

MARIN

MUNICIPAL WATER DISTRICT

Water Financial Plan and Rates

Update to the May 2017 Cost of Service Analysis Study

Report / March 2019



March 14, 2019

Mr. Ben Horenstein
General Manager
Marin Municipal Water District
220 Nellen Avenue
Corte Madera, CA 94925

Subject: Water Financial Plan and Rates Report

Dear Mr. Horenstein:

Raftelis Financial Consultants, Inc. (Raftelis) is pleased to provide this report to the Marin Municipal Water District (District) for the Water Financial Plan and Rate Study. This report presents the analyses, rationales, and methodologies utilized in the study to determine revenue adjustments needed to meet the District's expenses and rates that meet the District's objectives.

The study involved a comprehensive review of the District's current rate structure and revenue requirements and a rate design process to determine proposed rates that are in line with the District's policy objectives. The main objectives that informed the study include:

- » Adequately recovering all costs to maintain the District's financial sufficiency
- » Minimizing customer impacts
- » Evaluating a capital maintenance fee to fund the District's annual capital project costs

We are confident that the proposed rates developed during this study are consistent with the current rate structure and will adequately recover revenues to meet the District's expenses. It was a pleasure working with you and your team, and we wish to express our gratitude for the support you, Mr. Charles Duggan, Ms. Mikyung Pustelnik, and other District staff provided to us during the study. If you have any questions, please do not hesitate to call me at 626-827-8931.

Sincerely,

Raftelis Financial Consultants, Inc.

A handwritten signature in blue ink, appearing to read 'Sudhir Pardiwala'.

Sudhir Pardiwala
Executive Vice President

A handwritten signature in blue ink, appearing to read 'Nancy Phan'.

Nancy Phan
Consultant

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1 Executive Summary

Study Background

The Marin Municipal Water District engaged Raftelis to develop a comprehensive, long-range financial plan and an update to its water rates. This report¹ documents the assumptions, methodologies, analyses, and proposed rates including modifications for collecting capital maintenance fees for fiscal years (FY) 2020 through FY 2024.

The major objectives that informed the study include the following:

1. Ensure revenue sufficiency to fund operating and maintenance (O&M) costs and reserve requirements
2. Determine a separate capital maintenance fee (CMF) to fully fund capital improvement plan (CIP) costs
3. Maintain the current tiers to minimize customer impacts
4. Develop rates that are fair and equitable to the District's customers

This executive summary provides an overview of the study and its results, including recommendations for updated water rates beginning July 1, 2019.

District Background

The District was established in 1912 to provide water services to customers in central and southern Marin County. The District provides high quality drinking water to a population of 190,300 people in a service area that covers approximately 147 square miles. The District's water operation is comprised of over 900 miles of pipelines, 128 storage tanks, 97 pump stations, and three water treatment plants for both potable and recycled water. The District also maintains the Mt. Tamalpais Watershed, which is the District's main source of domestic water.

The District was formed over a century ago and over a third of its assets have depreciated since their start of service. As facilities age, the District is making a concerted effort to replace and refurbish its infrastructure to meet regulatory requirements, protect its investment, and ensure an adequate level of service for its customers. In addition to capital replacement costs, the District's O&M costs are increasing, particularly for water supply and treatment.

The costs associated with operating the system and replacing and refurbishing it from year to year were some of the many important priorities taken into consideration during the study. Adequately funding O&M and capital replacement costs are necessary to maintain the District's commitment to supplying high quality and dependable water service to its customers.

Financial Plan

To determine the required rate revenue to fund the District's ongoing expenses, Raftelis projected O&M costs, capital project costs, and reserve requirements for the study period from FY 2019 to FY 2024. The assumptions used to calculate these projections are described later in this report.

¹ This report is based on the study and model developed for the District (*Marin Water Rate Model FINAL.xlsx*).

O&M expenses include salaries and benefits, supplies, treatment chemicals, water purchase, utilities, etc. Expected O&M expenses over the study period range from approximately \$66.0 million to \$87.4 million per year for the District’s water system. Debt service costs add approximately \$10.2 million per year.

Annual capital project costs range from \$21.5 million to \$22.9 million, including an annual \$4.5 million of fire flow improvement program CIP, which is recovered through an annual fire flow charge per parcel. In FY 2020, \$16.5 million in CIP costs are recovered through a proposed CMF to be collected annually, totally, or partially on the property tax roll and/or bi-monthly bill. This fee will increase annually based on the Engineering News-Record (ENR) Construction Cost Index (CCI) but not more than 4.0 percent per year.

Figure 1-1 shows the District’s projected financial plan over the five-year planning period. The blue line represents the projected revenue at current rates, the orange line represents the proposed revenues, including CMF revenue, with the revenue adjustments shown in **Figure 1-2**. The grey bars show the O&M expenses, which include water purchase costs, the yellow bars show the annual debt service, and the blue bars show the capital project costs. The green bars (which are too small to register on the chart) represent the net income. If the green bars are above the horizontal x-axis, then the District is replenishing reserves; if they are below, then the District is drawing from reserves to fund expenses. This figure shows that the District’s current rate revenues are not sufficient to fund its O&M or capital costs.

Figure 1-1: Projected Financial Plan

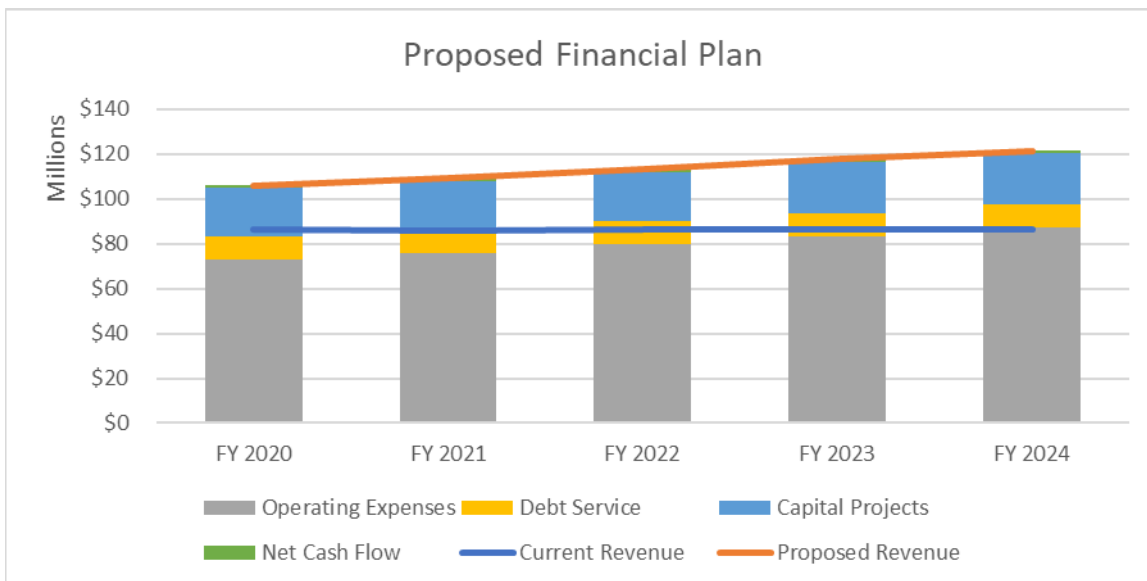


Figure 1-2 shows the proposed revenue adjustments and debt service coverage for the study period. All revenue adjustments, shown as blue bars, will be effective on July 1 of the corresponding fiscal year. Although the graphs show anticipated revenue adjustments for the entire study period, the District will review and confirm the necessary revenue adjustments each year. The District is expected to meet its debt service coverage requirements (orange line) for the entire study period, exceeding both the target (grey line) and required coverage (yellow line).

The main factors that determine the District’s revenue adjustments are O&M expenses and operating reserve funding. The O&M expenses increase by approximately 4.5 percent on average each year, from FY 2020 to FY 2024. The District is also slowly building up reserves for prudent fiscal management, which is consistent with industry standards, to ensure it can maintain high quality service.

Figure 1-2: Proposed Revenue Adjustments and Debt Coverage

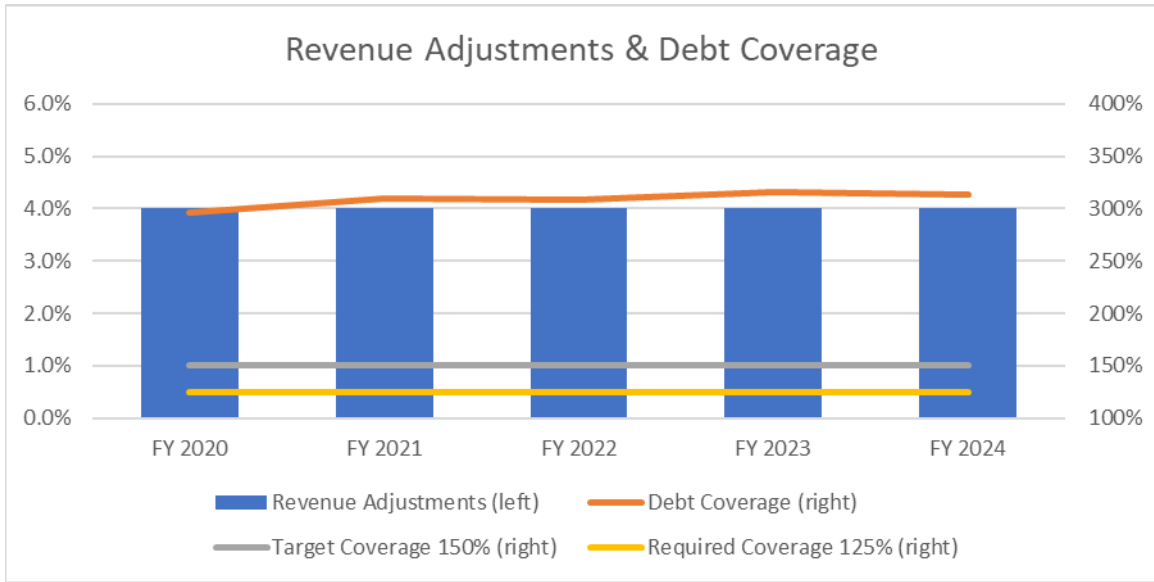


Figure 1-3 shows the capital project costs and their funding sources, net of the fire flow improvement program. The majority of water CIP costs are recovered through the proposed CMF, shown as the yellow bars. The District proposes to fund \$16.5 million of its annual water CIP through the CMF, which increases based on the ENR CCI but not more than 4.0 percent per year. A portion of water CIP costs in FY 2020 will be funded through grants. The District does not expect to issue new debt to fund capital projects.

Figure 1-3: Proposed Capital Financing Plan

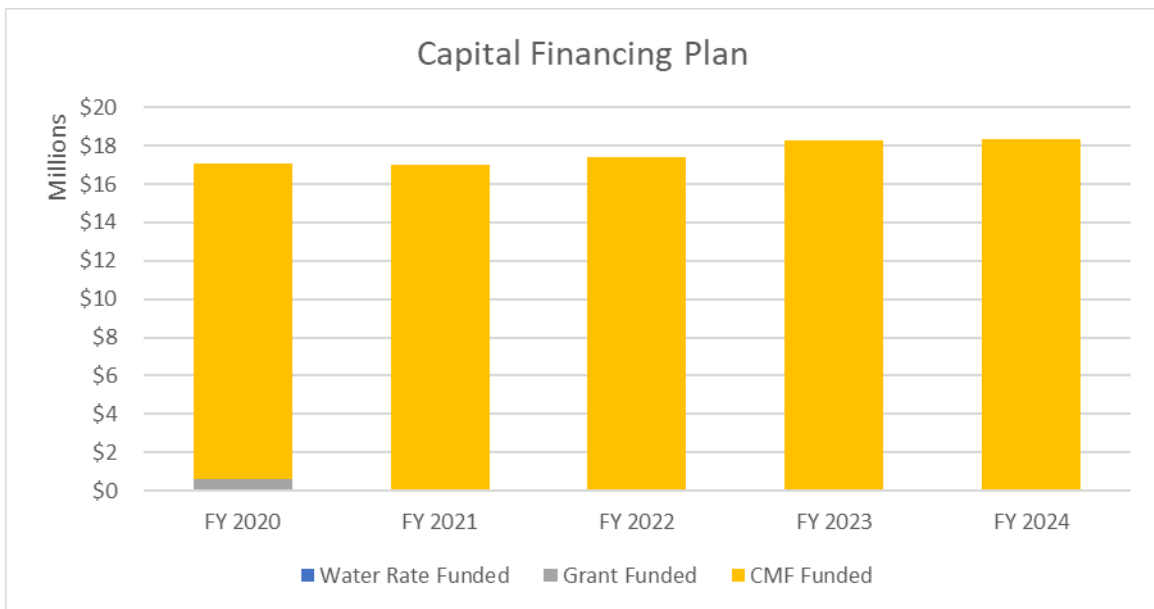


Figure 1-4 shows the District’s projected ending balances. The balances include the operating fund and capital fund. The reserves help the District to mitigate against cash flow risks, prepare for unexpected O&M expenses, and to fund capital project costs upfront. The reserve target shown below for the operating fund is from the District’s

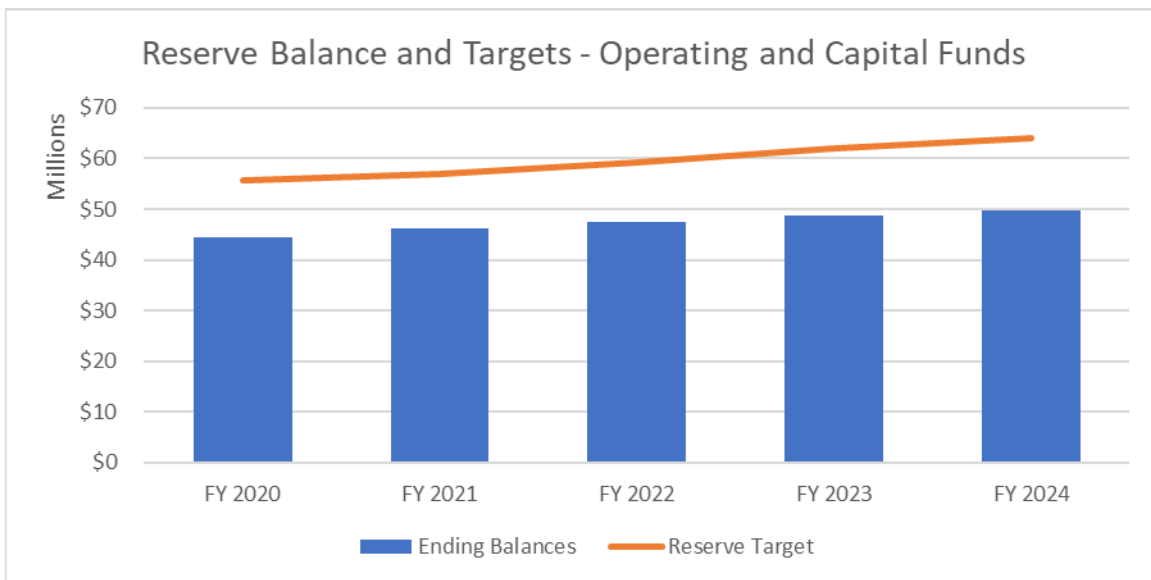
current financial policy. Additionally, Raftelis recommends that the District maintain an emergency reserve to cover potential emergencies or unexpected events.

The recommended reserve policy includes:

- » Operating fund: 50 percent of O&M expenses
- » Capital and fire flow fund: 100 percent of water capital project costs
- » Emergency reserve: \$2.0 million

The District will not meet its reserve target levels over the study period after implementing the proposed revenue adjustments. Raftelis recommends that the District continue to build its reserves to meet target levels in the future.

Figure 1-4: Projected Ending Balances



Proposed Water Rates

The proposed water rates developed in this study are comprised of the following components:

- » Bi-monthly fixed service charges by meter size
- » Bi-monthly watershed management fee by meter size
- » Bi-monthly private fire line service charges by fire line size
- » Tiered per-unit charges by volume of water delivered in hundred cubic feet (ccf)
- » Annual CMF by meter size (collected on annual tax roll and/or bi-monthly bill)

All proposed rates are consistent with the current rate structure, except for the annual CMF. The proposed CMF is collected entirely or partially on the property tax roll and will increase based on the ENR CCI but not more than 4.0 percent per year.

Bi-monthly tiers remain the same for all customer classes; residential customers have four tiers and non-residential customers have three tiers. While residential accounts are provided a defined amount of water in each tier (also known as tier allotments), Commercial, Irrigation, Recycled Water, and Raw Water customers are provided an allotment based on their assigned water budget which is determined by the nature and type of business or institution and usage needs. Irrigation customers' baseline water usage is based on square footage, plant material,

and irrigation efficiency. Commercial and Institutional customers' baseline water usage is determined by the District's engineering department based on the needs of each individual customer. The water budget is divided over the billing periods. These allocations are referred to as the account's baseline. The water use for each billing period is compared to the account's baseline for the same period and is billed accordingly. This difference in rate structure is based on the fact that non-residential water usage varies significantly from customer to customer depending on the type of use, whereas residential water usage is relatively uniform.

Commercial, Irrigation, and Institutional tier breakpoints are set at 85 percent, 150 percent, and over 150 percent of each customer's individual baseline, as defined previously. The first tier is set at 85 percent of the baseline to provide incentive for conservation. Commercial water usage can vary significantly from year to year; therefore, the second tier is set at 150 percent of the baseline so as to not penalize customers that require water for their businesses.

The proposed water rates are derived from the cost of service analysis developed by Carollo Engineers during the District's last rate study adopted in May 2017 and include the revenue adjustments shown in **Figure 1-2**.

Table 1-1 shows the proposed bi-monthly charges for the study period, which include the fixed service charge, watershed management fee, and private fire line service charge. **Table 1-2** shows the proposed per-unit charges and current tier widths for all customer classes.

Table 1-1: Proposed Rates – Bi-Monthly Fixed Charges

Fixed Charges (\$/Meter Size)	Proposed FY 2020	Proposed FY 2021	Proposed FY 2022	Proposed FY 2023	Proposed FY 2024
Bi-Monthly Fixed Service Charge					
5/8"	\$39.66	\$41.25	\$42.90	\$44.62	\$46.41
3/4"	\$50.74	\$52.77	\$54.89	\$57.09	\$59.38
1"	\$72.89	\$75.81	\$78.85	\$82.01	\$85.30
1.5"	\$128.27	\$133.41	\$138.75	\$144.30	\$150.08
2"	\$194.72	\$202.51	\$210.62	\$219.05	\$227.82
3"	\$405.17	\$421.38	\$438.24	\$455.77	\$474.01
4"	\$715.30	\$743.92	\$773.68	\$804.63	\$836.82
6"	\$1,568.15	\$1,630.88	\$1,696.12	\$1,763.97	\$1,834.53
8"	\$2,675.75	\$2,782.78	\$2,894.10	\$3,009.87	\$3,130.27
10"	\$4,226.39	\$4,395.45	\$4,571.27	\$4,754.13	\$4,944.30
Bi-Monthly Watershed Management Fee					
5/8"	\$10.29	\$10.71	\$11.14	\$11.59	\$12.06
3/4"	\$12.30	\$12.80	\$13.32	\$13.86	\$14.42
1"	\$16.30	\$16.96	\$17.64	\$18.35	\$19.09
1.5"	\$26.31	\$27.37	\$28.47	\$29.61	\$30.80
2"	\$38.32	\$39.86	\$41.46	\$43.12	\$44.85
3"	\$76.36	\$79.42	\$82.60	\$85.91	\$89.35
4"	\$132.42	\$137.72	\$143.23	\$148.96	\$154.92
6"	\$286.57	\$298.04	\$309.97	\$322.37	\$335.27
8"	\$486.77	\$506.25	\$526.50	\$547.56	\$569.47
10"	\$767.05	\$797.74	\$829.65	\$862.84	\$897.36
Bi-Monthly Private Fire Line Service Charge					
2"	\$36.06	\$37.51	\$39.02	\$40.59	\$42.22
4"	\$90.57	\$94.20	\$97.97	\$101.89	\$105.97
6"	\$179.85	\$187.05	\$194.54	\$202.33	\$210.43
8"	\$295.81	\$307.65	\$319.96	\$332.76	\$346.08
10"	\$458.16	\$476.49	\$495.55	\$515.38	\$536.00

Table 1-2: Proposed Rates – Per-Unit Charges (\$/ccf)

Per Unit Charges (\$/ccf)	Bi-Monthly Tiers		Proposed FY 2020	Proposed FY 2021	Proposed FY 2022	Proposed FY 2023	Proposed FY 2024
	Summer	Winter					
Single Family Residential							
Tier 1	0-26	0-21	\$4.19	\$4.36	\$4.54	\$4.73	\$4.92
Tier 2	27-59	22-48	\$7.26	\$7.56	\$7.87	\$8.19	\$8.52
Tier 3	60-99	49-80	\$12.25	\$12.74	\$13.25	\$13.78	\$14.34
Tier 4	Over 99	Over 80	\$19.68	\$20.47	\$21.29	\$22.15	\$23.04
Duplex Residential	Summer	Winter					
Tier 1	0-20	0-18	\$4.22	\$4.39	\$4.57	\$4.76	\$4.96
Tier 2	21-45	19-35	\$7.38	\$7.68	\$7.99	\$8.31	\$8.65
Tier 3	46-78	36-68	\$12.19	\$12.68	\$13.19	\$13.72	\$14.27
Tier 4	Over 78	Over 68	\$19.13	\$19.90	\$20.70	\$21.53	\$22.40
Multi-Family Residential	Summer	Winter					
Tier 1	0-10	0-10	\$4.27	\$4.45	\$4.63	\$4.82	\$5.02
Tier 2	11-20	11-18	\$7.20	\$7.49	\$7.79	\$8.11	\$8.44
Tier 3	21-28	19-26	\$11.41	\$11.87	\$12.35	\$12.85	\$13.37
Tier 4	Over 28	Over 26	\$19.16	\$19.93	\$20.73	\$21.56	\$22.43
Commercial, Institutional, and Irrigation	% of Baseline						
Tier 1	85%		\$4.09	\$4.26	\$4.44	\$4.62	\$4.81
Tier 2	150%		\$10.99	\$11.43	\$11.89	\$12.37	\$12.87
Tier 3	Over 150%		\$16.46	\$17.12	\$17.81	\$18.53	\$19.28
Single Family Irrigation	Units (ccf)						
Tier 1	0-50		\$5.27	\$5.49	\$5.71	\$5.94	\$6.18
Tier 2	51-100		\$6.29	\$6.55	\$6.82	\$7.10	\$7.39
Tier 3	Over 100		\$10.94	\$11.38	\$11.84	\$12.32	\$12.82
Recycled Water	Units (ccf)						
Tier 1	100		\$3.27	\$3.41	\$3.55	\$3.70	\$3.85
Tier 2	150		\$10.20	\$10.61	\$11.04	\$11.49	\$11.95
Tier 3	Over 150		\$18.94	\$19.70	\$20.49	\$21.31	\$22.17
Raw Water							
All Usage			\$3.82	\$3.98	\$4.14	\$4.31	\$4.49

Table 1-3 shows the CMF being collected entirely on the tax roll as an annual charge or entirely on the bi-monthly bill. The District has the option of charging the CMF on the tax roll or collecting partially on the tax roll and the balance as a bi-monthly fee. For example, if 50 percent of the fee is charged on tax roll, a 5/8” meter would be charged \$81.75 on the tax roll and the remaining CMF as a bimonthly fee of \$13.63.

Table 1-3: Proposed Rates – Capital Maintenance Fee (\$/Meter Size)

Proposed CMF Meter Size	Annual Charge FY 2020	Bi-Monthly Charge FY 2020
5/8"	\$163.50	\$27.25
3/4"	\$245.25	\$40.87
1"	\$408.74	\$68.12
1.5"	\$817.47	\$136.24
2"	\$1,307.95	\$217.99
3"	\$2,861.14	\$476.85
4"	\$5,150.05	\$858.34
6"	\$11,444.54	\$1,907.42
8"	\$19,619.21	\$3,269.86
10"	\$31,063.75	\$5,177.29

Recycled water and potable water customers pay the same bi-monthly charges and CMF. Recycled water customers are occasionally serviced by the potable water system when the recycled water system is not operational due to maintenance or during the District’s transition of operating a recycled water treatment plant to purchasing recycled water from another district. The District’s engineering department can also determine which water system will serve recycled water customers, dependent upon water supply. In addition, potable water customers benefit from the recycled water system because recycled water usage frees up available water supply for use by potable water customers. Both potable and recycled water systems benefit from each other and thus pay the same bi-monthly charges and CMF.

The District currently charges an approved annual fire flow charge at the rate of \$75 per parcel to cover infrastructure costs associated with improving fire flow. The District will retain this charge to fund fire flow costs.

2 Financial Plan

This section describes the District’s long-term financial plan, including customer and usage projections, rate and non-rate revenues, O&M and capital expenses, and reserve funding. The financial plan determines the overall revenue adjustments required to maintain the District’s financial sufficiency. Numbers in this section of the report are rounded and may not equal the exact amounts shown in the tables.

Customer Accounts and Usage Data

District staff provided customer accounts and water usage data for FY 2019. Usage data for FY 2020 and beyond is projected from the FY 2019 data, assuming no growth in future years and no change in consumption characteristics, as advised by District staff. **Table 2-1** shows the number of customer accounts by meter size, which include potable and recycled water and private fire line customers, and number of parcels. **Table 2-2** shows the usage data by customer class and tiers in ccf and acre-feet (AF). One AF is equal to approximately 435.6 ccf.

Table 2-1: Projected Customer Accounts and Parcels

Customer Accounts	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Meters						
5/8"	41,227	41,227	41,227	41,227	41,227	41,227
3/4"	3,404	3,404	3,404	3,404	3,404	3,404
1"	12,774	12,774	12,774	12,774	12,774	12,774
1.5"	2,278	2,278	2,278	2,278	2,278	2,278
2"	650	650	650	650	650	650
3"	157	157	157	157	157	157
4"	44	44	44	44	44	44
6"	19	19	19	19	19	19
8"	5	5	5	5	5	5
10"	0	0	0	0	0	0
Total - Meters	60,558	60,558	60,558	60,558	60,558	60,558
Private Fire Lines						
2"	55	55	55	55	55	55
4"	592	592	592	592	592	592
6"	494	494	494	494	494	494
8"	155	155	155	155	155	155
10"	4	4	4	4	4	4
Total - Private Fire Lines	1,300	1,300	1,300	1,300	1,300	1,300
Parcels	60,246	60,246	60,246	60,246	60,246	60,246

Table 2-2: Projected Water Usage

Water Usage	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Single Family Residential (ccf)						
Tier 1	4,403,423	4,403,423	4,403,423	4,403,423	4,403,423	4,403,423
Tier 2	1,102,903	1,102,903	1,102,903	1,102,903	1,102,903	1,102,903
Tier 3	297,418	297,418	297,418	297,418	297,418	297,418
Tier 4	178,955	178,955	178,955	178,955	178,955	178,955
Total	5,982,699	5,982,699	5,982,699	5,982,699	5,982,699	5,982,699
Duplex Residential (ccf)						
Tier 1	55,844	55,844	55,844	55,844	55,844	55,844
Tier 2	10,212	10,212	10,212	10,212	10,212	10,212
Tier 3	2,695	2,695	2,695	2,695	2,695	2,695
Tier 4	1,086	1,086	1,086	1,086	1,086	1,086
Total	69,837	69,837	69,837	69,837	69,837	69,837
Multi-Family Residential (ccf)						
Tier 1	958,467	958,467	958,467	958,467	958,467	958,467
Tier 2	160,887	160,887	160,887	160,887	160,887	160,887
Tier 3	23,098	23,098	23,098	23,098	23,098	23,098
Tier 4	6,198	6,198	6,198	6,198	6,198	6,198
Total	1,148,650	1,148,650	1,148,650	1,148,650	1,148,650	1,148,650
Commercial (ccf)						
Tier 1	890,178	890,178	890,178	890,178	890,178	890,178
Tier 2	140,161	140,161	140,161	140,161	140,161	140,161
Tier 3	113,953	113,953	113,953	113,953	113,953	113,953
Total	1,144,292	1,144,292	1,144,292	1,144,292	1,144,292	1,144,292
Irrigation (ccf)						
Tier 1	551,364	551,364	551,364	551,364	551,364	551,364
Tier 2	75,890	75,890	75,890	75,890	75,890	75,890
Tier 3	86,182	86,182	86,182	86,182	86,182	86,182
Total	713,436	713,436	713,436	713,436	713,436	713,436
Single Family Irrigation (ccf)						
Tier 1	2,942	2,942	2,942	2,942	2,942	2,942
Tier 2	1,786	1,786	1,786	1,786	1,786	1,786
Tier 3	3,388	3,388	3,388	3,388	3,388	3,388
Total	8,116	8,116	8,116	8,116	8,116	8,116
Institutional (ccf)						
Tier 1	586,113	586,113	586,113	586,113	586,113	586,113
Tier 2	16,537	16,537	16,537	16,537	16,537	16,537
Tier 3	3,940	3,940	3,940	3,940	3,940	3,940
Total	606,590	606,590	606,590	606,590	606,590	606,590
Recycled Water (ccf)						
Tier 1	150,835	150,835	150,835	150,835	150,835	150,835
Tier 2	14,301	14,301	14,301	14,301	14,301	14,301
Tier 3	28,087	28,087	28,087	28,087	28,087	28,087
Total	193,223	193,223	193,223	193,223	193,223	193,223
Raw Water (ccf)	70,000	72,000	72,000	72,000	72,000	72,000
Total - Usage (ccf)	9,936,843	9,938,843	9,938,843	9,938,843	9,938,843	9,938,843
Total - Potable, Recycled, Raw (AF)	22,812	22,816	22,816	22,816	22,816	22,816
Total - Potable and Recycled (AF)	22,651	22,651	22,651	22,651	22,651	22,651
Total - Recycled (AF)	444	444	444	444	444	444

Revenues

Table 2-3 and **Table 2-4** shows the District’s current water rates, which include a bi-monthly fixed service charge, bi-monthly watershed management fee, bi-monthly private fire line service charge, an annual fire flow charge per parcel, and tiered per-unit charges.

Table 2-3: Current Rates (FY 2019) – Fixed Charges

Fixed Charges	Current Rates
Bi-Monthly Fixed Service Charges	
5/8"	\$36.79
3/4"	\$46.62
1"	\$66.28
1.5"	\$115.43
2"	\$174.41
3"	\$361.18
4"	\$636.42
6"	\$1,393.33
8"	\$2,376.33
10"	\$3,752.53
Bi-Monthly Watershed Management Fee	
5/8"	\$9.78
3/4"	\$11.69
1"	\$15.50
1.5"	\$25.02
2"	\$36.45
3"	\$72.65
4"	\$125.99
6"	\$272.67
8"	\$463.17
10"	\$729.87
Annual Fire Protection Charge (\$/parcel)	\$75.00
Bi-Monthly Private Fire Line Service Charge	
2"	\$32.17
4"	\$76.35
6"	\$148.73
8"	\$242.73
10"	\$374.33

Table 2-4: Current Rates (FY 2019) – Per-Unit Charges (\$/ccf)

Per-Unit Charges (\$/ccf)	Tiers		Current Rates
	Summer	Winter	
Single Family Residential			
Tier 1	0-26	0-21	\$4.07
Tier 2	27-59	22-48	\$7.13
Tier 3	60-99	49-80	\$12.07
Tier 4	Over 99	Over 80	\$19.45
Duplex Residential	Summer	Winter	
Tier 1	0-20	0-18	\$4.10
Tier 2	21-45	19-35	\$7.24
Tier 3	46-78	36-68	\$12.02
Tier 4	Over 78	Over 68	\$18.90
Multi-Family Residential	Summer	Winter	
Tier 1	0-10	0-10	\$4.16
Tier 2	11-20	11-18	\$7.07
Tier 3	21-28	19-26	\$11.25
Tier 4	Over 28	Over 36	\$18.94
Commercial, Institutional, and Irrigation	% of Baseline		
Tier 1	85%		\$3.98
Tier 2	150%		\$10.82
Tier 3	Over 150%		\$16.26
Single Family Irrigation			
Tier 1	0-50		\$5.14
Tier 2	51-100		\$6.15
Tier 3	Over 100		\$10.76
Recycled Water			
Tier 1	0-100		\$3.17
Tier 2	101-150		\$10.05
Tier 3	Over 150		\$18.73
Raw Water			\$4.23

Table 2-5 shows the calculated rate revenues for the fixed charges, per-unit charges, and annual fire flow charges. To calculate the water rate revenues at current rates, the current rate is multiplied by the annual units of service for each year of the study period.

For example, the current bi-monthly fixed service charge in **Table 2-3** is multiplied by the corresponding number of meters in **Table 2-1** for six billing periods to determine the annual revenue. Similarly, the current bi-monthly watershed management fee in **Table 2-3** is multiplied by the corresponding number of meters for six billing periods. The current bi-monthly private fire line service charges in **Table 2-3** are multiplied by the number of private fire lines in **Table 2-1** for six billing periods. The current parcel-based annual fire flow charge in **Table 2-3** is multiplied by the number of parcels in the District’s service area shown in **Table 2-1**. The current per-unit charges shown in **Table 2-4** are multiplied by the water usage in each customer class and tier shown in **Table 2-2**.

Table 2-5: Calculated Rate Revenues at FY 2019 Rates

Calculated Revenues at FY 2019 Rates	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Fixed Charge Revenues					
Bi-Monthly Fixed Service Charge	\$18,128,851	\$18,128,851	\$18,128,851	\$18,128,851	\$18,128,851
Bi-Monthly Private Fire Line Service Charge	\$957,370	\$957,370	\$957,370	\$957,370	\$957,370
Bi-Monthly Watershed Management Fee	\$4,476,744	\$4,476,744	\$4,476,744	\$4,476,744	\$4,476,744
Total - Fixed Charge Revenues	\$23,562,966	\$23,562,966	\$23,562,966	\$23,562,966	\$23,562,966
Per-Unit Charge Revenues					
Single Family Residential	\$32,856,140	\$32,856,140	\$32,856,140	\$32,856,140	\$32,856,140
Duplex Residential	\$355,815	\$355,815	\$355,815	\$355,815	\$355,815
Multi-Family Residential	\$5,501,936	\$5,501,936	\$5,501,936	\$5,501,936	\$5,501,936
Commercial	\$6,912,326	\$6,912,326	\$6,912,326	\$6,912,326	\$6,912,326
Irrigation	\$4,416,878	\$4,416,878	\$4,416,878	\$4,416,878	\$4,416,878
Single Family Irrigation	\$62,561	\$62,561	\$62,561	\$62,561	\$62,561
Institutional	\$2,575,724	\$2,575,724	\$2,575,724	\$2,575,724	\$2,575,724
Recycled Water	\$1,147,942	\$1,147,942	\$1,147,942	\$1,147,942	\$1,147,942
Raw Water	\$304,560	\$304,560	\$304,560	\$304,560	\$304,560
Total - Per-Unit Charge Revenues	\$54,133,882	\$54,133,882	\$54,133,882	\$54,133,882	\$54,133,882
Fire Flow Charge Revenues					
Annual Fire Flow Charge	\$4,518,450	\$4,518,450	\$4,518,450	\$4,518,450	\$4,518,450
Total - Fire Flow Charge Revenues	\$4,518,450	\$4,518,450	\$4,518,450	\$4,518,450	\$4,518,450

The revenue escalation factors shown in **Table 2-6** are used to project future non-rate revenues and interest income. Non-rate revenues, which include rents and royalties, late payment charges, and other miscellaneous revenues are expected to remain stable throughout the study period. The reserve interest rate is based on current market conditions. The District invests a portion of the reserves and keeps the remaining in a current account (which earns little to no interest) to cover costs. The reserve interest rate therefore represents a composite return on the total reserves.

Table 2-6: Revenue Escalation Factors

Revenue Escalation Factors	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Non-Rate Revenues	0.0%	0.0%	0.0%	0.0%	0.0%
Reserve Interest Rate	1.00%	1.25%	1.50%	1.50%	1.50%

Table 2-7² shows the District’s projected rate and non-rate revenues for the study period. District staff provided revenue budget information for FY 2019. Rate revenues are calculated in **Table 2-5**. The service charge revenues are inclusive of bi-monthly fixed service charges and private fire line service charges. Non-rate revenues are projected using the non-rate revenue escalation factor shown in **Table 2-6** and interest income is calculated using the reserve interest rate shown in **Table 2-6**.

² Non-rate revenues for FY 2019 provided by District staff (*Final FY2017-18 and FY2018-19 Adopted Operating and Capital Budget.pdf*)

Table 2-7: Projected Revenues at FY 2019 Rates

Projected Revenues at FY 2019 Rates	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Operating Fund						
Water Sales	\$54,125,422	\$54,133,882	\$54,133,882	\$54,133,882	\$54,133,882	\$54,133,882
Service Charge	\$19,086,221	\$19,086,221	\$19,086,221	\$19,086,221	\$19,086,221	\$19,086,221
Watershed Protection Fee	\$4,476,744	\$4,476,744	\$4,476,744	\$4,476,744	\$4,476,744	\$4,476,744
Rents and Royalties	\$740,000	\$740,000	\$740,000	\$740,000	\$740,000	\$740,000
Late Payment Charge	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000
Special Read Charge	\$170,000	\$170,000	\$170,000	\$170,000	\$170,000	\$170,000
Grants	\$250,000	\$0	\$0	\$0	\$0	\$0
Watershed Payments	\$420,000	\$420,000	\$420,000	\$420,000	\$420,000	\$420,000
Watershed Rents and Royalties	\$920,000	\$920,000	\$920,000	\$920,000	\$920,000	\$920,000
Miscellaneous	\$750,000	\$750,000	\$750,000	\$750,000	\$750,000	\$750,000
Interest Revenue	\$250,000	\$257,270	\$336,247	\$422,375	\$436,976	\$449,086
Total - Operating Fund	\$81,388,387	\$81,154,117	\$81,233,094	\$81,319,222	\$81,333,823	\$81,345,933
Capital and Fire Protection Funds						
Interest Income	\$15,000	\$180,132	\$227,416	\$276,311	\$280,455	\$284,662
Fire Protection	\$4,500,000	\$4,518,450	\$4,518,450	\$4,518,450	\$4,518,450	\$4,518,450
Capital Grants	\$0	\$597,000	\$0	\$0	\$0	\$0
Total - Capital and Fire Protection Funds	\$4,515,000	\$5,295,582	\$4,745,866	\$4,794,761	\$4,798,905	\$4,803,112
Total - Revenues	\$85,903,387	\$86,449,699	\$85,978,961	\$86,113,983	\$86,132,728	\$86,149,045

O&M Expenses

District staff provided the O&M expense budget through FY 2021. The expense escalation factors shown in **Table 2-8** are used to reasonably project future expenses for FY 2022 and beyond. District staff provided input to ensure reasonable and accurate escalation factors. The District provided escalated CIP cost data and therefore the capital escalation factor is equal to zero. Regulatory costs (taxes, government fees, etc.) and construction contract costs are experiencing higher increases and are therefore inflated at 9.0 percent each fiscal year.

Table 2-8: Expense Escalation Factors

Expense Escalation Factors	FY 2022	FY 2023	FY 2024
General	3.0%	3.0%	3.0%
Salaries	3.0%	3.0%	3.0%
Benefits	6.0%	6.0%	6.0%
Power	5.0%	5.0%	5.0%
Water	6.0%	6.0%	6.0%
Chemicals	4.0%	4.0%	4.0%
Capital	0.0%	0.0%	0.0%
Regulatory Fees	9.0%	9.0%	9.0%
Construction Contract	9.0%	9.0%	9.0%

The water supply and treatment costs are calculated annually based on the estimated water produced (less recycled and raw water), shown in **Table 2-9**. The potable water demand of 22,651 AF is from **Table 2-2**; District staff estimated water losses as a percentage of the total water produced, equal to 9.3 percent each year. Therefore, the total amount of potable and recycled water produced is equal to the water demanded plus the amount of water lost. The equation utilized is as follows:

$$\text{Total water demand} / (1 - \text{Water loss percentage}) = \text{Total water produced}$$

Table 2-9: Total Potable and Recycled Water Production

Water Production	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Total Water Demand (AF)	22,651	22,651	22,651	22,651	22,651
Water Loss Percentage	9.3%	9.3%	9.3%	9.3%	9.3%
Total Water Production (AF)	24,974	24,974	24,974	24,974	24,974

The water produced locally is treated at three treatment plants: San Geronimo Treatment Plant (SGTP), Bon Tempe Treatment Plant (BTTP), and Las Gallinas Treatment Plant (LGTP) and the remaining water is purchased from Sonoma County Water Agency (SCWA). SGTP and BTTP are associated with potable water usage; LGTP is associated solely with recycled water usage. The District will purchase recycled water from the Las Gallinas Sanitary District (LGVSD) after FY 2019, when it will no longer be operating the LGTP.

Table 2-10 shows the total potable and recycled water produced from each water source. The amount of water sourced from SCWA is determined each year by District staff based on the take-or-pay agreement amount of 5,300 AF that the District has with SCWA. The amount of water treated at the SGTP and BTTP is equal to the total water produced less SCWA and recycled water. District staff indicates that SGTP and BTTP treat approximately 67 percent and 33 percent, respectively, of the remaining water. Recycled water production is equal to recycled water demand in **Table 2-2**.

Raw water demand is omitted from the water purchase and treatment calculations because the District’s raw water supply is neither purchased nor treated. The District obtains its raw water from local reservoirs.

Table 2-10: Total Water Production by Source

Water Production	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Percentage to SGTP	67.0%	67.0%	67.0%	67.0%	67.0%
Total SGTP and BTTP Production (AF)	19,230	19,230	19,230	19,230	19,230
Water Production (AF)					
SGTP	12,884	12,884	12,884	12,884	12,884
BTTP	6,346	6,346	6,346	6,346	6,346
SCWA	5,300	5,300	5,300	5,300	5,300
Recycled Water	444	444	444	444	444
Total - Water Production (AF)	24,974	24,974	24,974	24,974	24,974

Table 2-11 shows the water purchase and treatment unit costs per AF of water produced. Chemicals are utilized for water treatment. Purchased water is only sourced from SCWA and represents the portion of additional water supply required above the amount the District derives from its seven reservoirs. District staff provided unit costs for treatment chemicals for FY 2019; the cost for years beyond FY 2019 is inflated by the chemicals escalation factor shown in **Table 2-8**. The cost for SCWA water beyond FY 2019 is inflated by the water escalation factor in **Table 2-8**.

Following FY 2019, the District will no longer operate the LGTP; therefore, the costs for treatment chemicals for LGTP to treat recycled water is equal to zero from FY 2020 onward. The District plans to instead purchase water from the LGVSD to supply recycled water to its designated customers. These costs are calculated in **Table 2-13**.

Table 2-11: Water Purchase and Treatment Unit Costs

Water Purchase and Treatment	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Chemicals (\$/AF)						
SGTP	\$57.98	\$101.46	\$105.52	\$109.74	\$114.13	\$118.69
BTTP	\$54.62	\$95.58	\$99.40	\$103.38	\$107.52	\$111.82
SCWA	\$22.01	\$38.52	\$40.06	\$41.66	\$43.32	\$45.06
LGTP / Recycled Water	\$101.23	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
Purchased Water (\$/AF)						
SCWA	\$1,313.91	\$1,392.37	\$1,475.91	\$1,564.47	\$1,658.33	\$1,757.84

The amount of water produced from each source is multiplied by the water purchase and treatment unit costs per AF of water. For example, the costs associated with treatment chemicals is calculated by multiplying the amount of water produced from each source by the cost of treatment chemicals for that source. The water purchase cost is equal to the amount of water produced from SCWA multiplied by the purchased water unit cost per AF. The District provided the water production cost budget until FY 2021; the cost for FY 2022 and beyond is calculated in **Table 2-12**, which also shows budgeted costs for FY 2019 through FY 2021 for reference.

Table 2-12: Water Purchase and Treatment Costs

Water Purchase and Treatment Costs	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Water Production Costs						
Chemicals	\$1,080,612	\$1,468,853	\$1,709,519	\$2,290,716	\$2,382,344	\$2,477,638
Water Purchase	\$6,674,509	\$7,400,000	\$7,825,000	\$8,291,675	\$8,789,175	\$9,316,526
Total - Water Production Costs	\$7,755,121	\$8,868,853	\$9,534,519	\$10,582,390	\$11,171,519	\$11,794,164

After FY 2019, the District will no longer be operating the LGTP and will instead purchase recycled water from LGVSD, which has no take or pay requirement but involves a targeted amount of 600 AF per year. The recycled water supply cost from LGVSD is inflated in future years by the water escalation factor in **Table 2-8**. The annual supply cost is calculated in **Table 2-13**.

Table 2-13: Recycled Water Supply Costs

Sanitation District Recycled Water	FY 2021	FY 2022	FY 2023	FY 2024
Purchased Recycled Water (\$/AF)	\$916.67	\$971.67	\$1,029.97	\$1,091.76
Recycled Water (AF)	600	600	600	600
Annual Supply Cost	\$550,000	\$583,000	\$617,980	\$655,059

Table 2-14³ shows the projected O&M expenses inflated by the escalation factors in **Table 2-8**. The “Chemicals” and “Water Purchases” line items are from **Table 2-12**, which are calculated based on actual projected water demand. The “Recycled Water Purchases” line item is equal to that shown in **Table 2-13**. **Table 2-15** shows the O&M expenses summarized by cost category.

³ O&M Budget for FY 2019 through FY 2021 provided by District)

Table 2-14: Projected O&M Expenses

O&M Expenses	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Personnel Services						
Regular Salaries & Wages	\$25,920,603	\$26,942,314	\$27,745,763	\$28,578,136	\$29,435,480	\$30,318,545
Overtime	\$967,478	\$997,418	\$1,015,522	\$1,045,988	\$1,077,367	\$1,109,688
Temporary	\$307,699	\$466,172	\$477,514	\$491,839	\$506,595	\$521,792
Director Fees	\$77,200	\$77,200	\$77,200	\$79,516	\$81,901	\$84,359
Contract Help	\$486,088	\$329,838	\$345,031	\$355,382	\$366,043	\$377,025
Fringe Benefits	\$20,360,480	\$21,994,055	\$22,969,845	\$24,348,036	\$25,808,918	\$27,357,453
Total - Personnel Services	\$48,119,547	\$50,806,996	\$52,630,875	\$54,898,897	\$57,276,305	\$59,768,862
General & Admin						
Fees & Subscriptions	\$558,312	\$614,514	\$614,514	\$632,949	\$651,938	\$671,496
Communications & Freight	\$516,718	\$562,496	\$562,846	\$579,731	\$597,123	\$615,037
Taxes, Fees & Licenses	\$1,099,095	\$1,448,665	\$1,572,111	\$1,713,601	\$1,867,825	\$2,035,929
Insurance	\$1,260,000	\$1,170,000	\$1,180,000	\$1,215,400	\$1,251,862	\$1,289,418
Misc Expenses	\$846,675	\$1,016,551	\$624,656	\$643,396	\$662,698	\$682,578
Total - General & Admin	\$4,280,800	\$4,812,226	\$4,554,127	\$4,785,077	\$5,031,446	\$5,294,459
Materials & Supplies						
Supplies	\$535,808	\$508,343	\$515,197	\$530,653	\$546,572	\$562,970
Materials	\$817,665	\$814,450	\$820,150	\$844,755	\$870,097	\$896,200
Chemicals	\$1,080,612	\$1,468,853	\$1,709,519	\$2,290,716	\$2,382,344	\$2,477,638
Water Purchases	\$6,674,509	\$7,400,000	\$7,825,000	\$8,291,675	\$8,789,175	\$9,316,526
Recycled Water Purchases	\$0	\$0	\$550,000	\$583,000	\$617,980	\$655,059
Total - Materials & Supplies	\$9,108,594	\$10,191,646	\$11,419,866	\$12,540,798	\$13,206,169	\$13,908,392
District Operations						
Automotive	\$600,700	\$618,700	\$623,700	\$642,411	\$661,683	\$681,534
Construction Contracts	\$840,000	\$1,130,000	\$1,130,000	\$1,231,700	\$1,342,553	\$1,463,383
Equipment Rental	\$263,126	\$783,824	\$787,183	\$810,798	\$835,122	\$860,176
Conservation	\$599,500	\$554,500	\$443,500	\$456,805	\$470,509	\$484,624
Professional Fees	\$2,245,910	\$1,657,423	\$1,509,237	\$1,554,514	\$1,601,150	\$1,649,184
Repair & Maintenance	\$2,291,312	\$1,989,996	\$2,015,689	\$2,076,160	\$2,138,444	\$2,202,598
Small Tools & Equipment	\$119,450	\$152,200	\$135,850	\$139,926	\$144,123	\$148,447
Utilities	\$4,000,361	\$4,973,647	\$5,214,145	\$5,474,852	\$5,748,595	\$6,036,025
Total - District Operations	\$10,960,359	\$11,860,290	\$11,859,304	\$12,387,166	\$12,942,180	\$13,525,971
Allocation to Capital						
Capitalized O&M	(\$6,500,000)	(\$4,500,000)	(\$4,700,000)	(\$4,841,000)	(\$4,986,230)	(\$5,135,817)
Total - Allocation to Capital	(\$6,500,000)	(\$4,500,000)	(\$4,700,000)	(\$4,841,000)	(\$4,986,230)	(\$5,135,817)
Total - O&M Expenses	\$65,969,300	\$73,171,158	\$75,764,172	\$79,770,938	\$83,469,870	\$87,361,866

Table 2-15: O&M Expense Summary

O&M Expenses	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Operating Fund						
Personnel Services	\$48,119,547	\$50,806,996	\$52,630,875	\$54,898,897	\$57,276,305	\$59,768,862
General & Admin	\$4,280,800	\$4,812,226	\$4,554,127	\$4,785,077	\$5,031,446	\$5,294,459
Materials & Supplies	\$9,108,594	\$10,191,646	\$11,419,866	\$12,540,798	\$13,206,169	\$13,908,392
District Operations	\$10,960,359	\$11,860,290	\$11,859,304	\$12,387,166	\$12,942,180	\$13,525,971
Allocation to Capital	(\$6,500,000)	(\$4,500,000)	(\$4,700,000)	(\$4,841,000)	(\$4,986,230)	(\$5,135,817)
Total - Operating Fund	\$65,969,300	\$73,171,158	\$75,764,172	\$79,770,938	\$83,469,870	\$87,361,866

Debt Service

Table 2-16⁴ shows the District’s existing annual debt service obligations. The debt service line item listed as “LGVSD Obligation” is related to the changes in the recycled water supply as described in the previous section.

Table 2-16: Existing Debt Service

Annual Debt Service	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Existing Debt						
2017 Bonds	\$2,295,800	\$2,292,500	\$2,292,500	\$2,295,000	\$2,295,750	\$2,294,750
2016 Bonds	\$1,481,975	\$1,481,975	\$1,481,975	\$1,481,975	\$1,481,975	\$1,481,975
2012 Bonds	\$5,612,878	\$5,608,078	\$5,616,390	\$5,606,190	\$5,602,478	\$5,607,728
CREBS	\$122,250	\$122,250	\$122,250	\$122,250	\$122,250	\$122,250
AEEP	\$245,000	\$245,000	\$245,000	\$245,000	\$245,000	\$245,000
LGVSD Obligation	\$463,144	\$463,353	\$463,395	\$463,269	\$388,733	\$364,049
MERA	\$20,348	\$20,320	\$20,350	\$0	\$0	\$0
Total - Existing Debt	\$10,241,394	\$10,233,475	\$10,241,859	\$10,213,684	\$10,136,186	\$10,115,751

The District does not intend to incur additional debt for this study period.

Capital Projects

Table 2-17⁵ shows the planned capital program costs for water-related CIP and fire flow improvement CIP. The fire flow improvement program is funded by the parcel-based annual fire flow charge. The capital improvement program, starting in FY 2020, is proposed to be funded primarily by the annual CMF.

⁴ Debt service schedule provided by District staff (*Long Term Debt Payment Schedule.xlsx*)

⁵ Capital improvement program costs provided by District staff (*Proposed FY20- FY29 Capital Budget 10-year.xlsx*)

Table 2-17: Capital Improvement Program Costs

CIP Costs	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Capital Programs						
Pipelines and Storage	\$9,788,000	\$6,545,000	\$9,229,000	\$10,673,000	\$11,102,000	\$6,483,000
Treatment Plants	\$1,500,000	\$4,575,000	\$2,318,000	\$212,000	\$492,000	\$2,364,000
Watershed	\$2,300,000	\$3,288,000	\$2,796,000	\$3,183,000	\$3,224,000	\$5,931,000
General Improvements	\$3,500,000	\$2,689,000	\$2,684,000	\$3,358,000	\$3,486,000	\$3,562,000
Fire Flow Improvements	\$4,500,000	\$4,518,450	\$4,518,450	\$4,518,450	\$4,518,450	\$4,518,450
Total - Capital Programs	\$21,588,000	\$21,615,450	\$21,545,450	\$21,944,450	\$22,822,450	\$22,858,450

Proposed Financial Plan

Table 2-18 shows the proposed revenue adjustments for the District to maintain financial sufficiency by ensuring adequate revenue to fund operating expenses and reserve requirements. Although the revenue adjustments shown in this section are part of a five-year schedule, the District should review and confirm these adjustments annually.

The 4.0 percent revenue adjustment each year represents the increased costs of O&M expenses, which increase, on average, by 4.5 percent each year from FY 2020 to FY 2024. The financial model assumes that the revenue adjustments will occur in July of every fiscal year.

Table 2-18: Proposed Revenue Adjustments

Year	Revenue Adjustment
FY 2020	4.0%
FY 2021	4.0%
FY 2022	4.0%
FY 2023	4.0%
FY 2024	4.0%

Table 2-19 shows the proposed financial plan, or cash flow detail, for the study period including the revenue adjustments shown in **Table 2-18**. The net revenue (Line 37) is positive for each year of the study, which signifies that the District is adequately funding its operating expenses with the revenue adjustments. Other operating revenues (Lines 14-22) and capital and fire protection revenues (Lines 25-27), not including CMF revenues, are from **Table 2-7**. The O&M expenses (Lines 31-35) are from **Table 2-15**.

After calculating the net revenue (Line 37), the existing debt service (Lines 39-40) and funded capital projects (Lines 45-48) are factored in. The debt service is from **Table 2-16** and is divided between water and recycled water related debt. The operating revenue requirement (Line 43) is equal to the sum of O&M expenses and debt service. The net cash flow (Line 50), which factors in capital project costs, is negative for FY 2019, showing that the District is funding its capital costs partially with reserves. The net cash flow for FY 2020 through FY 2024 is positive, signifying that the District is fully funding its debt service and capital projects with the revenue adjustments.

The debt coverage percentage (Line 52) is calculated by dividing net revenue (Line 37) less fire flow charge revenue (Line 27) and grant funding (Line 26) by total annual debt service (Line 42) is well above the 150 percent required target for all years of the study.

Table 2-19: Proposed Financial Plan

Line	Proposed Financial Plan	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
1	Rate Revenues						
2	Water Sales	\$54,125,422	\$54,133,882	\$54,133,882	\$54,133,882	\$54,133,882	\$54,133,882
3	Service Charge	\$19,086,221	\$19,086,221	\$19,086,221	\$19,086,221	\$19,086,221	\$19,086,221
4	Watershed Protection Fee	\$4,476,744	\$4,476,744	\$4,476,744	\$4,476,744	\$4,476,744	\$4,476,744
5	Revenue Adjustments						
6	FY 2020 – 4.0%		\$3,107,874	\$3,107,874	\$3,107,874	\$3,107,874	\$3,107,874
7	FY 2021 – 4.0%			\$3,232,189	\$3,232,189	\$3,232,189	\$3,232,189
8	FY 2022 – 4.0%				\$3,361,476	\$3,361,476	\$3,361,476
9	FY 2023 – 4.0%					\$3,495,935	\$3,495,935
10	FY 2024 – 4.0%						\$3,635,773
11	Total - Revenue Adjustments	\$0	\$3,107,874	\$6,340,063	\$9,701,539	\$13,197,475	\$16,833,247
12	Operating Revenue						
13	Total Rate Revenues with Adjustments	\$77,688,387	\$80,804,721	\$84,036,910	\$87,398,387	\$90,894,322	\$94,530,095
14	Rents and Royalties	\$740,000	\$740,000	\$740,000	\$740,000	\$740,000	\$740,000
15	Late Payment Charge	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000	\$200,000
16	Special Read Charge	\$170,000	\$170,000	\$170,000	\$170,000	\$170,000	\$170,000
17	Grants	\$250,000	\$0	\$0	\$0	\$0	\$0
18	Watershed Payments	\$420,000	\$420,000	\$420,000	\$420,000	\$420,000	\$420,000
19	Watershed Rents and Royalties	\$920,000	\$920,000	\$920,000	\$920,000	\$920,000	\$920,000
20	Miscellaneous	\$750,000	\$750,000	\$750,000	\$750,000	\$750,000	\$750,000
21	Interest Revenue	\$250,000	\$257,270	\$336,247	\$422,375	\$436,976	\$449,086
22	Other Operating Revenue	\$0	\$0	\$0	\$0	\$0	\$0
23	Total - Operating Revenue	\$81,388,387	\$84,261,991	\$87,573,157	\$91,020,762	\$94,531,298	\$98,179,181
24	Capital and Fire Flow Revenue						
25	Interest Income	\$15,000	\$180,132	\$227,416	\$276,311	\$280,455	\$284,662
26	Capital Grants	\$0	\$597,000	\$0	\$0	\$0	\$0
27	Fire Flow Charge Revenue	\$4,500,000	\$4,518,450	\$4,518,450	\$4,518,450	\$4,518,450	\$4,518,450
28	Capital Maintenance Fee	\$0	\$16,500,000	\$17,027,000	\$17,426,000	\$18,304,000	\$18,340,000
29	Total - Capital and Fire Flow Revenue	\$4,515,000	\$21,795,582	\$21,772,866	\$22,220,761	\$23,102,905	\$23,143,112
30	Operating Expenses						
31	Personnel Services	\$48,119,547	\$50,806,996	\$52,630,875	\$54,898,897	\$57,276,305	\$59,768,862
32	General & Admin	\$4,280,800	\$4,812,226	\$4,554,127	\$4,785,077	\$5,031,446	\$5,294,459

Line	Proposed Financial Plan	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
33	Materials & Supplies	\$9,108,594	\$10,191,646	\$11,419,866	\$12,540,798	\$13,206,169	\$13,908,392
34	District Operations	\$10,960,359	\$11,860,290	\$11,859,304	\$12,387,166	\$12,942,180	\$13,525,971
35	Allocation to Capital	(\$6,500,000)	(\$4,500,000)	(\$4,700,000)	(\$4,841,000)	(\$4,986,230)	(\$5,135,817)
36	Total - Operating Expenses	\$65,969,300	\$73,171,158	\$75,764,172	\$79,770,938	\$83,469,870	\$87,361,866
37	Net Revenue	\$19,934,087	\$32,886,415	\$33,581,851	\$33,470,584	\$34,164,333	\$33,960,427
38	Debt Service						
39	Existing Potable Debt Service	\$9,778,250	\$9,770,123	\$9,778,465	\$9,750,415	\$9,747,453	\$9,751,703
40	Existing Recycled Debt Service	\$463,144	\$463,353	\$463,395	\$463,269	\$388,733	\$364,049
41	Proposed Debt Service	\$0	\$0	\$0	\$0	\$0	\$0
42	Total - Debt Service	\$10,241,394	\$10,233,475	\$10,241,859	\$10,213,684	\$10,136,186	\$10,115,751
43	Operating Revenue Requirement	\$76,210,694	\$83,404,634	\$86,006,032	\$89,984,622	\$93,606,056	\$97,477,618
44	Capital Projects						
45	Water Rate Funded	\$16,419,181 ⁶	\$0	\$0	\$0	\$0	\$0
46	Grant Funded	\$668,819	\$597,000	\$0	\$0	\$0	\$0
47	Fire Flow Charge Funded	\$4,500,000	\$4,518,450	\$4,518,450	\$4,518,450	\$4,518,450	\$4,518,450
48	Capital Charge Funded	\$0	\$16,500,000	\$17,027,000	\$17,426,000	\$18,304,000	\$18,340,000
49	Total - Capital Projects	\$21,588,000	\$21,615,450	\$21,545,450	\$21,944,450	\$22,822,450	\$22,858,450
50	Net Cash Flow	(\$11,895,307)	\$1,037,489	\$1,794,541	\$1,312,450	\$1,205,697	\$986,225
51	Calculated Debt Coverage	164%	296%	309%	309%	316%	314%
52	Target Debt Coverage	150%	150%	150%	150%	150%	150%

⁶ Capital projects for FY 2019 are funded through the remaining fund balance, which includes proceeds from the 2017 revenue bond issuance.

Reserves

Having adequate reserves is essential to prudent fiscal management. Reserves help the District mitigate against cash flow risks, prepare for unexpected expenses and asset failure, and fund capital project costs upfront. Raftelis recommends the following reserve policy:

- » Operating fund: 50 percent of O&M expenses
- » Capital and fire flow fund: 100 percent of water capital project costs
- » Emergency reserve: \$2.0 million

Table 2-20 shows the projected fund balances based on the proposed financial plan. The District's total funds (operating, capital and fire flow) are not meeting the target for the rate study period; the target for this fund is the reserve policy recommended above.

Table 2-20: Projected Fund Balances

Line	Projected Fund Balances	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
1	Operating Fund						
2	Beginning Balance	\$20,249,272	\$25,426,965	\$26,284,323	\$27,851,448	\$28,887,588	\$29,812,830
3	Sources of Funds						
4	Rate Revenues	\$77,688,387	\$80,804,721	\$84,036,910	\$87,398,387	\$90,894,322	\$94,530,095
5	All Other Revenues	\$3,450,000	\$3,200,000	\$3,200,000	\$3,200,000	\$3,200,000	\$3,200,000
6	Interest Revenue	\$250,000	\$257,270	\$336,247	\$422,375	\$436,976	\$449,086
7	Total - Sources of Funds	\$81,388,387	\$84,261,991	\$87,573,157	\$91,020,762	\$94,531,298	\$98,179,181
8	Uses of Funds						
9	Operating Expenses	\$65,969,300	\$73,171,158	\$75,764,172	\$79,770,938	\$83,469,870	\$87,361,866
10	Existing Potable Debt Service	\$9,778,250	\$9,770,123	\$9,778,465	\$9,750,415	\$9,747,453	\$9,751,703
11	Existing Recycled Debt Service	\$463,144	\$463,353	\$463,395	\$463,269	\$388,733	\$364,049
12	Total - Uses of Funds	\$76,210,694	\$83,404,634	\$86,006,032	\$89,984,622	\$93,606,056	\$97,477,618
13	Ending Balance	\$25,426,965	\$26,284,323	\$27,851,448	\$28,887,588	\$29,812,830	\$30,514,393
14	Capital and Fire Flow Fund						
15	Beginning Balance	\$35,067,706	\$18,013,156	\$18,193,288	\$18,420,704	\$18,697,014	\$18,977,469
16	Sources of Funds						
17	Grants	\$0	\$597,000	\$0	\$0	\$0	\$0
18	Debt Proceeds	\$0	\$0	\$0	\$0	\$0	\$0
19	Fire Protection Charge	\$4,518,450	\$4,518,450	\$4,518,450	\$4,518,450	\$4,518,450	\$4,518,450
20	All Other Revenues	\$0	\$0	\$0	\$0	\$0	\$0
21	Capital Charge Revenue	\$0	\$16,500,000	\$17,027,000	\$17,426,000	\$18,304,000	\$18,340,000
22	Interest Income	\$15,000	\$180,132	\$227,416	\$276,311	\$280,455	\$284,662
23	Total - Sources of Funds	\$4,533,450	\$21,795,582	\$21,772,866	\$22,220,761	\$23,102,905	\$23,143,112
24	Uses of Funds						
25	Water Capital Projects	\$17,088,000	\$17,097,000	\$17,027,000	\$17,426,000	\$18,304,000	\$18,340,000
26	Fire Protection Projects	\$4,500,000	\$4,518,450	\$4,518,450	\$4,518,450	\$4,518,450	\$4,518,450
27	Total - Uses of Funds	\$21,588,000	\$21,615,450	\$21,545,450	\$21,944,450	\$22,822,450	\$22,858,450
28	Ending Balance	\$18,013,156	\$18,193,288	\$18,420,704	\$18,697,014	\$18,977,469	\$19,262,131
29	Total Funds	\$43,440,121	\$44,477,611	\$46,272,152	\$47,584,602	\$48,790,299	\$49,776,525
30	Operating Target	\$32,984,650	\$36,585,579	\$37,882,086	\$39,885,469	\$41,734,935	\$43,680,933
31	Capital Target	\$17,088,000	\$17,097,000	\$17,027,000	\$17,426,000	\$18,304,000	\$18,340,000
32	Emergency Target	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000
33	Total Target	\$52,072,650	\$55,682,579	\$56,909,086	\$59,311,469	\$62,038,935	\$64,020,933

3 Rate Derivation

This section of the report details the calculation of the proposed capital charge and water rates that were developed in the study. All rates shown in this section are rounded up to the nearest cent. Numbers shown in this section of the report are rounded and may not equal the exact amount shown in the tables.

Capital Maintenance Fee Derivation

Historically, capital project costs have been recovered through the District’s water rates. The District has elected to unbundle the capital costs from the water rates, which will now represent the O&M costs of the water system. The unbundling of rates will convey to users the true costs of various service components and continue to equitably pass on the costs of infrastructure needed to provide services to users. The District proposes to collect the annual CMF through the tax roll each year. The purpose is to ensure reliable, fair, and equitable recovery of costs from its customers. The District has the option to recover a portion or all of the CMF through the bi-monthly bill.

The capital costs to be funded are for basic infrastructure improvements that are required to provide capacity in the system. Capacity in the system is represented by the capacity of meters and therefore the capital costs will be collected annually on the tax roll based on equivalent meter units (EMUs). EMUs represent the total capacity of the water system and are a measure of the demand each customer can place on the system.

For example, a customer with a larger meter size has the capacity for significantly higher water demand as opposed to a smaller meter. In turn, the water system as a whole – including transmission and distribution lines, storage tanks, treatment facilities, and reservoirs, etc. – is required to have higher capacity to account for customers with larger meters. Water systems are built to provide the required capacity, or the amount of water its customers are capable of demanding. Utilizing EMUs as the basis of the CMF is therefore a reasonable method of allocating capital costs.

The District’s number of EMUs is calculated using the count of each meter size and the meter capacity. The meter counts were provided to Raftelis by District staff and the meter capacities in gallons per minute (gpm) are based on the American Water Works Association’s *M22 Manual, Sizing Water Service Lines and Meters*.

The meter count for each size is multiplied by the meter capacity ratio to determine the number of EMUs for each meter size. The meter capacity ratio is calculated by dividing the capacity in gpm of each meter size by the base meter, which in this study is the 5/8” meter.

Table 3-1 shows the calculated number of EMUs per meter size based on the meter counts shown in **Table 2-1**. The total number of equivalent meters is utilized as the basis of the annual CMF. As discussed in an earlier section, potable and recycled water meters share in the capital cost as recycled water customers receive potable water when the recycled water is unavailable. Conversely, potable water benefits from recycled water to help conserve potable water for potable uses.

Table 3-1: Equivalent Meter Calculation

Meter Size	Capacity (gpm)	Capacity Ratio	Number of Meters	Equivalent Meters
5/8"	20	1.00	41,227	41,227
3/4"	30	1.50	3,404	5,106
1"	50	2.50	12,774	31,935
1 1/2"	100	5.00	2,278	11,390
2"	160	8.00	650	5,200
3"	350	17.50	157	2,748
4"	630	31.50	44	1,386
6"	1,400	70.00	19	1,330
8"	2,400	120.00	5	600
10"	3,800	190.00	0	0
Total			60,558	100,922

The FY 2020 revenue requirement for the capital maintenance fee is \$16.5 million per year, as shown in **Table 2-19** (Line 28). The annual revenue requirement is divided by the number of EMUs to determine the unit cost of \$163.50 per EMU in FY 2020, rounded up to the nearest penny.

$$\text{Capital costs} / \text{EMUs} = \$16,500,000 / 100,922 \text{ EMUs} = \$163.50 \text{ per EMU per year}$$

The unit cost is then multiplied by the capacity ratio of each meter size, shown in **Table 3-1**, to determine the annual CMF per meter size. **Table 3-2** shows the proposed CMF for each meter size and the total annual revenue collected from these charges. The proposed CMF will be charged annually on the tax roll, partially on the tax roll and the remaining balance through the bi-monthly bill, or wholly through a bi-monthly service charge. Potable and recycled water customers will be charged the same CMF because each system benefits from the other.

Table 3-2: Proposed Rates (FY 2020) – Annual Capital Maintenance Fee

Meter Size	Capacity Ratio	Proposed Annual Charge	Number of Meters	Annual Revenues
5/8"	1.00	\$163.50	41,227	\$6,740,615
3/4"	1.50	\$245.25	3,404	\$834,831
1"	2.50	\$408.74	12,774	\$5,221,245
1 1/2"	5.00	\$817.47	2,278	\$1,862,197
2"	8.00	\$1,307.95	650	\$850,168
3"	17.50	\$2,861.14	157	\$449,199
4"	31.50	\$5,150.05	44	\$226,602
6"	70.00	\$11,444.54	19	\$217,446
8"	120.00	\$19,619.21	5	\$98,096
10"	190.00	\$31,063.75	0	\$0
Total			60,558	\$16,500,398

Adjusted Current Water Rates

The next step in the rate calculation, after determining the revenue required to be recovered from rates, involves allocating costs to the appropriate cost centers to determine fair and equitable rates consistent with cost of service principles.

The extensive operating cost detail in the cost of service model developed by Carollo Engineers in April 2017 is more amenable to conducting a thorough cost allocation for potable, recycled, and raw water. As a result, Raftelis used the Carollo model⁷ to allocate costs using the revenue requirements developed in this study. The Carollo *Cost of Service Study Report*⁸ dated May 2017, explains the methodology of allocating costs and setting tiers. Since the Carollo model included capital costs and the allocations of capital costs to determine rates, only the operating cost allocations were utilized to determine rates. The relative distribution of operating costs does not change significantly from year to year, providing a reasonable basis for using the Carollo model to perform the cost allocation.

To calculate the adjusted FY 2019 water rates, Raftelis used the following steps:

1. Use the operating cost allocation in the Carollo model to allocate capital costs to ensure that only operating cost allocations are used to be consistent with the revenue requirements from rates of this study
2. Determine the amount of revenues collected
3. Determine the resultant rates from the Carollo model referred to as the adjusted charges in **Table 3-3**
4. Apply these rates to the accounts and usage service units to calculate the revenues generated
5. Prorate the rates, if necessary to ensure that the revenues collected are adequate to meet the operating revenue requirements for FY 2019

Table 3-3 shows the results of steps 1 through 3. The rates from the Carollo model, when applied to the number of meters and usage in FY 2019, resulted in rate revenues of \$77.8 million which are within the margin of error of the actual revenue requirement for FY 2019 of \$77.7 million (**Table 2-19**, Lines 2-4). As a result, the rates generated would be the correct rates to be used in FY 2019.

⁷ Prior Carollo model provided by District staff (*Carollo MMWD Rate Model - Final April 2017.xlsx*)

⁸ Prior Carollo report provided by District staff (*Carollo MMWD Cost of Service Report Final - May 2017.pdf*)

Table 3-3: Adjusted FY 2019 Rates and Revenue

Adjusted Rate Revenues	Adjusted Charge	FY 2019 Units	Adjusted Revenue
Fixed Charges (\$/Meter Size)			
Bi-Monthly Fixed Service Charges			
5/8"	\$38.13	41,227	\$9,431,913
3/4"	\$48.78	3,404	\$996,283
1"	\$70.08	12,774	\$5,371,212
1.5"	\$123.33	2,278	\$1,685,674
2"	\$187.23	650	\$730,197
3"	\$389.58	157	\$366,984
4"	\$687.78	44	\$181,574
6"	\$1,507.83	19	\$171,893
8"	\$2,572.83	5	\$77,185
10"	\$4,063.83	0	\$0
Bi-Monthly Watershed Management Fee			
5/8"	\$9.89	41,227	\$2,446,410
3/4"	\$11.82	3,404	\$241,412
1"	\$15.67	12,774	\$1,201,011
1.5"	\$25.29	2,278	\$345,664
2"	\$36.84	650	\$143,676
3"	\$73.42	157	\$69,162
4"	\$127.32	44	\$33,612
6"	\$275.54	19	\$31,412
8"	\$468.04	5	\$14,041
10"	\$737.54	0	\$0
Bi-Monthly Private Fire Line Service Charge			
2"	\$34.67	55	\$11,441
4"	\$87.08	592	\$309,308
6"	\$172.93	494	\$512,565
8"	\$284.43	155	\$264,520
10"	\$440.53	4	\$10,573
Per-Unit Charges (\$/ccf)			
Single Family Residential			
Tier 1	\$4.02	4,403,423	\$17,701,760
Tier 2	\$6.98	1,102,903	\$7,698,263
Tier 3	\$11.77	297,418	\$3,500,610
Tier 4	\$18.92	178,955	\$3,385,829
Duplex Residential			
Tier 1	\$4.05	55,844	\$226,168
Tier 2	\$7.09	10,212	\$72,403
Tier 3	\$11.72	2,695	\$31,585
Tier 4	\$18.39	1,086	\$19,972
Multi-Family Residential			
Tier 1	\$4.10	958,467	\$3,929,715

Adjusted Rate Revenues	Adjusted Charge	FY 2019 Units	Adjusted Revenue
Tier 2	\$6.92	160,887	\$1,113,338
Tier 3	\$10.97	23,098	\$253,385
Tier 4	\$18.42	6,198	\$114,167
Commercial, Institutional, and Irrigation			
Tier 1	\$3.93	2,027,655	\$7,968,684
Tier 2	\$10.56	232,588	\$2,456,129
Tier 3	\$15.82	204,075	\$3,228,467
Single Family Irrigation			
Tier 1	\$5.06	2,942	\$14,887
Tier 2	\$6.04	1,786	\$10,787
Tier 3	\$10.51	3,388	\$35,608
Recycled Water			
Tier 1	\$3.14	150,835	\$473,622
Tier 2	\$9.80	14,301	\$140,150
Tier 3	\$18.21	28,087	\$511,464
Raw Water			
All Usage	\$3.67	70,000	\$256,900
Total			\$77,791,614

Proposed Rates

Since the revenue requirement for FY 2020 is 4.0 percent higher than that of FY 2019, the proposed water rates are calculated by increasing the adjusted rates shown in **Table 3-3** by the revenue adjustments shown in **Table 2-18**, rounded up to the nearest penny. **Table 3-4** shows the proposed bi-monthly fixed charges and **Table 3-5** shows the proposed per-unit charges.

Table 3-4: Proposed Rates (FY 2020) – Bi-Monthly Fixed Charges

Fixed Charges	Proposed Rates	Current Rates	Difference (\$)
Bi-Monthly Fixed Service Charge (\$/Meter Size)			
5/8"	\$39.66	\$36.79	\$2.87
3/4"	\$50.74	\$46.62	\$4.12
1"	\$72.89	\$66.28	\$6.61
1.5"	\$128.27	\$115.43	\$12.84
2"	\$194.72	\$174.41	\$20.31
3"	\$405.17	\$361.18	\$43.99
4"	\$715.30	\$636.42	\$78.88
6"	\$1,568.15	\$1,393.33	\$174.82
8"	\$2,675.75	\$2,376.33	\$299.42
10"	\$4,226.39	\$3,752.53	\$473.86
Bi-Monthly Watershed Management Fee (\$/Meter Size)			
5/8"	\$10.29	\$9.78	\$0.51
3/4"	\$12.30	\$11.69	\$0.61
1"	\$16.30	\$15.50	\$0.80
1.5"	\$26.31	\$25.02	\$1.29
2"	\$38.32	\$36.45	\$1.87
3"	\$76.36	\$72.65	\$3.71
4"	\$132.42	\$125.99	\$6.43
6"	\$286.57	\$272.67	\$13.90
8"	\$486.77	\$463.17	\$23.60
10"	\$767.05	\$729.87	\$37.18
Bi-Monthly Private Fire Line Service Charge (\$/Meter Size)			
2"	\$36.06	\$32.17	\$3.89
4"	\$90.57	\$76.35	\$14.22
6"	\$179.85	\$148.73	\$31.12
8"	\$295.81	\$242.73	\$53.08
10"	\$458.16	\$374.33	\$83.83

Table 3-5: Proposed Rates (FY 2020) – Per-Unit Charges (\$/ccf)

Per-Unit Charges (\$/ccf)	Proposed Rates	Current Rates	Difference (\$)
Single Family Residential			
Tier 1	\$4.19	\$4.07	\$0.12
Tier 2	\$7.26	\$7.13	\$0.13
Tier 3	\$12.25	\$12.07	\$0.18
Tier 4	\$19.68	\$19.45	\$0.23
Duplex Residential			
Tier 1	\$4.22	\$4.10	\$0.12
Tier 2	\$7.38	\$7.24	\$0.14
Tier 3	\$12.19	\$12.02	\$0.17
Tier 4	\$19.13	\$18.90	\$0.23
Multi-Family Residential			
Tier 1	\$4.27	\$4.16	\$0.11
Tier 2	\$7.20	\$7.07	\$0.13
Tier 3	\$11.41	\$11.25	\$0.16
Tier 4	\$19.16	\$18.94	\$0.22
Commercial, Institutional, and Irrigation			
Tier 1	\$4.09	\$3.98	\$0.11
Tier 2	\$10.99	\$10.82	\$0.17
Tier 3	\$16.46	\$16.26	\$0.20
Single Family Irrigation			
Tier 1	\$5.27	\$5.14	\$0.13
Tier 2	\$6.29	\$6.15	\$0.14
Tier 3	\$10.94	\$10.76	\$0.18
Recycled Water			
Tier 1	\$3.27	\$3.17	\$0.10
Tier 2	\$10.20	\$10.05	\$0.15
Tier 3	\$18.94	\$18.73	\$0.21
Raw Water			
All Usage	\$3.82	\$4.23	(\$0.41)

Five-Year Rate Schedule

Table 3-6 and Table 3-7 shows the proposed five-year rate schedule for fixed and per-unit charges, respectively. Each subsequent years' rates are increased to recover the 4.0 percent increase in revenue requirement each year, as shown in Table 2-18.

Table 3-6: Proposed Five-Year Rate Schedule – Bi-Monthly Fixed Charges

Fixed Charges (\$/ Meter Size)	Proposed FY 2020	Proposed FY 2021	Proposed FY 2022	Proposed FY 2023	Proposed FY 2024
Bi-Monthly Fixed Service Charges					
5/8"	\$39.66	\$41.25	\$42.90	\$44.62	\$46.41
3/4"	\$50.74	\$52.77	\$54.89	\$57.09	\$59.38
1"	\$72.89	\$75.81	\$78.85	\$82.01	\$85.30
1.5"	\$128.27	\$133.41	\$138.75	\$144.30	\$150.08
2"	\$194.72	\$202.51	\$210.62	\$219.05	\$227.82
3"	\$405.17	\$421.38	\$438.24	\$455.77	\$474.01
4"	\$715.30	\$743.92	\$773.68	\$804.63	\$836.82
6"	\$1,568.15	\$1,630.88	\$1,696.12	\$1,763.97	\$1,834.53
8"	\$2,675.75	\$2,782.78	\$2,894.10	\$3,009.87	\$3,130.27
10"	\$4,226.39	\$4,395.45	\$4,571.27	\$4,754.13	\$4,944.30
Bi-Monthly Watershed Management Fee					
5/8"	\$10.29	\$10.71	\$11.14	\$11.59	\$12.06
3/4"	\$12.30	\$12.80	\$13.32	\$13.86	\$14.42
1"	\$16.30	\$16.96	\$17.64	\$18.35	\$19.09
1.5"	\$26.31	\$27.37	\$28.47	\$29.61	\$30.80
2"	\$38.32	\$39.86	\$41.46	\$43.12	\$44.85
3"	\$76.36	\$79.42	\$82.60	\$85.91	\$89.35
4"	\$132.42	\$137.72	\$143.23	\$148.96	\$154.92
6"	\$286.57	\$298.04	\$309.97	\$322.37	\$335.27
8"	\$486.77	\$506.25	\$526.50	\$547.56	\$569.47
10"	\$767.05	\$797.74	\$829.65	\$862.84	\$897.36
Bi-Monthly Private Fire Line Service Charge					
2"	\$36.06	\$37.51	\$39.02	\$40.59	\$42.22
4"	\$90.57	\$94.20	\$97.97	\$101.89	\$105.97
6"	\$179.85	\$187.05	\$194.54	\$202.33	\$210.43
8"	\$295.81	\$307.65	\$319.96	\$332.76	\$346.08
10"	\$458.16	\$476.49	\$495.55	\$515.38	\$536.00

Table 3-7: Proposed Five-Year Rate Schedule – Per-Unit Charges (\$/ccf)

Per Unit Charges (\$/ccf)	Proposed FY 2020	Proposed FY 2021	Proposed FY 2022	Proposed FY 2023	Proposed FY 2024
Single Family Residential					
Tier 1	\$4.19	\$4.36	\$4.54	\$4.73	\$4.92
Tier 2	\$7.26	\$7.56	\$7.87	\$8.19	\$8.52
Tier 3	\$12.25	\$12.74	\$13.25	\$13.78	\$14.34
Tier 4	\$19.68	\$20.47	\$21.29	\$22.15	\$23.04
Duplex Residential					
Tier 1	\$4.22	\$4.39	\$4.57	\$4.76	\$4.96
Tier 2	\$7.38	\$7.68	\$7.99	\$8.31	\$8.65
Tier 3	\$12.19	\$12.68	\$13.19	\$13.72	\$14.27
Tier 4	\$19.13	\$19.90	\$20.70	\$21.53	\$22.40
Multi-Family Residential					
Tier 1	\$4.27	\$4.45	\$4.63	\$4.82	\$5.02
Tier 2	\$7.20	\$7.49	\$7.79	\$8.11	\$8.44
Tier 3	\$11.41	\$11.87	\$12.35	\$12.85	\$13.37
Tier 4	\$19.16	\$19.93	\$20.73	\$21.56	\$22.43
Commercial, Institutional, and Irrigation					
Tier 1	\$4.09	\$4.26	\$4.44	\$4.62	\$4.81
Tier 2	\$10.99	\$11.43	\$11.89	\$12.37	\$12.87
Tier 3	\$16.46	\$17.12	\$17.81	\$18.53	\$19.28
Single Family Irrigation					
Tier 1	\$5.27	\$5.49	\$5.71	\$5.94	\$6.18
Tier 2	\$6.29	\$6.55	\$6.82	\$7.10	\$7.39
Tier 3	\$10.94	\$11.38	\$11.84	\$12.32	\$12.82
Recycled Water					
Tier 1	\$3.27	\$3.41	\$3.55	\$3.70	\$3.85
Tier 2	\$10.20	\$10.61	\$11.04	\$11.49	\$11.95
Tier 3	\$18.94	\$19.70	\$20.49	\$21.31	\$22.17
Raw Water					
All Usage	\$3.82	\$3.98	\$4.14	\$4.31	\$4.49

Residential Customer Impacts

The impacts to Single Family Residential (SFR) customers, which make up a large portion of the District’s customer base, are calculated for typical meter sizes and varying usage levels. The customer impacts include the bi-monthly meter service and watershed management fees and per-unit charges.

Table 3-8 and Table 3-9 calculate the proposed average bill for SFR customers with a 5/8” and 1” meter, respectively. The percentiles of usage and the number of annual bills represent the entire SFR customer class, not just within the respective meter sizes.

Table 3-8: Single Family Customer Impacts (5/8" Meter)

SFR Customer Impacts, Usage Percentile	Bi-Monthly Usage (ccf)	Number of Annual Bills	Proposed Average Bill	Current Average Bill	Difference (\$)
10th Percentile	4	35,147	\$66.71	\$62.85	\$3.86
30th Percentile	9	68,556	\$87.66	\$83.20	\$4.46
50th Percentile (Median)	13	51,250	\$104.42	\$99.48	\$4.94
70th Percentile	21	11,928	\$137.94	\$132.04	\$5.90
90th Percentile	40	58,800	\$268.21	\$259.86	\$8.34
95th Percentile	55	15,417	\$394.57	\$384.10	\$10.47
98th Percentile	80	9,002	\$690.84	\$675.97	\$14.87
99th Percentile	103	2,873	\$1,072.90	\$1,053.21	\$19.68

Table 3-9: Single Family Customer Impacts (1" Meter)

SFR Customer Impacts, Usage Percentile	Bi-Monthly Usage (ccf)	Number of Annual Bills	Proposed Average Bill	Current Average Bill	Difference (\$)
10th Percentile	4	35,147	\$105.95	\$98.06	\$7.89
30th Percentile	9	68,556	\$126.90	\$118.41	\$8.49
50th Percentile (Median)	13	51,250	\$143.66	\$134.69	\$8.97
70th Percentile	21	11,928	\$177.18	\$167.25	\$9.93
90th Percentile	40	58,800	\$307.45	\$295.07	\$12.38
95th Percentile	55	15,417	\$433.81	\$419.31	\$14.50
98th Percentile	80	9,002	\$730.08	\$711.18	\$18.90
99th Percentile	103	2,873	\$1,112.14	\$1,088.42	\$23.72

Table 3-10 shows the average usage for SFR customers with a 5/8" and 1" meter. The average SFR customer with a 5/8" meter will see a monthly increase of \$2.71 in their water bills; an average customer with a 1" meter will see a monthly increase of \$5.34.

Table 3-10: Single Family Customer Impacts (Average Usage)

SFR Customer Impacts, Average Usage	Bi-Monthly Usage (ccf)	Proposed Average Bill	Current Average Bill	Difference (\$)
5/8" Average Usage	17	\$121.18	\$115.76	\$5.42
1" Average Usage	27	\$213.07	\$202.38	\$10.69