

OLIVENHAIN

MUNICIPAL WATER DISTRICT

2019 Water Rate Study

Final Report / September 11, 2019



September 11, 2019

Ms. Kimberly A. Thorner
General Manager
Olivenhain Municipal Water District
1966 Olivenhain Road
Encinitas, CA 92024

Subject: 2019 Water Rate Study Report

Dear Ms. Thorner,

Raftelis is pleased to provide this 2019 Water Rate Study Report (Report) to the Olivenhain Municipal Water District (District). The overall goal of the study was to develop updated water rates for the District for the next five fiscal years (FY 2020-FY 2024) that are fair and equitable and in compliance with Proposition 218 requirements.

The major objectives of the study include the following:

- » Develop a five-year financial plan through FY 2024 that sufficiently funds the District's operating costs, debt obligations, and necessary capital expenditures
- » Review and revise as necessary the current water rate structure
- » Perform a cost of service analysis to equitably allocate costs across customer classes
- » Propose equitable water rates for FY 2020 to FY 2024

This Report summarizes the key findings and recommendations related to the development of the financial plan and proposed water rates. It has been a pleasure working with you and we would like to thank you and District staff for the support provided to Raftelis during this study.

Sincerely,

RAFTELIS FINANCIAL CONSULTANTS, INC.

A blue ink signature of Sudhir Pardiwala, written in a cursive style.

Sudhir Pardiwala
Executive Vice President

A black ink signature of Hannah Phan, written in a cursive style.

Hannah Phan
Manager

A red ink signature of Charles Diamond, written in a cursive style.

Charles Diamond
Consultant

Table of Contents

1.	Executive Summary	1
1.1.	Study Overview	1
1.2.	Financial Plan	2
1.3.	Proposed Water Rates	4
1.4.	Water Supply Shortage Rates.....	6
1.5.	Customer Impacts	7
2.	Introduction	8
2.1.	Water System Overview	8
2.2.	Study Objectives	8
2.3.	Legal Requirements and Rate-Setting Methodology	9
3.	Financial Plan	11
3.1.	Existing Water Rates	11
3.2.	Water Account and Usage Assumptions	12
3.3.	Revenues.....	15
3.4.	Operations and Maintenance Expenses	18
3.5.	Debt Service	20
3.6.	Capital Improvement Plan	21
3.7.	Financial Policies	23
3.8.	Status Quo Financial Plan	24
3.9.	Proposed Financial Plan	25
4.	Cost of Service.....	30
4.1.	Process and Approach	30
4.2.	Revenue Requirement	30
4.3.	Functionalization and Allocation of Expenses.....	31
4.4.	Peaking Factors	32
4.5.	Allocation of Functional Categories to Cost Causation Components.....	34
4.6.	O&M Allocation	35
4.7.	Capital Allocation	37
4.8.	Revenue Offset Allocation	39
4.9.	Allocation of Revenue Requirements to Cost Causation Components.....	41

4.10.	Units of Service	43
4.11.	Units Cost Development.....	46
4.12.	Cost of Service by Customer Class	46
5.	Rate Design	48
5.1.	Rate Structure Overview	48
5.2.	OMWD System Access Charge Calculation	49
5.3.	Fire Meter Charge Calculation.....	50
5.4.	SDCWA Infrastructure Access Charges	50
5.5.	Volumetric Rate Calculations	51
5.6.	Proposed Water Rates	54
5.7.	Proposed Water Shortage Supply Rates.....	56
6.	Customer Impacts	60
6.1.	Monthly Bill Impacts	60
6.2.	Monthly Bill Comparison	62

List of Tables

Table 1-1: Proposed 5-Year Revenue Adjustments	3
Table 1-2: Proposed Monthly Fixed Charges	5
Table 1-3: Proposed Volumetric Rates per HCF	6
Table 1-4: Proposed FY 2020 Water Supply Shortage Rates per HCF.....	7
Table 3-1: Existing Monthly Fixed Charges	11
Table 3-2: Existing Volumetric Rates per HCF.....	12
Table 3-3: Tier 1 Monthly Allotments for Irrigation Customers in HCF.....	12
Table 3-4: Number of Water Meters by Customer Class (FY 2019).....	13
Table 3-5: Number of Water Meters	14
Table 3-6: Projected Water Usage in HCF by Customer Class and Accounts	15
Table 3-7: Projected Operating Revenues Under Existing Water Rates	16
Table 3-8: Projected Other Operating Revenues, Non-Operating Revenues, and Capital Revenues.	17
Table 3-9: Revenue Summary.....	17
Table 3-10: Projected O&M Expenses	19
Table 3-11: Existing Debt Service	20
Table 3-12: Proposed FY 2023 Bond Issuance Assumptions	21
Table 3-13: Total Debt Service	21
Table 3-14: Potable Water CIP Projects	22
Table 3-15: Recycled Water CIP Projects.....	23
Table 3-16: Proposed 5-Year Revenue Adjustments	26
Table 3-17: Proposed Financial Plan.....	27
Table 4-1: Proposed Revenue Requirement.....	31
Table 4-2: System Peaking Factor Allocations.....	33
Table 4-3: Peaking Factors by Customer Class	33
Table 4-4: Allocation of Functional Categories to Cost Causation Components	35
Table 4-5: O&M Cost Allocation.....	36
Table 4-6: Capital Cost Allocation.....	38
Table 4-7: Revenue Offset Allocation	40
Table 4-8: Allocation of Revenue Requirement to Cost Causation Components.....	42

Table 4-9: Equivalent Meter Units (FY 2020).....	43
Table 4-10: Equivalent Fire Meter Units (FY 2020).....	44
Table 4-11: Projected Annual Customer Bills (FY 2020).....	44
Table 4-12: Max Day Units of Service	45
Table 4-13: Max Hour Units of Service.....	45
Table 4-14: Summary of Units of Service by Cost Causation Component	46
Table 4-15: Calculation of Unit Costs by Cost Causation Component	46
Table 4-16: Proposed Cost of Service by Customer Class.....	47
Table 5-1: Revised Domestic Tier Definitions	49
Table 5-2: Irrigation Tier Definitions	49
Table 5-3: Monthly OMWD System Access Charge Calculation	50
Table 5-4: Monthly Fire Meter Charge Calculation	50
Table 5-5: Monthly SDCWA Infrastructure Access Charge.....	51
Table 5-6: Max Day Unit Rates by Customer Class.....	52
Table 5-7: Max Hour Unit Rates by Customer Class	52
Table 5-8: Revenue Offsets by Customer Class and Tier	53
Table 5-9: Calculation of Proposed FY 2020 Volumetric Rates per HCF	54
Table 5-10: Proposed Monthly Fixed Charges.....	55
Table 5-11: Proposed Volumetric Rates per HCF	56
Table 5-12: Percent Reduction in Water Usage by Customer Class and Tier	57
Table 5-13: Projected Water Usage by Stage	57
Table 5-14: Calculation of Water Supply Shortage Rate Surcharges.....	58
Table 5-15: Proposed FY 2020 Water Supply Shortage Rates	59
Table 6-1: Commercial Monthly Bill Impacts at Varying Levels of Usage (1” Meter Size).....	60
Table 6-2: Irrigation Monthly Bill Impacts at Varying Levels of Usage (1-1/2” Meter Size).....	61

List of Figures

Figure 1-1: Projected O&M Expenses	2
Figure 1-2: CIP by Funding Source.....	3
Figure 1-3: Proposed Financial Plan	4
Figure 1-4: Domestic Bill Impacts at Varying Levels of Usage	7
Figure 3-1: FY 2020 Revenue Composition	18
Figure 3-2: FY 2020 O&M Expenses Composition	19
Figure 3-3: CIP by Funding Source.....	23
Figure 3-4: Total Fund Balance Under Status Quo Financial Plan	25
Figure 3-5: Projected Debt Coverage Under Status Quo Financial Plan	25
Figure 3-6: Proposed Operating Financial Plan	28
Figure 3-7: Projected Debt Coverage Ratios under Proposed Revenue Adjustments	28
Figure 3-8: Projected Ending Balances Under Proposed Financial Plan	29
Figure 4-1: Cost of Service Comparison: Current and Prior Studies	47
Figure 6-1: Domestic Monthly Bill Impacts at Varying Levels of Usage	60
Figure 6-2: Domestic Monthly Bill Comparison.....	62

List of Appendices

Appendix A: Detailed Water Purchase Cost Projections
Appendix B: Status Quo Financial Plan Cash Flow
Appendix C: Proposed Financial Plan Cash Flow
Appendix D: Allocation of Fire Protection Costs

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1. Executive Summary

1.1. Study Overview

Olivenhain Municipal Water District (District) is a municipal water district that provides water service to a population of approximately 86,000 across a 48 square mile service area in northern San Diego County. The majority of the District's water supply is provided by the San Diego County Water Authority (SDCWA), of which the District has been a member since 1960. The District's potable water system consists of a water treatment plant with 34 MGD of capacity, 17 storage reservoirs, and over 400 miles of water pipelines. Additionally, the District operates a water reclamation facility that produces up to 2 MGD of recycled water. The District also purchases recycled water from the City of San Diego, Vallecitos Water District, San Elijo Joint Powers Authority, and Rancho Santa Fe Community Services District. The District's recycled water distribution system includes 46 miles of recycled water pipelines that are used to deliver recycled water to non-potable landscape/irrigation water users.

The District engaged Raftelis in 2019 to conduct a comprehensive cost of service water rate study to establish proposed water rates for fiscal years FY 2020 to FY 2024. The District's existing water rate structure consists of the following charges:

1. **OMWD System Access Charge:** This fixed monthly meter charge varies by water meter size and recovers a portion of the District's fixed costs.
2. **SDCWA Infrastructure Access Charge:** All water meters excluding construction, fire, and recycled water meters are subject to a monthly SDCWA Infrastructure Access Charge which varies by water meter size. SDCWA assesses the Infrastructure Access Charge to recover a portion of debt service costs associated with the construction of county-wide water infrastructure projects. The SDCWA Infrastructure Access Charge is treated as a pass-through charge by the District, as charges paid by the District to SDCWA are directly recouped from the District's customers.
3. **Volumetric Rate:** The District assesses volumetric rates per hundred cubic feet (hcf) of water delivered each month. Volumetric water rates vary by customer class and by Water Supply Shortage level. Domestic customers have a four-tier volumetric rate structure, while irrigation customers have a two-tier volumetric rate structure. Agricultural, commercial, construction, and recycled water customers have unique uniform rates.
4. **Fire Meter Charge:** Meters dedicated for automatic fire sprinkler service are not subject to the three charges listed above but are assessed a fixed monthly Fire Service Charge which varies by line size. Customers are only assessed this charge if they have a dedicated water line for automatic fire sprinkler service.

The major objectives of the water rate study include the following:

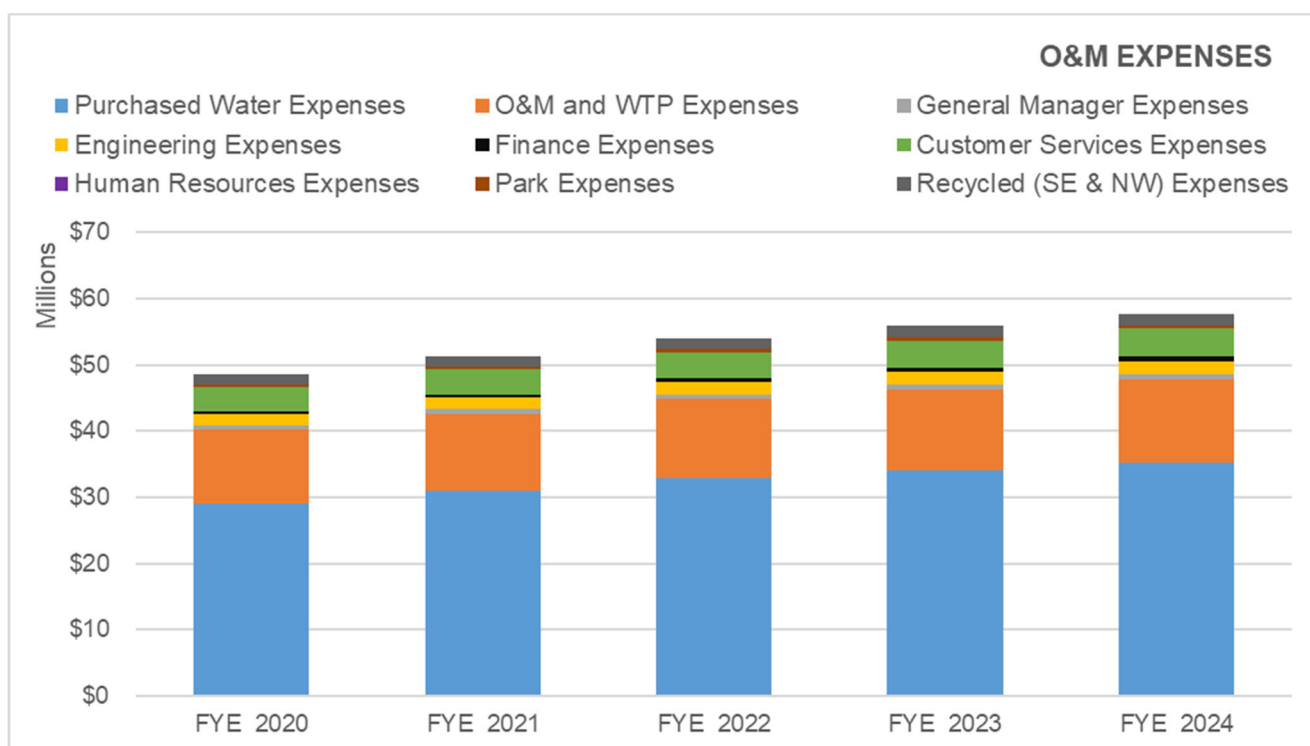
- » Develop a five-year financial plan through FY 2024 that generates sufficient revenues to fund the District's operating costs, debt obligations, and necessary capital expenditures
- » Review and revise as necessary the current water rate structure
- » Perform a cost of service analysis to equitably allocate costs across customers classes in compliance with Proposition 218
- » Propose equitable water rates for FY 2020 to FY 2024

1.2. Financial Plan

Before beginning the rate design process, Raftelis first determined the revenue adjustments needed to adequately fund the District’s various expenses and to provide fiscal stability over the five-year study period. Raftelis projected the revenue requirements, including operations and maintenance (O&M) expenses, capital improvement plan (CIP) expenditures, debt service costs, and reserve requirements over the study period.

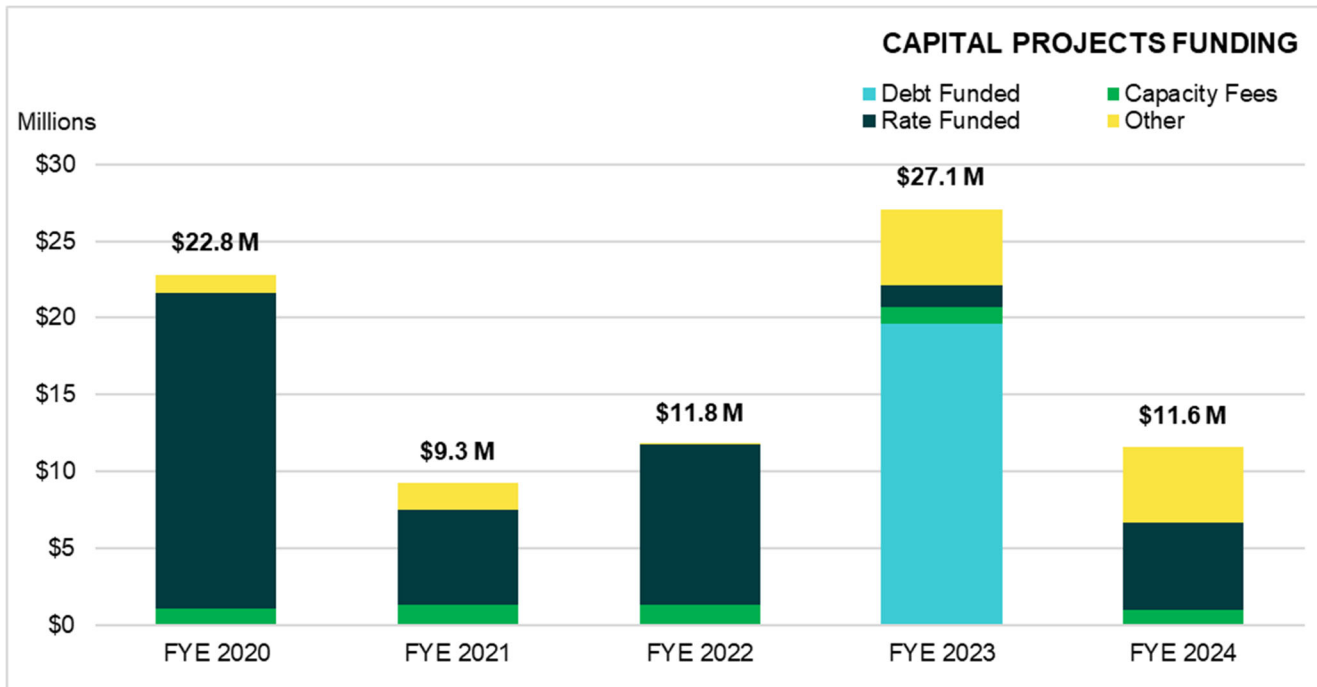
O&M expenses include the cost of purchasing water, operating and maintaining facilities, staff-related costs, and other administrative costs. The O&M projections are based on the District’s fiscal year (FY) 2020 budget and are escalated in subsequent years by three percent per year (except water supply costs which are calculated separately). Water supply costs, which constitute approximately 60 percent of total O&M expenses, are projected to increase based on anticipated increases in SDCWA rates. A summary of projected O&M expenses is shown below in **Figure 1-1**.

Figure 1-1: Projected O&M Expenses



The District has developed a comprehensive water Capital Improvement Program (CIP) to address current water system needs. The total estimated water CIP for the study period of FY 2020 to FY 2024 is \$82.6 million. The majority of the five-year CIP plan is projected to be funded from rate revenues and capacity fees. However, a \$20 million revenue bond issue is projected in FY 2023. The District’s existing debt service payments are approximately \$4.5 million annually and are projected to increase to approximately \$5.8 million following the FY 2023 proposed bond issue of \$20 million. CIP by funding source is shown throughout the study period in **Figure 1-2**. Other revenues include anticipated grant funds, excess property tax revenues, recycled water capacity fee revenues, and proceeds from the sale of the District’s assets.

Figure 1-2: CIP by Funding Source



The proposed financial plan assumes modest growth throughout the study period of 50 domestic accounts per year (assumed to be 3/4-inch water meters). Per account water usage is assumed to remain constant over the study period. Under such assumptions, Raftelis proposes the following revenue adjustments¹ over the study period in order to ensure that District exceeds required debt coverage and minimum reserve levels. The proposed FY 2020 revenue adjustment of 3.7 percent was set equal to the over-the-year percent change in the San Diego-Carlsbad CPI-U for the second half of 2018 as determined by the U.S Bureau of Labor Statistics². The proposed revenue adjustment will be effective with water consumption beginning on March 1, 2020³.

Table 1-1: Proposed 5-Year Revenue Adjustments

Fiscal Year	Effective Date	Revenue Adjustment
FY 2020	March 1, 2020	3.7%
FY 2021	March 1, 2021	5.0%
FY 2022	March 1, 2022	5.0%
FY 2023	March 1, 2023	5.0%
FY 2024	March 1, 2024	5.0%

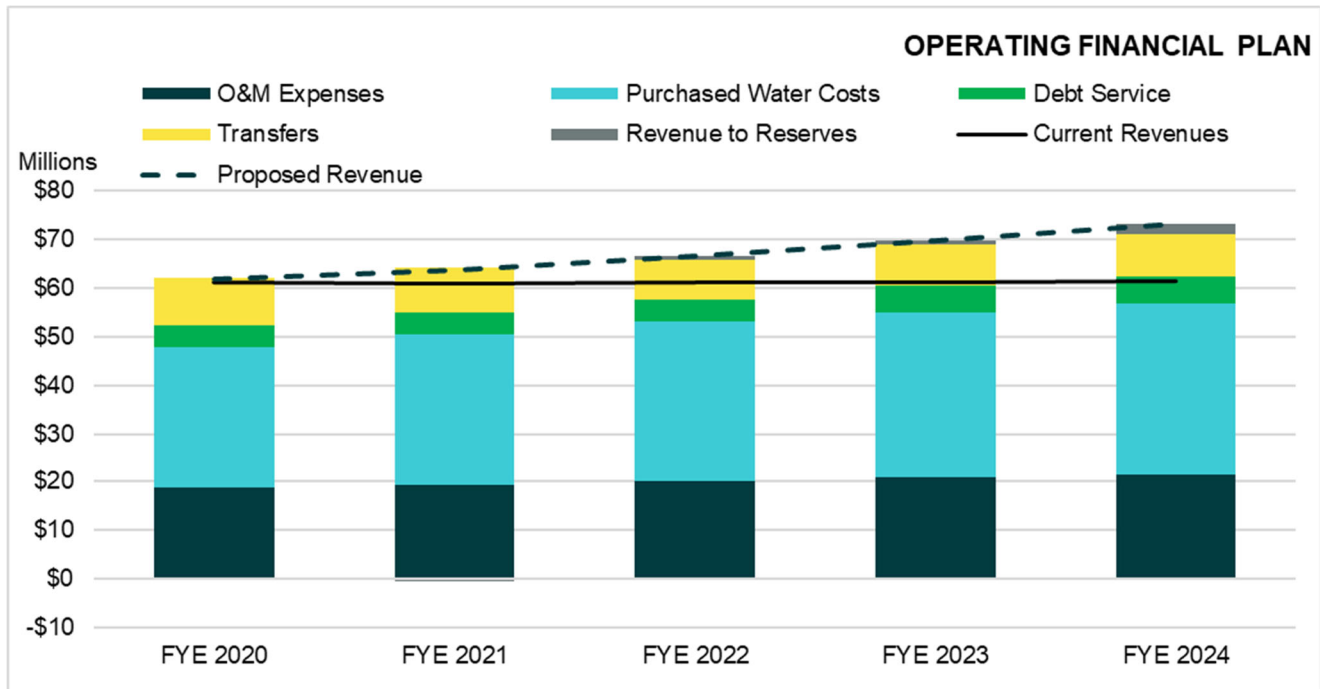
Figure 1-3 shows the proposed financial plan that incorporates the proposed revenue adjustments above. Operating Fund revenue requirements are represented by stacked bars. Projected revenues in the absence of any rate increase are represented by the solid line, while projected revenues under the proposed revenue adjustments are represented by the dashed line. Figure 1-3 clearly demonstrates the need for revenue adjustments, as current rates will not generate sufficient revenues to cover the District’s operating revenue requirements.

¹ A revenue adjustment represents the percent increase in total water rate revenues resulting from a water rate increase.

² This was the most recently available CPI-U value at the time of financial plan development.

³ Note that water consumption in March is billed in March. Therefore, a proposed revenue adjustment that is effective for water consumption beginning on March 1 will have an effective bill date of March 1.

Figure 1-3: Proposed Financial Plan



1.3. Proposed Water Rates

To calculate fair and equitable rates so that customers pay in proportion to the cost of providing service, Raftelis performed a cost of service analysis in accordance with industry standard principles outlined by the American Water Works Association (AWWA) in its *Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices M1 Sixth Edition* (M1 Manual). The cost of service analysis takes into account water usage characteristics of each customer class and tier in order to allocate costs in proportion to the burden each customer class places on the water system.

Raftelis recommends that the District maintains its existing water rate structure. However, a slight revision to the Domestic tier definitions are proposed based on analysis of updated water usage data. Domestic Tier 2 volumetric rates currently apply to domestic customers’ monthly usage between 7 and 25 HCF. The maximum of 25 HCF was previously set equal to average monthly Domestic water usage at the time of the prior water rate study. Raftelis proposes that the Tier 2 monthly maximum be revised from 25 HCF down to 23 HCF to more closely align with updated average monthly domestic water usage for 2018. Proposed system access charges also called fixed charges are shown below in **Table 1-2** and proposed volumetric rates are shown in **Table 1-3**. FY 2020 proposed rates were established based on the cost of service analysis. Proposed rates from FY 2021 to FY 2024 were established by increasing the prior fiscal year’s proposed rates by the corresponding revenue adjustment from **Table 1-1**. All rates are proposed to become effective with water consumption beginning on March 1 of each year.

Since the prior water rate study was conducted in 2014, it has become industry standard to differentiate tiered volumetric rates based on the peak usage characteristics. In the prior study, peak usage characteristics were only evaluated at the customer class level, which was standard at that time. Because of increasingly stringent rate-setting standards that have emerged in California since 2014, Raftelis now differentiates rates at both the customer class and individual tier level based on peak usage characteristics. Because of this refinement, proposed Domestic volumetric rates have less pronounced differences in the per unit rate between the lower and higher tiers. Lower usage customers are most affected, but this change is necessary to comply with current regulations.

Table 1-2: Proposed Monthly Fixed Charges

Effective Date	Current	March 1, 2020	March 1, 2021	March 1, 2022	March 1, 2023	March 1, 2024
Monthly OMWD System Access Charge						
Meter Size						
5/8"	\$28.43	\$29.41	\$30.89	\$32.44	\$34.07	\$35.78
3/4"	\$37.70	\$38.46	\$40.39	\$42.41	\$44.54	\$46.77
1"	\$65.55	\$65.60	\$68.88	\$72.33	\$75.95	\$79.75
1-1/2"	\$102.68	\$101.79	\$106.88	\$112.23	\$117.85	\$123.75
2"	\$161.47	\$159.10	\$167.06	\$175.42	\$184.20	\$193.41
2-1/2"	\$294.50	\$288.78	\$303.22	\$318.39	\$334.31	\$351.03
3"	\$322.34	\$315.93	\$331.73	\$348.32	\$365.74	\$384.03
4"	\$535.82	\$524.03	\$550.24	\$577.76	\$606.65	\$636.99
6"	\$1,120.55	\$1,094.04	\$1,148.75	\$1,206.19	\$1,266.50	\$1,329.83
8"	\$2,017.75	\$1,968.66	\$2,067.10	\$2,170.46	\$2,278.99	\$2,392.94
Monthly SDCWA Infrastructure Access Charge*						
Meter Size						
5/8"	\$3.01	\$3.66	TBD	TBD	TBD	TBD
3/4"	\$3.01	\$3.66	TBD	TBD	TBD	TBD
1"	\$5.71	\$6.96	TBD	TBD	TBD	TBD
1-1/2"	\$9.33	\$11.35	TBD	TBD	TBD	TBD
2"	\$15.05	\$18.30	TBD	TBD	TBD	TBD
2-1/2"	\$27.92	\$34.04	TBD	TBD	TBD	TBD
3"	\$30.70	\$37.34	TBD	TBD	TBD	TBD
4"	\$51.48	\$62.59	TBD	TBD	TBD	TBD
6"	\$108.38	\$131.76	TBD	TBD	TBD	TBD
8"	\$195.69	\$237.90	TBD	TBD	TBD	TBD
Monthly Fire Meter Charges						
Meter Line Size						
5/8"	\$3.82	\$4.82	\$5.07	\$5.33	\$5.60	\$5.88
3/4"	\$3.82	\$4.82	\$5.07	\$5.33	\$5.60	\$5.88
1"	\$4.50	\$5.42	\$5.70	\$5.99	\$6.29	\$6.61
1-1/2"	\$5.42	\$6.21	\$6.53	\$6.86	\$7.21	\$7.58
2"	\$6.88	\$7.48	\$7.86	\$8.26	\$8.68	\$9.12
2-1/2"	\$10.15	\$10.34	\$10.86	\$11.41	\$11.99	\$12.59
3"	\$10.84	\$10.93	\$11.48	\$12.06	\$12.67	\$13.31
4"	\$16.10	\$15.52	\$16.30	\$17.12	\$17.98	\$18.88
6"	\$30.51	\$28.09	\$29.50	\$30.98	\$32.53	\$34.16
8"	\$52.64	\$47.37	\$49.74	\$52.23	\$54.85	\$57.60

*Note: A fixed charge imposed by SDCWA. Subject to change every year.

Table 1-3: Proposed Volumetric Rates per HCF

Effective Date	Current	March 1, 2020	March 1, 2021	March 1, 2022	March 1, 2023	March 1, 2024
Volumetric Rates (\$/HCF)						
Residential						
Tier 1 (0-6 HCF)	\$2.71	\$3.30	\$3.47	\$3.65	\$3.84	\$4.04
Tier 2 (7-23 HCF)	\$4.75	\$4.90	\$5.15	\$5.41	\$5.69	\$5.98
Tier 3 (24-80 HCF)	\$5.61	\$5.49	\$5.77	\$6.06	\$6.37	\$6.69
Tier 4 (80 + HCF)	\$6.58	\$6.58	\$6.91	\$7.26	\$7.63	\$8.02
Agriculture						
Agriculture	\$4.75	\$5.42	\$5.70	\$5.99	\$6.29	\$6.61
Agriculture w/ Credit*	\$3.81	TBD	TBD	TBD	TBD	TBD
Commercial						
Commercial	\$4.07	\$4.59	\$4.82	\$5.07	\$5.33	\$5.60
Irrigation						
Tier 1: "B" Base	\$4.35	\$5.20	\$5.46	\$5.74	\$6.03	\$6.34
Tier 2: "C" Over Base	\$5.90	\$5.57	\$5.85	\$6.15	\$6.46	\$6.79
Construction						
Construction	\$7.97	\$6.65	\$6.99	\$7.34	\$7.71	\$8.10
Recycled Water						
Recycled Water	\$3.85	\$3.61	\$3.80	\$3.99	\$4.19	\$4.40

*Note: Agriculture w/ Credit rate is updated annually by District staff based on SDCWA charges

1.4. Water Supply Shortage Rates

Raftelis updated the District’s water supply shortage rates as part of this study. Water supply shortage rates are intended to recover reductions in net revenues resulting from decreased water sales during times of reduced water demand due to drought, water supply emergencies, or other reasons. Raftelis developed water supply shortage rates for three distinct stages:

- » **10 Percent Demand Reduction** below projected FY 2020 water usage
- » **20 Percent Demand Reduction** below projected FY 2020 water usage
- » **30 Percent Demand Reduction** below projected FY 2020 water usage

In the event that the District activates its water supply shortage rates, customers will be notified in advance. OMWD’s water supply shortage rates would only be implemented by General Manager or OMWD Board action under the terms of the District’s Water Supply Shortage Condition Ordinance. Such action by OMWD is generally triggered by SDCWA and/or Metropolitan Water District of Southern California’s (MWD) declaration of a specific level of water shortage.

All customers excluding Recycled Water are subject to a uniform increase in volumetric rates during each of the demand reduction stages that effectively functions as a surcharge. **Table 1-4** shows the proposed FY 2020 volumetric rates at each demand reduction stage.

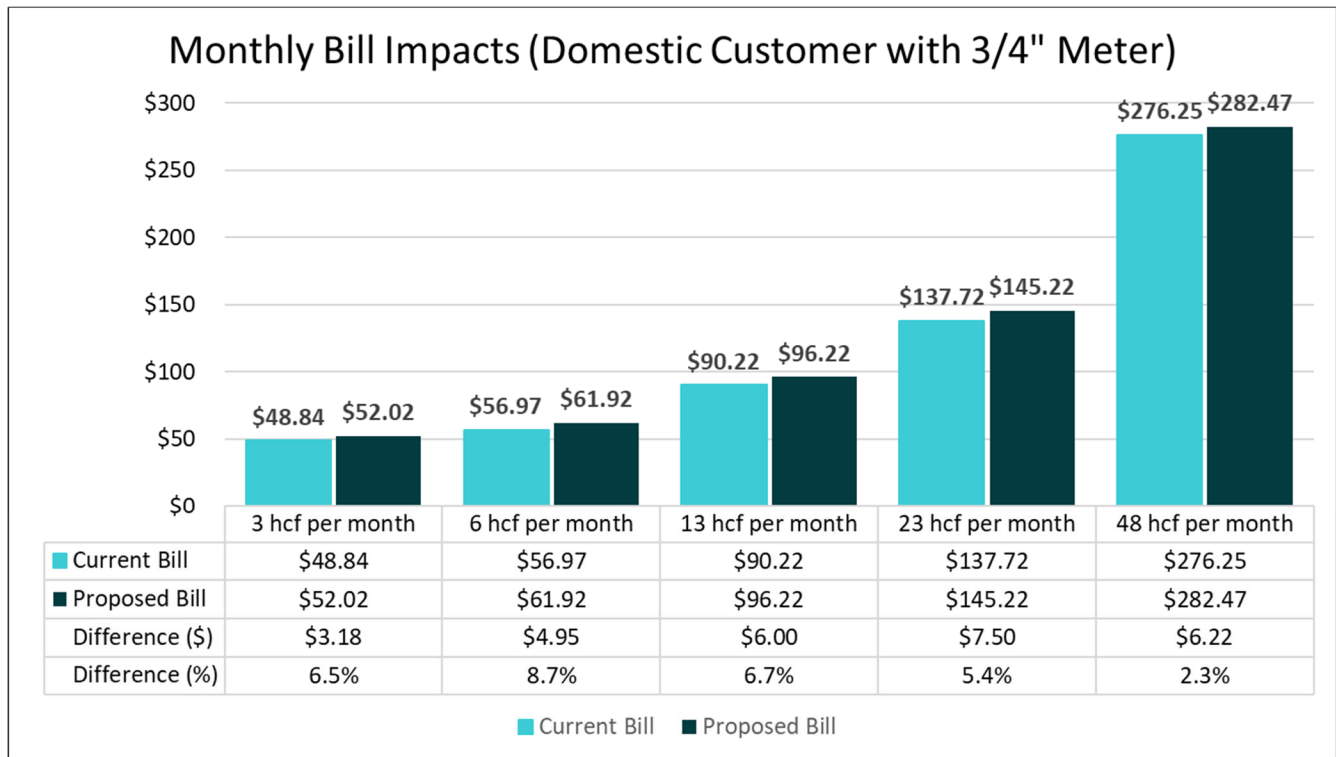
Table 1-4: Proposed FY 2020 Water Supply Shortage Rates per HCF

Customer Class	FY 2020 Base Rate	10% Demand Reduction (\$0.23 Surcharge)	20% Demand Reduction (\$0.50 Surcharge)	30% Demand Reduction (\$0.85 Surcharge)
Domestic				
Tier 1 (0-6 HCF)	\$3.30	\$3.53	\$3.80	\$4.15
Tier 2 (7-23 HCF)	\$4.90	\$5.13	\$5.40	\$5.75
Tier 3 (24-80 HCF)	\$5.49	\$5.72	\$5.99	\$6.34
Tier 4 (80 + HCF)	\$6.58	\$6.81	\$7.08	\$7.43
Agriculture	\$5.42	\$5.65	\$5.92	\$6.27
Commercial	\$4.59	\$4.82	\$5.09	\$5.44
Irrigation				
Tier 1: "B" Base	\$5.20	\$5.43	\$5.70	\$6.05
Tier 2: "C" Over Base	\$5.57	\$5.80	\$6.07	\$6.42
Construction	\$6.65	\$6.88	\$7.15	\$7.50
Recycled Water	\$3.61	\$3.61	\$3.61	\$3.61

1.5. Customer Impacts

Figure 1-4 shows the impacts to a Domestic customer at varying levels of usage, assuming a 3/4" meter. Note that 13 HCF per month represents median Domestic monthly usage for calendar year (CY) 2018, while 23 HCF represents average Domestic monthly usage for CY 2018. Lower usage Domestic customers see a greater percentage increase in monthly water bills due to the refinement in methodology used to design tiered volumetric rates, which was described above in **Section 1.3**.

Figure 1-4: Domestic Bill Impacts at Varying Levels of Usage



2. Introduction

2.1. Water System Overview

Olivenhain Municipal Water District (OMWD or District) is a municipal water district organized and operating pursuant to Water Code Sections 71000 et seq., and was incorporated on April 9, 1959, to develop an adequate water supply for landowners and residents. On June 14, 1960, residents of OMWD voted to become a member of the San Diego County Water Authority (SDCWA), thus becoming eligible to purchase water transported into San Diego County via the massive aqueducts of SDCWA and its wholesaler, Metropolitan Water District of Southern California. With service area of over 48 square miles, OMWD currently serves a population of approximately 86,000 residents in northern San Diego County.

The District treats up to 34 million gallons of water per day at its David C. McCollom Water Treatment Plant, has a storage capacity of nearly 80 million gallons within 17 storage reservoirs, and maintains a water distribution system with over 400 miles of potable water pipelines. In addition, the District's 4S Ranch Water Reclamation Facility produces up to 2 million gallons per day of recycled water, which is distributed through 46 miles of recycled water pipelines throughout the District for non-potable uses such as irrigation.

The District's existing water rate structure consists of the following charges:

1. **OMWD System Access Charge:** This fixed monthly charge varies by water meter size and is assessed per meter to recover a portion of the OMWD's fixed costs.
2. **SDCWA Infrastructure Access Charge:** All meters excluding construction, fire, and recycled water meters are subject to a monthly SDCWA Infrastructure Access Charge which varies by water meter size. SDCWA assesses the Infrastructure Access Charge to recover a portion of debt service costs associated with the construction of county-wide water infrastructure projects.
3. **Volumetric Rate:** The District assesses volumetric rates per hundred cubic feet (hcf) of water delivered each month. Volumetric water rates vary by customer class and by Water Supply Shortage level. Domestic customers are subject to a four-tier volumetric rate structure, while irrigation customers are subject to a two-tier volumetric rate structure. Agricultural, commercial, construction, and recycled water customers are subject to unique uniform rates.
4. **Fire Meter Charge:** Meters dedicated for automatic fire sprinkler service are not subject to the three charges listed above but are assessed a fixed monthly Fire Meter Charge which varies by connection size. Customers are only assessed this charge if they have a dedicated water line for automatic fire sprinkler service.

2.2. Study Objectives

The District engaged Raftelis in 2019 to conduct a water rate study to establish proposed water rates that are compliant with Proposition 218 and consistent with Cost of Service principles. The major objectives of the study include the following:

- » Develop a five-year financial plan through FY 2024 that sufficiently funds the District's operating costs, debt obligations, and necessary capital expenditures
- » Review and revise as necessary the current water rate structure
- » Perform a cost of service analysis to equitably allocate costs across customers classes
- » Propose equitable water rates for FY 2020 to FY 2024 that are fair and equitable and in compliance with Proposition 218

This Report provides a detailed description of the financial plan development, the cost of service analysis, and the development of the proposed 5-year water rate schedule. Assumptions, inputs, and calculations are clearly shown in order to provide a thorough and transparent description of how the proposed water rates were determined.

2.3. Legal Requirements and Rate-Setting Methodology

This water rate study was conducted using industry-standard principles outlined by the American Water Works Association’s (AWWA) *Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices M1 Sixth Edition* (M1 Manual). The general principles of rate structure design and the objectives of the Study are described below.

According to the M1 Manual, the first step in the ratemaking process is to determine the adequate and appropriate level of funding for a given utility. This is referred to as determining the “revenue requirement.” This analysis considers the short-term and long-term service objectives of the utility over a given planning horizon, including capital facilities, system operations and maintenance, and financial reserve policies, to determine the adequacy of a utility’s existing rates to recover its costs. A number of factors may affect these projections, including the number of customers served, water-use trends, extraordinary gains or expenses, weather, conservation, use restrictions, inflation, interest rates, capital finance needs, changes in tax laws, and other changes in operating and economic conditions.

After determining a utility’s revenue requirements, the next step is determining the cost of service. Utilizing a public agency’s approved budget, financial reports, operating data, and capital improvement plans, a cost of service study generally categorizes the operating system costs by function (e.g., treatment, storage, pumping, distribution/collection, etc.). Asset costs are similarly functionalized to determine the cost of service of the CIP.

After the assets and the costs of operating those assets are properly categorized by function, these “functionalized costs” are allocated first to cost causation components, and then to the various customer classes (e.g., single-family residential, multi-family residential, and commercial) by determining the service characteristics of those classes and the contribution of each to incurred costs such as supply costs, base delivery costs, peaking costs.

Rate design is the final part of the rate-making procedure and uses the revenue requirement and cost of service analysis to determine appropriate rates for each customer class. Rates utilize “rate components” that build-up to rates for commodity charges, and fixed charges, for the various customer classes and meter sizes servicing customers. In the case of inclining tier water rates, the rate components define the cost of service *within* each class of customer, effectively treating each tier as a sub-class and determining the cost to serve each tier.

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 the record owner of each parcel at least 45 days prior to the public hearing, when the agency considers all written protests against the charge.

As stated in AWWA's *M1 Manual*, "water rates and charges should be recovered from classes of customers in proportion to the cost of serving those customers." Raftelis follows industry standard rate setting methodologies set forth by the AWWA *M1 Manual* to ensure this Study meets Proposition 218 requirements and creates rates that do not exceed the proportionate cost of providing water services on a parcel basis. The methodology in the M1 Manual is a nationally recognized industry ratemaking standard which courts have recognized is consistent with Proposition 218.

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 City established inclining tiered (also known as inclining block) water rates to incentivize customers to conserve water. The inclining tier rates (as well as rates for uniform rate classes) need to be based on the proportionate costs incurred to provide water to customers to achieve compliance with Proposition 218.

Tiered Rates – "Inclining" tier rate structures (which are synonymous with "increasing" tier rate structures and "tiered" rates) when properly designed and differentiated by customer class, allow a water utility to send conservation price signals to customers. Due to heightened interest in water conservation and efficiency of water use, inclining tier water rates have gained widespread use, especially in relatively water-scarce regions like Southern California. Tiered rates meet the requirements of Proposition 218 as long as the tiered rates reasonably reflect the proportionate cost of providing service in each tier.

3. Financial Plan

Section 3 details the development of the five-year financial plan for District’s water utility. This includes the determination of annual revenues required from water rates based on annual cash flow projections. Assumptions and inputs related to projected revenues, operating expenses, capital expenditures are clearly outlined in the following subsections.

3.1. Existing Water Rates

Currently, District customers pay two types of monthly fixed charges: the OMWD System Access Charge and the SDCWA Infrastructure Access Charge. The OMWD System Access Charge is designed to recover a portion of fixed costs incurred by the District to provide water service. The SDCWA Infrastructure Access Charge is assessed by SDCWA to recover a portion of debt service costs associated with the construction of county-wide water infrastructure projects. Fixed monthly Fire Meter Charges are levied on water meters dedicated for automatic fire sprinkler service. **Table 3-1** below shows the District’s existing monthly rates for each type of fixed charge discussed above.

Table 3-1: Existing Monthly Fixed Charges

Meter Size	OMWD System Access Charge	SDCWA Infrastructure Access Charge	Fire Meter Charge
5/8-inch	\$28.43	\$3.01	\$3.82
3/4-inch	\$37.70	\$3.01	\$3.82
1-inch	\$65.55	\$5.71	\$4.50
1.5-inch	\$102.68	\$9.33	\$5.42
2-inch	\$161.47	\$15.05	\$6.88
2.5-inch	\$294.50	\$27.92	\$10.15
3-inch	\$322.34	\$30.70	\$10.84
4-inch	\$535.82	\$51.48	\$16.10
6-inch	\$1,120.55	\$108.38	\$30.51
8-inch	\$2,017.75	\$195.69	\$52.64

The District recovers its variable costs as well as its remaining fixed costs through Volumetric Rates. Volumetric rates vary by customer class and declared Water Supply Shortage level, and are assessed per hundred cubic feet (HCF) of water delivered. Domestic customers are charged according to a four-tiered inclining block rate structure, under which the volumetric rate increases as monthly water usage exceeds defined thresholds. Irrigation customers are subject to a two-tiered inclining block rate structure, in which Tier 1 allotments increase with meter size. Agricultural, Commercial, Construction, and Recycled customers are subject to distinct uniform volumetric rates. Combined Agricultural/Domestic customers are charged based on the Domestic volumetric rate schedule for the first 26 HCF of water usage per month and the Agricultural rate schedule for monthly usage above 26 HCF. **Table 3-2** below shows the District’s existing volumetric rates under the five various Water Supply Shortage levels. Level 1 rates are currently in effect.

Table 3-2: Existing Volumetric Rates per HCF

Customer Class	Base Rates	Watch/ Level 1 Voluntary	Alert/ Level 2 Mandatory	Critical/ Level 3 Mandatory	Emergency/ Level 4 Mandatory
Domestic					
Tier 1 (0-6 HCF/month)	\$2.71	\$2.71	\$2.85	\$3.00	\$3.27
Tier 2 (7-25 HCF/month)	\$4.51	\$4.75	\$4.97	\$5.65	\$6.56
Tier 3 (26-80 HCF/month)	\$5.12	\$5.61	\$6.40	\$7.68	\$8.96
Tier 4 (Over 80 HCF/month)	\$5.72	\$6.58	\$7.15	\$8.60	\$11.47
Agricultural	\$4.51	\$4.75	\$4.86	\$5.42	\$6.34
Agricultural with Credit	\$3.57	\$3.81	\$3.92	\$4.48	\$5.40
Commercial	\$3.87	\$4.07	\$4.15	\$4.65	\$5.41
Irrigation					
Tier 1 (See Table 3-3)	\$4.14	\$4.35	\$4.55	\$5.18	\$6.01
Tier 2 (See Table 3-3)	\$5.13	\$5.90	\$6.41	\$7.70	\$10.27
Construction	\$6.93	\$7.97	\$8.66	\$10.40	\$13.87
Recycled	\$3.85	\$3.85	\$3.85	\$3.85	\$3.85

Tier 1 monthly allotments vary by meter size for Irrigation customers and are shown below in **Table 3-3**. Any monthly usage by Irrigation customers above the Tier 1 allotment is billed at the Tier 2 Irrigation rate.

Table 3-3: Tier 1 Monthly Allotments for Irrigation Customers in HCF

Meter Size	Winter (Dec-May)	Summer (Jun-Nov)
5/8-inch	10	15
3/4-inch	20	30
1-inch	35	50
1.5-inch	50	110
2-inch	100	200
3-inch	200	500
4-inch	600	3,500
6-inch	3,100	11,800
8-inch	5,600	21,300

3.2. Water Account and Usage Assumptions

District staff provided Raftelis with the number of existing water meters differentiated by customer class as of FY 2019 (shown below in **Table 3-4**). Over 93 percent of water meters (excluding Fire Meters) served by District are classified as Domestic.

Table 3-4: Number of Water Meters by Customer Class (FY 2019)

Meter Size	Domestic	Agri-cultural	Combined Ag/Domestic	Com-mercial	Irrigation	Con-struction	Recycled	Fire
5/8-inch	1,909	0	0	25	12	1	1	380
3/4-inch	16,315	2	15	74	24	0	0	15
1-inch	2,531	4	40	118	114	40	27	5,435
1.5-inch	489	7	37	130	283	1	110	66
2-inch	139	13	29	65	162	0	146	1
2.5-inch	1	0	0	1	0	33	1	0
3-inch	12	1	0	8	2	0	5	0
4-inch	10	1	1	7	1	0	4	0
6-inch	1	0	0	1	2	0	4	1
8-inch	2	0	0	0	0	0	0	0
Total	21,409	28	122	429	600	75	298	5,898

Over the five-year study period from FY 2020-FY 2024, the District projects 50 new 3/4-inch Domestic water meters per fiscal year to come online. No other customer growth is projected over the study period. Based on FY 2019 meter counts and assumed growth of 50 new 3/4-inch Domestic meters per year, Raftelis projected the number of water meters by fixed charge type (shown below in **Table 3-5**). Note that the OMWD System Access Charge is assessed to all water meters excluding Fire lines, while the SDCWA Infrastructure Access Charge is assessed to all water meters except Construction meters, Recycled Water meters, and Fire lines.

Table 3-5: Number of Water Meters

Meter Size	FY 2019 Actual	FY 2020 Projected	FY 2021 Projected	FY 2022 Projected	FY 2023 Projected	FY 2024 Projected
Meters subject to OMWD System Access Charge						
5/8-inch	1,948	1,948	1,948	1,948	1,948	1,948
3/4-inch	16,430	16,480	16,530	16,580	16,630	16,680
1-inch	2,874	2,874	2,874	2,874	2,874	2,874
1.5-inch	1,057	1,057	1,057	1,057	1,057	1,057
2-inch	554	554	554	554	554	554
2.5-inch	36	36	36	36	36	36
3-inch	28	28	28	28	28	28
4-inch	24	24	24	24	24	24
6-inch	8	8	8	8	8	8
8-inch	2	2	2	2	2	2
Total	22,961	23,011	23,061	23,111	23,161	23,211
Meters subject to SDCWA Infrastructure Access Charge						
5/8-inch	1,946	1,946	1,946	1,946	1,946	1,946
3/4-inch	16,430	16,480	16,530	16,580	16,630	16,430
1-inch	2,807	2,807	2,807	2,807	2,807	2,807
1.5-inch	946	946	946	946	946	946
2-inch	408	408	408	408	408	408
2.5-inch	2	2	2	2	2	2
3-inch	23	23	23	23	23	23
4-inch	20	20	20	20	20	20
6-inch	4	4	4	4	4	4
8-inch	2	2	2	2	2	2
Total	22,588	22,638	22,688	22,738	22,788	22,588
Meters subject to Fire Meter Charge						
5/8-inch	380	380	380	380	380	380
3/4-inch	15	15	15	15	15	15
1-inch	5,435	5,435	5,435	5,435	5,435	5,435
1.5-inch	66	66	66	66	66	66
2-inch	1	1	1	1	1	1
2.5-inch	0	0	0	0	0	0
3-inch	0	0	0	0	0	0
4-inch	0	0	0	0	0	0
6-inch	1	1	1	1	1	1
8-inch	0	0	0	0	0	0
Total	5,898	5,898	5,898	5,898	5,898	5,898

Water usage by customer class and tier was projected over the study period based on actual water usage data provided by District staff for FY 2018. FY 2018 represents the most recent fiscal year in which complete water usage data was available at the time the study was conducted. For the purposes of the financial plan, no change in

per account water consumption is assumed over the five-year study period. Annual increases in projected water usage shown below in **Table 3-6** are solely due to growth in 3/4-inch Domestic accounts (see **Table 3-5** above). The increase in Domestic water usage over the study period is directly proportional to the increase in total number of Domestic water meters, which is approximately 0.2 percent per fiscal year. Note that any reduction in water sales that may actually occur over the study period due to a water supply shortage will be accompanied by the activation of Water Supply Shortage rates. This will ensure that any loss in rate revenue resulting from reduced water sales will be offset by higher volumetric rates that increase with each Water Supply Shortage level. Therefore, the water usage projections shown below in **Table 3-6** represent an appropriate baseline scenario for the purposes of the five-year financial plan.

Table 3-6: Projected Water Usage in HCF by Customer Class and Accounts⁴

Customer Class	FY 2018 Actual	FY 2019 Projected	FY 2020 Projected	FY 2021 Projected	FY 2022 Projected	FY 2023 Projected	FY 2024 Projected
Domestic							
Tier 1 (0-6 HCF/month)	1,681,857	1,685,771	1,689,689	1,693,607	1,697,525	1,701,443	1,705,360
Tier 2 (7-25 HCF/month)	2,416,409	2,422,003	2,427,601	2,433,199	2,438,797	2,444,395	2,449,993
Tier 3 (26-80 HCF/month)	1,482,259	1,485,726	1,489,196	1,492,666	1,496,136	1,499,606	1,503,076
Tier 4 (Over 80 HCF/month)	589,997	591,377	592,758	594,139	595,521	596,902	598,283
Agricultural	233,693	233,693	233,693	233,693	233,693	233,693	233,693
Agricultural with Credit	20,146	20,146	20,146	20,146	20,146	20,146	20,146
Commercial	283,373	283,373	283,373	283,373	283,373	283,373	283,373
Irrigation							
Tier 1 (See Table 3-3)	535,805	524,915	492,245	444,983	444,983	444,983	444,983
Tier 2 (See Table 3-3)	547,621	536,731	504,061	456,798	456,798	456,798	456,798
Construction	36,802	36,802	36,802	36,802	36,802	36,802	36,802
Recycled	1,108,957	1,130,737	1,196,077	1,290,602	1,290,602	1,290,602	1,290,602
Total	8,936,919	8,951,275	8,965,642	8,980,009	8,994,375	9,008,742	9,023,109

3.3. Revenues

The District's water revenues consist of operating revenues (i.e. water rate revenues), other operating revenues, non-operating revenues, and capital revenues (from capacity fees assessed to new water connections). Projected water rate revenues under existing rates are calculated for the years FY 2020-FY 2024 by multiplying current rates (from **Table 3-1** and **Table 3-2**) by the corresponding units of service (from **Table 3-5** and **Table 3-6**).⁵ Although revenue from SDCWA Infrastructure Access Charges is included in the District's budget as part of other operating revenues, it is calculated in the same manner as the fixed OMWD System Access Charge. Projecting water rate revenues under existing rates is necessary to evaluate the District's projected baseline financial position in the absence of any proposed rate increases. Note that for FY 2019, operating revenues were calculated based on FY

⁴ Note that in all report tables, totals may not add up precisely due to rounding.

⁵ Fixed charge revenues = [number of meters assessed] x [monthly rate] x [12 months].

Volumetric charge revenues = [annual usage in CCF] x [volumetric rate per CCF].

2018 rates for 9 months and FY 2019 rates for 3 months. This is because FY 2019 rates were implemented in March 2019.⁶

Table 3-7: Projected Operating Revenues Under Existing Water Rates

Operating Revenues	FY 2019 Projected	FY 2020 Projected	FY 2021 Projected	FY 2022 Projected	FY 2023 Projected	FY 2024 Projected
Fixed Charges						
OMWD System Access Charge (Potable)	\$12,737,498	\$12,760,118	\$12,782,738	\$12,805,358	\$12,827,978	\$12,850,598
OMWD System Access Charge (Recycled)	\$542,393	\$542,393	\$542,393	\$542,393	\$542,393	\$542,393
Fire Meter Charges	\$309,509	\$316,416	\$316,416	\$316,416	\$316,416	\$316,416
Volumetric Charges:						
Domestic	\$27,727,513	\$28,364,903	\$28,430,665	\$28,496,426	\$28,562,188	\$28,627,950
Agricultural	\$1,087,257	\$1,110,042	\$1,110,042	\$1,110,042	\$1,110,042	\$1,110,042
Agricultural w/ Credit	\$74,641	\$76,756	\$76,756	\$76,756	\$76,756	\$76,756
Commercial	\$1,129,950	\$1,153,328	\$1,153,328	\$1,153,328	\$1,153,328	\$1,153,328
Irrigation	\$5,338,442	\$5,115,225	\$4,630,783	\$4,630,783	\$4,630,783	\$4,630,783
Construction	\$287,240	\$293,312	\$293,312	\$293,312	\$293,312	\$293,312
Recycled Water	\$4,268,532	\$4,604,896	\$4,968,818	\$4,968,818	\$4,968,818	\$4,968,818
Total	\$53,502,975	\$54,337,390	\$54,305,252	\$54,393,633	\$54,482,015	\$54,570,396

Table 3-8 shows a summary of other operating, non-operating, and capital revenues. SDCWA Infrastructure Access Charges were calculated in the same manner as described previously for operating revenues. Revenues from selling excess treated water to Vallecitos were projected beyond FY 2020 assuming 2,750 acre-feet per year (AFY) in sales. Investment income was calculated based on projected ending cash balances and an assumed 2 percent annual rate of return. The majority of other operating and non-operating expenses were projected beyond FY 2020 budgeted amounts by either holding constant through FY 2024 or by escalating by 1 percent per year. District staff provided five-year estimates for all capital revenues over the study period.

⁶ The District’s fiscal year is from July 1 through June 30. For example, fiscal year 2019 spanned from July 1, 2018 through June 30, 2019.

Table 3-8: Projected Other Operating Revenues, Non-Operating Revenues, and Capital Revenues

Description	FY 2019 Estimated	FY 2020 Budget	FY 2021 Projected	FY 2022 Projected	FY 2023 Projected	FY 2024 Projected
Other Operating Revenues						
SDCWA Infrastructure Access Charge	\$1,067,073	\$1,068,879	\$1,070,685	\$1,072,491	\$1,074,297	\$1,076,103
Selling Excess Treated Water to Vallecitos	\$814,000	\$867,000	\$571,049	\$596,487	\$616,094	\$637,737
Rental Income	\$645,000	\$650,000	\$663,000	\$676,260	\$689,785	\$703,581
Other	\$391,000	\$386,000	\$386,020	\$386,040	\$386,061	\$386,082
Subtotal	\$2,917,073	\$2,971,879	\$2,690,754	\$2,731,278	\$2,766,237	\$2,803,503
Non-Operating Revenues						
Property Tax Revenue	\$3,500,000	\$3,500,000	\$3,500,000	\$3,500,000	\$3,500,000	\$3,500,000
Investment Income	\$0	\$470,000	\$451,000	\$449,000	\$468,000	\$516,000
Other	\$88,000	\$31,000	\$31,000	\$31,000	\$31,000	\$31,000
Subtotal	\$3,588,000	\$4,001,000	\$3,982,000	\$3,980,000	\$3,999,000	\$4,047,000
Capital Revenues						
Potable Capacity Fee	\$733,000	\$1,056,304	\$1,286,873	\$1,285,402	\$1,141,737	\$927,175
Anticipated Grants ⁷	\$0	\$200,000	\$0	\$0	\$5,000,000	\$5,000,000
Recycled Capacity Fee	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Subtotal	\$738,000	\$1,261,304	\$1,291,873	\$1,290,402	\$6,146,737	\$5,932,175

Table 3-9 shows a revenue summary for the study period based on revenues shown previously in Table 3-7 and Table 3-8. Once again, operating revenues shown in this section reflect projected water rate revenues under existing rates in the absence of any rate increases over the study period.

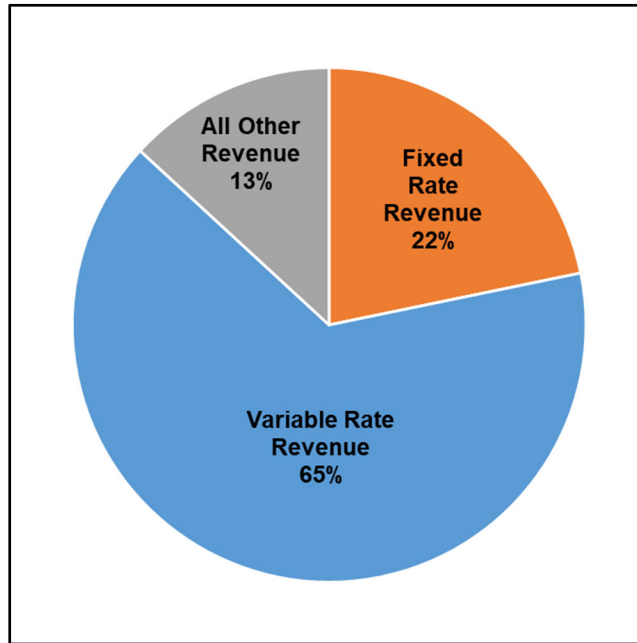
Table 3-9: Revenue Summary

Revenues	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Operating	\$53,502,975	\$54,337,390	\$54,305,252	\$54,393,633	\$54,482,015	\$54,570,396
Other Operating	\$2,917,073	\$2,971,879	\$2,690,754	\$2,731,278	\$2,766,237	\$2,803,503
Non-Operating	\$3,588,000	\$4,001,000	\$3,982,000	\$3,980,000	\$3,999,000	\$4,047,000
Capital	\$738,000	\$1,261,304	\$1,291,873	\$1,290,402	\$6,146,737	\$5,932,175
Total	\$60,746,048	\$62,571,572	\$62,269,879	\$62,395,313	\$67,393,990	\$67,353,075

Figure 3-1 shows FY 2020 revenues broken down into fixed rate revenue (from OMWD System Access Charges and Fire Meter Charges), variable rate revenues (from Volumetric Charges), and all other revenues (including the SDCWA Infrastructure Access Charge). Nearly two-thirds of total revenues is generated by the District's Volumetric Charges.

⁷ Anticipated Title XVI grant funding

Figure 3-1: FY 2020 Revenue Composition



3.4. Operations and Maintenance Expenses

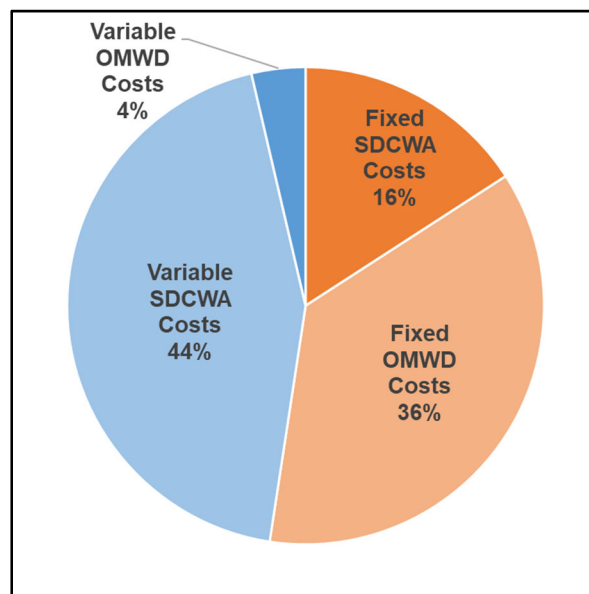
The District's operations and maintenance (O&M) expenses are based on the FY 2020 District budget and projected out through FY 2024. The District's projected purchased water and recycled water expenses were calculated over the study period based on the projected water supply mix and anticipated supply rates from SDCWA and MWD. See Appendix A for detailed calculations of water and recycled water purchase costs over the study period. All other O&M expenses were projected beyond FY 2020 by increasing FY 2020 budgeted expenses by an assumed 3 percent in cost escalation per fiscal year.

Table 3-10: Projected O&M Expenses

O&M Expenses	FY 2019 Estimated	FY 2020 Budget	FY 2021 Projected	FY 2022 Projected	FY 2023 Projected	FY 2024 Projected
Purchased Water Expenses	\$28,486,558	\$29,073,074	\$31,064,404	\$33,005,371	\$34,081,082	\$35,237,032
O&M and WTP Expenses	\$11,248,000	\$11,241,500	\$11,578,745	\$11,926,107	\$12,283,891	\$12,652,407
General Manager Expenses	\$457,000	\$622,000	\$640,660	\$659,880	\$679,676	\$700,066
Engineering Expenses	\$1,659,000	\$1,734,000	\$1,786,020	\$1,839,601	\$1,894,789	\$1,951,632
Finance Expenses	\$203,000	\$263,501	\$382,794	\$524,936	\$645,323	\$716,961
Customer Services Expenses	\$3,404,000	\$3,784,000	\$3,897,520	\$4,014,446	\$4,134,879	\$4,258,925
Human Resources Expenses	(\$29,000)	(\$70,300)	(\$72,409)	(\$74,581)	(\$76,819)	(\$79,123)
Park Expenses	\$395,000	\$418,500	\$431,055	\$443,987	\$457,306	\$471,025
Recycled (SE & NW) Expenses	\$1,383,000	\$1,554,000	\$1,600,620	\$1,648,639	\$1,698,098	\$1,749,041
Total O&M Expenses	\$47,206,558	\$48,620,275	\$51,309,409	\$53,988,384	\$55,798,224	\$57,657,967
<i>Less Depreciation</i>	<i>\$858,000</i>	<i>\$856,000</i>	<i>\$881,680</i>	<i>\$908,130</i>	<i>\$935,374</i>	<i>\$963,436</i>
Total O&M Excluding Depreciation	\$46,348,558	\$47,764,275	\$50,427,729	\$53,080,254	\$54,862,850	\$56,694,531

Figure 3-2 shows FY 2020 O&M expenses broken down as fixed versus variable and District-related (OMWD) versus SDCWA-related. Approximately 60 percent of FY 2020 O&M expenses are projected to be associated with water supply costs from SDCWA. Approximately 52 percent of FY 2020 O&M expenses are projected to be fixed in nature. This demonstrates a common challenge faced by municipal water suppliers, in which the majority of O&M expenses are fixed while a majority of revenues are variable (see Figure 3-1). This results in susceptibility to revenue instability during periods of reduced water supply/demand.

Figure 3-2: FY 2020 O&M Expenses Composition



3.5. Debt Service

Debt service requirements consist of principal and interest payments on existing and proposed debt. The District currently has debt service obligations associated with the outstanding 2015A Water Revenue Bonds, 2016A Water Revenue Bonds, 2013 State Revolving Fund Loan, and 2018 Sewer Revenue Bonds. The debt service payments shown for the 2018 Sewer Revenue Bonds represent the water system’s allocated portion of the debt issue, which was used to finance the District’s headquarters expansion.⁸ Note that the 2018 Sewer Revenue Bonds are not incorporated in the debt service coverage calculations presented later in **Section 3** per direction from District staff. Principal and interest payments associated with each existing debt issue for the water utility are shown below in **Table 3-11**.

Table 3-11: Existing Debt Service

Existing Debt Service	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
2015A Water Revenue Bonds						
Principal	\$1,515,000	\$1,590,000	\$1,665,000	\$1,750,000	\$1,845,000	\$1,935,000
Interest	\$893,625	\$817,875	\$738,375	\$655,125	\$567,625	\$475,375
Subtotal	\$2,408,625	\$2,407,875	\$2,403,375	\$2,405,125	\$2,412,625	\$2,410,375
2016A Water Revenue Bonds						
Principal	\$460,000	\$480,000	\$505,000	\$530,000	\$560,000	\$585,000
Interest	\$518,663	\$495,663	\$471,663	\$446,413	\$419,913	\$391,913
Subtotal	\$978,663	\$975,663	\$976,663	\$976,413	\$979,913	\$976,913
2013 State Revolving Fund Loan						
Principal	\$737,517	\$754,604	\$772,086	\$789,974	\$808,276	\$827,001
Interest	\$332,524	\$315,438	\$297,955	\$280,068	\$261,766	\$243,040
Subtotal	\$1,070,042	\$1,070,042	\$1,070,042	\$1,070,042	\$1,070,042	\$1,070,042
2018 Sewer Revenue Bonds						
Principal	\$484,500	\$484,500	\$484,500	\$484,500	\$484,500	\$484,500
Interest	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal	\$484,500	\$484,500	\$484,500	\$484,500	\$484,500	\$484,500
Total Existing Debt	\$4,941,830	\$4,938,080	\$4,934,580	\$4,936,080	\$4,947,080	\$4,941,830

The proposed financial plan includes a proposed bond issuance of \$20 million in FY 2023 to fund significant capital expenditures associated with the District’s planned San Elijo Valley Groundwater project (please refer to **Section 3.6** for information on the District’s capital improvement plan (CIP) projects). Based on the assumptions provided below in **Table 3-12**, Raftelis estimates the proposed \$20 million bond issuance will result in approximately \$1.3 million of annual debt service payments beginning in FY 2023.

⁸ The 2018 Sewer Revenue Bonds were issued in June 2018 to pay for a portion of Building D CIP costs (i.e. the OMWD headquarters expansion project). Building D CIP expenditures were allocated 80 percent to the water system and 20 percent to the sewer system.

Table 3-12: Proposed FY 2023 Bond Issuance Assumptions

Description	Amount
Interest Rate	5.0%
Term	30 years
Issuance Costs	2.0%
Date of Issue	July 1, 2022
Issuance Amount	\$20,000,000
Proceeds (after issuance costs)	\$19,600,000
Annual Debt Service	\$1,301,000

Total existing and proposed debt service payments in each year throughout the study period (from **Table 3-11** and **Table 3-12** respectively) are summarized below in **Table 3-13**.

Table 3-13: Total Debt Service

Debt Service	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Existing Debt	\$4,941,830	\$4,938,080	\$4,934,580	\$4,936,080	\$4,947,080	\$4,941,830
Proposed Debt	\$0	\$0	\$0	\$0	\$1,301,000	\$1,301,000
Total Debt Service	\$4,941,830	\$4,938,080	\$4,934,580	\$4,936,080	\$6,248,080	\$6,242,830

3.6. Capital Improvement Plan

The District has developed a capital improvement plan (CIP) to address ongoing water system needs in each year throughout the study period. Detailed CIP expenditures in each year are shown at the individual project level for the potable water system in **Table 3-14** and the recycled water system in **Table 3-15**. Project costs in all years throughout the study period were provided by District staff. Note that the significant CIP expenditures of just under \$27 million in FY 2023 are proposed to be funded in part by the proposed FY 2023 bond issuance of \$20 million (discussed previously in **Section 3.5** above).

Table 3-14: Potable Water CIP Projects

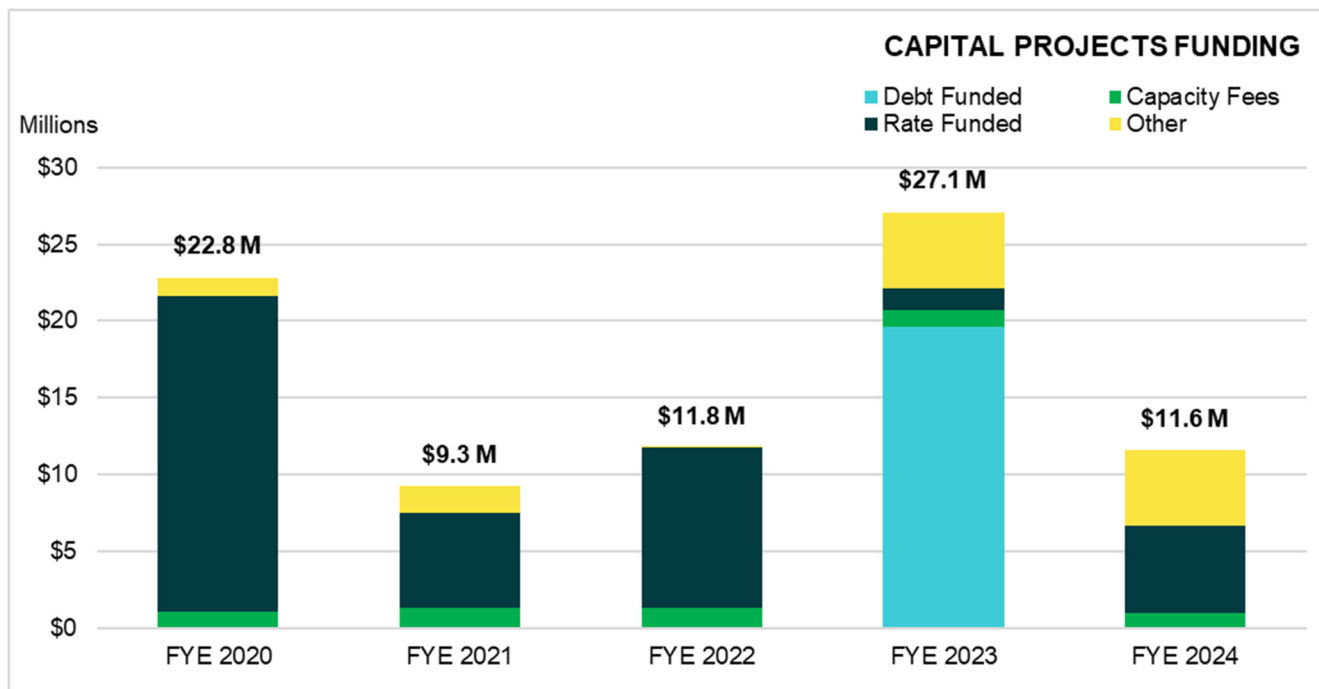
#	Potable Water CIP	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
1	San Elijo Valley Groundwater	\$1,282,000	\$1,764,000	\$6,232,000	\$20,214,000	\$3,989,000
2	Building D - Schedules A and B	\$8,800,000	\$358,000	\$0	\$0	\$0
3	Replace El Camino Real Pipeline	\$3,115,000	\$546,000	\$0	\$0	\$0
4	Pressure Zone 386	\$50,000	\$0	\$0	\$0	\$0
5	Manchester Potable Pipeline	\$1,315,000	\$0	\$0	\$0	\$0
6	Palms I and II Reservoirs	\$0	\$0	\$108,000	\$900,000	\$0
7	Replace Dusty Trail Pipeline and Lone Jack PRS	\$165,000	\$0	\$0	\$0	\$0
8	DCMWTP Structural Engineering	\$18,000	\$0	\$0	\$0	\$0
9	Backwash EQ Canopy	\$33,000	\$0	\$0	\$0	\$0
10	Lusardi Canyon CP Upgrade	\$370,000	\$0	\$0	\$0	\$0
11	DCMWTP Settler Unit 3	\$125,000	\$0	\$0	\$0	\$0
12	Network Security	\$80,000	\$0	\$0	\$0	\$0
13	DCMWTP Valve Actuators	\$31,000	\$0	\$0	\$0	\$0
14	DCMWTP Chemical Systems Upgrade	\$155,000	\$0	\$0	\$0	\$0
15	Residuals Handling Building Canopy	\$0	\$271,000	\$0	\$0	\$0
16	Rancho La Cima/Aliso Canyon Pipeline	\$80,000	\$0	\$0	\$0	\$0
17	DCMWTP PLC Replacements	\$0	\$166,000	\$465,000	\$484,000	\$503,000
18	Vault Upgrades	\$90,000	\$0	\$0	\$0	\$0
19	Manchester 14" Cathodic Protection	\$38,000	\$0	\$0	\$0	\$0
20	Golem Pump Station Replacement	\$320,000	\$0	\$0	\$0	\$0
21	Pump Controls, Rancho Lakes	\$28,000	\$0	\$0	\$0	\$0
22	Pump Controls, Thornton	\$28,000	\$0	\$0	\$0	\$0
23	DCMWTP PH Control System	\$0	\$88,000	\$649,000	\$0	\$0
24	Phone System - Admin Building	\$58,000	\$21,000	\$0	\$0	\$0
25	DCMWTP Paint Equipment	\$28,000	\$0	\$0	\$0	\$0
26	Phone System - DCMWTP	\$40,000	\$0	\$0	\$0	\$0
27	DCMWTP Analyzer Replacements	\$175,000	\$130,000	\$135,000	\$141,000	\$146,000
28	Palma de la Reina - Phase 2	\$170,000	\$0	\$0	\$0	\$0
29	Condition Assessment Program	\$160,000	\$0	\$0	\$0	\$0
30	Morning Sun PRS	\$300,000	\$0	\$0	\$0	\$0
31	EM Inspection RSFe Rd./Enc. Blvd.	\$0	\$0	\$216,000	\$0	\$234,000
32	Replace Pipelines	\$500,000	\$520,000	\$541,000	\$1,350,000	\$2,808,000
33	Replace Valves	\$1,750,000	\$1,654,000	\$1,044,000	\$1,085,000	\$1,129,000
34	Replace DCM WTP Membranes	\$640,000	\$666,000	\$692,000	\$720,000	\$749,000
35	Advanced Metering Infrastructure	\$610,000	\$614,000	\$627,000	\$652,000	\$679,000
36	Pressure Reducing Stations Rehab	\$120,000	\$513,000	\$130,000	\$603,000	\$140,000
37	Replace Potable Meters	\$250,000	\$260,000	\$270,000	\$281,000	\$292,000
38	Steel Mains Protection	\$250,000	\$260,000	\$270,000	\$281,000	\$292,000
39	Replace Meter Anodes	\$130,000	\$135,000	\$141,000	\$146,000	\$152,000
40	Rehab Concrete Tanks	\$75,000	\$78,000	\$81,000	\$84,000	\$88,000
41	Total Potable Water CIP	\$21,409,000	\$8,221,000	\$11,639,000	\$26,986,000	\$11,242,000

Table 3-15: Recycled Water CIP Projects

#	Potable Water CIP	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
1	Manchester Recycled Pipeline Extension	\$541,000	\$563,000	\$0	\$0	\$0
2	Replace Recycled Meters	\$13,000	\$14,000	\$14,000	\$15,000	\$15,000
3	Retrofit Potable Meters to Recycled	\$280,000	\$239,000	\$97,000	\$101,000	\$105,000
4	Storage Pond Landscaping	\$200,000	\$218,000	\$0	\$0	\$0
5	Lusardi Creek Ext. 153	\$177,000	\$0	\$0	\$0	\$0
6	Ext. 153 Flow Meter	\$137,000	\$0	\$0	\$0	\$0
7	Bridges and Cielo Raw Water Supply	\$75,000	\$0	\$0	\$0	\$257,000
8	Total Recycled Water CIP	\$1,423,000	\$1,034,000	\$111,000	\$116,000	\$377,000

Total CIP expenditures over the study period are shown below in **Figure 3-3**. Approximately \$1 million in each year of potable water capacity fee revenues are anticipated to be available to fund the District’s CIP. “Other” funds include anticipated grant funds, recycled water capacity fee revenues, and land sale proceeds. Debt funded CIP in FY 2023 is associated with the proposed FY 2023 bond issuance of \$20 million. All other CIP is projected to be funded by water rate revenues.

Figure 3-3: CIP by Funding Source



3.7. Financial Policies

Debt Coverage

The District must meet its debt service coverage requirements on its outstanding bond issues. The District’s required debt coverage is 125 percent, meaning that the District’s net revenues must amount to at least 125 percent of annual debt service. However, the District is currently rated AAA by Fitch Ratings. In order to maintain this credit rating, the District is expected to maintain debt coverage of at least 250 percent. The proposed financial plan therefore incorporates a debt coverage target of 250 percent. Net revenues include funds from water rates and

charges, miscellaneous service charges, revenues received from contracts, and interest income. Annual debt service includes annual principal and interest payments on outstanding debt.

Reserve Policies

The District maintains three separate funds. The Operating Fund is designed to provide working capital and mitigate the impact of fluctuations in O&M expenditures. The Capital Improvement Fund is designed to ensure adequate construction funds are maintained to approve construction contracts. Lastly, the Rate Stabilization Fund is designed to mitigate the impact of reduced water sales on the District's financial condition. Raftelis recommends that the District maintains its current reserve policies, which define the minimum and maximum reserve balances for each of the three funds. The existing reserve policies are appropriate given industry norms as well as the District's unique attributes. The current reserve targets are:

1. Operating Fund

- » Minimum Level: 60 days of annual O&M expenditures (*\$7.85 million in FY 2020*)
- » Maximum Level: 120 days of annual O&M expenditures (*\$15.70 million in FY 2020*)

2. Capital Improvement Fund

- » Minimum Level: average annual CIP expenditures over the next 10 years (*\$12.77 million in FY 2020*)
- Maximum Level: five years of average annual 10-year CIP expenditures (*\$63.85 million in FY 2020*)

3. Rate Stabilization Fund

- » Minimum Level: 25 percent of estimated net water sales⁹ in the current fiscal year (*\$6.71 million in FY 2020*)
- » Maximum Level: 50 percent of estimated net water sales for the next two fiscal years (*\$13.42 million in FY 2020*)

3.8. Status Quo Financial Plan

The status quo financial plan illustrates what would occur in the absence of any water rate increases over the study period. Current water rates in effect as of FY 2019 are assumed to remain unchanged over the study period under the status quo. Raftelis and District staff first evaluated the District's cash flow and fund balance over the study period under the status quo before considering any revenue adjustments.

Figure 3-4 shows projected ending cash balance in each year over the study period under the status quo for all three funds combined (Operating, Capital Improvement, and Rate Stabilization). Under the status quo financial plan, the District's reserves are steadily drawn down over the five-year study period until the minimum reserve balance is no longer met in FY 2024. Furthermore, **Figure 3-5** shows that the District is projected to fail to minimum required debt coverage beginning in FY 2023 under the status quo. This clearly demonstrates the need for rate revenue increases over the study period to ensure that the District meets its debt coverage obligations and exceeds the minimum reserve balance as established by District policy. For detailed cash flow and fund balance projections under the status quo, please refer to **Appendix B**.

⁹ Net water sales are defined as total annual revenues from rates and charges less annual water purchase expenses.

Figure 3-4: Total Fund Balance Under Status Quo Financial Plan

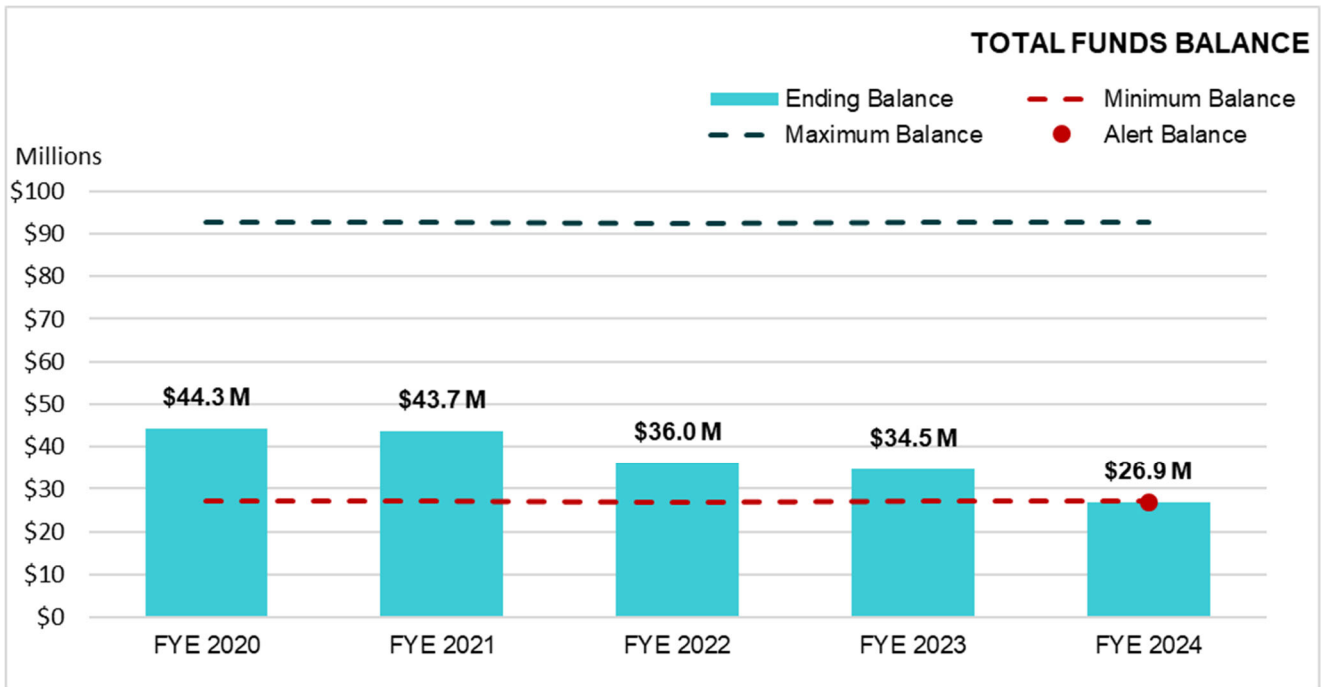
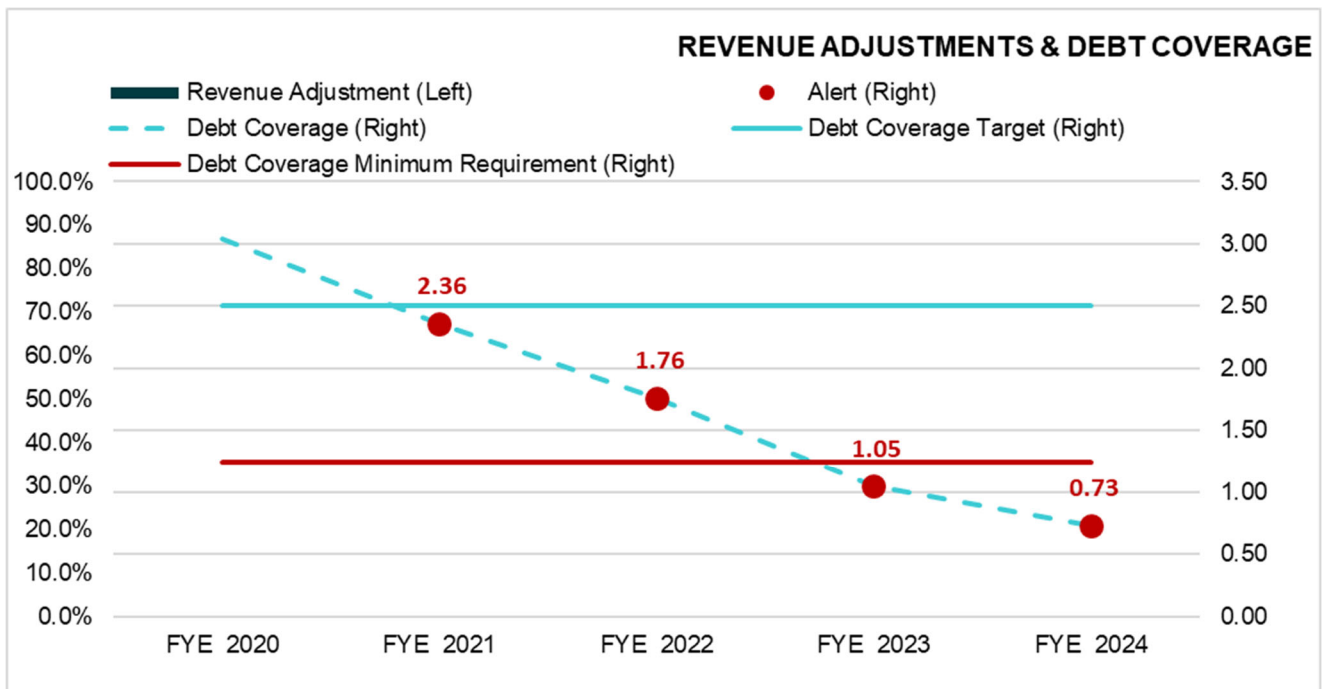


Figure 3-5: Projected Debt Coverage Under Status Quo Financial Plan



3.9. Proposed Financial Plan

The status quo financial plan demonstrates that the District must increase its revenues from water rates over the five-year study period in order to meet required debt coverage and minimum reserve levels. Raftelis therefore proposed annual revenue adjustments in each year through FY 2024 to ensure that the District meets its debt obligations and maintains healthy reserve levels in accordance with District policy. The term “revenue adjustment”

specifically refers to a percent increase in water revenue revenues (from Volumetric Charges, OMWD System Access Charges, and Fire Meter Charges) relative to the amount of water rate revenues that would be collected under the prior year’s rates. Note that revenue adjustments are used only to project total water rate revenues. Allocation of the total water rate revenue requirement across the various water charges is included in the cost of service analysis in **Section 4**. District staff and the Board of Directors provided direction and input to Raftelis during the evaluation of proposed revenue adjustments in each year. **Table 3-16** shows the proposed revenue adjustments over the study period. The proposed FY 2020 revenue adjustment of 3.7 percent was set equal to the over-the-year percent change in the San Diego-Carlsbad CPI-U for the second half of 2018 as determined by the U.S. Bureau of Labor Statistics.¹⁰ the San Diego-Carlsbad CPI-U for the second half of 2018 as determined by the U.S Bureau of Labor Statistics.¹¹ The proposed revenue adjustment will be effective with water consumption beginning on March 1, 2020.¹²

Table 3-16: Proposed 5-Year Revenue Adjustments

Fiscal Year	Effective Date	Revenue Adjustment
FY 2020	March 1, 2020	3.7%
FY 2021	March 1, 2021	5.0%
FY 2022	March 1, 2022	5.0%
FY 2023	March 1, 2023	5.0%
FY 2024	March 1, 2024	5.0%

Table 3-17 shows the proposed five-year financial plan in proforma format. Revenues and expenses were shown previously in **Section 3**. Rate revenue under existing rates is shown in Line 2, while Line 3 represents additional revenue resulting from the proposed revenue adjustments. Other operating revenues in Line 4 include the SDCWA Infrastructure Access Charge, excess treated water sales to Vallecitos, rental income, and other miscellaneous revenues. Non-operating revenue in Line 6 includes property tax and other miscellaneous revenues. Capital Revenues from **Table 3-8** are excluded from the operating cash flow in **Table 3-17** (which excludes capital expenditures and revenues), but are accounted for when projecting total ending balances (**Figure 3-8**). Transfers from the Operating Fund were provided by District staff. Net annual cash balance (Line 26) is calculated by subtracting total expenses (Line 16) and total transfers (Line 24) from total revenues (Line 7). Calculated debt coverage is shown in Line 28 and is outlined in greater detail in Appendix C. More detailed cash flow and ending balance projections are also included in Appendix C. The net annual cash balance in FY 2020 and FY 2021 is slightly negative, indicating that the District will draw from reserves to meet the Operating Fund revenue requirement. Beginning in FY 2022, the net annual cash balance becomes positive again through the end of the study period.

¹⁰ This was the most recently available CPI-U value at the time of financial plan development.

¹¹ This was the most recently available CPI-U value at the time of financial plan development.

¹² Note that water consumption in March is billed in March. Therefore, a proposed revenue adjustment that is effective for water consumption beginning on March 1 will have an effective bill date of March 1.

Table 3-17: Proposed Financial Plan

Line	Description	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
1	REVENUES					
2	Revenues from Current Rates	\$54,337,390	\$54,305,252	\$54,393,633	\$54,482,015	\$54,570,396
3	Revenue Adjustments	\$502,621	\$2,713,226	\$5,573,206	\$8,585,475	\$11,757,893
4	Other Operating Revenue	\$2,971,879	\$2,690,754	\$2,731,278	\$2,766,237	\$2,803,503
5	Investment & Interest Income	\$470,000	\$451,000	\$449,000	\$468,000	\$516,000
6	Non-Operating Revenue	\$3,531,000	\$3,531,000	\$3,531,000	\$3,531,000	\$3,531,000
7	TOTAL REVENUES	\$61,812,890	\$63,691,232	\$66,678,117	\$69,832,727	\$73,178,792
8						
9	EXPENSES					
10	O&M Expenses without Depreciation	\$18,691,201	\$19,363,325	\$20,074,883	\$20,781,768	\$21,457,499
11	Purchased Water (potable & recycled)	\$29,073,074	\$31,064,404	\$33,005,371	\$34,081,082	\$35,237,032
12	Other Operating Expenses (potable & recycled)	\$50,000	\$52,000	\$54,080	\$56,243	\$58,493
13	Non-Operating Expenses (potable & recycled)	\$60,000	\$0	\$0	\$0	\$0
14	Existing Debt Service	\$4,453,580	\$4,450,080	\$4,451,580	\$4,462,580	\$4,457,330
15	Proposed Debt Service	\$0	\$0	\$0	\$1,301,000	\$1,301,000
16	TOTAL EXPENSES	\$52,327,854	\$54,929,808	\$57,585,914	\$60,682,673	\$62,511,354
17						
18	TRANSFERS					
19	Transfer Potable Operating to Potable Capital - PAYGO	\$6,900,000	\$6,400,000	\$5,400,000	\$5,400,000	\$5,900,000
20	Transfer to Sewer Fund - 2018 Bonds	\$484,500	\$484,500	\$484,500	\$484,500	\$484,500
21	Transfer to 2012 SRF Reserve	\$112,000	\$112,000	\$112,000	\$112,000	\$112,000
22	Transfer Recycled Operating to Recycled Capital	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000
23	Transfer Recycled Operating to Potable Capital	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000
24	TOTAL TRANSFERS	\$9,696,500	\$9,196,500	\$8,196,500	\$8,196,500	\$8,696,500
25						
26	Net Annual Cash Balance	(\$211,464)	(\$435,077)	\$895,703	\$953,555	\$1,970,938
27						
28	Calculated Debt Coverage	315.4%	298.1%	305.5%	259.7%	286.3%
29	Target Debt Coverage	250%	250%	250%	250%	250%

Figure 3-6 summarizes the tabular results from **Table 3-17** in graphical format. O&M expenses, purchased water costs, debt service, transfers, and revenues to (or from) reserves are represented by stacked bars. Revenues under current rates are represented by the solid line, while revenues inclusive of the proposed revenue adjustments are represented by the dashed line. **Figure 3-6** clearly demonstrates although current rates are sufficient to cover operating costs over the study period, the proposed revenue adjustments are necessary to provide sufficient funding for transfers from the Operating Fund to cover CIP expenditures and other needs.

Figure 3-6: Proposed Operating Financial Plan

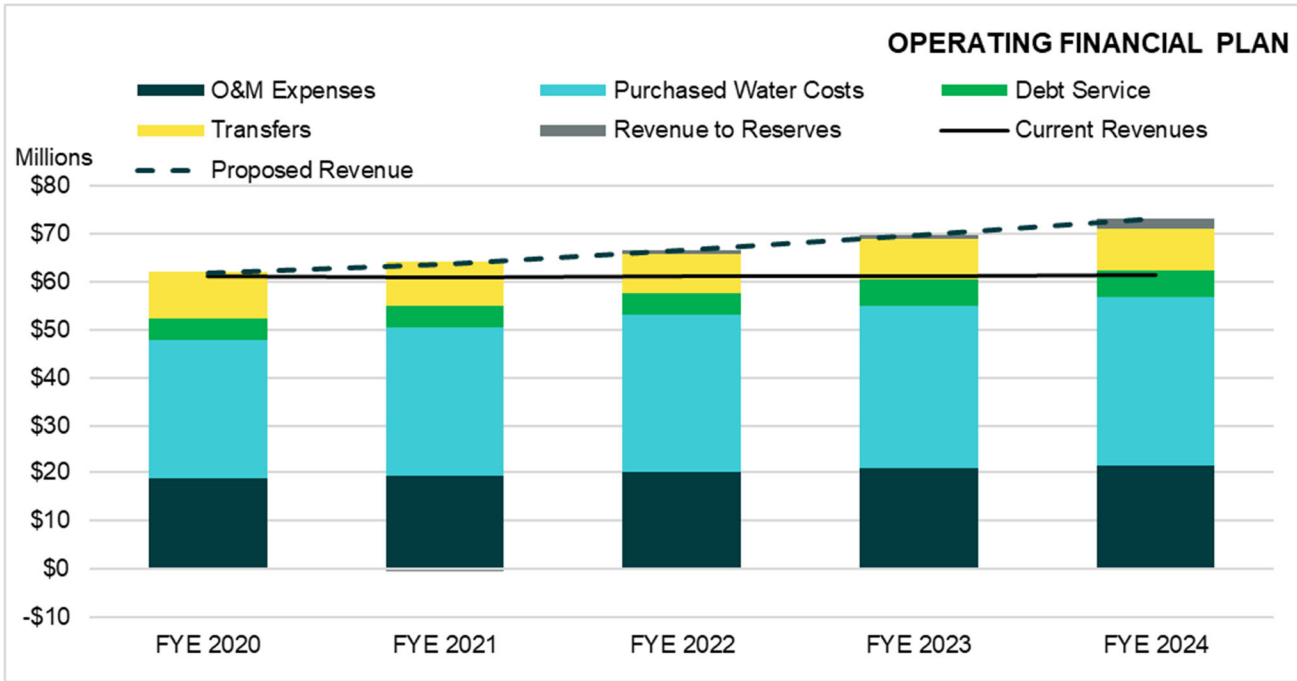


Figure 3-7 illustrates how the proposed revenue adjustments will ensure that the District’s projected debt coverage (dashed line) exceeds its 250% debt coverage target (solid blue line). Robust debt coverage of at least 250 percent will help the District maintain its AAA credit rating by Fitch, which can minimize the costs associated with any future debt issues.

Figure 3-7: Projected Debt Coverage Ratios under Proposed Revenue Adjustments

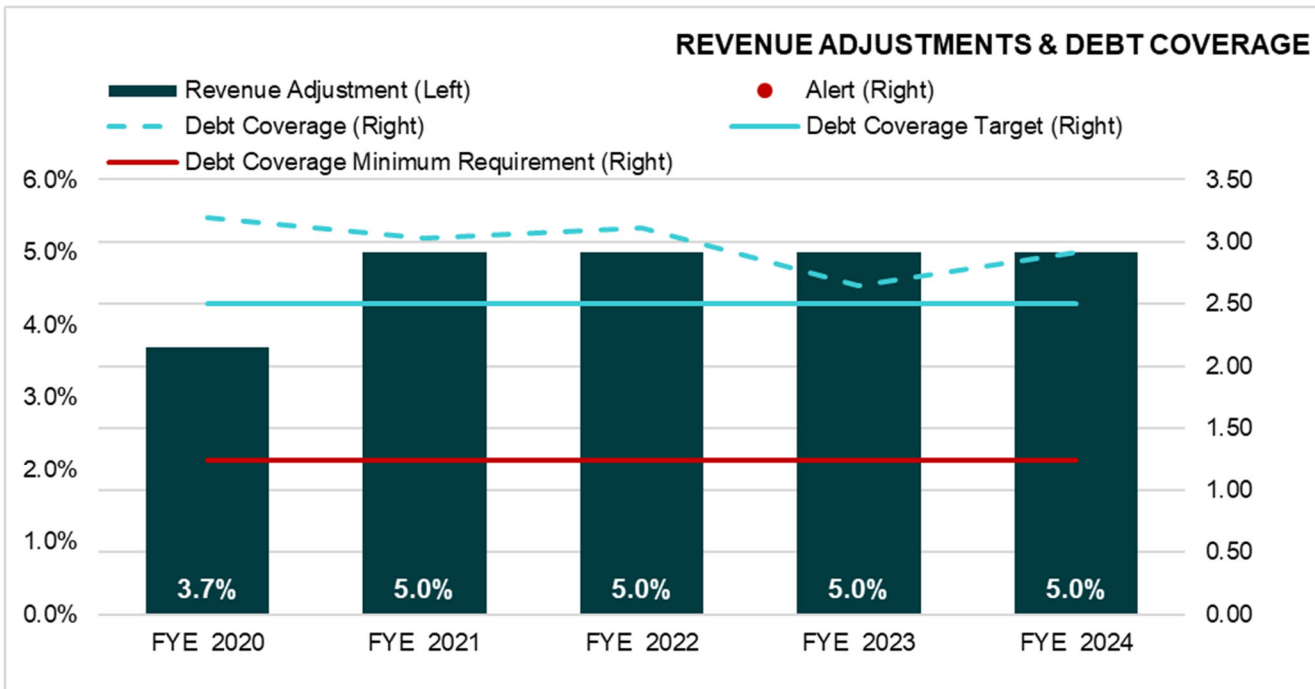
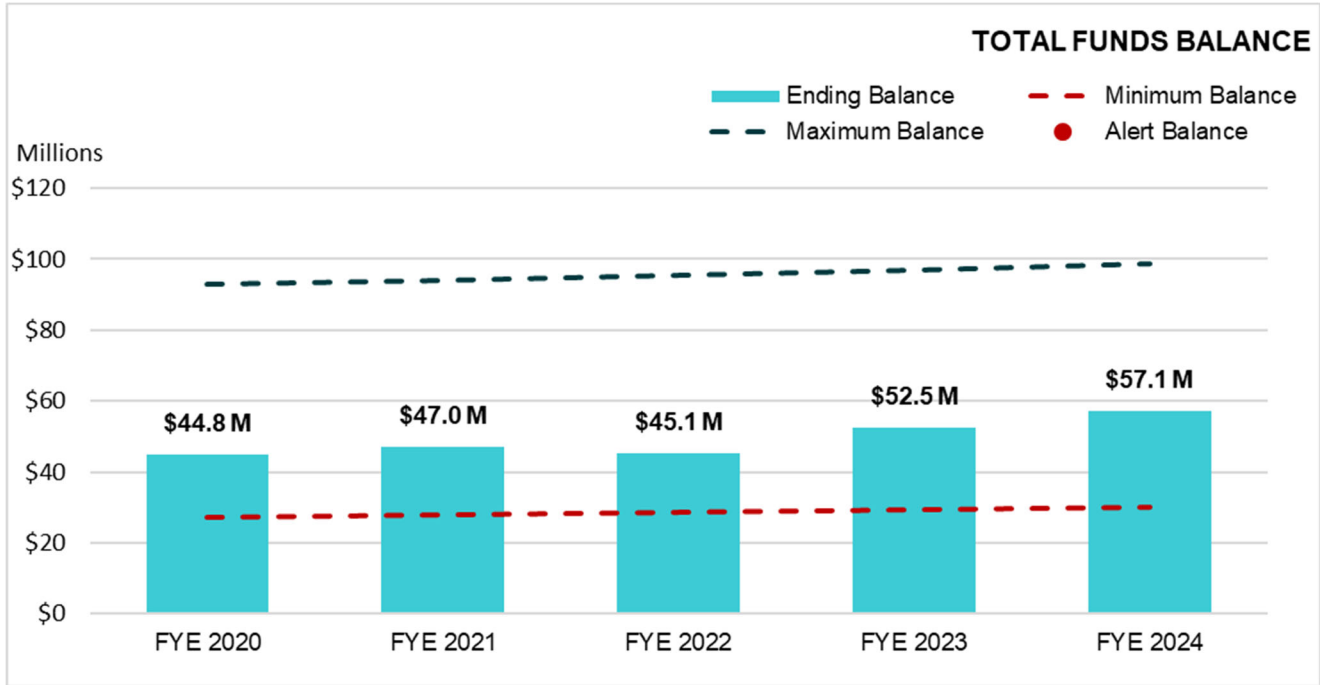


Figure 3-8 demonstrates that the District will exceed the minimum reserve target in all years under the proposed financial plan. Ending Balances and minimum/maximum targets shown below include all three funds combined (Operating, Capital Improvement, and Rate Stabilization). Projected total ending funds balance are shown in **Figure 3-8** build slowly over the study period towards the midpoint between minimum and maximum reserve targets.

Figure 3-8: Projected Ending Balances Under Proposed Financial Plan



4. Cost of Service

Section 4 of the report provides a detailed description of the cost of service (COS) analysis performed for the District's water system. The goal of a COS analysis is to allocate the overall rate revenue requirement to all customer classes and tiers based on their proportion of usage in and burden on the system. Numbers shown in this section of the report are rounded. Therefore, hand calculations based on the displayed numbers, such as summing or multiplying, may not equal the exact results shown in this report.

4.1. Process and Approach

The first step in the COS analysis process is to determine the revenue requirement, which is based on the results of the financial plan and the proposed revenue adjustments. 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 M1 Manual.

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

- 1. Cost functionalization:** O&M expenses and capital assets are categorized by their function in the system. Functions include supply, treatment, storage, distribution, customer service, etc.
- 2. Cost causation component allocation:** the 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, meter, 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 and tiers based on their individual service units. The District's customer classes include Domestic, Agricultural, Commercial, Irrigation, Construction, and Recycled.

4.2. Revenue Requirement

Table 4-1 shows the revenue requirement, which is equal to the total revenue required from rates for FY 2020 (also referred to as the test year or rate-setting year). The revenue requirement is split into the Operating and Capital categories (Columns C and D), which are to be later allocated based on O&M expenses and capital assets respectively.

The revenue requirement is calculated using the FY 2020 expenses (Lines 2-6), which includes O&M expenses, purchased water costs, other operating expenses, non-operating expenses, and existing debt service. The revenue offsets (Lines 10-27) include the various miscellaneous, non-rate revenues that are applied as offsets to the revenue requirement. The cash balance adjustment (Line 31) is determined by calculating the negative sum of total transfers (**Table 3-17**, Line 24) and net annual cash balance (**Table 3-17**, Line 26). The adjustment to annualize the rate increase (Line 32) is due to the mid-year proposed revenue adjustment occurring in March 2020. The final revenue requirement (Line 35) is calculated as follows:

Total revenue required from rates (Line 35) = Revenue requirements (Line 7) - Revenue offsets (Line 28) - Adjustments (Line 33)

Table 4-1: Proposed Revenue Requirement

A	B	C	D	E
Line	Revenue Requirement (FY 2020)	Operating	Capital	Total
1	Revenue Requirements			
2	O&M Expenses (excluding depreciation)	\$18,691,201		\$18,691,201
3	Purchased Water (potable & recycled)	\$29,073,074		\$29,073,074
4	Other Operating Expenses		\$50,000	\$50,000
5	Non-Operating Expenses		\$60,000	\$60,000
6	Existing Debt Service		\$4,453,580	\$4,453,580
7	Total - Revenue Requirements	\$47,764,275	\$4,563,580	\$52,327,854
8				
9	Revenue Offsets			
10	CWA Infrastructure Access Charge	\$1,068,879		\$1,068,879
11	Selling Excess Treated Water to Vallecitos	\$867,000		\$867,000
12	Misc. Water Sales	\$10,000		\$10,000
13	Meter Installations	\$5,000		\$5,000
14	Hydro-electric Plant Revenues	\$50,000		\$50,000
15	Turn Off/On Fees and NSF Charges	\$20,000		\$20,000
16	Delinquency Charges	\$125,000		\$125,000
17	Transfer Fee	\$30,000		\$30,000
18	Cross Connection/Inspection	\$135,000		\$135,000
19	Outside District Boundary Charges	\$10,000		\$10,000
20	Rental Income	\$650,000		\$650,000
21	Other operating	\$1,000		\$1,000
22	Investment Income (Potable)		\$209,214	\$209,214
23	Property Tax Revenue ¹³	\$2,300,000	\$1,200,000	\$3,500,000
24	Gain on Sale of Fixed Assets		\$25,000	\$25,000
25	Other Non-Operating		\$5,000	\$5,000
26	Investment Income (Recycled)		\$260,786	\$260,786
27	Interest Income Rec Loans		\$1,000	\$1,000
28	Total - Revenue Offsets	\$5,271,879	\$1,701,000	\$6,972,879
29				
30	Adjustments			
31	Adjustment for Transfers & Cash Balance		(\$9,485,036)	(\$9,485,036)
32	Adjustment to Annualize Rate Increase	(\$1,507,863)		(\$1,507,863)
33	Total - Adjustments	(\$1,507,863)	(\$9,485,036)	(\$10,992,898)
34				
35	Total Revenue Required from Rates	\$44,000,258	\$12,347,615	\$56,347,873

4.3. Functionalization and Allocation of Expenses

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

¹³ Property tax revenue in excess of \$2.3 million per fiscal year must be moved to the District's capital reserves.

- » **Supply** – represents costs of procuring water supplies from SDCWA
- » **Treatment** – represents costs of water treatment
- » **Reservoir** – represents costs of storing water
- » **Distribution** – represents costs pertaining to the District’s water distribution system
- » **Pump Stations** – represents costs of pumping water to customers
- » **Meters** – represents costs relating to maintenance and capital costs of water meters as well as a portion of costs related to water system capacity
- » **Hydrants** – represents costs of providing capacity for public fire protection
- » **Customer** – represents costs of meter reading, billing, and other customer services
- » **Recycled Water** – represents costs related to the District’s recycled water system
- » **General** - represents costs for general operational expenses which cannot be categorized under any of the above

The functionalization of costs allows for the allocation of costs to the cost causation components, which include:

- » **Supply** – costs associated with procuring water supplies from SDCWA
- » **Base Delivery** – costs associated with providing water under average conditions
- » **Peaking (Max Day and Max Hour)** – costs associated with providing water under peak demand conditions
- » **Recycled Water** – costs associated with the District’s recycled water system
- » **Fire Protection** – costs associated with providing capacity for fire protection
- » **Meters** – costs associated with purchasing, maintaining, and servicing water meters as well as some costs related to system capacity
- » **Customer** – costs associated with customer service and billing
- » **General** – costs that do not have any direct cost causation
- » **Revenue Offsets** – non-rate revenues (such as interest income) with no direct association with specific expenses or services

4.4. Peaking Factors

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 in a year. The Max Hour demand is the maximum usage in an hour on the Max Day. Different facilities, such as distribution and storage facilities, are designed to meet the peaking demands of customers. Therefore, peaking costs, also known as extra capacity costs, are associated with meeting peak customer demand.

Table 4-2 shows the system-wide peaking factors used to derive the cost component allocation bases for Base Delivery, Max Day, and Max Hour costs. The Base Delivery, or Base 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 1.88 times greater than the average daily demand. Similarly, the Max Hour peaking factor (Column C, Line 3) shows that the Max Hour demand is 2.82 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 4-2: System Peaking Factor Allocations

A	B	C	D	E	F	G
Line	Allocation Factor	Peaking Factor	Base	Max Day	Max Hour	Total
1	Base	1.00	100.0%	0.0%	0.0%	100.0%
2	Max Day	1.88	53.1%	46.9%	0.0%	100.0%
3	Max Hour	2.82	35.4%	31.2%	33.3%	100.0%

Table 4-3 shows the peaking factors by customer class. Calendar year (CY) 2018 water usage data was utilized by Raftelis to determine peaking factors, as January-December 2018 is more representative of post-drought water usage patterns than was FY 2018 (July 2017-June 2018). Each Max Month factor (Column E) is calculated by dividing CY 2018 maximum monthly usage (Column C) by CY 2018 average monthly usage (Column D). Max Day factors (Column F) peaking factors are estimated by multiplying each tier-specific Max Month factor (Column E) by 1.42, which is the ratio of the system-wide Max Day factor to the system-wide Max Month factor. Max Hour factors (Column G) are calculated by multiplying each tier-specific Max Day factor (Column F) by 1.5, which represents the ratio of the system-wide Max Hour factor to the system-wide Max Day factor. Note that recycled water volumetric rates do not incorporate peaking costs because the recycled water supply and distribution system is separate from the potable water system. Therefore, recycled water usage is excluded from **Table 4-3** below.

Table 4-3: Peaking Factors by Customer Class

A	B	C	D	E	F	G
Line	Customer Class	CY 2018 Max Monthly Usage (HCF)	CY 2018 Average Monthly Usage (HCF)	Max Month Factor	Max Day Factor	Max Hour Factor
1	Domestic					
2	Tier 1	141,741	139,115	1.02	1.45	2.17
3	Tier 2	230,766	188,299	1.23	1.74	2.61
4	Tier 3	204,135	133,894	1.52	2.17	3.25
5	Tier 4	104,432	50,276	2.08	2.95	4.43
7	Agricultural	35,164	21,259	1.65	2.35	3.52
8	Commercial	29,354	23,834	1.23	1.75	2.62
9	Irrigation					
10	Tier 1	66,756	43,316	1.54	2.19	3.28
11	Tier 2	76,446	44,147	1.73	2.46	3.69
12	Construction¹⁴	N/A	N/A	N/A	3.00	4.50

¹⁴ Due to the temporary and variable nature of Construction water usage, the Max Month factor is estimated at 3.00, which is consistent with the value used in the prior water COS study conducted in 2014.

4.5. Allocation of Functional Categories to Cost Causation Components

Table 4-4 shows the allocation of functional categories to each cost causation component. The percentages shown for each functional category are to be used in the following subsections to allocate O&M expenses and capital assets to the various cost causation components.

Some functional categories are simply allocated 100 percent to the corresponding cost causation component or allocated evenly between two corresponding cost causation components. Others are based on the system peaking factor allocations shown previously in **Table 4-2**. Below is a verbal description of the allocation of functional categories shown in **Table 4-4**:

1. The **Supply** functional category is fully allocated to the **Supply** cost causation component, which is to be applied to the volumetric rates (excluding recycled water) to recover costs associated with procuring water from SDCWA.
2. The **Treatment** functional category is allocated to the cost causation components based on the Max Day allocation in Line 2 of **Table 4-2** (as treatment facilities are generally designed for Max Day demands).
3. The **Reservoir** functional category is allocated 10 percent to the **Fire Protection** cost causation component (which is industry standard for Southern California water agencies), with the remaining 90 percent allocated to the cost causation components based on the Max Day allocation in Line 2 of **Table 4-2** (as storage facilities are generally designed to withstand Max Day demands).
4. The **Distribution** functional category is allocated 10 percent to the **Fire Protection** cost causation component (which is industry standard for Southern California water agencies), with the remaining 90 percent allocated to the cost causation components based on the Max Hour allocation in Line 3 of **Table 4-2** (as distribution infrastructure is generally designed to withstand Max Hour demands).
5. The **Pump Stations** functional category is allocated to the cost causation components based on the Max Hour allocation in Line 3 of **Table 4-2** (as pumping facilities are generally designed to withstand Max Hour demands).
6. The **Meters** functional category is fully allocated to the **Meters** cost causation component, which is to be recovered by the OMWD System Access Charge.
7. The **Hydrants** functional category is fully allocated to the **Fire Protection** cost causation component, which is to be recovered by the OMWD System Access Charge and Fire Meter Charge.
8. The **Customer** functional category is fully allocated to the **Customer** cost causation component, which is to be recovered by the OMWD System Access Charge and Fire Meter Charge.
9. The **Recycled Water** functional category is fully allocated to the **Recycled Water** cost causation component, which is to be recovered by the recycled water volumetric rate.
10. The **Customer/Meter** functional category is allocated 50 percent to the **Customer** cost causation component and 50 percent to the **Meters** cost causation component.
11. The **General** functional category is fully allocated to the **General** cost causation component, which is to be later distributed proportionally to the other cost causation components.

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

A	B	C	D	E	F	G	H	I	J	K	L
Line	Functional Category	Supply	Base	Max Day	Max Hour	Recycled Water	Fire Protection	Meters	Customer	General	Total
1	Supply	100.0%									100.0%
2	Treatment		53.1%	46.9%							100.0%
3	Reservoir		48.1%	41.9%			10.0%				100.0%
4	Distribution		32.1%	27.9%	30.0%		10.0%				100.0%
5	Pump Stations		35.4%	31.2%	33.3%						100.0%
6	Meters							100.0%			100.0%
7	Hydrants						100.0%				100.0%
8	Customer								100.0%		100.0%
9	Recycled Water					100.0%					100.0%
10	Customer/Meter							50.0%	50.0%		100.0%
11	General									100.0%	100.0%

4.6. O&M Allocation

Table 4-5 shows the allocation of O&M expenses to each cost causation component. O&M expenses are used in subsequent steps of the COS analysis to allocate the Operating revenue requirement. The percentages in Columns D-L of **Table 4-5** are determined by the assigned functional category in Column C and associated allocations shown above in **Table 4-4**. FY 2020 O&M expenses are shown in Column M, Lines 1-18 in millions of dollars. Purchased water expenses are broken down in Lines 1-10 to provide for more precise functionalization in Column C. The remaining O&M expenses in Lines 11-18 are based on totals shown for FY 2020 in **Table 3-10** less depreciation. Note that total O&M expenses in Column M, Line 19 of **Table 4-5** equals total FY 2020 O&M expenses excluding depreciation from **Table 3-10**.

The percentages for each cost causation component (Columns D-L) are multiplied by the FY 2020 O&M costs in Column for each individual line and then summed in Columns D-L of Line 19 to determine the total allocation of O&M expenses to each cost causation component (Line 19). The proportion of total FY 2020 O&M expenses allocated to each cost causation component in Line 19 is shown in percentages (Line 21). The percentages in Line 21 represent the O&M allocation basis to be used in subsequent steps of the COS analysis. Note that the total O&M cost is equal to the sum of O&M expenses excluding depreciation and purchased water expenses from the revenue requirement determination (**Table 4-1**, Column E, Lines 2-3).

Table 4-5: O&M Cost Allocation

A	B	C	D	E	F	G	H	I	J	K	L	M
Line	O&M Expenses	Functional Category	Supply	Base Delivery	Max Day	Max Hour	Recycled Water	Fire Protection	Meters	Customer	General	Total (million \$)
1	Purchased Water - Untreated	<i>Supply</i>	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	\$17.49M
2	Treatment Rate	<i>Treatment</i>	0.0%	53.1%	46.9%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	\$0.21M
3	Capacity Reservation Charge	<i>Meters</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	\$0.34M
4	Readiness to Serve Charge	<i>Meters</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	\$0.72M
5	Infrastructure Access Charge	<i>Meters</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	\$1.13M
6	Customer Service Charge	<i>Customer</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	\$1.07M
7	Transportation Charge	<i>Distribution</i>	0.0%	32.1%	27.9%	30.0%	0.0%	10.0%	0.0%	0.0%	0.0%	\$2.40M
8	Storage Charge	<i>Meters</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	\$2.93M
9	Supply Reliability Charge	<i>Meters</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	\$1.53M
10	Purchased Water - Recycled	<i>Recycled Water</i>	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	\$1.25M
11	O&M and WTP	<i>Distribution</i>	0.0%	32.1%	27.9%	30.0%	0.0%	10.0%	0.0%	0.0%	0.0%	\$10.81M
12	General Manager	<i>General</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	\$0.60M
13	Engineering	<i>Assets</i>	0.0%	29.6%	25.9%	13.1%	10.8%	5.4%	1.6%	0.0%	13.6%	\$1.69M
14	Finance	<i>General</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	\$0.14M
15	Customer Services	<i>Customer/ Meter</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	50.0%	50.0%	0.0%	\$3.63M
16	Human Resources	<i>Customer</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	(\$0.09M)
17	Park	<i>General</i>	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	\$0.38M
18	Recycled	<i>Recycled Water</i>	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	\$1.54M
19	Total O&M		\$17.49M	\$4.85M	\$4.23M	\$4.18M	\$2.97M	\$1.41M	\$8.49M	\$2.79M	\$1.35M	\$47.76M
20												
21	O&M Allocation		36.6%	10.2%	8.8%	8.8%	6.2%	3.0%	17.8%	5.8%	2.8%	100.0%

4.7. Capital Allocation

Table 4-6 shows the allocation of capital assets to each cost component. Capital assets are utilized in COS analyses to allocate capital costs because annual capital project costs can fluctuate greatly from year to year. Capital assets remain relatively stable and are more representative of the District's investments in its water system. District staff provided Raftelis with a detailed asset listing that included the Original Cost of each individual fixed asset. Raftelis calculated the Replacement Cost Less Depreciation (RCLD) of each asset based on Original Cost, year purchased, and useful life using the Engineering News-Record's 20-City Average Cost Construction Index (CCI) to account for capital cost inflation. RCLD is often utilized in capital asset analyses because it takes into consideration inflation and depreciation when valuing assets. As part of the capital asset analysis, Raftelis also assigned each individual asset to a functional category. Total asset value (RCLD) by functional category is shown in Column J, Lines 2-15 of **Table 4-6**.

The capital assets are allocated to the various cost causation components in a similar manner to the O&M expenses: asset value by functional category (Column J) is allocated to each cost causation component (Columns C-I) based on percentages from **Table 4-4**. Allocation percentages for each cost causation component are multiplied by the capital asset value for each functional category and summed to determine the capital asset value allocated to each cost causation component (Columns C-I, Line 17). The capital allocation in Line 19 represents the proportion of total asset value within each cost causation component and is to be used subsequently in the COS analysis to allocate capital revenue requirements.

Table 4-6: Capital Cost Allocation

A	B	C	D	E	F	G	H	I	J
Line	Functional Category	Base Delivery	Max Day	Max Hour	Recycled Water	Fire Protection	Meters	General	Total (million \$)
1	Potable Water Assets								
2	Treatment	53.1%	46.9%	0.0%	0.0%	0.0%	0.0%	0.0%	\$82.94M
3	Reservoir	48.1%	41.9%	0.0%	0.0%	10.0%	0.0%	0.0%	\$62.95M
4	Distribution	32.1%	27.9%	30.0%	0.0%	10.0%	0.0%	0.0%	\$195.30M
5	Pump Stations	35.4%	31.2%	33.3%	0.0%	0.0%	0.0%	0.0%	\$10.23M
6	Meters	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	\$7.76M
7	General	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	\$64.74M
8									
9	Recycled Water Assets								
10	Treatment	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	\$1.99M
11	Reservoir	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	\$7.44M
12	Distribution	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	\$30.21M
13	Pump Stations	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	\$3.89M
14	Meters	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	\$3.80M
15	General	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	\$3.82M
16									
17	Total Assets	\$140.65M	\$122.95M	\$62.00M	\$51.15M	\$25.83M	\$7.76M	\$64.74M	\$475.08M
18									
19	Capital Allocation	29.6%	25.9%	13.1%	10.8%	5.4%	1.6%	13.6%	100.0%

4.8. Revenue Offset Allocation

Table 4-7 shows the revenue offset allocation to each cost causation component. Revenue offsets are miscellaneous, non-rate revenues that are used to offset the revenue requirement. Rather than assigning a functional category to each individual revenue offset, revenue offsets are allocated directly to cost causation components by either the O&M allocation (**Table 4-5**, Line 21), capital allocation (**Table 4-6**, Line 19), or full allocation to the most closely associated cost causation component. The methodology as described previously for the O&M and capital allocations was utilized to determine the amount of revenue offsets allocated to each cost causation component (**Table 4-7**, Line 27) and the final revenue offset allocation percentages to be utilized in the next step of the COS analysis (**Table 4-7**, Line 29).

Some revenues, including investment income and a portion of property taxes, are not directly linked to any service that the District provides to its water customers. These revenues can therefore be allocated to the Revenue Offsets cost causation component (Column M), which can be utilized at the District's discretion to provide offsets to specific customer classes and tiers. The Revenue Offsets cost causation component was not included in the O&M or capital allocations, as it only applies to revenues.

Note that property tax revenue (Line 22) is allocated 65.7 percent to the Revenue Offsets cost causation component, which equates to \$2.3 million. As stated previously, any property tax income in excess of \$2.3 million per year must be moved to the District's capital reserves. Therefore, the remaining property tax income in excess of \$2.3 million is allocated based on the capital allocation (**Table 4-6**, Line 19).

Table 4-7: Revenue Offset Allocation

A	B	C	D	E	F	G	H	I	J	K	L	M	N
Line	Revenue Offsets	Rationale	Supply	Base Delivery	Max Day	Max Hour	Recycle-d Water	Fire Protection	Meters	Customer	General	Revenue Offsets	Total (million \$)
1	CWA Infrastructure Access Charge	100% Meters	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	\$1.069M
3	Selling Excess Treated Water to Vallecitos	100% Base	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	\$0.867M
4	Misc. Water Sales	100% Base	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	\$0.010M
5	Meter Installations	100% Meters	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	\$0.005M
6	Hydro-electric Plant Revenues	100% Base	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	\$0.050M
7	Turn Off/On Fees and NSF Charges	100% Customer	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	\$0.020M
8	Delinquency Charges	100% Customer	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	\$0.125M
9	Transfer Fee	Capital Allocation	0.0%	29.6%	25.9%	13.1%	10.8%	5.4%	1.6%	0.0%	13.6%	0.0%	\$0.030M
10	Cross Connection/Inspection	Capital Allocation	0.0%	29.6%	25.9%	13.1%	10.8%	5.4%	1.6%	0.0%	13.6%	0.0%	\$0.135M
11	Outside District Boundary Charges	Capital Allocation	0.0%	29.6%	25.9%	13.1%	10.8%	5.4%	1.6%	0.0%	13.6%	0.0%	\$0.010M
13	Rental Income	Capital Allocation	0.0%	29.6%	25.9%	13.1%	10.8%	5.4%	1.6%	0.0%	13.6%	0.0%	\$0.650M
16	Other operating	O&M Allocation	36.6%	10.2%	8.8%	8.8%	6.2%	3.0%	17.8%	5.8%	2.8%	0.0%	\$0.001M
21	Investment Income (Potable)	100% Offsets	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100.0%	\$0.209M
22	Property Tax Revenue	Capital Allocation	0.0%	10.2%	8.9%	4.5%	3.7%	1.9%	0.6%	0.0%	4.7%	65.7%	\$3.500M
23	Gain on Sale of Fixed Assets	Capital Allocation	0.0%	29.6%	25.9%	13.1%	10.8%	5.4%	1.6%	0.0%	13.6%	0.0%	\$0.025M
24	Other Non-Operating	Capital Allocation	0.0%	29.6%	25.9%	13.1%	10.8%	5.4%	1.6%	0.0%	13.6%	0.0%	\$0.005M
25	Investment Income (Recycled)	100% Recycled	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	\$0.261M
26	Interest income rec loans	100% Recycled	0.0%	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%	0.0%	0.0%	0.0%	\$0.001M
27	Total Revenue Offsets		\$366	\$1.536M	\$0.532M	\$0.268M	\$0.483M	\$0.112M	\$1.108M	\$0.145M	\$0.280M	\$2.509M	\$6.973M
28													
29	Revenue Offset Allocation		0.01%	22.02%	7.63%	3.85%	6.93%	1.60%	15.88%	2.08%	4.02%	35.99%	100.00%

4.9. Allocation of Revenue Requirements to Cost Causation Components

Table 4-8 shows the allocation of revenue requirements from **Table 4-1**. The total operating revenue requirement in Column M, Line 1 of **Table 4-8** is equal to the operating revenue requirement (Column C, Line 7) less adjustments (Column C, Line 33) from **Table 4-1**.

The total operating revenue requirement is allocated among the various cost causation components in Columns C-L, Line 1 of **Table 4-8** based on the O&M allocation percentages from Line 21 of **Table 4-5**. The total Capital revenue requirement in Column M, Line 2 of **Table 4-8** is equal to the capital revenue requirement (Column D, Line 7) less operating adjustments (Column D, Line 33) from **Table 4-1**. The total capital revenue requirement is allocated among the various cost causation components in Columns C-L, Line 2 of **Table 4-8** based on the capital allocation percentages from Line 19 of **Table 4-6**. Total revenue offsets in Column M, Line 3 of **Table 4-8** is equal to the revenue offsets in Column E, Line 28 of **Table 4-1**. Total revenue offsets are allocated among the various cost causation components in Columns C-L, Line 3 of **Table 4-8** based on the revenue offset allocation percentages from Line 29 of **Table 4-7**.

Lines 1-3 in **Table 4-8** are summed to determine the preliminary COS allocation to each cost causation component in Line 4. General costs are then reallocated to all other cost causation components (excluding Revenue Offsets) proportionally in Line 6. Line 7 shows the reallocation of 96.1 percent of Fire Protection costs (Column H, Line 7) to the Meters cost causation component (Column I, Line 7) to account for public fire protection capacity costs. The purpose is to equitably allocate fire protection capacity costs between private fire meters and public fire hydrants. The basis of the 96.1 percent allocation of fire capacity costs to public hydrants is shown in detail in Appendix D.

Line 10 in **Table 4-8** shows a final adjustment to the cost causation component allocations, in which 5 percent of Max Day costs (Column E, Line 10) and Max Hour costs (Column F, Line 10) are reallocated to the Meters cost causation component (Column I, Line 10). The final adjustment is intended to provide revenue stability for the District by ensuring that approximately 25 percent of rate revenues are from fixed charges (OMWD System Access charges and Fire Meter Charges). This is consistent with the existing fixed versus variable revenue split under current water rates. Line 12 shows the final adjusted COS by cost causation component, which is to be used to develop unit costs in the following subsections.

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

A	B	C	D	E	F	G	H	I	J	K	L	M
Line	Description	Supply	Base Delivery	Max Day	Max Hour	Recycled Water	Fire Protection	Meters	Customer	General	Revenue Offsets	Total
1	Operating	\$18,045,327	\$5,005,708	\$4,358,543	\$4,316,428	\$3,061,982	\$1,457,746	\$8,757,610	\$2,874,673	\$1,394,119	\$0	\$49,272,137
2	Capital	\$0	\$4,159,237	\$3,635,800	\$1,833,500	\$1,512,490	\$763,678	\$229,326	\$0	\$1,914,584	\$0	\$14,048,615
3	Revenue Offsets	(\$366)	(\$1,535,505)	(\$531,925)	(\$268,288)	(\$483,092)	(\$111,739)	(\$1,107,602)	(\$145,058)	(\$280,089)	(\$2,509,214)	(\$6,972,879)
4	Preliminary COS	\$18,044,961	\$7,629,440	\$7,462,418	\$5,881,640	\$4,091,380	\$2,109,686	\$7,879,334	\$2,729,615	\$3,028,614	(\$2,509,214)	\$56,347,873
5												
6	Allocation of General Cost	\$978,913	\$413,886	\$404,825	\$319,070	\$221,951	\$114,447	\$427,442	\$148,078	(\$3,028,614)	\$0	\$0
7	Allocation of Public Fire Costs	\$0	\$0	\$0	\$0	\$0	(\$2,136,627)	\$2,136,627	\$0	\$0	\$0	\$0
8	Allocated COS	\$19,023,874	\$8,043,326	\$7,867,243	\$6,200,711	\$4,313,332	\$87,507	\$10,443,403	\$2,877,692	\$0	(\$2,509,214)	\$56,347,873
9												
10	Final Adjustment – Peaking to Meters	\$0	\$0	(\$393,362)	(\$310,036)	\$0	\$0	\$703,398	\$0	\$0	\$0	\$0
11												
12	Final Adjusted COS	\$19,023,874	\$8,043,326	\$7,473,881	\$5,890,675	\$4,313,332	\$87,507	\$11,146,801	\$2,877,692	\$0	(\$2,509,214)	\$56,347,873

4.10. Units of Service

This subsection describes the next step in the COS analysis, which is to determine the appropriate units of service to be used to calculate the unit costs for each cost causation component.

Equivalent Meters

Equivalent meter units are used to allocate meter-related costs appropriately and equitably. Larger meters impose larger demands; are more expensive to install, maintain, and replace than smaller meters; and require greater capacity in the water system.

Equivalent meter units are based on meter hydraulic capacity and are calculated to represent the potential demand on the water system compared to a base meter size. A ratio of hydraulic capacity is calculated by dividing larger meter capacities by the base meter capacity. The base meter in this study is the 3/4" meters.

Table 4-9 shows the equivalent potable and recycled water meters for the test year FY 2020. The number of meters (Column D) is equal to the projected number of meters subject to the OMWD System Access Charge from (**Table 3-5**). Meter capacity ratios (Column C) were provided by the District's Engineering Department and are consistent with ratios used in the prior water COS study conducted in 2014. The number of meters (Column D) is multiplied by the meter capacity ratios (Column C) to determine the number of equivalent meters (Column E).

Table 4-9: Equivalent Meter Units (FY 2020)

A	B	C	D	E = C X D
Line	Meter Size	Meter Capacity Ratio	Number of Water Meters	Equivalent Meter Units
1	5/8"	0.7	1,948	1,364
2	3/4"	1.0	16,480	16,480
3	1"	1.9	2,874	5,461
4	1-1/2"	3.1	1,057	3,277
5	2"	5.0	554	2,770
6	2-1/2"	9.3	36	335
7	3"	10.2	28	286
8	4"	17.1	24	410
9	6"	36.0	8	288
10	8"	65.0	2	130
11	Total		23,011	30,800

Table 4-10 shows the determination of equivalent meter units in FY 2020 for fire meters. The number of projected fire meters in FY 2020 was determined previously in **Table 3-5**. Meter capacity ratios match the values used above in **Table 4-9** for potable and recycled water meters with the exception of the 5/8-inch fire meter, which is set equal to 1.00. The actual number of fire meters (Column D) is multiplied by the meter capacity ratios (Column C) to determine the number of equivalent fire meters (Column E).

Table 4-10: Equivalent Fire Meter Units (FY 2020)

A	B	C	D	E = C X D
Line	Meter Size	Meter Capacity Ratio	Number of Fire Meters	Equivalent Fire Meter Units
1	5/8"	1.0	380	380
2	3/4"	1.0	15	15
3	1"	1.9	5,435	10,327
4	1-1/2"	3.1	66	205
5	2"	5.0	1	5
6	2-1/2"	9.3	0	0
7	3"	10.2	0	0
8	4"	17.1	0	0
9	6"	36.0	1	36
10	8"	65.0	0	0
11	Total		5,898	10,967

Customer Bills

The number of total projected customer bills in FY 2020 is used as the unit of service for the Customer cost causation component. The sum of total water meters (**Table 4-9**, Column D, Line 11) and total fire meters (**Table 4-10**, Column D, Line 11) is multiplied by twelve monthly billing periods per year to determine total bills in **Table 4-11** Column C, Line 7.

Table 4-11: Projected Annual Customer Bills (FY 2020)

A	B	C	D
Line	Description	Value	Notes
1	Number of Water Meters	23,011	
2	Number of Fire Meters	5,898	
3	Total Meters	28,909	
4			
5	Billing Periods per Year	12	
6			
7	Total Bills	346,908	= [Line 3] x [Line 5]

Peaking Units of Service

Peaking units of service in HCF per day are used to develop Max Day and Max Hour unit costs. **Table 4-12** shows the development of total Max Day units (Column G, Line 13). Projected usage by tier¹⁵ in Column C is divided by 365 days to determine average daily usage in Column D. Average daily usage in Column D is then multiplied by the Max Day factor in Column E (from **Table 4-3**, Column F) to determine Max Day units. Max Day requirements (Column G) in HCF per day, which is the unit of service for Max Day costs, is determined by subtracting average daily usage in Column D from Max Day units in column F. Max Hour requirements are similarly calculated in **Table 4-13**. Please note however that Max Hour requirements (Column G) are calculated by subtracting Max Day units (**Table 4-12**, Column F) from Max Hour units (**Table 4-13**, Column F).

¹⁵ While total projected FY 2020 usage in **Table 4-12** matches the total shown previously in **Table 3-6** (excluding Recycled Water), please note that the distribution of usage between tiers and customer classes differs as a result of revised tier definitions to be discussed in **Section 1**.

Table 4-12: Max Day Units of Service

A	B	C	D	E	F	G
Line	Customer Class	FY 2020 Projected Usage (HCF)	FY 2020 Average Daily Usage (HCF)	Max Day Factor	Max Day Units (HCF/day)	Max Day Requirements (HCF/day)
1	Domestic					
2	Tier 1	1,684,780	4,616	1.45	6,679	2,063
3	Tier 2	2,280,421	6,248	1.74	10,874	4,627
4	Tier 3	1,621,550	4,443	2.17	9,619	5,177
5	Tier 4	608,870	1,668	2.95	4,921	3,253
7	Agricultural	257,463	705	2.35	1,657	952
8	Commercial	283,373	776	1.75	1,358	582
9	Irrigation					
10	Tier 1	493,419	1,352	2.19	2,959	1,607
11	Tier 2	502,887	1,378	2.46	3,388	2,011
12	Construction	36,802	101	3.00	302	202
13	Total	7,769,565	21,286			20,472

Table 4-13: Max Hour Units of Service

A	B	C	D	E	F	G
Line	Customer Class	FY 2020 Projected Usage (HCF)	FY 2020 Average Daily Usage (HCF)	Max Hour Factor	Max Hour Units (HCF/day)	Max Hour Requirements (HCF/day)
1	Domestic					
2	Tier 1	1,684,780	4,616	2.17	10,019	3,340
3	Tier 2	2,280,421	6,248	2.61	16,312	5,437
4	Tier 3	1,621,550	4,443	3.25	14,429	4,810
5	Tier 4	608,870	1,668	4.43	7,382	2,461
7	Agricultural	257,463	705	3.52	2,486	829
8	Commercial	283,373	776	2.62	2,037	679
9	Irrigation					
10	Tier 1	493,419	1,352	3.28	4,438	1,479
11	Tier 2	502,887	1,378	3.69	5,083	1,694
12	Construction	36,802	101	4.50	454	151
13	Total	7,769,565	21,286			20,879

Table 4-14 shows a summary of the relevant units of service for each cost causation component. Total revenue requirements by cost causation components are divided by the relevant units of service to determine a unit cost for each cost causation component in the following subsection. Fire Protection, Meters, and Customer unit costs are used to develop fixed monthly charges (OMWD System Access Charges and Fire Meter Charges), and are therefore based off number of equivalent meter units or customer bills from Table 4-9 through Table 4-11. Supply, Base Delivery, Max Day, Max Hour, Recycled Water, and Revenue Offsets unit costs are used to develop proposed volumetric rates and therefore are based on projected annual water usage or peaking requirements in HCF per day from Table 4-12 and Table 4-13.

Table 4-14: Summary of Units of Service by Cost Causation Component

A	B	C	D
Line	Cost Causation Component	Units of Service	Basis
1	Supply	7,769,565 HCF	Total projected FY 2020 usage excluding recycled water
2	Base Delivery	7,769,565 HCF	Total projected FY 2020 usage excluding recycled water
3	Max Day	20,472 HCF/day	Projected Max Day requirements in FY 2020
4	Max Hour	20,879 HCF/day	Projected Max Hour requirements in FY 2020
5	Recycled Water	1,196,077 HCF	Projected recycled water usage in FY 2020
7	Fire Protection	10,967 EMUs	Equivalent fire meter units
8	Meters	30,800 EMUs	Equivalent potable and recycled water meter units
9	Customer	346,908 Bills	Total annual customer bills
10	Revenue Offsets	7,732,763 HCF	Total projected FY 2020 usage excluding recycled and construction water

4.11. Units Cost Development

Table 4-15 shows the calculation of unit costs for each cost causation component. Unit costs are used in Section 5 to derive the proposed rates for FY 2020. The unit cost in Column E for each cost causation component is calculated by dividing the FY 2020 revenue requirement in Column C (from Table 4-8, Line 12) by the units of service in Column D (from Table 4-14, Column C).

Table 4-15: Calculation of Unit Costs by Cost Causation Component

A	B	C	D	E = C / D
Line	Cost Causation Component	FY 2020 Revenue Requirement	FY 2020 Units of Service	Unit Cost
1	Supply	\$19,023,874	7,769,565 HCF	\$2.45
2	Base Delivery	\$8,043,326	7,769,565 HCF	\$1.04
3	Max Day	\$7,473,881	20,472 HCF/day	\$365.07
4	Max Hour	\$5,890,675	20,879 HCF/day	\$282.13
5	Recycled Water	\$4,313,332	1,196,077 HCF	\$3.61
7	Fire Protection	\$87,507	10,967 EMUs	\$0.66
8	Meters	\$11,146,801	30,800 EMUs	\$30.16
9	Customer	\$2,877,692	346,908 Bills	\$8.30
10	Revenue Offsets	(\$2,509,214)	7,732,763 HCF	(\$0.32)
11	Total	\$56,347,873		

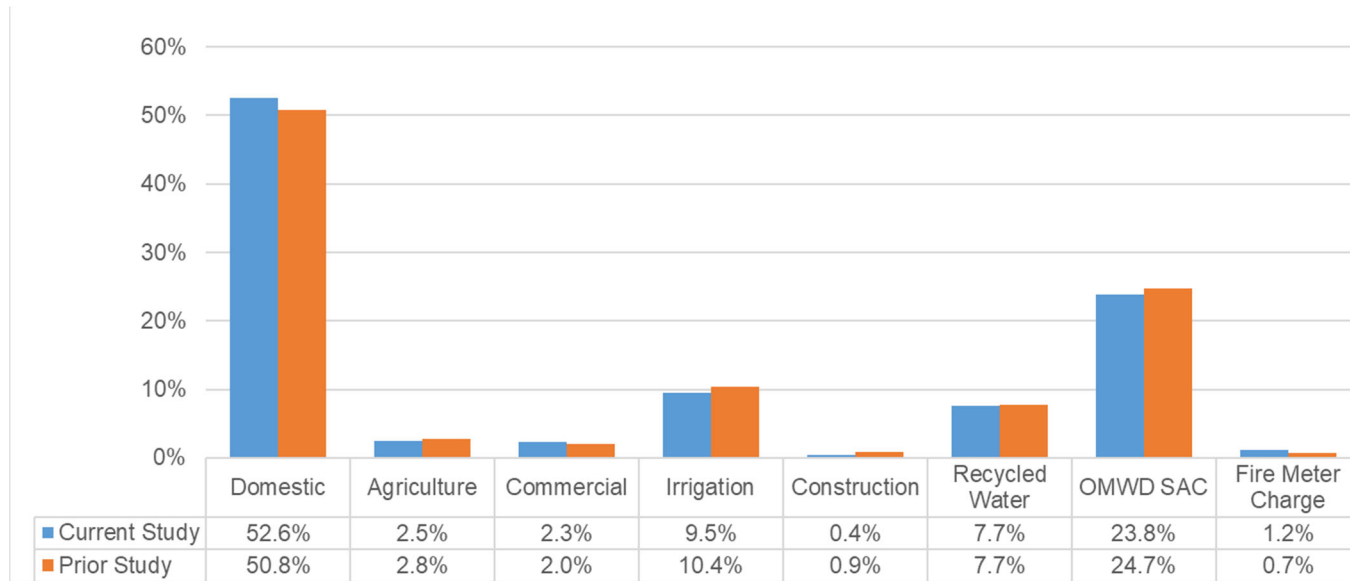
4.12. Cost of Service by Customer Class

Table 4-16 shows the distribution of each cost causation component's revenue requirement to volumetric rates by customer class and to each fixed charge. The dollar amount attributed to each customer class for each cost causation component is determined by multiplying the unit costs (from Table 4-15) by the relevant units of service for each customer class (from Table 4-9 through Table 4-13). Figure 4-1 shows a comparison of the distribution of costs to each customer class from the current COS analysis presented in this study and the prior COS analysis conducted in 2014. The changes shown are a result of changes in water usage patterns by customer class, O&M cost structure, capital needs, and other factors.

Table 4-16: Proposed Cost of Service by Customer Class

A	B	C	D	E	F	G	H	I	J	K	L
Line	Description	Supply	Base	Max Day	Max Hour	Recycled Water	Fire Protection	Meters	Customer	Revenue Offsets	Total
1	Volumetric Rates										
2	Domestic	\$15,170,054	\$6,413,924	\$5,519,833	\$4,527,336	\$0	\$0	\$0	\$0	(\$2,010,425)	\$29,620,722
3	Agriculture	\$630,400	\$266,534	\$347,421	\$233,747	\$0	\$0	\$0	\$0	(\$83,544)	\$1,394,559
4	Commercial	\$693,842	\$293,358	\$212,327	\$191,561	\$0	\$0	\$0	\$0	(\$91,952)	\$1,299,135
5	Irrigation	\$2,439,467	\$1,031,411	\$1,320,681	\$895,362	\$0	\$0	\$0	\$0	(\$323,293)	\$5,363,629
6	Construction	\$90,110	\$38,099	\$73,619	\$42,669	\$0	\$0	\$0	\$0	\$0	\$244,497
7	Recycled Water	\$0	\$0	\$0	\$0	\$4,313,332	\$0	\$0	\$0	\$0	\$4,313,332
8											
9	Fixed Charges										
10	OMWD System Access Charges	\$0	\$0	\$0	\$0	\$0	\$0	\$11,146,801	\$2,290,587	\$0	\$13,437,388
11	Fire Meter Charges	\$0	\$0	\$0	\$0	\$0	\$87,507	\$0	\$587,105	\$0	\$674,612
12											
13	Total	\$19,023,874	\$8,043,326	\$7,473,881	\$5,890,675	\$4,313,332	\$87,507	\$11,146,801	\$2,877,692	(\$2,509,214)	\$56,347,873

Figure 4-1: Cost of Service Comparison: Current and Prior Studies



5. Rate Design

This section of the report details the calculation of the proposed water rates for FY 2020. All rates shown in this section are rounded up to the nearest cent. Other numbers shown in the tables in this section of the report are also rounded. Therefore, hand calculations based on the displayed numbers, such as summing or multiplying, may not equal the exact results shown in. Note that the SDCWA Infrastructure Access Charge shown in this section was not developed by Raftelis, but rather represents a direct pass-through of the CY 2020 rate established by SDCWA.

5.1. Rate Structure Overview

Based on discussions with District staff as well as evaluation of water usage characteristics by customer class, Raftelis recommends that the District maintain its existing water rate structure. Below is a summary of the District's existing rate structure by charge and customer class:

- » **Monthly Fixed Charges:**
 - » **OMWD System Access Charge** which varies by meter size
 - » **Fire Meter Charge** which varies by meter size
 - » **SDCWA Infrastructure Access Charge** which varies by meter size
- » **Volumetric Rates** per HCF of water delivered which varies by the following customer classes/tiers
 - » **Domestic:** four tier structure with defined monthly tier allotments
 - » **Agricultural:** uniform rate per HCF
 - » **Combined Agricultural/Domestic:** follows Domestic rate structure for monthly usage up to the Domestic Tier 2 limit and the Agricultural rate structure for monthly usage in excess of the Domestic Tier 2 limit.
 - » **Commercial:** uniform rate per HCF
 - » **Irrigation:** two tier structure with defined monthly tier allotments that vary by both meter size and season (December-May and June-November)
 - » **Construction:** uniform rate per HCF
 - » **Recycled:** uniform rate per HCF

Revisions to Tier Definitions

As reflected above, the only customer classes subject to a tiered volumetric rate structure are the Domestic and Irrigation customer classes. The basis for Domestic tier definitions is shown in **Table 5-1**. Domestic Tier 1 usage is intended to provide an affordable rate for essential indoor water usage needs.¹⁶ Domestic Tier 2 usage is intended to provide for reasonable outdoor usage, and therefore its upper limit is set to average monthly Domestic usage. Tier 3 and Tier 4 Domestic usage definitions are designed to include inefficient and excess usage respectively.

Based on evaluation of CY 2018 water usage patterns by customer class, Raftelis proposes to make only one modification to the existing tier definitions. This proposed modification is the reduction of the Domestic Tier 2 monthly upper limit from 25 HCF to 23 HCF per month. The prior Tier 2 upper limit of 25 HCF was based on average monthly Domestic usage prior to FY 2015. Water conservation and efficiency improvements since FY 2015 have resulted in a reduction of average monthly Domestic usage to 23 HCF. The proposed Tier 3 lower limit has correspondingly dropped from 26 HCF to 24 HCF per month. Note that all water usage projections by customer class and tier utilized in **Section 4** to develop units of service are based on the proposed tier definitions.

¹⁶ The 6 HCF Domestic Tier 1 limit is based on an assumed 55 gallons per capita per day (GPCD) for essential water use needs and an average residential density of 2.39 per household in Encinitas and Carlsbad.

Table 5-1: Revised Domestic Tier Definitions

Domestic Tiers	Current Monthly Tier Width	Proposed Monthly Tier Width	Proposed Basis for Tier Widths
Tier 1	0-6 HCF	0-6 HCF	Tier 1 max set equal to essential indoor needs
Tier 2	7-25 HCF	7-23 HCF	Tier 2 max set equal to average Domestic monthly usage
Tier 3	26-80 HCF	24-80 HCF	Tier 3 max set at 90 th percentile of Domestic monthly usage
Tier 4	Over 80 HCF	Over 80 HCF	Designed to include 10 percent of total Domestic monthly usage

Based on input provided by the District, Raftelis proposes to maintain the current Irrigation tier definitions which vary by meter size and season. For Irrigation customers, all monthly water usage in excess of the Tier 1 allotment is charged at the Irrigation Tier 2 rate.

Table 5-2: Irrigation Tier Definitions

Meter Size	Winter Tier 1 Allotment (Dec-May)	Summer Tier 1 Allotment (Jun-Nov)
5/8"	10 HCF	15 HCF
3/4"	20 HCF	30 HCF
1"	35 HCF	50 HCF
1-1/2"	50 HCF	110 HCF
2"	100 HCF	200 HCF
3"	200 HCF	500 HCF
4"	600 HCF	3,500 HCF
6"	3,100 HCF	11,800 HCF
8"	5,600 HCF	21,300 HCF

5.2. OMWD System Access Charge Calculation

Table 5-3 shows the calculation of proposed FY 2020 monthly OMWD System Access Charges, which are comprised of the Meters and Customer unit costs previously developed in Table 4-15. The Meter unit cost (Table 4-15, Column E, Line 8) is multiplied by the capacity ratio for each meter size (Column C) to determine the Meter component of the OMWD System Access Charge for each meter size (Column D). The Customer component of the charge is equal to the Customer unit cost (Table 4-15, Column E, Line 9) and is the same for all meter sizes, as customer service-related costs are not dependent on meter size. The proposed OMWD System Access Charge (Column F) is equal to the sum of the Meter and Customer components of the charge (Columns D and E) for each meter size.

Table 5-3: Monthly OMWD System Access Charge Calculation

A	B	C	D = C x \$30.16	E	F = D + E	G	H = F - G
Line	Meter Size	Capacity Ratio	Meter	Customer	Proposed Charge	Current Charge	Difference
1	5/8"	0.7	\$21.11	\$8.30	\$29.41	\$28.43	\$0.98
2	3/4"	1.0	\$30.16	\$8.30	\$38.46	\$37.70	\$0.76
3	1"	1.9	\$57.30	\$8.30	\$65.60	\$65.55	\$0.05
4	1-1/2"	3.1	\$93.49	\$8.30	\$101.79	\$102.68	(\$0.89)
5	2"	5.0	\$150.80	\$8.30	\$159.10	\$161.47	(\$2.37)
6	2-1/2"	9.3	\$280.48	\$8.30	\$288.78	\$294.50	(\$5.72)
7	3"	10.2	\$307.63	\$8.30	\$315.93	\$322.34	(\$6.41)
8	4"	17.1	\$515.73	\$8.30	\$524.03	\$535.82	(\$11.79)
9	6"	36.0	\$1,085.74	\$8.30	\$1,094.04	\$1,120.55	(\$26.51)
10	8"	65.0	\$1,960.36	\$8.30	\$1,968.66	\$2,017.75	(\$49.09)

5.3. Fire Meter Charge Calculation

Table 5-4 shows the calculation of proposed FY 2020 Fire Meter Charges, which are comprised of the Fire Protection and Customer unit costs previously developed in Table 4-15. The Fire Protection unit cost (Table 4-15, Column E, Line 7) is multiplied by the capacity ratio for each meter size (Column C) to determine the Fire Protection component of the OMWD System Access Charge for each meter size (Column D). The Customer component of the charge is equal to one half of the Customer unit cost (Table 4-15, Column E, Line 9) and is the same for all meter sizes, as customer service-related costs are not dependent on meter size. Based on feedback from District staff, Raftelis recommends that Fire Meter Charges are subject to half of the Customer unit cost since these charges are billed on the same water bill and require significantly less customer service support than regular meters. The proposed Fire Meter Charge (Column F) is equal to the sum of the Fire Protection and Customer components (Columns D and E) for each meter size.

Table 5-4: Monthly Fire Meter Charge Calculation

A	B	C	D = C x \$0.66	E	F = D + E	G	H = F - G
Line	Meter Size	Capacity Ratio	Fire Protection	Customer	Proposed Charge	Current Charge	Difference
1	5/8"	1.0	\$0.66	\$4.15	\$4.82	\$3.82	\$1.00
2	3/4"	1.0	\$0.66	\$4.15	\$4.82	\$3.82	\$1.00
3	1"	1.9	\$1.26	\$4.15	\$5.42	\$4.50	\$0.92
4	1-1/2"	3.1	\$2.06	\$4.15	\$6.21	\$5.42	\$0.79
5	2"	5.0	\$3.32	\$4.15	\$7.48	\$6.88	\$0.60
6	2-1/2"	9.3	\$6.18	\$4.15	\$10.34	\$10.15	\$0.19
7	3"	10.2	\$6.78	\$4.15	\$10.93	\$10.84	\$0.09
8	4"	17.1	\$11.37	\$4.15	\$15.52	\$16.10	(\$0.58)
9	6"	36.0	\$23.94	\$4.15	\$28.09	\$30.51	(\$2.42)
10	8"	65.0	\$43.22	\$4.15	\$47.37	\$52.64	(\$5.27)

5.4. SDCWA Infrastructure Access Charges

Table 5-5 shows the SDCWA Infrastructure Access Charges that will go into effect on January 1, 2020. The SDCWA Infrastructure Access Charge per meter equivalent is developed by SDCWA and passed through by the

District to its customers. SDCWA has proposed to increase the SDCWA Infrastructure Access Charge from \$3.01 to \$3.66 per meter equivalent for CY 2020. **Table 5-5** shows the calculation of CY 2020 SDCWA Infrastructure Access Charges, which are determined by multiplying the \$3.66 rate per meter equivalent by the capacity ratio (Column C) for each meter size.

Table 5-5: Monthly SDCWA Infrastructure Access Charge

A	B	C	D	E = C x D	F	G
Line	Meter Size	Capacity Ratio	Charge per Meter Equivalent	Proposed Charge	Current Charge	Difference
1	5/8"	1.0	\$3.66	\$3.66	\$3.01	\$0.65
2	3/4"	1.0	\$3.66	\$3.66	\$3.01	\$0.65
3	1"	1.9	\$3.66	\$6.96	\$5.71	\$1.25
4	1-1/2"	3.1	\$3.66	\$11.35	\$9.33	\$2.02
5	2"	5.0	\$3.66	\$18.30	\$15.05	\$3.25
6	2-1/2"	9.3	\$3.66	\$34.04	\$27.92	\$6.12
7	3"	10.2	\$3.66	\$37.34	\$30.70	\$6.64
8	4"	17.1	\$3.66	\$62.59	\$51.48	\$11.11
9	6"	36.0	\$3.66	\$131.76	\$108.38	\$23.38
10	8"	65.0	\$3.66	\$237.90	\$195.69	\$42.21

5.5. Volumetric Rate Calculations

Proposed volumetric rates are comprised of unit costs for the Supply, Base Delivery, Max Day, Max Hour, Recycled Water, and Revenue Offsets cost causation components. The Recycled volumetric rate is comprised solely of the Recycled Water unit cost, while all other volumetric rates are comprised of the other cost causation component unit costs listed above. Unit costs from **Table 4-15** are used to provide the basis for the calculation of volumetric rates. However, peaking unit rates and Revenue Offset unit rates must first be differentiated by customer class, as these unit costs are not applied uniformly to each customer class and tier.

Peaking Unit Rates

Peaking unit costs which vary by customer class and tier must first be converted from HCF per day peaking requirements into unit rates per HCF. The Max Day unit rate calculations are shown in **Table 5-6**. Max Day requirements in Column C (from **Table 4-12**, Column G) are multiplied by the Max Day unit cost in HCF per day in Column D (from **Table 4-15**, Column E, Line 3) to determine the Max Day revenue requirement by customer class and tier. This result in Column E is then divided by projected FY 2020 usage by class and tier in Column F (from **Table 4-12**, Column C) to determine the Max Day unit rate by customer class in Column G.

The Max Day unit rates are utilized to differentiate volumetric rates for each customer class and tier based on specific water usage characteristics. Since the prior water rate study was conducted in 2014, it has become industry standard to differentiate tiered volumetric rates based on the peak usage characteristics. In the prior study, peak usage characteristics were only evaluated at the customer class level, which was standard at that time. Because of increasingly stringent rate-setting standards that have emerged in California since 2014, Raftelis now differentiates rates at both the customer class and individual tier level based on peak usage characteristics. Because of this refinement, proposed Domestic volumetric rates have less pronounced differences in the per unit rate between the lower and higher tiers. Lower usage customers are disproportionately affected, but this change is necessary to comply with current regulations.

Table 5-6: Max Day Unit Rates by Customer Class

A	B	C	D	E = C x D	F	G = E / F
Line	Customer Class	Max Day Requirements (HCF/day)	Max Day Unit Cost (HCF/day)	Max Day Revenue Requirement	FY 2020 Projected Usage (HCF)	Max Day Unit Rate (\$/HCF)
1	Domestic					
2	Tier 1	2,063	\$365.07	\$753,290	1,684,780	\$0.45
3	Tier 2	4,627	\$365.07	\$1,689,050	2,280,421	\$0.74
4	Tier 3	5,177	\$365.07	\$1,889,914	1,621,550	\$1.17
5	Tier 4	3,253	\$365.07	\$1,187,579	608,870	\$1.95
7	Agricultural	952	\$365.07	\$347,421	257,463	\$1.35
8	Commercial	582	\$365.07	\$212,327	283,373	\$0.75
9	Irrigation					
10	Tier 1	1,607	\$365.07	\$586,677	493,419	\$1.19
11	Tier 2	2,011	\$365.07	\$734,004	502,887	\$1.46
12	Construction	202	\$365.07	\$73,619	36,802	\$2.00
13	Total	20,472		\$7,473,881	7,769,565	

Max Hour unit rates by customer class are calculated in **Table 5-7** in the same manner as described above for Max Day unit rates. Max Hour requirements in Column C (from **Table 4-13**, Column G) are multiplied by the Max Hour unit cost in HCF per day in Column D (from **Table 4-15**, Column E, Line 4) to determine the Max Hour revenue requirement by customer class and tier. This result in Column E is then divided by projected FY 2020 usage by class and tier in Column F (from **Table 4-13**, Column C) to determine the Max Hour unit rate by customer class in Column G.

Table 5-7: Max Hour Unit Rates by Customer Class

A	B	C	D	E = C x D	F	G = E / F
Line	Customer Class	Max Hour Requirements (HCF/day)	Max Hour Unit Cost (HCF/day)	Max Hour Revenue Requirement	FY 2020 Projected Usage (HCF)	Max Hour Unit Rate (\$/HCF)
1	Domestic					
2	Tier 1	3,340	\$282.13	\$942,202	1,684,780	\$0.56
3	Tier 2	5,437	\$282.13	\$1,533,982	2,280,421	\$0.67
4	Tier 3	4,810	\$282.13	\$1,356,956	1,621,550	\$0.84
5	Tier 4	2,461	\$282.13	\$694,196	608,870	\$1.14
7	Agricultural	829	\$282.13	\$233,747	257,463	\$0.91
8	Commercial	679	\$282.13	\$191,561	283,373	\$0.68
9	Irrigation					
10	Tier 1	1,479	\$282.13	\$417,388	493,419	\$0.85
11	Tier 2	1,694	\$282.13	\$477,974	502,887	\$0.95
12	Construction	151	\$282.13	\$42,669	36,802	\$1.16
13	Total	20,879		\$5,890,675	7,769,565	

Domestic Revenue Offsets

Non-rate revenue sources which are not directly related to any specific District function or expense may be utilized at the discretion of the District to offset various rates. These revenues are included within the Revenue Offsets cost

causation component. **Table 4-15** shows the Revenue Offsets unit rate of \$0.32 if applied evenly to each HCF of water usage (excluding Construction and Recycled usage). To provide for affordability for essential water use by Domestic customers, Raftelis recommends that the entirety of revenue offsets allocated to the Domestic customer class (**Table 4-16**, Column K, Line 2) be applied to Domestic Tier 1 water usage (**Table 4-12**, Column C, Line 2). The calculation shown to determine the Domestic Tier 1 Revenue Offset unit rate is shown in the equation below:

$$\text{Total Domestic Revenue Offset Allocation} \div \text{FY 2020 Domestic Tier 1 Usage} = \text{Domestic Tier 1 Revenue Offset Unit Rate}$$

$$(\$2,010,425) \div 1,684,780 \text{ HCF} = (\$1.19)$$

Table 5-8 below shows a summary of Revenue Offset unit rates per HCF by customer class and tier. The Domestic Tier 1 unit rate was determined in the equation above. As stated above, all Domestic revenue offsets are applied to Tiers 1 usage. Therefore, the Revenue Offset unit rate for Domestic Tiers 2-4 is \$0.00. All other classes are subject to the \$0.32 per HCF Revenue Offset unit rate derived in **Table 4-15**.

Table 5-8: Revenue Offsets by Customer Class and Tier

A	B	C
Line	Customer Class	Revenue Offset Unit Rate (\$/HCF)
1	Domestic	
2	Tier 1	(\$1.19)
3	Tier 2	(\$0.00)
4	Tier 3	(\$0.00)
5	Tier 4	(\$0.00)
7	Agricultural	(\$0.32)
8	Commercial	(\$0.32)
9	Irrigation	
10	Tier 1	(\$0.32)
11	Tier 2	(\$0.32)

Proposed FY 2020 Volumetric Rates

Table 5-9 shows the calculation of proposed FY 2020 volumetric rates per HCF by customer class and tier. Supply (Column C), Base Delivery (Column D), and Recycled Water (Column G) unit rates are directly from **Table 4-15**. Max Day (Column E), Max Hour (Column F), and Revenue Offset (Column H) unit rates were established in **Table 5-6**, **Table 5-7**, and **Table 5-8** respectively. The Recycled Water volumetric rate consists solely of the Recycled Water unit rate in Column G. Note also that no revenue offsets are applied to Construction or Recycled Water Rates because the proposed FY 2020 rates for these customer classes already decrease relative to existing rates. The difference between proposed FY 2020 and current volumetric rates is shown in Column K.

Table 5-9: Calculation of Proposed FY 2020 Volumetric Rates per HCF

A	B	C	D	E	F	G	H	I	J	K
Line	Customer Class	Supply	Base Delivery	Max Day	Max Hour	Recycled Water	Revenue Offset	Proposed Rate	Current Rate	Difference
1	Domestic									
2	Tier 1 (0-6 HCF)	\$2.45	\$1.04	\$0.45	\$0.56	N/A	(\$1.19)	\$3.30	\$2.71	\$0.59
3	Tier 2 (7-23 HCF)	\$2.45	\$1.04	\$0.74	\$0.67	N/A	\$0.00	\$4.90	\$4.75	\$0.15
4	Tier 3 (24-80 HCF)	\$2.45	\$1.04	\$1.17	\$0.84	N/A	\$0.00	\$5.49	\$5.61	(\$0.12)
5	Tier 4 (80 + HCF)	\$2.45	\$1.04	\$1.95	\$1.14	N/A	\$0.00	\$6.58	\$6.58	\$0.00
6										
7	Agriculture	\$2.45	\$1.04	\$1.35	\$0.91	N/A	(\$0.32)	\$5.42	\$4.75	\$0.67
8	Commercial	\$2.45	\$1.04	\$0.75	\$0.68	N/A	(\$0.32)	\$4.59	\$4.07	\$0.52
9	Irrigation									
10	Tier 1: "B" Base	\$2.45	\$1.04	\$1.19	\$0.85	N/A	(\$0.32)	\$5.20	\$4.35	\$0.85
11	Tier 2: "C" Over Base	\$2.45	\$1.04	\$1.46	\$0.95	N/A	(\$0.32)	\$5.57	\$5.90	(\$0.33)
12										
13	Construction	\$2.45	\$1.04	\$2.00	\$1.16	N/A	N/A	\$6.65	\$7.97	(\$1.32)
14	Recycled Water	N/A	N/A	N/A	N/A	\$3.61	N/A	\$3.61	\$3.85	(\$0.24)

5.6. Proposed Water Rates

Proposed monthly fixed charges and volumetric rates through FY 2024 are shown in **Table 5-10** and **Table 5-11** respectively. Proposed FY 2020 rates proposed to become effective on March 1, 2020 were developed previously in **Table 5-3**, **Table 5-4**, **Table 5-5**, and **Table 5-9**. All rates and charges shown beyond FY 2020 are increased by five percent per year in accordance with the proposed revenue adjustments shown in **Table 3-16**, and are rounded up to the nearest cent. Note that the proposed Agriculture w/ Credit volumetric rates in **Table 5-11** are yet to be determined. District staff updates its agricultural credit rate applied to qualifying customers each calendar year. The yet to be determined CY 2020 agricultural credit per HCF will be applied to the proposed FY 2020 Agriculture volumetric rate in **Table 5-11** to determine the reduced Agriculture w/ Credit volumetric rate for FY 2021.

Table 5-10: Proposed Monthly Fixed Charges

Effective Date	Current	March 1, 2020	March 1, 2021	March 1, 2022	March 1, 2023	March 1, 2024
Monthly OMWD System Access Charge						
Meter Size						
5/8"	\$28.43	\$29.41	\$30.89	\$32.44	\$34.07	\$35.78
3/4"	\$37.70	\$38.46	\$40.39	\$42.41	\$44.54	\$46.77
1"	\$65.55	\$65.60	\$68.88	\$72.33	\$75.95	\$79.75
1-1/2"	\$102.68	\$101.79	\$106.88	\$112.23	\$117.85	\$123.75
2"	\$161.47	\$159.10	\$167.06	\$175.42	\$184.20	\$193.41
2-1/2"	\$294.50	\$288.78	\$303.22	\$318.39	\$334.31	\$351.03
3"	\$322.34	\$315.93	\$331.73	\$348.32	\$365.74	\$384.03
4"	\$535.82	\$524.03	\$550.24	\$577.76	\$606.65	\$636.99
6"	\$1,120.55	\$1,094.04	\$1,148.75	\$1,206.19	\$1,266.50	\$1,329.83
8"	\$2,017.75	\$1,968.66	\$2,067.10	\$2,170.46	\$2,278.99	\$2,392.94
Monthly SDCWA Infrastructure Access Charge*						
Meter Size						
5/8"	\$3.01	\$3.66	TBD	TBD	TBD	TBD
3/4"	\$3.01	\$3.66	TBD	TBD	TBD	TBD
1"	\$5.71	\$6.96	TBD	TBD	TBD	TBD
1-1/2"	\$9.33	\$11.35	TBD	TBD	TBD	TBD
2"	\$15.05	\$18.30	TBD	TBD	TBD	TBD
2-1/2"	\$27.92	\$34.04	TBD	TBD	TBD	TBD
3"	\$30.70	\$37.34	TBD	TBD	TBD	TBD
4"	\$51.48	\$62.59	TBD	TBD	TBD	TBD
6"	\$108.38	\$131.76	TBD	TBD	TBD	TBD
8"	\$195.69	\$237.90	TBD	TBD	TBD	TBD
Monthly Fire Meter Charges						
Meter Line Size						
5/8"	\$3.82	\$4.82	\$5.07	\$5.33	\$5.60	\$5.88
3/4"	\$3.82	\$4.82	\$5.07	\$5.33	\$5.60	\$5.88
1"	\$4.50	\$5.42	\$5.70	\$5.99	\$6.29	\$6.61
1-1/2"	\$5.42	\$6.21	\$6.53	\$6.86	\$7.21	\$7.58
2"	\$6.88	\$7.48	\$7.86	\$8.26	\$8.68	\$9.12
2-1/2"	\$10.15	\$10.34	\$10.86	\$11.41	\$11.99	\$12.59
3"	\$10.84	\$10.93	\$11.48	\$12.06	\$12.67	\$13.31
4"	\$16.10	\$15.52	\$16.30	\$17.12	\$17.98	\$18.88
6"	\$30.51	\$28.09	\$29.50	\$30.98	\$32.53	\$34.16
8"	\$52.64	\$47.37	\$49.74	\$52.23	\$54.85	\$57.60

*Note: A fixed charge imposed by SDCWA. Subject to change every year.

Table 5-11: Proposed Volumetric Rates per HCF

Effective Date	Current	March 1, 2020	March 1, 2021	March 1, 2022	March 1, 2023	March 1, 2024
Volumetric Rates (\$/HCF)						
Residential						
Tier 1 (0-6 HCF)	\$2.71	\$3.30	\$3.47	\$3.65	\$3.84	\$4.04
Tier 2 (7-23 HCF)	\$4.75	\$4.90	\$5.15	\$5.41	\$5.69	\$5.98
Tier 3 (24-80 HCF)	\$5.61	\$5.49	\$5.77	\$6.06	\$6.37	\$6.69
Tier 4 (80 + HCF)	\$6.58	\$6.58	\$6.91	\$7.26	\$7.63	\$8.02
Agriculture						
Agriculture	\$4.75	\$5.42	\$5.70	\$5.99	\$6.29	\$6.61
Agriculture w/ Credit*	\$3.81	TBD	TBD	TBD	TBD	TBD
Commercial						
Commercial	\$4.07	\$4.59	\$4.82	\$5.07	\$5.33	\$5.60
Irrigation						
Tier 1: "B" Base	\$4.35	\$5.20	\$5.46	\$5.74	\$6.03	\$6.34
Tier 2: "C" Over Base	\$5.90	\$5.57	\$5.85	\$6.15	\$6.46	\$6.79
Construction						
Construction	\$7.97	\$6.65	\$6.99	\$7.34	\$7.71	\$8.10
Recycled Water						
Recycled Water	\$3.85	\$3.61	\$3.80	\$3.99	\$4.19	\$4.40

*Note: Agriculture w/ Credit rate is updated annually by District staff based on SDCWA charges

5.7. Proposed Water Supply Shortage Rates

Raftelis updated the District’s water supply shortage rates for the District as part of this study. Water supply shortage rates are intended to recover reductions in net revenues resulting from decreased water sales during times of reduced water demand due to drought, water supply emergencies, or other reasons. Raftelis developed water supply shortage rates for three distinct stages:

- » **10 Percent Demand Reduction** below projected FY 2020 water usage
- » **20 Percent Demand Reduction** below projected FY 2020 water usage
- » **30 Percent Demand Reduction** below projected FY 2020 water usage

In the event that the District activates its water supply shortage rates, customers will be notified in advance. OMWD’s water supply shortage rates would only be implemented by General Manager or OMWD Board action under the terms of the District’s Water Supply Shortage Condition Ordinance. Such action by OMWD is generally triggered by SDCWA and/or Metropolitan Water District of Southern California’s (MWD) declaration of a specific level of water shortage.

Table 5-12 shows the estimated water usage (excluding Recycled customers) for each demand reduction stage. To estimate water usage at the customer class and tiered level, Raftelis assumed that all customers reduce their usage each billing period by the overall water usage reduction percentage (i.e. 10%/20%/30%). For customer classes with uniform rates, this results in a percentage reduction equal to the overall reduction (i.e. 10%/20%/30%). For Domestic and Agricultural customers with tiered rates however, a disproportional amount of the overall customer class water usage reduction typically occurs within the higher tiers. Raftelis analyzed CY 2018 account level water usage data by billing period to estimate the percent reduction by tier for Domestic (Lines 1-4) and Irrigation customers (Lines 8-9) if total customer class water usage was to decrease by 10 percent, 20 percent, and 30 percent.

Table 5-12: Percent Reduction in Water Usage by Customer Class and Tier

A	B	C	D	E
Line	Description	10% Demand Reduction	20% Demand Reduction	30% Demand Reduction
1	Domestic Tier 1	2.3%	4.9%	8.1%
2	Domestic Tier 2	9.0%	18.7%	29.2%
3	Domestic Tier 3	14.4%	28.5%	42.2%
4	Domestic Tier 4	23.6%	44.1%	61.3%
5	Agriculture	10.0%	20.0%	30.0%
6	Agriculture w/ Credit	10.0%	20.0%	30.0%
7	Commercial	10.0%	20.0%	30.0%
8	Irrigation Tier 1	3.3%	7.3%	11.9%
9	Irrigation Tier 2	16.5%	32.5%	47.7%
10	Construction	10.0%	20.0%	30.0%
11	Total Reduction	10.0%	20.0%	30.0%

Table 5-13 shows FY 2020 volumetric base rates (previously determined in **Table 5-11**) in Column C and assumed FY 2020 water usage at each demand reduction stage in Columns D-G. Projected usage by customer class and tier in Columns E-G, Lines 1-10 is determined by reducing the base demand in Column D by the percentage reduction at each stage from **Table 5-12**, Columns C-E, Lines 1-10.

Table 5-13: Projected Water Usage by Stage

A	B	C	D	E	F	G
Line	Description	FY 2020 Proposed Base Rates	FY 2020 Base Demand	10% Demand Reduction	20% Demand Reduction	30% Demand Reduction
1	Domestic Tier 1	\$3.30	1,684,780	1,646,507	1,602,043	1,548,386
2	Domestic Tier 2	\$4.90	2,280,421	2,075,879	1,853,787	1,615,364
3	Domestic Tier 3	\$5.49	1,621,550	1,388,623	1,160,064	937,489
4	Domestic Tier 4	\$6.58	608,870	465,051	340,603	235,695
5	Agriculture	\$5.42	237,440	213,696	189,952	166,208
6	Agriculture w/ Credit	\$4.46 ¹⁷	20,023	18,021	16,018	14,016
7	Commercial	\$4.59	283,373	255,036	226,698	198,361
8	Irrigation Tier 1	\$5.20	493,419	476,900	457,480	434,584
9	Irrigation Tier 2	\$5.57	502,887	419,775	339,565	262,831
10	Construction	\$6.65	36,802	33,122	29,442	25,761
11	Total		7,769,565	6,992,608	6,215,652	5,438,695

Table 5-14 below shows the determination of the uniform surcharge to be added to all volumetric rates (excluding Recycled Water) during each demand reduction stage for FY 2020. Projected volumetric rate revenues (excluding Recycled) at each demand reduction stage (Line 2) is determined by multiplying projected water usage for each customer class and tier (**Table 5-13**, Columns D-G, Lines 1-10) by the FY 2020 proposed base rates (**Table 5-13**,

¹⁷ The Agriculture w/ Credit rate of \$4.46 was estimated by reducing the Agriculture rate by an estimated \$0.96 credit per HCF. Please note that the actual CY 2020 agricultural credit is yet to be determined by District staff.

Column C, Lines 1-10), and then summing across all customer classes and tiers. Line 3 shows the reduction in rate revenues relative to baseline (Column C, Line 2). Avoided water supply costs at each demand reduction stage are then calculated in Lines 5-12. Projected water usage (excluding Recycled) at each stage in Line 6 was determined previously in **Table 5-13**, Columns D-G, Line 11. Required water supply in HCF is shown in Line 8 assuming 6.5 percent water loss (Line 7). Required water supply is shown in Line 9 by converting Line 8 to AF¹⁸. Line 10 shows the reduction in required water purchases relative to baseline (Column C, Line 9), which is then multiplied by the FY 2020 Untreated M&I rate per AF (Line 11) to estimate avoided water supply costs (Line 12). Net revenue loss in Line 14 is calculated by subtracting avoided water supply costs (Line 12) from the total rate revenue reduction (Line 3). The net revenue loss is then divided by projected water demand excluding Recycled Water at each demand reduction level (Line 6) to determine the uniform surcharges at each stage (Line 16).

Table 5-14: Calculation of Water Supply Shortage Rate Surcharges

A	B	C	D	E	F
Line	Description	Base Demand	10% Demand Reduction	20% Demand Reduction	30% Demand Reduction
1	Reduction in Rate Revenues				
2	Projected Volumetric Rate Revenue	\$37,931,011	\$33,736,357	\$29,587,801	\$25,491,599
3	Total Rate Revenue Reduction	N/A	\$4,194,654	\$8,343,210	\$12,439,412
4					
5	Avoided Water Supply Costs				
6	Projected FY 2020 Water Usage	7,769,565	6,992,608	6,215,652	5,438,695
7	Assumed Water Loss	6.5%	6.5%	6.5%	6.5%
8	Required Water Purchases (HCF)	8,309,695	7,478,726	6,647,756	5,816,787
9	Required Water Purchases (AF)	19,076	17,169	15,261	13,354
10	Reduction in Required Water Purchases (AF)	N/A	1,908	3,815	5,723
11	FY 2020 Untreated M&I Rate (\$/AF)	\$1,374	\$1,374	\$1,374	\$1,374
12	Total Avoided Water Supply Costs	N/A	\$2,620,196	\$5,240,392	\$7,860,588
13					
14	Net Revenue Loss	N/A	\$1,574,458	\$3,102,818	\$4,578,824
15					
16	\$/HCF Surcharge	N/A	\$0.23	\$0.50	\$0.85

Table 5-15 shows FY 2020 volumetric rates under each demand reduction stage. Base volumetric rates were determined previously in **Table 5-11**. The effective rate at each of the three demand reduction stages is determined by simply adding the corresponding surcharge (**Table 5-14**, Line 16) to the FY 2020 base rate for customer class and tier. Note that Recycled Water customers are not subject to any rate increases during the three demand reduction stages. Water supply shortage rates for reductions in usage that are in between those shown above may be prorated. For example, the water shortage rate for a 14% reduction in use would be $0.23 + 0.4 \times (0.5 - 0.23) = \0.338 or rounded to \$0.34 per HCF.

¹⁸ One AF = 435.6 HCF.

Table 5-15: Proposed FY 2020 Water Supply Shortage Rates

Customer Class	FY 2020 Base Rate	10% Demand Reduction	20% Demand Reduction	30% Demand Reduction
Domestic				
Tier 1 (0-6 HCF)	\$3.30	\$3.53	\$3.80	\$4.15
Tier 2 (7-23 HCF)	\$4.90	\$5.13	\$5.40	\$5.75
Tier 3 (24-80 HCF)	\$5.49	\$5.72	\$5.99	\$6.34
Tier 4 (80 + HCF)	\$6.58	\$6.81	\$7.08	\$7.43
Agriculture	\$5.42	\$5.65	\$5.92	\$6.27
Commercial	\$4.59	\$4.82	\$5.09	\$5.44
Irrigation				
Tier 1: "B" Base	\$5.20	\$5.43	\$5.70	\$6.05
Tier 2: "C" Over Base	\$5.57	\$5.80	\$6.07	\$6.42
Construction	\$6.65	\$6.88	\$7.15	\$7.50
Recycled Water	\$3.61	\$3.61	\$3.61	\$3.61

6. Customer Impacts

6.1. Monthly Bill Impacts

Figure 6-1 shows estimated monthly bills under current rates and proposed FY 2020 rates for Domestic customers with a ¾-inch water meter at varying levels of monthly water usage. Note that 13 HCF and 23 HCF per month respectively represent median and average Domestic monthly water usage in CY 2018. High use customers see a smaller percentage increase in monthly bills under the proposed FY 2020 rates due to the decreased differentiation in peaking costs between lower and higher Domestic tiers relative to the prior water rate study in 2014.

Figure 6-1: Domestic Monthly Bill Impacts at Varying Levels of Usage

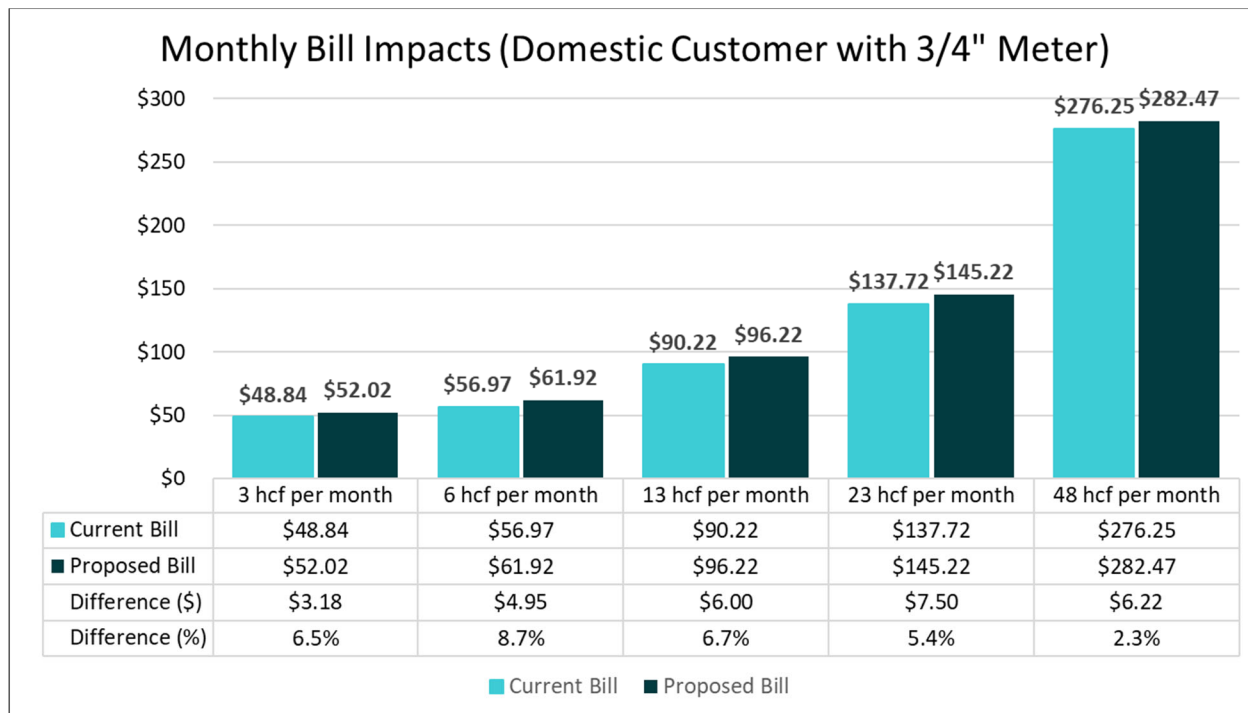


Table 6-1 shows estimated monthly bills under current rates and proposed FY 2020 rates for Commercial customers with a 1-inch water meter at varying levels of monthly water usage. **Table 6-2** shows estimated monthly bills under current rates and proposed FY 2020 rates for Irrigation customers with a 1.5-inch water meter at varying levels of monthly water usage during the winter and summer (due to different tier allotment definitions and usage patterns during the winter and summer periods for Irrigation customers).

Table 6-1: Commercial Monthly Bill Impacts at Varying Levels of Usage (1" Meter Size)

Usage Level	Monthly Usage	Current Monthly Bill	Proposed FY 2020 Monthly Bill	Difference (\$)	Difference (%)
Low (50% of Average)	31 HCF	\$199	\$217	\$18	8.9%
Average	63 HCF	\$327	\$361	\$34	10.4%
High (150% of Average)	94 HCF	\$455	\$505	\$50	11.1%

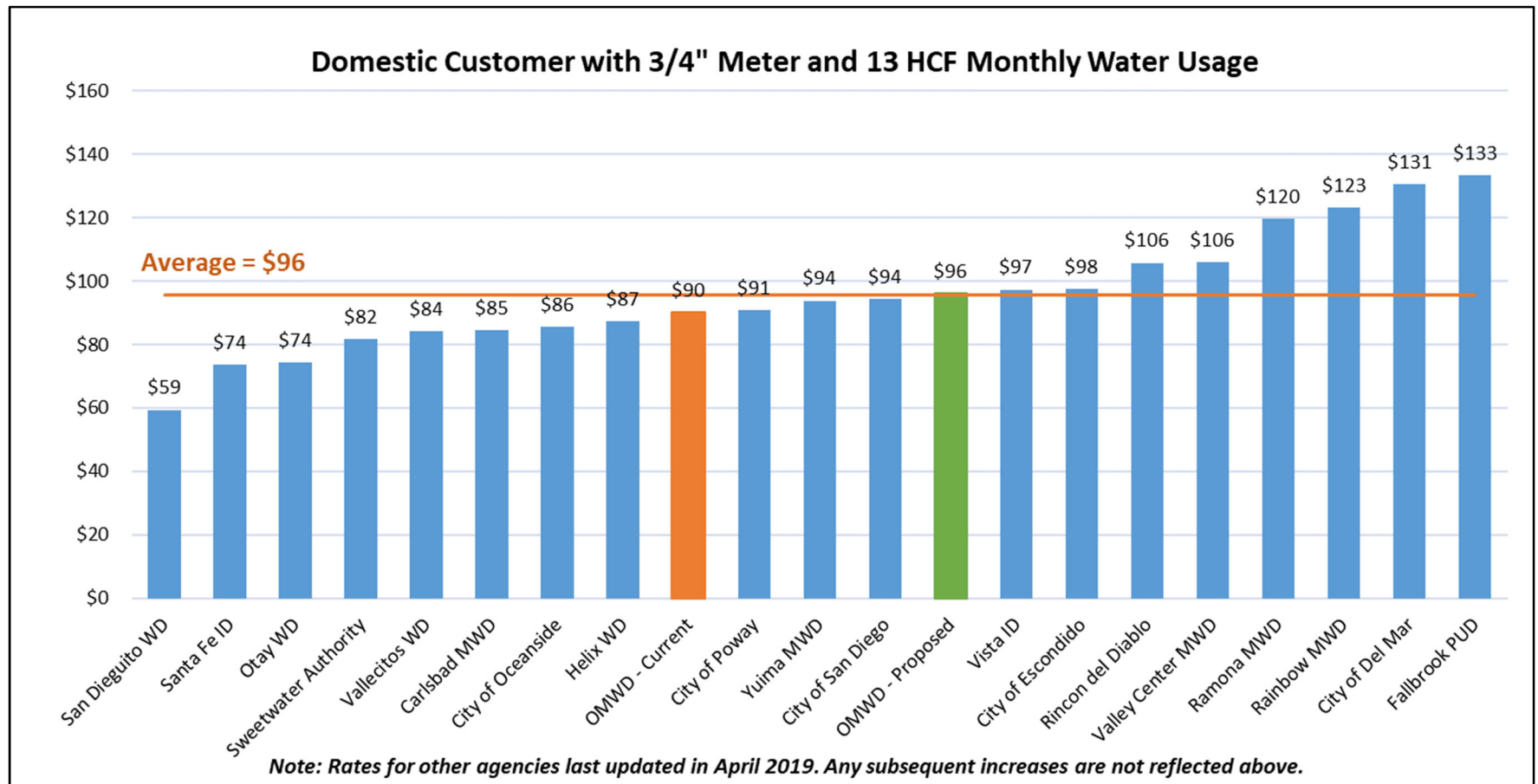
Table 6-2: Irrigation Monthly Bill Impacts at Varying Levels of Usage (1-1/2" Meter Size)

Usage Level	Monthly Usage	Current Monthly Bill	Proposed FY 2020 Monthly Bill	Difference (\$)	Difference (%)
Low – Winter (50% of Average)	56 HCF	\$363	\$405	\$42	11.5%
Avg - Winter	111 HCF	\$691	\$714	\$23	3.4%
High – Winter (150% of Average)	167 HCF	\$1,019	\$1,024	\$5	0.5%
Low – Summer (50% of Average)	98 HCF	\$540	\$625	\$85	15.7%
Avg - Summer	197 HCF	\$1,102	\$1,168	\$66	6.0%
High – Summer (150% of Average)	295 HCF	\$1,683	\$1,716	\$34	2.0%

6.2. Monthly Bill Comparison

Figure 6-2 shows a comparison of the District’s current and FY 2020 proposed Domestic bills to neighboring water utilities assuming a ¾-inch water meter and median Domestic monthly water usage (13 HCF). A District customer’s bill under current rates is represented by the orange bar and under proposed FY 2020 rates by the green bar. The District’s proposed FY 2020 rates result in a monthly bill that is approximately equal to the overall average across all agencies shown. While such comparisons can provide insights into a water utility’s pricing policies, please also note that differences in water rates and bills are heavily influenced by factors such as geographic location, customer usage characteristics, source of water supply, water treatment, grant funding, and the age of system infrastructure.

Figure 6-2: Domestic Monthly Bill Comparison



APPENDICES

APPENDIX A: DETAILED WATER PURCHASE COST PROJECTIONS

Water Supply Costs								
Water Purchases Volume		FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	
Allowance for Water Loss		6.5%	6.5%	6.5%	6.5%	6.5%	6.5%	
M&I Purchases		19,152 AF	19,027 AF	18,830 AF	18,865 AF	18,901 AF	18,936 AF	
SAWR Purchases (Agri. with credit)		49 AF	49 AF	49 AF	49 AF	49 AF	49 AF	
Total Water Purchases		19,202 AF	19,076 AF	18,880 AF	18,915 AF	18,950 AF	18,985 AF	
Water Purchase Mix		FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	
Percent Treated		4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	
Percent Untreated		96.0%	96.0%	96.0%	96.0%	96.0%	96.0%	
Treated Purchases		768 AF	763 AF	755 AF	757 AF	758 AF	759 AF	
Untreated Purchases		18,434 AF	18,313 AF	18,124 AF	18,158 AF	18,192 AF	18,226 AF	
Total Water Purchases		19,202 AF	19,076 AF	18,880 AF	18,915 AF	18,950 AF	18,985 AF	
TRUE		TRUE	TRUE	TRUE	TRUE	TRUE	TRUE	
Tier 1 Limit		19,348 AF	19,348 AF	19,348 AF	19,348 AF	19,348 AF	19,348 AF	
Purchases subject to Tier 2 Surcharge		0 AF	0 AF	0 AF	0 AF	0 AF	0 AF	
Water Purchase Rates (Calendar Year Basis)		CY 2018	CY 2019	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
Projected Increases								
SDCWA Projected Increases		3.7%	2.9%	4.8%	4.5%	3.6%	2.4%	4.0%
Wholesale Projected Increase			2.9%	4.9%	4.5%	3.6%	2.4%	4.0%
CRC Projected Increase			-1.1%	2.3%	5.7%	4.3%	4.1%	4.0%
SDCWA Charges								
Tier 1 Melded Untreated M&I Supply Rate (\$/AF)		\$894	\$909	\$925	\$967	\$1,001	\$1,025	\$1,066
Customer Service Charge (\$/AF)		\$61	\$61	\$64	\$67	\$69	\$71	\$74
Transportation Rate (\$/AF)		\$115	\$120	\$132	\$138	\$143	\$146	\$152
Storage Charges (\$/AF)		\$162	\$171	\$181	\$189	\$196	\$201	\$209
Supply Reliability Charge (\$/AF)		\$71	\$80	\$104	\$109	\$113	\$115	\$120
Melded Treatment Rate (\$/AF)		\$300	\$276	\$280	\$293	\$303	\$310	\$323
Tier 2 Untreated Supply Rate (\$/AF)		\$781	\$817	\$858	\$896	\$929	\$951	\$989
Infrastructure Access Charge (\$/3/4" meter)		\$3.01	\$3.02	\$3.66	\$3.82	\$3.96	\$4.06	\$4.22
Infrastructure Access Charge (# of equivalent meters)		28,046	28,218	28,267	28,329	28,392	28,454	28,517

Water Supply Costs							
Water Purchase Rates (Calendar Year Basis)	CY 2018	CY 2019	CY 2020	CY 2021	CY 2022	CY 2023	CY 2024
MWD Charges							
Readiness-to-Serve (changes each July) (\$M)	\$140	\$133	\$136	\$256	\$265	\$272	\$282
Capacity Reservation Charge (\$/cfs)	\$8,700	\$8,600	\$8,800	\$9,300	\$9,700	\$10,100	\$10,500
OMWD CRC Monthly Rate (\$)	\$35,479	\$28,974	\$29,648	\$31,332	\$32,680	\$34,027	\$35,375
SAWR (for Agriculture with Credit)							
SAWR Treated Cost - Tier 1	\$995	\$1,007	\$1,056	\$1,103	\$1,143	\$1,171	\$1,217
MWD Supply Rate	\$695	\$731	\$755	\$789	\$817	\$837	\$870
		\$178					
Water Purchase Rates (Fiscal Year Basis)	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	
Tier 1 Melded Untreated M&I Supply Rate (\$/AF)	\$902	\$917	\$946	\$984	\$1,013	\$1,046	
Customer Service Charge (\$/AF)	\$61	\$63	\$65	\$68	\$70	\$72	
Transportation Rate (\$/AF)	\$118	\$126	\$135	\$140	\$145	\$149	
Storage Charges (\$/AF)	\$167	\$176	\$185	\$193	\$198	\$205	
Supply Reliability Charge (\$/AF)	\$76	\$92	\$106	\$111	\$114	\$118	
Untreated M&I Rate	\$1,322	\$1,374	\$1,438	\$1,496	\$1,540	\$1,590	
Melded Treatment Rate (\$/AF)	\$288	\$278	\$286	\$298	\$307	\$317	
Treated M&I Rate	\$1,610	\$1,652	\$1,724	\$1,794	\$1,847	\$1,907	
Tier 2 Untreated Supply Rate (\$/AF)	\$799	\$837	\$877	\$913	\$940	\$970	
Tier 2 Untreated Supply Rate Surcharge	(\$103)	(\$80)	(\$69)	(\$71)	(\$74)	(\$76)	
Readiness-to-Serve (changes each July) (\$M)	\$140	\$133	\$136	\$256	\$265	\$272	
OMWD CRC Monthly Rate (\$)	\$32,226	\$29,311	\$30,490	\$32,006	\$33,354	\$34,701	
Infrastructure Access Charge (\$/3/4" meter)	\$3.02	\$3.34	\$3.74	\$3.89	\$4.01	\$4.14	
Units of Service for Annual Fixed Charges	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	
IAC Equivalent Meters	28,132	28,243	28,298	28,361	28,423	28,486	
SAWR (for Agriculture with Credit) Purchase Rates	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	
SAWR Treated Cost - Tier 1	\$1,001	\$1,031	\$1,080	\$1,123	\$1,157	\$1,194	
MWD Supply Rate	\$713	\$743	\$772	\$803	\$827	\$854	
SAWR Untreated Credit (CWA and MWD)	\$189	\$174	\$174	\$181	\$186	\$192	

Water Supply Costs

Calculated Water Purchase Expenses	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
Tier 1 Melded Untreated M&I Supply Rate	\$17,310,232	\$17,493,091	\$17,856,584	\$18,612,719	\$19,204,874	\$19,858,148
Tier 2 Untreated Supply Rate Surcharge	\$0	\$0	\$0	\$0	\$0	\$0
Treatment Rate	\$221,202	\$212,130	\$216,209	\$225,365	\$232,535	\$240,445
Capacity Reservation Charge	\$386,717	\$351,728	\$365,878	\$384,071	\$400,242	\$416,413
Readiness to Serve Charge	\$828,000	\$716,000	\$732,150	\$1,378,165	\$1,427,779	\$1,462,046
Infrastructure Access Charge	\$1,017,817	\$1,131,964	\$1,270,822	\$1,325,081	\$1,367,697	\$1,414,694
Customer Service Charge	\$1,171,297	\$1,192,754	\$1,236,448	\$1,288,805	\$1,329,808	\$1,375,043
Transportation Charge	\$2,256,187	\$2,403,631	\$2,548,183	\$2,656,085	\$2,740,587	\$2,833,811
Storage Charge	\$3,197,064	\$3,357,453	\$3,494,099	\$3,642,056	\$3,757,927	\$3,885,757
Supply Reliability Charge	\$1,449,720	\$1,755,032	\$2,007,659	\$2,092,673	\$2,159,251	\$2,232,700

Recycled Water Supply Costs							
Recycled Water Purchases from Other Agencies	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	
Recycled Water Usage Growth	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	
Recycled Water from Vallecitos	485 AF	485 AF	485 AF	485 AF	485 AF	485 AF	
Recycled Water from SEJPA	250 AF	155 AF	185 AF	195 AF	205 AF	210 AF	
Recycled Water from City of SD	414 AF	300 AF	300 AF	300 AF	300 AF	300 AF	
Recycled Water from RSFCSD	215 AF	215 AF	215 AF	215 AF	215 AF	215 AF	
Total Recycled Water Purchases	1,364 AF	1,155 AF	1,185 AF	1,195 AF	1,205 AF	1,210 AF	
Projected Increases in Recycled Water Rates	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	
SEJPA	5.51%	5.41%	5.31%	4.00%	4.00%	4.00%	
City of SD	5.00%	5.00%	5.00%	5.00%	5.00%	5.00%	
Rancho Santa Fe CSD	3.99%	3.26%	-11.24%	0.00%	0.00%	0.00%	
Recycled Water Rates	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	
Recycled Water - Vallecitos Ceiling Rate (\$/AF)	\$1,208	\$1,239	\$1,293	\$1,345	\$1,385	\$1,430	
Recycled Water - SEJPA (\$/AF)	\$1,072	\$1,130	\$1,190	\$1,238	\$1,287	\$1,339	
Recycled Water - City of SD (\$/AF)	\$862	\$905	\$951	\$998	\$1,048	\$1,100	
Recycled Water - RSFCSD (\$/AF)	\$802	\$797	\$855	\$866	\$877	\$888	
<i>OMWD Recycled Charges (Base FY 07-08)</i>	<i>\$822</i>	<i>\$849</i>	<i>\$754</i>	<i>\$754</i>	<i>\$754</i>	<i>\$754</i>	
<i>OMWD Recycled Charges for each FY</i>	<i>\$1,677</i>	<i>\$1,693</i>	<i>\$1,714</i>	<i>\$1,735</i>	<i>\$1,757</i>	<i>\$1,779</i>	
<i>50% of recycled water difference</i>	<i>\$427</i>	<i>\$422</i>	<i>\$480</i>	<i>\$491</i>	<i>\$502</i>	<i>\$513</i>	
<i>Recycled Water - RSFCSD Base</i>	<i>\$375</i>	<i>\$375</i>	<i>\$375</i>	<i>\$375</i>	<i>\$375</i>	<i>\$375</i>	
Calculated Recycled Water Purchases Expenses	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	
Recycled Water from Vallecitos	\$585,638	\$600,742	\$627,100	\$652,435	\$671,939	\$693,505	
Recycled Water from SEJPA	\$268,000	\$175,150	\$220,150	\$241,332	\$263,856	\$281,104	
Recycled Water from City of SD	\$356,932	\$271,579	\$285,158	\$299,416	\$314,386	\$330,106	
Recycled Water from RSFCSD	\$172,523	\$171,308	\$183,840	\$186,143	\$188,475	\$190,835	
Total Calculated Recycled Water Purchases Expenses	\$1,383,093	\$1,218,779	\$1,316,248	\$1,379,326	\$1,438,657	\$1,495,550	

Fund Balances					
Operating Fund (Potable & Recycled)					
	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
Beginning Balance	\$14,463,000	\$13,738,915	\$10,530,554	\$5,682,297	(\$2,293,047)
Net Annual Cash Balance	(\$724,085)	(\$3,208,361)	(\$4,848,258)	(\$7,975,344)	(\$10,292,017)
Ending Balance - Operating Fund (Potable & Recycled)	\$13,738,915	\$10,530,554	\$5,682,297	(\$2,293,047)	(\$12,585,065)
<i>Minimum Target Balance</i>	\$7,851,662	\$8,288,842	\$8,724,495	\$9,017,141	\$9,317,851
<i>Maximum Target Balance</i>	\$15,703,323	\$16,577,683	\$17,448,989	\$18,034,282	\$18,635,702
Capital Improvement Fund (Potable & Recycled)					
	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
Beginning Balance	\$33,728,000	\$22,166,304	\$24,559,177	\$21,596,579	\$27,861,316
Plus:					
Interest Income	\$435,000	\$482,000	\$423,000	\$546,000	\$595,000
Transfer from Potable Operating Fund to Potable Capital	\$6,900,000	\$6,400,000	\$5,400,000	\$5,400,000	\$5,900,000
Transfer from Recycled Operating Fund to Recycled Capital	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000
Transfer from Recycled Capital Fund to Potable Capital	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000
Capacity Fee Revenues	\$1,056,304	\$1,286,873	\$1,285,402	\$1,141,737	\$927,175
Anticipated Grant Funds	\$200,000	\$0	\$0	\$5,000,000	\$5,000,000
Recycled Capacity Fee Revenues	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Land Sales Proceeds	\$1,000,000	\$1,800,000	\$0	\$0	\$0
New Bond Proceeds	\$0	\$0	\$0	\$19,600,000	\$0
Less:					
Capital Item Purchases - Water Potable	\$400,000	\$400,000	\$400,000	\$400,000	\$400,000
Capital Item Purchases - Water Recycled	\$96,000	\$96,000	\$96,000	\$96,000	\$96,000
Capital Projects	\$22,832,000	\$9,255,000	\$11,750,000	\$27,102,000	\$11,619,000
Other Expenditures - Water Potable	\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Other Expenditures - Water Recycled	\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Ending Balance - Capital Improvement Fund (Potable & Recycled)	\$22,166,304	\$24,559,177	\$21,596,579	\$27,861,316	\$30,343,491
<i>Minimum Target Balance</i>	\$12,769,000	\$12,769,000	\$12,769,000	\$12,769,000	\$12,769,000
<i>Maximum Target Balance</i>	\$63,845,000	\$63,845,000	\$63,845,000	\$63,845,000	\$63,845,000
Rate Stabilization Fund (Potable)					
	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
Beginning Balance	\$8,257,000	\$8,422,000	\$8,590,000	\$8,761,800	\$8,937,036
Interest Income	\$165,000	\$168,000	\$171,800	\$175,236	\$178,741
Ending Balance - Rate Stabilization Fund (Potable)	\$8,422,000	\$8,590,000	\$8,761,800	\$8,937,036	\$9,115,777
<i>Minimum Target Balance</i>	\$6,583,299	\$6,078,869	\$5,616,750	\$5,370,952	\$5,105,101
<i>Maximum Target Balance</i>	\$13,166,598	\$12,157,737	\$11,233,499	\$10,741,903	\$10,210,202

Debt Coverage Calculation

Description	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
Revenue applicable for calculation					
Total Service Charge Revenue	\$54,337,390	\$54,305,252	\$54,393,633	\$54,482,015	\$54,570,396
Other Operating Revenue	\$2,971,879	\$2,690,754	\$2,731,278	\$2,766,237	\$2,803,503
Interest Income	\$460,000	\$387,000	\$272,000	\$116,000	\$0
Non-Operating Revenue	\$3,531,000	\$3,531,000	\$3,531,000	\$3,531,000	\$3,531,000
Transfer from/(to) RSF	\$0	\$0	\$0	\$0	\$0
Total Revenue	\$61,300,269	\$60,914,006	\$60,927,911	\$60,895,252	\$60,904,899
Expenses					
O&M Expenses	\$18,691,201	\$19,363,325	\$20,074,883	\$20,781,768	\$21,457,499
Purchased Water Expenses (potable & recycled)	\$29,073,074	\$31,060,462	\$32,999,126	\$34,072,506	\$35,226,095
Total Expenses	\$47,764,275	\$50,423,787	\$53,074,009	\$54,854,274	\$56,683,594
Total Funds Available for Debt Service	\$13,535,994	\$10,490,219	\$7,853,902	\$6,040,979	\$4,221,305
Total Debt Service	\$4,453,580	\$4,450,080	\$4,451,580	\$5,763,580	\$5,758,330
Revenue to Debt Service Coverage Ratio	303.9%	235.7%	176.4%	104.8%	73.3%

APPENDIX C: PROPOSED FINANCIAL PLAN CASH FLOW

Operating Cash Flow				FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
REVENUE								
Rate Revenue Under Existing Rates				\$54,337,390	\$54,305,252	\$54,393,633	\$54,482,015	\$54,570,396
Additional Revenue Required Under Proposed Adjustments								
	Revenue	Months						
Fiscal Year	Adjustment	Effective						
FYE 2020	3.70%	April	3	\$502,621	\$2,009,294	\$2,012,564	\$2,015,835	\$2,019,105
FYE 2021	5.00%	April	3		\$703,932	\$2,820,310	\$2,824,892	\$2,829,475
FYE 2022	5.00%	April	3			\$740,331	\$2,966,137	\$2,970,949
FYE 2023	5.00%	April	3				\$778,611	\$3,119,496
FYE 2024	5.00%	April	3					\$818,868
Total Additional Revenue				\$502,621	\$2,713,226	\$5,573,206	\$8,585,475	\$11,757,893
Total Rate Revenue (including Proposed Revenue Adjustments)				\$54,840,011	\$57,018,478	\$59,966,839	\$63,067,490	\$66,328,289
Other Operating Revenue				\$2,971,879	\$2,690,754	\$2,731,278	\$2,766,237	\$2,803,503
Investment & Interest Income				\$470,000	\$451,000	\$449,000	\$468,000	\$516,000
Non-Operating Revenue				\$3,531,000	\$3,531,000	\$3,531,000	\$3,531,000	\$3,531,000
TOTAL REVENUE				\$61,812,890	\$63,691,232	\$66,678,117	\$69,832,727	\$73,178,792
EXPENSES								
O&M Expenses without Depreciation				\$18,691,201	\$19,363,325	\$20,074,883	\$20,781,768	\$21,457,499
Purchased Water (potable & recycled)				\$29,073,074	\$31,064,404	\$33,005,371	\$34,081,082	\$35,237,032
Other Operating Expenses (potable & recycled)				\$50,000	\$52,000	\$54,080	\$56,243	\$58,493
Non-Operating Expenses (potable & recycled)				\$60,000	\$0	\$0	\$0	\$0
Existing Debt Service				\$4,453,580	\$4,450,080	\$4,451,580	\$4,462,580	\$4,457,330
Proposed Debt Service				\$0	\$0	\$0	\$1,301,000	\$1,301,000
TOTAL EXPENSES				\$52,327,854	\$54,929,808	\$57,585,914	\$60,682,673	\$62,511,354
TRANSFERS								
Transfer Potable Oper. to Potable Capital - PAYGO				\$6,900,000	\$6,400,000	\$5,400,000	\$5,400,000	\$5,900,000
Transfer for Equipment Replc.				\$400,000	\$400,000	\$400,000	\$400,000	\$400,000
Transfer for Future Infrastructure Replc.				\$6,500,000	\$6,000,000	\$5,000,000	\$5,000,000	\$5,500,000
Transfer to Sewer Fund - 2018 Bonds				\$484,500	\$484,500	\$484,500	\$484,500	\$484,500
Transfer to 2012 SRF Reserve				\$112,000	\$112,000	\$112,000	\$112,000	\$112,000
Transfer Recycled Oper. to Recycled Capital				\$200,000	\$200,000	\$200,000	\$200,000	\$200,000
Transfer Recycled Oper. to Potable Capital				\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000
TOTAL TRANSFERS				\$9,696,500	\$9,196,500	\$8,196,500	\$8,196,500	\$8,696,500
Net Annual Cash Balance				(\$211,464)	(\$435,077)	\$895,703	\$953,555	\$1,970,938

Recycled Water Operating Cash Flow

Description	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
Recycled Water Revenue	\$5,147,289	\$5,511,211	\$5,511,211	\$5,511,211	\$5,511,211
Recycled Water Additional Revenue	\$47,612	\$275,354	\$564,682	\$868,477	\$1,187,461
Recycled Water Interest Income	\$260,786	\$268,852	\$306,589	\$336,833	\$394,221
Recycled Water Expenses	\$2,785,000	\$2,916,868	\$3,027,965	\$3,136,754	\$3,244,590
Recycled Water Transfers	\$2,200,000	\$2,200,000	\$2,200,000	\$2,200,000	\$2,200,000
Net Cash Flow	\$470,688	\$938,549	\$1,154,517	\$1,379,766	\$1,648,303
Beginning Balance	\$8,025,000	\$8,495,688	\$9,434,237	\$10,588,754	\$11,968,520
Net Cash Flow	\$470,688	\$938,549	\$1,154,517	\$1,379,766	\$1,648,303
Ending Balance	\$8,495,688	\$9,434,237	\$10,588,754	\$11,968,520	\$13,616,823
<i>Interest Income</i>	<i>\$209,000</i>	<i>\$227,308</i>	<i>\$249,643</i>	<i>\$276,634</i>	<i>\$308,452</i>

Debt Coverage Calculation

Description	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
Revenue applicable for calculation					
Total Service Charge Revenue	\$54,840,011	\$57,018,478	\$59,966,839	\$63,067,490	\$66,328,289
Other Operating Revenue	\$2,971,879	\$2,690,754	\$2,731,278	\$2,766,237	\$2,803,503
Interest Income	\$470,000	\$451,000	\$449,000	\$468,000	\$516,000
Non-Operating Revenue	\$3,531,000	\$3,531,000	\$3,531,000	\$3,531,000	\$3,531,000
Transfer from/(to) RSF	\$0	\$0	\$0	\$0	\$0
Total Revenue	\$61,812,890	\$63,691,232	\$66,678,117	\$69,832,727	\$73,178,792
Expenses					
O&M Expenses	\$18,691,201	\$19,363,325	\$20,074,883	\$20,781,768	\$21,457,499
Purchased Water Expenses (potable & recycled)	\$29,073,074	\$31,064,404	\$33,005,371	\$34,081,082	\$35,237,032
Total Expenses	\$47,764,275	\$50,427,729	\$53,080,254	\$54,862,850	\$56,694,531
Total Funds Available for Debt Service	\$14,048,615	\$13,263,503	\$13,597,863	\$14,969,877	\$16,484,261
Total Debt Service	\$4,453,580	\$4,450,080	\$4,451,580	\$5,763,580	\$5,758,330
Revenue to Debt Service Coverage Ratio	315.4%	298.1%	305.5%	259.7%	286.3%

Fund Balances								
Operating Fund (Potable & Recycled)				FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
Beginning Balance				\$14,463,000	\$14,251,536	\$13,816,459	\$14,712,162	\$15,665,717
Net Annual Cash Balance				(\$211,464)	(\$435,077)	\$895,703	\$953,555	\$1,970,938
Ending Balance - Operating Fund (Potable & Recycled)				\$14,251,536	\$13,816,459	\$14,712,162	\$15,665,717	\$17,636,655
<i>Minimum Target Balance</i>				\$7,851,662	\$8,289,490	\$8,725,521	\$9,018,551	\$9,319,649
<i>Maximum Target Balance</i>				\$15,703,323	\$16,578,979	\$17,451,042	\$18,037,101	\$18,639,298
Capital Improvement Fund (Potable & Recycled)				FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
Beginning Balance				\$33,728,000	\$22,166,304	\$24,559,177	\$21,596,579	\$27,861,316
<u>Plus:</u>								
Interest Income				\$435,000	\$482,000	\$423,000	\$546,000	\$595,000
Transfer from Potable Operating Fund to Potable Capital				\$6,900,000	\$6,400,000	\$5,400,000	\$5,400,000	\$5,900,000
Transfer from Recycled Operating Fund to Recycled Capital				\$200,000	\$200,000	\$200,000	\$200,000	\$200,000
Transfer from Recycled Capital Fund to Potable Capital				\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000
Capacity Fee Revenues				\$1,056,304	\$1,286,873	\$1,285,402	\$1,141,737	\$927,175
Anticipated Grant Funds				\$200,000	\$0	\$0	\$5,000,000	\$5,000,000
Recycled Capacity Fee Revenues				\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Land Sales Proceeds				\$1,000,000	\$1,800,000	\$0	\$0	\$0
New Loan - State Revolving Fund (SRF) Proceeds				\$0	\$0	\$0	\$0	\$0
New Bond Proceeds				\$0	\$0	\$0	\$19,600,000	\$0
<u>Less:</u>								
Capital Item Purchases - Water Potable				\$400,000	\$400,000	\$400,000	\$400,000	\$400,000
Capital Item Purchases - Water Recycled				\$96,000	\$96,000	\$96,000	\$96,000	\$96,000
Capital Projects				\$22,832,000	\$9,255,000	\$11,750,000	\$27,102,000	\$11,619,000
Other Expenditures - Water Potable				\$25,000	\$25,000	\$25,000	\$25,000	\$25,000
Other Expenditures - Water Recycled				\$5,000	\$5,000	\$5,000	\$5,000	\$5,000
Ending Balance - Capital Improvement Fund (Potable & Recycled)				\$22,166,304	\$24,559,177	\$21,596,579	\$27,861,316	\$30,343,491
<i>Minimum Target Balance</i>				\$12,769,000	\$12,769,000	\$12,769,000	\$12,769,000	\$12,769,000
<i>Maximum Target Balance</i>				\$63,845,000	\$63,845,000	\$63,845,000	\$63,845,000	\$63,845,000
Rate Stabilization Fund (Potable)				FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024
Beginning Balance				\$8,257,000	\$8,422,000	\$8,590,000	\$8,761,800	\$8,937,036
Interest Income				\$165,000	\$168,000	\$171,800	\$175,236	\$178,741
Transfer (to)/from Operating Fund				\$0	\$0	\$0	\$0	\$0
Ending Balance - Rate Stabilization Fund (Potable)				\$8,422,000	\$8,590,000	\$8,761,800	\$8,937,036	\$9,115,777
<i>Minimum Target Balance</i>				\$6,708,954	\$6,756,190	\$7,008,490	\$7,515,176	\$8,041,840
<i>Maximum Target Balance</i>				\$13,417,908	\$13,512,380	\$14,016,980	\$15,030,352	\$16,083,680

APPENDIX D: ALLOCATION OF FIRE PROTECTION COSTS

Demand factors are calculated by taking the connection size and raising to the 2.63th power (industry standard). Equivalent connections are determined by multiplying demand factors by unit counts in each line. The public and private percent allocations are determined based on the proportion of total equivalent connections.

Fire Protection Cost Allocation			
Fire Exponent	2.63		
Percent Allocation:			
Public	96.1%		
Private	3.9%		
Connection Size	Demand Factor	Unit Counts	Equivalent Connections (Demand Factor)
Public Hydrants			
2.5	11.1	0	0
4	38.3	3,735	143,123
6	111.3	0	0
10	426.6	0	0
Total		3,735	143,123
Private Fire Lines			
5/8	0.3	380	110
3/4	0.5	15	7
1.0	1.0	5,435	5,435
1.5	2.9	66	192
2.0	6.2	1	6
2.5	11.1	0	0
3.0	18.0	0	0
4.0	38.3	0	0
6.0	111.3	1	111
8.0	237.2	0	0
Total		5,898	5,862