

Goleta Water District

Water Cost of Service and Rate Design Study

Report / May 26, 2020



May 26, 2020

Mr. John McInnes
General Manager
Goleta Water District
4699 Hollister Ave
Goleta CA 93110

Subject: Water Cost of Service and Rate Design Study

Dear Mr. McInnes,

Raftelis is pleased to provide this Water Cost of Service and Rate Design Study Report to the Goleta Water District. The overall purpose of the study was to develop a five-year schedule of proposed water rates for the District for Fiscal Year (FY) 2020-21 through FY 2024-25 that is fair, equitable, and in compliance with Proposition 218 requirements.

The major goals of the study are to:

- » Develop a five-year financial plan to ensure financial sufficiency, meet operating costs, fund the long-term Infrastructure Improvement Plan (IIP), and maintain prudent reserves.
- » Conduct a cost of service analysis to ensure a strong nexus between proposed water rates and the cost to provide service to customers.
- » Review the District's existing water rate structures.
- » Design defensible water rates that achieve the District's policy objectives of financial sustainability, affordability of service, and water conservation/efficiency.

This report summarizes key results and recommendations related to the development of the proposed financial plan, cost of service analysis, and water rate calculations. It has been a pleasure working with you and we thank you, Mr. David Matson, Mr. Francis Chan, and other District staff for the support provided to Raftelis during this study.

Sincerely,

Sudhir Pardiwala
Project Director

Kevin Kostiuk
Project Manager

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Lead Analyst

Table of Contents

1.	EXECUTIVE SUMMARY.....	1
1.1.	Study Overview	1
1.2.	Proposed Financial Plan	1
1.3.	Cost of Service Analysis.....	3
1.4.	Proposed Rate Structure Changes	4
1.5.	Proposed Water Rates	5
2.	INTRODUCTION	8
2.1.	Agency Overview.....	8
2.2.	Study Overview	8
3.	LEGAL REQUIREMENTS AND RATE SETTING METHODOLOGY.....	10
3.1.	Legal Requirements	10
3.2.	Rate-Setting Methodology.....	11
4.	KEY INPUTS AND ASSUMPTIONS	13
4.1.	Current Water Rates.....	13
4.2.	Financial Assumptions.....	14
4.3.	Projected Service Connections	15
4.4.	Projected Water Use and Supply	18
5.	FINANCIAL PLAN	21
5.1.	Revenues From Current Rates	21
5.2.	Operations and Maintenance Expenses	23
5.3.	Debt Service	25
5.4.	Infrastructure Improvement Plan.....	25
5.5.	Financial Policies.....	28
5.6.	Status Quo Financial Plan.....	29
5.7.	Proposed Financial Plan	32
6.	COST OF SERVICE ANALYSIS	37
6.1.	Methodology	37
6.2.	Revenue Requirement.....	37
6.3.	System Peaking Factors.....	38
6.4.	Functionalization and Allocation of Expenses.....	39
6.5.	O&M Expense Allocation.....	42
6.6.	Capital Allocation.....	45
6.7.	Preliminary Cost of Service Allocation	47

6.8.	Allocation of Public and Private Fire Protection Costs.....	48
6.9.	Peaking Units of Service	49
6.10.	Reallocation of Recycled Water Costs.....	51
6.11.	Adjusted Cost of Service Allocation	52
6.12.	Unit Cost Development.....	53
6.13.	Customer Class Costs.....	56
7.	PROPOSED WATER RATES.....	60
7.1.	Proposed Rate Structure Changes	60
7.2.	Proposed Single Family Residential Tier Definitions	61
7.3.	Proposed FY 2020-21 Fixed Meter Charges	62
7.4.	Proposed FY 2020-21 Commodity Charges	65
7.5.	Proposed Five-Year Rate Schedule.....	73
7.6.	Monthly Bill Impacts.....	75
7.7.	Monthly Bill Comparison.....	77
8.	APPENDIX A: PEAKING FACTORS BY CUSTOMER CLASS/TIER.....	79

List of Tables

Table 1-1: Proposed Revenue Adjustments	1
Table 1-2: Proposed Tier Definitions	4
Table 1-3: Proposed Five-Year Water Rate Schedule	6
Table 4-1: Current Water Rate Schedule	13
Table 4-2: Current Drought Surcharges	14
Table 4-3: Inflationary Assumptions	14
Table 4-4: Additional Financial Assumptions.....	15
Table 4-5: Projected Growth in Number of Water Meters & Fire Lines	15
Table 4-6: Projected Number of Water Meters Under Existing Rate Structure	16
Table 4-7: Projected Number of Fire Lines.....	17
Table 4-8: Projected Water Use Under Existing Rate Structure.....	19
Table 4-9: Projected Non-Recycled Water Supply Mix	20
Table 5-1: Projected Fixed Meter Charge Revenues under Current Rates	21
Table 5-2: Projected Commodity Charge Revenues Under Current Rates.....	22
Table 5-3: Projected Other Revenues	23
Table 5-4: Summary of Projected Revenues Under Current Rates	23
Table 5-5: Projected O&M Expenses by Cost Center	24
Table 5-6: Summary of Projected O&M Expenses by Department	25
Table 5-7: Schedule of Debt Service Payments	25
Table 5-8: Infrastructure Improvement Plan	26
Table 5-9: Financial Policies	29
Table 5-10: Projected Reserve Targets.....	29
Table 5-11: Status Quo Financial Plan - Pro Forma.....	30
Table 5-12: Proposed Revenue Adjustments	32
Table 5-13: Proposed Financial Plan - Pro Forma	33
Table 6-1: FY 2020-21 Revenue Required from Rates	38
Table 6-2: System Peaking Factor Allocations	39
Table 6-3: Allocation of Functional categories to Cost Causation Components	41
Table 6-4: Functionalization of O&M Expenses by Cost Center	42
Table 6-5: Summary of O&M Expenses by Functional Category	43
Table 6-6: Allocation of O&M Expenses to Cost Causation Components.....	44
Table 6-7: Summary of Capital Assets by Functional Category	45
Table 6-8: Allocation of Functionalized Capital Assets to Cost Causation Components	46
Table 6-9: Preliminary Cost of Service Allocation.....	48
Table 6-10: Equivalent Fire Demand	49
Table 6-11: Public vs. Private Fire Protection Allocation	49
Table 6-12: Peaking Units by Customer Class	50
Table 6-13: Peaking Units for Fire Protection.....	50
Table 6-14: Summary of Total Peaking Units	51
Table 6-15: Recycled Water Contract Revenue Analysis.....	51
Table 6-16: Reallocation of Recycled Water Costs to Conservation.....	52
Table 6-17: Adjusted Cost of Service Allocation.....	53
Table 6-18: Fixed Meter Charge Units of Service.....	55
Table 6-19: Development of Unit Costs	56
Table 6-20: Recovery of Cost Causation Components by Charge Type	57
Table 6-21: Cost to Serve by Customer Class	59
Table 7-1: Existing Single Family Residential Tier Definitions	61
Table 7-2: Proposed Single Family Residential Tier Definitions.....	61

Table 7-3: Proposed Changes to Single Family Residential Tiers	62
Table 7-4: Impact of Proposed Tier Changes on Fixed Meter Charge Units of Service	62
Table 7-5: Fixed Meter Charge Unit Costs	63
Table 7-6: Proposed FY 2020-21 Fixed Meter Charge Calculation.....	64
Table 7-7: Allocation of Unit Costs to Customer Classes.....	65
Table 7-8: Fixed CCWA Supply Unit Rates	66
Table 7-9: Variable CCWA Supply Unit Rates.....	68
Table 7-10 Total CCWA Supply Unit Rates.....	69
Table 7-11: Peaking Unit Rates.....	69
Table 7-12: Single Family Residential Conservation Unit Rates	70
Table 7-13: Single Family Residential Revenue Offsets Unit Rates	71
Table 7-14: Proposed FY 2020-21 Commodity Charge Calculation	72
Table 7-15: Proposed FY 2020-21 Commodity Charges	73
Table 7-16: Proposed Five-Year Water Rate Schedule	74
Table 7-17: Projected Rate Revenues by Customer Class	75
Table 8-1: Peaking Factors by Customer Class/Tier	79

List of Figures

Figure 1-1: Infrastructure Improvement Plan	2
Figure 1-2: Status Quo vs. Proposed Financial Plan.....	2
Figure 1-3: Proposed Financial Plan – Projected Ending Balances.....	3
Figure 1-4: Current vs. Proposed Cost of Service	4
Figure 1-5: Single Family Residential Bill Comparison with Neighboring Agencies.....	7
Figure 4-1: Historical and Projected Annual Water Use	20
Figure 5-1: IIP Financing Plan	28
Figure 5-2: Status Quo Financial Plan – Projected Ending Balances	32
Figure 5-3: Proposed Financial Plan - Revenue Adjustments and Debt Coverage	35
Figure 5-4: Proposed Financial Plan – Projected Ending Balances	36
Figure 5-5: Proposed vs. Status Quo Financial Plan.....	36
Figure 6-1: Current vs. Proposed Cost of Service	58
Figure 7-1: Single Family Residential Monthly Bill Impacts (FY 2020-21)	76
Figure 7-2: Non-Residential Monthly Bill Impacts (FY 2020-21)	77
Figure 7-3: Single Family Residential Bill Comparison with Neighboring Agencies.....	78

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1. Executive Summary

1.1. Study Overview

Public water agencies in California typically conduct a cost of service study every five years to ensure that there is a strong nexus between rates charged to customers and costs incurred to provide service, as required by Proposition 218. The Goleta Water District (District) last conducted a cost of service study in 2015, which established proposed water rates over a five-year period through Fiscal Year (FY) 2019-20. The District engaged Raftelis in 2019 to conduct this Water Cost of Service and Rate Design Study to establish proposed water rates over a five-year period from FY 2020-21 to FY 2024-25. Note that proposed rates presented in this study report may not be implemented until formally adopted by the District’s Board of Directors after a public hearing.

The major objectives of this study are to:

- » Develop a five-year financial plan that sufficiently funds the District’s operations and maintenance (O&M) expenses, debt service payments, and Infrastructure Improvement Plan (IIP) while adequately funding reserves and meeting debt coverage requirements.
- » Conduct a cost of service analysis that establishes a clear nexus between the cost to serve customers and the water rates charged to customers, per Proposition 218 requirements.
- » Review the District’s existing water rate structure and recommend changes as necessary.
- » Develop a five-year schedule of water rates that is fair, equitable, and compliant with Proposition 218.

1.2. Proposed Financial Plan

Raftelis conducted a status quo cash flow analysis to evaluate whether existing water rates can adequately fund the District’s various expenses over the five-year study period. Annual projections of revenues, O&M expenses, debt service payments, and capital expenditures through FY 2024-25 were developed with District staff. Raftelis projects that with no rate increases over the five-year study period, the District will fully deplete its reserves by the end of FY 2020-21 and fail to meet its debt coverage requirement in all years through FY 2024-25. This demonstrates a clear need for revenue adjustments (i.e. water rate revenue increases relative to the status quo). Raftelis worked with District staff to develop the following proposed revenue adjustments over the five-year study period (see **Table 1-1**). The proposed revenue adjustments were selected to provide financial sufficiency for the District while minimizing impacts to District customers.

Table 1-1: Proposed Revenue Adjustments

Description	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Effective Date	July 1, 2020	July 1, 2021	July 1, 2022	July 1, 2023	July 1, 2024
Revenue Adjustment	19.0%	11.0%	9.0%	9.0%	9.0%

Key factors influencing the need for proposed revenue adjustments include:

- » **Planned capital expenditures:** IIP projects scheduled over the next five years total about \$50M.
- » **Reduction in baseline water demand:** Water sales are significantly lower relative to pre-drought years, resulting in lower baseline Commodity Charge revenues.
- » **Drought Surcharge deactivation:** In FY 2018-19 the District collected \$9.8M in Drought Surcharge revenue through April 2019, which is when the Stage 3 declaration was rescinded.

Figure 1-1 shows the proposed IIP financing plan over the study period. IIP expenditures significantly increase beginning in FY 2022-23, demonstrating the need for revenue adjustments to sufficiently fund the District’s planned capital expenditures. The proposed financial plan assumes that all IIP over the study period will be cash funded by rates and reserves.

Figure 1-1: Infrastructure Improvement Plan

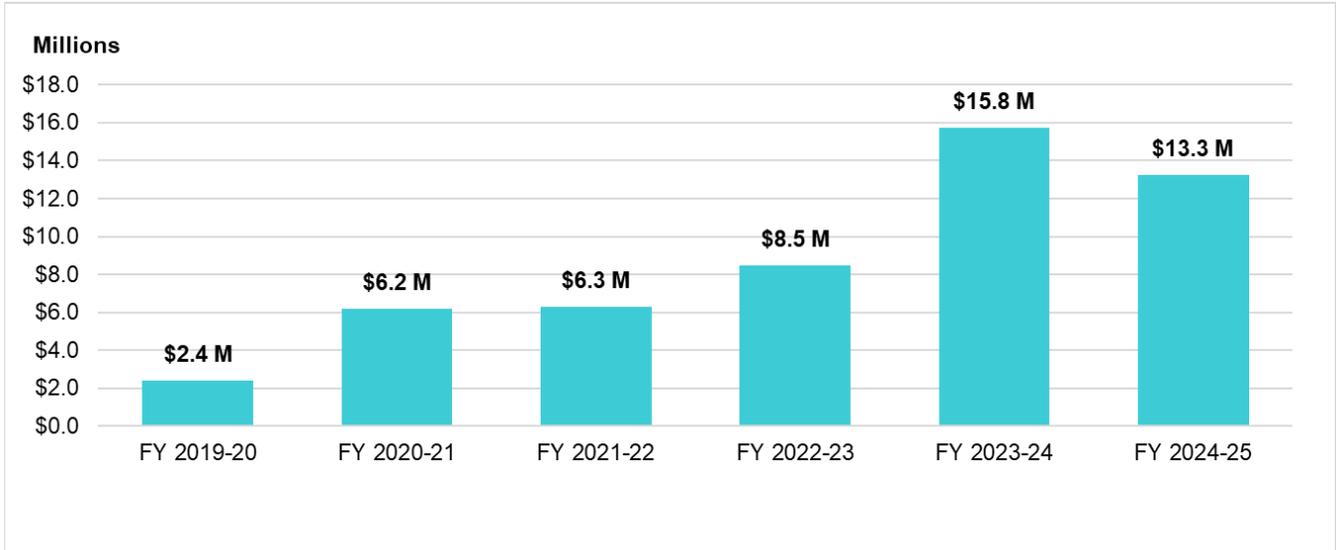


Figure 1-2 shows the status quo and proposed five-year financial plans. Although current rates result in adequate recovery of O&M expenses in most years, revenue adjustments are required to generate sufficient revenue to cover debt service payments and cash funded IIP over the study period. Even under the proposed financial plan, reserves are drawn down in some years to cover a portion of cash funded IIP.

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

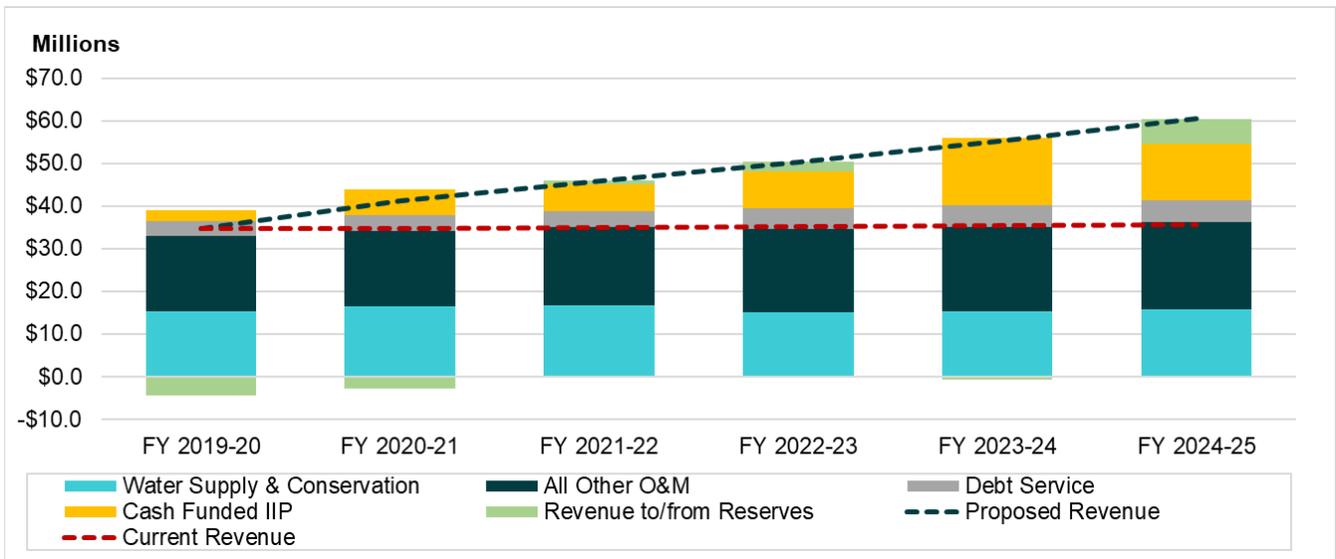
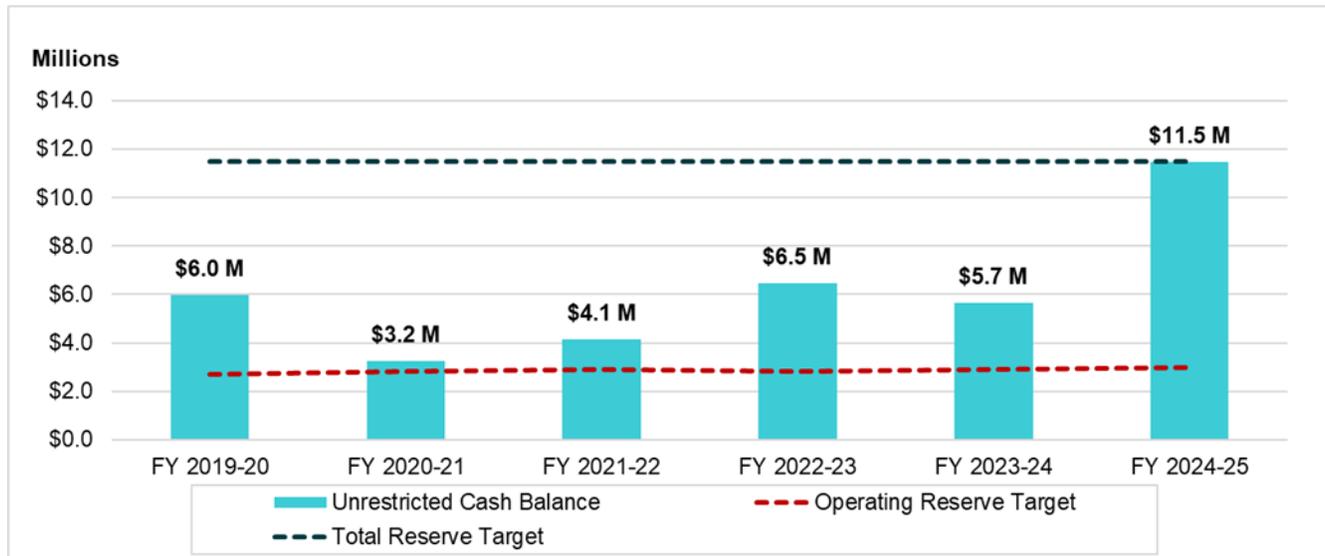


Figure 1-3 shows projected ending balances over the study period relative to the District’s operating and total reserve targets under the proposed financial plan. Reserves are drawn down in FY 2020-21 and replenished over

the subsequent years. Although not displayed on the chart below, note that the District is projected to meet its debt coverage requirement under the proposed financial plan in all years beginning in FY 2020-21.

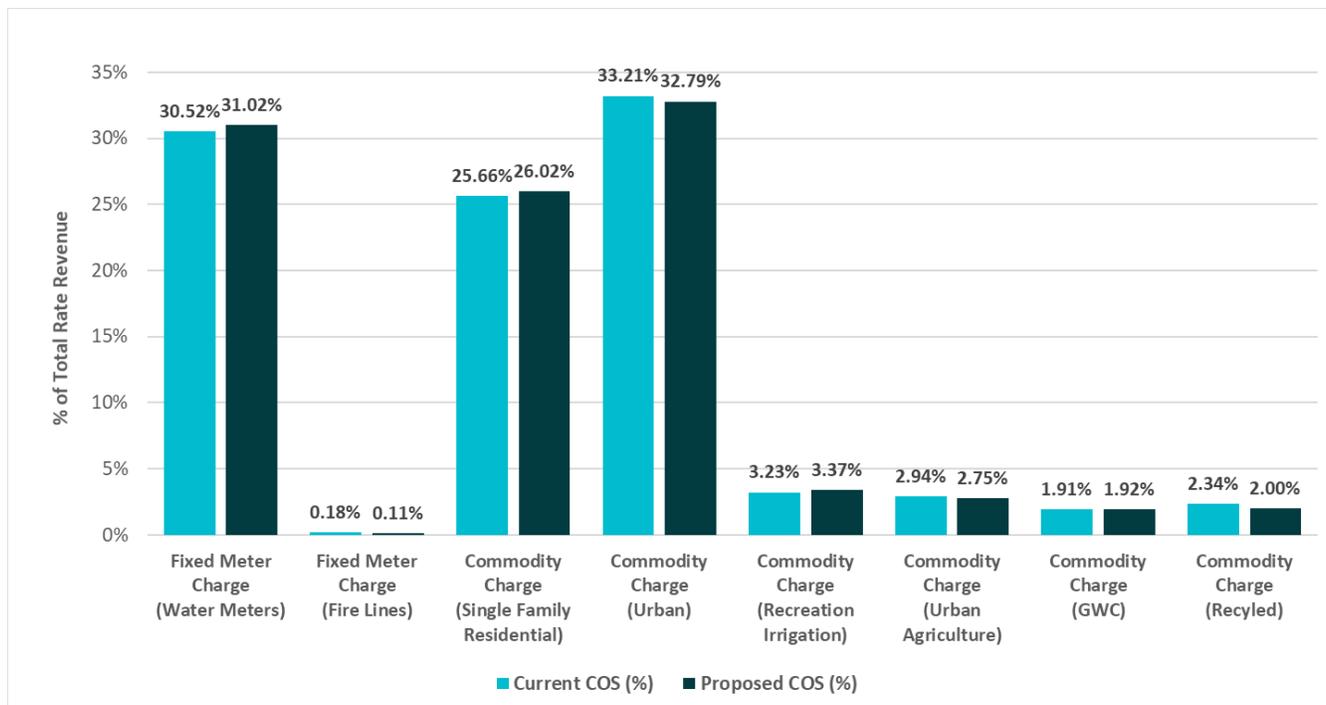
Figure 1-3: Proposed Financial Plan – Projected Ending Balances



1.3. Cost of Service Analysis

The proposed financial plan determines the amount of revenue that must be recovered from water rates in each year over the study period. The purpose of the cost of service (COS) analysis is to appropriately allocate this total rate revenue requirement to the District’s various customer classes. Raftelis performed a COS analysis for FY 2020-21 based on industry-standard principles outlined in the *American Water Works Association Manual M1*. Raftelis adhered closely to cost of service principles to ensure that proposed rates are in accordance with California Proposition 218 (which requires a clear nexus between the cost burden imposed by customers and the rates those customers are charged). **Figure 1-4** shows the current versus proposed distribution of the rate revenue requirement to the District’s various charges/customer classes based on the results of the FY 2020-21 COS analysis.

Figure 1-4: Current vs. Proposed Cost of Service



1.4. Proposed Rate Structure Changes

The District’s customers are currently subject to two primary charges:

1. **Fixed Meter Charges** charged monthly that vary by meter size.
2. **Commodity Charges** per hundred cubic feet (HCF) of water delivered that vary by customer class.

Proposed Single Family Residential Tier Definitions

Single Family Residential customers with 5/8” or 3/4” water meters are eligible for reduced “Ultra-Low Flow” or “Low Flow” Fixed Meter Charges if their monthly water use does not exceed certain thresholds. Single Family Residential customers are also subject to a three-tiered Commodity Charge rate structure based on the same water use thresholds for Ultra-Low Flow and Low Flow Fixed Meter Charges. Because water use patterns have changed significantly since the prior rate study was conducted, Raftelis recommends the following revisions to the Single Family Residential Ultra-Low Flow, Low Flow, and Commodity Charge tier definitions:

Table 1-2: Proposed Tier Definitions

Classification/Tier	Current Definition	Proposed Definition
Ultra-Low Flow/Tier 1	0-6 HCF/Month	0-6 HCF/Month
Low Flow/Tier 2	7-16 HCF/Month	7-12 HCF/Month
All Other/Tier 3	>16 HCF/Month	>12 HCF/Month

Additional Proposed Changes to Rate Structure

The existing rate structure adequately promotes the District’s policy objectives of affordability for essential water use, water conservation, and revenue stability. However, the following proposed rate structure changes are based on input from District staff as well as changing industry standards:

- » **Discontinue Drought Surcharges:** The District will discontinue its use of Drought Surcharges during periods of declared drought, since forecasted customer demand for the next five years is not expected to be significantly different than the demand levels experienced during the height of the recent historic drought.
- » **Differentiate Rates for Temporary Use:** Temporary customers are currently charged 1.5 times the Urban Commodity Charge rate. Raftelis recommends that Temporary water use treated as a distinct customer class be charged at unique cost of service rates.
- » **Separate Rate Classes for Urban and Recreation Irrigation:** The existing rate structure consolidates these two user classes into one uniform rate. Raftelis recommends charging each class a separate uniform rate due to peaking, or extra-capacity, differences.

1.5. Proposed Water Rates

Table 1-3 shows the proposed five-year water rate schedule through FY 2024-25. Proposed FY 2020-21 rates are calculated based on the results of the COS analysis. Overall, FY 2020-21 rates are designed to collect 19 percent more rate revenue than current FY 2019-20 rates in accordance with the proposed FY 2020-21 revenue adjustment. Proposed rates beginning in FY 2021-22 are calculated by simply increasing the prior year's proposed rates by the proposed annual revenue adjustments.

Table 1-3: Proposed Five-Year Water Rate Schedule

Description	FY 2019-20 (Current)	FY 2020-21 (7/1/2020)	FY 2021-22 (7/1/2021)	FY 2022-23 (7/1/2022)	FY 2023-24 (7/1/2023)	FY 2024-25 (7/1/2024)
Proposed Revenue Adjustment		19.0%	11.0%	9.0%	9.0%	9.0%
Fixed Meter Charges (per Month)						
5/8" & 3/4" - Ultra-Low Flow (6 HCF or less)	\$16.41	\$22.12	\$24.56	\$26.78	\$29.20	\$31.83
5/8" & 3/4" - Low Flow (7-12 HCF) ¹	\$33.86	\$39.76	\$44.14	\$48.12	\$52.46	\$57.19
5/8 & 3/4-inch - All Other	\$51.46	\$56.41	\$62.62	\$68.26	\$74.41	\$81.11
1-inch	\$78.99	\$89.72	\$99.59	\$108.56	\$118.34	\$129.00
1.5-inch	\$147.82	\$172.98	\$192.01	\$209.30	\$228.14	\$248.68
2-inch	\$230.42	\$272.90	\$302.92	\$330.19	\$359.91	\$392.31
3-inch	\$491.95	\$589.30	\$654.13	\$713.01	\$777.19	\$847.14
4-inch	\$877.35	\$1,055.57	\$1,171.69	\$1,277.15	\$1,392.10	\$1,517.39
6-inch	\$1,937.26	\$2,337.83	\$2,595.00	\$2,828.55	\$3,083.12	\$3,360.61
8-inch	\$3,313.75	\$4,003.10	\$4,443.45	\$4,843.37	\$5,279.28	\$5,754.42
10-inch	\$5,240.86	\$6,334.47	\$7,031.27	\$7,664.09	\$8,353.86	\$9,105.71
Fire Line Charge	\$10.96	\$8.04	\$8.92	\$9.73	\$10.61	\$11.57
Commodity Charges (per HCF)						
Single Family Residential (First 6 HCF/month)	\$5.26	\$5.79	\$6.43	\$7.01	\$7.65	\$8.34
Single Family Residential (Next 6 HCF/ month) ²	\$6.46	\$7.81	\$8.67	\$9.46	\$10.32	\$11.25
Single Family Residential (All additional HCF)	\$7.12	\$9.96	\$11.06	\$12.06	\$13.15	\$14.34
Urban	\$6.10	\$7.17	\$7.96	\$8.68	\$9.47	\$10.33
Recreation Irrigation	\$6.10	\$7.60	\$8.44	\$9.20	\$10.03	\$10.94
Urban Agriculture	\$2.11	\$2.35	\$2.61	\$2.85	\$3.11	\$3.39
Goleta West Conduit	\$1.59	\$1.91	\$2.13	\$2.33	\$2.54	\$2.77
Recycled	\$3.79	\$3.87	\$4.30	\$4.69	\$5.12	\$5.59
Temporary	N/A	\$8.43	\$9.36	\$10.21	\$11.13	\$12.14

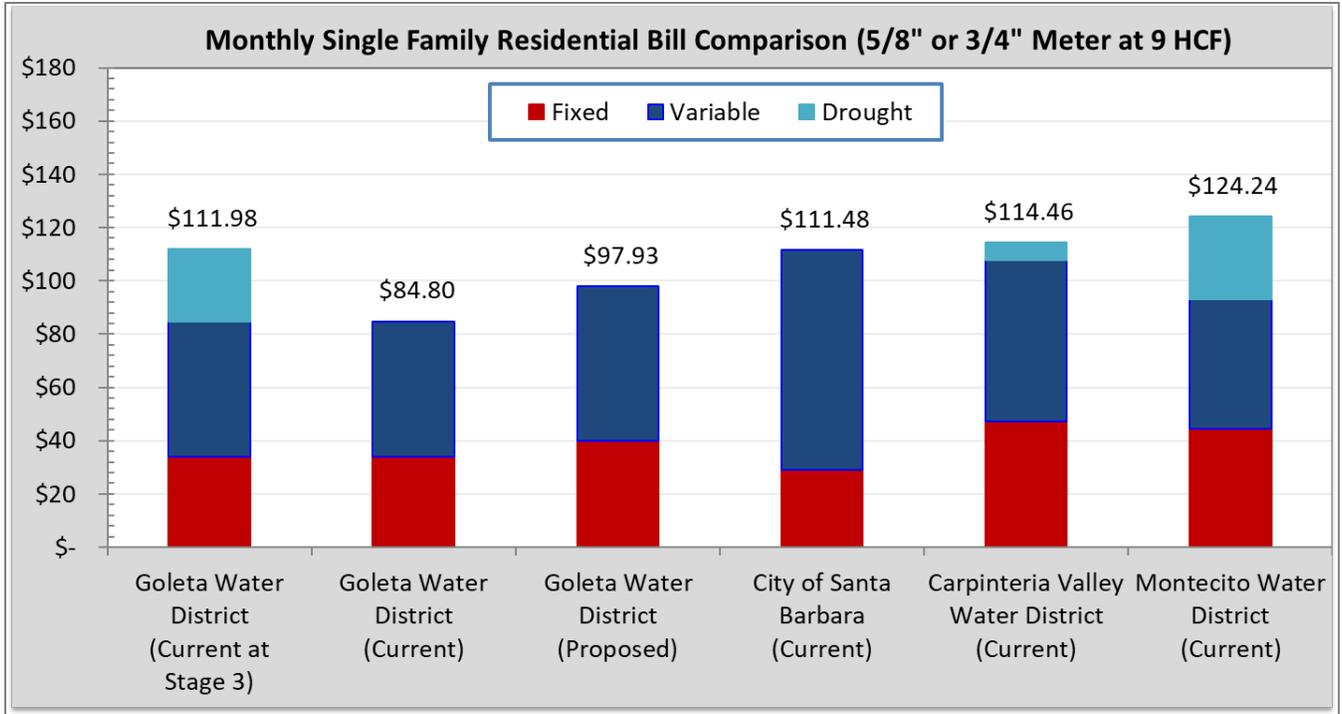
The proposed water rate increases would result in monthly bill increases in FY 2020-21 for many District customers relative to FY 2019-20. However, many customers will likely have lower monthly bills in FY 2020-21 relative to FY 2018-19 (when Stage 3 Drought Surcharges were in effect). Note that beyond FY 2020-21, estimated monthly bill increases in each year simply equal the proposed annual revenue adjustment.

Figure 1-5 shows a comparison of sample Single Family Residential monthly bills with three neighboring water agencies. All bills are representative of a typical residential customer using 9 HCF per month (equal to the average residential water use in the District). Estimated monthly bills based on both the District's current FY 2019-20 and proposed FY 2020-21 water rates are considerably lower than bills based on the other agencies' current FY 2019-20 rates. Additionally, all three of the other agencies shown are either scheduled or expected to implement rate increases in FY 2020-21.

¹ Low Flow is classified as 7-16 HCF/month under current rates.

² Next 10 HCF/month under current rates.

Figure 1-5: Single Family Residential Bill Comparison with Neighboring Agencies



2. Introduction

2.1. Agency Overview

The Goleta Water District (District) provides water service to a population of approximately 87,000 people through about 17,000 metered water connections within a service area of 29,000 acres in Santa Barbara County. The District delivers potable water from the Corona Del Mar Water Treatment Plant through 270 miles of distribution pipeline and non-potable water to select agricultural users via the Goleta West Conduit. The District also delivers non-potable water produced at a recycled water treatment plant at Goleta Sanitary District to select recycled water customers, including the University of California, Santa Barbara. The District’s mission is “to provide a reliable supply of quality water at the most reasonable cost to the present and future customers within the Goleta Water District.”

The District benefits from a flexible and diverse water supply portfolio. The majority of the District’s water supply is obtained under normal conditions from Lake Cachuma via the Cachuma Project. Additional supply sources include imported water from the State Water Project (SWP) and local groundwater from the Goleta Groundwater Basin. Recycled water produced in conjunction with Goleta Sanitary District also benefits all customers by alleviating pressure on the aforementioned supply sources. The District also stores surplus water from Lake Cachuma in the Goleta Groundwater Basin using special injection wells during wet years. Stormwater capture is currently being evaluated as an additional supply source.

2.2. Study Overview

Public water agencies in California typically perform a cost of service analysis every five years to ensure that customers are appropriately charged for water service commensurate with the cost to provide service. The District last conducted a cost of service study in 2015, which established proposed rates over a five-year period through Fiscal Year (FY) 2019-20. The District engaged Raftelis in 2019 to conduct this Water Cost of Service and Rate Design Study to establish proposed water rates for the District for FY 2020-21 through FY 2024-25. 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 District customers must be mailed a public hearing notice detailing any proposed rate changes no fewer than 45 days before the public hearing.

Key Changes Since Prior Study

Since the prior rate study was conducted in 2015, District operations have undergone substantial changes. Most notably, drought conditions through 2017 in California resulted in significant reductions in baseline water demand. Because the District collects approximately 70 percent of its rate revenues through Commodity Rates charged per unit of water delivered, rate revenues collected by the District are negatively impacted during times of decreased water sales.

To reduce the impact of drought conditions on the District’s finances, the Board of Directors adopted Drought Surcharges for FY 2015-16 through FY 2019-20 that increase with each subsequent drought stage as defined in the District’s Drought Management Plan. Activation of Drought Surcharges since the prior rate study has been instrumental in offsetting reduced Commodity Rate revenues. As drought conditions diminished, the District removed all drought surcharges as its water supplies returned to normal. Water sales, however, have not returned to pre-drought levels as a result of permanent conservation. This post-drought demand pattern has significantly

decreased rate revenues. Previously, Drought Surcharges generated over \$9 million in FY 2018-19, constituting over 20 percent of total District revenues in that year. No Drought Surcharges will be collected in FY 2019-20.

Additional changes since the prior study include a shift in the operating cost structure of the District budget, as well as significantly increased long-term Infrastructure Improvement Plan (IIP) expenditures required to maintain the existing level of service and meet regulatory requirements. Overall, the District has experienced reductions in rate revenue generation coupled with increases in operating and capital expenditures. This has resulted in increased reliance on cash reserves in the near-term, but ultimately the District requires a substantial increase in rate revenues to ensure financial sufficiency while maintaining the existing level of service provided to its customers.

Objectives of the Study

The major objectives of this study are to:

- » Develop a five-year financial plan that sufficiently funds the District's operations and maintenance (O&M) expenses, debt service payments, and IIP expenditures while adequately funding reserves and meeting debt coverage requirements.
- » Conduct a cost of service analysis that establishes a clear nexus between the cost to serve customers and the water rates charged to customers, per Proposition 218 requirements.
- » Review the District's existing water rate structure and recommend changes as necessary to ensure that proposed rates achieve financial sufficiency while furthering the District's policy goals of affordability and conservation.
- » Develop a five-year schedule of water rates that are fair, equitable, and compliant with Proposition 218 requirements.

3. Legal Requirements and Rate Setting Methodology

3.1. Legal Requirements

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

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

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

As stated in the American Water Works Association's (AWWA) *Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices - M1 Seventh Edition* (Manual M1), "water rates and charges should be recovered from classes of customers in proportion to the cost of serving those customers." Raftelis follows industry standard rate setting methodologies set forth by the AWWA Manual M1 to ensure this study meets Proposition 218 requirements and establishes rates that do not exceed the proportionate cost of providing water services on a parcel basis. The methodology in the Manual M1 is a nationally recognized industry ratemaking standard which courts have recognized as consistent with Proposition 218.

California Constitution Article X, Section 2

California Constitution Article X, Section 2 mandates that water resources be put to beneficial use and that the waste or unreasonable use of water be prevented through conservation. Section 106 of the Water Code declares that the highest priority use of water is for domestic purposes, with irrigation secondary. Thus, management of water resources is part of the property-related service provided by public water suppliers to ensure the resource is available over time. The District currently has inclining tiered (also known as inclining block) water rates to incentivize single-family residential customers to conserve water. The inclining tiered rates must be based on the proportionate costs incurred to provide water to customers to achieve compliance with Proposition 218. "Inclining" tiered rate structures (which are synonymous with "increasing" tier rate structures and "tiered" rates), when properly designed, allow a water utility to send conservation price signals to customers. Due to heightened interest in water conservation and efficiency of water use, tiered water rates have gained widespread use, especially in relatively water-scarce regions like California's Central Coast. Tiered rates meet the requirements of Proposition 218 as long as they reasonably reflect the proportionate cost of providing service for each tier.

3.2. Rate-Setting Methodology

This study was conducted using industry-standard principles outlined by the AWWA Manual M1. The process and approach Raftelis utilized in the study to determine water rates is informed by the District's policy objectives, the current water system and rates, and the legal requirements in California (namely, Proposition 218). The resulting financial plan, cost of service analysis, and rate design process follows five key steps, outlined below, to determine proposed rates that fulfill the District's objectives, meet industry standards, and comply with relevant regulations.

1. **Financial Plan:** The first study step is to develop a multi-year financial plan that projects the District's revenues, expenses, capital project financing, annual debt service, and reserve funding. The financial plan is used to determine the revenue adjustment, which allows the District to recover adequate revenues to fund expenses and reserves.
2. **Revenue Requirement Determination:** After completing the financial plan, the rate-making process begins with the determination of the revenue requirement for the test year, also known as the rate-setting year. The test year for this study is FY 2020-21. The revenue requirement should sufficiently fund the District's operating costs, annual debt service (including coverage requirements), IIP, and reserve funding as projected based on the District's FY 2019-20 updated budget estimates.
3. **Cost of Service Analysis:** The annual cost of providing water service, or the revenue requirement, is then distributed to customer classes and tiers commensurate with their use of and burden on the water system. A cost of service analysis involves the following steps:
 - » Functionalize costs – the different components of the revenue requirement are categorized into functions such as supply, transmission, storage, customer service, etc.
 - » Allocate to cost causation components – the functionalized costs are then allocated to cost causation components such as supply, base delivery, peaking, etc.
 - » Develop unit costs – unit costs for each cost causation component are determined using units of service, such as total use, peaking units, equivalent meters, number of customers, etc. for each component.
 - » Distribute cost components – the cost components are allocated to each customer class and tier using the unit costs in proportion to their demand and burden on the system.

A cost of service analysis considers both the average water demand and peak demand. Peaking costs are incurred during periods of peak consumption, most often coinciding with summer water use. There are additional capacity-related costs associated with designing, constructing, operating, maintaining, and replacing facilities to meet peak demand. Patterns of use impose additional costs on a water utility and are used to determine the cost burden on peaking-related facilities.

4. **Rate Design:** After allocating the revenue requirement to each customer class and tier, the rate design and calculation process can begin. Rates do more than simply recover costs; within the legal framework and industry standards, properly designed rates should support and optimize the District's policy objectives. Rates also act as a public information tool in communicating these policy objectives to customers. This process also includes a rate impact analysis and sample customer bill impacts.
5. **Administrative Record Preparation and Rate Adoption:** The final step in a rate study is to develop the administrative record in conjunction with the rate adoption process. This report serves as the administrative record for this study. The administrative record documents the study results and presents the methodologies,

rationale, justifications, and calculations used to determine the proposed rates. A thorough and methodological administrative record serves two important functions: maintaining defensibility in a stringent legal environment and communicating the rationale for revenue adjustments and proposed rates to customers and key stakeholders.

4. Key Inputs and Assumptions

Raftelis developed a water rate model in Microsoft Excel to project financial and rate calculations over a five-year study period through FY 2024-25. The District’s fiscal year spans from July 1 through June 30. Projections in future years were generally made based on actual or estimated FY 2018-19 or FY 2019-20 data using key assumptions outlined below. All assumptions were discussed with and reviewed by District staff to ensure that the District’s unique characteristics are accurately accounted for. Note that most table values shown throughout this report are rounded to the last digit shown and may therefore not add precisely to the totals shown.

4.1. Current Water Rates

Table 4-1 shows the current adopted rate schedule developed during the prior rate study. Customers are currently subject to two primary charges: 1) monthly Fixed Meter Charges and 2) Commodity Charges per hundred cubic feet (HCF)³ of water delivered. Fixed Meter Charges vary based on meter size. Single Family Residential (SFR) customers with 5/8” or 3/4” water meters are eligible for reduced “Ultra-Low Flow” or “Low Flow” Fixed Meter Charge rates if their monthly water use does not exceed 6 HCF or 16 HCF respectively. Commodity Charges vary based on customer classes. SFR customers are subject to a three-tiered Commodity Charge rate structure. The first 6 HCF used each month is charged at the lowest rate, the next 10 HCF at an intermediate rate, and any additional use at the highest rate. All other customer classes are subject to a uniform Commodity Charge.

Table 4-1: Current Water Rate Schedule

Description	FY 2015-16 (7/1/2015)	FY 2016-17 (7/1/2016)	FY 2017-18 (7/1/2017)	FY 2018-19 (7/1/2018)	FY 2019-20 (7/1/2019)
Fixed Meter Charges (per Month)					
5/8" & 3/4" - Ultra-Low Flow (6 HCF or less)	\$14.14	\$14.57	\$15.16	\$15.77	\$16.41
5/8" & 3/4" - Low Flow (7-16 HCF)	\$29.20	\$30.08	\$31.29	\$32.55	\$33.86
5/8 & 3/4-inch - All Other	\$44.40	\$45.74	\$47.57	\$49.48	\$51.46
1-inch	\$68.16	\$70.21	\$73.02	\$75.95	\$78.99
1.5-inch	\$127.57	\$131.40	\$136.66	\$142.13	\$147.82
2-inch	198.85	\$204.82	\$213.02	\$221.55	\$230.42
3-inch	\$424.58	\$437.32	\$454.82	\$473.02	\$491.95
4-inch	\$757.23	\$779.95	\$811.15	\$843.60	\$877.35
6-inch	\$1,672.04	\$1,722.21	\$1,791.10	\$1,862.75	\$1,937.26
8-inch	\$2,860.09	\$2,945.90	\$3,063.74	\$3,186.29	\$3,313.75
10-inch	\$4,523.38	\$4,659.09	\$4,845.46	\$5,039.28	\$5,240.86
Fire Line Charge	\$9.44	\$9.73	\$10.12	\$10.53	\$10.96
Commodity Charges (per HCF)					
Single Family Residential (First 6 HCF/month)	\$4.52	\$4.66	\$4.85	\$5.05	\$5.26
Single Family Residential (Next 10 HCF/ month)	\$5.57	\$5.74	\$5.97	\$6.21	\$6.46
Single Family Residential (All additional HCF)	\$6.12	\$6.31	\$6.57	\$6.84	\$7.12
Urban ⁴	\$5.25	\$5.41	\$5.63	\$5.86	\$6.10
Recreation Irrigation	\$5.25	\$5.41	\$5.63	\$5.86	\$6.10
Urban Agriculture	\$1.80	\$1.86	\$1.94	\$2.02	\$2.11
Goleta West Conduit	\$1.35	\$1.40	\$1.46	\$1.52	\$1.59
Recycled	\$3.26	\$3.36	\$3.50	\$3.64	\$3.79

³ One HCF equals approximately 748 gallons.

⁴ The Urban customer class includes multi-family residential, commercial, and institutional customers.

All non-recycled customers are also currently subject to Drought Surcharges per HCF during periods of declared drought. Drought Surcharges were designed to recover lost Commodity Charge revenue during periods of reduced water sales. The District’s Drought Management Plan defines five drought stages. Each successive stage represents increasingly severe water shortage conditions. Therefore, Drought Surcharges increase with each subsequent stage. No Drought Surcharges have been collected since the District lifted its drought declarations. The current five-year schedule of Drought Surcharges is shown below in **Table 4-2**.

Table 4-2: Current Drought Surcharges

Drought Surcharges (per HCF)	FY 2015-16 (7/1/2015)	FY 2016-17 (7/1/2016)	FY 2017-18 (7/1/2017)	FY 2018-19 (7/1/2018)	FY 2019-20 (7/1/2019)
Stage 1	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Stage 2	\$1.57	\$1.62	\$1.68	\$1.75	\$1.82
Stage 3	\$2.60	\$2.68	\$2.79	\$2.90	\$3.02
Stage 4	\$3.92	\$4.04	\$4.20	\$4.37	\$4.54
Stage 5	\$5.73	\$5.90	\$6.14	\$6.39	\$6.65

4.2. Financial Assumptions

Inflationary assumptions shown in **Table 4-3** were used to project annual non-rate revenues and operations and maintenance (O&M) expenses beyond FY 2019-20. All inflationary factors were determined by District staff based on historical and anticipated cost increases. Over 97.5 percent of District revenues are generated by water rates. Other miscellaneous revenues (excluding interest earnings on cash reserves) are increased by 2 percent annually.

For O&M expenses, a general inflation rate of 3 percent is consistent with long-term changes in the Consumer Price Index (CPI). Personnel costs tend to increase at a greater rate relative to general inflation. The water supply inflation rate is used to project Cachuma supply costs, recycled water purchases, and minor miscellaneous supply expenses. The inflationary factors shown below are used to project most O&M expenses over the study period. However, projections for imported water supply costs and some other expenses are based on detailed estimates by the District or its water supply provider.

Table 4-3: Inflationary Assumptions

Inflationary Categories	Annual Inflation
Non-Rate Revenues	
Miscellaneous	2.0%
Expenses	
General	3.0%
Personnel	4.5%
Water Supply	3.0%

Additional financial assumptions relating to interest earnings are shown in **Table 4-4**. Interest earnings on cash reserves are projected assuming a 1 percent annual interest rate.

Table 4-4: Additional Financial Assumptions

Description	Value
Interest Earnings	
Annual Interest Rate	1.0%

4.3. Projected Service Connections

Customer account growth projections are necessary to estimate water demand and rate revenues over the study period. District staff provided Raftelis with the number of water meters and fire lines by connection size for FY 2019-20 as well projected new connections by customer class and connection size for FY 2020-21 through FY 2024-25. Raftelis assumed that the five-year new connection projections provided by the District will be distributed as evenly as possible across each of the next five years. **Table 4-5** shows projected new connections over the study period. All growth is projected to occur within the Single Family Residential and Urban customer classes.

Table 4-5: Projected Growth in Number of Water Meters & Fire Lines

Number of New Connections	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25	5-Year Total
Single Family Residential						
5/8 & 3/4-inch - Ultra-Low Flow	32	32	32	32	33	161
1-inch	24	24	24	24	24	120
1.5-inch	1	0	1	0	1	3
Subtotal	57	56	57	56	58	284
Urban						
5/8 & 3/4-inch - All Other	21	21	22	21	21	106
1-inch	7	7	6	7	7	34
1.5-inch	1	0	1	0	1	3
4-inch	1	1	2	1	1	6
6-inch	0	0	1	0	0	1
8-inch	0	0	1	0	0	1
Subtotal	30	29	33	29	30	151
All Other Customer Classes	0	0	0	0	0	0
Fire Lines	0	0	0	0	0	0
TOTAL	87	85	90	85	88	435

Table 4-6 shows the projected number of water meters by customer class and meter size over the study period. Projected values for FY 2020-21 through FY 2024-25 are calculated by adding the number of new connections from **Table 4-5** to the number of connections in the previous year. The total number of water meters is projected to increase by 0.5 percent annually over the study period.

Table 4-6: Projected Number of Water Meters Under Existing Rate Structure

Number of Water Meters	Actual FY 2019-20	Projected FY 2020-21	Projected FY 2021-22	Projected FY 2022-23	Projected FY 2023-24	Projected FY 2024-25
Single Family Residential						
5/8 & 3/4-inch - Ultra-Low Flow	7,895	7,927	7,959	7,991	8,023	8,056
5/8 & 3/4-inch - Low Flow	3,428	3,428	3,428	3,428	3,428	3,428
5/8 & 3/4-inch - All Other	842	842	842	842	842	842
1-inch	1,140	1,164	1,188	1,212	1,236	1,260
1.5-inch	55	56	56	57	57	58
2-inch	45	45	45	45	45	45
3-inch	0	0	0	0	0	0
4-inch	0	0	0	0	0	0
6-inch	0	0	0	0	0	0
8-inch	0	0	0	0	0	0
10-inch	0	0	0	0	0	0
Subtotal	13,405	13,462	13,518	13,575	13,631	13,689
Urban⁵						
5/8 & 3/4-inch - All Other	1,517	1,538	1,559	1,581	1,602	1,623
1-inch	535	542	549	555	562	569
1.5-inch	339	340	340	341	341	342
2-inch	351	351	351	351	351	351
3-inch	12	12	12	12	12	12
4-inch	21	22	23	25	26	27
6-inch	22	22	22	23	23	23
8-inch	5	5	5	6	6	6
10-inch	4	4	4	4	4	4
Subtotal	2,806	2,836	2,865	2,898	2,927	2,957
Recreation Irrigation						
5/8 & 3/4-inch - All Other	118	118	118	118	118	118
1-inch	76	76	76	76	76	76
1.5-inch	53	53	53	53	53	53
2-inch	33	33	33	33	33	33
3-inch	3	3	3	3	3	3
4-inch	3	3	3	3	3	3
6-inch	0	0	0	0	0	0
8-inch	0	0	0	0	0	0
10-inch	0	0	0	0	0	0
Subtotal	286	286	286	286	286	286
Urban Agriculture						
5/8 & 3/4-inch - All Other	1	1	1	1	1	1
1-inch	16	16	16	16	16	16
1.5-inch	20	20	20	20	20	20
2-inch	95	95	95	95	95	95
3-inch	3	3	3	3	3	3
4-inch	2	2	2	2	2	2
6-inch	0	0	0	0	0	0
8-inch	0	0	0	0	0	0
10-inch	0	0	0	0	0	0
Subtotal	137	137	137	137	137	137

⁵ Temporary water meters are included in the Urban meter counts.

Number of Water Meters	Actual FY 2019-20	Projected FY 2020-21	Projected FY 2021-22	Projected FY 2022-23	Projected FY 2023-24	Projected FY 2024-25
Goleta West Conduit						
5/8 & 3/4-inch - All Other	1	1	1	1	1	1
1-inch	3	3	3	3	3	3
1.5-inch	0	0	0	0	0	0
2-inch	19	19	19	19	19	19
3-inch	2	2	2	2	2	2
4-inch	2	2	2	2	2	2
6-inch	1	1	1	1	1	1
8-inch	0	0	0	0	0	0
10-inch	0	0	0	0	0	0
Subtotal	28	28	28	28	28	28
Recycled						
5/8 & 3/4-inch - All Other	9	9	9	9	9	9
1-inch	3	3	3	3	3	3
1.5-inch	5	5	5	5	5	5
2-inch	8	8	8	8	8	8
3-inch	6	6	6	6	6	6
4-inch	4	4	4	4	4	4
6-inch	10	10	10	10	10	10
8-inch	2	2	2	2	2	2
10-inch	0	0	0	0	0	0
Subtotal	47	47	47	47	47	47
ALL CUSTOMER CLASSES						
5/8 & 3/4-inch - Ultra-Low Flow	7,895	7,927	7,959	7,991	8,023	8,056
5/8 & 3/4-inch - Low Flow	3,428	3,428	3,428	3,428	3,428	3,428
5/8 & 3/4-inch - All Other	2,488	2,509	2,530	2,552	2,573	2,594
1-inch	1,773	1,804	1,835	1,865	1,896	1,927
1.5-inch	472	474	474	476	476	478
2-inch	551	551	551	551	551	551
3-inch	26	26	26	26	26	26
4-inch	32	33	34	36	37	38
6-inch	33	33	33	34	34	34
8-inch	7	7	7	8	8	8
10-inch	4	4	4	4	4	4
TOTAL	16,709	16,796	16,881	16,971	17,056	17,144
<i>% Change</i>		<i>0.5%</i>	<i>0.5%</i>	<i>0.5%</i>	<i>0.5%</i>	<i>0.5%</i>

Table 4-7 shows the projected number of fire lines by connection size over the study period. The total number of fire lines is projected to remain constant over the study period.

Table 4-7: Projected Number of Fire Lines

Number of Fire Lines	Actual FY 2019-20	Projected FY 2020-21	Projected FY 2021-22	Projected FY 2022-23	Projected FY 2023-24	Projected FY 2024-25
5/8-inch	103	103	103	103	103	103
3/4-inch	272	272	272	272	272	272
1-inch	41	41	41	41	41	41
1.5-inch	45	45	45	45	45	45
2-inch	14	14	14	14	14	14
TOTAL	475	475	475	475	475	475
<i>% Change</i>		<i>0.0%</i>	<i>0.0%</i>	<i>0.0%</i>	<i>0.0%</i>	<i>0.0%</i>

4.4. Projected Water Use and Supply

District staff provided Raftelis with total annual water use data by customer class for FY 2009-10 through FY 2018-19. Water use for the first half of FY 2019-20 was also provided. Raftelis worked closely with District staff to develop water use projections for FY 2019-20 through FY 2024-25. Water demand projections depend on two key assumptions: account growth and water demand factor (i.e. water use per account). Beginning in FY 2019-20, annual water use was projected at the customer class level by first increasing prior year water use by the annual percent increase in number of water connections. This intermediate result was then increased by an annual water demand factor to determine total annual water use by customer class.

Table 4-8 shows projected water use by customer class over the study period. A 12 percent demand factor is assumed in FY 2019-20. This assumption is based on actual water use data for the first half of FY 2019-20 and results in a projected rebound in FY 2019-20 water use to levels very close to actual water use in FY 2017-18. Water use in FY 2018-19 was abnormally low as significant precipitation reduced the need for outdoor water use. The 12 percent demand factor in FY 2019-20 therefore reflects a return to a more typical water year relative to FY 2018-19. Beginning in FY 2020-21, the assumed annual water demand factor drops to 0 percent. Therefore, all increases in water use after FY 2019-20 are solely a result of projected growth in service connections. Note that Recycled water use is broken down by non-contract and contract recycled water use. Non-contract customers are subject to the Recycled Commodity Charge rates shown in **Table 4-1**. Contract Type 1 and Contract Type 2 recycled customers are subject to different Commodity Charge rates as determined by contracts with the District. Total water use is shown in both hundred cubic feet and acre-feet (AF).

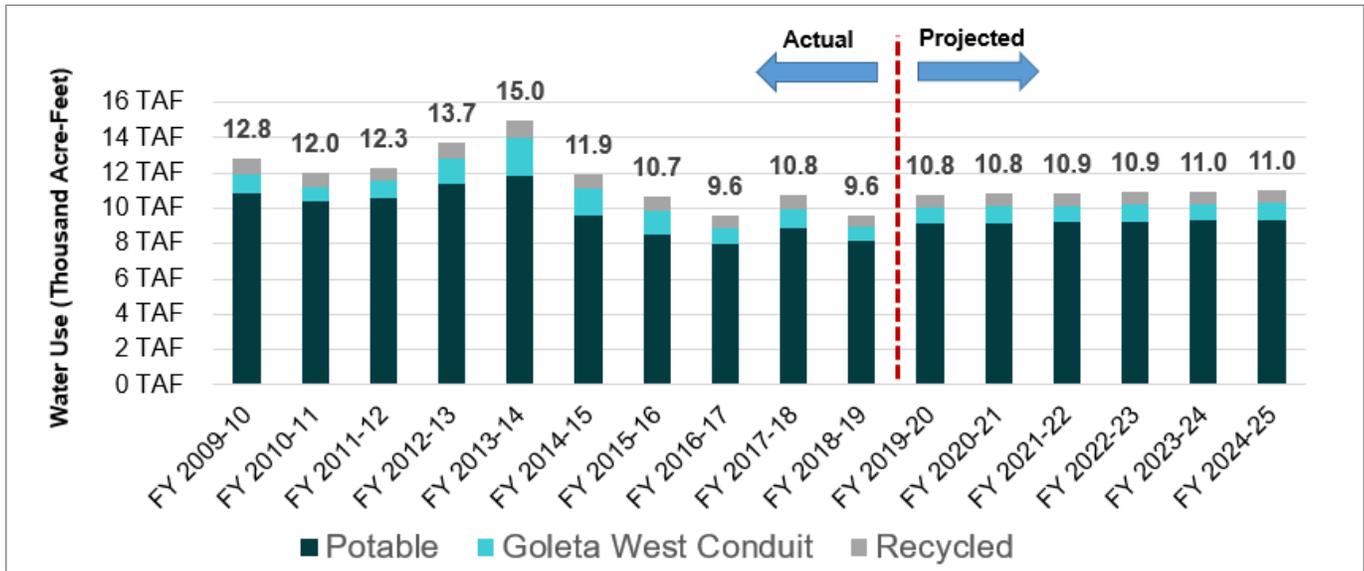
Table 4-8: Projected Water Use Under Existing Rate Structure

Description	Actual FY 2018-19	Projected FY 2019-20	Projected FY 2020-21	Projected FY 2021-22	Projected FY 2022-23	Projected FY 2023-24	Projected FY 2024-25
Water Demand Factor	N/A	12.0%	0.0%	0.0%	0.0%	0.0%	0.0%
WATER DEMAND (HCF)							
Potable							
Single Family Residential							
<i>Tier 1: First 6 HCF/month</i>	757,819	848,757	852,366	855,912	859,521	863,067	866,739
<i>Tier 2: Next 10 HCF/month</i>	392,912	440,061	441,933	443,771	445,642	447,481	449,385
<i>Tier 3: All additional HCF</i>	172,945	193,698	194,522	195,331	196,155	196,964	197,802
Subtotal SFR	1,323,676	1,482,517	1,488,821	1,495,014	1,501,318	1,507,511	1,513,926
All Other Potable							
<i>Urban</i>	1,636,945	1,833,378	1,848,669	1,863,482	1,880,677	1,895,489	1,910,780
<i>Recreation Irrigation</i>	160,489	179,748	179,748	179,748	179,748	179,748	179,748
<i>Urban Agriculture</i>	423,118	473,892	473,892	473,892	473,892	473,892	473,892
<i>Temporary Meters</i>	1,130	1,266	1,266	1,266	1,266	1,266	1,266
<i>Fire Service</i>	274	307	307	307	307	307	307
<i>Unbilled⁶</i>	847	949	949	949	949	949	949
Subtotal All Other Potable	2,222,803	2,489,539	2,504,830	2,519,643	2,536,838	2,551,650	2,566,941
Total Potable	3,546,479	3,972,056	3,993,651	4,014,657	4,038,156	4,059,162	4,080,867
Goleta West Conduit	364,508	408,249	408,249	408,249	408,249	408,249	408,249
Recycled							
<i>Non-Contract</i>	113,380	126,986	126,986	126,986	126,986	126,986	126,986
<i>Contract Type 1</i>	105,873	118,578	118,578	118,578	118,578	118,578	118,578
<i>Contract Type 2</i>	65,477	73,334	73,334	73,334	73,334	73,334	73,334
Total Recycled	284,730	318,898	318,898	318,898	318,898	318,898	318,898
TOTAL (HCF)	4,195,717	4,699,203	4,720,798	4,741,803	4,765,302	4,786,308	4,808,013
<i>Total (AF)</i>	<i>9,632</i>	<i>10,788</i>	<i>10,837</i>	<i>10,886</i>	<i>10,940</i>	<i>10,988</i>	<i>11,038</i>
<i>% Change</i>		<i>12.0%</i>	<i>0.5%</i>	<i>0.4%</i>	<i>0.5%</i>	<i>0.4%</i>	<i>0.5%</i>

Figure 4-1 shows ten years of historical annual water use as well as annual projections over the study period (from Table 4-8). Like many other public water providers in California, the District has experienced significant fluctuations in water use due to severe drought conditions through 2017. Although the drought has abated, the District’s water use has not rebounded to pre-drought levels.

⁶ Unbilled water use includes water used by the District as part of operations and maintenance. This includes activities such as system flushing and draining to repair leaks or breaks in service lines.

Figure 4-1: Historical and Projected Annual Water Use



A breakdown of projected water supply by source is required for the rate design process. All recycled demand is supplied by the recycled water treatment at Goleta Sanitation District. Potable customers are supplied by Lake Cachuma, local groundwater, and imported SWP project from the Central Coast Water Authority (CCWA) under normal supply conditions. The Goleta West Conduit is supplied solely by Lake Cachuma.

Table 4-9 shows the water supply mix projected to meet non-recycled water demand over the study period. Total potable and Goleta West Conduit water use (from Table 4-8) is converted into acre-feet and adjusted to account for estimated water loss resulting from leakage in the water distribution system. District staff provided Raftelis with the anticipated amount of Lake Cachuma and groundwater available in each year to meet the required non-recycled water supply. Any remaining demand after utilization of Lake Cachuma and groundwater supplies is assumed to be met by imported SWP water.

Table 4-9: Projected Non-Recycled Water Supply Mix

Description	Projected FY 2020-21	Projected FY 2021-22	Projected FY 2022-23	Projected FY 2023-24	Projected FY 2024-25
Potable Water Use	3,993,651	4,014,657	4,038,156	4,059,162	4,080,867
Goleta West Conduit Water Use	408,249	408,249	408,249	408,249	408,249
Total Non-Recycled Water Use (HCF)	4,401,900	4,422,906	4,446,405	4,467,411	4,489,116
Total Non-Recycled Water Use (AF)	10,105	10,154	10,208	10,256	10,306
Water Loss Factor ⁷	5.8%	5.8%	5.8%	5.8%	5.8%
Required Non-Recycled Water Supply	10,728	10,779	10,836	10,887	10,940
Non-Recycled Water Supply by Source					
Lake Cachuma	7,293	7,000	7,000	7,000	7,000
Groundwater	2,150	2,150	2,150	2,150	2,150
Imported SWP Water (CCWA)	1,285	1,629	1,686	1,737	1,790
Total	10,728	10,779	10,836	10,887	10,940

⁷ Source: AWWA Water Loss Audit filed by District on Oct 1, 2019 for Reporting Year Calendar Year 2018.

5. Financial Plan

Section 5 details the development of a proposed five-year financial plan for the District over the study period. The following subsections include estimates and projections of annual revenues, O&M expenses, debt service payments, capital expenditures, and reserve funding through FY 2024-25. The overall purpose of the financial plan is to determine annual rate revenues needed to achieve sufficient cash flow, maintain adequate reserves, and meet debt coverage requirements.

5.1. Revenues From Current Rates

The District’s revenues consist of rate revenues, interest earnings on cash reserves, and other miscellaneous revenues. The rate revenue projections shown below assume that current FY 2019-20 rates are effective throughout the study period, and therefore represent estimated revenues in the absence of any rate increase. This status quo scenario provides a baseline from which Raftelis evaluates the need for revenue adjustments (i.e. rate increases).

Calculated Water Rate Revenues

Raftelis projected water rate revenues from Fixed Meter Charges and Commodity Charges for FY 2019-20 through FY 2024-25 based on current FY 2019-20 water rates, projected number of water meters/private fire lines, and projected annual water use.

Table 5-1 shows projected Fixed Meter Charge revenues under current rates over the study period. Fixed Meter Charge Revenues are calculated by connection size/type in each year as follows based on current FY 2019-20 water rates (from **Table 4-1**), projected number of water meters (from **Table 4-6**), and projected number of fire lines (from **Table 4-7**):

$$\text{Annual Fixed Meter Charge Revenue} = [\text{FY 2019/20 monthly rate}] \times [\text{Number of connections}] \times [12 \text{ Bills per year}]$$

Table 5-1: Projected Fixed Meter Charge Revenues under Current Rates

Meter Size	Estimated FY 2019-20	Projected FY 2020-21	Projected FY 2021-22	Projected FY 2022-23	Projected FY 2023-24	Projected FY 2024-25
5/8 & 3/4-inch - Ultra-Low Flow	\$1,554,683	\$1,560,985	\$1,567,286	\$1,573,588	\$1,579,889	\$1,586,388
5/8 & 3/4-inch - Low Flow	\$1,392,865	\$1,392,865	\$1,392,865	\$1,392,865	\$1,392,865	\$1,392,865
5/8 & 3/4-inch - All Other	\$1,536,390	\$1,549,358	\$1,562,326	\$1,575,911	\$1,588,879	\$1,601,847
1-inch	\$1,680,591	\$1,709,976	\$1,739,360	\$1,767,796	\$1,797,180	\$1,826,565
1.5-inch	\$837,252	\$840,800	\$840,800	\$844,348	\$844,348	\$847,896
2-inch	\$1,523,537	\$1,523,537	\$1,523,537	\$1,523,537	\$1,523,537	\$1,523,537
3-inch	\$153,488	\$153,488	\$153,488	\$153,488	\$153,488	\$153,488
4-inch	\$336,902	\$347,431	\$357,959	\$379,015	\$389,543	\$400,072
6-inch	\$767,155	\$767,155	\$767,155	\$790,402	\$790,402	\$790,402
8-inch	\$278,355	\$278,355	\$278,355	\$318,120	\$318,120	\$318,120
10-inch	\$251,561	\$251,561	\$251,561	\$251,561	\$251,561	\$251,561
Fire Line Charges	\$62,472	\$62,472	\$62,472	\$62,472	\$62,472	\$62,472
Total	\$10,375,253	\$10,437,982	\$10,497,164	\$10,633,104	\$10,692,286	\$10,755,212

Table 5-2 shows projected Commodity Charge revenues under current rates over the study period. Commodity Charge revenues are calculated by customer class in each year as follows based on current FY 2019-20 water rates (from Table 4-1) and projected water use (from Table 4-8):

$$\text{Annual Commodity Charge Revenue} = [\text{FY 2019/20 rate per HCF}] \times [\text{Annual Water Use in HCF}]$$

Table 5-2: Projected Commodity Charge Revenues Under Current Rates

Customer Class	Projected FY 2019-20	Projected FY 2020-21	Projected FY 2021-22	Projected FY 2022-23	Projected FY 2023-24	Projected FY 2024-25
Potable						
Single Family Residential						
Tier 1: First 6 HCF/month	\$4,464,463	\$4,483,447	\$4,502,097	\$4,521,081	\$4,539,731	\$4,559,048
Tier 2: Next 10 HCF/month	\$2,842,797	\$2,854,885	\$2,866,761	\$2,878,849	\$2,890,725	\$2,903,025
Tier 3: All additional HCF	\$1,379,133	\$1,384,997	\$1,390,758	\$1,396,623	\$1,402,384	\$1,408,351
Subtotal	\$8,686,393	\$8,723,329	\$8,759,616	\$8,796,552	\$8,832,840	\$8,870,424
Urban	\$11,183,608	\$11,276,882	\$11,367,238	\$11,472,129	\$11,562,484	\$11,655,758
Recreation Irrigation	\$1,096,461	\$1,096,461	\$1,096,461	\$1,096,461	\$1,096,461	\$1,096,461
Urban Agriculture	\$999,912	\$999,912	\$999,912	\$999,912	\$999,912	\$999,912
Temporary Meters ⁸	\$11,580	\$11,580	\$11,580	\$11,580	\$11,580	\$11,580
Fire Service ⁹	\$2,808	\$2,808	\$2,808	\$2,808	\$2,808	\$2,808
Total Potable	\$21,980,763	\$22,110,972	\$22,237,616	\$22,379,442	\$22,506,086	\$22,636,944
Goleta West Conduit	\$649,116	\$649,116	\$649,116	\$649,116	\$649,116	\$649,116
Recycled						
Non-Contract	\$481,275	\$481,275	\$481,275	\$481,275	\$481,275	\$481,275
Contract Type 1 ¹⁰	\$250,199	\$250,199	\$250,199	\$250,199	\$250,199	\$250,199
Contract Type 2 ¹¹	\$64,959	\$64,959	\$64,959	\$64,959	\$64,959	\$64,959
Total Recycled	\$796,434	\$796,434	\$796,434	\$796,434	\$796,434	\$796,434
Total	\$23,426,312	\$23,556,522	\$23,683,166	\$23,824,992	\$23,951,636	\$24,082,493

Other Revenues

Table 5-3 shows all other revenues. All FY 2019-20 other revenues are based on the District's FY 2019-20 budget. Other revenues from FY 2020-21 through FY 2024-25 were projected by Raftelis. No Drought Surcharge revenue is projected. Interest revenue is estimated beginning in FY 2020-21 based on estimated fund balances and an assumed interest rate (from Table 4-4). All other revenues are escalated annually by the Miscellaneous inflation rate (from Table 4-4).

⁸ Temporary water use is currently charged at 1.5 times the Urban Commodity Charge rate. Temporary Commodity Charge revenues were calculated accordingly.

⁹ Private fire lines are not subject to any Commodity Charges for water used for fire protection purposes. However, any water use by private fire lines that is not used for fire protection purposes may be charged based on the discretion of the District. Fire Service water revenues are calculated based on water delivered to private fire lines that is not used for fire protection, which the District currently charges at 1.5 times the Urban Commodity Charge rate.

¹⁰ Recycled Contract Type 1 Commodity Charges are charged at \$2.11 per HCF.

¹¹ Recycled Contract Type 2 Commodity Charges are charged at \$0.89 per HCF.

Table 5-3: Projected Other Revenues

Description	Budgeted FY 2019-20	Projected FY 2020-21	Projected FY 2021-22	Projected FY 2022-23	Projected FY 2023-24	Projected FY 2024-25
Drought Surcharges	\$0	\$0	\$0	\$0	\$0	\$0
Interest Revenues	\$185,200	\$45,868	\$36,745	\$52,794	\$60,299	\$85,227
Conveyance	\$201,038	\$205,058	\$209,160	\$213,343	\$217,610	\$221,962
Delivered Water (recycled/non-potable)	\$21,072	\$21,493	\$21,923	\$22,362	\$22,809	\$23,265
Backflow monitoring	\$155,374	\$158,481	\$161,651	\$164,884	\$168,182	\$171,545
Manual-Backflow monitoring	\$1,044	\$1,065	\$1,086	\$1,108	\$1,130	\$1,153
Temp Meter Application fee-manual	\$6,134	\$6,257	\$6,382	\$6,509	\$6,640	\$6,772
Applications fees	\$2,372	\$2,419	\$2,467	\$2,517	\$2,567	\$2,618
Service Initiation /Disconnection fees	\$76,545	\$78,076	\$79,638	\$81,231	\$82,855	\$84,512
Customers' delinquent charges	\$130,701	\$133,315	\$135,981	\$138,701	\$141,475	\$144,305
Hydroelectric sales	\$58,326	\$59,492	\$60,682	\$61,896	\$63,133	\$64,396
Misc. other operating revenues	\$527	\$538	\$549	\$560	\$571	\$582
Cell tower site rentals	\$26,434	\$26,962	\$27,502	\$28,052	\$28,613	\$29,185
Total	\$864,766	\$739,026	\$743,766	\$773,955	\$795,884	\$835,524

Table 5-4 shows a summary of projected revenues under current rates over the study period. This represents expected revenues in the absence of any rate increase over the study period. Note that rate revenues (i.e. Fixed Meter Charges and Commodity Charges) constitute over 97.5 percent of the District's total revenue.

Table 5-4: Summary of Projected Revenues Under Current Rates

Description	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Fixed Meter Charges	\$10,375,253	\$10,437,982	\$10,497,164	\$10,633,104	\$10,692,286	\$10,755,212
Commodity Charges	\$23,426,312	\$23,556,522	\$23,683,166	\$23,824,992	\$23,951,636	\$24,082,493
Drought Surcharges	\$0	\$0	\$0	\$0	\$0	\$0
Interest Earnings	\$185,200	\$45,868	\$36,745	\$52,794	\$60,299	\$85,227
Miscellaneous Revenue	\$679,566	\$693,158	\$707,021	\$721,161	\$735,585	\$750,296
Total	\$34,666,332	\$34,733,530	\$34,924,096	\$35,232,051	\$35,439,805	\$35,673,229

5.2. Operations and Maintenance Expenses

Table 5-5 shows O&M expenses by cost center over the study period. Water Supply (cost center #100) expenses are shown in greater detail, as Water Supply costs constitute approximately 40-45 percent of the District's total projected O&M expenses. O&M expenses shown in FY 2019-20 are from the District's adopted FY 2019-20 budget, however, they include revisions to the adopted budget based on additional expenses and cost savings as estimated by District staff. The budget revisions overall result in a decrease relative to the adopted FY 2019-20 budget, reflecting the District's commitment to actively seek cost saving opportunities wherever possible.

All projections beyond FY 2019-20 shown are based on detailed five-year expense estimates developed by District staff except for CCWA supply costs shown within cost center #100. CCWA cost estimates are based on detailed ten-year projections developed by CCWA. The significant reduction in FY 2022-23 CCWA supply costs is due to a decrease in CCWA debt service allocated to CCWA's member agencies. All other projections beyond FY 2019-20 were developed by District staff based on inflationary assumptions (from **Table 4-4**) and anticipated structural changes to the O&M budget due to either non-recurring expenses or future expenses not currently incurred.

Table 5-5: Projected O&M Expenses by Cost Center

Cost Center	Description	Forecast FY 2019-20	Projected FY 2020-21	Projected FY 2021-22	Projected FY 2022-23	Projected FY 2023-24	Projected FY 2024-25
100	Water Supply						
100	CCWA Supply Costs	\$9,155,180	\$9,822,790	\$10,045,421	\$8,072,246	\$8,180,765	\$8,394,548
100	Cachuma Supply Costs	\$4,234,821	\$4,397,144	\$4,529,058	\$4,664,930	\$4,804,878	\$4,949,024
100	Recycled Purchases	\$964,630	\$715,000	\$736,450	\$758,544	\$781,300	\$804,739
100	City of SB Interagency Exchange	\$32,858	\$33,844	\$34,859	\$35,905	\$36,982	\$38,091
100	Water Supply Personnel Costs	\$271,539	\$233,918	\$244,444	\$255,444	\$266,939	\$278,951
100	Subtotal Water Supply	\$14,659,028	\$15,202,695	\$15,590,232	\$13,787,068	\$14,070,864	\$14,465,354
200	Wells Operation & Maintenance	\$1,485,588	\$1,600,246	\$1,580,687	\$1,775,010	\$1,711,141	\$1,726,513
360	Cross-connection Control	\$212,915	\$197,297	\$198,679	\$214,094	\$216,753	\$223,233
400	Water Treatment	\$3,856,380	\$4,050,324	\$4,201,578	\$4,452,777	\$4,493,576	\$4,675,461
510	Reservoirs	\$203,291	\$219,922	\$272,670	\$279,131	\$290,949	\$303,852
520	Booster Pumps	\$173,474	\$192,257	\$222,026	\$236,552	\$238,594	\$245,559
530	Mains & Appurtenances	\$1,860,931	\$1,991,933	\$2,011,134	\$2,160,621	\$2,189,481	\$2,255,522
532	Goleta West Conduit	\$114,241	\$133,753	\$139,339	\$151,094	\$151,114	\$157,722
540	Meters/Services Installation	\$548,781	\$581,349	\$584,144	\$625,709	\$631,175	\$648,770
590	General Operations	\$1,538,925	\$1,578,875	\$1,608,909	\$1,709,326	\$1,737,077	\$1,790,488
600	Recycled Water	\$203,982	\$223,389	\$221,451	\$248,675	\$241,200	\$243,609
750	Meter Reading	\$814,110	\$848,204	\$885,394	\$925,298	\$965,972	\$1,008,748
841	Capital Improvements	\$297,972	\$197,038	\$205,089	\$213,478	\$222,219	\$231,327
843	Plan Review	\$15,224	\$14,382	\$14,937	\$15,514	\$16,115	\$16,740
845	Analysis and Research	\$508,464	\$197,837	\$203,763	\$209,867	\$216,154	\$222,628
849	Geographic Information System	\$246,900	\$299,440	\$310,698	\$322,396	\$334,551	\$347,184
300	Water Conservation Programs	\$387,764	\$333,243	\$345,885	\$359,026	\$372,686	\$386,886
320	New Water Services	\$371,122	\$344,416	\$359,738	\$375,745	\$392,466	\$409,935
350	Water Resources	\$602,972	\$506,239	\$528,263	\$551,256	\$575,261	\$600,321
370	Public Outreach	\$229,524	\$213,470	\$221,703	\$230,265	\$239,171	\$248,433
710	Customer Service	\$767,054	\$978,151	\$1,019,473	\$1,061,496	\$1,109,250	\$1,157,766
810	Reporting and Financial Management	\$2,347,910	\$2,402,281	\$2,506,282	\$2,614,841	\$2,728,157	\$2,846,442
870	Human Resources/Payroll	\$137,585	\$132,581	\$138,219	\$144,100	\$150,237	\$156,639
910	District General Management	\$1,965,637	\$1,772,323	\$1,802,912	\$1,834,772	\$1,867,958	\$1,902,525
N/A	Budget Revisions	(\$547,965) ¹²	\$0	\$0	\$0	\$0	\$0
	Total O&M Expenses	\$33,001,808	\$34,211,644	\$35,173,207	\$34,498,112	\$35,162,120	\$36,271,656

Table 5-6 shows a summary of O&M expenses by department. It is projected that O&M expenses will increase by approximately 2 percent per year on average over the study period.

¹² The FY 2019-20 forecast by District staff includes \$1,400,000 in increased Administration Department costs due to additional Board-approved legal expenses, \$350,000 in Engineering Department cost savings, \$1,002,158 in Operations Department cost savings, and \$595,807 in Water Supply & Conservation Department cost savings.

Table 5-6: Summary of Projected O&M Expenses by Department

Department	Forecast FY 2019-20	Projected FY 2020-21	Projected FY 2021-22	Projected FY 2022-23	Projected FY 2023-24	Projected FY 2024-25
Administration	\$6,847,710	\$5,498,805	\$5,688,589	\$5,885,475	\$6,094,772	\$6,311,805
Engineering	\$718,560	\$708,697	\$734,487	\$761,255	\$789,039	\$817,878
Operations	\$10,010,461	\$11,617,549	\$11,926,011	\$12,778,286	\$12,867,033	\$13,279,478
Water Supply & Conservation	\$15,425,077	\$16,386,593	\$16,824,119	\$15,073,096	\$15,411,276	\$15,862,495
Total O&M Expenses	\$33,001,808	\$34,211,644	\$35,173,207	\$34,498,112	\$35,162,120	\$36,271,656
<i>% Change</i>		3.67%	2.81%	-1.92%	1.92%	3.16%

5.3. Debt Service

Table 5-7 shows the District’s existing debt service obligations associated with its outstanding 2010 Water Certificates of Participation [41.2A] (2010 COP) and 2014 Certificates of Participation [41.3A] (2014 COP). These obligations are secured by a pledge of District revenues. The 2010 COP and 2014 COP are scheduled to be paid off in FY 2035-36 and FY 2024-25 respectively. The District is currently scheduled to begin paying down its 2010 COP principal in FY 2025-26. Until then it is subject to 2010 COP interest payments only. The District has been paying approximately \$1.9M in 2014 COP principal and interest payments annually over the last five years. COP 2014 debt service is scheduled to increase significantly from approximately \$1.9M to \$3.4M per year beginning in FY 2022-23. Annual debt service is scheduled to increase to approximately \$5.1M by the end of the study period. The proposed financial plan assumes that no additional debt will be issued by the District over the study period.

Table 5-7: Schedule of Debt Service Payments

Debt Service	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
2010 COP	\$1,649,738	\$1,649,738	\$1,649,738	\$1,649,738	\$1,649,738	\$1,649,738
2014 COP	\$1,902,750	\$1,893,375	\$1,891,000	\$3,416,125	\$3,421,375	\$3,423,500
Total Debt Service	\$3,552,488	\$3,543,113	\$3,540,738	\$5,065,863	\$5,071,113	\$5,073,238

5.4. Infrastructure Improvement Plan

The District’s adopted FY 2019-20 budget includes approximately \$2.4M in Infrastructure Improvement Plan (IIP) capital project costs in FY 2019/20. The District has also developed a long-term IIP schedule that outlines planned capital project expenditures required over the study period to address current and future system needs. These projects are shown in detail in Table 5-8 and amount to approximately \$10.0M in average annual costs over the next five years. All projects listed are necessary to either achieve regulatory compliance, maintain the existing level of service, or address critical water system deficiencies. The projects are associated with distribution system reliability, treatment plant reliability, groundwater supply reliability, water quality, aging infrastructure replacement, or systemwide reliability and safety.

Table 5-8: Infrastructure Improvement Plan

Line	Project Description	Budget FY 2019-20	Planned FY 2020-21	Planned FY 2021-22	Planned FY 2022-23	Planned FY 2023-24	Planned FY 2024-25
1	Worker Safety Electrical Upgrades	\$0	\$90,000	\$100,000	\$110,000	\$120,000	\$130,000
2	Hollister Recycled Water Booster Pump Station Relocation	\$0	\$0	\$0	\$0	\$600,000	\$2,375,000
3	Ekwill, Fowler, and Hollister Infrastructure Relocation	\$0	\$550,000	\$100,000	\$0	\$0	\$0
4	City, County, Caltrans Relocations Required Projects	\$0	\$180,000	\$190,000	\$200,000	\$210,000	\$220,000
5	CDMWTP Leach Field Replacement	\$0	\$120,000	\$0	\$0	\$0	\$0
6	Inoperable Small Meter Replacements	\$0	\$250,000	\$260,000	\$270,000	\$280,000	\$295,000
7	Inoperable Large AMI Meter Replacements	\$0	\$0	\$210,000	\$215,000	\$325,000	\$335,000
8	Obsolete Reservoir Hatch Replacements	\$0	\$55,000	\$55,000	\$60,000	\$65,000	\$65,000
9	Transmission Main Relocation: Phase 1	\$0	\$100,000	\$825,000	\$100,000	\$0	\$0
10	Exposed Goleta West Conduit Pipelines	\$0	\$40,000	\$40,000	\$45,000	\$45,000	\$50,000
11	Inoperable Chlorination and Treatment Equipment Replacements	\$0	\$90,000	\$90,000	\$95,000	\$95,000	\$100,000
12	Inoperable Pipeline and Service Line Replacements	\$0	\$400,000	\$415,000	\$430,000	\$450,000	\$470,000
13	Inoperable Cathodic Protection System Replacements	\$0	\$100,000	\$190,000	\$190,000	\$200,000	\$200,000
14	Inoperable Reservoir and Reservoir Component Replacements	\$0	\$50,000	\$220,000	\$220,000	\$230,000	\$230,000
15	Inoperable Electrical Power System Replacements	\$0	\$40,000	\$40,000	\$45,000	\$45,000	\$45,000
16	Inoperable Pump and Motor Replacements	\$0	\$75,000	\$80,000	\$80,000	\$85,000	\$85,000
17	Anita Well Filtration Treatment	\$0	\$0	\$0	\$700,000	\$700,000	\$0
18	Airport Well Backwash Tank Refurbishment	\$0	\$0	\$0	\$120,000	\$0	\$0
19	Well Filter Media Replacements	\$0	\$65,000	\$70,000	\$70,000	\$75,000	\$75,000
20	Inoperable Above Ground Well Facility Replacements	\$0	\$110,000	\$110,000	\$115,000	\$120,000	\$125,000
21	Inoperable Interconnect Component Replacements	\$0	\$10,000	\$10,000	\$10,000	\$10,000	\$10,000
22	Inoperable Valve Replacements	\$0	\$200,000	\$220,000	\$225,000	\$235,000	\$250,000
23	Inoperable Fire Hydrant Replacements	\$0	\$125,000	\$180,000	\$180,000	\$190,000	\$190,000
24	Inoperable Recycled Water Facility Replacements	\$0	\$20,000	\$20,000	\$20,000	\$25,000	\$25,000
25	Inoperable Computer and Electronic Hardware Replacements	\$0	\$30,000	\$30,000	\$30,000	\$35,000	\$35,000

Line	Project Description	Budget FY 2019-20	Planned FY 2020-21	Planned FY 2021-22	Planned FY 2022-23	Planned FY 2023-24	Planned FY 2024-25
26	Pavement Replacements	\$0	\$0	\$60,000	\$65,000	\$70,000	\$75,000
27	Inoperable Building Component Replacements	\$0	\$25,000	\$150,000	\$150,000	\$170,000	\$170,000
28	Required Main Upsizing	\$0	\$25,000	\$25,000	\$30,000	\$30,000	\$30,000
29	Obsolete SCADA Replacement	\$0	\$100,000	\$1,050,000	\$1,600,000	\$1,400,000	\$1,400,000
30	SCADA Antenna (Monopole) Replacement	\$0	\$0	\$0	\$250,000	\$0	\$0
31	Corona Pump Station	\$0	\$800,000	\$1,000,000	\$0	\$0	\$0
32	Inoperable Light Vehicle Fleet Replacement	\$0	\$80,000	\$80,000	\$260,000	\$260,000	\$260,000
33	Patterson Booster Pump Station Crane, Building Skin, and Paving	\$0	\$280,000	\$0	\$0	\$0	\$0
34	Reservoir Site Generators	\$0	\$0	\$0	\$100,000	\$225,000	\$0
35	CDMWTP Additional Sludge Bed	\$0	\$0	\$0	\$500,000	\$1,150,000	\$0
36	CDMWTP New Sludge Drying Bed Pump Station	\$0	\$220,000	\$0	\$0	\$0	\$0
37	CDMWTP New Sludge Bed Overflow Basin	\$0	\$0	\$0	\$300,000	\$320,000	\$0
38	CDMWTP Reclaimed Water Pipe Relocation	\$0	\$0	\$0	\$75,000	\$1,000,000	\$150,000
39	CDMWTP Backwash Basin Pump Station Modification	\$0	\$140,000	\$0	\$0	\$0	\$0
40	CDMWTP Demonstration Scale GAC Contactor	\$0	\$600,000	\$100,000	\$0	\$0	\$0
41	Water Quality Maintenance in Distribution System: Phase 1	\$0	\$850,000	\$150,000	\$540,000	\$0	\$0
42	CDMWTP and Wells pH Control Upgrades	\$0	\$0	\$0	\$750,000	\$3,160,000	\$720,000
43	Distribution Main Tie-ins for Improved Water Quality & Flows	\$0	\$0	\$0	\$0	\$1,175,000	\$800,000
44	University Well Treatment	\$0	\$0	\$0	\$130,000	\$470,000	\$1,100,000
45	Airport Well Treatment Upgrade	\$0	\$0	\$0	\$45,000	\$300,000	\$600,000
46	New Well	\$0	\$0	\$0	\$50,000	\$1,750,000	\$2,500,000
47	CDMWTP Access Road Creekside Erosion Repair and Realignment	\$0	\$250,000	\$100,000	\$0	\$0	\$0
48	Creek Crossing Inspection and Repair Program: Exposed Pipes	\$0	\$100,000	\$110,000	\$120,000	\$130,000	\$140,000
49	FY 2019-20 Budgeted IIP	\$2,429,468	\$0	\$0	\$0	\$0	\$0
50	Total IIP Expenses	\$2,429,468	\$6,170,000	\$6,280,000	\$8,495,000	\$15,750,000	\$13,255,000

Figure 5-1 shows the proposed IIP financing plan over the study period. Total IIP expenditures in each year (from **Table 5-8**) are represented by the blue stacked bars below. All IIP over the study period is assumed to be cash funded (i.e. funded by water rates and cash reserves). IIP expenditures significantly increase beginning in FY 2022-23, demonstrating the need for revenue adjustments to sufficiently fund the District’s planned capital expenditures.

Figure 5-1: IIP Financing Plan



5.5. Financial Policies

Any agency-specific financial policies must be considered during the financial planning process. Financial policies typically define key financial metrics that an agency strives to meet or exceed. **Table 5-9** shows the District’s current financial policies pertaining to debt coverage and reserve targets.

Required Debt Coverage

The District must meet the minimum coverage requirements on its outstanding debt to ensure that it meets the associated debt covenants. The required debt coverage ratio is 1.25, which means that the District’s net revenue must amount to at least 1.25 times annual debt service. Net revenues equal revenues less O&M expenses. Annual debt service includes annual principal and interest payments on all outstanding debt.

Reserve Targets

Prudent fiscal management requires that the District maintain reserve balances to provide sufficient working capital, maintain necessary cash on hand to efficiently award construction contracts, and provide funding during emergencies. The District’s current reserve policy consists of two targets:

- » **O&M Reserve target:** The target balance for the O&M reserve is 30 days of annual O&M expenses. This is intended to ensure sufficient working capital during short-term fluctuations in cash flow.
- » **Total Reserve target:** The District’s Board of Directors has adopted a total reserve target of \$11.5M. This Total Reserve target is inclusive of the O&M Reserve target.

Table 5-9: Financial Policies

Financial Policy	Target/Requirement
Debt Coverage	
Required Debt Coverage Ratio	1.25
Reserve Targets	
Operating Reserve Target	30 days of O&M expenses
Total Reserve Target	\$11.5M

Table 5-10 shows projected reserve targets over the study period. The operating reserve target is determined by multiplying projected annual O&M expenses (from **Table 5-6**) by 8.21%.¹³ The total reserve target is equal to \$11.5M during the entire study period.

Table 5-10: Projected Reserve Targets

Reserve Target	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Operating Reserve	\$2,710,621	\$2,809,991	\$2,888,970	\$2,833,520	\$2,888,059	\$2,979,191
Total Reserve	\$11,500,000	\$11,500,000	\$11,500,000	\$11,500,000	\$11,500,000	\$11,500,000

5.6. Status Quo Financial Plan

In order to evaluate the need for revenue adjustments (i.e. rate increases), Raftelis first developed a status quo financial plan. The status quo financial plan assumes that current FY 2019-20 rates remain unchanged over the study period. **Table 5-11** combines projected revenues (from **Table 5-4**), O&M expenses (from **Table 5-6**), debt service (from **Table 5-7**), IIP expenditures (from **Table 5-8**), and reserve targets (from **Table 5-10**) to generate cash flow, ending balance, and debt coverage projections under the status quo.

Under the status-quo financial plan, net operating cash flow (revenue less O&M expenses and debt service) is projected to be negative in all years throughout the study period. Current rates are therefore insufficient to recover the District’s operating costs over the study period. After cash funded IIP is accounted for, net cash change (revenue less total cash expenses) is highly negative and results in a depletion of reserves by the end of FY 2020-21. Debt coverage is projected to fall well below the required ratio in all years of the study period as well. The status quo financial plan is insufficient to meet the District’s needs. This demonstrates a clear need for revenue adjustments over the study period to increase rate revenues and achieve financial sustainability.

¹³ 30 days equals approximately 8.21% of one full year.

Table 5-11: Status Quo Financial Plan - Pro Forma

Line	Description	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
1	REVENUE						
2	Rate Revenue Under Existing Rates						
3	Fixed Meter Charges	\$10,375,253	\$10,437,982	\$10,497,164	\$10,633,104	\$10,692,286	\$10,755,212
4	Commodity Charges	\$23,426,312	\$23,556,522	\$23,683,166	\$23,824,992	\$23,951,636	\$24,082,493
5	Total Rate Revenue Under Existing Rates	\$33,801,565	\$33,994,505	\$34,180,330	\$34,458,096	\$34,643,921	\$34,837,705
6							
7	Additional Rate Revenue Required from Revenue Adjustments¹⁴						
8	Fiscal Year	Revenue Adjustment	Month Effective				
9	FY 2020-21	0.00%	July	\$0	\$0	\$0	\$0
10	FY 2021-22	0.00%	July		\$0	\$0	\$0
11	FY 2022-23	0.00%	July			\$0	\$0
12	FY 2023-24	0.00%	July				\$0
13	FY 2024-25	0.00%	July				\$0
14	Total Revenue Adjustments	\$0	\$0	\$0	\$0	\$0	\$0
15							
16	Revenue Summary (including Revenue Adjustments)						
17	Revenue from Rates [Line 5 +Line 14]	\$33,801,565	\$33,994,505	\$34,180,330	\$34,458,096	\$34,643,921	\$34,837,705
18	Drought Surcharges	\$0	\$0	\$0	\$0	\$0	\$0
19	Interest Earnings ¹⁵	\$185,200	\$13,573	\$0	\$0	\$0	\$0
20	Miscellaneous Revenue	\$679,566	\$693,158	\$707,021	\$721,161	\$735,585	\$750,296
21	TOTAL REVENUE	\$34,666,332	\$34,701,236	\$34,887,351	\$35,179,257	\$35,379,506	\$35,588,002
22							
23	O&M EXPENSES						
24	Administration Department	\$6,847,710	\$5,498,805	\$5,688,589	\$5,885,475	\$6,094,772	\$6,311,805
25	Engineering Department	\$718,560	\$708,697	\$734,487	\$761,255	\$789,039	\$817,878
26	Operations Department	\$10,010,461	\$11,617,549	\$11,926,011	\$12,778,286	\$12,867,033	\$13,279,478
27	WS&C Department	\$15,425,077	\$16,386,593	\$16,824,119	\$15,073,096	\$15,411,276	\$15,862,495

¹⁴ The increase in rate revenues resulting from each year’s revenue adjustment is calculated individually in Lines 9-13. This is necessary to account for revenue increases resulting from prior year revenue adjustments. However, revenue adjustments equal zero dollars under the status quo, which assumes no revenue adjustments (i.e. rate increases) over the study period.

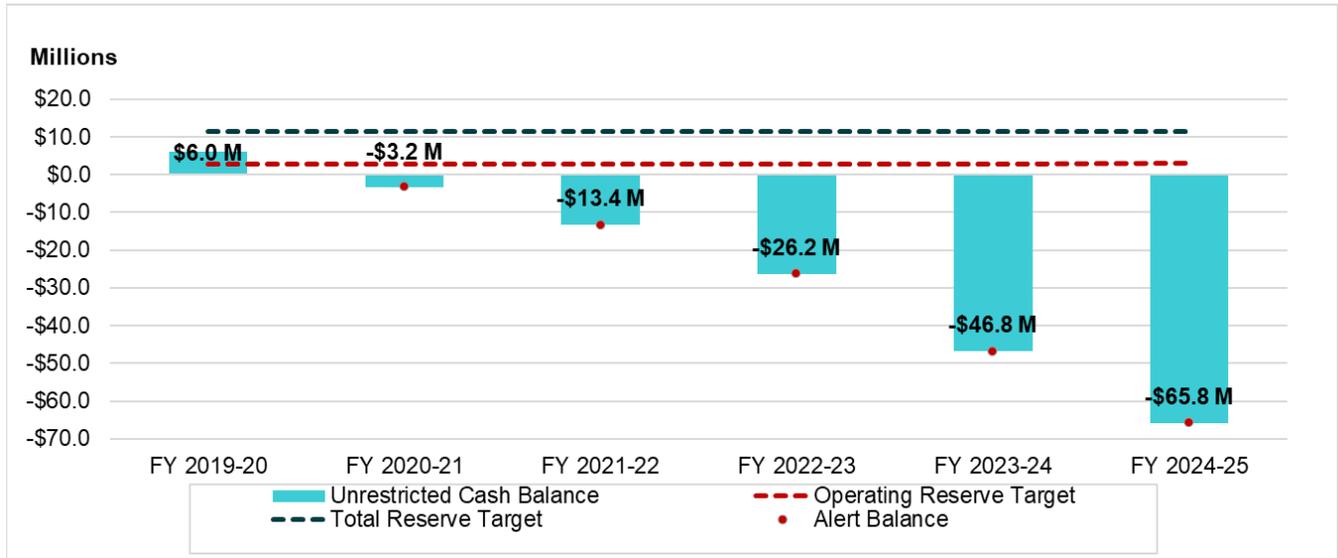
¹⁵ Status quo interest earnings are less than what is shown in **Table 5-4** (which reflects the proposed financial plan) to account for depletion of interest-bearing reserves. Interest earnings under the status quo and proposed financial plan scenarios are calculated by averaging the beginning and ending unrestricted cash balance in each year and then multiplying by the assumed interest rate. Once reserves are assumed to fully deplete under the status quo, interest earnings are reduced to \$0. Interest earnings revenues shown were calculated in the Microsoft Excel rate model developed by Raftelis [*GWD_2020_Water_Rate_Model_v33.xlsx*].

Line	Description	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
28	TOTAL O&M EXPENSES	\$33,001,808	\$34,211,644	\$35,173,207	\$34,498,112	\$35,162,120	\$36,271,656
29							
30	NET REVENUE [Line 21 – Line 28]	\$1,664,523	\$489,592	(\$285,856)	\$681,145	\$217,385	(\$683,654)
31							
32	DEBT SERVICE						
33	Existing Debt Service	\$3,552,488	\$3,543,113	\$3,540,738	\$5,065,863	\$5,071,113	\$5,073,238
34	Proposed Debt Service	\$0	\$0	\$0	\$0	\$0	\$0
35	TOTAL DEBT SERVICE	\$3,552,488	\$3,543,113	\$3,540,738	\$5,065,863	\$5,071,113	\$5,073,238
36							
37	NET OPERATING CASH FLOW [Line 30 – Line 35]	(\$1,887,965)	(\$3,053,521)	(\$3,826,594)	(\$4,384,718)	(\$4,853,728)	(\$5,756,892)
38							
39	CAPITAL EXPENDITURES						
40	Debt Funded	\$0	\$0	\$0	\$0	\$0	\$0
41	Cash Funded	\$2,429,468	\$6,170,000	\$6,280,000	\$8,495,000	\$15,750,000	\$13,255,000
42	TOTAL CAPITAL EXPENDITURES	\$2,429,468	\$6,170,000	\$6,280,000	\$8,495,000	\$15,750,000	\$13,255,000
43							
44	UNRESTRICTED CASH BALANCE						
45	Beginning Balance ¹⁶	\$10,293,295	\$5,975,862	(\$3,247,659)	(\$13,354,253)	(\$26,233,971)	(\$46,837,699)
46	Net Cash Change [Line 37 – Line 41]	(\$4,317,433)	(\$9,223,521)	(\$10,106,594)	(\$12,879,718)	(\$20,603,728)	(\$19,011,892)
47	ENDING BALANCE	\$5,975,862	(\$3,247,659)	(\$13,354,253)	(\$26,233,971)	(\$46,837,699)	(\$65,849,591)
48							
49	<i>Operating Reserve Target</i>	\$2,710,621	\$2,809,991	\$2,888,970	\$2,833,520	\$2,888,059	\$2,979,191
50	<i>Total Reserve Target</i>	\$11,500,000	\$11,500,000	\$11,500,000	\$11,500,000	\$11,500,000	\$11,500,000
51							
52	DEBT COVERAGE						
53	Projected Debt Coverage [Line 30 ÷ Line 35]	0.47	0.14	-0.08	0.13	0.04	-0.13
54	Required Debt Coverage	1.25	1.25	1.25	1.25	1.25	1.25

¹⁶ Beginning FY 2019-20 unrestricted cash balance of \$10,293,295 provided by District staff. All other beginning and ending balances shown are projections by Raftelis.

Figure 5-2 shows the District’s projected ending balances under the status quo (from Table 5-11). The operating reserve and total reserve targets are represented by the red and blue dashed lines respectively. Projected ending balances are represented by light blue bars. The District is projected to remain above its Operating Target in FY 2019-20, but reserves are expected to be fully depleted by the end of FY 2020-21.

Figure 5-2: Status Quo Financial Plan – Projected Ending Balances



5.7. Proposed Financial Plan

The status quo financial plan demonstrates that the District must increase its revenues from water rates over the study period in order to adequately fund its operating and capital expenditures, meet required debt coverage, and generate sufficient reserve funding. Raftelis worked closely with District staff to select the proposed annual revenue adjustments shown in Table 5-12. Revenue adjustments represent annual percent increases in rate revenue relative to how much rate revenue would have been collected under the prior year’s water rates.

Table 5-12: Proposed Revenue Adjustments

Description	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Effective Date	July 1, 2020	July 1, 2021	July 1, 2022	July 1, 2023	July 1, 2024
Revenue Adjustment	19.0%	11.0%	9.0%	9.0%	9.0%

Table 5-13 shows the proposed financial plan pro forma. This combines projected revenues (from Table 5-4), O&M expenses (from Table 5-6), debt service (from Table 5-7), IIP expenditures (from Table 5-8), and reserve targets (from Table 5-10) to generate cash flow, ending balance, and debt coverage projections under the proposed financial plan. Revenue adjustments over the study period generate significant increases in rate revenues over the study period. This results in positive net operating cash flow and sufficient debt coverage in all years beginning in FY 2020-21.

Table 5-13: Proposed Financial Plan - Pro Forma

Line	Description	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
1	REVENUE						
2	Rate Revenue Under Existing Rates						
3	Fixed Meter Charges	\$10,375,253	\$10,437,982	\$10,497,164	\$10,633,104	\$10,692,286	\$10,755,212
4	Commodity Charges	\$23,426,312	\$23,556,522	\$23,683,166	\$23,824,992	\$23,951,636	\$24,082,493
5	Total Rate Revenue Under Existing Rates	\$33,801,565	\$33,994,505	\$34,180,330	\$34,458,096	\$34,643,921	\$34,837,705
6							
7	Additional Rate Revenue Required from Revenue Adjustments¹⁷						
8	Fiscal Year	Revenue Adjustment	Month Effective				
9	FY 2020-21	19.00%	July	\$6,458,956	\$6,494,263	\$6,547,038	\$6,582,345
10	FY 2021-22	11.00%	July		\$4,474,205	\$4,510,565	\$4,534,889
11	FY 2022-23	9.00%	July			\$4,096,413	\$4,118,504
12	FY 2023-24	9.00%	July				\$4,489,169
13	FY 2024-25	9.00%	July				\$4,920,565
14	Total Revenue Adjustments	\$0	\$6,458,956	\$10,968,468	\$15,154,016	\$19,724,908	\$24,755,806
15							
16	Revenue Summary (including Revenue Adjustments)						
17	Revenue from Rates [Line 5 +Line 14]	\$33,801,565	\$40,453,461	\$45,148,798	\$49,612,112	\$54,368,829	\$59,593,511
18	Drought Surcharges	\$0	\$0	\$0	\$0	\$0	\$0
19	Interest Earnings	\$185,200	\$45,868	\$36,745	\$52,794	\$60,299	\$85,227
20	Miscellaneous Revenue	\$679,566	\$693,158	\$707,021	\$721,161	\$735,585	\$750,296
21	TOTAL REVENUE	\$34,666,332	\$41,192,486	\$45,892,564	\$50,386,067	\$55,164,712	\$60,429,035
22							
23	O&M EXPENSES						
24	Administration Department	\$6,847,710	\$5,498,805	\$5,688,589	\$5,885,475	\$6,094,772	\$6,311,805
25	Engineering Department	\$718,560	\$708,697	\$734,487	\$761,255	\$789,039	\$817,878
26	Operations Department	\$10,010,461	\$11,617,549	\$11,926,011	\$12,778,286	\$12,867,033	\$13,279,478
27	WS&C Department	\$15,425,077	\$16,386,593	\$16,824,119	\$15,073,096	\$15,411,276	\$15,862,495
28	TOTAL O&M EXPENSES	\$33,001,808	\$34,211,644	\$35,173,207	\$34,498,112	\$35,162,120	\$36,271,656
29							
30	NET REVENUE [Line 21 – Line 28]	\$1,664,523	\$6,980,842	\$10,719,357	\$15,887,955	\$20,002,592	\$24,157,379
31							

¹⁷ The increase in rate revenues resulting from each year’s revenue adjustment is calculated individually in Lines 9-13. This is necessary to account for revenue increases resulting from prior year revenue adjustments.

Line	Description	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
32	DEBT SERVICE						
33	Existing Debt Service	\$3,552,488	\$3,543,113	\$3,540,738	\$5,065,863	\$5,071,113	\$5,073,238
34	Proposed Debt Service	\$0	\$0	\$0	\$0	\$0	\$0
35	TOTAL DEBT SERVICE	\$3,552,488	\$3,543,113	\$3,540,738	\$5,065,863	\$5,071,113	\$5,073,238
36							
37	NET OPERATING CASH FLOW [Line 30 – Line 35]	(\$1,887,965)	\$3,437,729	\$7,178,619	\$10,822,092	\$14,931,479	\$19,084,141
38							
39	CAPITAL EXPENDITURES						
40	Debt Funded	\$0	\$0	\$0	\$0	\$0	\$0
41	Cash Funded	\$2,429,468	\$6,170,000	\$6,280,000	\$8,495,000	\$15,750,000	\$13,255,000
42	TOTAL CAPITAL EXPENDITURES	\$2,429,468	\$6,170,000	\$6,280,000	\$8,495,000	\$15,750,000	\$13,255,000
43							
44	UNRESTRICTED CASH BALANCE						
45	Beginning Balance	\$10,293,295	\$5,975,862	\$3,243,592	\$4,142,211	\$6,469,302	\$5,650,781
46	Net Cash Change [Line 37 – Line 41]	(\$4,317,433)	(\$2,732,271)	\$898,619	\$2,327,092	(\$818,521)	\$5,829,141
47	ENDING BALANCE	\$5,975,862	\$3,243,592	\$4,142,211	\$6,469,302	\$5,650,781	\$11,479,922
48							
49	<i>Operating Reserve Target</i>	<i>\$2,710,621</i>	<i>\$2,809,991</i>	<i>\$2,888,970</i>	<i>\$2,833,520</i>	<i>\$2,888,059</i>	<i>\$2,979,191</i>
50	<i>Total Reserve Target</i>	<i>\$11,500,000</i>	<i>\$11,500,000</i>	<i>\$11,500,000</i>	<i>\$11,500,000</i>	<i>\$11,500,000</i>	<i>\$11,500,000</i>
51							
52	DEBT COVERAGE						
53	Projected Debt Coverage [Line 30 ÷ Line 35]	0.47	1.97	3.03	3.14	3.94	4.76
54	Required Debt Coverage	1.25	1.25	1.25	1.25	1.25	1.25

Figure 5-3 shows the revenue adjustments (left axis) and debt coverage (right axis) under the proposed financial plan. Annual revenue adjustment percentages are represented as blue bars. Significant revenue adjustments are needed to address the District’s net revenue shortfall resulting from Drought Surcharge deactivation and decreased baseline water sales. The required debt coverage ratio of 1.25 is denoted by the dashed red line, with projected debt coverage represented by the light blue line. Although the District is not projected to meet its required debt coverage in the current fiscal year, it is projected to exceed the required ratio beginning in FY 2020-21.

Figure 5-3: Proposed Financial Plan - Revenue Adjustments and Debt Coverage

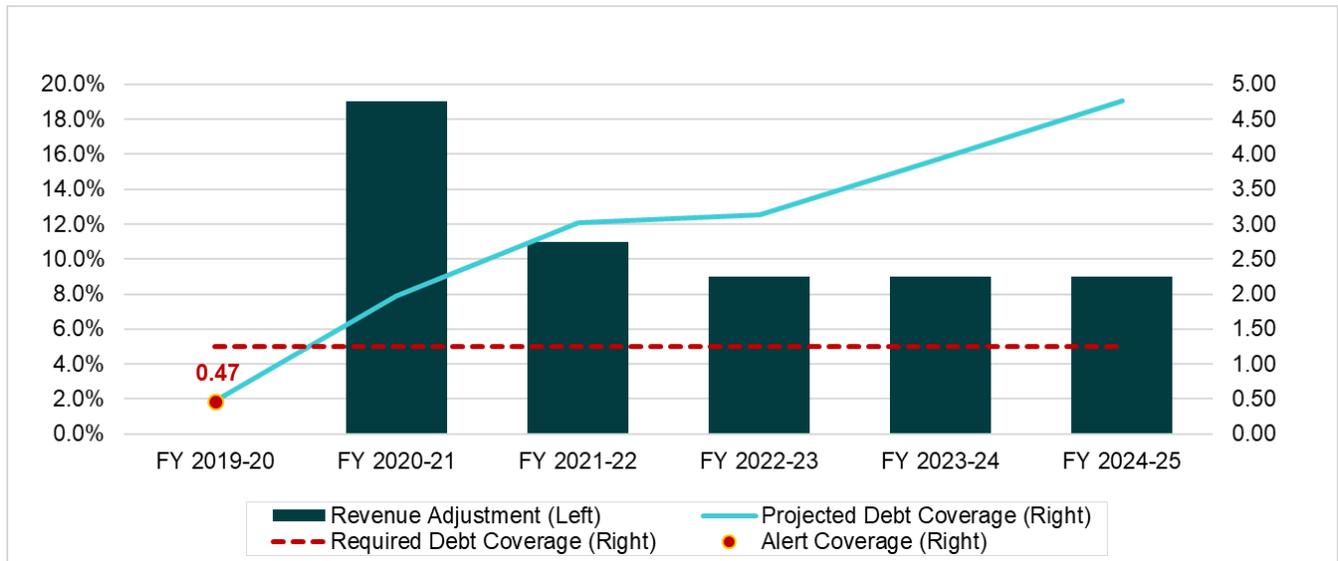


Figure 5-4 shows the District’s projected ending balance under the proposed financial plan. The light blue bars indicate the ending balance. The operating reserve and total reserve targets are represented by the red and dark blue dashed lines respectively. The District is projected to continue to draw down its reserves through FY 2020-21 in order to cash fund its IIP expenditures. By the end of the study period, the District’s reserves are projected to increase to the Board adopted Total Reserve target of \$11.5M. Fluctuations in reserve levels over the study period are unavoidable unless significantly higher revenue adjustments are implemented in FY 2020-21.

Figure 5-4: Proposed Financial Plan – Projected Ending Balances

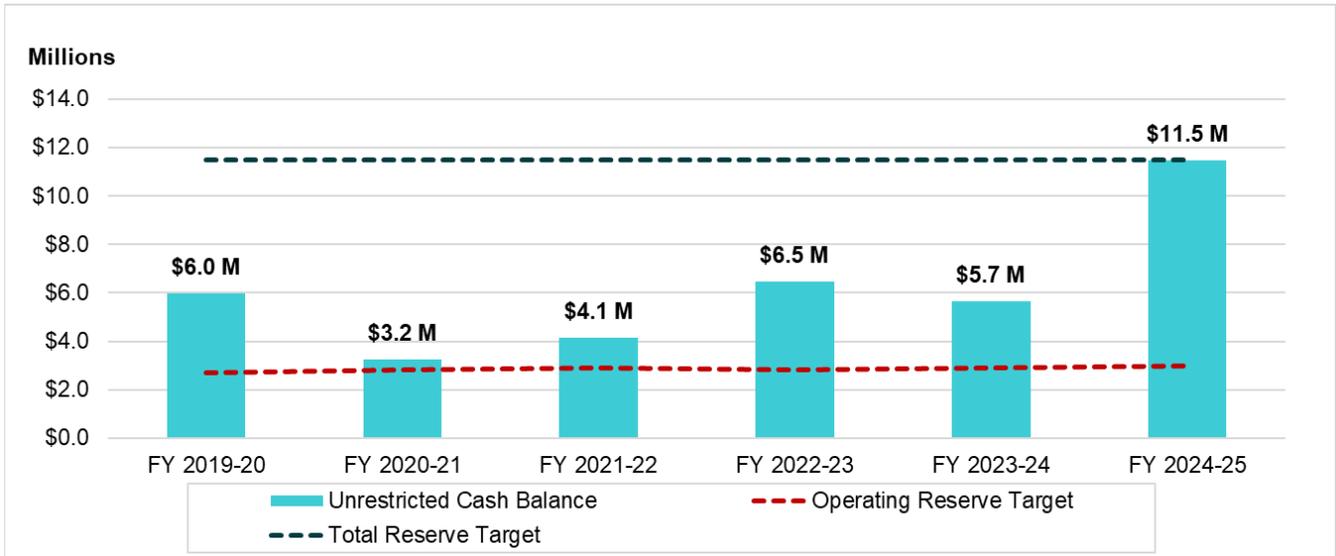
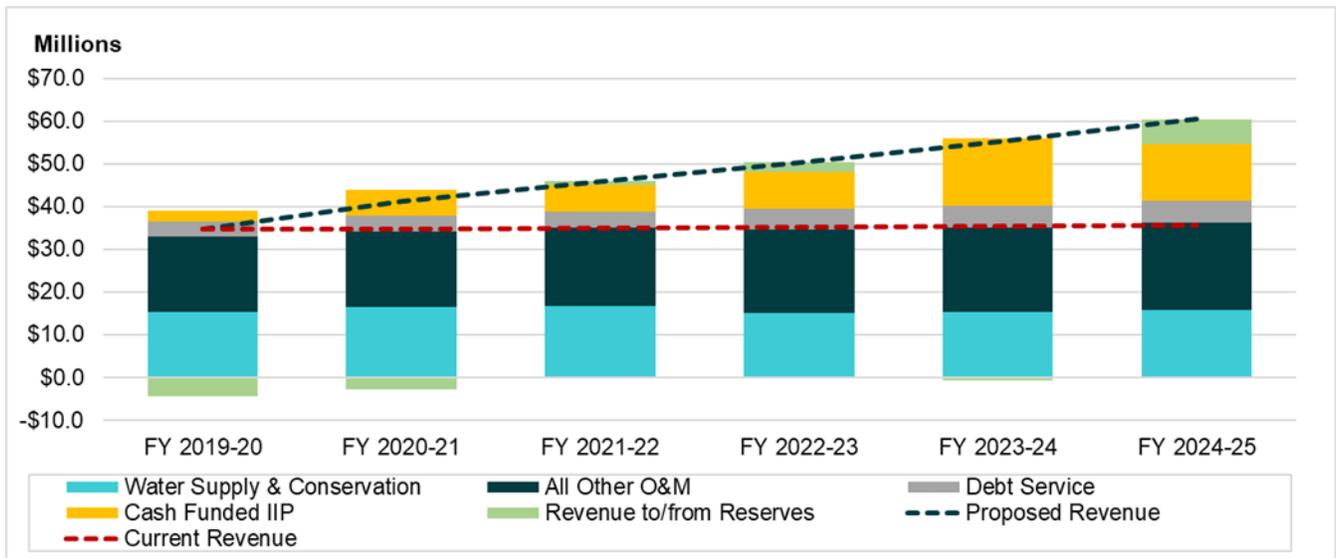


Figure 5-5 shows the proposed versus status quo financial plan. Revenues under the proposed financial plan and status quo financial plan are represented by the dark blue and red dashed lines respectively. Revenue requirements including O&M expenses, debt service, cash funded IIP, and reserve funding are represented by the various stacked bars. Although current rates result in adequate recovery of O&M expenses in most years, revenue adjustments are clearly required to generate sufficient revenue to cover debt service payments and cash funded IIP. Even under the proposed financial plan however, reserves are drawn down in FY 2019-20, FY 2020-21, and FY 2023-24 (see green bars shown as negative values) to cover a portion of cash funded IIP.

Figure 5-5: Proposed vs. Status Quo Financial Plan



6. Cost of Service Analysis

Section 6 details the cost of service (COS) analysis performed for the District for FY 2020-21. The COS analysis allocates the overall rate revenue requirement to customer classes based on their proportion of use of and burden on the District’s water system. This provides the basis for the development of proposed FY 2020-21 water rates.

6.1. Methodology

The first step in the COS analysis is to determine the revenue required from rates. The total revenue requirement is determined as a result of the financial plan and the proposed revenue adjustments in **Section 5**. The framework and methodology utilized to develop the COS analysis and to apportion the revenue requirement to each customer class and tier is informed by the processes outlined in the AWWA Manual M1.

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

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

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

6.2. Revenue Requirement

Table 6-1 shows the rate revenue requirement for FY 2020-21 (also referred to as the test year or rate-setting year). The revenue requirement is split into operating and capital categories (Columns C and D), which are later allocated based on O&M expenses and capital assets respectively. The revenue requirements (Lines 2-4) are equal to FY 2020-21 expenses. The revenue offsets (Lines 8-9) include interest earnings and miscellaneous revenues that are applied as offsets to the final rate revenue requirement. The reserve transfer adjustment (Line 13) is equal to FY 2020-21 negative net cash change and represents the reduction in the rate revenue requirement resulting from a drawdown of reserves in FY 2020-21 to cover a portion of cash funded IIP. All aforementioned values are from the proposed financial plan pro forma (**Table 5-13**). The final rate revenue requirement (Line 16) is calculated as follows:

Total revenue required from rates (Line 16) = Revenue requirements (Line 5) - Revenue offsets (Line 10) - Adjustments (Line 14)

Table 6-1: FY 2020-21 Revenue Required from Rates

[A] Line	[B] Description	[C] Operating	[D] Capital	[E] Total
1	Revenue Requirements			
2	O&M Expenses	\$34,211,644	\$0	\$34,211,644
3	Debt Service	\$0	\$3,543,113	\$3,543,113
4	Cash Funded IIP	\$0	\$6,170,000	\$6,170,000
5	Total Revenue Requirements	\$34,211,644	\$9,713,113	\$43,924,757
6				
7	Less Revenue Offsets			
8	Interest Earnings	\$45,868	\$0	\$45,868
9	Miscellaneous Revenue	\$693,158	\$0	\$693,158
10	Total Revenue Offsets	\$739,026	\$0	\$739,026
11				
12	Less Adjustments			
13	Transfer from (to) Reserves	\$0	\$2,732,271	\$2,732,271
14	Total Adjustments	\$0	\$2,732,271	\$2,732,271
15				
16	Total Revenue Required from Rates	\$33,472,618	\$6,980,842	\$40,453,461

6.3. System Peaking Factors

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

Table 6-2 shows the system-wide peaking factors provided by District staff for FY 2018-19, which are used to derive the cost component allocation bases for Base Delivery, Max Day, and Max Hour costs. Base Delivery use is considered average daily demand over one year, which has been normalized to a factor of 1.00 (Column C, Line 1). The Max Day peaking factor (Column C, Line 2) indicates that the Max Day demand is 1.65 times greater than the average daily demand. Similarly, the Max Hour peaking factor (Column C, Line 3) shows that the Max Hour demand is 2.26 times greater than average demand. The allocation bases (Columns D to F) are calculated using the equations outlined below. Columns are represented in these equations as letters, and rows are represented as numbers. For example, Column D, Line 2 is shown as D2.

The Max Day allocations are calculated as follows:

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

The Max Hour allocations are calculated as follows:

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

Table 6-2: System Peaking Factor Allocations

[A] Line	[B] Description	[C] Factor	[D] Base	[E] Max Day	[F] Max Hour	[G] Total
1	Base	1.00	100.0%	0.0%	0.0%	100.0%
2	Max Day	1.65 ¹⁸	60.5%	39.5%	0.0%	100.0%
3	Max Hour	2.26 ¹⁹	44.2%	28.9%	26.9%	100.0%

6.4. Functionalization and Allocation of Expenses

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

- » **Cachuma Supply:** various Cachuma water supply costs and other minor miscellaneous supply costs
- » **CCWA Supply:** cost of importing SWP water from CCWA
- » **GWC:** costs directly attributed to the Goleta West Conduit system
- » **Reservoir:** costs related to the District’s water storage system
- » **Wells:** costs of well maintenance, operations, and groundwater production
- » **Transmission:** costs associated with the District’s water transmission system
- » **Treatment:** costs associated with the District’s water treatment system
- » **Distribution:** costs related to the District’s water distribution system
- » **Meters:** costs of meter maintenance/repair and some capacity-related costs
- » **Hydrants:** cost associated with public fire hydrants
- » **Customer:** costs of meter reading, billing, and other customer services
- » **Recycled Water:** costs directly attributed to the recycled water system, including O&M expenses within cost center #600 (Recycled Water) and recycled water purchases (within cost center #100)
- » **Conservation:** costs associated with conservation/efficiency programs and augmentation of potable water demand with recycled water use
- » **Engineering:** capital and/or engineering-relating costs not directly attributable to the above functions are allocated based on the overall cost functionalization of the District’s capital asset base
- » **General:** costs for general administration and operational expenses or any other costs that do not clearly relate to a specific functional category

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

- » **Cachuma Supply:** directly associated with the Cachuma Supply functional category
- » **CCWA Supply:** directly associated with the CCWA Supply functional category
- » **Base:** costs associated with providing water under average water demand conditions
- » **Peaking (Max Day and Max Hour):** extra-capacity costs associated with providing water under peak demand conditions
- » **Recycled Water:** directly associated with the Recycled Water functional category
- » **Fire Protection:** costs associated with providing water for fire protection purposes, both public and private
- » **Meters:** directly associated with the Meters functional category

¹⁸ Estimated by District staff by dividing maximum day water use rate by average day water use rate in FY 2018-19.

¹⁹ Estimated by District staff by dividing estimated maximum hour water use rate by average day water use rate in FY 2018-19.

- » **Customer:** directly associated with the Customer functional category
- » **Conservation:** directly associated with the Conservation functional category
- » **GWC:** directly associated with the GWC functional category
- » **Urban Ag:** costs directly associated with providing service to Urban Agriculture customers
- » **General:** directly associated with the General functional category
- » **Revenue Offsets:** non-rate revenues which offset the rate revenue requirement

Table 6-3 shows the basis for allocating each functional category to the various cost causation components. This provides the basis for allocating O&M and capital expenses in the following subsections. Most functional categories are allocated entirely to the corresponding cost causation component. Because Goleta West Conduit and Recycled customers are essentially served by independent water systems (compared to the main potable water system), these costs are assigned a unique cost causation factor. The allocation basis for functional categories not allocated entirely to a single cost causation component is as follows:

- » **Reservoir:** Urban Ag is allocated a share of Reservoir costs based on the proportion of Urban Agricultural connections relative to all potable customer classes. Because storage/reservoir facilities are typically designed to accommodate maximum day water demand, all remaining Reservoir costs are allocated to the Base Delivery and Max Day cost causation components based on the Max Day allocation from **Table 6-2**.
- » **Wells:** Urban Ag is allocated a share of Wells costs based on the proportion of Urban Agricultural water use relative to all other potable customer classes. Because water production facilities are typically designed to accommodate maximum day water demand, all remaining Wells costs are allocated to the Base Delivery and Max Day cost causation components based on the Max Day allocation from **Table 6-2**.
- » **Transmission:** Because transmission systems are typically designed to accommodate maximum day water demand, all Transmission costs are allocated to the Base Delivery and Max Day cost causation components based on the Max Day allocation from **Table 6-2**.
- » **Treatment:** Because water treatment facilities are typically designed to accommodate maximum day water demand, all Treatment costs are allocated to the Base Delivery and Max Day cost causation components based on the Max Day allocation from **Table 6-2**.
- » **Distribution:** Urban Ag is allocated a share of Distribution costs based on the proportion of Urban Agricultural connections relative to all potable customer classes. Because Distribution infrastructure is typically designed to accommodate maximum hour water demand, all remaining Distribution costs are allocated to the Base Delivery, Max Day, and Max Hour cost causation components based on the Max Hour allocation from **Table 6-2**.
- » **Hydrants:** Hydrants costs are allocated entirely to the Fire Protection cost causation component.
- » **Engineering:** Engineering costs are allocated based on the final capital allocation (calculated subsequently in **Table 6-8**, Line 12). The functional breakdown of the District's capital assets is used here as a proxy to allocate engineering-related O&M costs that cannot be directly attributed to a specific cost causation factor.

Table 6-3: Allocation of Functional categories to Cost Causation Components

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]	[O]	[P]
Line	Functional Category	Cachuma Supply	CCWA Supply	Base Delivery	Max Day	Max Hour	Recycled Water	Fire Protection	Meters	Customer	Conservation	GWC	Urban Ag	General	Total
1	Cachuma Supply	100.0%													100.0%
2	CCWA Supply		100.0%												100.0%
3	GWC											100.0%			100.0%
4	Reservoir ²⁰			60.0%	39.2%								0.8%		100.0%
5	Wells			53.3%	34.9%								11.9%		100.0%
6	Transmission			60.5%	39.5%										100.0%
7	Treatment			60.5%	39.5%										100.0%
8	Distribution			43.8%	28.7%	26.7%							0.8%		100.0%
9	Meters								100.0%						100.0%
10	Hydrants							100.0%							100.0%
11	Customer									100.0%					100.0%
12	Recycled Water						100.0%								100.0%
13	Conservation										100.0%				100.0%
14	Engineering ²¹			31.3%	20.5%	10.1%		2.2%	5.9%		12.1%		1.3%	16.6%	100.0%
15	General													100.0%	100.0%

²⁰ Reservoir costs are first allocated 0.8% to Urban Ag. The remaining 99.2% of Reservoir costs are then allocated 60.5% to Base Delivery and 39.5% to Max Day based on the Max Day allocation shown in **Table 6-2**. For example, 99.2% × 60.5% results in 60.0% allocated to Base Delivery. Allocation of the Wells and Distribution functional categories to the cost causation components are calculated in the same manner.

²¹ Based on capital allocation subsequently determined in **Section 6.6**.

6.5.O&M Expense Allocation

The next step of the COS analysis is to develop an allocation basis for the operating revenue requirement based on the functionalization of the District's O&M expenses. **Table 6-4** shows the District's FY 2020-21 O&M expenses by cost center in Column D (from **Table 5-5**). Each cost center was assigned to the most closely associated functional category (see Column C). Water Supply costs (cost center #100) are functionalized in greater detail in order to differentiate between costs associated with Cachuma supply, CCWA supply, and recycled water purchases.

Table 6-4: Functionalization of O&M Expenses by Cost Center

[A]	[B]	[C]	[D]
Line	Cost Center	Functional Category	FY 2020-21 Expenses
1	100: Water Supply		
2	<i>CCWA Costs</i>	CCWA Supply	\$9,822,790
3	<i>Cachuma Costs</i>	Cachuma Supply	\$4,397,144
4	<i>Recycled Water Purchases</i>	Recycled Water	\$715,000
5	<i>City of SB Interagency Exchange</i>	Cachuma Supply	\$33,844
6	<i>Water Supply Personnel Costs</i>	Cachuma Supply	\$233,918
7	Total Water Supply		\$15,202,695
8			
9	200: Wells Operation & Maintenance	Wells	\$1,600,246
10	360: Cross-connection Control	Meters	\$197,297
11	400: Water Treatment	Treatment	\$4,050,324
12	510: Reservoirs	Reservoir	\$219,922
13	520: Booster Pumps	Distribution	\$192,257
14	530: Mains & Appurtenances	Distribution	\$1,991,933
15	532: Goleta West Conduit	GWC	\$133,753
16	540: Meters / Services Installation	Meters	\$581,349
17	590: General Operations	General	\$1,578,875
18	600: Recycled Water	Recycled Water	\$223,389
19	750: Meter Reading	Meters	\$848,204
20	841: Capital Improvements	Engineering	\$197,038
21	843: Plan Review	Engineering	\$14,382
22	845: Analysis and Research	Engineering	\$197,837
23	849: Geographic Information System	Engineering	\$299,440
24	300: Water Conservation Programs	Conservation	\$333,243
25	320: New Water Services	Meters	\$344,416
26	350: Water Resources	Meters	\$506,239
27	370: Public Outreach	Conservation	\$213,470
28	710: Customer Service	Customer	\$978,151
29	810: Reporting and Financial Management	General	\$2,402,281
30	870: Human Resources / Payroll	General	\$132,581
31	910: District General Management	General	\$1,772,323
32	Total O&M Expenses		\$34,211,644

Table 6-5 shows a summary of FY 2020-21 expenses by functional category based on the assignment of cost centers to functional categories (from **Table 6-4**). This intermediate step is necessary in order to allocate total O&M expenses to the cost causation components.

Table 6-5: Summary of O&M Expenses by Functional Category

[A]	[B]	[C]
Line	Functional Category	FY 2020-21 Expenses
1	Cachuma Supply	\$4,664,905
2	CCWA Supply	\$9,822,790
3	GWC	\$133,753
4	Reservoir	\$219,922
5	Wells	\$1,600,246
6	Treatment	\$4,050,324
7	Distribution	\$2,184,190
8	Meters	\$2,477,504
9	Customer	\$978,151
10	Recycled Water	\$938,389
11	Conservation	\$546,713
12	Engineering	\$708,697
13	General	\$5,886,060
14	Total O&M Expenses	\$34,211,644

Table 6-6 shows the allocation of FY 2020-21 O&M expenses by functional category to each cost causation component. The percentage allocation of each functional category (Columns C-O) to the various cost causation components was determined in **Table 6-3**. Total O&M expenses associated with each functional category (Column P) were determined in **Table 6-5**. The total dollar amount allocated to each cost causation component (Line 14) is determined by multiplying the total expense associated with each functional category by the corresponding percentage allocation and summing across all functional categories.

For example, 100 percent (Column C, Line 1) of Cachuma Supply costs (Column P, Line 1) are allocated to the Cachuma Supply cost causation factor total (Column C, Line 16). The same calculation is performed for the remaining functional categories (i.e. Column C × Column P in Lines 2-13). The subtotals of Column C × Column P in Lines 1-13 are summed to determine the total dollar amount allocated to the Cachuma Supply cost causation factor (Column C, Line 14). The same calculations are repeated for the remaining cost causation components (Columns D-O) to determine the allocation of O&M expenses to each cost causation component (Line 14).

The final O&M Allocation percentages (Line 16) represent the proportion of total O&M expenses allocated to each cost causation component (Line 14). These O&M allocation percentages are used to allocate the total operating revenue requirement. The total operating revenue requirement (Column P, Line 18) equals the operating revenue requirement (from **Table 6-1**, Column C, Line 5) less operating adjustments (from **Table 6-1**, Column C, Line 14). This total is allocated to each cost causation component (Columns C-O, Line 18) based on the final O&M allocation percentages (Columns C-O, Line 16). Note that the total operating revenue requirement (Line 18) simply equals total O&M (Line 14). This is because the total operating revenue requirement consists solely of O&M expenses.

Table 6-6: Allocation of O&M Expenses to Cost Causation Components

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]	[O]	[P]
Line	Functional Category	Cachuma Supply	CCWA Supply	Base Delivery	Max Day	Max Hour	Recycled Water	Fire Protection	Meters	Customer	Conservation	GWC	Urban Ag	General	FY 2020-21 Expense
1	Cachuma Supply	100.0%													\$4,664,905
2	CCWA Supply		100.0%												\$9,822,790
3	GWC										100.0%				\$133,753
4	Reservoir			60.0%	39.2%								0.8%		\$219,922
5	Wells			53.3%	34.9%								11.9%		\$1,600,246
6	Treatment			60.5%	39.5%										\$4,050,324
7	Distribution			43.8%	28.7%	26.7%							0.8%		\$2,184,190
8	Meters								100.0%						\$2,477,504
9	Customer									100.0%					\$978,151
10	Recycled Water						100.0%								\$938,389
11	Conservation										100.0%				\$546,713
12	Engineering			31.3%	20.5%	10.1%		2.2%	5.9%		12.1%		1.3%	16.6%	\$708,697
13	General													100.0%	\$5,886,060
14	Total O&M	\$4,664,905	\$9,822,790	\$4,612,437	\$3,016,738	\$654,779	\$938,389	\$15,480	\$2,519,017	\$978,151	\$632,683	\$133,753	\$218,686	\$6,003,835	\$34,211,644
15															
16	O&M Allocation	13.64%	28.71%	13.48%	8.82%	1.91%	2.74%	0.05%	7.36%	2.86%	1.85%	0.39%	0.64%	17.55%	100.00%
17															
18	Operating Revenue Requirement	\$4,664,905	\$9,822,790	\$4,612,437	\$3,016,738	\$654,779	\$938,389	\$15,480	\$2,519,017	\$978,151	\$632,683	\$133,753	\$218,686	\$6,003,835	\$34,211,644

6.6. Capital Allocation

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

District staff provided Raftelis with a detailed asset listing that included the original cost of each individual asset. Raftelis calculated the replacement cost of each asset based on original cost and acquisition year using the Engineering News-Record’s 20-City Average Cost Construction Index (CCI) to account for capital cost inflation. As part of the capital asset analysis, Raftelis assigned each individual asset to a functional category. Assets associated with the recycled water system are assigned to the Conservation functional category, as the recycled water system benefits non-recycled customers by augmenting potable water demand. Total asset value (replacement cost) by functional category is shown in **Table 6-7**.

Table 6-7: Summary of Capital Assets by Functional Category

[A]	[B]	[C]
Line	Functional Category	Asset Value (Replacement Cost)
1	Reservoir	\$33,537,348
2	Wells	\$32,086,195
3	Transmission	\$3,838,969
4	Treatment	\$36,666,205
5	Distribution	\$159,769,946
6	Meters	\$24,641,225
7	Hydrants	\$9,188,468
8	Conservation	\$51,030,260
9	General	\$69,908,873
10	Total Asset Value	\$420,667,491

Table 6-8 shows the allocation of capital assets by functional category to each cost causation component. The percentage allocation of each functional category (Columns C-O) to the various cost causation components was determined in **Table 6-3**. Total asset value associated with each functional category (Column P) was determined in **Table 6-7**. The total dollar amount allocated to each cost causation component (Line 10) is determined by multiplying the total asset value associated with each functional category by the corresponding percentage allocation and summing across all functional categories. This is consistent with the methodology used to determine the allocation of O&M expenses to cost causation components in **Table 6-6** (described in detail in **Section 6.5**). The final capital allocation percentages (Line 12) represent the proportion of total capital assets allocated to each cost causation component (Line 10).

The capital allocation percentages (Line 12) are used to allocate the total capital revenue requirement. The total capital revenue requirement (Column P, Line 14) equals the capital revenue requirement (from **Table 6-1**, Column D, Line 5) less capital adjustments (from **Table 6-1**, Column D, Line 14). This total is allocated to each cost causation component (Columns C-O, Lines 14) based on the final capital allocation percentages (Columns C-O, Line 12).

Table 6-8: Allocation of Functionalized Capital Assets to Cost Causation Components

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]	[M]	[N]	[O]	[P]
Line	Functional Category	Cachu-ma Supply	CCWA Supply	Base Delivery	Max Day	Max Hour	Recycled Water	Fire Protec-tion	Meters	Customer	Conser-vation	GWC	Urban Ag	General	Asset Value
1	Reservoir			60.0%	39.2%								0.8%		\$33.54M
2	Wells			53.3%	34.9%								11.9%		\$32.09M
3	Transmission			60.5%	39.5%										\$3.84M
4	Treatment			60.5%	39.5%										\$36.67M
5	Distribution			43.8%	28.7%	26.7%							0.8%		\$159.77M
6	Meters								100.0%						\$24.64M
7	Hydrants							100.0%							\$9.19M
8	Conservation										100.0%				\$51.03M
9	General													100.0%	\$69.91M
10	Total Assets	\$0.00M	\$0.00M	\$131.72M	\$86.15M	\$42.64M	\$0.00M	\$9.19M	\$24.64	\$0.00M	\$51.03M	\$0.00M	\$5.39M	\$69.91M	\$420.67M
11															
12	Capital Allocation	0.00%	0.00%	31.31%	20.48%	10.14%	0.00%	2.18%	5.86%	0.00%	12.13%	0.00%	1.28%	16.62%	100.00%
13															
14	Capital Revenue Requirement	\$0	\$0	\$2,185,793	\$1,429,605	\$707,618	\$0	\$152,480	\$408,913	\$0	\$846,831	\$0	\$89,487	\$1,160,115	\$6,980,842

6.7. Preliminary Cost of Service Allocation

Table 6-9 shows the preliminary allocation of the total FY 2020-21 rate revenue requirement to the various cost causation components. The preliminary COS allocations (Column G) are subject to further adjustments based on additional reallocations developed in the following subsections. The results shown in **Table 6-9** are calculated as follows based on intermediate results developed in the preceding subsections:

1. **Operating Revenue Requirement** (Column C): The total operating revenue requirement consists solely of the District's O&M expenses. The allocation of the total operating revenue requirement to each cost causation component was previously determined in **Table 6-6**, Columns C-O, Line 18.
2. **Capital Revenue Requirement** (Column D): The total capital revenue requirement consists of IIP expenditures, debt service payments, and adjustments to account for changes in reserve levels. The allocation of the total capital revenue requirement to each cost causation component was previously determined in **Table 6-8**, Columns C-O, Line 14).
3. **Revenue Offsets** (Column E): Total revenue offsets (from **Table 6-1**, Column E, Line 10) are allocated fully to a Revenue Offsets cost causation factor (Column E, Line 14). Note that the Revenue Offsets cost causation factor was not included within the operation or capital revenue requirement allocation, as it pertains exclusively to non-rate revenues used to offset the total revenue required from rates.
4. **Reallocation of General Costs** (Column F): The total General cost allocation equals the operating revenue requirement (Column C, Line 13) and capital revenue requirement (Column D, Line 13) allocated to the General cost causation component. The total General revenue requirement (Column, F, Line 13) is fully reallocated to all other cost causation components on a pro rata basis²² (Column F, Lines 3-12) excluding the Cachuma Supply, CCWA Supply, and Revenue Offsets cost causation components (which General costs do not pertain to). Note that the reallocation results in a shifting of costs between cost causation components, but does not change the total rate revenue requirement.
5. **Preliminary Cost of Service Allocation** (Column G): The preliminary COS allocation to each cost causation component (Column G, Lines 1-14) equals the sum of Columns C-G. Note that the total COS allocation (Column G, Line 15) equals the total FY 2020-21 rate revenue requirement (from **Table 6-1**, Column E, Line 16).

²² The operating (Column C) and capital (Column D) revenue requirements are summed for each cost causation component shown in Lines 3-12. The percentage of this sum falling within each cost causation component (Lines 3-12) is multiplied by total reallocated General costs (Column F, Line 13) to determine the share of General costs reallocated to each cost causation component (Column F, Lines 3-12).

Table 6-9: Preliminary Cost of Service Allocation

[A]	[B]	[C]	[D]	[E]	[F]	[G]
Line	Cost Causation Component	Operating Revenue Requirement	Capital Revenue Requirement	Revenue Offsets	Reallocation of General Cost	Preliminary COS Allocation
1	Cachuma Supply	\$4,664,905	\$0	\$0	\$0	\$4,664,905
2	CCWA Supply	\$9,822,790	\$0	\$0	\$0	\$9,822,790
3	Base Delivery	\$4,612,437	\$2,185,793	\$0	\$2,492,328	\$9,290,558
4	Max Day	\$3,016,738	\$1,429,605	\$0	\$1,630,093	\$6,076,437
5	Max Hour	\$654,779	\$707,618	\$0	\$499,474	\$1,861,871
6	Recycled Water	\$938,389	\$0	\$0	\$344,027	\$1,282,416
7	Fire Protection	\$15,480	\$152,480	\$0	\$61,576	\$229,536
8	Meters	\$2,519,017	\$408,913	\$0	\$1,073,421	\$4,001,351
9	Customer	\$978,151	\$0	\$0	\$358,604	\$1,336,755
10	Conservation	\$632,683	\$846,831	\$0	\$542,411	\$2,021,925
11	GWC	\$133,753	\$0	\$0	\$49,036	\$182,789
12	Urban Ag	\$218,686	\$89,487	\$0	\$112,981	\$421,153
13	General	\$6,003,835	\$1,160,115	\$0	(\$7,163,950)	\$0
14	Revenue Offsets	\$0	\$0	(\$739,026)	\$0	(\$739,026)
15	Total	\$34,211,644	\$6,980,842	(\$739,026)	\$0	\$40,453,461

6.8. Allocation of Public and Private Fire Protection Costs

Water systems provide two types of fire protection: public fire protection for firefighting (i.e. fire hydrants) and private fire protection (i.e. fire lines for private structures with sprinkler systems for fire suppression). Raftelis performed a fire demand analysis to determine the share of Fire Protection costs allocated to public versus private fire protection. The District provided Raftelis with a count of fire hydrants. The number of private fire lines is shown in **Table 4-7**.

Table 6-10 shows the calculation of equivalent fire demand associated with public hydrants and private fire lines. Each connection size has a fire flow demand factor similar to the hydraulic capacity factor of a water meter. The diameter of the connection (in inches) is raised to the 2.63 power to determine the fire flow demand factor (Column C).²³ The fire flow demand factor (Column C) is multiplied by the number of connections by size (Column D) to calculate equivalent fire demand (Column E). Total equivalent fire demand is shown for public hydrants and private fire lines are shown in Lines 6 and 15 respectively.

²³ Hazen-Williams equation and AWWA Manual M1

Table 6-10: Equivalent Fire Demand

[A]	[B]	[C]	[D]	[E]
Line	Connection Size	Demand Factor	Unit Counts	Equivalent Fire Demand
1	Public Hydrants			
2	2.5-inch	11.13	2	22
3	4-inch	38.32	2	77
4	6-inch	111.31	1,491	165,965
5	10-inch	426.58	0	0
6	Total		1,495	166,063
7				
8	Private Fire Lines			
9	0.625-inch	0.29	103	30
10	0.75-inch	0.47	272	128
11	1-inch	1.00	41	41
12	1.5-inch	2.90	45	131
13	2-inch	6.19	14	87
14	3-inch	17.98	0	0
15	Total		475	416

Table 6-11 shows the number of equivalent fire demand units associated with public and private fire protection (from **Table 6-10**). The proportional share of equivalent fire demand (Column D) provides the basis for which Fire Protection costs are allocated between public and private in subsequent steps of the COS analysis.

Table 6-11: Public vs. Private Fire Protection Allocation

[A]	[B]	[C]	[D]
Line	Connection Size	Equivalent Fire Demand	% of Equivalent Fire Demand
1	Public Hydrants	166,063	99.75%
2	Private Fire Lines	416	0.25%
3	Total	166,479	100.00%

6.9. Peaking Units of Service

Peaking units of service are developed to calculate unit peaking costs (Max Day and Max Hour) for select customer classes and provide a basis to reallocate peaking costs to Fire Protection in subsequent steps of the COS analysis. Public hydrants and private fire lines contribute to system capacity-related costs (i.e. peaking costs), and therefore are reallocated a portion of Max Day and Max Hour costs.

Table 6-12 shows the calculation of peaking units of service for non-fire related water service. Only customer classes which contribute to systemwide peaking during periods of maximum water demand are included. Single Family Residential Tier 1 water use is consistent across all billing periods. It therefore does not contribute to system peaking and is thusly excluded. Urban Agriculture customers’ peaking costs (excluding treatment costs that Urban Agriculture customers are not subject to) are captured within the Urban Ag cost causation component. Therefore, peaking costs are not directly applied to the Urban Agriculture customer class units of service. Goleta West Conduit and Recycled customers are served by independent distribution systems, and therefore also do not contribute to potable system peaking.

Table 6-12 shows calculations used to attribute peaking costs to specific customer classes based on actual water use patterns. Raftelis estimated Max Day (Column E) and Max Hour (Column H) factors based on actual FY 2018-19 water use and systemwide peaking factors from **Table 6-2**. See **Appendix A** for detailed calculations of Max Day and Max Hour factors. Projected FY 2020-21 water use in Column C (from **Table 4-8**)²⁴ is divided by 365 days to determine average daily water use (Column D). Average daily use in Column D is then multiplied by the Max Day factor (Column E) to determine Max Day demand (Column F). Max Day requirements (Column G) are determined by subtracting average daily water use (Column D) from Max Day demand (Column F). Max Hour requirements (Column J) are similarly calculated. Max Hour demand (Column I) equals average daily water use (Column D) multiplied by Max Hour demand (Column H). Max Hour requirements (Column J) equal Max Hour demand (Column I) less Max Day requirements (Column F).

Table 6-12: Peaking Units by Customer Class

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]
Line	Customer Class	Annual Water Use (HCF)	Average Daily Water Use (HCF)	Max Day Factor	Max Day Demand (HCF/Day)	Max Day Requirements (HCF/Day)	Max Hour Factor	Max Hour Demand (HCF/Day)	Max Hour Requirements (HCF/Day)
1	SFR Tier 2	343,387	940	1.69	1,587.51	647.37	2.31	2,171.99	584.48
2	SFR Tier 3	293,068	802	2.29	1,838.49	1,036.12	3.13	2,515.38	676.88
3	Urban	1,848,669	5,061	1.30	6,590.99	1,529.61	1.78	9,017.62	2,426.62
4	Recreation Irrigation	179,748	492	1.98	976.06	483.94	2.71	1,335.43	359.36
5	Temporary	1,266	3	3.33	11.53	8.06	4.55	15.77	4.24

Table 6-13 shows a distinct methodology²⁵ used to calculate peaking units of service associated with Fire Protection based on assumptions regarding the duration and water use rate associated with typical fires:

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

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

Table 6-13: Peaking Units for Fire Protection

[A]	[B]	[C]
Line	Description	Value
1	Duration of Fire (Hours)	4.0
2	Water Use Rate (gallons per minute)	6,000
3	Max Day Requirements (HCF/Day)	1,925.01
4	Max Hour Requirements (HCF/Day)	9,625.03

Peaking units of service (from **Table 6-12** and **Table 6-13**) are summarized below in **Table 6-14**. The distribution of Fire Protection peaking units in Lines 6-7 (from **Table 6-13**) is based on proportional equivalent fire demand (from **Table 6-11**). The proportional shares of Max Day and Max Hour units of service are also shown in Columns D and F respectively.

²⁴ Note that SFR Tier 2 and Tier 3 water use differs from the values shown in **Table 4-8**. The values shown account for proposed changes in SFR tier definitions discussed in further detail in **Section 7.2** (see **Table 7-3**).

²⁵ Per the AWWA Manual M1.

Table 6-14: Summary of Total Peaking Units

[A]	[B]	[C]	[D]	[E]	[F]
Line	Customer Class	Max Day Requirements (HCF/Day)	% of Max Day Requirements	Max Hour Requirements (HCF/Day)	% of Max Hour Requirements
1	SFR Tier 2	647.37	11.49%	584.48	4.27%
2	SFR Tier 3	1,036.12	18.40%	676.88	4.95%
3	Urban	1,529.61	27.18%	2,426.62	17.74%
4	Recreation Irrigation	483.94	8.60%	359.36	2.63%
5	Temporary	8.06	0.14%	4.24	0.03%
6	Public Fire Protection	1,920.20	34.10%	9,600.98	70.20%
7	Private Fire Protection	4.81	0.09%	24.05	0.18%
8	Total	5,630.11	100.0%	13,676.61	100.0%

6.10. Reallocation of Recycled Water Costs

The District provides Recycled water to certain customers under contract (such as the University of California, Santa Barbara) at reduced rates relative to current Recycled Commodity Charge rates shown in **Table 4-1**. This results in reduced Recycled Commodity Charge revenues that must be recovered. All non-recycled customers benefit from recycled water use, by mitigating the need to obtain additional water supplies from supplemental sources at higher marginal supply rates. Raftelis reallocates a portion of Recycled Water costs to the Conservation cost causation component (which is to be recovered by non-recycled water Commodity Charges). This accounts for reduced Recycled revenue recovered from contracted recycled customers.

Raftelis analyzed FY 2018-19 Recycled Commodity Charge revenues to determine the appropriate reallocation of Recycled Water costs to the Conservation cost causation component of potable customers. **Table 6-15** shows FY 2018-19 actual recycled water use by contract type (from **Table 4-8**). Column E shows calculated Recycled Commodity Charge revenue based on the actual rates shown in Column D. Column F shows potential Recycled Commodity Charges if all use was charged at the non-contract rate (\$3.64/HCF). The difference between Column F and E represents foregone Recycled Commodity Charge revenue.

Table 6-15: Recycled Water Contract Revenue Analysis

[A]	[B]	[C]	[D]	[E]	[F]
Line	Customer Class	FY 2018-19 Water Use (HCF)	Commodity Charge Rate (\$/HCF)	Revenue at Actual Rate	Revenue at Non-Contract Rate
1	Recycled Water (Non-Contract)	113,380	\$3.64	\$412,703	\$412,703
2	Recycled Water (Contract Type 1)	105,873	\$2.11	\$223,392	\$385,378
3	Recycled Water (Contract Type 2)	65,477	\$0.89	\$58,000	\$238,336
4	Total Recycled	284,730		\$694,095	\$1,036,417

Table 6-16 shows Recycled Commodity Charge revenue for FY 2018-19 with and without reduced contract rates (from **Table 6-15**). The difference (Line 3) represents foregone revenue resulting from the reduced contract rate. Foregone revenue (Line 3) is divided by total revenue if no contracts (Line 1) to calculate the percent of potential Recycled Commodity Charge revenue foregone due to reduced contract rates (Line 5). This percentage is used in subsequent steps of the COS analysis to reallocate a portion of Recycled Water costs to the Conservation cost causation component. This is necessary to ensure adequate revenue recovery of Recycled Water costs.

Table 6-16: Reallocation of Recycled Water Costs to Conservation

[A]	[B]	[C]
Line	Description	Value
1	Revenue if no Contracts	\$1,036,417
2	Actual Revenue with Reduced Contract Rates	\$694,095
3	Difference	\$342,322
4		
5	% of Recycled Water Costs to Conservation	33.03%

6.11. Adjusted Cost of Service Allocation

Table 6-17 shows the adjusted allocation of the rate revenue requirement to the various cost causation components. The adjusted COS allocations (Column H) incorporates adjustments to the preliminary COS allocations developed in Section 6.7, and ultimately provides the underlying basis for proposed FY 2020-21 rate calculations shown subsequently in Section 7. The results shown in **Table 6-17** are calculated as follows based on intermediate results developed in the preceding subsections:

1. **Preliminary Cost of Service Allocation** (Column C): The preliminary COS allocations were previously developed in **Section 6.7**. (see **Table 6-9**, Column G, Lines 1-14). The General cost causation component is excluded because all General costs were previously reallocated to other costs causation components.
2. **Reallocation of Public Fire Costs** (Column D): Public fire protection represents a common benefit. Therefore, all public fire protection costs are reallocated to the Meters cost causation component to be recovered from all metered connections. Preliminary Max Day (Column C, Line 4) and Max Hour costs (Column C, Line 5) associated with public fire protection are reallocated from Max Day (Column D, Line 4) and Max Hour (Column D, Line 5) to Meters (Column D, Line 8) based on the percentage of peaking units associated with public fire protection (**Table 6-14**, Column D and F, Line 6). Additionally, preliminary Fire Protection costs (Column C, Line 7) associated with public fire protection are reallocated from the Fire Protection cost causation component (Column D, Line 7) to the Meters (Column D, Line 8) based on the percentage of fire protection costs allocated to public (from **Table 6-11**, Column D, Line 1). This is necessary because the residual Fire Protection cost causation component is to be solely recovered by the Private Fire Line Fixed Charge. Note that the reallocation results in a shifting of costs between cost causation components, but does not change the total rate revenue requirement.
3. **Reallocation of Private Fire Costs** (Column E): Preliminary peaking costs (Column C, Lines 4-5) associated with private fire protection are reallocated from Max Day (Column E, Line 4) and Max Hour (Column E, Line 5) to Fire Protection (Column E, Line 7) based on the percentage of peaking units associated with private fire protection (**Table 6-14**, Column D and F, Line 7). Note that the reallocation results in a shifting of costs between cost causation components, but does not change the total rate revenue requirement.
4. **Reallocation of Recycled Water Costs** (Column F): A portion of Recycled Water costs must be reallocated to the Conservation cost causation component to account for foregone Recycled Commodity Charge revenue resulting from reduced Recycled rates for contract customers. Approximately 33 percent (from **Table 6-16**, Column C, Line 5) of Recycled Water costs (Column C Line 6) is reallocated from Recycled Water (Column F, Line 6) to Conservation (Column F, Line 10).

5. **Reallocation of Peaking Costs to Meters** (Column G): The District collects approximately 30 percent of its rate revenues from Fixed Meter Charges. Without any additional cost reallocation, this updated COS analysis would reduce the proportion of revenues from fixed charges to approximately 22 percent. This would reduce revenue stability and increase the risk of revenue insufficiency resulting from decreases in water sales during periods of reduced demand. To maintain the existing proportion of 30 percent fixed (from Fixed Meter Charges) and 70 percent variable (from Commodity Charges), Raftelis reallocates 80 percent of Max Day costs (sum of Columns C-E, Line 4) and Max Hour costs (sum of Columns C-E, Line 5) from Max Day (Column G, Line 4) and Max Hour (Column G, Line 5) to Meters (Column G, Line 8). Utilities invest in, and continuously maintain, facilities to provide capacity to meet all levels of water consumption, including peak demand. These costs must be recovered regardless of the amount of water used during a given period, so peaking costs are generally considered as fixed water system costs. To balance between affordability and revenue stability, it is a common practice that a portion of peaking, or extra-capacity, costs are recovered in the monthly service charge, along with customer-related costs and meter-related costs.

6. **Final Cost of Service Allocation** (Column H): The final COS allocation (Column H) equals the sum of Columns C to G. This represents the final adjusted allocation of the total revenue requirement (from **Table 6-1**, Column E, Line 16) to the various cost causation components.

Table 6-17: Adjusted Cost of Service Allocation

[A] Line	[B] Cost Causation Component	[C] Preliminary COS Allocation	[D] Reallocation of Public Fire Costs	[E] Reallocation of Private Fire Costs	[F] Reallocation of Recycled Water Costs	[G] Reallocation of Peaking to Meters	[H] Final COS Allocation
1	Cachuma Supply	\$4,664,905	\$0	\$0	\$0	\$0	\$4,664,905
2	CCWA Supply	\$9,822,790	\$0	\$0	\$0	\$0	\$9,822,790
3	Base Delivery	\$9,290,558	\$0	\$0	\$0	\$0	\$9,290,558
4	Max Day	\$6,076,437	(\$2,072,419)	(\$5,191)	\$0	(\$3,199,062)	\$799,765
5	Max Hour	\$1,861,871	(\$1,307,033)	(\$3,274)	\$0	(\$441,252)	\$110,313
6	Recycled Water	\$1,282,416	\$0	\$0	(\$423,575)	\$0	\$858,842
7	Fire Protection	\$229,536	(\$228,962)	\$8,465	\$0	\$0	\$9,038
8	Meters	\$4,001,351	\$3,608,414	\$0	\$0	\$3,640,314	\$11,250,078
9	Customer	\$1,336,755	\$0	\$0	\$0	\$0	\$1,336,755
10	Conservation	\$2,021,925	\$0	\$0	\$423,575	\$0	\$2,445,499
11	GWC	\$182,789	\$0	\$0	\$0	\$0	\$182,789
12	Urban Ag	\$421,153	\$0	\$0	\$0	\$0	\$421,153
13	Revenue Offsets	(\$739,026)	\$0	\$0	\$0	\$0	(\$739,026)
14	Total	\$40,453,461	\$0	\$0	\$0	\$0	\$40,453,461

6.12. Unit Cost Development

Units of service are used to convert total adjusted costs allocated to each cost causation component (from **Table 6-17**) into unit costs, which are directly incorporated into the proposed rate calculations for FY 2020-21 in **Section 7**. Units of service relating to water use and peaking were previously determined (see **Table 4-8** and **Table 6-14**). However, additional units of service must be determined to develop Customer, Meters, and Fire Protection unit costs.

Additional Units of Service

Table 6-18 shows the development of additional units of service needed to develop unit costs for Customer, Meters, and Fire Protection cost causation components. Customer unit costs are calculated on a per account basis, as these costs do not vary based on connection type or size. Total accounts are approximated by summing total water meters in Column C, Lines 1-11 (from **Table 4-6**)²⁶ and total fire lines in Column C, Line 12 (from **Table 4-7**).

Meter unit costs are calculated per equivalent meter unit. Equivalent meter units are used to allocate meter-related costs appropriately and equitably. Larger meters impose larger demand, are more expensive to install, maintain, and replace than smaller meters, and require greater capacity within the water system. Equivalent meter units in this study are based on AWWA-rated hydraulic capacities and are calculated to represent the potential demand on the water system relative to a base meter size.

Capacity ratios are calculated by dividing larger meter capacities by the base meter capacity. The base meter in this study is a 3/4-inch meter, which is used to approximate the capacity of 5/8-inch and 3/4-inch (All Other) meters.²⁷ AWWA capacity ratios (Column E) are calculated by dividing the capacity of each meter size (Column D) by the capacity of a 3/4-inch meter (Column D, Line 3). The projected number of meters (Column C) are multiplied by the AWWA capacity ratios (Column E) to determine equivalent meter units (Column F).

Equivalent meter peaking units (Column H) are not used to develop unit costs. However, they are referenced subsequently in **Section 7** to calculate the component of the proposed Fixed Meter Charges related to peaking costs. Equivalent meter peaking units are calculated by multiplying number of meters (Column C) by the meter peaking ratios (Column G). Note that meter peaking ratios (Column G) match AWWA capacity ratios (Column E) with the exception of 5/8-inch and 3/4-inch (Ultra-Low Flow) meters. Ultra-Low Flow meters are assigned a meter peaking ratio of zero because Ultra-Low customers do not contribute to systemwide peaking demands.

²⁶ Note that Ultra-Low Flow and Low Flow water meter counts differ from the values shown in **Table 4-6**. The values shown account for proposed changes in SFR tier definitions discussed in further detail in **Section 7.2** (see **Table 7-4**).

²⁷ Low Flow 5/8-inch & 3/4-inch meter capacity is based on a 5/8-inch meter capacity. Ultra-Low Flow 5/8-inch & 3/4-inch meter capacity is based on a 1/2-inch meter capacity.

Table 6-18: Fixed Meter Charge Units of Service

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]
Line	Water Meter Size	Number of Meters/Fire Lines	AWWA Capacity (gpm)	AWWA Capacity Ratio	Equivalent Meter Units	Meter Peaking Ratio	Equivalent Meter Peaking Units
1	5/8 & 3/4-inch - Ultra-Low Flow	7,927	15	0.50	3,964	0.00	0
2	5/8 & 3/4-inch - Low Flow	2,354	20	0.67	1,569	0.67	1,569
3	5/8 & 3/4-inch - All Other	3,583	30	1.00	3,583	1.00	3,583
4	1-inch	1,804	50	1.67	3,007	1.67	3,007
5	1.5-inch	474	100	3.33	1,580	3.33	1,580
6	2-inch	551	160	5.33	2,939	5.33	2,939
7	3-inch	26	350	11.67	303	11.67	303
8	4-inch	33	630	21.00	693	21.00	693
9	6-inch	33	1400	46.67	1,540	46.67	1,540
10	8-inch	7	2400	80.00	560	80.00	560
11	10-inch	4	3800	126.67	507	126.67	507
12	Fire Lines	475	N/A	N/A	N/A	N/A	N/A
13	Total	17,271			20,244		16,281

Unit Costs

Unit costs comprise the constituent parts from which proposed FY 2020-21 proposed rates are calculated in **Section 7**. **Table 6-19** shows unit costs for each cost causation component (Column F), which are calculated by dividing the final COS allocation in Column C (**Table 6-17**, Column H) by the relevant units of service (Column D). The units of service vary by unit cost and are based on either FY 2020-21 water use (from **Table 4-8**), peaking units (from **Table 6-14**), or number of accounts/fire lines/equivalent meter units (from **Table 6-18**).

Table 6-19: Development of Unit Costs

[A]	[B]	[C]	[D]	[E]	[F]
Line	Cost Causation Component	Final COS Allocation	Units of Service	Units	Unit Cost
1	Cachuma Supply	\$4,664,905	4,400,952	<i>Billed Water Use excl. Recycled (HCF)</i>	\$1.060
2	CCWA Supply	\$9,822,790	3,518,810	<i>Billed Water Use excl. Urban Ag/GWC/Recycled (HCF)</i>	\$2.792
3	Base	\$9,290,558	3,518,810	<i>Billed Water Use excl. Urban Ag/GWC/Recycled (HCF)</i>	\$2.530
4	Max Day	\$799,765	3,705.11 ²⁸	<i>Max Day Requirements (HCF/Day)</i>	\$215.855
5	Max Hour	\$110,313	4,051.59 ²⁹	<i>Max Hour Requirements (HCF/Day)</i>	\$27.227
6	Recycled Water	\$858,842	213,568 ³⁰	<i>Recycled Water Use (HCF)</i>	\$4.021
7	Fire Protection	\$9,038	475	<i>Number of Fire Lines</i>	\$19.027
8	Meters	\$11,250,078	20,244	<i>Equivalent Meter Units</i>	\$555.72
9	Customer	\$1,336,755	17,271	<i>Accounts</i>	\$77.399
10	Conservation	\$2,445,499	4,440,952	<i>Billed Water Use excl. Recycled (HCF)</i>	\$0.556
11	GWC	\$182,789	408,249	<i>GWC Water Use (HCF)</i>	\$0.448
12	Urban Ag	\$421,153	473,892	<i>Urban Ag Water Use (HCF)</i>	\$0.889
13	Revenue Offsets	(\$739,026)	4,719,849	<i>Total Billed Water Use (HCF)</i>	(\$0.157)
14	Total	\$40,453,461			

6.13. Customer Class Costs

Unit costs developed in **Table 6-19** are allocated for recovery by the District’s charges as follows:

- » Fixed Meter Charges (Water Meters): Customer, Meters
- » Fixed Meter Charges (Fire Lines): Customer, Fire Protection
- » Commodity Charges: Cachuma Supply, CCWA Supply, Base, Max Day, Max Hour, Recycled Water, Conservation, GWC, Urban Ag, Revenue Offsets

Not all customer classes are subject to each unit cost applied to the Commodity Charges. Exceptions are outlined in greater detail in **Table 6-20** below. The rationale behind specific exemptions is described in further detail in **Section 7**.

²⁸ Max Day units of service exclude Max Day requirements associated with Fire Protection.

²⁹ Max Hour units of service exclude Max Hour requirements associated with Fire Protection.

³⁰ Recycled units of service are adjusted to account for revenue generated by recycled contract customers. Total projected recycled water use in FY 2020-21 (318,898 HCF) is reduced by 33.03% (from **Table 6-16**, Column C, Line 5) to calculate the adjusted Recycled Water units of service. This is necessary to incorporate estimates of rate revenue collected from recycled contract customers.

Table 6-20: Recovery of Cost Causation Components by Charge Type

[A]	[B]	[C]
Line	Cost Causation Component	Associated Charge
1	Cachuma Supply	Commodity Charges (excl. Recycled)
2	CCWA Supply	Commodity Charges (excl. Urban Ag/GWC/Recycled)
3	Base	Commodity Charges (excl. Urban Ag/GWC/Recycled)
4	Max Day	Commodity Charges (excl. Urban Ag/GWC/Recycled/Fire Service)
5	Max Hour	Commodity Charges (excl. Urban Ag/GWC/Recycled/Fire Service)
6	Recycled Water	Recycled Commodity Charge
7	Fire Protection	Fire Line Fixed Meter Charge
8	Meters	Fixed Meter Charges (excl. Fire Lines)
9	Customer	Fixed Meter Charges
10	Conservation	Commodity Charges (excl. Recycled)
11	GWC	GWC Commodity Charge
12	Urban Ag	Urban Ag Commodity Charges
13	Revenue Offsets	Commodity Charges

Figure 6-1 shows the percent of total rate revenues collected by each charge type/customer class under the current cost of service based on the existing rate structure and the proposed cost of service for FY 2020-21.³¹ Note that the results shown are based on detailed calculations that are dependent on rate design considerations addressed subsequently in **Section 7**. The goal of a COS analysis is to realign a water agency’s water rate structure so that customers are charged in proportion to the costs that they cause the agency to incur. As the last COS analysis was conducted for the District five years ago, changes in water use patterns and cost structure have inevitably resulted in changes to the distribution of revenue requirements across the various charges/customer classes.

³¹ Temporary Commodity Charge revenue and Fire Service (i.e. penalty charges for non-fire related water use by fire lines) Commodity Charge revenues (less than 0.1% of total rate revenue) are included with the Urban customer class.

Figure 6-1: Current vs. Proposed Cost of Service

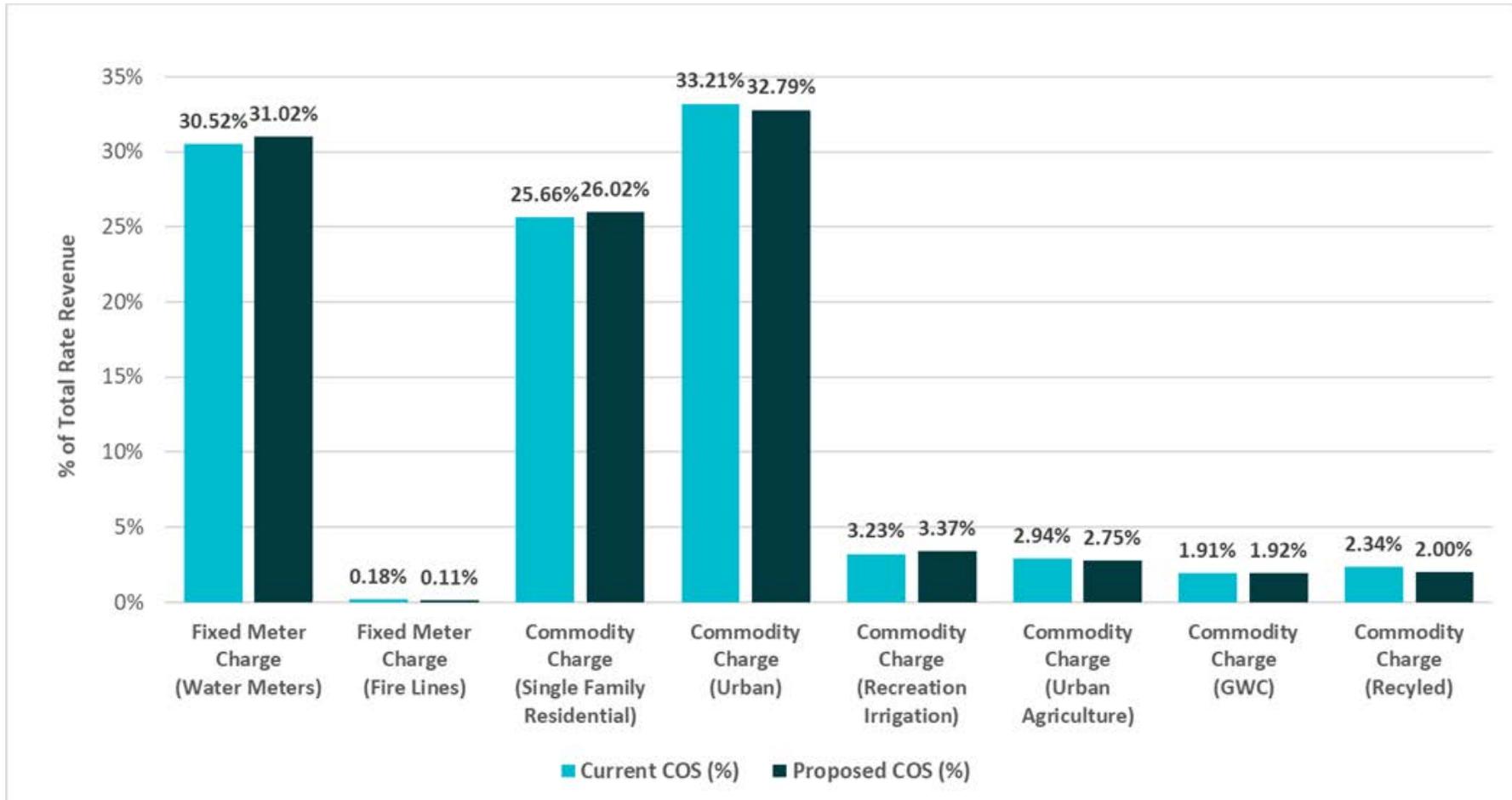


Table 6-21 shows projected rate revenues by charge and customer class for FY 2019-20 (based on the prior COS analysis) and for FY 2020-21 (based on the updated COS analysis presented in this section). Note that the results shown are based on detailed calculations that are dependent on rate design considerations addressed subsequently in **Section 7**.

Table 6-21: Cost to Serve by Customer Class

[A]	[B]	[C]	[D]	[E]
Line	Charge/Customer Class	Current FY 2019-20	Proposed FY 2020-21	Difference
1	Fixed Meter Charges	\$10,312,781	\$12,550,068	\$2,237,287
2	Fixed Fire Line Charges	\$62,472	\$45,802	(\$16,670)
3	Single Family Residential Commodity Charges	\$8,686,393	\$10,526,840	\$1,840,447
4	Urban Commodity Charges ³²	\$11,197,996	\$13,266,410	\$2,068,413
5	Recreation Irrigation Commodity Charges	\$1,096,461	\$1,364,379	\$267,918
6	Urban Agriculture Commodity Charges	\$999,912	\$1,112,597	\$112,684
7	GWC Commodity Charges	\$649,116	\$778,454	\$129,339
8	Recycled Commodity Charges	\$796,434	\$808,909	\$12,476
9	Total	\$33,801,565	\$40,453,461	\$6,651,895

³² Temporary Commodity Charge revenue and Fire Service (i.e. penalty charges for non-fire related water use by fire lines) Commodity Charge revenues (less than 0.1% of total rate revenue) are included with the Urban customer class.

7. Proposed Water Rates

Section 7 details the proposed water rate calculations. Proposed FY 2020-21 rates are calculated directly from the results of the COS analysis (from **Section 6**). All proposed rates beginning in FY 2021-22 are calculated by simply increasing the prior year proposed rate by the annual revenue adjustment (from **Table 5-12**).

7.1. Proposed Rate Structure Changes

Raftelis worked closely with District staff to evaluate potential changes to the existing rate structure. Different rate structures promote varying policy objectives. Therefore, it is critical for a public water utility to implement a rate structure that advances its agency-specific policy priorities.

The District's existing rate structure provides affordability for essential indoor water use for single family residential customers as a result of its tiered Commodity Charges and Ultra-Low/Low Flow Fixed Meter Charges. This tiered structure also incentivizes conservation and efficiency. Additionally, the current revenue recovery breakdown (30 percent fixed/70 percent variable) balances revenue stability without unduly burdening low water use customers.

The existing rate structure adequately promotes the District's policy objectives of affordability for essential water use, water conservation, and revenue stability. However, the following proposed rate structure changes are based on changing water use characteristics:

- » **Modified Tier Definitions:** The existing tier definitions for Single Family Residential customers are based on pre-drought water patterns. Therefore, Raftelis developed updated tier definitions based on detailed analysis of FY 2018-19 water use patterns and are consistent with prior-study tier definitions. Details regarding proposed tier definitions are provided below in **Section 7.2**.
- » **Separate Rate Classes for Urban and Recreation Irrigation:** The existing rate structure consolidates these two user classes into one uniform rate. Raftelis recommends charging each class a separate uniform rate due to peaking, or extra-capacity, differences. Urban customers water use has lower rates of peaking as customers like commercial accounts, multi-family residential users, and institutional customers use water consistently throughout the year and predominantly for indoor purposes. Conversely, Recreation Irrigation accounts show a greater degree of peaking to meet summer irrigation demands with relatively low needs during normal winter conditions. The result is a lower rate for Urban relative to Recreation Irrigation.
- » **Differentiate Rates for Temporary Service:** Temporary customers are currently charged 1.5 times the Urban Commodity Charge rate. Raftelis recommends that Temporary water use is charged at a unique Commodity Charge rate based on customer class-specific water use patterns.
- » **Discontinue Drought Surcharges:** The District will discontinue its use of Drought Surcharges during periods of declared drought. Although Drought Surcharges improve revenue stability during periods of reduced water sales, changes between drought stages can cause both customer confusion and significant bill increases. Additionally, forecasted customer demand for the next five years is not expected to be significantly different than the demand levels experienced during the height of the historic drought.

7.2. Proposed Single Family Residential Tier Definitions

Tier definitions are typically reevaluated and updated as necessary during a water cost of service rate study. The existing definitions of the District’s three Single Family Residential tiers were therefore updated by Raftelis to account for changing water use patterns since the prior rate study was conducted in 2015.

Existing Tier Definitions

Table 7-1 shows the existing tier definitions as well as the underlying rationale for each definition. Tier 1 is intended to include essential indoor water use. The existing Tier 1 maximum (6 HCF per month) is therefore based on estimated efficient indoor water use (based on the State of California’s efficiency standard of 55 gallons per person per day [gpcd] and average household size in the District). Tier 2 is intended to provide for reasonable outdoor water use and is therefore based on average historical summer water use (16 HCF per month). Tier 3 includes any and all water use in excess of the Tier 2 monthly maximum.

Table 7-1: Existing Single Family Residential Tier Definitions

Tier	Tier Definition	Basis
Tier 1	0-6 HCF/Month	6 HCF based on efficient monthly water use standard (55 gpcd) for average SFR household size in District (2.78 persons)
Tier 2	7-16 HCF/Month	16 HCF based on historical average summer SFR water use
Tier 3	>16 HCF/Month	All use greater than Tier 2

Proposed Tier Definitions

Table 7-2 shows the proposed tier definitions as well as the underlying rationale for each definition. Tier 1 is intended to include essential indoor water use. The Tier 1 monthly maximum (6 HCF per month) is based on average Single Family Residential water use during the lowest use month in FY 2018-19. This provides a proxy for indoor water use, as little to no water use is required to meet irrigation demands by residential customers during minimum use winter months. Note that the Tier 1 definition remains unchanged, although the underlying rationale has been updated, and remains consistent with the prior study.

Tier 2 is intended to provide for reasonable outdoor water use. The proposed Tier 2 maximum (12 HCF per month) is based on average Single Family Residential water use during the highest use month in FY 2018-19. This provides a proxy for reasonable outdoor water use. Note that the proposed Tier 2 maximum (12 HCF per month) is significantly lower than the existing maximum (16 HCF per month). This reduction reflects the reduction in Single Family Residential outdoor water use since the prior study was conducted. Tier 3 includes all water use in excess of 12 HCF per month.

Table 7-2: Proposed Single Family Residential Tier Definitions

Tier	Tier Definition	Basis
Tier 1	0-6 HCF/Month	6 HCF based on average SFR water use during lowest use month in FY 2018-19 (March 2019)
Tier 2	7-12 HCF/Month	12 HCF based on average SFR water use during highest use month in FY 2018-19 (August 2018)
Tier 3	>12 HCF/Month	All use greater than Tier 2

Table 7-3 summarizes the proposed changes to the Single Family Residential tier definitions. Estimated FY 2020-21 water use under the current and proposed tier definitions is also shown. These estimates are based on detailed account-level analysis of actual FY 2018-19 Single Family Residential Water Use. The proposed tier definitions result in a shift in water use from Tier 2 to Tier 3 due to the reduction in the proposed Tier 2 monthly maximum.

Table 7-3: Proposed Changes to Single Family Residential Tiers

Description	Tier 1	Tier 2	Tier 3
Tier Definition			
Current	0-6 HCF/Month	7-16 HCF/Month	>16 HCF/Month
Proposed	0-6 HCF/Month	7-12 HCF/Month	>12 HCF/Month
SFR Water Use by Tier (HCF)			
Current	852,366	441,933	194,522
Proposed	852,366	343,387	293,068
SFR Water Use by Tier (%)			
Current	57.3%	29.7%	13.1%
Proposed	57.3%	23.1%	19.7%
SFR Bills Ending in each Tier			
Current	51.7%	38.7%	9.6%
Proposed	51.7%	30.9%	17.4%

The proposed changes to Single Family Residential tier definitions are also applied to the Ultra-Low Flow and Low Flow Fixed Meter Charge classifications for Single Family Residential 5/8-inch and 3/4-inch water meters. The Ultra-Low Flow classification of up to 6 HCF per month remains unchanged. The Low Flow classification is reduced from 7-16 HCF per month to 7-12 HCF per month based on the proposed Tier 2 maximum (from **Table 7-2**). **Table 7-4** summarizes the projected number of 5/8-inch and 3/4-inch water meters for all customer classes in FY 2020-21 based on the current and proposed Ultra-Low Flow and Low Flow definitions. These estimates are based on detailed account-level analysis of actual FY 2018-19 Single Family Residential Water Use. The reduction in the proposed Low Flow monthly maximum from 16 HCF to 12 HCF results in a shift in meter counts from Low Flow to All Other.

Table 7-4: Impact of Proposed Tier Changes on Fixed Meter Charge Units of Service

Description	Ultra-Low Flow	Low Flow	All Other
5/8" & 3/4" Meter Charge Basis			
Current	0-6 HCF/Month	7-16 HCF/Month	>16 HCF/Month
Proposed	0-6 HCF/Month	7-12 HCF/Month	>12 HCF/Month
Projected FY 5/8" & 3/4" Meter Counts			
Current	7,927	3,428	2,509
Proposed	7,927	2,354	3,583

7.3. Proposed FY 2020-21 Fixed Meter Charges

Fixed Meter Charges are designed to recover the portion of the revenue requirement allocated to the Customer, Meters, and Fire Protection cost causation components. Customer and Fire Protection unit costs (from **Table 6-19**, Column F, Lines 7 and 9) are directly incorporated into the FY 2020-21 Fixed Meter Charge calculations as “unit rates” after converting each unit cost to monthly basis:

$$\text{Unit Rate} = \text{Unit Cost} \div 12 \text{ monthly billing periods per year}$$

$$\text{Customer Unit Rate} = \$77.399 \div 12 = \$6.45$$

$$\text{Fire Protection Unit Rate} = \$19.027 \div 12 = \$1.59$$

The Meters unit cost (from **Table 6-19**, Column F, Lines 8) must be refined into two components to account for peaking versus non-peaking related costs. This is necessary because a portion of peaking costs were reallocated to Meters as part of the adjusted cost of service allocation. **Table 7-5** shows the development of two distinct unit rates associated with the Meters cost causation component: Non-Peaking and Peaking. The total Meters revenue requirement in Column C, Line 4 (from **Table 6-17**, Column H, Lines 8) is divided into a peaking component in Line 3 (from **Table 6-17**, Column G, sum of Lines 4-5) and a non-peaking component in Line 2 (Line 4 minus Line 3).

Unit rates (Column E) are calculated by dividing the revenue requirement (Column C) by units of service (Column D). Non-peaking units of service (Column D, Line 2) are equal to total equivalent meter units (from **Table 6-18**, Column F, Line 13). Peaking-related Meters costs cannot be attributed to Ultra-Low Flow meters, which do not contribute to system peaking. Therefore, peaking units of service (Column D, Line 3) are equal to total equivalent meter peaking units (from **Table 6-18**, Column H, Line 13), which exclude Ultra-Low Flow meters.

Table 7-5: Fixed Meter Charge Unit Costs

[A]	[B]	[C]	[D]	[E]
Line	Cost Causation Component	Revenue Requirement	Units of Service	Unit Rate
1	Meters			
2	Meters (Non-Peaking)	\$7,609,765	20,244 Equivalent Meter Units	\$31.32
3	Meters (Peaking)	\$3,640,314	16,281 Equivalent Meter Peaking Units	\$18.63
4	Total Meters	\$11,250,078		

Proposed FY 2020-21 Fixed Meter Charge Calculation

Table 7-6 shows the detailed calculation of proposed FY 2020-21 Fixed Meter Charges based on Customer, Meters, and Fire Protection unit rates. Customer costs do not vary by connection type or size. Therefore, the Customer unit rate is applied uniformly to all Fixed Meter Charges (Column E).

Meters costs are applied to all water meters but not to fire lines. Because Meters costs vary by meter size based on hydraulic capacity, AWWA capacity ratios in Column C (from **Table 6-18**, Columns E) and meter peaking ratios in Column D (from **Table 6-18**, Columns G) are used to differentiate Meters unit rates by meter size. The Meters (non-peaking) rate components (Column F) are calculated by multiplying the Meters (non-peaking) unit rate (from **Table 7-5**, Column E, Line 2) by the AWWA capacity ratio (Column C). The Meters (peaking) rate components (Column G) are calculated by multiplying the peaking Meters (peaking) unit rate (from **Table 7-5**, Column E, Line 3) by the meter peaking capacity ratio (Column D).

The Fire Protection unit rate is applied only to Fire Lines (Column H, Line 12). The proposed FY 2020-21 Fixed Meter Charges (Column I) equal the sum of Columns E-H. Columns K-L show the difference between proposed FY 2020-21 Fixed Meter Charges (Column I) and current FY 2019-20 Fixed Meter Charges in Column J (from **Table 4-1**).

Table 7-6: Proposed FY 2020-21 Fixed Meter Charge Calculation

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]
Line	Water Meter Size	AWWA Capacity Ratio	Meter Peaking Ratio	Customer	Meters (Non-Peaking)	Meters (Peaking)	Fire Protection	Proposed Monthly Charge	Current Monthly Charge	Difference (\$)	Difference (%)
1	5/8 & 3/4-inch - Ultra-Low Flow	0.50	0.00	\$6.45	\$15.66	\$0.00	N/A	\$22.12	\$16.41	\$5.71	34.8%
2	5/8 & 3/4-inch - Low Flow	0.67	0.67	\$6.45	\$20.88	\$12.42	N/A	\$39.76	\$33.86	\$5.90	17.4%
3	5/8 & 3/4-inch - All Other	1.00	1.00	\$6.45	\$31.32	\$18.63	N/A	\$56.41	\$51.46	\$4.95	9.6%
4	1-inch	1.67	1.67	\$6.45	\$52.21	\$31.06	N/A	\$89.72	\$78.99	\$10.73	13.6%
5	1.5-inch	3.33	3.33	\$6.45	\$104.42	\$62.11	N/A	\$172.98	\$147.82	\$25.16	17.0%
6	2-inch	5.33	5.33	\$6.45	\$167.07	\$99.38	N/A	\$272.90	\$230.42	\$42.48	18.4%
7	3-inch	11.67	11.67	\$6.45	\$365.46	\$217.39	N/A	\$589.30	\$491.95	\$97.35	19.8%
8	4-inch	21.00	21.00	\$6.45	\$657.82	\$391.30	N/A	\$1,055.57	\$877.35	\$178.22	20.3%
9	6-inch	46.67	46.67	\$6.45	\$1,461.83	\$869.54	N/A	\$2,337.83	\$1,937.26	\$400.57	20.7%
10	8-inch	80.00	80.00	\$6.45	\$2,505.99	\$1,490.65	N/A	\$4,003.10	\$3,313.75	\$689.35	20.8%
11	10-inch	126.67	126.67	\$6.45	\$3,967.82	\$2,360.19	N/A	\$6,334.47	\$5,240.86	\$1,093.61	20.9%
12	Fire Lines	N/A	N/A	\$6.45	N/A	N/A	\$1.59	\$8.04	\$10.96	(\$2.92)	-26.7%

7.4. Proposed FY 2020-21 Commodity Charges

Commodity Charges are designed to recover the portion of the rate revenue requirement allocated to the following cost causation components: Cachuma Supply, CCWA Supply, Base Delivery, Peaking (Max Day and Max Hour), Conservation, Urban Ag, GWC, Recycled Water, and Revenue Offsets. However, the unit costs associated with each cost causation component listed above are not uniformly applied to each customer class. Customer classes are only subject to each unit cost if the service they receive contributes to the District incurring costs associated with that specific cost causation component. **Table 7-7** shows which unit costs (Columns C-K) each customer class (Lines 1-8) are subject to.

Customer classes are only subject to Cachuma Supply or CCWA supply costs if they receive water supplied from those sources. Base Delivery and Peaking costs are not allocated to Urban Agriculture customers because they are not subject to treatment costs captured within the Base Delivery and Peaking cost causation components. Base Delivery and Peaking costs are not allocated to Goleta West Conduit or Recycled customers because these customer classes effectively function as independent water systems. Conservation costs are incurred primarily to mitigate the strain on potable water supplies. Recycled customers are not served by the District's potable water supplies and are therefore exempt from Conservation costs. Urban Ag, GWC, and Recycled Water costs are customer class specific, and are therefore only applied to the associated customer class. Lastly, revenue offsets are applied equally to all customer classes.

Table 7-7: Allocation of Unit Costs to Customer Classes

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]
Line	Customer Class	Cachuma Supply	CCWA Supply	Base Delivery	Peaking	Conservation	Urban Ag	GWC	Recycled Water	Revenue Offsets
1	Single Family Residential	✓	✓	✓	✓	✓				✓
2	Urban	✓	✓	✓	✓	✓				✓
3	Recreation Irrigation	✓	✓	✓	✓	✓				✓
4	Urban Agriculture	✓				✓	✓			✓
5	Goleta West Conduit	✓				✓		✓		✓
6	Recycled								✓	✓
7	Temporary	✓	✓	✓	✓	✓				✓

Some unit costs developed within the cost of service analysis (see **Table 6-19**) are applied directly as unit rates to the proposed FY 2020-21 Commodity Charge calculations. However, CCWA Supply, Peaking, Conservation, and Revenue Offset unit costs are further refined as necessary in the following subsections in order to appropriately differentiate the associated unit rates by customer class and tier.

CCWA Supply Unit Rates

The CCWA Supply cost causation component consists solely of O&M expenses associated with CCWA supply. Projected FY 2020-21 CCWA expenses are based on detailed estimates by CCWA. These estimates were broken down by CCWA into fixed costs as well as variable costs which vary based on the quantity of water delivered. **Table 7-8** shows a breakdown of total CCWA Supply costs in Line 1 (from **Table 6-17**, Column H, Line 2 into variable costs (Line 2) and fixed costs (Line 3).

Fixed costs do not vary based on the quantity of water delivered and are therefore applied equally to all customer classes that benefit from imported SWP water from CCWA. These customer classes include Single Family Residential, Urban, Recreation Irrigation, and Temporary. Total projected FY 2020-21 water use associated with these customer classes is shown in Line 5 (from **Table 4-8**). The fixed portion of the CCWA Supply unit rate (Line 7) is calculated by dividing fixed CCWA Supply costs (Line 3) by total water use subject to CCWA costs (Line 5). The fixed CCWA Supply unit rate is applied uniformly to all customer classes and tiers that benefit from imported water from CCWA.

Table 7-8: Fixed CCWA Supply Unit Rates

[A]	[B]	[C]
Line	Description	FY 2020-21
1	Total CCWA Supply Costs	\$9,822,790
2	Variable CCWA Supply Costs	\$1,534,814
3	Fixed CCWA Supply Costs	\$8,287,976
4		
5	Total Water Use Subject to CCWA Costs (HCF)	3,518,810
6		
7	Fixed CCWA Supply Unit Rate	\$2.355

Variable CCWA Supply costs (from **Table 7-8**, Line 2) vary based on actual water deliveries from CCWA, and are therefore applied to customer classes based on the supply mix allocation shown in **Table 7-9**. Customer classes and tiers are allocated variable CCWA Supply costs in proportion to the amount of CCWA water each is allocated. FY 2020-21 water use (Column C) is based on projections previously shown in **Table 7-3** for Single Family Residential customers and in **Table 4-8** for all other customer classes. Column D estimates the quantity of water supply required to meet demand (Column C) assuming a 5.8 percent water loss factor (from **Table 4-9**). Column E shows the conversion of projected water supply (Column D) from HCF to AF.³³ The amount of required water supply (Column E) assumed to be met by local groundwater, Lake Cachuma, and CCWA are shown in Columns F-H respectively. Total available supply met by each source in FY 2020-21 (Columns F-H, Line 18) was previously determined in **Table 4-9**.

The quantity of supply from each source (Columns F-H, Line 18) is first allocated proportionally based on projected water use to Single Family Residential customers and all other customers. The quantity from each supply source allocated to Single Family Residential (Columns F-H, Lines 5) is allocated differentially to each tier. Tier 1 represents essential indoor water use and is therefore preferentially allocated all Single Family Residential groundwater (Column F, Line 2), which represents the most affordable source of supply. Remaining Tier 1 water supply is assumed to be met by Lake Cachuma (Column G, Line 2). Tier 2's required supply is assumed to be met entirely by Lake Cachuma (Column G, Line 3). Tier 3 is allocated any remaining Lake Cachuma water assigned to Single Family Residential water (Column G, Line 4). All other Tier 3 use is assumed to be met by CCWA (Column H, Line 4), which represents the most expensive supply source. Non-residential customer classes are proportionally allocated supplies from each of the three sources (Columns F-H, Lines 8-15) with the following exceptions: 1) Urban Agriculture does not receive any CCWA water and 2) the Goleta West Conduit is served exclusively by Lake Cachuma water.

³³ 1 AF equals approximately 435.6 HCF

The proportion of total CCWA supply (Column H, Line 18) associated with each customer class and tier (Column I, Lines 2-16) provides the basis for allocating variable CCWA Water Supply costs to each customer class. Total variable CCWA Water Supply costs (from **Table 7-8**, Line 2) is multiplied by these percent allocations (Column I) to determine total variable CCWA Water Supply costs allocated to each customer class and tier (Column J). The variable CCWA Water Supply unit rate (Column K) is then calculated by dividing allocated costs (Column J) by projected FY 2020-21 water use in HCF (Column C)

Table 7-9: Variable CCWA Supply Unit Rates

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]
Line	Description	FY 2020-21 Water Use (HCF)	Required Supply with Loss (HCF)	Required Supply with Loss (AF)	Ground-water Allocation (AF)	Cachuma Allocation (AF)	CCWA Allocation (AF)	% of CCWA Variable Costs	Allocated Variable CCWA Costs	Variable CCWA Supply Rate
1	SFR									
2	Tier 1	852,366	904,847	2,077.2	727.2	1,350.1	0.0	0.00%	\$0	\$0.00
3	Tier 2	343,387	364,529	836.8	0.0	836.8	0.0	0.00%	\$0	\$0.00
4	Tier 3	293,068	311,113	714.2	0.0	279.7	434.5	33.83%	\$519,269	\$1.772
5	Total SFR	1,488,821	1,580,489	3,628.3	727.2	2,466.7	434.5	33.83%	\$519,269	
6										
7	Non-SFR									
8	Urban	1,848,669	1,962,494	4,505.3	1,050.1	2,681.4	773.8	60.26%	\$924,836	\$0.500
9	Recreation Irrigation	179,748	190,815	438.1	102.1	260.7	75.2	5.86%	\$89,923	\$0.500
10	Urban Agriculture	473,892	503,070	1,154.9	269.2	885.7	0.0	N/A	N/A	N/A
11	Goleta West Conduit	408,249	433,385	994.9	0.0	994.9	0.0	N/A	N/A	N/A
13	Temporary	1,266	1,344	3.1	0.7	1.8	0.5	0.04%	\$633	\$0.500
14	Fire Service ³⁴	307	326	0.7	0.2	0.4	0.1	0.01%	\$154	N/A
15	Unbilled	949	1,007	2.3	0.5	1.4	0.4	N/A	N/A	N/A
16	Total Non-SFR	2,913,079	3,092,441	7,099.3	1,422.8	4,826.3	850.1	66.17%	\$1,015,545	
17										
18	Total	4,401,900	4,672,930	10,727.6	2,150.0	7,293	1,285	100%	\$1,534,814	

³⁴ Fire Service water use (i.e. non-fire related use from private fire lines) is shown to ensure proportional allocation of water supplies between customer classes. However, unit rates are not developed for Fire Service as the District may charge for Fire Service at its discretion.

Table 7-10 shows the total CCWA Supply unit rates for customer classes that receive water from CCWA. The total CCWA Supply unit rate (Column E) equals the sum of the fixed unit rate in Column C (from **Table 7-8**, Line 7) and the variable unit rate in Column D (from **Table 7-9**, Column K).

Table 7-10 Total CCWA Supply Unit Rates

[A]	[B]	[C]	[D]	[E]
Line	Customer Class	Fixed CCWA Supply Rate	Variable CCWA Supply Rate	Total CCWA Supply Rate
1	SFR Tier 1	\$2.355	\$0.00	\$2.355
2	SFR Tier 2	\$2.355	\$0.00	\$2.355
3	SFR Tier 3	\$2.355	\$1.772	\$4.127
4	Urban	\$2.355	\$0.500	\$2.856
5	Recreation Irrigation	\$2.355	\$0.500	\$2.856
6	Temporary	\$2.355	\$0.500	\$2.856

Peaking Unit Rates

Table 7-11 shows the development of Peaking unit rates for all customer classes that are assigned Max Day and Max Hour costs. Total Max Day and Max Hour costs are allocated to each customer class and tier based on the Max Day and Max Hour requirements respectively. Max Day requirements in Column C (from **Table 6-14**, Column C) are multiplied by the Max Day unit cost (from **Table 6-19**, Column F, Line 4) to determine allocated Max Day costs (Column D). Max Hour requirements in Column E (from **Table 6-14**, Column E) are multiplied by the Max Hour unit cost (from **Table 6-19**, Column F, Line 5) to determine allocated Max Hour costs (Column F).

Total allocated peaking costs (Column G) equal the sum of allocated Max Day costs (Column D) and allocated Max Hour costs (Column F). The Peaking unit rate (Column I) is calculated by dividing total allocated peaking costs (Column G) by projected FY 2020-21 water use in Column C (from **Table 6-12**, Column C).

Table 7-11: Peaking Unit Rates

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]
Line	Customer Class/Tier	Max Day Requirements (HCF/Day)	Allocated Max Day Costs	Max Hour Requirements (HCF/Day)	Allocated Max Hour Costs	Total Allocated Peaking Costs	FY 2020-21 Water Use (HCF)	Peaking Unit Rate (\$/HCF)
1	SFR Tier 1	N/A	N/A	N/A	N/A	N/A	852,366	\$0.000
2	SFR Tier 2	647.37	\$139,739	584.48	\$15,914	\$155,652	343,387	\$0.453
3	SFR Tier 3	1,036.12	\$223,651	676.88	\$18,430	\$242,081	293,068	\$0.826
4	Urban	1,529.61	\$330,174	2,426.62	\$66,070	\$396,244	1,848,669	\$0.214
5	Recreation Irrigation	483.94	\$104,461	359.36	\$9,784	\$114,246	179,748	\$0.636
6	Temporary	8.06	\$1,740	4.24	\$116	\$1,856	1,266	\$1.466
7	Total	3,705.11	\$799,765	4,051.59	\$110,313	\$910,078		

Conservation Unit Rates

The Conservation unit cost developed in **Section 6** is applied uniformly as a unit rate to all customer classes except for Recycled and Single Family Residential. Recycled customers are exempted from Conservation costs. For Single Family Residential customers, Conservation unit costs are differentiated by tier. This is necessary because

conservation efforts are generally aimed at curtailing non-essential water use that is represented by Tier 2 and Tier 3. Tier 1 use represents essential indoor use that conservation efforts typically does not aim to address. Therefore, Raftelis recommends that Tier 1 rates are not allocated any Conservation costs. **Table 7-12** shows adjustments to the Conservation unit cost so that Conservation unit rates can be developed for each Single Family Residential tier. Because Conservation costs are allocated to all non-recycled customer classes proportionally, the Single Family Residential customer class as a whole must recover its fair share of Conservation costs based on use in all three tiers.

Total Single Family Residential water use in Line 5 (from **Table 7-3**) is multiplied by the Conservation unit cost in Line 7 (from **Table 6-19**, Column F, Line 10) to determine the total Conservation revenue requirement for Single Family Residential customers (Line 9). Tier 1 water use (Line 1) is subtracted from total Single Family Residential water use (Line 5) to determine the adjusted units of service (Line 11). The adjusted unit rate (Line 13) equals the Single Family Residential Conservation revenue requirement (Line 9) divided by the adjusted units of service (Line 11). This represents the Conservation unit rate to be applied to Tier 2 and Tier 3 (Lines 16-17). Tier 1 is exempt from any Conservation cost recovery (Line 15).

Table 7-12: Single Family Residential Conservation Unit Rates

[A] Line	[B] Description	[C] FY 2020-21	[D] Notes
1	SFR Water Use (HCF)		
2	Tier 1	852,366	
3	Tier 2	343,387	
4	Tier 3	293,068	
5	Total SFR Water Use (HCF)	1,488,821	
6			
7	Conservation Unit Cost (per HCF)	\$0.556	
8			
9	SFR Conservation Revenue Requirement	\$827,301	= Line 5 × Line 7
10			
11	Adjusted Units of Service (Tier 2-3 Water Use only)	636,455	= Line 3 + Line 4
12			
13	Adjusted Unit Rate (Tier 2-3 only)	\$1.300	= Line 9 ÷ Line 11
14			
15	Tier 1 Conservation Unit Rate	\$0.000	
16	Tier 2 Conservation Unit Rate	\$1.300	= Line 13
17	Tier 3 Conservation Unit Rate	\$1.300	= Line 13

Revenue Offset Unit Rates

The Revenue Offsets unit cost developed in **Section 6** is applied uniformly as a unit rate to all customer classes except Single Family Residential. Raftelis recommends that Revenue Offsets unit rates are differentiated by tier for Single Family Residential customers. Revenue offsets may be applied to offset various charges at the District’s discretion. Because affordability for essential water use is a core policy objective of the District, Raftelis therefore recommends that all Single Family Residential revenue offsets are applied to Tier 1 rates only. This helps minimize the Tier 1 rate and promotes affordability while further incentivizing conservation. All Single Family Residential customers use Tier 1 water and therefore benefit from the Tier 1 reduction resulting from revenue offsets.

Table 7-13 shows the reallocation of Single Family Residential revenue offsets to Tier 1 only. Total Single Family Residential water use in Line 5 (from **Table 7-3**) is multiplied by the Revenue Offsets unit cost in Line 7 (from **Table 6-19**, Column F, Line 13) to determine the total revenue offsets assigned to the Single Family Residential customer class (Line 9). Tier 1 water use (Line 1) equals the adjusted units of service (Line 11). The adjusted unit rate (Line 13) equals total Single Family Residential revenue offsets (Line 9) divided by the adjusted units of service (Line 11). This represents the Revenue Offsets unit rate to be applied to Tier 1 only (Lines 15). Tiers 2 and 3 are not allocated any revenue offsets (Lines 16-17).

Table 7-13: Single Family Residential Revenue Offsets Unit Rates

[A]	[B]	[C]	[D]
Line	Description	FY 2020-21	Notes
1	SFR Water Use (HCF)		
2	Tier 1	852,366	
3	Tier 2	343,387	
4	Tier 3	293,068	
5	Total SFR Water Use (HCF)	1,488,821	
6			
7	Revenue Offsets Unit Cost (per HCF)	(\$0.157)	
8			
9	Total SFR Revenue Offsets	(\$233,117)	= Line 5 × Line 7
10			
11	Adjusted Units of Service (<i>Tier 1 Water Use only</i>)	852,366	= Line 2
12			
13	Adjusted Unit Rate (<i>Tier 1 only</i>)	(\$0.273)	= Line 9 ÷ Line 11
14			
15	Tier 1 Revenue Offsets Unit Rate	(\$0.273)	= Line 13
16	Tier 2 Revenue Offsets Unit Rate	\$0.000	
17	Tier 3 Revenue Offsets Unit Rate	\$0.000	

Proposed FY 2020-21 Commodity Charge Calculation

Table 7-14 shows the proposed FY 2020-21 Commodity Charge calculations. The proposed rate (Column C) is calculated by summing all constituent unit rates (Columns C-K). Unit rates are applied to each customer class in accordance with **Table 7-7**. Most unit rates simply equal the associated unit cost developed in **Section 6** (see **Table 6-19**). The following unit rates however are differentiated by customer class and were calculated in detail in the preceding subsections:

- » CCWA Supply unit rates in Column E (from **Table 7-10**)
- » Peaking unit rates in Column F (from **Table 7-11**)
- » Single Family Residential Conservation unit rates in Column G, Lines 1-3 (from **Table 7-12**)
- » Single Family Residential Revenue Offsets unit rates in Column K, Lines 1-3 (from **Table 7-13**)

Table 7-14: Proposed FY 2020-21 Commodity Charge Calculation

[A]	[B]	[C]	[D]	[E]	[F]	[G]	[H]	[I]	[J]	[K]	[L]
Line	Customer Class	Cachuma Supply Unit Rate	CCWA Supply Unit Rate	Base Delivery Unit Rate	Peaking Unit Rate	Conservation Unit Rate	Urban Ag Unit Rate	GWC Unit Rate	Recycled Water Unit Rate	Revenue Offset Unit Rate	Proposed Rate
1	Single Family Residential (First 6 HCF/month)	\$1.060	\$2.355	\$2.640	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	(\$0.273)	\$5.79
2	Single Family Residential (Next 6 HCF/ month)	\$1.060	\$2.355	\$2.640	\$0.453	\$1.300	\$0.000	\$0.000	\$0.000	\$0.000	\$7.81
3	Single Family Residential (All additional HCF)	\$1.060	\$4.127	\$2.640	\$0.826	\$1.300	\$0.000	\$0.000	\$0.000	\$0.000	\$9.96
4	Urban	\$1.060	\$2.856	\$2.640	\$0.214	\$0.556	\$0.000	\$0.000	\$0.000	(\$0.157)	\$7.17
5	Recreation Irrigation	\$1.060	\$2.856	\$2.640	\$0.636	\$0.556	\$0.000	\$0.000	\$0.000	(\$0.157)	\$7.60
6	Urban Agriculture	\$1.060	\$0.000	\$0.000	\$0.000	\$0.556	\$0.889	\$0.000	\$0.000	(\$0.157)	\$2.35
7	Goleta West Conduit	\$1.060	\$0.000	\$0.000	\$0.000	\$0.556	\$0.000	\$0.448	\$0.000	(\$0.157)	\$1.91
8	Recycled	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$0.000	\$4.021	(\$0.157)	\$3.87
9	Temporary	\$1.060	\$2.856	\$2.640	\$1.466	\$0.556	\$0.000	\$0.000	\$0.000	(\$0.157)	\$8.43

Table 7-15 shows the difference between proposed FY 2020-21 Commodity Charges (from **Table 7-14**) and current FY 2019-20 Commodity Charges (from **Table 4-1**). Distributional impacts to the various customer classes are a result of the District’s changing cost structure and water use patterns relative to the prior rate study, and due to refinements to the methodology to maintain adherence with current industry norms.

Table 7-15: Proposed FY 2020-21 Commodity Charges

[A]	[B]	[C]	[D]	[E]	[F]
Line	Customer Class	Proposed Rate (\$/HCF)	Current Rate (\$/HCF)	Difference (\$)	Difference (%)
1	Single Family Residential (First 6 HCF/month)	\$5.79	\$5.26	\$0.53	10.1%
2	Single Family Residential (Next 6 HCF/ month)	\$7.81	\$6.46	\$1.35	20.9%
3	Single Family Residential (All additional HCF)	\$9.96	\$7.12	\$2.84	39.9%
4	Urban	\$7.17	\$6.10	\$1.07	17.5%
5	Recreation Irrigation	\$7.60	\$6.10	\$1.50	24.6%
6	Urban Agriculture	\$2.35	\$2.11	\$0.24	11.4%
7	Goleta West Conduit	\$1.91	\$1.59	\$0.32	20.1%
8	Recycled	\$3.87	\$3.79	\$0.08	2.1%
9	Temporary	\$8.43	N/A	N/A	N/A

7.5. Proposed Five-Year Rate Schedule

Table 7-16 shows the proposed five-year schedule of water rates through FY 2024-25. Proposed FY 2019-20 Fixed Meter Charges (see **Table 7-6**) and Commodity Charges (see **Table 7-14**) were calculated in the preceding subsections. All proposed rates beginning in FY 2021-22 are calculated by increasing the prior year’s proposed rate by the proposed annual revenue adjustment (from **Table 5-12**). For example, the proposed FY 2021-22 Ultra-Low Flow Fixed Meter Charge (\$24.56) is calculated by increasing the proposed FY 2020-21 Ultra-Low Flow Fixed Meter Charge (\$22.12) by 11 percent. All proposed rates are rounded up to the nearest cent to ensure adequate revenue recovery. Current FY 2019-20 water rates (from **Table 4-1**) are also shown.

Table 7-16: Proposed Five-Year Water Rate Schedule

Description	FY 2019-20 (Current)	FY 2020-21 (7/1/2020)	FY 2021-22 (7/1/2021)	FY 2022-23 (7/1/2022)	FY 2023-24 (7/1/2023)	FY 2024-25 (7/1/2024)
Proposed Revenue Adjustment		19.0%	11.0%	9.0%	9.0%	9.0%
Fixed Meter Charges (per Month)						
5/8" & 3/4" - Ultra-Low Flow (6 HCF or less)	\$16.41	\$22.12	\$24.56	\$26.78	\$29.20	\$31.83
5/8" & 3/4" - Low Flow (7-12 HCF) ³⁵	\$33.86	\$39.76	\$44.14	\$48.12	\$52.46	\$57.19
5/8 & 3/4-inch - All Other	\$51.46	\$56.41	\$62.62	\$68.26	\$74.41	\$81.11
1-inch	\$78.99	\$89.72	\$99.59	\$108.56	\$118.34	\$129.00
1.5-inch	\$147.82	\$172.98	\$192.01	\$209.30	\$228.14	\$248.68
2-inch	\$230.42	\$272.90	\$302.92	\$330.19	\$359.91	\$392.31
3-inch	\$491.95	\$589.30	\$654.13	\$713.01	\$777.19	\$847.14
4-inch	\$877.35	\$1,055.57	\$1,171.69	\$1,277.15	\$1,392.10	\$1,517.39
6-inch	\$1,937.26	\$2,337.83	\$2,595.00	\$2,828.55	\$3,083.12	\$3,360.61
8-inch	\$3,313.75	\$4,003.10	\$4,443.45	\$4,843.37	\$5,279.28	\$5,754.42
10-inch	\$5,240.86	\$6,334.47	\$7,031.27	\$7,664.09	\$8,353.86	\$9,105.71
Fire Line Charge	\$10.96	\$8.04	\$8.92	\$9.73	\$10.61	\$11.57
Commodity Charges (per HCF)						
Single Family Residential (First 6 HCF/month)	\$5.26	\$5.79	\$6.43	\$7.01	\$7.65	\$8.34
Single Family Residential (Next 6 HCF/ month) ³⁶	\$6.46	\$7.81	\$8.67	\$9.46	\$10.32	\$11.25
Single Family Residential (All additional HCF)	\$7.12	\$9.96	\$11.06	\$12.06	\$13.15	\$14.34
Urban	\$6.10	\$7.17	\$7.96	\$8.68	\$9.47	\$10.33
Recreation Irrigation	\$6.10	\$7.60	\$8.44	\$9.20	\$10.03	\$10.94
Urban Agriculture	\$2.11	\$2.35	\$2.61	\$2.85	\$3.11	\$3.39
Goleta West Conduit	\$1.59	\$1.91	\$2.13	\$2.33	\$2.54	\$2.77
Recycled	\$3.79	\$3.87	\$4.30	\$4.69	\$5.12	\$5.59
Temporary	N/A	\$8.43	\$9.36	\$10.21	\$11.13	\$12.14

Table 7-17 shows projected rate revenues by charge and customer class over the next five years. Revenues beyond FY 2020-21 are calculated based on estimated units of service consistent with the growth assumptions outlined in Section 4. Note that total rate revenues slightly exceed projected rate revenues under the proposed financial plan in Section 5 due to rounding up of rates to the nearest cent.

³⁵ Low Flow is classified as 7-16 HCF/month under current rates.

³⁶ Next 10 HCF/month under current rates.

Table 7-17: Projected Rate Revenues by Customer Class

Description	FY 2019-20	FY 2020-21	FY 2021-22	FY 2022-23	FY 2023-24	FY 2024-25
Fixed Meter Charges (per Month)						
5/8" & 3/4" - Ultra-Low Flow Projected Revenue	\$1,554,683	\$2,104,143	\$2,345,676	\$2,567,988	\$2,811,259	\$3,077,070
5/8" & 3/4" - Low Flow Projected Revenue	\$1,392,865	\$1,123,132	\$1,246,857	\$1,359,283	\$1,481,879	\$1,615,491
5/8" & 3/4" - All Other Projected Revenue	\$1,536,390	\$2,425,417	\$2,708,203	\$2,970,144	\$3,256,495	\$3,570,155
1" Projected Revenue	\$1,680,591	\$1,942,259	\$2,192,972	\$2,429,573	\$2,692,472	\$2,982,996
1 1/2" Projected Revenue	\$837,252	\$983,910	\$1,092,153	\$1,195,522	\$1,303,136	\$1,426,428
2" Projected Revenue	\$1,523,537	\$1,804,415	\$2,002,907	\$2,183,216	\$2,379,725	\$2,593,954
3" Projected Revenue	\$153,488	\$183,862	\$204,089	\$222,459	\$242,483	\$264,308
4" Projected Revenue	\$336,902	\$418,006	\$478,050	\$551,729	\$618,092	\$691,930
6" Projected Revenue	\$767,155	\$925,781	\$1,027,620	\$1,154,048	\$1,257,913	\$1,371,129
8" Projected Revenue	\$278,355	\$336,260	\$373,250	\$464,964	\$506,811	\$552,424
10" Projected Revenue	\$251,561	\$304,055	\$337,501	\$367,876	\$400,985	\$437,074
Private Fire Line Projected Revenue	\$62,472	\$45,802	\$50,844	\$55,461	\$60,477	\$65,949
Commodity Charges (per HCF)						
SFR Tier 1 Projected Revenue	\$4,464,463	\$4,935,201	\$5,503,514	\$6,025,243	\$6,602,461	\$7,228,605
SFR Tier 2 Projected Revenue	\$2,842,797	\$2,681,849	\$2,989,546	\$3,275,704	\$3,588,237	\$3,928,240
SFR Tier 3 Projected Revenue	\$1,379,133	\$2,918,958	\$3,254,817	\$3,564,069	\$3,902,226	\$4,273,462
Urban Projected Revenue ³⁷	\$11,197,996	\$13,267,763	\$14,857,606	\$16,350,769	\$17,979,174	\$19,769,871
Recreation Irrigation Projected Revenue	\$1,096,461	\$1,366,082	\$1,517,070	\$1,653,679	\$1,802,869	\$1,966,440
Urban Agriculture Projected Revenue	\$999,912	\$1,113,647	\$1,236,859	\$1,350,593	\$1,473,805	\$1,606,494
Goleta West Conduit Projected Revenue	\$649,116	\$779,756	\$869,570	\$951,220	\$1,036,952	\$1,130,850
Recycled Projected Revenue	\$796,434	\$826,507	\$918,341	\$1,001,632	\$1,093,466	\$1,193,843
Total	\$33,801,565	\$40,486,803	\$45,207,445	\$49,695,171	\$54,490,919	\$59,746,711

7.6. Monthly Bill Impacts

Figure 7-1 shows sample monthly bills for Single Family Residential customers with a 5/8-inch or 3/4-inch water meter at varying levels of water use. Note that approximately 90 percent of Single Family Residential customers have either a 5/8-inch or 3/4-inch water meter. The three water use levels represent a typical Ultra-Low Flow, Low Flow, and All Other customers.

Three sample bills were calculated at each water use level. The dark blue bars represent an estimated monthly bill with current FY 2019-20 water rates. The gold bars represent an estimated monthly bill with current FY 2019-20 water rates if a Stage 3 Drought was in effect, and therefore includes the currently adopted \$3.02/HFC Stage 3 Drought Surcharge. The light blue bars represent an estimated monthly bill at proposed FY 2020-21 water rates.

This demonstrates that although Single Family Residential monthly bills are projected to increase significantly in FY 2020-21 relative to FY 2019-20, the actual bill increases are lower relative to the last few drought years. Note that Stage 3 Drought Surcharges were in effect until April 2019. Many customers will likely have lower monthly bills in

³⁷ Temporary Commodity Charge revenue and Fire Service (i.e. penalty charges for non-fire related water use by fire lines) Commodity Charge revenues (less than 0.1% of total rate revenue) are included with the Urban customer class.

FY 2020-21 relative to FY 2018-19 when Drought Surcharges are considered. Note that beyond FY 2020-21, estimated monthly bill increases simply equal the proposed annual revenue adjustment.

Figure 7-1: Single Family Residential Monthly Bill Impacts (FY 2020-21)

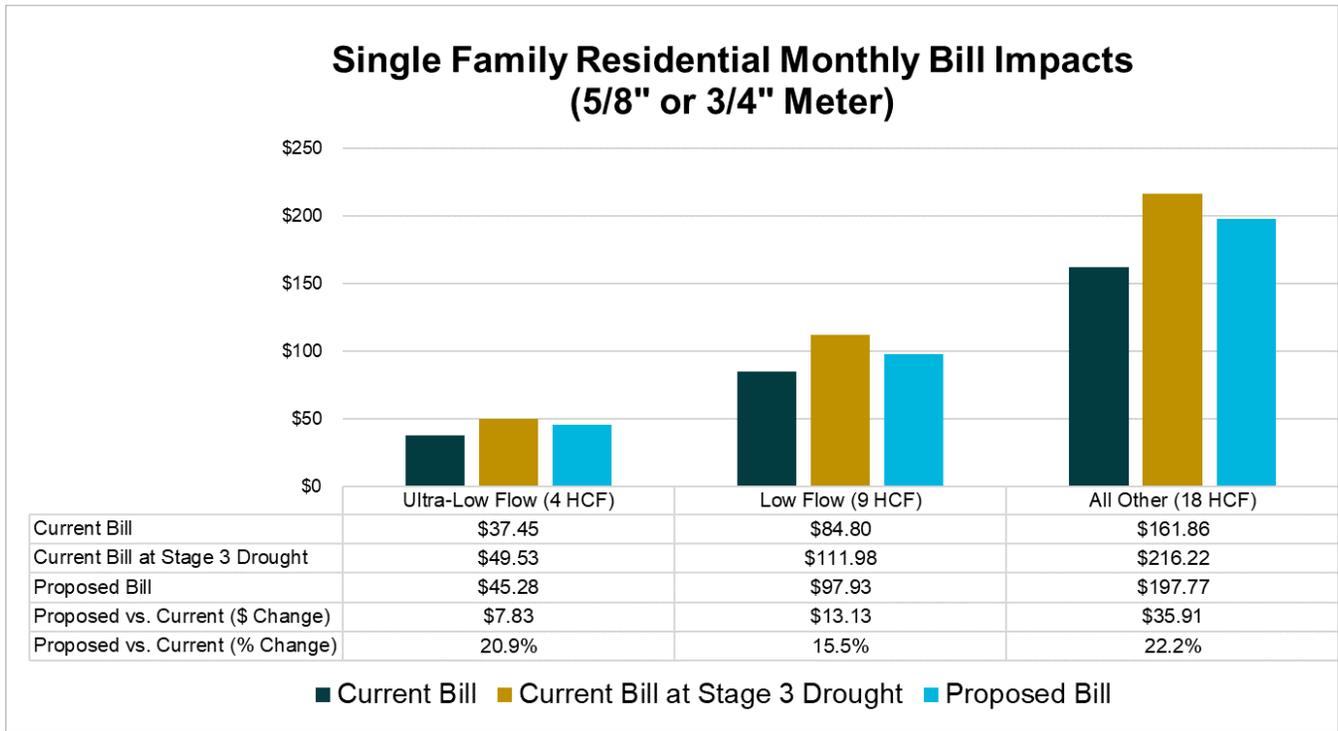
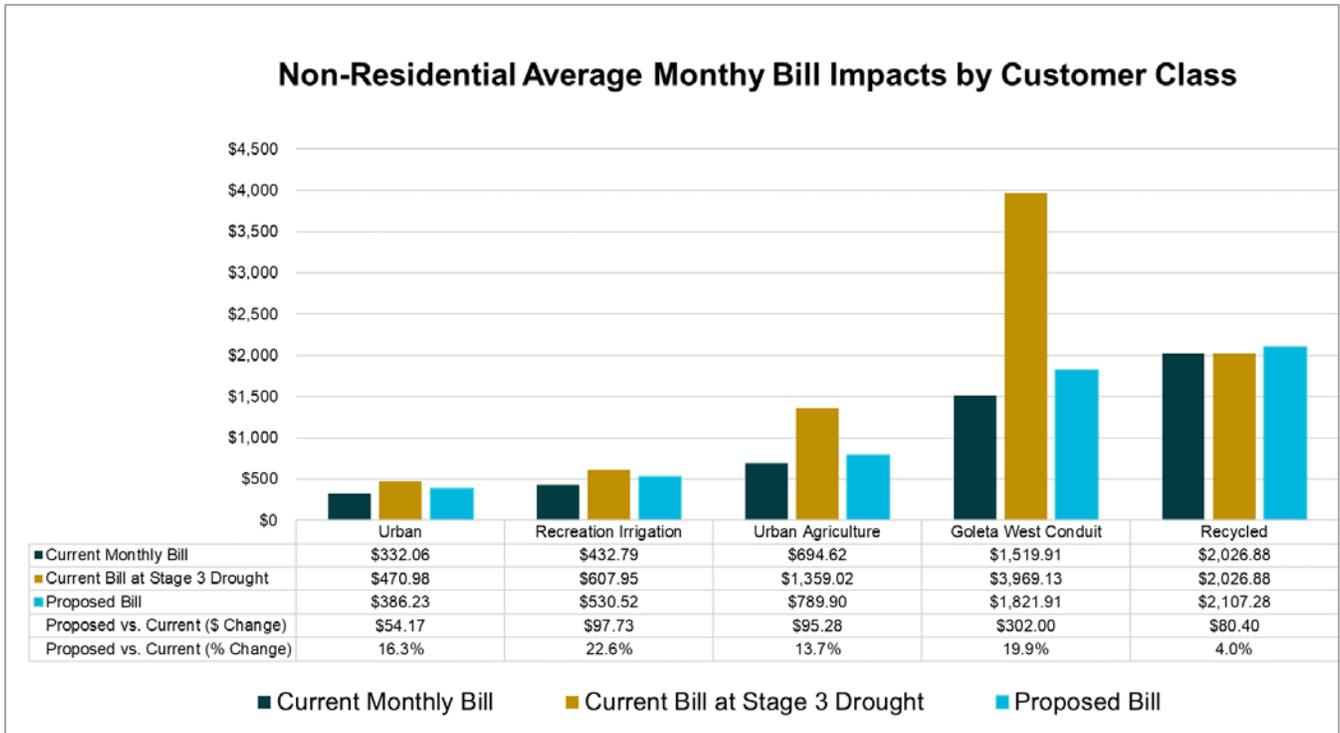


Figure 7-2 shows similar monthly bill impacts for all other customer classes. Monthly bills are estimated based on average FY 2018-19 water use and the median water meter size for each customer class. Similar to Single Family Residential customers, many non-residential customers will likely still receive lower monthly bills in FY 2020-21 relative to FY 2018-19 when Stage 3 Drought Surcharges were in effect.

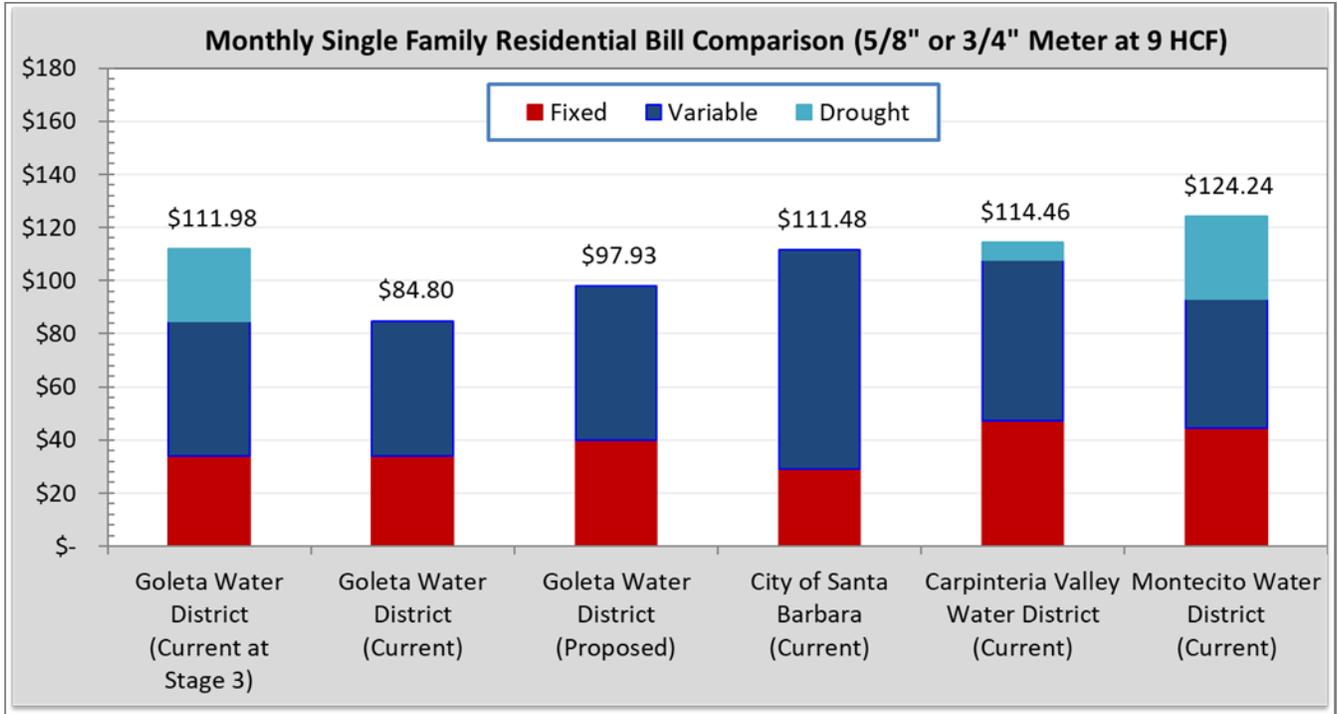
Figure 7-2: Non-Residential Monthly Bill Impacts (FY 2020-21)



7.7. Monthly Bill Comparison

Figure 7-3 shows a comparison of sample Single Family Residential monthly bills with three neighboring water agencies. All bills are calculated based on a 5/8-inch or 3/4-inch water meter size and monthly water use of 9 HCF. Estimated monthly bills based on both the District’s current FY 2019-20 and proposed FY 2020-21 water rates are considerably lower than bills based on the other agencies’ current FY 2019-20 rates. This demonstrates that the District’s Single Family Residential customers benefit from significantly lower water rates compared to water rates for other neighboring agencies. Note that all three of the other agencies shown are either scheduled or expected to implement rate increases in FY 2020-21. Note that Carpinteria Valley Water District and Montecito Water District still currently have drought surcharges in effect.

Figure 7-3: Single Family Residential Bill Comparison with Neighboring Agencies



8. Appendix A: Peaking Factors by Customer Class/Tier

Table 8-1 shows the calculation of Max Day and Max Hour peaking factors for customer classes and tiers that are subject to peaking cost allocation. The peaking analysis shown is based on actual account level water use in FY 2018-19. The ratios of systemwide Max Day (Column F) and Max Hour (Column H) peaking factors to systemwide Max Month factors are used to convert customer class/tier-specific Max Month factors (Column E) into estimated Max Day (Column G) and Max Hour (Column I) peaking factors.

Table 8-1: Peaking Factors by Customer Class/Tier

[A]	[B]	[C]	[D]	[E = C÷D]	[F]	[G=E×F]	[H]	[I=E×H]
Line	Customer Class	Max Month Water Use (HCF)	Average Month Water Use (HCF)	Max Month Factor	Ratio of Max Day to Max Month (Systemwide)	Max Day Factor	Ratio of Max Hour to Max Month (Systemwide)	Max Hour Factor
1	SFR Tier 2	37,300	25,441	1.47	1.15	1.69	1.58	2.31
2	SFR Tier 3	43,197	21,713	1.99	1.15	2.29	1.58	3.13
3	Urban	154,313	136,483	1.13	1.15	1.30	1.58	1.78
4	Recreation Irrigation	23,031	13,374	1.72	1.15	1.98	1.58	2.71
5	Temporary	272	94	2.89	1.15	3.33	1.58	4.55