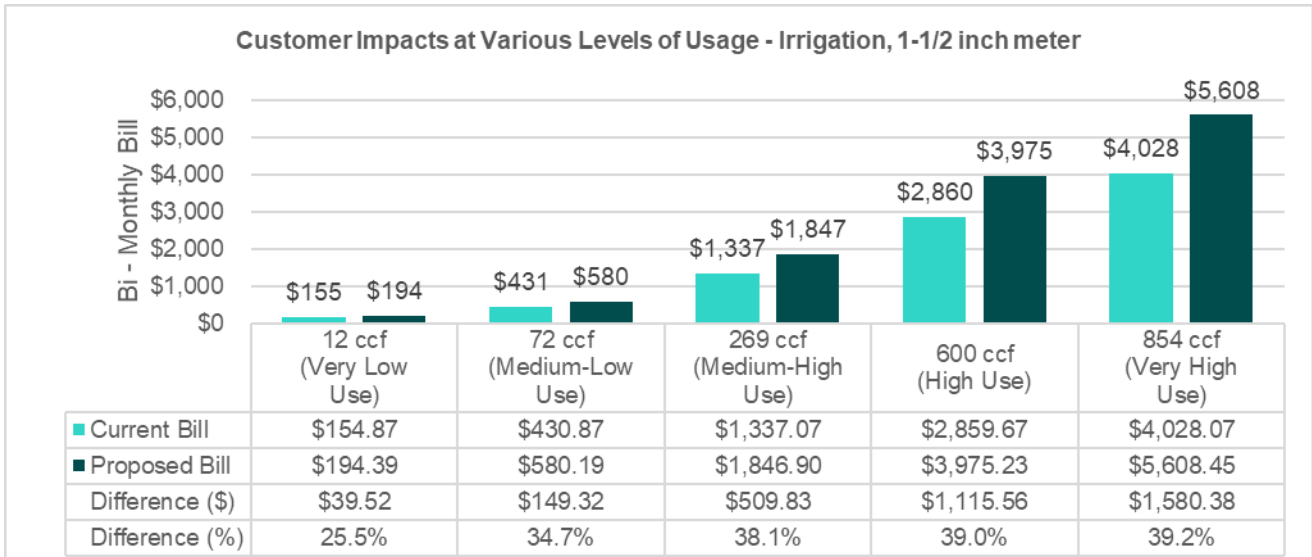
**Figure 4-2: Commercial Bill Impacts**



**Figure 4-3: Multi-Family Residential Bill Impacts**



**Figure 4-4: Irrigation Bill Impacts**



# 5. Drought Rates

The City engaged Raffelis to conduct a Drought Rate Study as part of the Water and Recycled Water Cost of Service and Rate Study. The City adopted its latest water shortage contingency plan in June of 2021, which details the six drought stages and the corresponding water usage reductions. The resulting drought rates align with Proposition 218 requirements and allow the City to reliably recover the necessary revenue to fully fund the water system in times of reduction in water demand.

The major objectives when developing drought rates include:

- Determine water allocations for each customer class during each drought stage based on the 2021 Water Shortage Contingency Plan
- Calculate the financial impacts of reduced water sales and changes to water supply sources
- Evaluate various drought rate structures to determine the structure best suited to meet the City's needs
- Develop drought rates that recover the financial impacts of each drought stage based on the cost of providing service

## 5.1. Process and Approach

Drought rates are governed by the requirements of Proposition 218 and Article X of the California Constitution. The development of the drought rates must show the nexus between the costs of providing water service and the rates charged to customers, must maximize the beneficial use of water (often defined as indoor use for health and hygiene), and must encourage conservation.

Drought rates are designed to recover lost revenue due to reduction in water use during each stage, to incorporate the potential changes to the City's water supply sources and their corresponding costs, to align with specific drought stages outlined in the 2021 Water Shortage Contingency Plan, and to provide financial flexibility for the City when declaring drought stages and implementing the appropriate drought rates. The proposed rates are based on the City's proposed water rates for FY 2024, which will go into effect January 1, 2024.

There are four steps to conducting a drought rate study, which include:

1. Allocating water reductions between various customer classes based on defined drought stages
2. Calculating financial impacts to the City in each stage
3. Determining the most appropriate drought cost recovery mechanism (rate structure)
4. Evaluating financial impacts to customers

## 5.2. Drought Allocations and Costs

This subsection details the water usage allocations and financial impacts of each drought stage, which results in the total amount of revenue to be collected from drought rates in each stage. Numbers shown in the tables of this section are rounded. Therefore, hand calculations based on the displayed numbers such as summing or multiplying, may not equal the exact results shown in this Report.

### 5.2.1. WATER ALLOCATIONS

The first step in the development of drought rates involves allocating water usage reductions between the City's customer classes based on the drought stages defined in the Water Shortage Contingency Plan. **Table 5-1** shows

the overall reduction targets for the entire water system. These reduction targets are used for each of the customer classes.

**Table 5-1: Drought Stages and Reduction**

Line	A Water Reduction	B Baseline	C Stage 1	D Stage 2	E Stage 3	F Stage 4	G Stage 5	H Stage 6
1	Target Reduction Goal	0%	≤10%	≤20%	≤30%	≤40%	≤50%	>50%

Water usage by customer class for each drought stage are calculated once the water reductions are determined. Each customer account gets a bi-monthly allotment of 10 ccf of water that is exempt from being charged drought rates. **Table 5-2** shows the annual allotment for each customer class in ccf (Column C).

**Table 5-2: Drought Rate Exempt Allotment by Customer Class**

Line	A Allotment by Class	B Accounts	C Allotment
1	Single Family Residential	24,183	1,450,980
2	Multi-Family Residential	576	34,560
3	Commercial	1,009	60,540
4	Industrial	4	240
5	Irrigation	904	54,240
6	<b>Total</b>	<b>26,676</b>	<b>1,600,560</b>

Water usage by customer class for each drought stage is calculated once the water reductions are determined. **Table 5-3** shows the estimated water usage in ccf for each stage of drought that align with the percent reduction targets for the system (**Table 5-1**). Baseline use (Column B) is equal to the estimated water use in FY 2024. The percent reduction from Baseline (Line 20) is the difference between the total usage in Stages 1 through 6 compared to the Baseline scenario. Note that the percent reduction from Baseline is equal to the target reduction for the system. The usage reductions for Single Family Residential customers are assumed to reduce from the highest tiers first, which provides the most conservative revenue projections and shows the prioritization for beneficial water use for indoor health and hygiene based on the guidance in Article X of the California Constitution.

**Table 5-3: Estimated Water Usage by Stage**

Line	A Water Sales in ccf (FY 2024)	B Baseline	C Stage 1	D Stage 2	E Stage 3	F Stage 4	G Stage 5	H Stage 6
1	<b>Single Family Residential</b>	<b>3,012,950</b>	<b>2,711,655</b>	<b>2,410,360</b>	<b>2,109,065</b>	<b>1,807,770</b>	<b>1,506,475</b>	<b>1,450,980</b>
2	Allotment		1,450,980	1,450,980	1,450,980	1,450,980	1,450,980	1,450,980
3	Tier 1	1,642,987	192,007	192,007	192,007	192,007	55,495	0
4	Tier 2	610,595	610,595	610,595	466,078	164,783	0	0
5	Tier 3	279,195	279,195	156,779	0	0	0	0
6	Tier 4	480,174	178,879	0	0	0	0	0
7	<b>Multi-Family Residential</b>	<b>527,984</b>	<b>475,185</b>	<b>422,387</b>	<b>369,589</b>	<b>316,790</b>	<b>263,992</b>	<b>211,194</b>
8	Allotment		34,560	34,560	34,560	34,560	34,560	34,560
9	Remaining Usage		440,625	387,827	335,029	282,230	229,432	176,634
10	<b>Commercial</b>	<b>456,989</b>	<b>411,290</b>	<b>365,591</b>	<b>319,892</b>	<b>274,193</b>	<b>228,495</b>	<b>182,796</b>
11	Allotment		60,540	60,540	60,540	60,540	60,540	60,540
12	Remaining Usage		350,750	305,051	259,352	213,653	167,955	122,256
13	<b>Industrial</b>	<b>16,886</b>	<b>15,197</b>	<b>13,508</b>	<b>11,820</b>	<b>10,131</b>	<b>8,443</b>	<b>6,754</b>
14	Allotment		240	240	240	240	240	240
15	Remaining Usage		14,957	13,268	11,580	9,891	8,203	6,514
16	<b>Irrigation</b>	<b>1,017,153</b>	<b>915,438</b>	<b>813,723</b>	<b>712,007</b>	<b>610,292</b>	<b>508,577</b>	<b>406,861</b>
17	Allotment		54,240	54,240	54,240	54,240	54,240	54,240
18	Remaining Usage		861,198	759,483	657,767	556,052	454,337	352,621
19	<b>Total</b>	<b>5,031,962</b>	<b>4,528,766</b>	<b>4,025,570</b>	<b>3,522,373</b>	<b>3,019,177</b>	<b>2,515,981</b>	<b>2,258,585</b>
20	<i>Percent Reduction</i>		-10%	-20%	-30%	-40%	-50%	-54%

## 5.2.2. FINANCIAL IMPACTS

The next step in the drought rate study is to determine the financial impacts to the City during each stage of drought. The cost implications of drought consider the following:

- Lost commodity charge revenue due to water usage reductions in each drought stage
- Potential changes to operating costs, which include water supply sources and the associated costs

For the City, the most significant financial consequence is the loss of consumption-based revenue, the severity of which depends on the drought stage. Drought conditions will also require more staff to be hired to handle conservation efforts and respond to an increase in customer service requests. There will be additional costs associated with drought including increased printing and mailing costs for noticing customers of changes to their rates and other miscellaneous equipment. Conversely, water purchase costs from Zone 7 decrease during drought as well as pumping costs savings as less water is being circulated through the system during drought.

**Table 5-4** shows the commodity revenue for Stages 1 through 6 compared to baseline excluding revenues collected from allotment usage. This is calculated based on the proposed FY 2024 commodity charges (**Table 4-9**) multiplied by the estimated water usage by drought stage for each customer class excluding allotment usage (**Table 5-3**). The difference in commodity charge revenue (Line 12) is equal to the difference between the Baseline revenue and the estimated revenue for Stages 1 through 6, which represents the amount of lost commodity charge revenue in each stage.

**Table 5-5** shows the additional staffing costs associated with each stage of drought. Additional staff are required to manage a combination of increased water conservation efforts and customer service requirements. Additional

printing and mailing costs will be needed during drought for notices sent to customers regarding changes in their rates and mandatory water usage restrictions.

**Table 5-6** shows the Zone 7 variable costs at each stage of drought, respectively. As water usage is reduced, less water needs to be purchased from Zone 7. **Table 5-6**, Line 2 shows the cost savings in each stage of drought compared to the cost of water from Zone 7 under Baseline conditions.

**Table 5-7** shows the total cost of drought at Stages 1 through 6, which includes the lost commodity revenue (**Table 5-4**, Line 12), increased operating costs (**Table 5-5**, Line 4), and Zone 7 variable cost savings (**Table 5-6**, Line 2).



**Table 5-4: Expected Revenue Loss by Stage (Excluding Allotment Revenue)**

Line	A Projected Commodity Revenue	B Baseline	C Stage 1	D Stage 2	E Stage 3	F Stage 4	G Stage 5	H Stage 6
1	Single Family Residential	\$18,347,980	\$16,166,604	\$14,021,953	\$12,007,560	\$10,076,259	\$8,270,548	\$7,965,880
2	Tier 1	\$9,019,998	\$9,019,998	\$9,019,998	\$9,019,998	\$9,019,998	\$8,270,548	\$7,965,880
3	Tier 2	\$3,913,911	\$3,913,911	\$3,913,911	\$2,987,562	\$1,056,261	\$0	\$0
4	Tier 3	\$1,937,614	\$1,937,614	\$1,088,045	\$0	\$0	\$0	\$0
5	Tier 4	\$3,476,458	\$1,295,082	\$0	\$0	\$0	\$0	\$0
6	Multi-Family Residential	\$2,888,071	\$2,599,264	\$2,310,457	\$2,021,650	\$1,732,843	\$1,444,036	\$1,155,228
7	Commercial	\$2,559,138	\$2,303,225	\$2,047,311	\$1,791,397	\$1,535,483	\$1,279,569	\$1,023,655
8	Industrial	\$94,559	\$85,103	\$75,647	\$66,192	\$56,736	\$47,280	\$37,824
9	Irrigation	\$6,540,296	\$5,886,267	\$5,232,237	\$4,578,207	\$3,924,178	\$3,270,148	\$2,616,118
10	<b>Total Revenue</b>	<b>\$30,430,046</b>	<b>\$27,040,463</b>	<b>\$23,687,606</b>	<b>\$20,465,005</b>	<b>\$17,325,498</b>	<b>\$14,311,581</b>	<b>\$12,798,706</b>
11								
12	Lost Revenue	\$0	(\$3,389,582)	(\$6,742,440)	(\$9,965,040)	(\$13,104,548)	(\$16,118,465)	(\$17,631,339)
13	% of Baseline Revenue	0%	-11%	-22%	-33%	-43%	-53%	-58%

**Table 5-5: Additional O&M Costs by Stage**

Line	A O&M Costs	B Stage 1	C Stage 2	D Stage 3	E Stage 4	F Stage 5	G Stage 6
1	Staffing	\$0	\$80,000	\$80,000	\$120,000	\$120,000	\$120,000
2	Printing/Mailing	\$0	\$26,000	\$26,000	\$26,000	\$26,000	\$26,000
3	Misc Equipment	\$0	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
4	<b>Total Costs</b>	<b>\$0</b>	<b>\$116,000</b>	<b>\$116,000</b>	<b>\$156,000</b>	<b>\$156,000</b>	<b>\$156,000</b>

**Table 5-6: Zone 7 Variable Cost Savings by Stage**

Line	A Zone 7 Savings	B Baseline	C Stage 1	D Stage 2	E Stage 3	F Stage 4	G Stage 5	H Stage 6
1	Variable Costs	\$12,795,669	\$11,516,102	\$10,236,535	\$8,956,968	\$7,677,401	\$6,397,835	\$5,901,661
2	Variable Savings		(\$1,279,567)	(\$2,559,134)	(\$3,838,701)	(\$5,118,268)	(\$6,397,835)	(\$6,894,008)

**Table 5-7: Total Drought Costs by Stage**

Line	A Drought Cost Calculation	B Stage 1	C Stage 2	D Stage 3	E Stage 4	F Stage 5	G Stage 6
1	Lost Revenue	\$3,389,582	\$6,742,440	\$9,965,040	\$13,104,548	\$16,118,465	\$17,631,339
2	Additional Drought O&M Costs	\$0	\$116,000	\$116,000	\$156,000	\$156,000	\$156,000
3	Zone 7 Savings	(\$1,279,567)	(\$2,559,134)	(\$3,838,701)	(\$5,118,268)	(\$6,397,835)	(\$6,894,008)
4	<b>Total Drought Cost</b>	<b>\$2,110,016</b>	<b>\$4,299,306</b>	<b>\$6,242,340</b>	<b>\$8,142,280</b>	<b>\$9,876,630</b>	<b>\$10,893,331</b>

## 5.3. Drought Rates

The next step after determining the drought costs by stage is evaluating the drought cost recovery mechanism, or drought rate structure, that best meets the needs of the City and its customers. Based on direction provided by City staff, the drought rates were developed as a proportional commodity charge increase to the proposed commodity charges for FY 2024, which allows for the ability of customers to change their water bill, encourages conservation, and promotes affordability.

### 5.3.1. DROUGHT RATE CALCULATION & PROPOSED DROUGHT RATES

**Table 5-8** shows the drought rate percentage calculation. This is calculated by dividing the total drought cost (Line 2) by the total expected commodity revenue excluding the revenue from the allotment usage. This drought rate percentage is then multiplied with the proposed FY 2024 commodity rates (**Table 4-9**) to obtain the proposed commodity drought rates shown in **Table 5-9**. It is important to note that the drought rates are rounded to the nearest cent and therefore may not match hand calculations.

**Table 5-8: Drought Rate Percentage Calculation**

Line	A Drought Proportion Calculation	B Stage 1	C Stage 2	D Stage 3	E Stage 4	F Stage 5	G Stage 6
1	Total Commodity Revenue less Allotment	\$18,196,409	\$14,843,551	\$11,620,951	\$8,481,443	\$5,467,526	\$3,954,652
2	Drought Cost	\$2,110,016	\$4,299,306	\$6,242,340	\$8,142,280	\$9,876,630	\$10,893,331
3	Drought Rate Percentage	12%	29%	54%	96%	181%	275%

**Table 5-9: Proposed FY 2024 Drought Rates**

Line	A Drought Rate Schedule	B Stage 1	C Stage 2	D Stage 3	E Stage 4	F Stage 5	G Stage 6
1	Single Family Residential						
2	Tier 1	\$0.64	\$1.59	\$2.95	\$5.27	\$9.92	\$15.12
3	Tier 2	\$0.74	\$1.86	\$3.44	\$6.15	\$11.58	\$17.66
4	Tier 3	\$0.80	\$2.01	\$3.73	\$6.66	\$12.54	\$19.12
5	Tier 4	\$0.84	\$2.10	\$3.89	\$6.95	\$13.08	\$19.94
6	Multi-Family Residential	\$0.63	\$1.58	\$2.94	\$5.25	\$9.88	\$15.07
7	Commercial	\$0.65	\$1.62	\$3.01	\$5.38	\$10.12	\$15.43
8	Industrial	\$0.65	\$1.62	\$3.01	\$5.38	\$10.12	\$15.43
9	Irrigation	\$0.75	\$1.86	\$3.45	\$6.17	\$11.62	\$17.71

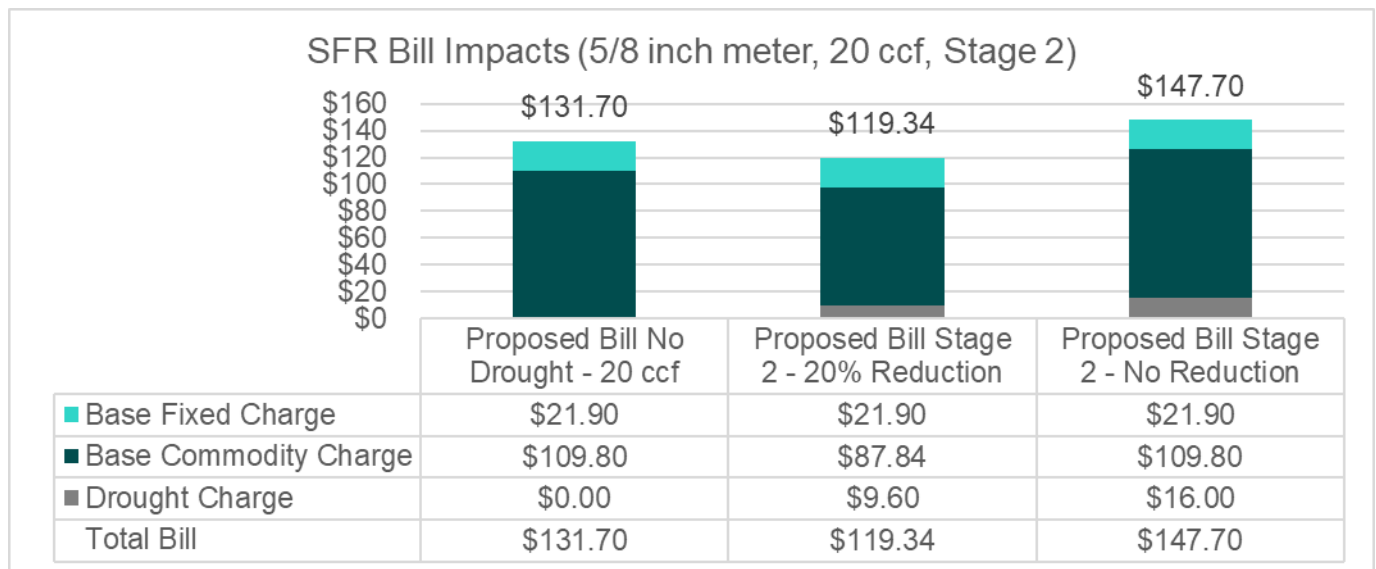
### 5.3.2. CUSTOMER IMPACTS

Figure 5-1 through Figure 5-3 show the bill impacts at Stage 2 drought for Single Family, Multi-Family, and Commercial customers, respectively. Each graph shows bills using the most common meter size and the median usage for that customer class.

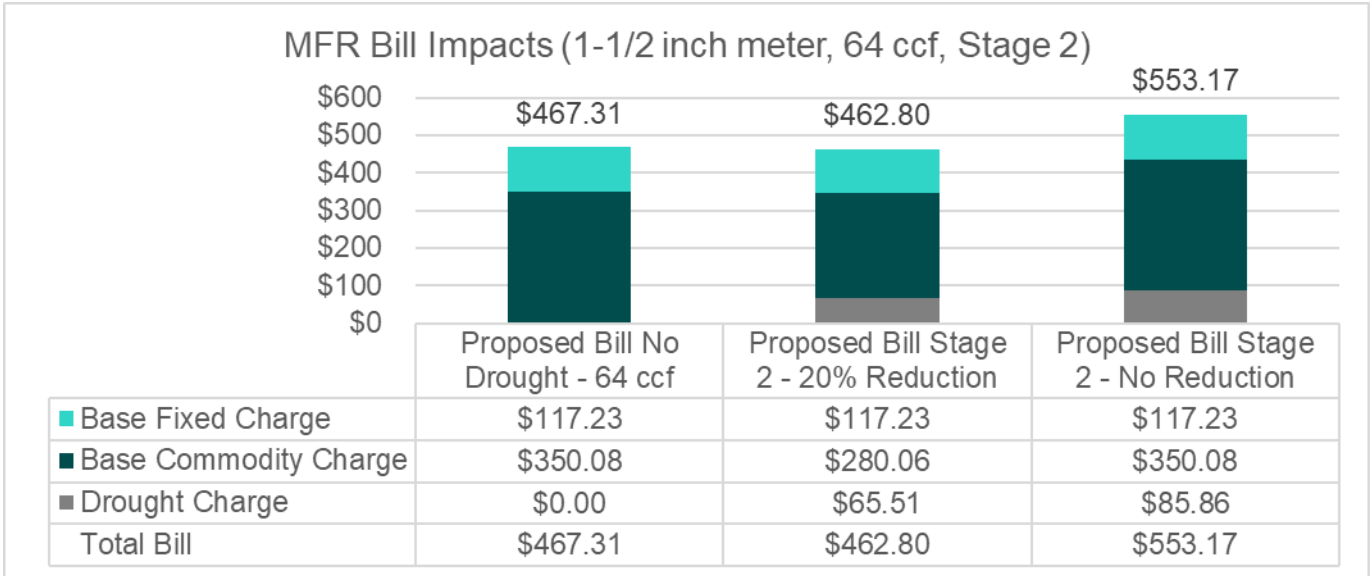
The figures show the impacts in each stage based on the components of the customer bill, which includes the fixed charge by meter size, the commodity charge per ccf of use, and the drought charge per ccf of use. The fixed charge by meter size does not change based on drought stages or water usage. The three stacked bars in each figure show the difference between the baseline scenario (no drought), the drought scenario with commensurate reduction in water use (meaning the customer reduces their water based on the declared drought stage), and the drought scenario without reduction in water use (meaning the customer does not reduce their water use even when a drought stage has been declared).

The figures demonstrate that when the City’s customers comply with the recommended water usage reductions as defined by the Water Shortage Contingency Plan, the customer’s water bill during a drought will not exceed their baseline water bill. However, if customers do not comply with the recommended water usage reductions, then the impact to their water bill can be significant.

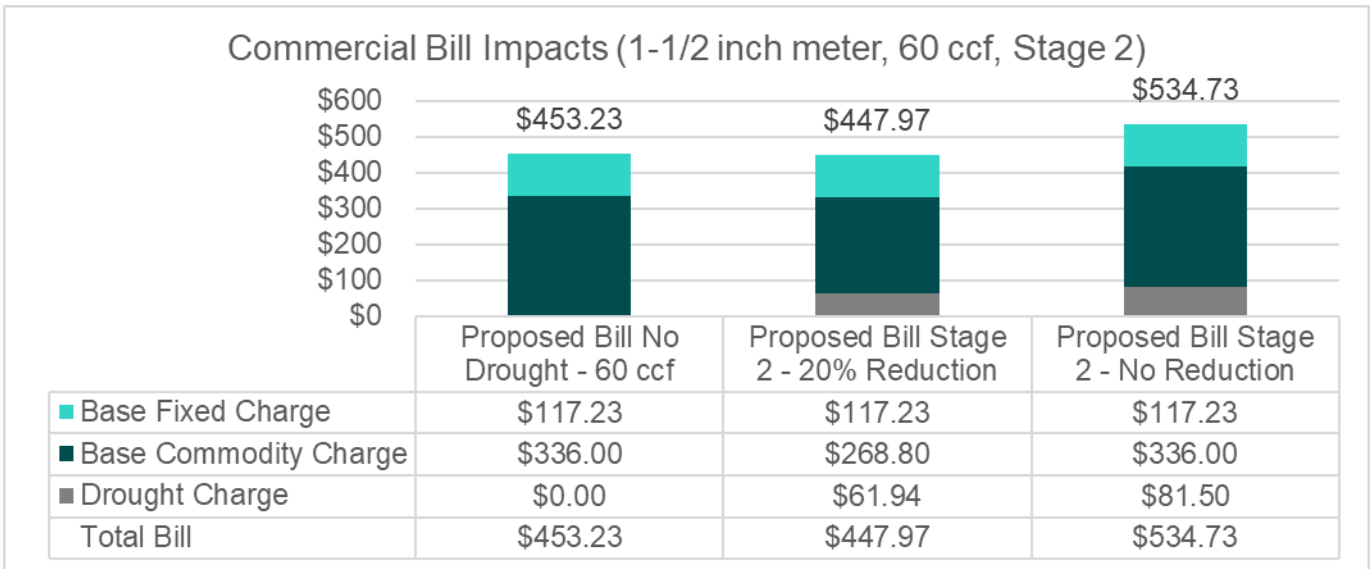
Figure 5-1: Single Family Residential Bill Impacts



**Figure 5-2: Multi-Family Residential Bill Impacts**

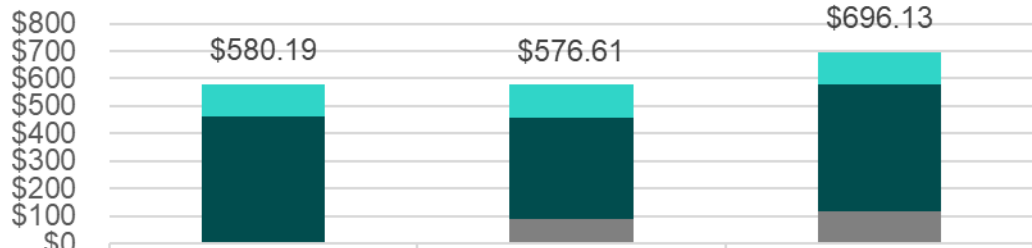


**Figure 5-3: Commercial Bill Impacts**



**Figure 5-4: Irrigation Bill Impacts**

Irrigation Bill Impacts (1-1/2 inch meter, 72 ccf, Stage 2)



	Proposed Bill No Drought - 72 ccf	Proposed Bill Stage 2 - 20% Reduction	Proposed Bill Stage 2 - No Reduction
■ Base Fixed Charge	\$117.23	\$117.23	\$117.23
■ Base Commodity Charge	\$462.96	\$370.37	\$462.96
■ Drought Charge	\$0.00	\$89.01	\$115.94
Total Bill	\$580.19	\$576.61	\$696.13