La Cañada Irrigation District

Water Cost of Service Rate Study

REPORT / September 13, 2023





September 13, 2023

Mr. Douglas Caister, General Manager La Cañada Irrigation District 1443 Foothill Boulevard La Cañada Flintridge, CA 91011

Subject: 2023 Water Cost of Service Rate Study

Dear Mr. Caister:

Raftelis is pleased to provide this 2023 Water Cost of Service Rate Study Report to La Cañada Irrigation District. This report explains the methodology used to develop proposed rates for CY 2024-2028 for the District's water service customers.

The major study objectives include the following:

- » Develop a five-year financial plan to ensure sufficient funding for the District's operating and capital expenses while maintaining adequate cash reserves
- » Conduct a cost of service analysis
- » Develop fair and equitable water rates for a five-year period

This report summarizes the key findings and recommendations related to the development of the proposed water rates. It has been a pleasure working with you and we appreciate the support provided by you and Assistant General Manager Justin Bailey during this study.

Sincerely,

Sudhir Pardiwala, PE Exec Vice President

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Abbreviations

Terms	Descriptions			
AF	Acre foot / Acre feet, 1 AF = 435.6 CCF			
AFY	Acre foot per year			
AWWA	American Water Works Association			
CCF	One hundred cubic feet (equal to 748 gallons)			
CIP	Capital Improvement Plan			
СҮ	Calendar Year (January 1 – December 31)			
District	La Cañada Irrigation District			
FMWD	Foothill Municipal Water District			
FY	Fiscal Year (July 1 – June 30)			
GPM	Gallons per Minute			
M1 Manual	Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices M1,			
	Seventh Edition (published by the AWWA)			
Max DayMaximum daily water demand over a one-year period				
Max Hour	Maximum hourly water demand over a one-year period			
MWD	Metropolitan Water District of Southern California			
O&M	Operations and Maintenance			

La Cañada Irrigation District / Water Cost of Service Rate Study

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1. Executive Summary

1.1. Study Overview

Public water utilities in California typically perform a cost of service analysis regularly to ensure that customer rates are commensurate with the cost incurred by the utility to provide service to customers. The District last conducted a water cost of service study in 2018, which established the currently adopted five-year rate schedule for 2018-2022. Due to the financial hardships faced by the District's customers during the COVID-19 pandemic, the implementation of adopted annual rate increases was delayed by approximately one year. The final year of the five-year adopted rate schedule was originally scheduled to be implemented in January 2022 but was not fully implemented until February 2023.

The District engaged Raftelis in late 2022 to conduct this Water Cost of Service Rate Study (Study) to provide an updated cost of service analysis and establish a proposed five-year water rate schedule for CY 2024-2028. The major objectives of this Study are to:

- » Develop a five-year financial plan to identify annual revenue requirements needed to adequately recover operations and maintenance (O&M) expenses, provide funding for capital expenditures, maintain prudent reserves, and ensure sufficient debt service coverage.
- » Conduct a water cost of service analysis that establishes a clear nexus between the cost to serve customers and the rates charged to customers per Proposition 218 and industry standards.
- » Review the District's existing water rate structure to ensure that proposed rates achieve the District's financial and policy objectives.
- » Develop a five-year rate schedule that is fair, equitable, and compliant with Proposition 218 requirements.
- » Conduct a customer impact analysis which compares bi-monthly bills under both current and proposed water rates.

1.2. Rate-Setting Methodology

This study is informed by the District's policy objectives, current water rate structure, as well as the regulatory requirements in California (namely, Proposition 218). The resulting rate design process considers all these factors and follows four key steps, outlined below, to develop proposed rates.

Step 1: Financial Plan

The first step in a typical water rate study is to develop a multi-year financial plan that projects a water utility's revenues, expenses, capital project financing, annual debt service, and reserve funding. The financial plan is used to determine the annual rate revenue requirement (i.e., total annual water rate revenue) needed to meet the water utility's funding needs.

Step 2: Cost of Service Analysis

The annual cost of providing water service (i.e., the revenue requirement) is then distributed among customer classes commensurate with their use of and demand on the system. A cost of service analysis involves allocating costs to various water system functions (such as Supply, Transmission, Treatment, etc.) with the

ultimate goal of distributing the overall rate revenue requirement to customers in proportion to the demand they place on the water system.

Step 3: Rate Design

The rate design process involves two main steps. First, proposed changes to the existing water rate structure are identified. Secondly, proposed rates are calculated directly from the results of the financial plan and cost of service analyses. Rates do more than simply recover costs; within the regulatory framework and industry standards; properly designed rates should support and optimize the District's policy objectives. Rates also function as a public information tool in communicating policy objectives to customers.

Step 4: Report Preparation and Rate Adoption

The final step in a rate study is to develop a report that documents the study results. A thorough report enhances defensibility in a stringent legal environment and presents the rate-setting process to key stakeholders. Proposed rates cannot be implemented until formally adopted by the District's Board of Directors after a public hearing. Proposition 218 requires that the District's water customers must be mailed a public hearing notice detailing any proposed rate changes no fewer than 45 days before the public hearing.

1.3. Proposed Financial Plan

The five-year financial plan analysis includes projections of the District's revenues, O&M expenses, CIP expenditures, debt funding, debt service payments, and reserve funding. The overall purpose of the financial plan is to determine annual water rate revenues required to achieve sufficient cash flow, maintain adequate reserves, and meet any debt service coverage requirements.

Projected O&M Expenses

Wholesale water purchases from Foothill Municipal Water District (FMWD) constitute nearly two-thirds of the District's total O&M expenses. In addition to wholesale water purchase costs, the District's O&M expenses include the cost of operating and maintaining water system facilities as well as customer service, billing, and other administrative costs. Projected O&M expenses over the next five years are summarized in Figure 1-1. Wholesale water purchase cost projections are based on FMWD wholesale rate projections and assume 1,884 acre-feet per year (AFY) in water sales in 2023 and 2,100 AFY in 2024-2028. All other O&M expense projections are based on inflationary assumptions developed by Raftelis and District staff.





Planned CIP Expenditures

The District provided Raftelis with a detailed schedule of planned CIP projects over the study period, amounting to \$4.4 million in annual average CIP through 2028 (see Figure 1-2). Significant CIP projects over the study period include construction of new reservoir (\$9.9 million), existing reservoir repair and refurbishment costs (\$5.0 million), and water main replacement (\$4.5 million). CIP over the study period is assumed to be funded by rates and reserves (i.e., pay-as-you-go) as well as two future debt issues in 2024 and 2028.



Figure 1-2: CIP Summary

Reserve Policy

A reserve policy establishes cash reserve targets to ensure sufficient cash on hand to cope with uneven cash flow, unanticipated revenue shortfalls, asset failures, and other financial risks. It provides guidelines for sound financial management and helps utilities maintain financial solvency and mitigate financial risks over the long term. The District currently maintains two types of reserves:

- » An **Operating Reserve** to provide working capital to support the utility's operation, maintenance, and administration.
- » A Capital Reserve to fund future obligations necessary to maintain reliable infrastructure.

Raftelis evaluated the current reserve policies and recommends a change to the capital reserve policy only to better align with industry norms. Table 1-1 lists the District's current versus recommended reserve policies and the associated reserve target levels for the current year.

[A]	[B]	[C]	[D]	[E]	[F]
Line	Reserve	Current Reserve Target Basis	Recommended Reserve Target Basis	Current Reserve Target (2023)	Recommended Reserve Target (2023)
1	Operating Reserve	90 days of O&M expenses (i.e., 25% of annual O&M expenses)	No change	\$1,494,373	\$1,494,373
2	Capital Reserve	50% of rolling 5-year average annual CIP	100% of rolling 5-year average annual pay-as- you-go CIP (i.e., excluding debt funded CIP)	\$2,003,253	\$1,982,946
3	Total			\$3,497,626	\$3,477,319

Table 1-1: Recommended Changes to Reserve Policy

Proposed Revenue Adjustments

To ensure that the District generates sufficient revenues to adequately recover its operating and capital expenses while maintaining adequate cash reserves throughout the study period, Raftelis recommends 10 percent annual revenue adjustments (i.e., percentage increases in total rate revenues) beginning in CY 2024. The revenue adjustments are assumed to be implemented on January 1 of each year, as shown in Table 1-2. Raftelis evaluated various financial plan scenarios with District staff to develop the recommended revenue adjustments below. Key factors influencing the need for revenue adjustments include:

- » Operating cost increases: O&M expenses continue to increase yearly due to inflationary pressures, which have been significantly higher over the past few years across the global economy. Additionally, wholesale water purchase costs from FMWD are projected to increase by over 7 percent per year on average over the study period.
- » Substantial capital needs: Annual average CIP over the study period amounts to \$4.4 million, which represents a 56 percent increase from the prior cost of service rate study in 2018 (which assumed \$2.8 million in annual average CIP). Approximately 80% of all CIP expenses are projected to be funded by debt, to help mitigate the need for larger revenue adjustments.
- » **Reduced water demand**: Projected water demand over the five-year rate-setting period through 2028 (2,100 AFY) is 13% below what was assumed in the cost of service rate study in 2018 (approximately

2,400 AFY). This is mainly due to conservation achieved during prevailing drought conditions over recent years in California and the resultant need for water utilities to cut back water demand. Reduced water demand results in decreased commodity rate revenue. Because the Water Enterprise's costs (excluding FMWD wholesale water purchase costs) are largely fixed, reduced water demand has a negative impact on cash flow and can result in the need for higher rate increases.

[A]	[B]	[C]	[D]
Line	Year	Effective Month	Proposed Revenue Adjustment
1	2024	Jan. 2024	10.0%
2	2025	Jan. 2025	10.0%
3	2026	Jan. 2026	10.0%
4	2027	Jan. 2027	10.0%
5	2028	Jan. 2028	10.0%

Table 1-2: Proposed Revenue Adjustments

Proposed Financial Plan

Under the proposed financial plan, ending cash reserves are projected to remain above the reserve target level in all years. Additionally, debt service coverage is projected to remain well above target in all years, demonstrating sufficient debt capacity for the two new assumed debt issues to finance a portion of planned CIP. The proposed financial plan is summarized below in graphical format. Figure 1-3 compares projected ending cash reserves versus the total reserve target each year under the proposed financial plan. Figure 1-4 compares current and proposed revenues versus various funding needs (negative reserve funding represents a drawdown of cash reserves). Note that without any proposed rate increases, it is projected that the District would experience an operating deficit by 2025.





Figure 1-4: Proposed Financial Plan



1.4. Proposed Rates

Current Rate Structure

The District's current water rate structure consists of two primary components: 1) Fixed Meter Charges that vary by meter size; and 2) volumetric Commodity Rates per hundred cubic feet (ccf) of water delivered. Current rates in effect in 2023 were established during the 2018 Water Cost of Service Rate Study. Table 1-3 shows the District's current water rates in effect since February 2023. Commodity rates are based on a three-tier structure. The first 14 ccf per bi-monthly billing period is charged at the lowest Tier 1 rate. The next 56 ccf per bi-monthly period (i.e., up to 70 ccf) is charged at the higher Tier 2 rate. All water use in excess of 70 ccf per bi-monthly billing period is charged at the highest Tier 3 rate. Note that the District's current water rates are the same for all customer classes (e.g., residential, commercial, irrigation, etc.).

[A]	[B]	[C]
Line	Current Bi-Monthly Water Rates	Current Rates (effective Feb. 2023)
1	Fixed Meter Charges (by meter size)	
2	5/8-inch	\$63.66
3	3/4-inch	\$63.66
4	1-inch	\$131.96
5	1.5-inch	\$245.80
6	2-inch	\$382.38
7	3-inch	\$814.98
8		
9	Commodity Rates (per ccf)	
10	Tier 1 (0-14 ccf)	\$4.35
11	Tier 2 (15-70 ccf)	\$5.52
12	Tier 3 (> 70 ccf)	\$6.16

Table 1-3: Current Bi-Monthly Water Rates

Proposed Rate Structure Modifications

Based on industry norms as well as feedback from District staff, Raftelis only recommends one proposed rate structure modification at this time. Raftelis recommends that the District update its current bi-monthly tier allotments to better align with changing customer water use patterns (see Table 1-4). However, no change to the Tier 1 allotment of 14 ccf per bi-monthly billing period is recommended. The Tier 1 allotment is designed to represent efficient indoor water use for an average sized household. The current Tier 1 allotment is based on statewide indoor water efficiency standards that will remain in place through 2024. Therefore, no change to the Tier 1 allotment is recommended at this time.

Raftelis does recommend a decrease in the current bi-monthly tier allotment for Tier 2 water use. The current Tier 2 breakpoint of 70 ccf per bi-monthly billing period is intended to represent reasonable outdoor water use, and is based on average residential water use in the summer per 2016 customer water use data. Since the prior rate study was completed in 2018, customer water use has declined due to water supply availability constraints and resulting conservation efforts. Raftelis recommends that the District reduce the Tier 2 allotment from 70 to 60 ccf per bi-monthly billing period, which aligns with updated average residential summer water use data.

[A]	[B]	[C]	[D]	[D]
Line	Tier	Current Bi- Monthly Tier Allotments	Proposed Bi- Monthly Tier Allotments	Basis
1	Tier 1	0-14 ccf	0-14 ccf	Tier max set equal to efficient indoor water use (55 gpcd) for an average size household (~3 persons) in La Cañada Flintridge
2	Tier 2	15-70 ccf	15-60 ccf	Tier max set equal to average single family residential water use during the summer (July-October)
3	Tier 3	>70 ccf	>60 ccf	All water use in excess of Tier 2

Table 1-4: Proposed Update to Bi-Monthly Tier Allotments

Cost of Service Analysis

Raftelis performed a water cost of service analysis for 2024 in accordance with industry-standard principles outlined by the American Water Works Association (AWWA) in its *Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices M1, Seventh Edition* (M1 Manual). The cost of service analysis evaluates customers' use of and demand on the water system, and then proportionally allocates the overall water rate revenue requirement to "cost causation components." A summary of the proposed cost of service allocations is provided in Table 1-5 below. The total rate revenue requirement is allocated across seven different cost causation components, which are to be recovered by either Fixed Meter Charges or Commodity Rates. The allocations shown below provide the direct basis for proposed 2024 rate calculations.

[A]	[B]	[C]	[D]
Line	Cost Causation Component	Rate Revenue Requirement	Recovered by
1	Supply	\$4,348,538	Commodity Rates (uniform for all tiers)
2	Base Delivery	\$1,188,124	Commodity Rates (uniform for all tiers)
3	Max Day Extra Capacity	\$362,378	Commodity Rates (differentiated by tier)
4	Max Hour Extra Capacity	\$182,421	Commodity Rates (differentiated by tier)
5	Customer Service	\$332,565	Fixed Meter Charges (uniform for all meter sizes)
6	Meters	\$1,395,315	Fixed Meter Charges (differentiated by meter size)
7	Revenue Offsets	(\$676,058)	Commodity Rates (differentiated by tier)
8	Total	\$7,133,282	

Table 1-5: Updated Cost of Service Allocations (2024)

Proposed Five-Year Rate Schedule

Table 1-6 shows the current and proposed rates through 2028. Proposed 2024 rates are calculated directly from the results of the cost of service analysis and incorporate a 10 percent revenue adjustment (i.e., total overall annual rate revenue increase). Proposed rates for 2025-2028 are calculated by increasing all proposed 2024 rates by 10 percent per year (per the proposed revenue adjustments from Table 1-2) and rounding up to the nearest cent (to ensure adequate revenue recovery).

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Line	Bi-Monthly Water Rates	Current 2023	Proposed 2024	Proposed 2025	Proposed 2026	Proposed 2027	Proposed 2028
1	Effective Date	Feb. 2023	Jan. 2024	Jan. 2025	Jan. 2026	Jan. 2027	Jan. 2028
2	Revenue Adjustment	N/A	10.0%	10.0%	10.0%	10.0%	10.0%
3							
4	Fixed Meter Charges						
5	5/8-inch	\$63.66	\$69.66	\$76.64	\$84.30	\$92.72	\$102.00
6	3/4-inch	\$63.66	\$69.66	\$76.64	\$84.30	\$92.72	\$102.00
7	1-inch	\$131.96	\$146.00	\$160.60	\$176.66	\$194.34	\$213.76
8	1.5-inch	\$245.80	\$273.22	\$300.56	\$330.60	\$363.66	\$400.04
9	2-inch	\$382.38	\$425.88	\$468.48	\$515.32	\$566.86	\$623.54
10	3-inch	\$814.98	\$909.30	\$1,000.24	\$1,100.26	\$1,210.28	\$1,331.32
11							
12	Commodity Rates (per ccf)						
13	Tier 1 (0-14 ccf)	\$4.35	\$4.63	\$5.10	\$5.61	\$6.18	\$6.80
14	Tier 2 (15-60 ccf) ¹	\$5.52	\$5.96	\$6.56	\$7.22	\$7.95	\$8.75
15	Tier 3 (> 60 ccf) ²	\$6.16	\$6.98	\$7.68	\$8.45	\$9.30	\$10.23

Table 1-6: Proposed Five-Year Rate Schedule (2024-2028)

Customer Bill Impacts

Sample bi-monthly water bill impacts are shown for single family residential customers in Figure 1-5. Note that over 95 percent of the District's metered water connections serve single family residential customers. The bill impacts compare current 2023 bi-monthly water bills versus proposed 2024 bi-monthly water bills at varying levels of water use. All bills incorporate Fixed Meter Charges for a 5/8-inch or 3/4-inch water meter. Note that over 70 percent of the District's single family residential customers have 5/8-inch or 3/4-inch water meters. The five varying levels of water use correspond to the 10th percentile, 25th percentile, median, 75th percentile, and 90th percentile of bi-monthly water use for single family residential customers based on an analysis of water use data in 2022.

¹ The current Tier 2 bi-monthly allotment is 15-70 ccf

² The current Tier 3 bi-monthly allotment is >70 ccf



Figure 1-5: Bi-Monthly Bill Impacts (2024)

1.5. Proposed Drought Rates

Drought rate surcharges are needed to recover shortfall in revenues resulting from reduced water sales when the District Board mandates conservation for different drought stages. The surcharges to the proposed rates in any given <u>year</u> are shown in Table 1-7. Each tiered rate will increase by the percentage shown depending on the drought stage.

Table 1-7: Proposed Five-Year Drought Rate Schedule (2024-2028)

Line	2024 Drought Rate Calculations	Stage 1 Water 10% Shortage	Stage 2 Water 20% Shortage	Stage 3 Water 30% Shortage	Stage 4 Water 40% Shortage
1					
2	Uniform % Increase to Commodity Rates ³	5.7%	12.8%	22.0%	34.2%

³ = [Line 29] ÷ [Line 17]

2. Introduction

2.1. Water System Overview

La Cañada Irrigation District (District) was formed in 1924 and serves potable water to approximately 2,950 metered connections. The water service area comprises approximately 40 percent of the City of La Cañada Flintridge and serves predominantly single family residential customers (about 95 percent of metered connections). The District historically relies on two sources of water supply: local groundwater production and imported wholesale water purchased from Foothill Municipal Water District (FMWD). More recently, and into the future, the District relies almost entirely on purchased wholesale water from FMWD. The District is a member agency of FMWD and purchases on average 2,500 acre feet (AF) of water annually. Due to recent drought and conservation water sales have averaged approximately 2,100 acre feet per year (AFY).

2.2. Study Overview

Public water utilities in California typically perform a cost of service analysis every five to ten years to ensure that customer rates are commensurate with the cost incurred by the utility to provide service to customers. The District last conducted a water cost of service study in 2018, which established the currently adopted five-year rate schedule for 2018-2022. Due to the financial hardships faced by the District's customers during the COVID-19 pandemic, the implementation of adopted annual rate increases was delayed by approximately one year. The final year of the five-year adopted rate schedule was originally scheduled to be implemented in January 2022 but was not fully implemented until February 2023.

The District engaged Raftelis in late 2022 to conduct this Water Cost of Service Rate Study (Study) to provide an updated cost of service analysis and establish a proposed five-year water rate schedule for 2024-2028. The major objectives of this Study are to:

- » Develop a five-year proposed financial plan to identify annual revenue requirements needed to adequately recover operations and maintenance (O&M) expenses, provide funding for capital expenditures, maintain prudent reserves, and ensure sufficient debt service coverage.
- » Conduct a water cost of service analysis that establishes a clear nexus between the cost to serve customers and the rates charged to customers, per Proposition 218 and industry standards.
- » Review the District's existing water rate structure to ensure that proposed rates achieve the District's financial and policy objectives.
- » Develop a five-year rate schedule that is fair, equitable, and compliant with Proposition 218 requirements.
- » Conduct a customer impact analysis which compares bi-monthly bills under both current and proposed water rates.

The Study results are documented within this Water Cost of Service Rate Study Report (Report). Note that proposed rates cannot be implemented until formally adopted by the District's Board of Directors after a public hearing. Proposition 218 requires that the District's water customers must be mailed a public hearing notice detailing any proposed rate changes no fewer than 45 days before the public hearing. The notice includes a customer's right to protest the rate proposal.

2.3. Rate-Setting Methodology

This study was conducted using industry-standard principles outlined by the American Water Works Association's (AWWA) *Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices - M1 Seventh Edition* (M1 Manual). The process and approach Raftelis utilized in the study to determine rates is informed by the District's policy objectives, the current system of rates, and the legal requirements in California (namely, Proposition 218). The rate study process follows four key steps, outlined below, to determine proposed rates that fulfill the District's objectives, meet industry standards, and comply with relevant regulations.

- » **Financial Plan:** The first step in a typical water rate study is to develop a multi-year financial plan that projects a water utility's revenues, expenses, capital project financing, annual debt service, and reserve funding. The financial plan is used to determine the annual rate revenue requirement (i.e., total annual water rate revenue) needed to meet the water utility's funding needs.
- Cost of Service Analysis: The annual cost of providing water service (i.e., the revenue requirement) is then distributed to customers commensurate with their use of and burden on the system. A cost of service analysis involves assigning operating and capital costs to various water system functions (such as Supply, Transmission, Treatment, etc.) with the ultimate goal of distributing the overall rate revenue requirement to customers in proportion to their burden on and use of the water system. A water cost of service analysis considers both the average water demand and peak demand. Peaking, or Extra Capacity, costs are incurred during periods of peak consumption, most often coinciding with summer water use. There are additional capacity-related costs associated with designing, constructing, operating, maintaining, and replacing facilities to meet peak demand. Patterns of use impose additional costs on a water utility and are used to determine the cost burden of customers on peaking-related facilities.
- » Rate Design: After allocating the revenue requirement in the cost of service analysis, the rate design and calculation process begins. Rates do more than simply recover costs; within the legal framework and industry standards, properly designed rates should support and optimize the District's policy objectives. Rates also function as a public information tool in communicating policy objectives to customers. This step also includes a bill impact analysis.
- Report Preparation and Rate Adoption: The final step in a water cost of service rate study is to develop a report that documents the results and presents the methodologies, rationale, justifications, and calculations used to determine the proposed rates. A thorough and methodological report serves two important functions: maintaining defensibility in a stringent legal environment and presenting the rate-setting process to customers and key stakeholders.

3. Financial Plan

The five-year financial plan includes projections of the District's revenues, O&M expenses, CIP expenditures, debt service payments, and reserve funding. The overall purpose of the financial plan is to determine annual water rate revenues required to achieve sufficient cash flow, maintain adequate reserves, and meet any debt service coverage requirements. The key outcome of the financial plan update is to identify the required annual increases in water revenues needed to maintain the financial sufficiency of the District.

Note that all financial plan projections presented in this Report are on a calendar year basis rather than a fiscal year basis. Both the District and the District's wholesale water provider (FMWD) typically implement water rate adjustments each January. Therefore, Raftelis and District staff determined that a calendar year basis was most appropriate for the financial plan projections developed in this Study.

3.1. Financial Plan Assumptions

The proposed financial plan projections period extends out five years through 2028. Various assumptions incorporated into the financial plan projections were determined based on recommendations from Raftelis and/or direction from District staff. These assumptions include annual inflation, wholesale water purchase cost increases, customer account growth, and water demand projections, outlined below.

Inflation

Inflationary assumptions are shown below in Table 3-1. All O&M expenses (except for wholesale water purchase costs) are projected from 2022 actuals based on the inflationary categories shown in Lines 2-4. CIP project costs were provided by District staff in current dollars as of 2023 and are escalated beginning in 2024 based on the inflationary assumptions in Line 7. Non-rate revenues (such as property tax and miscellaneous customer charges) are projected from 2022 actuals based on the inflationary assumptions in Line 7.

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Line	Description	2023	2024	2025	2026	2027	2028
1	O&M Expenses						
2	General	5.0%	3.0%	3.0%	3.0%	3.0%	3.0%
3	Salaries/Benefits	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
4	Electricity	10.0%	10.0%	10.0%	10.0%	10.0%	10.0%
5							
6	Capital Expenses						
7	CIP Projects	N/A	4.0%	4.0%	4.0%	4.0%	4.0%
8							
9	Non-Rate Revenues						
10	Property Tax	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%
11	Other Miscellaneous Revenues	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

Table 3-1: Annual Inflationary Assumptions

Wholesale Water Purchase Cost Increases

The District has historically obtained its water supply from two sources: 1) local groundwater from the Raymond Groundwater Basin and 2) imported wholesale water purchased from FMWD. Local groundwater production has been extremely limited in recent years due to reduced groundwater availability. Over the Study period, it is therefore assumed that all District water demand will be met by expensive wholesale water purchases from FMWD.

Wholesale water purchases from FMWD currently constitute nearly two-thirds of the District' total O&M expenses. These wholesale water purchase costs include wholesale charges designed to recover FMWD's own operating and capital costs and to pass through costs incurred by FMWD to obtain water from the Metropolitan Water District of Southern California (MWD). FMWD has adopted charges through 2023 as of the time of this Study. Beyond 2023, assumed annual increases in each of wholesale charges are based on projections provided by FMWD during an April 12, 2023, budget presentation to its member agencies, shown in Table 3-2.

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Tina	Wholesale Water Rates &	2023	2024	2025	2026	2027	2028
Linc	Charges	Adopted	Proposed	Projected	Projected	Projected	Projected
1	FMWD Admin & O&M Charge	2.0%	4.7%	4.7%	3.7%	5.2%	0.4%
2	FMWD CIP Charge	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
3	FMWD Energy Charge	9.1%	16.1%	7.2%	7.3%	7.4%	7.4%
4	MWD Readiness-to-Serve Charge	23.1%	14.3%	4.2%	7.2%	7.5%	6.9%
5	MWD Capacity Charge	-27.2%	5.7%	7.0%	6.0%	6.0%	6.0%
6	MWD Full Service Treated Tier 1 Rate per AF	5.8%	3.9%	7.0%	6.0%	6.0%	5.7%

Table 3-2: Annual Cost Inflation Assumptions

Account Growth

Account growth assumptions are shown in Table 3-3. Because the District's service area is largely built out, no account growth is assumed over the study period. Although the District's service area is experiencing a noticeable increase in the number of accessory dwelling units added to residential properties, this trend is not expected to result in new metered connections as any new accessory dwelling units will likely be served by existing metered connections.

Table 3-3: Annual Account Growth Assumptions

[A]	[B]	[C]	[D]	[E]	[F]	[G]
Line	Account Growth	2024 Projected	2025 Projected	2026 Projected	2027 Projected	2028 Projected
1	Annual Increase in Metered Connections	0.0%	0.0%	0.0%	0.0%	0.0%

Water Demand

Assumed customer water demand critically impacts the financial plan projections, most notably by impacting volumetric rate revenues and wholesale purchases water costs. Figure 3-1 shows actual annual customer water demand in acre-feet (AF) over the past five years, as well as projected water demand over the study period. The five-year historical annual average is 2,068 AF. Water demand decreased significantly through the first half of 2023, most likely due to reduced outdoor watering during the exceptionally rainy period this past winter and early spring. Taking this into account, Raftelis and District staff project that total water demand in 2023 will decrease by 10 percent relative to 2022. Water demand is projected to rebound in 2024 (to levels very close to the five-year historical annual average) and then remain level through the end of the study period.



Figure 3-1: Actual and Projected Water Demand (AF)

3.2. Revenue from Current Rates

Current Rates

The District's current water rate structure consists of two primary components: 1) Fixed Meter Charges that vary by meter size; and 2) volumetric Commodity Rates per hundred cubic feet (ccf) of water delivered. Current rates in effect in 2023 were established during the 2018 Water Cost of Service Rate Study. Table 3-4 shows the District's current water rates in effect since February 2023. Commodity rates are based on a three-tier structure. The first 14 ccf per bi-monthly billing period is charged at the lowest Tier 1 rate. The next 56 ccf per bi-monthly period (i.e., up to 70 ccf) is charged at the higher Tier 2 rate. All water use in excess of 70 ccf per bi-monthly billing period is charged at the District's current water rates are the same for all customer classes (e.g., residential, commercial, irrigation, etc.).

[A]	[B]	[C]
Line	Current Bi-Monthly Water Rates	Current Rates (effective Feb. 2023)
1	Fixed Meter Charges (by meter size)	
2	5/8-inch	\$63.66
3	3/4-inch	\$63.66
4	1-inch	\$131.96
5	1.5-inch	\$245.80
6	2-inch	\$382.38
7	3-inch	\$814.98
8		
9	Commodity Rates (per ccf)	
10	Tier 1 (0-14 ccf)	\$4.35
11	Tier 2 (15-70 ccf)	\$5.52
12	Tier 3 (> 70 ccf)	\$6.16

Table 3-4: Current Bi-Monthly Water Rates

Projected Billing Units of Service

Billing units of service include the number of metered water connections by meter size and water use in ccf. The number of water meters (see Table 3-5) are projected over the study period by increasing 2023 actuals based on the annual account growth assumptions from Table 3-3. Projected water use by tier (see Table 3-6) is consistent with water sales assumptions shown previously in Figure 3-1. The proportion of water use within each tier is based on 2022 account-level water use data.

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Line	Meter Size	2023 Actual	2024 Projected	2025 Projected	2026 Projected	2027 Projected	2028 Projected
1	5/8-inch	1,836	1,836	1,836	1,836	1,836	1,836
2	3/4-inch	230	230	230	230	230	230
3	1-inch	841	841	841	841	841	841
4	1.5-inch	11	11	11	11	11	11
5	2-inch	28	28	28	28	28	28
6	3-inch	7	7	7	7	7	7
7	Total	2,953	2,953	2,953	2,953	2,953	2,953

Table 3-5: Number of Water Meters

Table 3-6: Water Demand based on Current Tier Allotments

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]
Line	Water Demand (ccf)	2022 Actual	2023 Projected	2024 Projected	2025 Projected	2026 Projected	2027 Projected	2028 Projected
1	Tier 1 (0-14 ccf)	226,262	203,636	226,967	226,967	226,967	226,967	226,967
2	Tier 2 (15-70 ccf)	481,312	433,181	482,813	482,813	482,813	482,813	482,813
3	Tier 3 (> 70 ccf)	204,343	183,909	204,980	204,980	204,980	204,980	204,980
4	Total	911,917	820,725	914,760	914,760	914,760	914,760	914,760
5	% Change		-10.0%	11.5%	0.0%	0.0%	0.0%	0.0%

Revenue from Current Rates

The water rate revenue projections shown in Table 3-7 assume that current 2023 rates remain in effect through the end of the study period in 2028, thus representing estimated rate revenues without any rate increases. This status quo scenario provides a baseline from which Raftelis evaluated the need for rate increases.

Annual revenue from current Fixed Meter Charges is calculated by multiplying the bi-monthly Fixed Meter Charge (from Table 3-4) by the projected number of metered connections (from Table 3-5) and then multiplying by six bi-monthly billing periods per year (see equation below).

Annual Fixed Charge Revenue = Current Fixed Charge \times Number of Meters \times 6 Billing Periods

Annual revenue from Commodity Rates is calculated by multiplying the current Commodity Rate per ccf (from Table 3-4) by water use in ccf (from Table 3-6) [see equation below].

Annual Commodity Rate Revenue = Current Commodity Rate per $ccf \times Water$ Use in ccf

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Line	Revenue from Current Rates	2023 Projected	2024 Projected	2025 Projected	2026 Projected	2027 Projected	2028 Projected
1	Fixed Meter Charges						
2	5/8-inch	\$701,279	\$701,279	\$701,279	\$701,279	\$701,279	\$701,279
3	3/4-inch	\$87,851	\$87,851	\$87,851	\$87,851	\$87,851	\$87,851
4	1-inch	\$662,237	\$665,870	\$665,870	\$665,870	\$665,870	\$665,870
5	1.5-inch	\$16,223	\$16,223	\$16,223	\$16,223	\$16,223	\$16,223
6	2-inch	\$64,240	\$64,240	\$64,240	\$64,240	\$64,240	\$64,240
7	3-inch	\$34,229	\$34,229	\$34,229	\$34,229	\$34,229	\$34,229
8	Subtotal	\$1,566,058	\$1,569,691	\$1,569,691	\$1,569,691	\$1,569,691	\$1,569,691
9							
10	Commodity Rates						
11	Tier 1 (0-14 ccf)	\$880,895	\$987,308	\$987,308	\$987,308	\$987,308	\$987,308
12	Tier 2 (15-70 ccf)	\$2,377,802	\$2,665,125	\$2,665,125	\$2,665,125	\$2,665,125	\$2,665,125
13	Tier 3 (> 70 ccf)	\$1,126,594	\$1,262,677	\$1,262,677	\$1,262,677	\$1,262,677	\$1,262,677
14	Subtotal	\$4,385,290	\$4,915,111	\$4,915,111	\$4,915,111	\$4,915,111	\$4,915,111
15							
16	Total	\$5,951,348	\$6,484,802	\$6,484,802	\$6,484,802	\$6,484,802	\$6,484,802

Table 3-7: Revenue from Current Rates

Non-Rate Revenue

In addition to revenue from rates, the District receives other revenues from different sources such as property tax, interest earnings on cash reserves, and other miscellaneous revenues shown in Table 3-8. All non-rate revenues except interest earnings are projected by increasing 2022 actuals each year based the non-rate revenue inflationary assumptions from Table 3-1. Interest earnings are projected by adjusting 2022 actuals in proportion to projected changes in the District's cash reserve levels estimated to earn 1.5% per annum.

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]
Line	Non-Rate Revenues	2022 Actual	2023 Projected	2024 Projected	2025 Projected	2026 Projected	2027 Projected	2028 Projected
1	Property Taxes	\$616,230	\$628,555	\$641,126	\$653,948	\$667,027	\$680,368	\$693,975
2	Interest Earnings	\$41,572	\$36,492	\$24,633	\$73,480	\$45,842	\$26,674	\$20,157
3	Customer Services	\$33,730	\$33,730	\$33,730	\$33,730	\$33,730	\$33,730	\$33,730
4	Meter Installations	\$900	\$900	\$900	\$900	\$900	\$900	\$900
5	Turn On Charges	\$210	\$210	\$210	\$210	\$210	\$210	\$210
6	Rate Stabilization Refund	\$92	\$92	\$92	\$92	\$92	\$92	\$92
7	Total	\$692,735	\$699,979	\$700,691	\$762,361	\$747,802	\$741,974	\$749,064

Table 3-8: Non-Rate Revenues

3.3. O&M Expenses

Wholesale Water Purchase Costs

Wholesale water purchases from FMWD constitute nearly two-thirds of the District's total O&M expenses. Wholesale water purchase costs incurred by the District include FMWD Admin & O&M Charges, FMWD CIP Charges, FMWD Energy Charges, MWD Readiness-to-Serve Charges, MWD Capacity Charges, and MWD Full Service Treated Tier 1 Rates. FMWD Energy Charges and MWD Full Service Treated Tier 1 rates are treated as variable wholesale charges incurred per AF of water delivered to the District. All other wholesale charges are treated as fixed charges for the purposes of the financial plan projections. Table 3-9 shows projected wholesale water charges through 2028 based on FMWD's adopted 2023 charges and estimated wholesale water cost increases (from Table 3-2). Variable wholesale charge projections assume 8 percent water loss (i.e., non-revenue water).

O&M Expenses

In addition to wholesale water purchase costs, the District's O&M expenses include the cost of operating and maintaining water system facilities as well as customer service, billing, and other administrative costs. Table 3-10 shows projected O&M expenses over the study period. Wholesale water purchases cost projections (Line 2) are from Table 3-9. Power purchases (Line 4) and water treatment costs (Line 5) are treated as variable costs, and are therefore projected by adjusting 2022 actuals based on both annual inflationary increases (from Table 3-1) and changes in overall water demand (from Table 3-6, Line 5). All other O&M expenses are treated as fixed costs and are projected by adjusting 2022 actuals based on annual inflationary increases (from Table 3-1) only.

Table 3-9: Wholesale Water Purchase Costs

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Line	Wholesale Water Purchase Costs	2023 Adopted	2024 Proposed	2025 Projected	2026 Projected	2027 Projected	2028 Projected
1	Fixed Wholesale Charges						
2	FMWD Admin & O&M Charge	\$648,596	\$678,869	\$710,773	\$736,971	\$774,974	\$778,201
3	FMWD CIP Charge	\$175,000	\$175,000	\$175,000	\$175,000	\$175,000	\$175,000
4	MWD Readiness-to-Serve Charge	\$179,400	\$205,056	\$213,636	\$228,960	\$246,048	\$263,016
5	MWD Capacity Charge	\$51,558	\$54,477	\$58,290	\$61,787	\$65,494	\$69,424
6	Subtotal	\$1,054,554	\$1,113,402	\$1,157,699	\$1,202,718	\$1,261,516	\$1,285,641
7							
8	Variable Wholesale Charges						
9	Wholesale Water Purchases						
10	Water Demand (AF)	1,884	2,100	2,100	2,100	2,100	2,100
11	Water Loss (%)	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
12	Wholesale Water Purchases (AF) ⁴	2,048	2,283	2,283	2,283	2,283	2,283
13							
14	Variable Wholesale Charges (per AF)						
15	FMWD Energy Charge	\$139	\$161	\$173	\$185	\$199	\$214
16	MWD Full Service Treated Tier 1 Rate	\$1,209	\$1,256	\$1,344	\$1,425	\$1,510	\$1,597
17							
18	Variable Wholesale Charges						
19	FMWD Energy Charge ⁵	\$284,643	\$368,179	\$394,528	\$423,197	\$454,410	\$488,162
20	MWD Full Service Treated Tier 1 Rate ⁶	\$2,475,987	\$2,866,957	\$3,067,826	\$3,252,717	\$3,446,739	\$3,644,305
21	Subtotal	\$2,760,630	\$3,235,136	\$3,462,354	\$3,675,915	\$3,901,149	\$4,132,467
22							
23	Total	\$3,815,185	\$4,348,538	\$4,620,053	\$4,878,633	\$5,162,665	\$5,418,108

- ⁵ =[Line 12] × [Line 15]
- ⁶ =[Line 12] × [Line 16]

⁴ =[Line 10] ÷ [100% - Line 11]

Table 3-10: O&M Expenses

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[1]	[J]
Line	O&M Expenses	Inflationary Category	2022 A ctual	2023 Projected	2024 Projected	2025 Projected	2026 Projected	2027 Projected	2028 Projected
1	Plant Evnenses	Category	Actual	110jeeteu	Tojecica	Tojecica	Tojecica	Tojecica	Tojecica
2	Wholesale Water Purchase Costs	N/A	\$4 140 951	\$3 815 185	\$4 348 538	\$4 620 053	\$4 878 633	\$5 162 665	\$5 418 108
2	Pump Repairs	General	\$1,620	\$1,701	\$1,752	\$1 804	\$1,858	\$1 914	\$1 971
4	Power Purchases	Electricity	\$302,105	\$299.084	\$366 687	\$403,356	\$443 691	\$488,060	\$536 867
5	Water Treatment	General	\$42,309	\$39.982	\$45,900	\$47.277	\$48.696	\$50,157	\$51.661
6	Telephone & Radio Telemetry Control	General	\$3,199	\$3.359	\$3,460	\$3,564	\$3.670	\$3,781	\$3.894
7	Superintendent's Salary (40%)	Personnel	\$58,471	\$61,395	\$64,464	\$67,688	\$71,072	\$74,626	\$78,357
8	Auto & Truck	General	\$32,971	\$34,620	\$35,659	\$36,728	\$37,830	\$38,965	\$40,134
9	Tools & Supplies	General	\$13,451	\$14,124	\$14,548	\$14,984	\$15,434	\$15,897	\$16,374
10	Facility Maintenance	General	\$54,047	\$56,750	\$58,452	\$60,206	\$62,012	\$63,872	\$65,788
11	Meter Repairs	General	\$16,924	\$11,847	\$12,202	\$12,568	\$12,946	\$13,334	\$13,734
12	Paving	General	\$18,951	\$13,266	\$13,664	\$14,074	\$14,496	\$14,931	\$15,379
13	Electrical Repairs	General	\$4,566	\$4,795	\$4,938	\$5,086	\$5,239	\$5,396	\$5,558
14	Radio Repairs	General	\$15,099	\$15,854	\$16,330	\$16,820	\$17,325	\$17,844	\$18,380
15	Plant Equipment Repairs	General	\$55,337	\$58,104	\$59,847	\$61,642	\$63,492	\$65,396	\$67,358
16	Subtotal		\$4,760,003	\$4,430,064	\$5,046,441	\$5,365,850	\$5,676,392	\$6,016,838	\$6,333,562
17									
18	Administrative Expenses								
19	Wages	Personnel	\$465,725	\$489,011	\$513,461	\$539,134	\$566,091	\$594,396	\$624,115
20	Directors' Fees & Pay	Personnel	\$5,633	\$5,915	\$6,211	\$6,521	\$6,847	\$7,190	\$7,549
21	Superintendent's Salary (60%)	Personnel	\$88,024	\$92,426	\$97,047	\$101,899	\$106,994	\$112,344	\$117,961
22	Payroll Taxes	Personnel	\$231,438	\$243,009	\$255,160	\$267,918	\$281,314	\$295,379	\$310,148
23	Group Insurance (Life & LTD)	Personnel	\$40,215	\$42,226	\$44,337	\$46,554	\$48,882	\$51,326	\$53,892
24	Pension Benefits	Personnel	\$85,089	\$89,344	\$93,811	\$98,502	\$103,427	\$108,598	\$114,028
25	Medical & Workers' Comp. Ins.	Personnel	\$154,430	\$162,151	\$170,259	\$178,772	\$187,710	\$197,096	\$206,951
26	Deferred Comp	Personnel	\$13,920	\$14,616	\$15,347	\$16,114	\$16,920	\$17,766	\$18,654
27	Payroll Processing Fees	General	\$900	\$945	\$973	\$1,003	\$1,033	\$1,064	\$1,096
28	Office Supplies	General	\$29,093	\$30,548	\$31,464	\$32,408	\$33,381	\$34,382	\$35,414
29	Office Expense	General	\$88,625	\$93,056	\$95,848	\$98,723	\$101,685	\$104,736	\$107,878

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]
Line	O&M Expenses	Inflationary Category	2022 Actual	2023 Projected	2024 Projected	2025 Projected	2026 Projected	2027 Projected	2028 Projected
30	Dues & Memberships	General	\$16,651	\$17,483	\$18,008	\$18,548	\$19,105	\$19,678	\$20,268
31	Property Taxes	General	\$564	\$592	\$610	\$628	\$647	\$666	\$686
32	Insurance & Bonds	General	\$6,802	\$7,142	\$7,356	\$7,577	\$7,804	\$8,039	\$8,280
33	Utilities & Waste	General	\$51,033	\$53,585	\$55,192	\$56,848	\$58,554	\$60,310	\$62,120
34	Professional Services & Legal Fees	General	\$178,636	\$187,568	\$193,195	\$198,991	\$204,960	\$211,109	\$217,442
35	Laundry & Uniforms	General	\$8,509	\$8,935	\$9,203	\$9,479	\$9,763	\$10,056	\$10,358
36	Administrative Costs	General	\$537	\$564	\$581	\$598	\$616	\$635	\$654
37	Bank Fees (See Note)	General	\$7,917	\$8,313	\$8,562	\$8,819	\$9,084	\$9,356	\$9,637
38	Subtotal		\$1,473,742	\$1,547,429	\$1,616,626	\$1,689,037	\$1,764,817	\$1,844,125	\$1,927,131
39									
40	Total		\$6,233,746	\$5,977,494	\$6,663,067	\$7,054,888	\$7,441,209	\$7,860,963	\$8,260,693

3.4. Capital Expenditures

The District provided Raftelis with a detailed schedule of planned CIP projects over the study period, amounting to \$26.3 million in total CIP from 2023-2028 after incorporating annual inflationary adjustments (from Table 3-1). Significant CIP projects over the study period include construction of new reservoir (\$9.9 million), existing reservoir repair and refurbishment costs (\$5.0 million), and water main replacement (\$4.5 million). Table 3-11 on the following pages shows detailed costs by project.

CIP over the study period is assumed to be funded by rates and reserves (i.e., pay-as-you-go) as well as two future debt issues in 2024 and 2028. See Figure 3-2 for a CIP funding summary, which is also presented in table format in Table 3-12. Future debt assumptions are outlined in the next subsection. Note that annual average CIP over the study period amounts to \$4.4 million, which represents a 56 percent increase from the prior cost of service rate study in 2018 (which assumed \$2.8 million in annual average CIP).



Figure 3-2: CIP Summary

Table 3-11: Detailed CIP Project Costs

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Line	CIP Project Costs	2023	2024	2025	2026	2027	2028
1	Reservoirs						
2	Earthquake Valves	\$0	\$31,200	\$32,448	\$33,746	\$0	\$0
3	Storage Internal Circulation Pumps	\$0	\$33,973	\$35,332	\$36,746	\$0	\$0
4	Reservoir Sight Gauges	\$0	\$0	\$0	\$26,247	\$27,297	\$28,389
5	Res. No. 9 (Del Oro) - Rehab	\$0	\$0	\$0	\$0	\$409,450	\$4,258,285
6	Res. No. 10 - New Reservoir Land (TBD)	\$175,000	\$2,080,000	\$0	\$0	\$0	\$0
7	Res. No. 10 - New Reservoir Construction	\$0	\$1,560,000	\$3,785,600	\$2,249,728	\$0	\$0
8	Reservoir Roof Emergency Replacement	\$2,594,448	\$0	\$0	\$0	\$0	\$0
9	Subtotal	\$2,769,448	\$3,705,173	\$3,853,380	\$2,346,466	\$436,747	\$4,286,674
10							
11	Pumps / Pump Stations & Equipment						
12	Field CL2 Analyzers	\$0	\$7,800	\$8,112	\$0	\$0	\$0
13	Field Pressure Analyzers	\$0	\$0	\$2,704	\$2,812	\$0	\$0
14	Field Water Temp. Analyzers	\$0	\$0	\$5,408	\$5,624	\$0	\$0
15	Baptiste - Injection	\$0	\$0	\$81,120	\$0	\$0	\$0
16	Harter Lane - Discharge Header Repair	\$40,000	\$0	\$0	\$0	\$0	\$0
17	Harter Lane Boosters (Replace / Upsize)	\$0	\$0	\$0	\$314,962	\$0	\$340,663
18	Los Amigos Boosters (Replace / Upsize)	\$0	\$0	\$0	\$0	\$327,560	\$0
19	Subtotal	\$40,000	\$7,800	\$97,344	\$323,398	\$327,560	\$340,663
20							
21	Pipelines						
22	1,000 Ft Main Replacement / Year	\$0	\$0	\$1,059,968	\$1,102,367	\$1,146,461	\$1,192,320
23	Hydrant Rehab	\$0	\$10,400	\$10,816	\$11,249	\$11,699	\$12,167
24	Valve Replace / Additions	\$40,000	\$10,400	\$108,160	\$112,486	\$116,986	\$121,665
25	Pickens Line Rehab	\$0	\$0	\$54,080	\$0	\$0	\$0
26	Service Repairs / Replacements	\$0	\$156,000	\$162,240	\$168,730	\$175,479	\$182,498
27	Automatic Meter Reading Infrastructure	\$0	\$0	\$270,400	\$281,216	\$292,465	\$0
28	Subtotal	\$40,000	\$176,800	\$1,665,664	\$1,676,047	\$1,743,089	\$1,508,650
29							

30	Office & Shop						
31	Parking Lot / Pipe Storage Modification	\$0	\$104,000	\$0	\$0	\$0	\$0
32	Subtotal	\$0	\$104,000	\$0	\$0	\$0	\$0
33							
34	Office Equipment						
35	SCADA Radio Upgrade	\$0	\$4,368	\$90,854	\$0	\$0	\$0
36	SEDARU Water Model / GIS	\$0	\$0	\$0	\$33,746	\$35,096	\$0
37	Subtotal	\$0	\$4,368	\$90,854	\$33,746	\$35,096	\$0
38							
39	Vehicle Replacement						
40	Valve Truck Replacement - 1986	\$0	\$0	\$0	\$112,486	\$0	\$0
41	Subtotal	\$0	\$0	\$0	\$112,486	\$0	\$0
42							
43	Consulting / Miscellaneous						
44	Master Plan	\$0	\$104,000	\$0	\$0	\$0	\$0
45	Pumping Capacity Z1 to Z2 Analysis	\$0	\$58,240	\$0	\$0	\$0	\$0
46	3rd Party Consultants	\$0	\$52,000	\$54,080	\$56,243	\$58,493	\$60,833
47	Water Rate Study	\$60,000	\$0	\$0	\$0	\$0	\$72,999
48	Subtotal	\$60,000	\$214,240	\$54,080	\$56,243	\$58,493	\$133,832
49							
50	Total	\$2,909,448	\$4,212,381	\$5,761,323	\$4,548,388	\$2,600,986	\$6,269,818

Table 3-12: CIP Funding Plan

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[1]
Line	CIP by Funding Source	2023	2024	2025	2026	2027	2028	Total (2023-2028)
1	Pay-as-you-go (i.e., rates/reserves)	\$2,909,448	\$0	\$0	\$2,272,092	\$2,600,986	\$389,818	\$8,172,343
2	Debt Funded	\$0	\$4,212,381	\$5,761,323	\$2,276,296	\$0	\$5,880,000	\$18,130,000
3	Total	\$2,909,448	\$4,212,381	\$5,761,323	\$4,548,388	\$2,600,986	\$6,269,818	\$26,302,343

3.5. Debt Service

The District currently has no outstanding debt. As shown previously in Table 3-12, approximately \$18.1 million in planned CIP project costs over the study period are assumed to be financed with debt. Raftelis' estimate of the annual debt service assumes a 20-year term, 5% interest rate, 2% issuance costs, and level principal plus interest payments for two new debt issues: 1) a \$12.5 million issue in 2024 and 2) a \$6.0 million issue in 2028. It is assumed that debt service payments will commence in early 2025 for the first debt issue and in 2028 for the second debt issue. Annual debt service over the study period is summarized in Table 3-13 below.

The District does not currently have a formal debt service coverage⁷ requirement as there is currently no outstanding debt. Therefore, all debt service coverage projections are compared to a "target" level of 1.25, which is characteristic of typical requirements associated with municipal revenue bonds.

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Line	CIP by Funding Source	2023	2024	2025	2026	2027	2028
1	Existing Debt Service	\$0	\$0	\$0	\$0	\$0	\$0
2	Proposed Debt Service	\$0	\$0	\$1,003,032	\$1,003,032	\$1,003,032	\$1,484,488
3	Total	\$0	\$0	\$1,003,032	\$1,003,032	\$1,003,032	\$1,484,488

Table 3-13: Debt Service

3.6. Reserve Policy

A reserve policy provides a basis for a water utility to cope with unanticipated reductions in revenues, fluctuations in costs of providing services, asset failures, and natural disasters. It provides guidelines for sound financial management with an overall long-range perspective to maintain financial solvency and mitigate financial risks. A sound policy also sets funds aside for routine repair and replacement of capital assets as they age and for new capital projects. Adopting and adhering to a sustainable reserve policy enhances financial management transparency and may help to achieve or maintain a specific credit rating for future debt issues.

The appropriate amount of reserves and reserve types are determined by various factors, such as the size of the operating budget, the amount of debt, the type of rate structure, the frequency of customer billing, and the risk of natural disasters. Thus, most reserves tend to fall into the following categories: operating, rate stabilization, capital, and emergency reserves. The District currently maintains two reserves, described below.

Operating Reserve

The purpose of an operating reserve is to provide working capital to support the utility's operation, maintenance, and administration. From a risk management perspective, the operating reserve supports the District's cash flow needs during normal operations and ensures that operations can continue should there be significant events that impact cash flow. Raftelis recommends that the District maintain its existing operating reserve target of 90 days of O&M expenses (i.e., approximately 25 percent of annual O&M expenses) to ensure adequate working capital for operating expenses.

⁷ Debt service coverage equals the ratio of annual net operating revenue to annual debt service. It measures the ability to meet annual debt obligations.

Capital Reserve

Capital reserves are used to fund obligations necessary for maintaining reliable infrastructure. Because water utilities are highly capital-intensive, it is important to accurately estimate long-term CIP costs and develop a reserve to fund the repair and eventual replacement of the system assets and new capital projects. The District's current capital reserve target is equal to 50 percent of the rolling five-year average annual CIP expenditures. Raftelis recommends that the District change its capital reserve target to 100 percent of rolling five-year average annual pay-as-you-go CIP expenditures (i.e., excluding debt funded CIP expenditures). This recommended change acknowledges that capital reserves are used to cover pay-as-you-go rather than debt funded CIP and will better align with water industry norms. This reserve target is intended to ensure that the District has cash reserves on hand to award construction contracts flexibly and efficiently and to reduce the potential need for debt financing of CIP projects.

Reserve Targets

Table 3-14 compares current and proposed reserve target policies and associated 2023 reserve target levels for the operating and capital reserves. Table 3-15 shows annual reserve target levels for each year of the study period.

[A]	[B]	[C]	[D]	[E]	[F]
Line	Reserve	Current Reserve Target Basis	Recommended Reserve Target Basis	Current Reserve Target (2023)	Recommend ed Reserve Target (2023)
1	Operating Reserve	90 days of O&M expenses (i.e., 25% of annual O&M expenses)	No change	\$1,494,373	\$1,494,373
2	Capital Reserve	50% of rolling 5-year average annual CIP	100% of rolling 5-year average annual pay-as- you-go CIP (i.e., excluding debt funded CIP)	\$2,003,253	\$1,982,946
3	Total			\$3,497,626	\$3,477,319

Table 3-14: Recommended Changes to Reserve Policy

Table 3-15: Recommended Reserve Targets

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Line	Reserve	2023	2024	2025	2026	2027	2028
1	Operating Reserve	\$1,494,373	\$1,665,767	\$1,763,722	\$1,860,302	\$1,965,241	\$2,065,173
2	Capital Reserve	\$1,982,946	\$2,339,290	\$2,131,890	\$1,767,623	\$1,511,227	\$1,443,275
3	Total	\$3,477,319	\$4,005,056	\$3,895,612	\$3,627,925	\$3,476,467	\$3,508,449

3.7. Status Quo Financial Plan

To evaluate the need for future rate increases, Raftelis first developed a status quo financial plan. The status quo financial plan assumes that current 2023 water rates remain unchanged over the study period. Table 3-16 combines projected revenue from current rates (from Table 3-7), non-rate revenues (from Table 3-8), O&M

expenses (from Table 3-10), capital expenditures (from Table 3-12), and debt service (from Table 3-13) to project cash flow, cash reserve levels, and debt service coverage ratios. The status quo financial plan shows that without any rate increases over the next five years, the District is projected to fail to meet its total reserve target beginning in 2026 and fully deplete all cash reserves in 2027. Additionally, projected debt service coverage is insufficient to support the two new assumed debt issues over the study period.
Table 3-16: Status Quo Financial Plan Pro-Forma

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Line	Description	2023	2024	2025	2026	2027	2028
1	Source of Funds						
2	Revenue from Current Rates	\$5,951,348	\$6,484,802	\$6,484,802	\$6,484,802	\$6,484,802	\$6,484,802
3	Revenue Adjustments	\$0	\$0	\$0	\$0	\$0	\$0
4	Non-Rate Revenues	\$699,979	\$700,691	\$758,921	\$737,120	\$719,850	\$710,858
5	New Debt Proceeds	\$0	\$12,250,000	\$0	\$0	\$0	\$5,880,000
6	Total Source of Funds	\$6,651,328	\$19,435,493	\$7,243,723	\$7,221,922	\$7,204,652	\$13,075,660
7							
8	Use of Funds						
9	Wholesale Water Purchase Costs	\$3,815,185	\$4,348,538	\$4,620,053	\$4,878,633	\$5,162,665	\$5,418,108
10	Other O&M Expenses	\$2,162,309	\$2,314,529	\$2,434,835	\$2,562,577	\$2,698,297	\$2,842,585
11	Debt Service	\$0	\$0	\$1,003,032	\$1,003,032	\$1,003,032	\$1,484,488
12	CIP Expenditures	\$2,909,448	\$4,212,381	\$5,761,323	\$4,548,388	\$2,600,986	\$6,269,818
13	Total Use of Funds	\$8,886,942	\$10,875,448	\$13,819,243	\$12,992,629	\$11,464,981	\$16,014,999
14							
15	Cash Reserves						
16	Beginning Balance	\$6,879,439	\$4,643,825	\$13,203,870	\$6,628,350	\$857,643	(\$3,402,686)
17	Net Cash Flow ⁸	(\$2,235,614)	\$8,560,045	(\$6,575,520)	(\$5,770,707)	(\$4,260,329)	(\$2,939,339)
18	Ending Balance	\$4,643,825	\$13,203,870	\$6,628,350	\$857,643	(\$3,402,686)	(\$6,342,025)
19	Target Balance	\$3,477,319	\$4,005,056	\$3,895,612	\$3,627,925	\$3,476,467	\$3,508,449
20	Target Balance Check	Above	Above	Above	Below	Below	Below
21							
22	Debt Coverage						
23	Projected Debt Coverage9	N/A	N/A	0.19	-0.22	-0.65	-0.72
24	Target Debt Coverage	1.25	1.25	1.25	1.25	1.25	1.25
25	Debt Coverage Check	N/A	N/A	Below	Below	Below	Below

⁸ =[Line 6] – [Line 13] ⁹ =[Line 2 + Line 3 + Line 4 – Line 9 – Line 10] ÷ [Line 11]

3.8. Proposed Financial Plan

Proposed Revenue Adjustments

The status quo financial plan demonstrates that current water rates are insufficient to support the District's financial needs over the next five years. To ensure that the District generates sufficient revenues to adequately recover its operating and capital expenses while maintaining cash reserves above the target reserve level throughout the study period, Raftelis recommends 10 percent annual revenue adjustments (i.e., percentage increases in total rate revenues) beginning in 2024. The revenue adjustments are assumed to be implemented on January 1 of each year, as shown in Table 3-17. Raftelis evaluated various financial plan scenarios with District staff to develop the recommended revenue adjustments below. Key factors influencing the need for revenue adjustments include:

- » Operating cost increases: O&M expenses continue to increase yearly due to inflationary pressures, which have been significantly higher over the past few years across the global economy. Additionally, wholesale water purchase costs from FMWD are projected to increase by over 7 percent per year on average over the study period.
- » Substantial capital needs: Annual average CIP over the study period amounts to \$4.4 million, which represents a 56 percent increase from the prior cost of service rate study in 2018 (which assumed \$2.8 million in annual average CIP). Approximately 31% of all CIP expenses are assumed to be funded by rates and reserves, resulting in a need for the District to generate increased revenue from rates.
- Reduced water demand: Projected water demand over the five-year rate-setting period through 2028 (2,100 AFY) is 13% below what was assumed in the cost of service rate study in 2018 (approximately 2,400 AFY). This is mainly due to prevailing drought conditions in recent years in California and the resultant need for water utilities to cut back water demand. Reduced water demand results in decreased Commodity Rate revenue. Because the Water Enterprise's costs (excluding FMWD wholesale water purchase costs) are largely fixed, reduced water demand has a negative impact on cash flow and can result in the need for higher rate increases.

[A]	[B]	[C]	[D]
Line	Year	Effective Month	Proposed Revenue Adjustment
1	2024	Jan. 2024	10.0%
2	2025	Jan. 2025	10.0%
3	2026	Jan. 2026	10.0%
4	2027	Jan. 2027	10.0%
5	2028	Jan. 2028	10.0%

Table 3-17: Proposed Revenue Adjustments

Proposed Financial Plan

The proposed financial plan is shown in Table 3-18. Revenue from current rates (Line 2) represents projected rate revenues in the absence of any rate increases. Revenue adjustments (Line 3) represent the cumulative increase in rate revenues resulting from the proposed 10 percent annual revenue adjustments. Under the proposed financial plan, ending cash reserves are projected to remain above the reserve target level in all years. Additionally, debt service coverage is projected to remain well above target in all years, demonstrating sufficient debt capacity for the two new assumed debt issues.

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Line	Description	2023	2024	2025	2026	2027	2028
1	Source of Funds						
2	Revenue from Current Rates	\$5,951,348	\$6,484,802	\$6,484,802	\$6,484,802	\$6,484,802	\$6,484,802
3	Revenue Adjustments	\$0	\$648,480	\$1,361,808	\$2,146,469	\$3,009,597	\$3,959,036
4	Non-Rate Revenues	\$699,979	\$700,691	\$762,361	\$747,802	\$741,974	\$749,064
5	New Debt Proceeds	\$0	\$12,250,000	\$0	\$0	\$0	\$5,880,000
6	Total Source of Funds	\$6,651,328	\$20,083,974	\$8,608,971	\$9,379,073	\$10,236,373	\$17,072,903
7							
8	Use of Funds						
9	Wholesale Water Purchase Costs	\$3,815,185	\$4,348,538	\$4,620,053	\$4,878,633	\$5,162,665	\$5,418,108
10	Other O&M Expenses	\$2,162,309	\$2,314,529	\$2,434,835	\$2,562,577	\$2,698,297	\$2,842,585
11	Debt Service	\$0	\$0	\$1,003,032	\$1,003,032	\$1,003,032	\$1,484,488
12	CIP Expenditures	\$2,909,448	\$4,212,381	\$5,761,323	\$4,548,388	\$2,600,986	\$6,269,818
13	Total Use of Funds	\$8,886,942	\$10,875,448	\$13,819,243	\$12,992,629	\$11,464,981	\$16,014,999
14							
15	Cash Reserves						
16	Beginning Balance	\$6,879,439	\$4,643,825	\$13,852,350	\$8,642,079	\$5,028,523	\$3,799,915
17	Net Cash Flow ¹⁰	(\$2,235,614)	\$9,208,526	(\$5,210,272)	(\$3,613,556)	(\$1,228,608)	\$1,057,904
18	Ending Balance	\$4,643,825	\$13,852,350	\$8,642,079	\$5,028,523	\$3,799,915	\$4,857,818
19	Target Balance	\$3,477,319	\$4,005,056	\$3,895,612	\$3,627,925	\$3,476,467	\$3,508,449
20	Target Balance Check	Above	Above	Above	Above	Above	Above
21							
22	Debt Coverage						
23	Projected Debt Coverage ¹¹	N/A	N/A	1.55	1.93	2.37	1.98
24	Target Debt Coverage	1.25	1.25	1.25	1.25	1.25	1.25
25	Debt Coverage Check	N/A	N/A	Above	Above	Above	Above

¹⁰ =[Line 6] – [Line 13] ¹¹ =[Line 2 + Line 3 + Line 4 – Line 9 – Line 10] ÷ [Line 11]

The proposed financial plan is summarized below in graphical format. Figure 3-3 compares current and proposed revenues versus various funding needs (note that negative reserve funding represents a drawdown of cash reserves). Figure 3-4 compares projected ending cash reserves versus the total reserve target each year under the proposed financial plan.



Figure 3-3: Proposed Financial Plan

Figure 3-4: Ending Cash Balance under Proposed Financial Plan



4. Cost of Service Analysis

This section details the water cost of service analysis performed for the District. The cost of service analysis allocates the overall rate revenue requirement to customers based on their burden on the water system. As stated in the AWWA's M1 Manual, "the costs of water rates and charges should be recovered from classes of customers in proportion to the cost of serving those customers." To develop water rates that comply with Proposition 218 and industry standards while meeting other goals and objectives of the District, we follow the cost of service methodology outlined below.

4.1. Cost of Service Methodology

The framework and methodology utilized to develop the cost of service analysis and to apportion the revenue requirement to customers is informed by the processes outlined in the M1 Manual. Cost of service analyses are tailored specifically to meet the unique needs of each water system. However, there are four distinct steps in every cost of service analysis to recover costs from customers in an equitable and defensible manner:

- Revenue Requirement Determination: The first step in the cost of service analysis is to determine the revenue required from water rates for a designated "test year," which is 2024 for this Study. The 2024 water rate revenue requirement is equal to revenue from current rates plus revenue adjustments in 2024 per the proposed financial plan in Section 3.8.
- » **Revenue Requirement Functionalization**: Expenses are categorized based on their associated function in the water system. Functions include Supply, Storage, Treatment, Transmission, Distribution, Customer Service, etc.
- Revenue Requirement Allocation to Cost Causation Components: Functionalized expenses are then allocated to cost causation components based on the associated burden on the water system. Cost causation components include Supply, Base Delivery, Extra Capacity, Customer Service, etc. The revenue requirement is allocated accordingly and results in a total revenue requirement for each cost causation component.
- » **Unit Cost Development**: The revenue requirement for each cost causation component is divided by the associated units of service to determine the unit cost for each cost causation component. Unit costs provide the direct basis for proposed rates in 2024.

4.2. Revenue Requirement Determination

This cost of service analysis allocates the water rate revenue requirement for the test year (2024). Table 4-1 shows the total 2024 rate revenue requirement (Line 17), which is equal to revenue requirements (Lines 2-4) less non-rate rate revenues (Lines 8-10) plus adjustments (Line 14). Revenue requirements include 2024 O&M expenses, debt service, and pay-as-you-go CIP expenditures per the proposed financial plan. Non-rate revenues include all 2024 revenues other than rates per the proposed financial plan. Adjustments include 2024 transfer to reserves funding (total revenues less O&M expenses, debt service, and pay-as-you-go CIP) per the proposed financial plan.

The total rate revenue requirement (Line 17) represents total revenue to be recovered from water rates. The total rate revenue requirement consists of three components. The operating revenue requirement (Column C) consists of O&M expenses only; the capital revenue requirement (Column D) consists of debt service

(associated with debt financing for CIP), pay-as-you-go CIP; and reserve funding (which is typically reserved to fund future year CIP). Non-rate revenues (Column E) include all revenues other than rates. Each of these three components is allocated separately in the following steps of the cost of service analysis.

[A]	[B]	[C]	[D]	[E]	[F]
Line	Rate Revenue Requirement	Operating	Capital	Non-Rate Revenue	Total
1	Revenue Requirements				
2	O&M Expenses	\$6,663,067	\$0	\$0	\$6,663,067
3	Debt Service	\$0	\$0	\$0	\$0
4	CIP (Pay-as-you-go only)	\$0	\$0	\$0	\$0
5	Subtotal	\$6,663,067	\$0	\$0	\$6,663,067
6					
7	Non-Rate Revenue				
8	Property Taxes	\$0	\$0	(\$641,126)	(\$641,126)
9	Interest Earnings	\$0 \$		(\$24,633)	(\$24,633)
10	Other Non-Rate Revenue	\$0	\$0	(\$34,932)	(\$34,932)
11	Subtotal	\$0	\$0	(\$700,691)	(\$700,691)
12					
13	Adjustments				
14	Transfer to Reserves	\$0	\$1,170,907		\$1,170,907
15	Subtotal	\$0	\$1,170,907	\$0	\$1,170,907
16					
17	Total	\$6,663,067	\$1,170,907	(\$700,691)	\$7,133,282

Table 4-1: 2024 Rate Revenue Requirement

4.3. Revenue Requirement Functionalization

Functions

The next step of the cost of service analysis is to allocate the District's costs to the following functions:

- » Supply: relating to purchased wholesale water costs from FMWD
- » Storage: relating to water storage tanks and reservoirs
- » Treatment: relating to the treatment of water to potable standards
- » **Transmission:** relating to the water transmission system, including pumps used to transport water across elevation gradients
- » Distribution: relating to the delivery of potable water from storage facilities to the end user
- » Customer Service: relating to meter reading, billing, and customer services
- » Meters: relating to water meters, including maintenance and replacement
- » **General:** relating to general administration and overhead, as well as any costs not directly attributable to any other function
- » **Revenue Offsets:** relating to non-rate revenues used to offset the total revenue required from rates. The Board has discretion to allocate these offsets to reflect District policies and objectives

Cost Functionalization

Costs were functionalized separately for the operating, capital, and non-rate revenue components of the revenue requirement, as follows:

» Operating Revenue Requirement Functionalization: Raftelis conducted a detailed analysis of the District's projected O&M expenses in 2024. Each line item expense was evaluated and allocated across the various functions based on the nature of each expense. Table 4-2 shows the resulting allocation of 2024 O&M expenses to each function. See Appendix A for detailed allocations of each line item O&M expense to the various functions.

[A]	[B]	[C]	[D]		
Line	Function	2024 O&M	2024 O&M		
		Expenses (\$)	Expenses (%)		
1	Supply	\$4,348,538	65.26%		
2	Storage	\$52,182	0.78%		
3	Treatment	\$45,900	0.69%		
4	Transmission	\$370,908	5.57%		
5	Distribution	\$216,710	3.25%		
6	Customer Service	\$193,459	2.90%		
7	Meters	\$12,202	0.18%		
8	General	\$1,423,167	21.36%		
9	Revenue Offsets	\$0	0.00%		
10	Total	\$6,663,067	100.00%		

Table 4-2: Allocation of O&M Expenses to Functions

Capital Revenue Requirement Functionalization: Capital assets are typically utilized in water cost of service analyses to allocate the capital revenue requirement. The distribution of short-term CIP project costs can be heavily weighted to specific functions. Use of short-term CIP plans to allocate capital costs may therefore cause rates to significantly fluctuate each time a cost of service study is conducted. The overall water system capital asset base, however, is considerably stabler in the long-term, and therefore is more representative of long-term capital investment in a water system. Thus, functionalized capital assets are used to allocate capital costs. District staff provided Raftelis with a list of capital asset costs by category, which Raftelis allocated across the various functions. Table 4-3 shows the resulting allocation of capital assets to each function. See Appendix B for detailed allocations of each capital asset category to the various functions.

[A]	[B]	[C]	[D]		
Line	Function	Capital Assets (\$)	Capital Assets (%)		
1	Supply	\$0	0.00%		
2	Storage	\$2,966,060	16.15%		
3	Treatment	\$0	0.00%		
4	Transmission	\$5,902,303	32.14%		
5	Distribution	\$8,728,316	47.52%		
6	Customer Service	\$0	0.00%		
7	Meters	\$0	0.00%		
8	General	\$769,459	4.19%		
9	Revenue Offsets	\$0	0.00%		
10	Total	\$18,366,138	100.00%		

Table 4-3: Allocation of Capital Assets to Functions

» Non-Rate Revenue Requirement Functionalization: Raftelis assigned projected 2024 non-rate revenues to the most closely associated function. All non-rate revenues except interest earnings are simply allocated to the Revenue Offsets function (see Appendix C for detailed allocations of each non-rate revenue line item). Table 4-4 shows the resulting allocation of projected 2024 non-rate revenues to each function.

[A]	[B]	[C]	[D]
Line	Function	2024 Non-Rate Revenues (\$)	2024 Non-Rate Revenues (%)
1	Supply	\$0	0.00%
2	Storage	\$0	0.00%
3	Treatment	\$0	0.00%
4	Transmission	\$0	0.00%
5	Distribution	\$0	0.00%
6	Customer Service	\$0	0.00%
7	Meters	\$0	0.00%
8	General	(\$24,633)	3.52%
9	Revenue Offsets	(\$676,058)	96.48%
10	Total	(\$700,691)	100.00%

Table 4-4: Allocation of Non-Rate Revenues to Functions

4.4. Revenue Requirement Allocation to Cost Causation Components

Cost Causation Components

The next step in the cost of service analysis is to allocate the rate revenue requirement to various cost causation components based on the cost functionalization from Section 4.3. Cost causation components are different cost categories that are used to distribute costs to customers in proportion to use of and burden on

the water system. Some cost causation components directly correspond to a single function. The cost causation components include:

- » Supply: directly associated with the "Supply" function
- » Base Delivery: relating to delivering water during average (i.e., base) demand conditions
- » Extra Capacity (Max Day and Max Hour): relating to delivering water during peak water demand conditions
- » Customer Service: directly associated with the "Customer Service" function
- » Meters: directly associated with the "Meter Service" function; also includes fire hydrant-related costs
- » General: directly associated with the "General" function
- » Revenue Offsets: directly associated with the "Revenue Offsets" function

Systemwide Peaking Factors

Peaking factors are used to allocate the functionalized costs to the Base Delivery and Extra Capacity cost causation components. Table 4-5 shows the systemwide peaking factors used to develop this cost causation component allocation basis. Base demand represents average daily water demand during the year, which is normalized to a factor of 1.00 (Column C, Line 1). The systemwide Max Day peaking factor (Column C, Line 2) represents the ratio of maximum day demand to average day demand over a one-year period. The systemwide Max Hour peaking factor (Column C, Line 3) represents the ratio of maximum hour demand to average day demand over a one-year period. The systemwide peaking factors are consistent with peaking assumptions from the prior rate study, and are characteristic of water agencies that are relatively small and primarily residential like the District.

Costs allocated on a "Max Day" basis in the next section are distributed to the Base Delivery and Max Day cost causation components based on the percentages shown in Columns D-E of Line 2. Costs allocated on a "Max Hour" basis are distributed to the Base Delivery, Max Day, and Max Hour cost causation components based on the percentages shown in Columns D-F of Line 3. These percentages are calculated based on the following equations. 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 Delivery: $C1 / C2 \times 100\% = D2$
- » Max Day: $(C2 C1) / C2 \times 100\% = E2$

The Max Hour allocations are calculated as follows:

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

Table 4-5: Systemwide Peaking Factors

[A]	[B]	[C]	[D]	[E]	[F]	[G]
Line	Description	Systemwide Peaking Factor	Base Delivery	Max Day	Max Hour	Total
1	Base	1.00	100.0%	0.0%	0.0%	100.0%
2	Max Day	2.00	50.0%	50.0%	0.0%	100.0%
3	Max Hour	4.00	25.0%	25.0%	50.0%	100.0%

Allocation of Functions to Cost Causation Components

Table 4-6 shows the basis for allocating each function to the various cost causation components. This provides the basis for allocating the rate revenue requirement to each cost causation component. Most functions are fully allocated to the corresponding cost causation component. However, the allocation basis for all other functions is as follows:

- Functions allocated based on Max Day demand: Storage, treatment, and transmission infrastructure is typically designed to accommodate maximum day water demand. Therefore, the Storage, Treatment, and Transmission functions are allocated to the Base Delivery and Max Day cost causation components based on the Max Day allocation basis (from Table 4-5, Columns D-E, Line 2).
- Functions allocated based on Max Hour demand: Distribution infrastructure is typically designed to accommodate maximum hour water demand. It is estimated that approximately 10 percent of Distribution costs are related to meter maintenance and replacement. Therefore, 10 percent of Distribution costs are allocated to the Meters cost causation component. The remaining 90 percent is proportionally allocated to the Base Delivery, Max Day, and Max Hour cost causation components based on the Max Hour allocation basis (from Table 4-5, Columns D-F, Line 3).

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]
Line	Function	Supply	Base Delivery	Max Day	Max Hour	Customer Service	Meters	General	Revenue Offsets	Total
1	Supply	100.0%								100.0%
2	Storage		50.0%	50.0%						100.0%
3	Treatment		50.0%	50.0%						100.0%
4	Transmission		50.0%	50.0%						100.0%
5	Distribution		22.5%	22.5%	45.0%		10.0%			100.0%
6	Customer Service					100.0%				100.0%
7	Meters						100.0%			100.0%
8	General							100.0%		100.0%
9	Revenue Offsets								100.0%	100.0%

Table 4-6: Allocation of Functions to Cost Causation Components

Allocation of Operating Revenue Requirement to Cost Causation Components

Table 4-7 shows the allocation of 2024 O&M expenses by function to each cost causation component. Total O&M expenses associated with each function (Column K, Lines 2-10) are from Table 4-2. The allocations to each cost causation component (Columns C-J, Lines 2-10) are based on the percentage allocations from Table 4-6. The operating revenue requirement allocation (Line 15) simply equals the 2024 O&M expense allocation (Line 11).

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[1]	[J]	[K]
Line	Description	Supply	Base Delivery	Max Day	Max Hour	Customer Service	Meters	General	Revenue Offsets	Total
1	Function									
2	Supply	\$4,348,538	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$4,348,538
3	Storage	\$0	\$26,091	\$26,091	\$0	\$0	\$0	\$0	\$0	\$52,182
4	Treatment	\$0	\$22,950	\$22,950	\$0	\$0	\$0	\$0	\$0	\$45,900
5	Transmission	\$0	\$185,454	\$185,454	\$0	\$0	\$0	\$0	\$0	\$370,908
6	Distribution	\$0	\$48,760	\$48,760	\$97,519	\$0	\$21,671	\$0	\$0	\$216,710
7	Customer Service	\$0	\$0	\$0	\$0	\$193,459	\$0	\$0	\$0	\$193,459
8	Meters	\$0	\$0	\$0	\$0	\$0	\$12,202	\$0	\$0	\$12,202
9	General	\$0	\$0	\$0	\$0	\$0	\$0	\$1,423,167	\$0	\$1,423,167
10	Revenue Offsets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
11	Total	\$4,348,538	\$283,255	\$283,255	\$97,519	\$193,459	\$33,873	\$1,423,167	\$0	\$6,663,067
12										
13	% of Total	65.26%	4.25%	4.25%	1.46%	2.90%	0.51%	21.36%	0.00%	100.00%
14										
15	Operating Revenue Requirement	\$4,348,538	\$283,255	\$283,255	\$97,519	\$193,459	\$33,873	\$1,423,167	\$0	\$6,663,067

Table 4-7: Allocation of Operating Revenue Requirement to Cost Causation Components

Allocation of Capital Revenue Requirement to Cost Causation Components

Table 4-8 shows the allocation of capital assets by function to each cost causation component. Total asset values associated with each function (Column K, Lines 2-10) are from Table 4-3. The allocations to each cost causation component (Columns C-J, Lines 2-10) are based on the percentage allocations from Table 4-6. The capital revenue requirement allocations (Column C-J, Line 15) are calculated by multiplying the total capital revenue requirement (Column K, Line 15) from Table 4-1 by the percentage allocations to each cost causation component (Line 13).

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[1]	[J]	[K]
Line	Description	Supply	Base Delivery	Max Day	Max Hour	Customer Service	Meters	General	Revenue Offsets	Total
1	Function									
2	Supply	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3	Storage	\$0	\$1,483,030	\$1,483,030	\$0	\$0	\$0	\$0	\$0	\$2,966,060
4	Treatment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5	Transmission	\$0	\$2,951,151	\$2,951,151	\$0	\$0	\$0	\$0	\$0	\$5,902,303
6	Distribution	\$0	\$1,963,871	\$1,963,871	\$3,927,742	\$0	\$872,832	\$0	\$0	\$8,728,316
7	Customer Service	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
8	Meters	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
9	General	\$0	\$0	\$0	\$0	\$0	\$0	\$769,459	\$0	\$769,459
10	Revenue Offsets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
11	Total	\$0	\$6,398,052	\$6,398,052	\$3,927,742	\$0	\$872,832	\$769,459	\$0	\$18,366,13 8
12										
13	% of Total	0.00%	34.84%	34.84%	21.39%	0.00%	4.75%	4.19%	0.00%	100.00%
14										
15	Capital Revenue Requirement	\$0	\$407,899	\$407,899	\$250,408	\$0	\$55,646	\$49,056	\$0	\$1,170,907

Table 4-8: Allocation of Capital Revenue Requirement to Cost Causation Components

Allocation of Non-Rate Revenues to Cost Causation Components

Table 4-9 shows the allocation of 2024 non-rate revenues by function to each cost causation component. Total non-rate revenues associated with each function (Column K, Lines 2-10) are from Table 4-4. The allocations to each cost causation component (Columns C-J, Lines 2-10) are based on the percentage allocations from Table 4-6. The non-rate revenue allocation (Line 15) simply equals the 2024 non-rate revenues by cost causation component in Line 11.

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]
Line	Description	Supply	Base Delivery	Max Day	Max Hour	Customer Service	Meters	General	Revenue Offsets	Total
1	Function									
2	Supply	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
3	Storage	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
4	Treatment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
5	Transmission	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
6	Distribution	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
7	Customer Service	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
8	Meters	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
9	General	\$0	\$0	\$0	\$0	\$0	\$0	(\$24,633)	\$0	(\$24,633)
10	Revenue Offsets	\$0	\$0	\$0	\$0	\$0	\$0	\$0	(\$676,058)	(\$676,058)
11	Total	\$0	\$0	\$0	\$0	\$0	\$0	(\$24,633)	(\$676,058)	(\$700,691)
12										
13	% of Total	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	3.52%	96.48%	100.00%
14										
15	Non-Rate Revenues	\$0	\$0	\$0	\$0	\$0	\$0	(\$24,633)	(\$676,058)	(\$700,691)

Table 4-9: Allocation of Non-Rate Revenues to Cost Causation Components

Final Allocation of Rate Revenue Requirement to Cost Causation Components

Table 4-10 shows the final allocation of the 2024 rate revenue requirement to the cost causation components. The final cost of service allocations in Line 6 ultimately provides the basis for the proposed rate calculations presented in Section 5. The final cost of service allocations equal the sum of Lines 1-5, which are described in individual detail below:

- » **Operating Revenue Requirement** (Line 1): The operating revenue requirement allocation was previously calculated in Line 15 of Table 4-7.
- » **Capital Revenue Requirement** (Line 2): The capital revenue requirement allocation was previously calculated in Line 15 of Table 4-8.
- » **Non-Rate Revenues** (Line 3): The non-rate revenue allocation was previously calculated in Line 15 of Table 4-9.
- Reallocation of General Costs (Line 4): General costs are reallocated proportionally to all other cost causation components except for Supply (which is entirely limited to purchased wholesale water costs from FMWD) and Revenue Offsets (which pertains only to non-rate revenues but not to costs). Note that this reallocation results in shifting costs between cost causation components but does not change the total rate revenue requirement.
- Reallocation of Extra Capacity to Meters (Line 5): It is a common practice for public water utilities in California to recover a portion of Extra Capacity costs from fixed charges to recover capacity related costs which reflect the demand imposed by meters. This increases revenue stability as well. Approximately \$1.2 million of Extra Capacity costs are reallocated to the Meters cost causation component, which is recovered by fixed charges. Public water utilities in California typically recover approximately 20-30 percent of rate revenues from fixed charges. The reallocation of Extra Capacity costs to the Meters cost causation component will maintain the District's existing fixed charge recovery equal to approximately 24 percent of rate revenues.

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[1]	[J]	[K]
Line	Description	Supply	Base Delivery	Max Day	Max Hour	Customer Service	Meters	General	Revenue Offsets	Total
1	Operating Revenue Requirement	\$4,348,538	\$283,255	\$283,255	\$97,519	\$193,459	\$33,873	\$1,423,167	\$0	\$6,663,067
2	Capital Revenue Requirement	\$0	\$407,899	\$407,899	\$250,408	\$0	\$55,646	\$49,056	\$0	\$1,170,907
3	Non-Rate Revenues	\$0	\$0	\$0	\$0	\$0	\$0	(\$24,633)	(\$676,058)	(\$700,691)
4	Reallocation of General Costs	N/A	\$496,970	\$496,970	\$250,175	\$139,106	\$64,368	(\$1,447,589)	N/A	\$0
5	Reallocation of Extra Capacity to Meters	N/A	N/A	(\$825,746)	(\$415,681)	N/A	\$1,241,427	N/A	N/A	\$0
6	Total	\$4,348,538	\$1,188,124	\$362,378	\$182,421	\$332,565	\$1,395,315	\$0	(\$676,058)	\$7,133,282
7										
8	% of Total	60.96%	16.66%	5.08%	2.56%	4.66%	19.56%	0.00%	-9.48%	100.00%

Table 4-10: Allocation of 2024 Rate Revenue Requirement to Cost Causation Components

4.5. Unit Cost Development

The next step of the cost of service analysis is to calculate unit costs for each cost causation component, which are utilized in Section 5 to develop proposed 2024 rates in Section 5.

Units of Service

Units of service are used to distribute the rate revenue requirement to customers and must first be determined before unit costs can be calculated. Units of service include the projected number of meters and water use, for example. The determination of 2024 units of service are shown below.

Meters and Equivalent Meter Units

Table 4-11 shows the total number of water meters and equivalent meter units in the District. Equivalent meter units are necessary to apportion meter-related costs by meter size, as larger meters can impose greater demands on the system and are more expensive to install, maintain, and replace than smaller meters. Meter capacity ratios (Column D) are first calculated by dividing the AWWA-rated safe maximum operating capacity for each meter size (Column C) by 20 gallons per minute (gpm), which is the safe maximum operating capacity for 5/8-inch meters. Meter capacity ratios are then multiplied by the number of water meters at each meter size (Columns E) to determine equivalent meters units (Columns F).

[A]	[B]	[C]	[D]	[E]	[F]
Line	Meter Size	Meter Capacity (gpm)	Meter Capacity Ratio	Number of Water Meters	Number of Equivalent Meter Units
1	5/8-inch	20	1.00	1,836	1,836
2	3/4-inch ¹²	20	1.00	230	230
3	1-inch	50	2.50	841	2,103
4	1.5-inch	100	5.00	11	55
5	2-inch	160	8.00	28	224
6	3-inch	350	17.50	7	123
7	Total			2,953	4,570

Table 4-11: Number of Water Meters and Equivalent Meter Units (2024)

Water Use and Max Day Extra Capacity

Table 4-12 shows projected 2024 water use in ccf and the calculation of extra capacity requirements in ccf per day by tier. Total projected 2024 water use is consistent with the financial plan projection in Section 3.2 but the breakdown by tier (Column C, Lines 1-3) reflects reduced tier allotments recommended in subsequently in Section 5.1. Average daily water use (Column D) is simply annual water use (Column C) divided by 365 days.

Extra capacity requirements in ccf per day are used to allocate Extra Capacity costs based on tier-specific water use patterns during peak demand periods. Max day peaking factors (Column E) are the ratio of

¹² 3/4-inch meter capacity is set equal to 5/8-inch meter capacity, as most customers with 3/4-inch could be adequately served by a 5/8-inch meter.

maximum day water use to average day water use. Max hour peaking factors (Column F) are the ratio of maximum hour water use to average day water use. Peaking factors were estimated based on a detailed analysis of account-level water use data in 2022 (see Appendix D for details).

Max day demand (Column G) is equal to average daily water use (Column D) multiplied by the max day peaking factor (Column E). Max hour demand (Column H) is equal to average daily water use (Column D) multiplied by the max hour peaking factor (Column F). Max day extra capacity (column I) equals max day demand (Column G) less average daily water use (Column D). Max hour extra capacity (column J) equals max hour demand (Column H) less max day demand (Column G).

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[1]	[1]
Line	Tier	Annual Water Use (ccf)	Average Daily Water Use (ccf)	Max Day Peaking Factor	Max Hour Peaking Factor	Max Day Demand (ccf)	Max Hour Demand (ccf)	Max Day Extra Capacity (ccf/day)	Max Hour Extra Capacity (ccf/day)
1	Tier 1 (0-14 ccf)	226,639	621	1.02	2.04	633	1,266	12	633
2	Tier 2 (15-60 ccf)	437,064	1,197	1.18	2.35	1,408	2,817	211	1,408
3	Tier 3 (> 60 ccf)	251,056	688	1.57	3.14	1,078	2,157	391	1,078
13	Total	914,760	2,506			3,119	6,239	613	3,119

Table 4-12: Projected Water Use and Extra Capacity (2024)

Unit Cost Calculation

Table 4-13 shows the development of unit costs for each cost causation component in Column E, which are calculated by dividing the final adjusted cost of service allocation in Column C (from Table 4-10) by the total units of service in Column D (from Table 4-11 and Table 4-12). The units of service applied to each cost causation component are defined in Column F. Weighted annual water use used to develop the Revenue Offset unit cost (Line 7) are based on detailed calculations presented subsequently in Section 5.4, Table 5-7.

[A]	[B]	[C]	[D]	[E]	[F]
Line	Cost Causation Component	Cost of Service Allocation	Annualized Units of Service	Unit Cost	Units of Service Definition
1	Supply	\$4,348,538	914,760	\$4.754	Annual water use (ccf)
2	Base Delivery	\$1,188,124	914,760	\$1.299	Annual water use (ccf)
3	Max Day	\$362,378	613	\$590.886	Max day extra capacity (ccf/day)
4	Max Hour	\$182,421	3,119	\$58.478	Max hour extra capacity (ccf/day)
5	Customer Service	\$332,565	17,718	\$18.770	Number of water meters \times 6 bi-monthly billing periods per year
6	Meters	\$1,395,315	27,420	\$50.887	Number of equivalent meter units × 6 bi- monthly billing periods per year
7	Revenue Offsets	(\$676,058)	417,270	(\$1.620)	Weighted annual water use per (ccf)
8	Total	\$7,133,282			

Table 4-13: 2024 Unit Cost Calculation

5. Rate Design

Section 5 shows detailed calculations of proposed water rates for the next five years. All proposed rates are calculated directly from the results of the proposed financial plan in Section 3 and cost of service analysis in Section 4. Note that proposed rates must first be calculated for the test year (2024) before the full five-year proposed rate schedule can be determined.

5.1. Proposed Rate Structure Modifications

Raftelis evaluated the need for potential changes to the District's current water rate structure. Based on industry norms as well as feedback from District staff, Raftelis only recommends one proposed rate structure modification at this time. All proposed water rates presented subsequently in Section 5 incorporate this single recommended change, outlined below.

Revised Tier Allotments

Proposed versus current bi-monthly tier allotments are summarized in Table 5-1 below. Raftelis recommends that the District update its current bi-monthly tier allotments to better align with changing customer water use patterns. No change to the Tier 1 allotment of 14 ccf per bi-monthly billing period is recommended. The Tier 1 allotment is designed to represent efficient indoor water use for an average sized household. The current Tier 1 allotment is based on statewide indoor water efficiency standards that will remain in place through 2024. Therefore, no change to the Tier 1 allotment is recommended at this time.

However, Raftelis does recommend a decrease in the current bi-monthly tier allotment for Tier 2 water use. The current Tier 2 breakpoint of 70 ccf per bi-monthly billing period is intended to represent reasonable outdoor water use, and is based on average residential water use in the summer per 2016 customer water use data. Since the prior rate study was completed in 2018, customer water use has declined due to water supply availability constraints and resulting conservation efforts. Raftelis recommends that the District reduce the Tier 2 allotment from 70 to 60 ccf per bi-monthly billing period, which aligns with updated average residential summer water use per 2022 customer water use data.

[A]	[B]	[C]	[D]	[D]
Line	Tier	Current Bi- Monthly Tier Allotments	Proposed Bi- Monthly Tier Allotments	Basis
1	Tier 1	0-14 ccf	0-14 ccf	Tier max set equal to efficient indoor water use (55 gpcd ¹³) for an average size household (~3 persons) ¹⁴ in La Cañada Flintridge
2	Tier 2	15-70 ccf	15-60 ccf	Tier max set equal to average single family residential water use during the summer (July-October)
3	Tier 3	>70 ccf	>60 ccf	All water use in excess of Tier 2

Table 5-1: Proposed Update to Bi-Monthly Tier Allotments

5.2. Cost Recovery by Charge Type

Table 5-2 indicates which charges are designed to recover the rate revenue requirement associated with each cost causation component. Fixed Meter Charges are designed to recover the portion of the rate revenue requirement allocated to the Customer Service and Meters cost causation components. Commodity Rates are designed to recover the portion of the rate revenue requirement allocated to the Supply, Base Delivery, Extra Capacity (i.e., Max Day and Max Hour), and Revenue Offsets cost causation components.

[A]	[B]	[C]
Line	Cost Causation Component	Recovered by:
1	Supply	Commodity Rates (uniform for all tiers)
2	Base Delivery	Commodity Rates (uniform for all tiers)
3	Max Day	Commodity Rates (differentiated by tier)
4	Max Hour	Commodity Rates (differentiated by tier)
5	Customer Service	Fixed Meter Charges (uniform for all meter sizes)
6	Meters	Fixed Meter Charges (differentiated by meter size)
7	Revenue Offsets	Commodity Rates (differentiated by tier)

Table 5-2: Recovery of Rate Revenue Requirement

5.3. Fixed Meter Charge Calculation (2024)

Fixed Meter Charges are designed to recover costs associated with the Customer Service and Meters cost causation components. Table 5-3 shows the detailed calculation of Fixed Meter Charges for the test year (2024) based on Customer Service and Meters unit costs. Customer Service costs do not vary by meter size. Therefore, the Customer Service unit cost (from Table 4-13) is applied uniformly to all charges regardless of meter size (Column D). Because Meters costs vary by meter size based on meter capacity, meter capacity ratios in Column C (from Table 4-11) are used to differentiate Meters costs by meter size. The Meters charges (Column E) are calculated by multiplying the Meters unit cost (from Table 4-13) by the corresponding meter capacity ratio in Column C. Proposed 2024 Fixed Meter Charges (Column F) equal the sum of Columns D-E and are compared to current 2023 charges in Table 5-4.

¹³ California Senate Bill 606 and Assembly Bill 1668 were passed in 2018 and established a standard of 55 gallons per capita per day until January 2025 for urban water suppliers.

¹⁴ Based on average persons per household per US Census data for the City of La Cañada Flintridge.

[A]	[B]	[B] [C]		[E]	[F]	
Line	Meter Size	Meter Capacity Ratio	Customer Service	Meters	Proposed Bi-Monthly Charge (2024)	
1	5/8-inch	1.00	\$18.770	\$50.887	\$69.66	
2	3/4-inch	1.00	\$18.770	\$50.887	\$69.66	
3	1-inch	2.50	\$18.770	\$127.217	\$146.00	
4	1.5-inch	5.00	\$18.770	\$254.434	\$273.22	
5	2-inch	8.00	\$18.770	\$407.094	\$425.88	
6	3-inch	17.50	\$18.770	\$890.518	\$909.30	

Table 5-3: Fixed Meter Charge Calculation (2024)

Table 5-4: Comparison of Proposed and Current Fixed Meter Charges

[A]	[B]	[C]	[D]	[E]	[F]	
Line	Meter Size	Proposed Bi- Monthly Charge (2024)	Current Bi- Monthly Charge (2023)	Difference (\$)	Difference (%)	
1	5/8-inch	\$69.66	\$63.66	\$6.00	9.43%	
2	3/4-inch	\$69.66	\$63.66	\$6.00	9.43%	
3	1-inch	\$146.00	\$131.96	\$14.04	10.64%	
4	1.5-inch	\$273.22	\$245.80	\$27.42	11.16%	
5	2-inch	\$425.88	\$382.38	\$43.50	11.38%	
6	3-inch	\$909.30	\$814.98	\$94.32	11.57%	

5.4. Commodity Rate Calculation (2024)

Commodity Rates are designed to recover costs associated with the Supply, Base Delivery, Extra Capacity, and Revenue Offsets cost causation components. Supply and Base Delivery unit costs are applied uniformly to each tier. However, Extra Capacity and Revenue Offsets unit costs are differentially applied to each tier, described below.

Extra Capacity Unit Rate Calculation

Max Day and Max Hour unit costs were calculated previously in Table 4-13. However, distinct unit rates must be calculated for each tier to appropriately differentiate Extra Capacity cost recovery by tier. Table 5-5 first shows the distribution of the total Extra Capacity rate revenue requirement to each tier. Max day extra capacity in ccf per day (from Table 4-12) is multiplied by the Max Day unit cost (from Table 4-13) to determine allocated Max Day costs by tier in Column G. Max hour extra capacity in ccf per day (from Table 4-12) is multiplied by the Max hour extra capacity in ccf per day (from Table 4-12) is multiplied by the Max hour extra capacity in ccf per day (from Table 4-12) is multiplied by the Max hour unit cost (from Table 4-13) to determine allocated Max Hour costs by tier in Column H. Total Extra Capacity costs allocated to each customer class in Column I equal the sum of allocated Max Day and Max Hour costs in Columns G-H.

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]
Line	Tier	Max Day Extra Capacity (ccf/day)	Max Hour Extra Capacity (ccf/day)	Max Day Unit Cost	Max Hour Unit Cost	Allocated Max Day Costs	Allocated Max Hour Costs	Total Extra Capacity Costs
1	Tier 1 (0-14 ccf)	12	633	\$590.886	\$58.478	\$7,036	\$37,007	\$44,044
2	Tier 2 (15-60 ccf)	211	1,408	\$590.886	\$58.478	\$124,583	\$82,354	\$206,937
3	Tier 3 (> 60 ccf)	391	1,078	\$590.886	\$58.478	\$230,758	\$63,060	\$293,818
4	Total	613	3,119			\$362,378	\$182,421	\$544,799

Table 5-5: Extra Capacity Cost Allocation by Tier

Table 5-6 shows the Extra Capacity unit rate calculation for each tier. Total allocated Extra Capacity costs in Column C (from Table 5-5) are divided by projected water use by tier in Column D (from Table 4-12) to establish unique Extra Capacity unit rates for each customer class and tier in Column E.

[A]	[B]	[C]	[D]	[E]
Line	Tier	Total Extra Capacity Costs	Annual Water Use (ccf)	Extra Capacity Unit Rate (\$/ccf)
1	Tier 1 (0-14 ccf)	\$44,044	226,639	\$0.194
2	Tier 2 (15-60 ccf)	\$206,937	437,064	\$0.473
3	Tier 3 (> 60 ccf)	\$293,818	251,056	\$1.170
4	Total	\$544,799	914,760	

Table 5-6: Extra Capacity Unit Rate Calculation

Revenue Offset Unit Rate Calculation

The Revenue Offset unit cost was calculated previously in Table 4-13. However, Revenue Offset unit rates are differentiated by tier in a similar manner to Extra Capacity unit rates. Weighting factors are used to preferentially allocate Revenue Offsets to the lower tiers. This helps improve affordability for essential indoor water use and reasonable out water use and is consistent with water rate-setting norms in California. Weighted water use in ccf is calculated by tier in Column E by multiplying projected 2024 water use in ccf in Column C (from Table 4-12) by the weighting factor in Column D. The Revenue Offset unit cost in Column F (from) is then multiplied by the weighting factor in Column D to establish the Revenue Offset unit rate by tier in Column G.

[A]	[B]	[C]	[D]	[E]	[F]	[G]
Line	Tier	Annual Water Use (ccf)	Weighting Factor	Weighted Units (ccf)	Revenue Offset Unit Cost	Revenue Offset Unit Rate (\$/ccf)
1	Tier 1 (0-14 ccf)	226,639	1.00	226,639	(\$1.620)	(\$1.620)
2	Tier 2 (15-60 ccf)	437,064	0.35	152,973	(\$1.620)	(\$0.567)
3	Tier 3 (> 60 ccf)	251,056	0.15	37,658	(\$1.620)	(\$0.243)
4	Total	914,760		417,270		

Table 5-7: Revenue Offset Unit Rate Calculation

Commodity Rate Calculation

Table 5-8 shows the detailed calculation of Commodity Rates for the test year (2024) based on Supply, Base Delivery, Extra Capacity, and Revenue Offset unit rates. Supply (Column C) and Base Delivery (Column D) unit rates are uniformly applied to each tier and simply equal the associated unit costs from Table 4-13. Extra Capacity (Column E) and Revenue Offset (Column F) unit rates are differentiated by tier and were previously calculated in Table 5-6 and Table 5-7, respectively. Proposed 2024 Commodity Rates per ccf (Column G) equal the sum of Columns C through F and are compared to current 2023 Commodity Rates in Table 5-9.

[A]	[B]	[C]	[D]	[E]	[F]	[G]
Line	Tier	Supply	Base Delivery	Extra Capacity	Revenue Offset	Proposed Commodity Rate per ccf (2024)
1	Tier 1 (0-14 ccf)	\$4.754	\$1.299	\$0.194	(\$1.620)	\$4.63
2	Tier 2 (15-60 ccf)	\$4.754	\$1.299	\$0.473	(\$0.567)	\$5.96
3	Tier 3 (> 60 ccf)	\$4.754	\$1.299	\$1.170	(\$0.243)	\$6.98

Table 5-8: Commodity Rate Calculation (2024)

Table 5-9: Comparison of Proposed and Current Commodity Rates

[A]	[B]	[C]	[D]	[E]	[F]
Line	Tier	Proposed Commodity Rate per ccf (2024)	Current Commodity Rate per ccf (2023)	Difference (\$)	Difference (%)
1	Tier 1 (0-14 ccf)	\$4.63	\$4.35	\$0.28	6.44%
2	Tier 2 (15-60 ccf)	\$5.96	\$5.52	\$0.44	7.97%
3	Tier 3 (> 60 ccf)	\$6.98	\$6.16	\$0.82	13.31%

5.5. Proposed Five-Year Rate Schedule (2024-2028)

Table 5-10 shows the current and proposed rates through 2028. Proposed 2024 rates were previously calculated in Table 5-3 and Table 5-8. Proposed rates for 2025-2028 are calculated by increasing all proposed 2024 rates by 10 percent per year (per the proposed revenue adjustments from Table 3-17) and rounding up to the nearest cent (to ensure adequate revenue recovery).

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Line	Bi-Monthly Water Rates	Current 2023	Proposed 2024	Proposed 2025	Proposed 2026	Proposed 2027	Proposed 2028
1	Effective Date	Feb. 2023	Jan. 2024	Jan. 2025	Jan. 2026	Jan. 2027	Jan. 2028
2	Revenue Adjustment	N/A	10.0%	10.0%	10.0%	10.0%	10.0%
3							
4	Fixed Meter Charges						
5	5/8-inch	\$63.66	\$69.66	\$76.64	\$84.30	\$92.72	\$102.00
6	3/4-inch	\$63.66	\$69.66	\$76.64	\$84.30	\$92.72	\$102.00
7	1-inch	\$131.96	\$146.00	\$160.60	\$176.66	\$194.34	\$213.76
8	1.5-inch	\$245.80	\$273.22	\$300.56	\$330.60	\$363.66	\$400.04
9	2-inch	\$382.38	\$425.88	\$468.48	\$515.32	\$566.86	\$623.54
10	3-inch	\$814.98	\$909.30	\$1,000.24	\$1,100.26	\$1,210.28	\$1,331.32
11							
12	Commodity Rates (per ccf)						
13	Tier 1 (0-14 ccf)	\$4.35	\$4.63	\$5.10	\$5.61	\$6.18	\$6.80
14	Tier 2 (15-60 ccf) ¹⁵	\$5.52	\$5.96	\$6.56	\$7.22	\$7.95	\$8.75
15	Tier 3 (> 60 ccf) ¹⁶	\$6.16	\$6.98	\$7.68	\$8.45	\$9.30	\$10.23

Table 5-10: Proposed Five-Year Rate Schedule (2024-2028)

¹⁵ The current Tier 2 bi-monthly allotment is 15-70 ccf

¹⁶ The current Tier 3 bi-monthly allotment is >70 ccf

5.6. Customer Bill Impacts

Sample bi-monthly water bill impacts are shown for single family residential customers in Figure 5-1. Note that over 95 percent of the District's metered water connections serve single family residential customers. The bill impacts compare current 2023 bi-monthly water bills versus proposed 2024 bi-monthly water bills at varying levels of water use. All bills incorporate Fixed Meter Charges for a 5/8-inch or 3/4-inch water meter. Note that over 70 percent of the District's single family residential customers have 5/8-inch or 3/4-inch water meters. The five varying levels of water use correspond to the 10th percentile, 25th percentile, median, 75th percentile, and 90th percentile of bi-monthly water use for single family residential customers based on an analysis of water use data in 2022.



Figure 5-1: Bi-Monthly Bill Impacts (2024)

6. Drought Rates

Background

Section 6 documents the development of rates to be implemented during water shortages, mandatory conservation measures, or other water supply emergency situations. The District adopted drought rates in 2018 that were developed during the prior rate study. However, the adopted drought rates have not been implemented at any time since. Implementation requires formal action by the District's Board of Directors.

This section provides an overview of the shortage stage reductions, corresponding revenue impacts, drought rate calculations, and a summary of proposed charges at each stage. The proposed Drought Rates calculated in this section are separate charges independent from the Commodity Rates derived in Section 5. During times of declared shortage, the proposed Drought Rates represent a surcharge to the Commodity Rates.

Drought Impacts

Active conservation and water supply shortages can have significant impacts on an agency's financial stability, staffing, and planning. Depending upon water supply sources, fixed and variable costs, and other revenue sources, water sales reductions can have a major effect on a water service provider. Raftelis recommends that the District continue to utilize drought rates proactively as part of a cohesive and fiscally sound response to drought, water supply interruptions from natural disasters, or other emergencies. Temporary rates are a mechanism to maintain revenue stability and achieve debt coverage requirements in the short term.

The District relies wholly on imported water from FMWD for its water supply needs. In periods of reduced demand, less imported water is required, and the corresponding purchased water costs decrease. However, most of the District's other costs are fixed. This means that the District is sensitive to reductions in water sales with significant effects on rate revenue.

6.1. Drought Rate Calculation (2024)

Proposed 2024 Drought Rate calculations for 2024 are shown in Table 6-1. See footnotes to Table 6-1 for calculation details. Water demand by tier is projected for four defined water shortage stages in Lines 1-11. Commodity Rate revenue projections for each water shortage stage are calculated in Lines 13-17. Variable wholesale water purchase cost savings are estimated for each water shortage stage in Lines 19-24. The net revenue loss is calculated in Lines 26-29, which represents the Drought Rate revenue requirement at each water shortage stage. Proposed Drought Rates are calculated in Row 32.

Option 1 Version (Uniform \$/CCF per % Increase): Drought Rates are proposed to be charged per ccf of water delivered per percent reduction in declared water demand. For example, under a declared Stage 1 water shortage of 11 percent, the proposed 2024 Drought Rate per percent reduction for Stage 1 (Column D, Line 32) would be multiplied by 11 to determine the effective Drought Surcharge per ccf. The proposed Drought Surcharges do not vary by tier.

Option 2 Version (Uniform % Increase): Drought Surcharges are proposed to be set equal to a percentage of Commodity Rates. In other words, the Commodity Rate for each tier is multiplied by the same percentage to determine the effective Drought Surcharge per ccf. The proposed Drought Surcharges therefore do vary by tier.

[A]	[B]	[C]	[D]	[E]	[F]	[G]
Line	2024 Drought Rate Calculations	Base Demand	Stage 1 Water Shortage	Stage 2 Water Shortage	Stage 3 Water Shortage	Stage 4 Water Shortage
1	Water Demand Reduction (%)					
2	Tier 1 (0-14 ccf)	N/A	1.2%	2.4%	4.1%	6.4%
3	Tier 2 (15-60 ccf)	N/A	8.2%	17.4%	27.9%	39.7%
4	Tier 3 (>60 ccf)	N/A	21.1%	40.4%	57.0%	70.8%
5	Total	N/A	10.0%	20.0%	30.0%	40.0%
6						
7	Water Demand (ccf)					
8	Tier 1 (0-14 ccf) ¹⁷	226,639	223,935	221,158	217,354	212,026
9	Tier 2 (15-60 ccf) ¹⁸	437,064	401,348	360,915	315,033	263,489
10	Tier 3 (>60 ccf) ¹⁹	251,056	198,001	149,735	107,944	73,341
11	Total	914,760	823,284	731,808	640,332	548,856
12						
13	Commodity Rate Revenue					
14	Tier 1 (\$4.63 per ccf) ²⁰	\$1,049,340	\$1,036,820	\$1,023,962	\$1,006,351	\$981,681
15	Tier 2 (\$5.96 per ccf) ²¹	\$2,604,904	\$2,392,035	\$2,151,054	\$1,877,597	\$1,570,394
16	Tier 3 (\$6.98 per ccf) ²²	\$1,752,373	\$1,382,045	\$1,045,149	\$753,452	\$511,920
17	Total	\$5,406,617	\$4,810,900	\$4,220,165	\$3,637,401	\$3,063,995
18						
19	Wholesale Water Purchase Cost Savings					
20	Customer Water Demand Reduction (ccf)	0	91,476	182,952	274,428	365,904
21	Water Loss (%)	8.0%	8.0%	8.0%	8.0%	8.0%
22	Wholesale Water Purchase Reduction (ccf) ²³	0	99,430	198,861	298,291	397,722

Table 6-1: 2024 Drought Rate Calculations

- ¹⁸ =[100% Line 3] × [C9]
- $^{19} = [100\% \text{Line } 4] \times [C10]$
- ²⁰ =[Line 8] × [Proposed 2024 Tier 1 Commodity Rate per ccf]
- ²¹ =[Line 9] × [Proposed 2024 Tier 2 Commodity Rate per ccf]
- ²² =[Line 10] × [Proposed 2024 Tier 3 Commodity Rate per ccf]

 $^{23} = [Line 20] \div [100\% - Line 21]$

 $^{^{17} = [100\% - \}text{Line } 2] \times [C8]$

[A]	[B]	[C]	[D]	[E]	[F]	[G]
Line	2024 Drought Rate Calculations	Base Demand	Stage 1 Water Shortage	Stage 2 Water Shortage	Stage 3 Water Shortage	Stage 4 Water Shortage
23	Wholesale Water Purchase Reduction (AF) ²⁴	0	228	457	685	913
24	Water Supply Cost Savings (\$1,417 per AF) ²⁵	\$0	\$323,514	\$647,027	\$970,541	\$1,294,054
25						
26	Net Revenue Loss					
27	Commodity Rate Revenue Loss ²⁶	\$0	\$595,717	\$1,186,452	\$1,769,216	\$2,342,622
28	Less Water Supply Cost Savings ²⁷	\$0	\$323,514	\$647,027	\$970,541	\$1,294,054
29	Total	\$0	\$272,203	\$539,424	\$798,675	\$1,048,567
30						
31	Proposed 2024 Drought Rates					
32	Drought Surcharge per ccf (per % reduction) ²⁸	N/A	\$0.034	\$0.037	\$0.042	\$0.048
32	Uniform % Increase to Commodity Rates ²⁹	N/A	5.7%	12.8%	22.0%	34.2%

- $^{27} = [Line 24]$
- $^{28} = [Line 29] \div [Line 11] \div [Line 5 \times 100]$
- $^{29} = [Line 29] \div [Line 17]$

²⁴ = [Line 22] ÷ [435.6 ccf per AF]

²⁵ = [Line 23] × [2024 FMWD Energy Charge per AF + 2024 MWD Full Service Treated Tier 1 Rate per AF]

 $^{^{26} = [}C17] - [Line 17]$

6.2. Proposed Five-Year Drought Rate Schedule

The District has opted to implement Option 2 Version (Uniform % Increase) as shown in Table 6-2 shows proposed Drought Rates through 2028. Proposed uniform percentage increases by water shortage stage (Lines 4-8) were calculated in Table 6-2. The uniform percentages are multiplied by proposed Commodity Rates from Table 5-10 to determine proposed Drought Rates for each tier for 2024-2028 (Lines 10-26). All Drought Rates are rounded up to the nearest cent.

Table 6-2: Proposed Five-Year Drought Rate Schedule (2024-2028)

[A]	[B]	[C]	[D]	[E]	[F]	[G]
Line	Drought Rates	Proposed 2024	Proposed 2025	Proposed 2026	Proposed 2027	Proposed 2028
1	Effective Date	Jan. 2024	Jan. 2025	Jan. 2026	Jan. 2027	Jan. 2028
2						
3	Proposed Drought Surcharges (%	of Commodity	(Rates)			
5	Stage 1 Water Shortage	5.7%	5.7%	5.7%	5.7%	5.7%
6	Stage 2 Water Shortage	12.8%	12.8%	12.8%	12.8%	12.8%
7	Stage 3 Water Shortage	22.0%	22.0%	22.0%	22.0%	22.0%
8	Stage 4 Water Shortage	34.2%	34.2%	34.2%	34.2%	34.2%

APPENDIX A: Detailed O&M Expense Functionalization



[A]	[B]	[C]	[D]
Line	O&M Expenses	2024	Functional Allocation
1	Plant Expenses		
2	Wholesale Water Purchase Costs	\$4,348,538	100% Supply
3	Pump Repairs	\$1,752	100% Transmission
4	Power Purchases	\$366,687	100% Transmission
5	Water Treatment	\$45,900	100% Treatment
6	Telephone & Radio Telemetry Control	\$3,460	100% Storage
7	Superintendent's Salary (40%)	\$64,464	100% Distribution
8	Auto & Truck	\$35,659	100% Distribution
9	Tools & Supplies	\$14,548	100% Distribution
10	Facility Maintenance	\$58,452	100% Distribution
11	Meter Repairs	\$12,202	100% Meters
12	Paving	\$13,664	100% Distribution
13	Electrical Repairs	\$4,938	50% Storage / 50% Transmission
14	Radio Repairs	\$16,330	100% Storage
15	Plant Equipment Repairs	\$59,847	50% Storage / 50% Distribution
16	Subtotal	\$5,046,441	
17			
18	Administrative Expenses		
19	Wages	\$513,461	14% Customer Service / 86% General
20	Directors' Fees & Pay	\$6,211	100% General
21	Superintendent's Salary (60%)	\$97,047	100% General
22	Payroll Taxes	\$255,160	14% Customer Service / 86% General
23	Group Insurance (Life & LTD)	\$44,337	14% Customer Service / 86% General
24	Pension Benefits	\$93,811	14% Customer Service / 86% General
25	Medical & Workers' Comp. Ins.	\$170,259	14% Customer Service / 86% General
26	Deferred Comp	\$15,347	14% Customer Service / 86% General
27	Payroll Processing Fees	\$973	14% Customer Service / 86% General
28	Office Supplies	\$31,464	25% Customer Service / 75% General
29	Office Expense	\$95,848	25% Customer Service / 75% General
30	Dues & Memberships	\$18,008	100% General
31	Property Taxes	\$610	100% General
32	Insurance & Bonds	\$7,356	100% General
33	Utilities & Waste	\$55,192	100% General
34	Professional Services & Legal Fees	\$193,195	100% General
35	Laundry & Uniforms	\$9,203	100% General
36	Administrative Costs	\$581	100% General
37	Bank Fees (See Note)	\$8,562	100% Customer Service
38	Subtotal	\$1,616,626	
39			
40	Total	\$6,663,067	

APPENDIX B: Detailed Capital Asset Functionalization



[A]	[B]	[C]	[D]
Line	Capital Assets	Cost	Functional Allocation
1	Land	\$20,204	100% Storage
2	Water Rights	\$60,330	100% Transmission
3	Wells	\$1,065,042	100% Transmission
4	Pumps Houses	\$3,449,475	100% Transmission
5	Pumps	\$1,327,456	100% Transmission
6	Reservoirs	\$2,331,144	100% Storage
7	Pipelines	\$7,913,274	100% Distribution
8	Office & Fence	\$388,381	100% General
9	Auto & Trucks	\$200,330	100% Distribution
10	Plant Equipment	\$1,229,425	50% Storage / 50% Distribution
11	Office Equipment	\$381,079	100% General
12	Total	\$18,366,138	

APPENDIX C: Detailed Non-Rate Revenue Functionalization



[A]	[B]	[C]	[D]
Line	Non-Rate Revenues	2024	Functional Allocation
1	Property Taxes	(\$641,126)	100% Revenue Offsets
2	Interest Earnings	(\$24,633)	100% General
3	Customer Services	(\$33,730)	100% Revenue Offsets
4	Meter Installations	(\$900)	100% Revenue Offsets
5	Turn On Charges	(\$210)	100% Revenue Offsets
6	Rate Stabilization Refund	(\$92)	100% Revenue Offsets
7	Total	(\$700,691)	
APPENDIX D:

Tier-Specific Peaking Factors based on 2022 Customer Water Use Data



[A]	[B]	[C]	[D]	[E]	[F]
Line	Tier ³⁰	Average Bi-Monthly Water Use (2022) ³¹	Maximum Bi-Monthly Water Use (2022)	Max Day Peaking Factor ³²	Max Hour Peaking Factor ³³
1	Tier 1 (0-14 ccf)	37,656	38,378	1.02	2.04
2	Tier 2 (15-60 ccf)	72,618	85,404	1.18	2.35
3	Tier 3 (> 60 ccf)	41,713	65,396	1.57	3.14
4	Total	151,986	189,178		

³⁰ Reflects proposed changes to bi-monthly tier allotments.

³¹ Columns C-D based on analysis of detailed account-level customer water billing data for calendar year 2022.

 $^{^{32} = [\}text{Column D}] \div [\text{Column C}]$

 $^{^{33}}$ = [Column E] × [4.00 (i.e., the systemwide Max Hour peaking factor)] ÷ [2.00 (i.e., the systemwide Max Day peaking factor]