VENTURA COUNTY

Water Rate Study
Waterworks District No. 17 (Bell Canyon)

Final Report / November 29, 2016

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November 29, 2016

Ms. Michaela Brown, Director
County of Ventura Water and Sanitation Department
PO Box 250
Moorpark, CA 93020

Subject: Water Rate Study Report for Ventura County Waterworks District No. 17 (Bell Canyon)

Dear Ms. Brown:

Raftelis Financial Consultants, Inc. (RFC) is pleased to present this Water Rate Study Report (Report) to the County of Ventura Water and Sanitation Department (County) for Ventura County Waterworks District No. 17 – Bell Canyon (District). The Study involved a comprehensive review of the District's financial plan, rates, and the development of connection fees.

The rate structure has been simplified, and we are confident that the resulting rates, based on cost of service principles, meet the requirements of Proposition 218 and are fair and equitable to the District's customers. The Report includes a brief Executive Summary, details of the District's water system, financial plan, cost of service analysis, and a detailed rate derivation in the subsequent sections.

It has been a pleasure working with you, and we wish to express our thanks for all of the support from you and other staff members during the course of this Study. If you have any questions, please do not hesitate to contact me at (626) 583-1894.

Sincerely,
RAFTELIS FINANCIAL CONSULTANTS, INC.

Sudhir Pardiwala, PE
Executive Vice President

Hannah Phan
Senior Consultant

Nancy Phan
Associate Consultant

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1 EXECUTIVE SUMMARY

1.1 BACKGROUND

In early 2016, the County of Ventura Water and Sanitation Department contracted with Raftelis Financial Consultants, Inc. (RFC) to conduct a Water Rate Study for the Ventura County Waterworks District No. 17 – Bell Canyon, which includes a five-year financial plan, cost of service analysis, and rate derivation. This Report presents the financial plan and the resulting rates for implementation on February 14, 2017 and January of subsequent years.

This Executive Summary is an overview of the water rates and contains a description of the rate study process, methodology, results, and recommendations for the establish fair and equitable rates that:

- Provide adequate revenues to meet the District's operational and capital expenses and reserve requirements for the financial stability of the District
- Are easy for customers to understand, implement, and update in the future
- Proportionally allocate the costs of providing service in accordance with Article XIII D of California Constitution, commonly known as Proposition 218.

1.2 SUMMARY

RFC worked closely with District staff to develop a long-term financial plan which sets forth the total revenue adjustments, proposed debt, and capital investment for the next five years. District staff selected a financial plan that entails an 8.0% increase per year starting in fiscal year (FY) 2017 and approximately $5.5M in capital projects over the next five years.

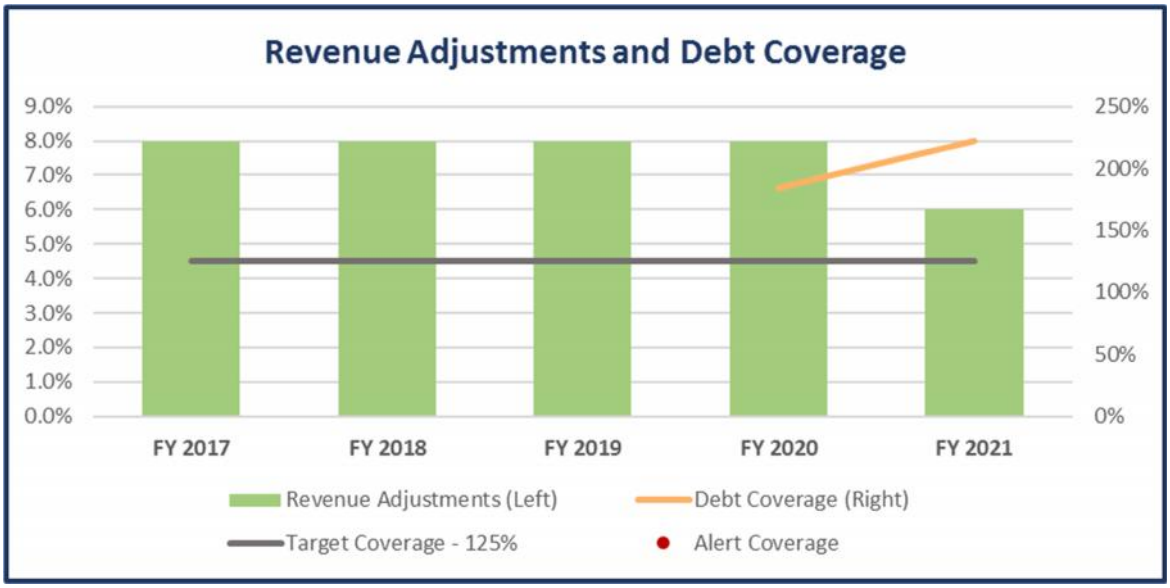
The proposed rate structure consists of a commodity rate and a monthly service charge. The monthly service charge recovers approximately 5.4% of total rate revenue for FY 2017 and increases by 1% each following year. The commodity rate is non-tiered for all customer classes, except the Residential customer class, which consists of three tiers.

1.3 FINANCIAL PLAN

In order to determine the revenue adjustments needed to meet the ongoing expenses of the District and provide fiscal stability, RFC projected the revenue requirements, including operations and maintenance (O&M) expenses, capital improvement plans (CIP), reserve requirements, etc., for the Study period. O&M expenses include the cost of operating and maintaining the water supply, treatment, storage, and distribution facilities, as well as the cost of providing technical services such as engineering services and other administrative costs of the water system including meter reading and billing.

Figure 1-1 shows the proposed revenue adjustments selected for the Study and the District's debt coverage. Although the graph shows anticipated revenue adjustments for the entire five-year period, the District will review and confirm the necessary revenue adjustments on an annual basis.

Figure 1-1: Proposed Revenue Adjustments



Factors Affecting Revenue Adjustments

The following items were used to develop the District's revenue requirement:

- **O&M Expenses**: Overall, the District's O&M expenses are expected to increase approximately 2.5% from FY 2017 to 2018. The District's water supply cost makes up approximately 70% of total O&M expenses. Purchased water costs are projected to increase about 6% annually. **Figure 1-2** shows the projected O&M expenses for the District over the Study period.
- **Capital Investment**: The District is expected to spend approximately $5.5M on capital projects from FY 2017 to 2021. **Figure 1-3** shows the total amount of capital projects and their funding sources.
- **Reserve Funding**: Without revenue adjustments or debt, the District's reserves will be nearly depleted in FY 2019 and will create a deficit in FY 2020. The revenue adjustments in **Figure 1-1** were selected in order to offset the depletion of reserves due to increasing O&M expenses and capital projects, while still remaining affordable for the District's customers. The reserves balance is shown in **Figure 1-4**. RFC recommends that the District maintain reserve levels consisting of the following targets consistent with industry practice:
  - **Operating:** the operating reserve target is 25% percent of O&M expenses and provides working capital for the District's O&M expenses and any changes to the budgeted intra-year expenses
  - **Capital (Replacement):** the capital (replacement) reserve target is 2% of total net assets (Replacement Cost Less Depreciation) and will enable the District to properly manage CIP cash flow requirements and adjust the project timing as needed
  - **Rate Stabilization:** the rate stabilization reserve target is 10% of rate revenue and provides a buffer in case of water supply disruptions due to drought or other natural disasters or emergencies

Figure 1-2: Projected O&M Expenses

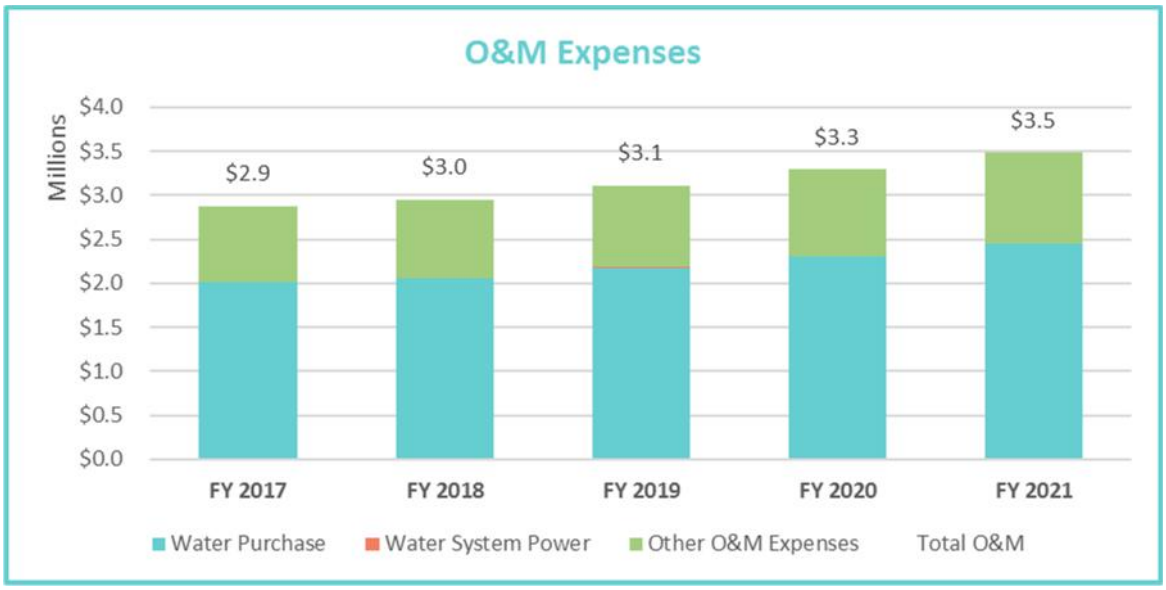


Figure 1-3: Proposed Capital Financing Plan

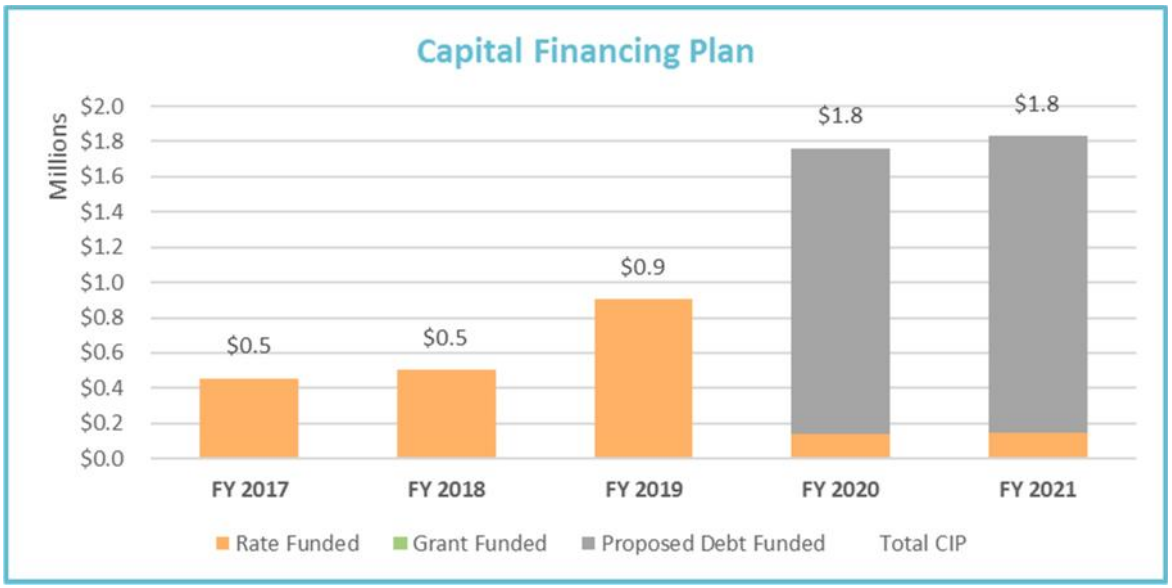
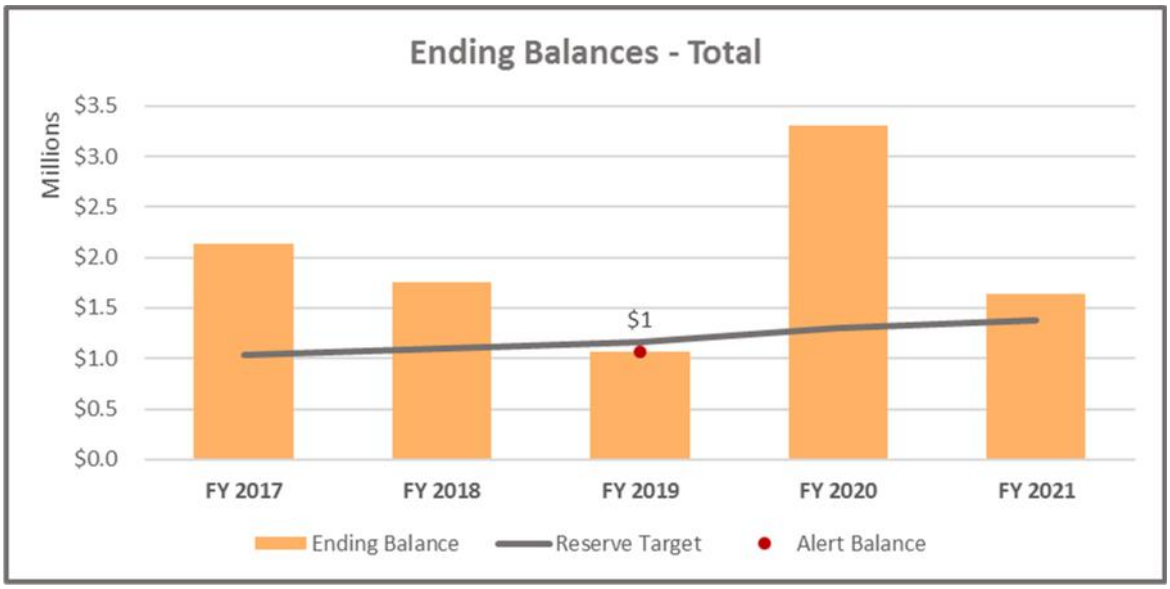


Figure 1-4: Projected Ending Balances



1.4 COST OF SERVICE ANALYSIS AND RATE DESIGN

The water rates were developed using cost of service principles set forth by the American Water Works Association (AWWA) M1 Manual titled *Principles of Water Rates, Fees, and Charges* (M1 Manual). Cost of service principles endeavor to distribute costs to customer classes in accordance with the way each customer class uses the water system.

For this Study, the Base-Extra Capacity Method of the M1 Manual was utilized for distributing costs. This method separates costs into four different components: (1) base costs, (2) extra capacity (peaking) costs, (3) customer costs, and (4) direct fire protection costs. Base costs are costs that are associated with meeting average daily demand requirements and include operations and maintenance costs and capital costs designed to meet average load conditions. Also included in the base costs are the purchased water costs from Calleguas Municipal Water District. Extra capacity costs are costs associated with meeting peak demand. Customer costs are costs associated with serving customers, such as meter reading, billing, customer service, etc. Direct fire protection costs are related solely to the fire protection capacity of a water system, which benefits everyone.

1.5 PROPOSED WATER RATES

The proposed rate structure for the District consists of two components: a monthly service charge and a commodity rate. The monthly service charge is a fixed charge based on the size of meter serving a property and is intended to recover costs related to meter reading and maintenance, customer service and billing, and a portion of capacity related costs. The commodity rate recovers all remaining costs associated with meeting costs related to water supply and production, base delivery, and extra capacity.

Table 1-1 shows the proposed monthly service charges by meter size for the next five years, starting on February 14, 2017 and January of each subsequent year. **Table 1-2** shows the proposed commodity rates for each customer class and tier. In order to increase revenue stability, the proposed rate schedule is designed to recover approximately an additional 1% per year on the fixed service charges for the next five years. Thus, in FY 2018, the percentage of rate revenue collected from fixed charges will be approximately 6%.

Table 1-1: Proposed Monthly Service Charges ($/month)

Monthly Service Charges	February 2017	January 2018	January 2019	January 2020	January 2021
3/4"	$12.05	$14.37	$18.11	$22.36	$26.67
1"	$16.61	$19.82	$24.98	$30.84	$36.78
1 1/2"	$28.03	$33.45	$42.15	$52.03	$62.05
2"	$41.74	$49.80	$62.75	$77.46	$92.38
3"	$85.14	$101.57	$127.98	$157.97	$188.38
4"	$149.09	$177.87	$224.12	$276.63	$329.89
6"	$302.12	$360.44	$454.16	$560.57	$668.48

Table 1-2: Proposed Commodity Rates ($/hcf)

Commodity Rates		February 2017	January 2018	January 2019	January 2020	January 2021
Residential						
Tier 1	0-10 hcf	$4.91	$5.28	$5.65	$6.04	$6.34
Tier 2	>10-54 hcf	$5.25	$5.64	$6.03	$6.45	$6.77
Tier 3	>54 hcf	$6.54	$7.03	$7.52	$8.04	$8.43
Non-Residential		$5.38	$5.78	$6.18	$6.61	$6.94
Temporary Construction		$5.54	$5.95	$6.36	$6.80	$7.13

Together, the two components of the District's proposed water rates are designed to recover the proportionate costs of providing water service to each customer class, encourage water conservation, and increase the financial stability of the District.

1.6 PROPOSED CONNECTION FEES

As part of the Study, RFC reviewed and updated the District's connection fees, which are one-time fees that a new customer or developer pays to connect to the water system. **Table 1-3** shows the District's proposed connection fees per meter size.

Table 1-3: Proposed Connection Fees

Meter Size	Proposed Fees
3/4"	$5,200
1"	$8,667
1 1/2"	$17,333
2"	$27,733
3"	$60,667
4"	$109,200
6"	$225,333

2 WATER SYSTEM

This section briefly describes the water system and the District provided customer account and water usage data for FY 2017.

2.1 WATER SOURCES AND SYSTEM FACILITIES

The District provides water service to a population of approximately 2,049 over an area of approximately 4,900 acres that includes the community of Bell Canyon and the contiguous area to the North. The District's customer accounts include approximately 712 residential customers. The District encompasses 16 miles of water lines, 2 tanks, and 9 pressure-reducing stations. The District's water supply is procured from imported water from the Calleguas Municipal Water District.

2.2 NUMBER OF ACCOUNTS

Table 2-1 shows the estimated number of potable water accounts by meter size for FY 2017 (less fire and temporary construction accounts). RFC estimated the number of accounts by tabulating FY 2016 actual account data provided by the District and escalating the number of accounts based on the growth factors described in **Section 2.3**.

Table 2-1: Estimated Water Accounts by Meter Size (FY 2017)

Meter Size	Residential	Commercial	Industrial	Institutional	Total
3/4"	38	0	0	1	**39**
1"	657	0	0	0	**657**
1 1/2"	13	2	0	0	**15**
2"	4	1	0	0	**5**
3"	0	0	0	1	**1**
4"	0	0	1	0	**1**
6"	0	0	0	0	**0**

2.3 ACCOUNT AND WATER USE GROWTH ASSUMPTIONS

Table 2-2 displays the account growth assumptions as provided by the District. The account growth assumptions were used to project the number of accounts for the Study Period.

Table 2-2: Account Growth Assumptions

Customer Class	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Residential	0%	0%	0%	0%	0%
Commercial	0%	0%	0%	0%	0%
Industrial	0%	0%	0%	0%	0%
Institutional	0%	0%	0%	0%	0%
Temporary Construction	0%	0%	0%	0%	0%

Table 2-3 shows the water usage demand factor that was determined by the District for each customer class. This table shows that the District will see an increase of approximately 10% in FY 2017 compared to FY 2016 due to projected rebound in the water usage.

Table 2-3: Water Use Assumptions

Customer Class	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Residential	110%	110%	100%	100%	100%
Commercial	110%	110%	100%	100%	100%
Industrial	110%	110%	100%	100%	100%
Institutional	110%	110%	100%	100%	100%
Temporary Construction	110%	100%	100%	100%	100%

2.4 WATER USAGE

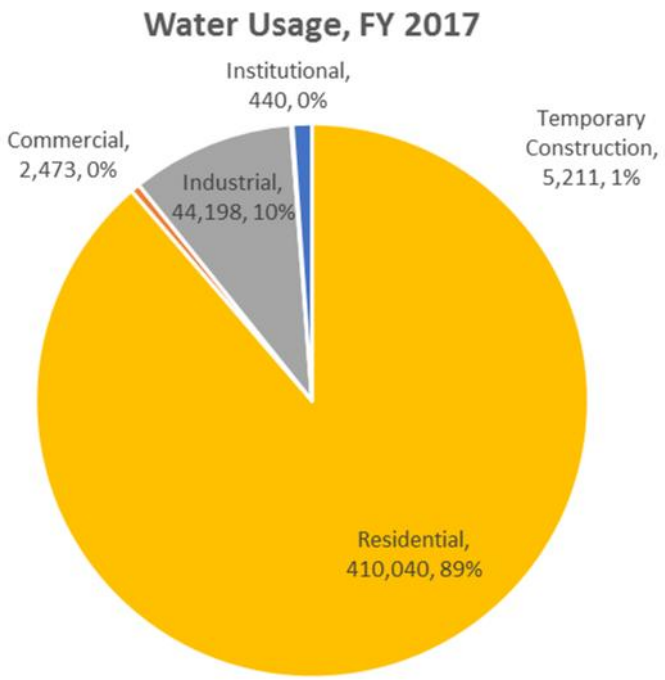
The account growth and water usage assumptions in the previous section were utilized to project FY 2017 water usage for future years, as shown in **Table 2-4**. The following estimated annual water usage by customer class is shown in hundred cubic feet (hcf) for the Study period.

Table 2-4: Water Usage by Customer Class

Customer Class	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Residential	410,040	451,044	451,044	451,044	451,044
Commercial	2,473	2,720	2,720	2,720	2,720
Industrial	44,198	48,618	48,618	48,618	48,618
Institutional	440	484	484	484	484
Temporary Construction	5,211	5,211	5,211	5,211	5,211
Total	**462,362**	**508,077**	**508,077**	**508,077**	**508,077**

Figure 2-1 shows the FY 2017 water usage by customer class. The first number in the pie chart is the water use in hcf followed by the percentage of total water usage by customer class.

Figure 2-1: Water Usage in hcf by Customer Class (FY 2017)



3 FINANCIAL PLAN

This section describes the assumptions used in projecting water revenue, O&M expenses, capital projects, reserves and coverage requirements that determine the overall revenue adjustments required to ensure the financial stability of the District. Revenue adjustments represent the average increase in rates for the District as a whole. Proportional cost allocation for individual classes is determined by the cost of service analysis, which is further explained in **Section 5**.

3.1 REVENUES

Table 3-2 shows the District's revenue budget for FY 2017. The projected water sales revenue for the years following FY 2017 were not calculated based on the existing rate structure, but rather inflated proportionally by each year's estimated water usage. For example, the total amount of usage increased by 10% from FY 2017 to 2018. Subsequently, the projected water sales revenue for FY 2018 is 10% more than that of FY 2017.

Table 3-1: Projected Revenues

O&M Revenues	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Investment Income	$0	$8,613	$19,419	$31,866	$45,262
Special Assessments	$8,300	$8,383	$8,467	$8,551	$8,637
Permit Fees	$200	$202	$204	$206	$208
Line Extension Fee	$200	$202	$204	$206	$208
Meter Sales and Install Fee	$1,500	$1,515	$1,530	$1,545	$1,561
Water Sales	$2,505,500	$2,753,226	$2,753,226	$2,753,226	$2,753,226
Other Sales	$200	$202	$204	$206	$208
Miscellaneous Revenue	$29,000	$29,290	$29,583	$29,879	$30,178
Total - O&M Revenues	**$2,544,900**	**$2,801,633**	**$2,812,837**	**$2,825,686**	**$2,839,488**

Capital Revenues	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Investment Income	$20,200	$1,108	($5,372)	$627	$3,625
Capital Improvement Charges	$0	$0	$0	$0	$0
Fixed Asset Sale/Loss	$0	$0	$0	$0	$0
Funded Depreciation	$69,100	$75,825	$87,867	$111,339	$135,750
Total - Capital Revenues	**$89,300**	**$76,933**	**$82,495**	**$111,967**	**$139,375**

3.2 INFLATIONARY AND OTHER ASSUMPTIONS

To ensure that future costs are reasonably projected, we make informed assumptions regarding inflationary factors with input from District staff. **Table 3-2** shows the inflationary assumptions that were utilized in the financial plan. The general, salary, benefits, utilities, water costs, capital, and non-inflated factors were used to project expenses for future years. The non-rate revenue inflation factor was used to project the District's miscellaneous revenue for future years. The reserve interest rate was used to determine the District's interest earnings for future years.

Table 3-2: Inflationary Assumptions

Inflation Factor	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
General	3.0%	3.0%	3.0%	3.0%	3.0%
Salary	3.5%	3.5%	3.5%	3.5%	3.5%
Benefits	5.0%	5.0%	5.0%	5.0%	5.0%
Utilities	5.0%	5.0%	5.0%	5.0%	5.0%
Water Costs	6.0%	6.0%	6.0%	6.0%	6.0%
Capital	4.0%	4.0%	4.0%	4.0%	4.0%
Non-Inflated	0.0%	0.0%	0.0%	0.0%	0.0%
Non-Rate Revenues	1.0%	1.0%	1.0%	1.0%	1.0%
Reserve Interest Rate	0.5%	0.5%	1.0%	1.5%	2.0%

The assumptions shown in **Table 3-2** were incorporated into the financial plan. To develop the financial plan, RFC projected annual revenues at current rates and expenses, modeled reserve balances, and calculated capital expenditure funding sources to estimate the amount of annual rate revenue required. Annual rate revenues are smoothed out to avoid rate spikes. This section of the report discusses all the above elements to ensure the fiscal sustainability and solvency of the District.

3.3 O&M EXPENSES

The District's O&M budget is shown in **Table 3-3**. The budget year, or the year in which future years' budget is projected from, and the test year, or the year in which the rates are calculated from, are both FY 2017 for the Study. The financial plan for the Study period is from FY 2017 to 2021. The O&M budget incorporates the inflationary factors in **Table 3-2**.

Table 3-3: Projected O&M Expenses

	O&M Expenses	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	Voice Data ISF	$800	$824	$849	$874	$900
2	General Insurance Allocation ISF	$2,300	$2,369	$2,440	$2,513	$2,589
3	Equipment Maintenance	$500	$515	$530	$546	$563
4	Building and Improvements Mainten	$5,000	$5,150	$5,305	$5,464	$5,628
5	Maintenance Supplies	$35,000	$36,050	$37,132	$38,245	$39,393
6	Equipment Maintenance Contracts	$97,900	$100,837	$103,862	$106,978	$110,187
7	Cost Allocation Plan Charges	$4,800	$4,944	$5,092	$5,245	$5,402
8	Miscellaneous Expense	$1,000	$1,030	$1,061	$1,093	$1,126
9	Federal State Permits and Fees	$5,000	$5,150	$5,305	$5,464	$5,628
10	Cross Connection Fees	$500	$515	$530	$546	$563
11	Conservation Program	$2,000	$2,060	$2,122	$2,185	$2,251
12	Printing and Binding Non ISF	$0	$0	$0	$0	$0
13	Mail Center ISF	$200	$206	$212	$219	$225
14	Purchasing Charges ISF	$1,100	$1,133	$1,167	$1,202	$1,238
15	Graphics Charges ISF	$2,400	$2,472	$2,546	$2,623	$2,701
16	Management and Admin Survey ISF	$76,900	$79,207	$81,583	$84,031	$86,552
17	Engineering and Technical Surveys	$35,000	$36,050	$37,132	$38,245	$39,393
18	Public Works ISF Charges	$319,900	$329,497	$339,382	$349,563	$360,050
19	Other Professional and Specialized N	$68,500	$70,555	$72,672	$74,852	$77,097
20	Collection and Billing Services	$7,100	$7,313	$7,532	$7,758	$7,991
21	Attorney Services	$4,000	$4,120	$4,244	$4,371	$4,502
22	Rent and Leases Equipment Noncou	$2,000	$2,060	$2,122	$2,185	$2,251
23	PWA Engineering Contract Services	$53,000	$54,590	$56,228	$57,915	$59,652
24	Computer Equipment	$16,000	$16,480	$16,974	$17,484	$18,008
25	Meter Purchases	$36,000	$37,080	$38,192	$39,338	$40,518
26	Minor Equipment	$9,200	$9,476	$9,760	$10,053	$10,355
27	Lab Services	$4,500	$4,635	$4,774	$4,917	$5,065
28	Contributions to Other Funds	$5,500	$5,665	$5,835	$6,010	$6,190
29	Water Supply Cost	$2,011,800	$2,053,109	$2,176,295	$2,306,873	$2,445,285
30	Water and Sewer System Power	$2,500	$2,885	$3,029	$3,180	$3,339
31	Funded Depreciation	$69,100	$75,825	$87,867	$111,339	$135,750
32	**Total - O&M Expenses**	**$2,879,500**	**$2,951,802**	**$3,111,774**	**$3,291,312**	**$3,480,392**

3.4 WATER SUPPLY COST

The following section will explain the method that was used for calculating the water supply cost, shown in Line 29 in **Table 3-3**.

The District's water supply costs and availability are shown in **Table 3-4**. The Calleguas combined rates (Line 2) include an average of the calendar year (CY) 2016 and 2017 rates in order to account for a fiscal year calculation. The monthly Capacity Reservation Charge (CRC) and the Metropolitan Water District (MWD) Readiness-to-Serve (RTS) Charge (Lines 3-5) are fixed monthly charges related to imported water. The replacement of facility charge (Line 6) is a fixed monthly charge related to imported water. The power cost and operations and maintenance charges (Lines 7-8) are related to pumping imported water and are charged per acre feet (AF) of water. The water loss (Line 9) is the percentage difference between the total water production (the amount of water the District pumps or imports) and the total water demand (the amount of water the District's customers use) that results from distribution line and hydrant testing, leaks, and inaccurate meters, etc.

Table 3-4: Water Supply Availability and Unit Costs

	Water Supply	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	**Calleguas Combined Rates (per AF)**					
2	Average Rate	$1,294	$1,370	$1,452	$1,539	$1,632
3	**Monthly Fixed Charges (CRC and RTS)**					
4	July-Dec	$11,149	$10,346	$10,967	$11,625	$12,322
5	Jan-Jun	$10,346	$10,967	$11,625	$12,322	$13,062
6	**Replacement of Facility Charge ($/month)**	$286	$303	$321	$341	$361
7	**Power Cost ($/AF)**	$180	$191	$202	$214	$227
8	**Operations and Maintenance ($/AF)**	$22	$23	$25	$26	$28
9	**Water Loss**	4%	4%	4%	4%	4%

Table 3-5 describes the total amount of water demand from the District's customers and the total amount of water produced from each source. The water loss percentage in **Table 3-4** (Line 9) is utilized to calculate the total water demand. The total water production is reduced by 4% to calculate total water demand to account for water loss.

Table 3-5: Total Water Demand and Production

	Water Production	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
2	Imported (AF)	1,255	1,213	1,213	1,213	1,213
3	**Total - Water Production**	**1,255**	**1,213**	**1,213**	**1,213**	**1,213**
4	Total Demand (AF)	1,061	1,166	1,166	1,166	1,166

Table 3-6 summarizes the total water supply cost for the District. The total produced imported water (Line 1) is determined by multiplying the total amount of imported water (**Table 3-5**, Line 2) by the Calleguas average rate (**Table 3-4**, Line 2). The annual Capacity Reservation Charge and the MWD RTS Charge are calculated from the monthly rates (**Table 3-4**, Lines 3-5). The replacement of facility charge is calculated from the monthly fixed rates (**Table 3-4**, Line 6). The power costs and operations and maintenance costs (Lines 4-5) is calculated by multiplying the total amount of water produced by the corresponding rates (**Table 3-4**, 7-8) per AF. The total purchased water costs (Line 6) is the sum of the total purchased water costs and groundwater extraction cost, which are both utilized in the O&M expense projections in **Table 3-2**.

Table 3-6: Calculated Water Supply Costs

	Calculated Water Costs	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	**Imported Water Cost**	**$1,623,343**	**$1,661,743**	**$1,761,448**	**$1,867,135**	**$1,979,163**
2	Fixed Charges (CRC and RTS)	$128,968	$127,876	$135,548	$143,681	$152,302
3	Replacement of Facility Charge	$3,432	$3,638	$3,856	$4,088	$4,333
4	Power Cost ($/AF)	$226,013	$231,564	$245,458	$260,185	$275,796
5	Operations and Maintenance ($/AF)	$27,610	$28,288	$29,985	$31,784	$33,692
6	**Total Purchased Water Costs**	**$2,009,365**	**$2,053,109**	**$2,176,295**	**$2,306,873**	**$2,445,285**

3.5 CAPITAL IMPROVEMENT PLAN

Table 3-7 and **Table 3-8** shows the District's five-year CIP, designated as Replacement and Acquisition projects, respectively. The CIP to spend (**Table 3-7**, Line 5 and **Table 3-8**, Line 4) is the total amount of

capital expenditures that the District expects to spend based on the CIP to spend percentage shown in **Table 3-9**. The unfunded CIP (**Table 3-7**, Line 6 and **Table 3-8**, Line 5) is the cumulative amount of CIP that is not spent (based on the CIP to spend amount) for each year. The total CIP for each year is inflated according to the inflation assumptions in **Table 3-2**.

Table 3-7: Inflated Capital Projects – Replacement

	Inflated Replacement Capital Projects	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	General Water System Improvements	$125,000	$130,000	$135,200	$140,608	$146,232
2	Reservoir No 2 Floor Repair, Re-Line, & Coat	$330,000	$0	$0	$0	$0
3	Reservoir No. 1 Repair, Reline, and Recoat	$0	$0	$378,560	$0	$0
4	**Total - Inflated Replacement Capital Projects**	**$455,000**	**$130,000**	**$513,760**	**$140,608**	**$146,232**
5	CIP to Spend	$455,000	$130,000	$513,760	$140,608	$146,232
6	Unfunded CIP	$0	$0	$0	$0	$0

Table 3-8: Inflated Capital Projects – Acquisition

	Inflated Acquisition Capital Projects	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	Bell Canyon Pipeline From Hacienda Road	$0	$0	$0	$0	$0
2	1.74 MG Reservoir within Zone 1924	$0	$374,400	$389,376	$1,619,804	$1,684,596
3	**Total - Inflated Acquisition Capital Projects**	**$0**	**$374,400**	**$389,376**	**$1,619,804**	**$1,684,596**
4	CIP to Spend	$0	$374,400	$389,376	$1,619,804	$1,684,596
5	Unfunded CIP	$0	$0	$0	$0	$0

Table 3-9: Proposed Bond Issue and CIP to Spend

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Proposed Bond Issue	$0	$0	$0	$4,000,000	$0
% Acquisition	0%	0%	0%	100%	0%
CIP to Spend	100%	100%	100%	100%	100%

Table 3-10 displays the five-year financing plan. Unfunded capital projects (Line 4) are a combination of the unfunded CIP line items for replacement and acquisition projects (**Table 3-7**, Line 25). Debt funding (Line 5) consists of the proposed bond issues.

Table 3-10: Capital Financing Plan

		FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	**CIP Funding - Total**					
2	Rates	$455,000	$504,400	$903,136	$140,608	$146,232
3	Grant	$0	$0	$0	$0	$0
4	Unfunded	$0	$0	$0	$0	$0
5	Debt	$0	$0	$0	$1,619,804	$1,684,596
6	**Total**	**$455,000**	**$504,400**	**$903,136**	**$1,760,412**	**$1,830,829**
7	Total Funded CIP	$455,000	$504,400	$903,136	$1,760,412	$1,830,829

3.6 EXISTING AND PROPOSED DEBT

The District currently does not have existing debt. The District plans on borrowing $4M in FY 2020, as referenced in **Table 3-9**. The terms of the bond issue are 5% for 30 years with an issuing cost of 2%. **Table 3-11** shows the proposed annual debt service over a five-year period.

Table 3-11: Proposed Debt Service

Proposed Debt Service	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Bond Issue	$0	$0	$0	$260,206	$260,206
Total - Proposed Debt Service	**$0**	**$0**	**$0**	**$260,206**	**$260,206**

3.7 PROPOSED REVENUE ADJUSTMENTS

The proposed revenue adjustments help ensure adequate revenue to fund operating expenses, capital expenditures, and reserve balances. The revenue adjustments will begin on February 14, 2017 and in January for each following year. The proposed revenue adjustments and debt issue would enable the District to execute the CIP as shown in **Table 3-7**.

Table 3-12 shows the proposed revenue adjustments selected by the District. The revenue adjustments are smoothed to avoid rate spikes. Although the following table shows anticipated revenue adjustments for the years following FY 2017, the District will review and confirm the needed revenue adjustments on a yearly basis. The rates presented in **Section 6** are based on this proposed financial plan.

Table 3-12: Proposed Revenue Adjustments

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Revenue Adjustments	8.0%	8.0%	8.0%	8.0%	6.0%
Debt Issue	$0	$0	$0	$4,000,000	$0
Capital Projects	$455,000	$504,400	$903,136	$1,760,412	$1,830,829

3.8 PROPOSED FINANCIAL PLAN

Table 3-13 displays the cash flow detail over the next five fiscal years. Lines 5-9 show the additional revenue from the revenue adjustments. Line 26 shows the net annual cash flow of the District.

Table 3-13: Proposed Five-Year Cash Flow

					FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	**Revenues**								
2	Water Sales				$2,505,500	$2,753,226	$2,753,226	$2,753,226	$2,753,226
3	Revenue Adjustments								
4	**Year**	**Effective**	**Month**	**% Adj.**					
5	FY 2017	5	February	8%	$83,517	$220,258	$220,258	$220,258	$220,258
6	FY 2018	6	January	8%		$110,129	$220,258	$220,258	$220,258
7	FY 2019	6	January	8%			$127,750	$255,499	$255,499
8	FY 2020	6	January	8%				$137,970	$275,939
9	FY 2021	6	January	6%					$111,755
10	**Total - Water Sales**				**$2,589,017**	**$3,083,614**	**$3,321,492**	**$3,587,212**	**$3,836,937**
11	Other O&M Revenues				$39,400	$39,794	$40,192	$40,594	$41,000
12	Interest Earnings				$0	$8,613	$19,419	$31,866	$45,262
13	**Total - Revenues**				**$2,628,417**	**$3,132,020**	**$3,381,103**	**$3,659,672**	**$3,923,198**
14	**Revenue Requirements**								
15	**O&M Expenses**								
16	Water Purchase				$2,011,800	$2,053,109	$2,176,295	$2,306,873	$2,445,285
17	Water System Power				$2,500	$2,885	$3,029	$3,180	$3,339
18	Other O&M Expenses				$796,100	$819,983	$844,582	$869,920	$896,018
19	Funded Depreciation				$69,100	$75,825	$87,867	$111,339	$135,750
20	**Total - Expenses**				**$2,879,500**	**$2,951,802**	**$3,111,774**	**$3,291,312**	**$3,480,392**
21	Debt Service								
22	Existing Debt Service				$0	$0	$0	$0	$0
23	Proposed Debt Service				$0	$0	$0	$260,206	$260,206
24	**Total - Debt Service**				**$0**	**$0**	**$0**	**$260,206**	**$260,206**
25	**Total - Revenue Requirements**				**$2,879,500**	**$2,951,802**	**$3,111,774**	**$3,551,518**	**$3,740,598**
26	**Net Annual Cash Flow**				**($251,083)**	**$180,219**	**$269,329**	**$108,153**	**$182,600**

Table 3-14 displays the proforma statement, which shows the projected total revenue and expenses for the water utility for the Study period. Lines 26-28 shows the total beginning balances, ending balances, and proposed reserve targets. The proposed reserve targets consist of 25% of O&M expenses, 10% of rate revenue, and 2% of the net assets value. The total ending balances are expected to meet the proposed target in FY 2018 but fall slightly below the target in FY 2021.

Reserves are part of a prudent financial management policy. A reserve policy provides a basis for the District to cash-fund working capital requirements, provides capital for projects, and copes with fiscal emergencies such as revenue shortfalls from droughts, asset failures, and natural disasters. It also provides guidelines for sound financial management with an overall long-range perspective to maintain financial solvency and mitigate financial risks associated with revenue instability, volatile capital costs and emergencies. Additionally, adopting and adhering to a sustainable reserve policy enhances financial management transparency, which improves public confidence and elected officials' credibility and helps achieve or maintain a strong credit rating for future debt issues.

There are many types of reserves, and each reserve may serve a different purpose depending on the objectives and goals of the utility. The appropriate level of reserve and reserve type are impacted by a variety of different risk factors such as: the size of the operating budget, the amount of debt, the type of rate structure, billing frequency, the proximity and probability of a natural disaster, etc. While their specific components are unique, most reserves tend to fall into the following categories: operations &

maintenance (cash flow), rate stabilization, capital replacement and refurbishment, and emergency. For this study, RFC recommends that the District maintain three reserves target, for purposes explained below:

- Operations and Maintenance: The purpose of an Operations and Maintenance Reserve is to provide working capital to support the operation, maintenance and administration of the water utility. From a risk management perspective, the cash flow reserve will support the utility's cash flow needs during normal operations and ensure that operations can continue should there be significant events that impact cash flow. As it is unlikely for a utility to perfectly predict its revenues and revenue requirements each month, setting aside a reserve to hedge the risk of monthly negative cash positions is prudent in financial planning. Operations & Maintenance reserves enable the utility to have some degree of flexibility in operating the Enterprise Fund.
- Rate Stabilization: While it is not customary for a utility to implement substantial rate increases in a short period of time, factors such as declining water sales and rapidly increasing water supply costs may necessitate large rate increases. In order to insulate customers from rate shock, rate stabilization reserves may be set up; this would smooth rate increases so that the utility may raise rates in a gradual manner rather than abruptly implementing large rate increases. Rate stabilization reserves act as a buffer to protect customers from large shifts in their bills.
- Capital Repair and Refurbishment: Capital Replacement and Refurbishment (R&R) reserves are similar to the Operations and Maintenance reserves in that a reserve is set up to assist with the cash flow requirements of funding R&R over a certain period of time. Water utilities are highly capital-intensive enterprises and the annual capital expenditure may significantly fluctuate. A utility can utilize an R&R reserve to ensure the proper amount of funding is available prior to awarding capital project contracts and assist with the timing adjustments of capital projects. The R&R reserve is funded by the funded depreciation (line 19 of **Table 3-13**). This provides some funding for future needs of the water system.

Table 3-14: Proforma Statement

		FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	**Operating Revenues**					
2	Water Sales	$2,589,017	$3,083,614	$3,321,492	$3,587,212	$3,836,937
3	Other O&M Revenues	$39,400	$39,794	$40,192	$40,594	$41,000
4	Interest Earnings	$0	$8,613	$19,419	$31,866	$45,262
5	**Subtotal - Operating Revenues**	**$2,628,417**	**$3,132,020**	**$3,381,103**	**$3,659,672**	**$3,923,198**
6	**Operating Expenses**					
7	Water Purchase	$2,011,800	$2,053,109	$2,176,295	$2,306,873	$2,445,285
8	Water System Power	$2,500	$2,885	$3,029	$3,180	$3,339
9	Other O&M Expenses	$796,100	$819,983	$844,582	$869,920	$896,018
10	Funded Depreciation	$69,100	$75,825	$87,867	$111,339	$135,750
11	**Subtotal - Operating Expenses**	**$2,879,500**	**$2,951,802**	**$3,111,774**	**$3,291,312**	**$3,480,392**
12	**Net Operating Revenues**	**($251,083)**	**$180,219**	**$269,329**	**$368,359**	**$442,806**
13	**Non-Operating Revenues**					
14	Capital Revenues	$0	$0	$0	$0	$0
15	Funded Depreciation	$69,100	$75,825	$87,867	$111,339	$135,750
16	Grant Funding	$0	$0	$0	$0	$0
17	Debt Proceeds	$0	$0	$0	$3,920,000	$0
18	Interest Earnings	$20,200	$1,108	($5,372)	$627	$3,625
19	**Subtotal - Non-Operating Revenues**	**$89,300**	**$76,933**	**$82,495**	**$4,031,967**	**$139,375**
20	**Debt Service**					
21	Existing Debt Service	$0	$0	$0	$0	$0
22	Proposed Debt Service	$0	$0	$0	$260,206	$260,206
23	**Subtotal - Debt Service**	**$0**	**$0**	**$0**	**$260,206**	**$260,206**
24	**Capital Expenses - Funded Projects**	**$585,000**	**$639,600**	**$1,043,744**	**$1,906,644**	**$1,982,910**
25	**Net Revenues**	**($746,783)**	**($382,449)**	**($691,919)**	**$2,233,476**	**($1,660,935)**
26	Beginning Balance	$2,886,900	$2,140,117	$1,757,668	$1,065,749	$3,299,224
27	Ending Balance	$2,140,117	$1,757,668	$1,065,749	$3,299,224	$1,638,289
28	Total Proposed Targets	$1,036,181	$1,103,716	$1,167,497	$1,304,005	$1,376,248

The following set of figures displays the financial plan in graphical format for the five-year period. **Figure 3-1** shows the modeled revenue adjustments as green bars on the left axis, the calculated debt coverage as the orange line on the right axis, and the debt coverage target as the horizontal gray line on the right axis. The District is setting rates for FY 2017, however, the revenue adjustments for FY 2018 and beyond will be evaluated on a yearly basis.

Figure 3-1: Proposed Revenue Adjustments

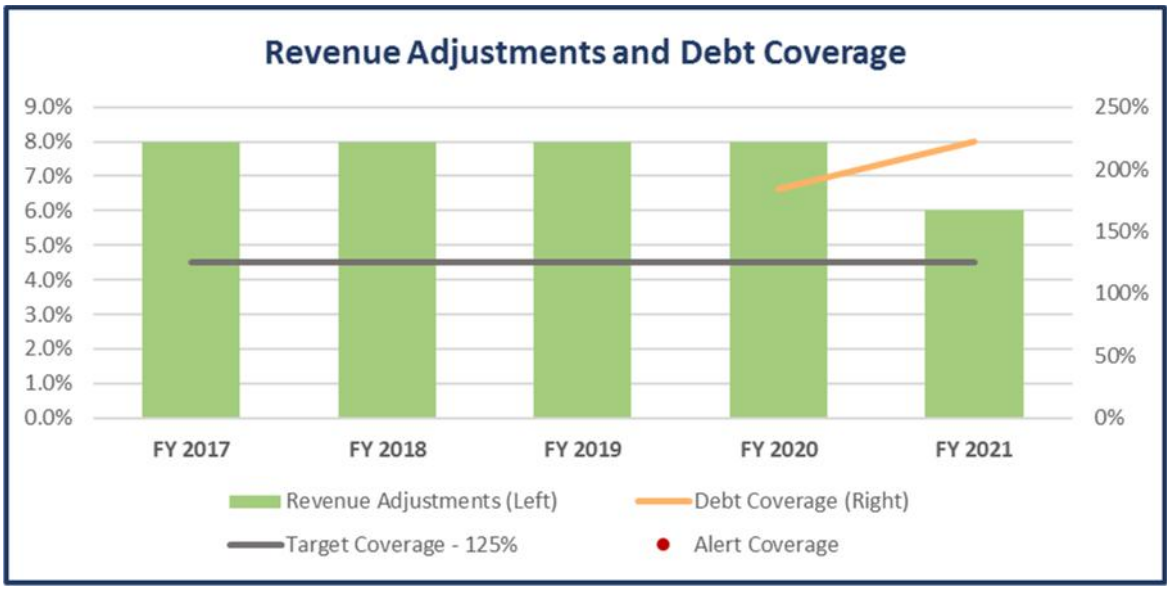


Figure 3-2 graphically depicts the O&M expenses of the District for the five-year period. The water supply cost makes up approximately 69-71% of the District's total expenses from FY 2017 to 2021.

Figure 3-2: Projected O&M Expenses

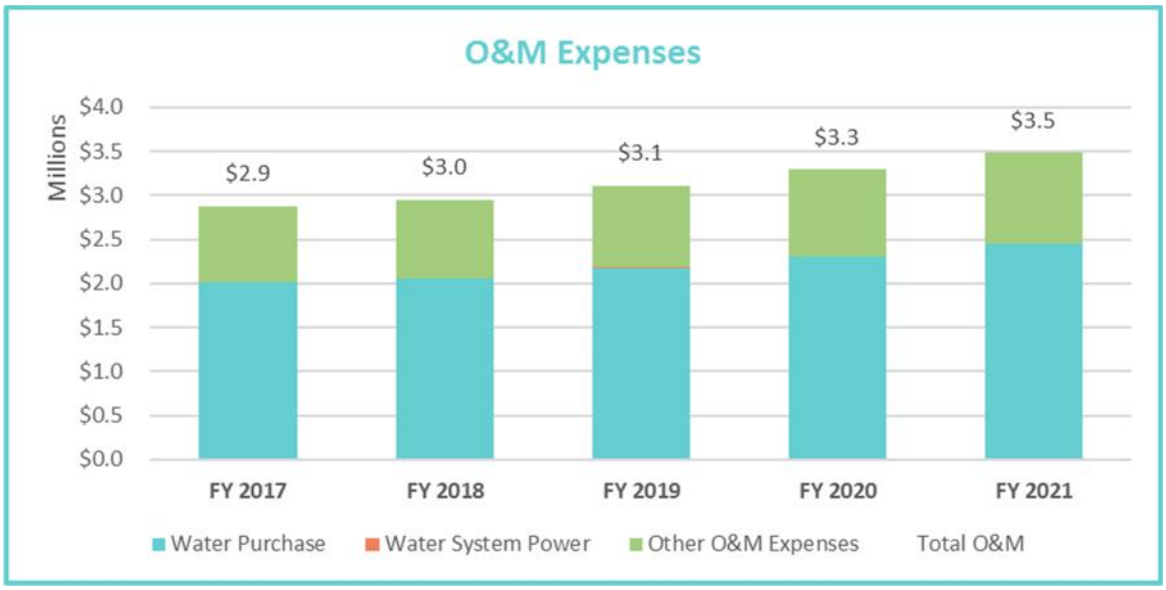


Figure 3-3 summarizes the projected CIP and its funding sources – debt, grant, or rate funded – and is a graphical depiction of the capital financing plan shown in **Table 3-10**. The unfunded portion of the CIP is not included in the graph.

Figure 3-3: Proposed Capital Financing Plan

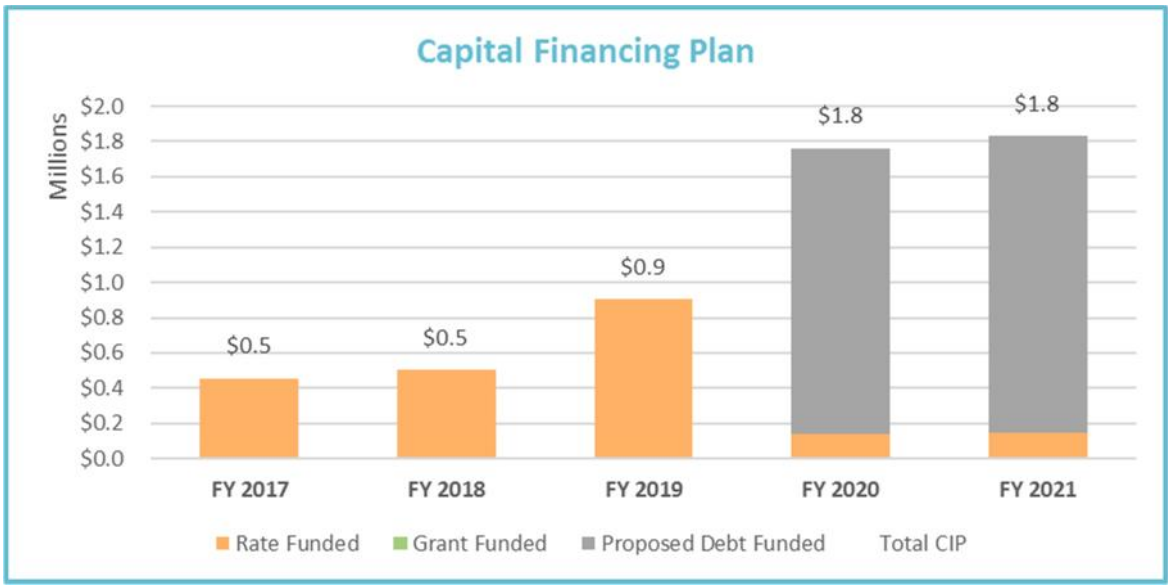


Figure 3-4 illustrates the operating financial plan by comparing the existing and proposed revenues with projected expenses. The expenses, shown in the stacked bars, include O&M expenses, debt service, and funded depreciation. The current and proposed revenues are shown in the blue and green lines, respectively. Current revenue from existing rates does not meet projected future expenses and shows the need for revenue adjustments.

Figure 3-4: Proposed Operating Financial Plan

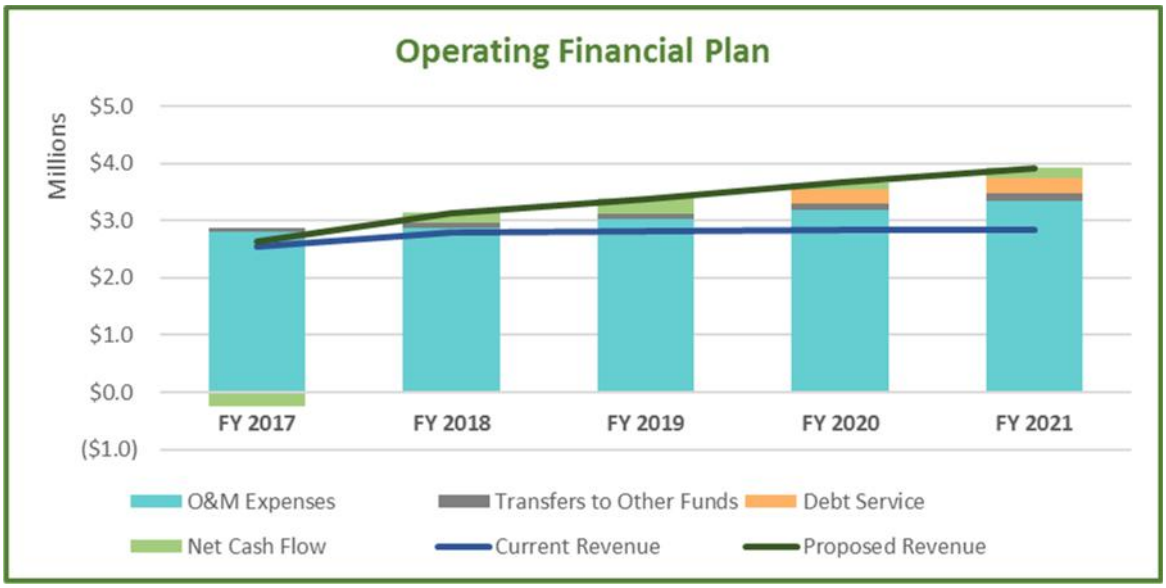
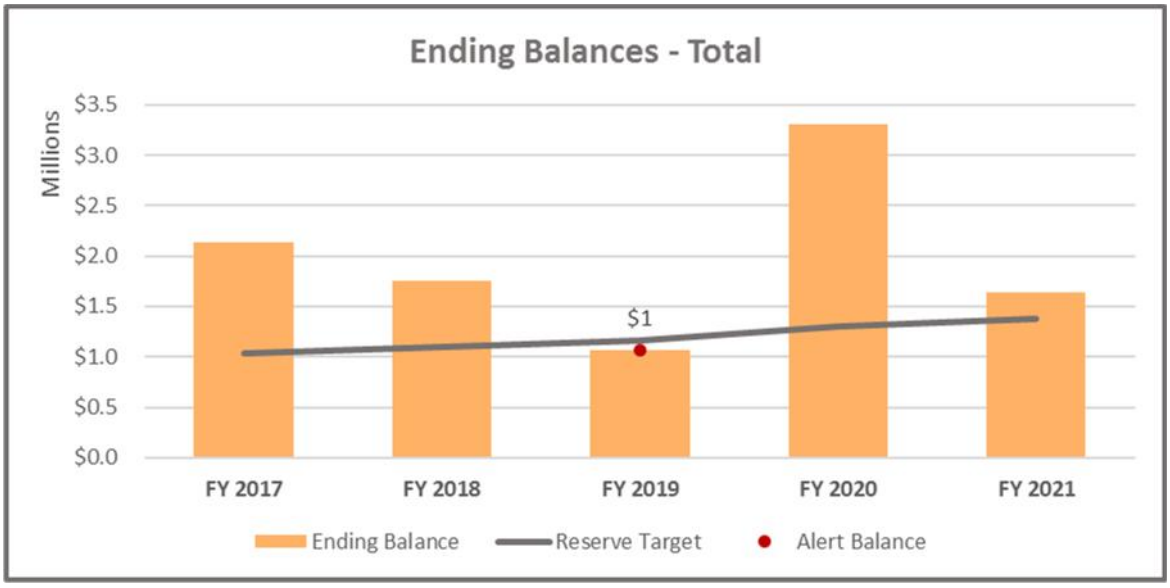


Figure 3-5 shows the projected annual ending balance for all of the District's funds/reserves and the total reserve target. As shown, the sum of all reserves meet the proposed reserve target in FY 2018 and fall

slightly below target in FY 2021. The total reserve target consists of 25% of annual O&M expenses, 10% of rate revenue, and 2% of net assets value.

Figure 3-5: Projected Total Ending Balances



4 LEGAL FRAMEWORK AND RATE SETTING METHODOLOGY

4.1 LEGAL FRAMEWORK[1]

This section of the report describes the legal framework that was considered to ensure that the calculated cost of service rates provide a fair and equitable allocation of costs to customer classes.

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 for fairness of the fees, 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 other 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. No fee or charge may be imposed for general governmental services including, but not limited to, police, fire, ambulance or library services, where the service is available to the public at large in substantially the same manner as it is to property owners.
6. 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." Proposition 218 requires that water rates cannot be "arbitrary and capricious," meaning that the rate-setting methodology must be sound and that there must be a nexus between costs and the rates charged. RFC followed 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.

California Constitution - Article X, Section 2
Article X, Section 2 of the California Constitution (established in 1976) states the following:

[1] RFC does not practice law nor does it provide legal advice. The above discussion is to provide a general review of apparent state institutional constraints and is labeled "legal framework" for literary convenience only. The District should consult with its counsel for clarification and/or specific review of any of the above or other matters.

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

As stated above Article X, section 2 of the State Constitution institutes the need to preserve the State's water supplies and to discourage the wasteful or unreasonable use of water by encouraging conservation. As such, public agencies are constitutionally mandated to maximize the beneficial use of water, prevent waste, and encourage conservation.

In addition, Section 106 of the Water Code declares that the highest priority use of water is for domestic purposes, with irrigation secondary. To meet the objectives of Article X, section 2, Water Code Section 375 et seq., a water purveyor may utilize its water rate design to incentivize the efficient use of water, so long as it does not conflict with Proposition 218 requirements. The District established single family tiered rates to incentivize customers to conserve water. The tiered rates (as well as rates for the remaining classes) need to be based on the proportionate costs incurred to provide water to customer classes to achieve compliance with Proposition 218.

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

4.2 COST-BASED RATE SETTING METHODOLOGY

As stated in the AWWA M1 Manual, "the costs of water rates and charges should be recovered from classes of customers in proportion to the cost of serving those customers." To develop utility rates that comply with Proposition 218 and industry standards while meeting other emerging goals and objectives of the utility, there are four major steps discussed below.

1) Calculate Revenue Requirement

The rate-making process starts by determining the test year revenue requirement - which for this study is FY 2017. The revenue requirement should sufficiently fund the utility's O&M, debt service, and capital expenses, and reserve funding.

2) Cost of Service (COS) Analysis

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

1. Functionalizing costs. Examples of functions are supply, treatment, transmission, distribution, storage, meter servicing and customer billing and collection.
2. Allocating functionalized costs to cost causation components. Cost causation components include base, maximum day, maximum hour[2], meter service, customer servicing and conservation costs.
3. Distributing the cost causation components. Distribute cost causation components, using unit costs, to customer classes in proportion to their demands on the water system. This is described in the M1 Manual published by AWWA.

A COS analysis considers both the average quantity of water consumed (base costs) and the peak rate at which it is consumed (peaking or capacity costs as identified by maximum day and maximum hour demands)[3]. The water system has to be designed to meet peak demands. There are additional costs associated with designing, constructing, and operating and maintaining facilities to meet peak demands. These peak demand costs need to be allocated to those imposing such costs on the utility. Different customer classes impose different peak demands on the water system. In other words, not all customer classes share the same responsibility for peaking related costs.

3) Rate Design and Calculations

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

4) Rate Adoption

Rate adoption is the last step of the rate-making process to comply with Proposition 218. RFC documented the rate study results in this Study Report to help educate the public about the proposed changes, the rationale and justifications behind the changes and their anticipated financial impacts in lay terms.

[2] Collectively, maximum day and maximum hour costs are known as peaking costs or capacity costs.

[3] System capacity is the system's ability to supply water to all delivery points at the time when demanded. Coincident peaking factors are calculated for each customer class at the time of greatest system demand. The time of greatest demand is known as peak demand. Both the operating costs and capital asset related costs incurred to accommodate the peak flows are generally allocated to each customer class based upon the class's contribution to the peak month, day and hour event.

5 COST OF SERVICE ANALYSIS

The principles and methodology of a COS analysis were described in **Section 4.2**. The purpose of a COS analysis is to distribute a utility's revenue requirements (i.e., costs) to each customer class. After determining a utility's revenue requirement, the next step in a COS analysis is to allocate its O&M costs to the following functions:

- Water supply – represents the cost of pumping groundwater and purchasing water
- Treatment – represents the cost of treating the water
- Transmission – represents the operating and maintenance cost of the water transmission system
- Distribution and storage – represents the operating and maintenance cost of the water distribution system
- Meter service – represents the cost of purchasing and maintaining water meters
- Customer billing and collection – represents the costs associated with billing and customer service
- General and administrative costs – represents all other costs that do not serve a specific function

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

- Supply costs – costs that are associated with pumping groundwater and purchasing water
- Base delivery costs – costs that are associated with providing service under average conditions
- Peaking costs (maximum day and maximum hour) – costs that are associated with meeting the peak demand in excess of the average rate of use
- Meter service – costs that are associated with maintenance and capital costs of meters and services
- Customer billing and collection – costs that are incurred to provide billing and customer service
- General and administrative costs – costs that do not have any direct cost causation

Peaking costs are further divided into maximum day and maximum hour demand. The maximum day demand is the maximum amount of water used in a single day in a year. The maximum hour demand is the maximum usage in an hour on the maximum usage day. Different facilities, such as distribution and storage facilities, and the O&M costs associated with those facilities are designed to meet the peaking demands of customers. Therefore, extra capacity[4] costs include the O&M and capital costs associated with meeting peak customer demand. This method is consistent with the AWWA M1 Manual and is widely used in the water industry to perform COS analyses.

5.1 ALLOCATION OF FUNCTIONALIZED EXPENSES TO COST COMPONENTS

After functionalizing expenses, the next step is to allocate the functionalized expenses to cost causation components. To do so, we must identify system-wide peaking factors which are shown in **Table 5-1**. The system-wide peaking factors are used to derive the cost component allocation bases (i.e., percentages). Functionalized expenses are then allocated to the cost causation components using these allocation

[4] The terms extra capacity, peaking, and capacity costs are used interchangeably.

bases. To understand the interpretation of the percentages, we must first establish the base use as the average daily demand during the year.

To determine the relative proportion of costs to assign to Supply, Base Delivery, Maximum Day, and Maximum Hour, allocations are calculated based on these factors. Cost components that are solely related to providing average day demand (ADD, are allocated entirely to Base Delivery (Line 1).

Cost components that are designed to meet Maximum Day peaks, such as reservoirs and transmission facilities, are allocated to Base Delivery and Maximum Day factors. Since facilities such as reservoirs and distribution systems are also designed to handle fire flow, an allocation is also provided for fire flow. The system Maximum Day and Maximum Hour factors provided by the District are 2.30 and 2.99, respectively. The Maximum Day with Fire (Line 2, Table 5-1) allocation is as follows:

- Base Delivery: 38% = (1.00/1.50) x 100 – 5% (1/2 of fire allocation)
- Maximum Day: 52% = (1.50-1.00)/1.50 x 100 – 5% (1/2 of fire allocation)
- Fire: 10%

Cost components such as those related to the distribution system that are designed for Maximum Hour with Fire (Line 3) peaks are allocated similarly. The allocation of Maximum Hour facilities is as follows:

- Base Delivery: 30% = (1.00/2.30) x 100 - 3.33% (1/3 of fire allocation)
- Maximum Day: 40% = (1.50-1.00)/2.30 x 100 - 3.33% (1/3 of fire allocation)
- Maximum Hour: 20% = (2.30-1.50)/2.30 x 100 - 3.33% (1/3 of fire allocation)
- Fire: 10%

Collectively the Maximum Day and Maximum Hour cost components are known as peaking costs. These allocation bases are used to assign the functionalized costs to the cost causation components. Since there are costs within the utility that are related to meeting peak capacities but not providing fire protection services, lines 5 and 6 show the Maximum Day and Maximum Hour cost components without Fire.

Table 5-1: System-Wide Peaking Factors and Allocation to Cost Causation Components

	Factor	Base Delivery	Max Day	Max Hour	Fire	Total
Base	1.00	100%	0%	0%	0%	100%
Max Day w/ Fire	1.50	62%	28%	0%	10%	100%
Max Hour w/ Fire	2.30	40%	18%	31%	10%	100%
Average w/ Fire		51%	23%	16%	10%	100%
Max Day w/o Fire		67%	33%	0%	0%	100%
Max Hour w/o Fire		43%	22%	35%	0%	100%
Average w/o Fire		55%	28%	17%	0%	100%

Table 5-2 shows the derivation of the peaking factors by customer class and tier by dividing the total maximum monthly usage by the average monthly usage for each customer class and tier. These peaking factors are used to allocate the peaking costs to each customer class and tier in the rate derivation section.

Since peak daily and hourly data for each customer class is not available, we use the maximum month usage as a proxy to estimate the peaking characteristics of each customer class and tier. Note that the relative peaking is important not the absolute values. The monthly peaking is a reasonably good proxy for maximum day peaking. The hourly peaking factors are calculated by taking the ration of the system peaking factors and applying them to the peaking factor for the different classes shown in **Table 5-2**.

Table 5-2: Peaking Factors by Customer Class

Customer Specific	Proposed Tiers (hcf)	Max Monthly	Average Monthly	Peaking Factor
Residential		60,363	37,711	1.60
Tier 1	10	6,985	6,872	1.02
Tier 2	54	26,422	20,021	1.32
Tier 3	>54	26,956	10,818	2.49
Non-Residential		6,614	4,595	1.44
Temporary Construction		67,836	42,891	1.58

To allocate meter related costs appropriately, the concept of equivalent meters needs to be understood. By using equivalent meters instead of a straight meter count, the analysis accounts for the fact that larger meters impose larger demands, are more expense to install, maintain, and replace than smaller meters and commit a greater capacity in the system. Equivalent meters are used in calculating meter service costs.

Equivalent meters are based on meter hydraulic capacity. Equivalent meters are calculated to represent the potential demand on the water system compared to the base or smallest meter size. A ratio of hydraulic capacity is calculated by dividing large meter capacities by the base meter capacity. The base meter is the smallest meter, which is the ¾" meter for the purposes of this Study. The actual number of meters by size is multiplied by the corresponding capacity ratio to calculate equivalent meters. The capacity ratio is calculated using the meter capacity in gallons per minute (gpm) provided in the AWWA M22 Manual. **Table 5-3** shows the equivalent meters for FY 2017.

Table 5-3: Equivalent Meters (FY 2017)

Meter Size	Capacity (gpm)	AWWA Ratio	Number of Meters	Equivalent Meters
3/4"	30	1.00	39	39
1"	50	1.67	657	1,095
1 1/2"	100	3.33	15	50
2"	160	5.33	5	27
3"	350	11.67	1	12
4"	630	21.00	1	21
6"	1,300	43.33	0	0
TOTAL			**718**	**1,243**

Table 5-4 allocates the O&M expenses to each cost causation component. The functional costs, which are represented by each expense line item of the District's budget, are allocated according to industry standards based on the nature of the water function. For example, water supply and production costs are allocated fully to the Supply component. Treatment costs are allocated on the basis of Maximum Day. Distribution costs are allocated on the basis of Maximum Hour. Power costs are related to pumping imported water, and thus are allocated to the Supply cost component. Utility billing costs are allocated fully to the Customer component. Some costs which cannot be readily classified into one of the functions are allocated to General, and then allocated amongst the other cost causation components proportionate to the overall cost allocation. **Table 5-5** shows the total resulting cost causation component allocation for the District's O&M expenses. This resulting allocation is used to allocate the District's operating revenue requirement to the cost causation components.

Table 5-6 shows the allocation of the District's assets to each cost component. The resulting total asset allocation is derived in a similar manner as the O&M expenses allocation. First, RFC functionalized the District's assets and then allocated the assets to the cost causation components resulting in the total asset allocation shown in **Table 5-7**.

Table 5-4 through **Table 5-11** are reproduced in the Appendix for better legibility.

Table 5-4: O&M Expenses Percentage Allocation

O&M Allocation	Supply	Base Delivery	Max Day	Max Hour	Fire	Meter	Customer	General	TOTAL
Voice Data ISF								100%	100%
General Insurance Allocation ISF								100%	100%
Equipment Maintenance		51%	23%	16%	10%			0%	100%
Building and Improvements Maintenance		51%	23%	16%	10%			0%	100%
Maintenance Supplies		51%	23%	16%	10%			0%	100%
Equipment Maintenance Contracts		51%	23%	16%	10%			0%	100%
Cost Allocation Plan Charges								100%	100%
Miscellaneous Expense								100%	100%
Federal State Permits and Fees								100%	100%
Cross Connection Fees								100%	100%
Conservation Program	100%							0%	100%
Printing and Binding Non ISF							100%	0%	100%
Mail Center ISF							100%	0%	100%
Purchasing Charges ISF								100%	100%
Graphics Charges ISF							100%	0%	100%
Management and Admin Survey ISF								100%	100%
Engineering and Technical Surveys	0%	45%	20%	14%	9%	5%	0%	7%	100%
Public Works ISF Charges		52%	25%	11%	3%		9%	0%	100%
Other Professional and Specialized Non ISF								100%	100%
Collection and Billing Services							100%	0%	100%
Attorney Services								100%	100%
Rent and Leases Equipment Noncounty Owned								100%	100%
PWA Engineering Contract Services								100%	100%
Computer Equipment								100%	100%
Meter Purchases						100%		0%	100%
Minor Equipment								100%	100%
Lab Services		100%						0%	100%
Contributions to Other Funds								100%	100%
Water Supply Cost	100%							0%	100%
Fixed Charges (CRC and RTS)		67%	33%					0%	100%
Replacement of Facility Charge		67%	33%					0%	100%
Water and Sewer System Power	100%							0%	100%
Funded Depreciation	0%	45%	20%	14%	9%	5%	0%	7%	100%

Table 5-5: Total O&M Expenses Allocation by Cost Causation Component

O&M Allocation	Supply	Base Delivery	Max Day	Max Hour	Fire	Meter	Customer	General	TOTAL
Voice Data ISF	$0	$0	$0	$0	$0	$0	$0	$800	$800
General Insurance Allocation ISF	$0	$0	$0	$0	$0	$0	$0	$2,300	$2,300
Equipment Maintenance	$0	$255	$117	$79	$50	$0	$0	$0	$500
Building and Improvements Maintenance	$0	$2,545	$1,168	$786	$500	$0	$0	$0	$5,000
Maintenance Supplies	$0	$17,817	$8,179	$5,504	$3,500	$0	$0	$0	$35,000
Equipment Maintenance Contracts	$0	$49,837	$22,879	$15,394	$9,790	$0	$0	$0	$97,900
Cost Allocation Plan Charges	$0	$0	$0	$0	$0	$0	$0	$4,800	$4,800
Miscellaneous Expense	$0	$0	$0	$0	$0	$0	$0	$1,000	$1,000
Federal State Permits and Fees	$0	$0	$0	$0	$0	$0	$0	$5,000	$5,000
Cross Connection Fees	$0	$0	$0	$0	$0	$0	$0	$500	$500
Conservation Program	$2,000	$0	$0	$0	$0	$0	$0	$0	$2,000
Printing and Binding Non ISF	$0	$0	$0	$0	$0	$0	$0	$0	$0
Mail Center ISF	$0	$0	$0	$0	$0	$0	$200	$0	$200
Purchasing Charges ISF	$0	$0	$0	$0	$0	$0	$0	$1,100	$1,100
Graphics Charges ISF	$0	$0	$0	$0	$0	$0	$2,400	$0	$2,400
Management and Admin Survey ISF	$0	$0	$0	$0	$0	$0	$0	$76,900	$76,900
Engineering and Technical Surveys	$0	$15,602	$7,163	$4,915	$3,275	$1,758	$0	$2,287	$35,000
Public Works ISF Charges	$0	$166,897	$81,289	$35,884	$8,637	$0	$27,192	$0	$319,900
Other Professional and Specialized Non ISF	$0	$0	$0	$0	$0	$0	$0	$68,500	$68,500
Collection and Billing Services	$0	$0	$0	$0	$0	$0	$7,100	$0	$7,100
Attorney Services	$0	$0	$0	$0	$0	$0	$0	$4,000	$4,000
Rent and Leases Equipment Noncounty Owne	$0	$0	$0	$0	$0	$0	$0	$2,000	$2,000
PWA Engineering Contract Services	$0	$0	$0	$0	$0	$0	$0	$53,000	$53,000
Computer Equipment	$0	$0	$0	$0	$0	$0	$0	$16,000	$16,000
Meter Purchases	$0	$0	$0	$0	$0	$36,000	$0	$0	$36,000
Minor Equipment	$0	$0	$0	$0	$0	$0	$0	$9,200	$9,200
Lab Services	$0	$4,500	$0	$0	$0	$0	$0	$0	$4,500
Contributions to Other Funds	$0	$0	$0	$0	$0	$0	$0	$5,500	$5,500
Water Supply Cost	$1,879,400	$0	$0	$0	$0	$0	$0	$0	$1,879,400
Fixed Charges (CRC and RTS)	$0	$85,978	$42,989	$0	$0	$0	$0	$0	$128,968
Replacement of Facility Charge	$0	$2,288	$1,144	$0	$0	$0	$0	$0	$3,432
Water and Sewer System Power	$2,500	$0	$0	$0	$0	$0	$0	$0	$2,500
Funded Depreciation	$0	$30,804	$14,141	$9,703	$6,466	$3,471	$0	$4,516	$69,100
TOTAL O&M EXPENSES	**$1,883,900**	**$376,523**	**$179,069**	**$72,265**	**$32,218**	**$41,229**	**$36,892**	**$257,403**	**$2,879,500**
O&M Expenses Allocation	65.42%	13.08%	6.22%	2.51%	1.12%	1.43%	1.28%	8.94%	100.00%

Table 5-6: Capital Assets Percentage Allocation

Capital Allocation	Supply	Base Delivery	Max Day	Max Hour	Fire	Meter	Customer	General	TOTAL
General Assets								100%	100%
Treatment Plant and Related Assets		67%	33%						100%
Distribution		36%	16%	28%	10%	10%			100%
Storage		62%	28%	0%	10%				100%
Source of Supply (Well)	100%								100%
Meters						100%			100%
Pump Stations	100%								100%
Transmission		67%	33%						100%
Firelines/Hydrants					100%				100%

Table 5-7: Total Capital Assets Allocation by Cost Causation Component

Capital Allocation	Supply	Base Delivery	Max Day	Max Hour	Fire	Meter	Customer	General	TOTAL
General Assets	$0	$0	$0	$0	$0	$0	$0	$187,604	$187,604
Treatment Plant and Related Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0
Distribution	$0	$514,523	$235,900	$403,074	$144,187	$144,187	$0	$0	$1,441,871
Storage	$0	$765,124	$351,543	$0	$124,074	$0	$0	$0	$1,240,741
Source of Supply (Well)	$0	$0	$0	$0	$0	$0	$0	$0	$0
Meters	$0	$0	$0	$0	$0	$0	$0	$0	$0
Pump Stations	$0	$0	$0	$0	$0	$0	$0	$0	$0
Transmission	$0	$0	$0	$0	$0	$0	$0	$0	$0
Firelines/Hydrants	$0	$0	$0	$0	$352	$0	$0	$0	$352
TOTAL ASSETS	**$0**	**$1,279,646**	**$587,444**	**$403,074**	**$268,614**	**$144,187**	**$0**	**$187,604**	**$2,870,568**
Assets Allocation	0.00%	44.58%	20.46%	14.04%	9.36%	5.02%	0.00%	6.54%	100.00%

5.2 REVENUE REQUIREMENT DETERMINATION

Table 5-8 shows the revenue requirement derivation with the total revenue required from rates. The totals shown in the "Operating" and "Capital" columns are the total O&M and capital revenue requirements, respectively, that are allocated to the cost causation components using the allocation percentages shown in **Table 5-5** and **Table 5-7**.

RFC calculated the revenue requirement using FY 2017 expenses, which include O&M expenses, rate funded capital expenses, and existing and proposed debt service. To arrive at the rate revenue requirement, we subtract revenue offsets from other expenses and make adjustments for annual cash balances. The negative adjustments are subtracted and therefore added as a result of subtracting a negative number. The total revenue requirement is the amount that fixed meter charges and commodity rates are designed to collect.

Table 5-8: Revenue Requirement Determination

	FY 2017		
	Operating	**Capital**	**Total**
Revenue Requirements			
O&M Expenses			
Water Purchase	$2,011,800		$2,011,800
Water System Power	$2,500		$2,500
Other O&M Expenses	$796,100		$796,100
Funded Depreciation		$69,100	$69,100
Debt Service			
Existing Debt Service		$0	$0
Proposed Debt Service		$0	$0
Total Revenue Requirements	**$2,810,400**	**$69,100**	**$2,879,500**
Less: Revenue Offsets			
Other O&M Revenues	$39,400		$39,400
Interest Earnings	$0		$0
Total Revenue Offsets	**$39,400**	**$0**	**$39,400**
Less: Adjustments			
Adjustment for Cash Balance	$251,083		$251,083
Adjustment for Mid-Year Increase	($116,923)		($116,923)
Total Adjustments	**$134,160**	**$0**	**$134,160**
Revenue Requirement from Rates	**$2,636,840**	**$69,100**	**$2,705,940**

5.3 UNIT COST COMPONENT DERIVATION

Our end goal is to proportionately distribute the cost causation components to each customer class. To do so, we must calculate the cost causation component unit costs, which begins by assessing the total units demanded by each class for each cost causation component. In order to determine the units demanded by each customer class, the peaking factors in **Table 5-2** and the equivalent meters and fire lines from **Table 5-3** are utilized. This process is summarized in **Table 5-9**.

Table 5-9: Derivation of Cost Causation Component Units

			Maximum Day Requirements			Maximum Hour Requirements				
	Monthly Tiers (hcf)	Average Daily Use (hcf/day)	Capacity Factor	Total Capacity (hcf/day)	Extra Capacity (hcf/day)	Capacity Factor	Total Capacity (hcf/day)	Extra Capacity (hcf/day)	No. of Meters (Equiv.)	No. of Bills (No.)
Residential		1,123	1.60	1,798	675	2.45	2,757	1,634	1,198	8,544
Tier 1	10	205	1.02	208	3	1.56	320	115		
Tier 2	54	596	1.32	787	191	2.02	1,206	610		
Tier 3	>54	322	2.49	803	481	3.82	1,231	909		
Non-Residential		129	1.44	186	57	2.21	285	156	46	72
Temporary Construction		14	1.58	23	8	2.43	35	20		
TOTAL		**1,267**		**2,006**	**740**		**3,076**	**1,810**	**1,243**	**8,616**

Table 5-10 shows the cost causation component unit cost derivation. The operating revenue requirement (Line 1) derived from **Table 5-8** is allocated to the cost causation components using the resulting O&M allocation from **Table 5-5**. Similarly, the capital revenue requirement (Line 2) derived from **Table 5-8** is allocated to the cost causation components using the resulting capital asset allocation from **Table 5-7**. General and administrative costs, which cannot be tied to a specific function, are redistributed in proportion to the resulting allocation of the other cost causation components (Line 4), excluding Supply. The Fire cost component (Line 5) represents public protection costs and is fully allocated to the Meter component since everyone benefits from this cost. Public fire protection costs are related to the capacity of water system that is allocated to providing fire protection, not the actual costs of putting out fires.

To provide revenue stability for the District, a portion of the peaking costs (Line 6) are allocated to the meter component in order to collect approximately 5.4% of the District's total revenue from the fixed charges. The total adjusted cost of service is divided by the units of service to calculate the unit cost. For example, the unit cost for the base component is dividing the total base cost by total water use in hcf. The unit costs are used to distribute the cost causation components to the customer classes.

Table 5-10: Unit Cost Calculation

		Supply	Base Delivery	Max Day	Max Hour	Fire	Meter	Customer	General	TOTAL
1	Operating Expenses	$1,725,141	$344,793	$163,979	$66,175	$29,503	$37,754	$33,783	$235,712	$2,636,840
2	Capital Expenses	$0	$30,804	$14,141	$9,703	$6,466	$3,471	$0	$4,516	$69,100
3	**Total Cost of Service**	**$1,725,141**	**$375,597**	**$178,120**	**$75,878**	**$35,969**	**$41,225**	**$33,783**	**$240,228**	**$2,705,940**
4	Allocation of General Cost		$121,837	$57,779	$24,613	$11,668	$13,373	$10,958	($240,228)	$0
5	Allocation of Public Fire Protection Cost					($47,637)	$47,637			$0
6	Allocation of Peaking Cost to Meter			$0	$0		$0			$0
7	**Total Adjusted Cost of Servic**	**$1,725,141**	**$497,433**	**$235,899**	**$100,491**	**$0**	**$102,235**	**$44,741**	**$0**	**$2,705,940**
8	Unit of service	462,362	462,362	740	$1,809.55		14,920	8,616		
9	Unit	hcf	hcf	hcf/day	hcf/day		equiv. meter/yr	bills/yr		
10	Unit cost	$3.73	$1.08	$318.98	$55.53		$6.85	$5.19		
11	Unit	hcf	hcf	hcf/day	hcf/day		equiv. meter/mo	bills/mo		

5.4 DISTRIBUTION OF COST CAUSATION COMPONENTS TO CUSTOMER CLASSES

The final step in a COS analysis is to distribute the cost causation components to the user classes using the unit costs derived in **Table 5-10** to arrive at the cost to serve each customer class. **Table 5-11** shows the derivation of the cost to serve (i.e., cost of service for) each customer class. The Supply, Base Delivery, Maximum Day, and Maximum Hour cost components are collected through Commodity Rates ($/hcf) for potable water. The Fire cost component is collected through monthly Private Fire Line Charges. The Meter and Customer cost components are collected through the District's monthly Meter Service Charges. The Pumping cost component is recovered through the District's Lift Charges. The proposed proportion of fixed revenue remains the same as the current proportion at approximately 11% and is designed to increase at 1% every following year in order to increase revenue stability.

To derive the cost to serve each customer class as shown in **Table 5-11**, the unit costs from **Table 5-10** are multiplied by the units shown in **Table 5-9** for each class. For example, the Supply costs for Tier 1 of the Residential class is calculated by multiplying the Supply unit cost ($3.73 per hcf) by the annual Residential usage for that tier (74,868 hcf) to determine the total annual cost of providing water supply to that tier ($279,345). Similarly, the Customer costs are derived by multiplying the Customer unit cost ($5.19 per bill) by the number of bills for the Residential class (8,544 bills) to determine the total annual cost of providing customer service to that class ($44,367). Note that the total cost of service (Line 7) is equal to the total revenue requirement (**Table 5-8**) as intended.

Table 5-11: Allocation of Cost to Customer Class

		Supply	Base Delivery	Max Day	Max Hour	Fire	Meter	Customer	General	TOTAL
1	Residential	$1,529,922	$441,143	$215,245	$90,732		$98,480	$44,367		$142,847
2	Tier 1	$279,345	$80,547	$1,074	$6,362					$2,276,926
3	Tier 2	$811,884	$234,102	$60,799	$33,887					
4	Tier 3	$438,693	$126,494	$153,281	$50,459					
5	Non-Residential	$175,777	$50,684	$18,097	$8,654		$3,755	$374		$257,341
6	Temporary Construct	$19,442	$5,606	$2,648	$1,130		$0	$0		$28,826
7	**TOTAL**	**$1,725,141**	**$497,433**	**$235,899**	**$100,491**	**$0**	**$102,235**	**$44,741**	**$0**	**$2,705,940**

6 RATE DERIVATION

The last step in the COS study is the rate design and rate derivation. In this step, we follow the District objectives for conservation and revenue stability. Proposition 218 does not specify the type of rate structure as long as the rates justify the cost of serving customers.

6.1 DERIVATION OF MONTHLY SERVICE CHARGES

Table 6-1 shows the derivation of the monthly service charges. The COS analysis derived in **Table 5-11** is used to determine the monthly service charge. The monthly service charge is designed to collect the amount of revenue shown in the "Meter" and "Customer/Billing" columns of **Table 5-11**.

There are two components that comprise the fixed service charges: meter capacity and customer service (i.e., billing). This charge recognizes the fact that even when a customer does not use any water, the District incurs fixed costs in connection with the maintenance of the meters, the ability or readiness to serve each connection, and/or the billing services provided to each connection.

The meter capacity component collects capacity related costs. Capacity related costs can be allocated to and collected through the monthly service charge by meter size. This reflects the fact that larger meters have the potential to demand more capacity compared to smaller meters. The potential capacity demanded is proportional to the potential flow through each meter size as established by the AWWA hydraulic capacity ratios which are shown in the "Meter Ratio" column of **Table 6-1**. The ratios depict the potential flow through each meter size compared to the flow through a ¾" meter, which is the base meter size for this Study. For example, the flow through a 2" meter is approximately 5.33 times that of a ¾" meter. The meter capacity component for a ¾" meter is equal to the unit cost per equivalent meter derived in the "Meter" column of **Table 5-10**. The meter capacity component for all larger meters with a meter ratio larger than 1 is scaled up using the AWWA capacity ratios shown in the "Meter Ratio" column of **Table 6-1**. For example, the 2" meter has a meter ratio of 5.33 and therefore has a meter capacity component of $36.55 ($6.85 x 5.33).

The customer/billing component recovers costs associated with meter reading, customer billing and collection, and customer service costs. These costs are the same for all meter sizes as it costs the same to provide billing and customer services to a small meter as it does for a larger meter. The customer/billing component is derived in the "Customer/Billing" column of **Table 6-1** and is equal to the Customer unit cost as calculated in **Table 5-10**.

Table 6-1: Derivation of Proposed Monthly Service Charges

Meter Size	Meter Ratio	Meter	Customer/ Billing	Proposed Monthly Charges
3/4"	1.00	$6.85	$5.19	**$12.05**
1"	1.67	$11.42	$5.19	**$16.61**
1 1/2"	3.33	$22.84	$5.19	**$28.03**
2"	5.33	$36.55	$5.19	**$41.74**
3"	11.67	$79.94	$5.19	**$85.14**
4"	21.00	$143.90	$5.19	**$149.09**
6"	43.33	$296.93	$5.19	**$302.12**

6.2 DERIVATION OF PROPOSED COMMODITY RATES

The proposed rate structure includes three tiers for the Residential customer class. The proposed tiers are as follows:

- Tier 1 (0-10 hcf per month): this represents the average indoor usage for Residential customers. This allocation represents sufficient indoor water usage assuming an average residential family of 4 people per household using 60 gallons per person per day. The AWWA has identified that indoor water usage needs equate to 60 gallons per person per day.
- Tier 2 (>10-54 hcf per month): this represents the average monthly usage for Residential customers in FY 2015. This allocation is representative of sufficient water for an average Residential customer.
- Tier 3 (over 54 hcf per month): this represents any usage that falls above the water usage for the average Residential customer.

All other customer classes, including Non-Residential and Temporary Construction, have a uniform rate structure.

The commodity rates for each class and tier are derived by adding the unit rates ($/hcf) for three cost causation components: Supply, Base Delivery, and Peaking (Maximum Day and Maximum Hour).

Supply costs are costs related to the cost of purchasing and producing water. The District has one source of water: imported water from the Calleguas Municipal Water District. Since all Supply costs are allocated evenly, all customer classes and tiers have the same Supply unit cost. Based on **Table 5-10**, the Supply unit cost is $3.73 per hcf.

Base Delivery costs are the operating and capital costs associated with delivering water to all customers at a constant average rate of use – also known as serving customers under average daily demand conditions. Therefore, Base Delivery costs are divided between all units of water irrespective of customer classes or tiers. Based on **Table 5-10**, the Base Delivery unit cost is $1.08 per hcf.

Peaking costs, or extra capacity costs, represent costs incurred to meet customer peak demands in excess of average daily demand. Total extra capacity costs are comprised of Maximum Day and Maximum Hour demands. The Peaking costs are distributed to each tier and class using peaking factors derived from customer use data, as shown in **Table 5-2**. The total Peaking costs for each customer class and tier are equal to the sum of the Maximum Day and Maximum Hour cost components calculated in **Table 5-11**. The Peaking unit cost is determined by dividing the total Peaking cost for each customer class and tier by the corresponding usage (hcf). **Table 6-2** shows the Peaking unit cost derivation for each customer class and tier.

Table 6-2: Peaking Cost Calculation

Customer	Monthly Tier (hcf)	Peaking Costs	Usage (hcf)	Unit Cost
Residential				
Tier 1	10	$7,436	74,868	$0.10
Tier 2	54	$94,685	217,596	$0.44
Tier 3	>54	$203,739	117,576	$1.73
Non-Residential		$26,750	47,111	$0.57
Temporary Construction		$3,778	5,211	$0.73

Table 6-3 shows the proposed commodity rates for each customer class, which is the combination of the three aforementioned cost components: Supply, Base Delivery, and Peaking.

Table 6-3: Derivation of Proposed Commodity Rates[5]

Customer Class	Monthly Tier (hcf)	% Usage	% Bills	Usage (hcf)	Supply	Base Delivery	Peaking	Total Rate
Residential								
Tier 1	10	18%	7%	74,868	$3.73	$1.08	$0.10	**$4.91**
Tier 2	54	53%	55%	217,596	$3.73	$1.08	$0.44	**$5.25**
Tier 3	>54	29%	38%	117,576	$3.73	$1.08	$1.73	**$6.54**
Non-Residential				47,111	$3.73	$1.08	$0.57	**$5.38**
Temporary Construction				5,211	$3.73	$1.08	$0.73	**$5.54**

6.3 PROPOSED RATES

Table 6-4 shows the proposed monthly service charges by meter size for the next five years, starting in February 14, 2017 and January of each subsequent year. **Table 6-5** shows the proposed commodity rates for each customer class and tier. In order to increase revenue stability, the proposed rate schedule is designed to recover approximately an additional 1% per year on the fixed service charges. Thus, in FY 2018, the percentage of rate revenue collected from fixed charges will be approximately 6%.

[5] Total may not foot due to rounding

Table 6-4: Proposed Monthly Service Charges ($/month)

Monthly Service Charges	February 2017	January 2018	January 2019	January 2020	January 2021
3/4"	$12.05	$14.37	$18.11	$22.36	$26.67
1"	$16.61	$19.82	$24.98	$30.84	$36.78
1 1/2"	$28.03	$33.45	$42.15	$52.03	$62.05
2"	$41.74	$49.80	$62.75	$77.46	$92.38
3"	$85.14	$101.57	$127.98	$157.97	$188.38
4"	$149.09	$177.87	$224.12	$276.63	$329.89
6"	$302.12	$360.44	$454.16	$560.57	$668.48

Table 6-5: Proposed Commodity Rates ($/hcf)

Commodity Rates		February 2017	January 2018	January 2019	January 2020	January 2021
Residential						
Tier 1	0-10 hcf	$4.91	$5.28	$5.65	$6.04	$6.34
Tier 2	>10-54 hcf	$5.25	$5.64	$6.03	$6.45	$6.77
Tier 3	>54 hcf	$6.54	$7.03	$7.52	$8.04	$8.43
Non-Residential		$5.38	$5.78	$6.18	$6.61	$6.94
Temporary Construction		$5.54	$5.95	$6.36	$6.80	$7.13

7 CONNECTION FEES

This section of the report describes the methodology utilized to calculate the District's proposed connection fees.

7.1 OBJECTIVE AND REGULATORY REQUIREMENTS

The primary objective of establishing a full cost-recovery water capacity charge, or connection fees, is to provide an equitable means by which new users recover their fair-share of cost associated with the increase in capacity that is required to serve them. The basic economic philosophy behind capital facilities charges is that the costs of providing service should be paid for by those that receive utility from the product. Accordingly, many agencies make this one of their principal objectives when administering capital facilities charges. In order to achieve a fair distribution of the value of the system, the charge should reflect a reasonable estimate of the cost of providing capacity to new users, and not unduly burden existing users.

The philosophy that service should be paid for by those that receive utility from the product is often referred to as *"growth-should-pay-for-growth"*. The principal is summarized in the AWWA Manual M26, Water Rates and Related Charges:

> *"The purpose of designing customer-contributed-capital system charges is to prevent or reduce the inequity to existing customers that results when these customers must pay the increase in water rates that are needed to pay for added plant costs for new customers. Contributed capital reduces the need for new outside sources of capital, which ordinarily has been serviced from the revenue stream. Under a system of contributed capital, many water utilities are able to finance required facilities by use of a 'growth-pays-for-growth' policy."*

In this excerpt, customer-contributed-capital is equivalent to capacity charges or connection fees.

Capacity charges or connection fees on new development must be established based on a reasonable relationship to the needs and benefits brought about by the development. Courts have long used a standard of reasonableness to evaluate the legality of capacity charges. The basic statutory standards governing sewer capacity charges are embodied by California Government Code Sections 66013, 66016, 66022 and 66023. Government Code Section 66013, in particular, contains requirements specific to determining utility capacity charges:

> *"Notwithstanding any other provision of law, when a local agency imposes fees for water connections or sewer connections, or imposes capacity charges, those fees or charges shall not exceed the estimated reasonable cost of providing the service for which the fee or charge is imposed, unless a question regarding the amount the fee or charge in excess of the estimated reasonable cost of providing the services or materials is submitted to, and approved by, a popular vote of two-thirds of those electors voting on the issue."*

Section 66013 also includes the following general requirements:

- Local agencies must follow a process set forth in the law, making certain determinations regarding the purpose and use of the fee; they must establish a nexus or relationship between a development project and the public improvement being financed with the fee.
- The capacity charge revenue must be segregated from other funds in order to avoid commingling of capacity charges and other funds.

7.2 METHODOLOGY

The process of calculating connection fees involves two primary steps: determining the cost of capital improvements related to new service connections, and allocating those costs equitably to various types of connections. There are several available methodologies for calculating connection fees. The various approaches have evolved largely around the basis of changing public policy, legal requirements, and the unique and special circumstances of every local agency. However, there are three general approaches that are widely accepted and appropriate for water connection fees. They are the "buy-in", "incremental-cost", and "hybrid" approaches.

Buy-In Approach

The buy-in approach rests on the premise that new customers are entitled to service at the same price as existing customers. However, existing customers have already developed the facilities that will serve new customers, including the costs associated with financing those services. Under this approach, new customers pay only an amount equal to the net investment already made by existing users, based on replacement cost less depreciation. This net equity investment figure divided by the current demand of the system – number of equivalent meters – determines the new user's fee.

For instance, if an existing system has 100 units of average usage and the new connector uses an equivalent unit, then the new customer would pay 1/100th of the total value of the existing system. By contributing this connection fee, the new connector has bought into the existing system. The user has effectively acquired a financial position on par with existing customers and will face future capital challenges on equal financial footing with those customers. This approach is suited for agencies that have capacity in their system and are essentially close to full build-out.

Incremental Cost Approach

When new users connect to a water system, they use either surplus capacity from the existing system, which must then be replaced, or they require new capacity that must be added to the system to accommodate their needs. Under the incremental-cost approach, new customers pay for additional capacity requirements regardless of the value of past investments made by existing customers.

For instance, if it costs X dollars ($X) to provide 100 additional units of capacity for average usage and a new connector uses one of those equivalent units, then the new user would pay $X/100 to connect to the system. In other words, new customers pay the incremental cost of capacity. As with the equity buy-in approach, new connectors will effectively acquire a financial position that is on par with existing

customers. This approach is best suited for growing communities where additional facilities are needed to accommodate growth.

Hybrid Approach

In addition to the above two connection fee calculation methodologies, there is also a hybrid approach which entails using aspects of both the incremental cost approach and the buy-in approach. This is appropriate when cities are in a position where they have already built out their delivery system substantially yet are also in the process of planning or building additional capacity. The hybrid approach recognizes that new customers benefit from both existing infrastructure and planned capital improvements and therefore the charge is calculated to reflect this fact.

7.3 CONNECTION FEES CALCULATION

The most appropriate approach to calculate connection fees for the District is the buy-in approach. Since the District's water infrastructure is substantially built-out, new customers will largely be served by existing infrastructure into which existing customers have invested a considerable amount of economic resources through water rates.

The basic methodology for the buy-in approach is to take the total current and planned values of the District's water systems and divide by the system's current demands represented by equivalent meters.

Current Value of the District's Systems

RFC determined Replacement Cost Less Depreciation (RCLD) as the appropriate method to determine the current value of the water system. RCLD is a commonly used method, and it is often preferred to alternative methods such as Original Cost Less Depreciation (OCLD), Original Cost (OC), and Replacement Cost (RC) because of its defensibility. In most cases – barring, for example, instances of water systems that have depreciated significantly due to lack of replacement and repair – RCLD is more defensible because the replacement cost: 1) is inflation-adjusted and thus recovers the cost of replacing that capacity in current dollars and 2) accounts for depreciation and thus addresses the fact that the system is not new and has been used by existing customers.

Systems Asset Value

For the purpose of calculating the system's RCLD, the District provided original cost records for the fixed assets of the District's utility system as of FY end 2016 (June 30, 2016). OC is inflated to RC, which is the estimated expected cost of a similar facility constructed today. Costs are escalation using a combination of construction-related inflation indices – the 20-City Construction Cost Index (CCI) published by the Engineering News-Record and the Consumer Price Index (CPI). The Construction Cost Index is based on an average of costs among 20 cities, and the Consumer Price Index for all Urban Consumers is published by the United States Bureau of Labor Statistics and is based on changes in yearly data in prices paid by urban consumers for a representative market basket of goods and services. The CCI value of 10,280 for April 2016 and the February 2016 CPI of 247 is used in the calculations. The RCLD of land and easement assets are calculated using the CPI and all other assets are calculated using the CCI.

Accumulated Depreciation

To calculate accumulated depreciation, RFC used the estimated life of each asset provided by the District and used straight line depreciation of the RC to derive the accumulated depreciation for those asset accounts. The accumulated depreciation is then deducted from the RC to determine RCLD. The RCLD value for each asset type is shown in **Table 7-1**.

Table 7-1: Existing System Value (RCLD)

Asset Type	RCLD
General Assets	$187,604
Treatment Plant and Related Assets	$0
Distribution	$1,441,871
Storage	$1,240,741
Source of Supply (Well)	$0
Meters	$0
Pump Stations	$0
Transmission	$0
Firelines/Hydrants	$352
Total	**$2,870,568**

Capital Improvement Plan

The cost of CIP is included within the valuation of the system, which were detailed in **Section 3.5**. To recognize that new users enter the system at different times for which the connection fees may remain in effect, RFC utilized the total amount of two years of CIP in the system valuation.

Net Assets Value

Once the systems asset value and the two-year CIP are calculated, the final net assets value can be determined. This number is determined by adding the systems asset value, the two-year CIP, and cash reserves and subtracting the outstanding debt principal. This calculation is shown in **Table 7-2**.

Table 7-2: Net Assets Value Calculation

Capacity Fees	
Total Asset Value	$2,870,568
2-Year CIP Total	$959,400
Outstanding Principal	
Cash Reserves	$2,886,900
Net Assets Value	**$6,716,868**

Connection Fee Calculation

The final step for the connection fee calculation is deriving the equivalent unit value, which is calculated by dividing the above-determined value of the system by the number of total equivalent meters. For this

Study, the base is a ¾" meter. The different meters and their capacity multipliers are displayed below in **Table 7-3**. From this methodology, RFC determined that there are 1,292 equivalent meters in the District's system.

Table 7-3: Equivalent Meters Calculation

Meter Size	Capacity (gpm)	AWWA Ratio	Total Meters	Equivalent Meters
3/4"	30	1.00	39	39
1"	50	1.67	658	1,097
1 1/2"	100	3.33	15	50
2"	160	5.33	5	27
3"	350	11.67	5	58
4"	630	21.00	1	21
6"	1,300	43.33	0	0
Total			**723**	**1,292**

The system's net asset value is divided by its total equivalent meters, resulting in a connection fee of $5,200 for each ¾" meter. The connection fee schedule for each meter size is determined by multiplying the base fee with the corresponding AWWA ratio for that meter size. The proposed connection fee schedule is shown in **Table 7-4**.

Table 7-4: Proposed Connection Fees

Meter Size	Current Fees	Proposed Fees
3/4"	$180	$5,200
1"	$360	$8,667
1 1/2"	$720	$17,333
2"	$1,260	$27,733
3"	$2,700	$60,667
4"	$5,400	$109,200
6"	$10,800	$225,333

APPENDIX

Table 5-4: O&M Expenses Percentage Allocation

O&M Allocation	Supply	Base Delivery	Max Day	Max Hour	Fire	Meter	Customer	General	TOTAL
Voice Data ISF								100%	100%
General Insurance Allocation ISF								100%	100%
Equipment Maintenance		51%	23%	16%	10%			0%	100%
Building and Improvements Maintenance		51%	23%	16%	10%			0%	100%
Maintenance Supplies		51%	23%	16%	10%			0%	100%
Equipment Maintenance Contracts		51%	23%	16%	10%			0%	100%
Cost Allocation Plan Charges								100%	100%
Miscellaneous Expense								100%	100%
Federal State Permits and Fees								100%	100%
Cross Connection Fees								100%	100%
Conservation Program	100%							0%	100%
Printing and Binding Non ISF							100%	0%	100%
Mail Center ISF							100%	0%	100%
Purchasing Charges ISF								100%	100%
Graphics Charges ISF							100%	0%	100%
Management and Admin Survey ISF								100%	100%
Engineering and Technical Surveys	0%	45%	20%	14%	9%	5%	0%	7%	100%
Public Works ISF Charges		52%	25%	11%	3%		9%	0%	100%
Other Professional and Specialized Non ISF								100%	100%
Collection and Billing Services							100%	0%	100%
Attorney Services								100%	100%
Rent and Leases Equipment Noncounty Owned								100%	100%
PWA Engineering Contract Services								100%	100%
Computer Equipment								100%	100%
Meter Purchases						100%		0%	100%
Minor Equipment								100%	100%
Lab Services		100%						0%	100%
Contributions to Other Funds								100%	100%
Water Supply Cost	100%							0%	100%

O&M Allocation	Supply	Base Delivery	Max Day	Max Hour	Fire	Meter	Customer	General	TOTAL
Fixed Charges (CRC and RTS)		67%	33%					0%	100%
Replacement of Facility Charge		67%	33%					0%	100%
Water and Sewer System Power	100%							0%	100%
Funded Depreciation	0%	45%	20%	14%	9%	5%	0%	7%	100%

Table 5-5: Total O&M Expenses Allocation by Cost Causation Component

O&M Allocation	Supply	Base Delivery	Max Day	Max Hour	Fire	Meter	Customer	General	TOTAL
Voice Data ISF	$0	$0	$0	$0	$0	$0	$0	$800	$800
General Insurance Allocation ISF	$0	$0	$0	$0	$0	$0	$0	$2,300	$2,300
Equipment Maintenance	$0	$255	$117	$79	$50	$0	$0	$0	$500
Building and Improvements Maintenance	$0	$2,545	$1,168	$786	$500	$0	$0	$0	$5,000
Maintenance Supplies	$0	$17,817	$8,179	$5,504	$3,500	$0	$0	$0	$35,000
Equipment Maintenance Contracts	$0	$49,837	$22,879	$15,394	$9,790	$0	$0	$0	$97,900
Cost Allocation Plan Charges	$0	$0	$0	$0	$0	$0	$0	$4,800	$4,800
Miscellaneous Expense	$0	$0	$0	$0	$0	$0	$0	$1,000	$1,000
Federal State Permits and Fees	$0	$0	$0	$0	$0	$0	$0	$5,000	$5,000
Cross Connection Fees	$0	$0	$0	$0	$0	$0	$0	$500	$500
Conservation Program	$2,000	$0	$0	$0	$0	$0	$0	$0	$2,000
Printing and Binding Non ISF	$0	$0	$0	$0	$0	$0	$0	$0	$0
Mail Center ISF	$0	$0	$0	$0	$0	$0	$200	$0	$200
Purchasing Charges ISF	$0	$0	$0	$0	$0	$0	$0	$1,100	$1,100
Graphics Charges ISF	$0	$0	$0	$0	$0	$0	$2,400	$0	$2,400
Management and Admin Survey ISF	$0	$0	$0	$0	$0	$0	$0	$76,900	$76,900
Engineering and Technical Surveys	$0	$15,602	$7,163	$4,915	$3,275	$1,758	$0	$2,287	$35,000
Public Works ISF Charges	$0	$166,897	$81,289	$35,884	$8,637	$0	$27,192	$0	$319,900
Other Professional and Specialized Non ISF	$0	$0	$0	$0	$0	$0	$0	$68,500	$68,500
Collection and Billing Services	$0	$0	$0	$0	$0	$0	$7,100	$0	$7,100
Attorney Services	$0	$0	$0	$0	$0	$0	$0	$4,000	$4,000
Rent and Leases Equipment Noncounty Owned	$0	$0	$0	$0	$0	$0	$0	$2,000	$2,000
PWA Engineering Contract Services	$0	$0	$0	$0	$0	$0	$0	$53,000	$53,000
Computer Equipment	$0	$0	$0	$0	$0	$0	$0	$16,000	$16,000
Meter Purchases	$0	$0	$0	$0	$0	$36,000	$0	$0	$36,000
Minor Equipment	$0	$0	$0	$0	$0	$0	$0	$9,200	$9,200
Lab Services	$0	$4,500	$0	$0	$0	$0	$0	$0	$4,500
Contributions to Other Funds	$0	$0	$0	$0	$0	$0	$0	$5,500	$5,500
Water Supply Cost	$1,879,400	$0	$0	$0	$0	$0	$0	$0	$1,879,400
Fixed Charges (CRC and RTS)	$0	$85,978	$42,989	$0	$0	$0	$0	$0	$128,968
Replacement of Facility Charge	$0	$2,288	$1,144	$0	$0	$0	$0	$0	$3,432
Water and Sewer System Power	$2,500	$0	$0	$0	$0	$0	$0	$0	$2,500
Funded Depreciation	$0	$30,804	$14,141	$9,703	$6,466	$3,471	$0	$4,516	$69,100
TOTAL O&M EXPENSES	**$1,883,900**	**$376,523**	**$179,069**	**$72,265**	**$32,218**	**$41,229**	**$36,892**	**$257,403**	**$2,879,500**
O&M Expenses Allocation	65.42%	13.08%	6.22%	2.51%	1.12%	1.43%	1.28%	8.94%	100.00%

Table 5-6: Capital Assets Percentage Allocation

Capital Allocation	Supply	Base Delivery	Max Day	Max Hour	Fire	Meter	Customer	General	TOTAL
General Assets								100%	100%
Treatment Plant and Related Assets		67%	33%						100%
Distribution		36%	16%	28%	10%	10%			100%
Storage		62%	28%	0%	10%				100%
Source of Supply (Well)	100%								100%
Meters						100%			100%
Pump Stations	100%								100%
Transmission		67%	33%						100%
Firelines/Hydrants					100%				100%

Table 5-7: Total Capital Assets Allocation by Cost Causation Component

Capital Allocation	Supply	Base Delivery	Max Day	Max Hour	Fire	Meter	Customer	General	TOTAL
General Assets	$0	$0	$0	$0	$0	$0	$0	$187,604	$187,604
Treatment Plant and Related Assets	$0	$0	$0	$0	$0	$0	$0	$0	$0
Distribution	$0	$514,523	$235,900	$403,074	$144,187	$144,187	$0	$0	$1,441,871
Storage	$0	$765,124	$351,543	$0	$124,074	$0	$0	$0	$1,240,741
Source of Supply (Well)	$0	$0	$0	$0	$0	$0	$0	$0	$0
Meters	$0	$0	$0	$0	$0	$0	$0	$0	$0
Pump Stations	$0	$0	$0	$0	$0	$0	$0	$0	$0
Transmission	$0	$0	$0	$0	$0	$0	$0	$0	$0
Firelines/Hydrants	$0	$0	$0	$0	$352	$0	$0	$0	$352
TOTAL ASSETS	**$0**	**$1,279,646**	**$587,444**	**$403,074**	**$268,614**	**$144,187**	**$0**	**$187,604**	**$2,870,568**
Assets Allocation	0.00%	44.58%	20.46%	14.04%	9.36%	5.02%	0.00%	6.54%	100.00%

Table 5-9: Derivation of Cost Causation Component Units

	Monthly Tiers (hcf)	Annual Use (hcf)	Average Daily Use (hcf/day)	Maximum Day Requirements Capacity Factor	Maximum Day Requirements Total Capacity (hcf/day)	Maximum Day Requirements Extra Capacity (hcf/day)	Maximum Hour Requirements Capacity Factor	Maximum Hour Requirements Total Capacity (hcf/day)	Maximum Hour Requirements Extra Capacity (hcf/day)	No. of Meters (Equiv.)	No. of Bills (No.)
Residential		410,040	1,123	1.60	1,798	675	2.45	2,757	1,634	1,198	8,544
Tier 1	10	74,868	205	1.02	208	3	1.56	320	115		
Tier 2	54	217,596	596	1.32	787	191	2.02	1,206	610		
Tier 3	>54	117,576	322	2.49	803	481	3.82	1,231	909		
Non-Residential		47,111	129	1.44	186	57	2.21	285	156	46	72
Temporary Construction		5,211	14	1.58	23	8	2.43	35	20		
TOTAL		**462,362**	**1,267**		**2,006**	**740**		**3,076**	**1,810**	**1,243**	**8,616**

Table 5-10: Unit Cost Calculation

		Supply	Base Delivery	Max Day	Max Hour	Fire	Meter	Customer	General	TOTAL
1	Operating Expenses	$1,725,141	$344,793	$163,979	$66,175	$29,503	$37,754	$33,783	$235,712	$2,636,840
2	Capital Expenses	$0	$30,804	$14,141	$9,703	$6,466	$3,471	$0	$4,516	$69,100
3	**Total Cost of Service**	**$1,725,141**	**$375,597**	**$178,120**	**$75,878**	**$35,969**	**$41,225**	**$33,783**	**$240,228**	**$2,705,940**
4	Allocation of General Cost		$121,837	$57,779	$24,613	$11,668	$13,373	$10,958	($240,228)	$0
5	Allocation of Public Fire Protection Cost					($47,637)	$47,637			$0
6	Allocation of Peaking Cost to Meter			$0	$0		$0			$0
7	**Total Adjusted Cost of Service**	**$1,725,141**	**$497,433**	**$235,899**	**$100,491**	**$0**	**$102,235**	**$44,741**	**$0**	**$2,705,940**
8	Unit of service	462,362	462,362	740	$1,809.55		14,920	8,616		
9	Unit	hcf	hcf	hcf/day	hcf/day		equiv. meter/yr	bills/yr		
10	Unit cost	$3.73	$1.08	$318.98	$55.53		$6.85	$5.19		
11	Unit	hcf	hcf	hcf/day	hcf/day		equiv. meter/mo	bills/mo		

Table 5-11: Allocation of Cost to Customer Class

		Supply	Base Delivery	Max Day	Max Hour	Fire	Meter	Customer	General	TOTAL
1	Residential	$1,529,922	$441,143	$215,245	$90,732		$98,480	$44,367		$142,847
2	Tier 1	$279,345	$80,547	$1,074	$6,362					$2,276,926
3	Tier 2	$811,884	$234,102	$60,799	$33,887					
4	Tier 3	$438,693	$126,494	$153,281	$50,459					
5	Non-Residential	$175,777	$50,684	$18,097	$8,654		$3,755	$374		$257,341
6	Temporary Construction	$19,442	$5,606	$2,648	$1,130		$0	$0		$28,826
7	**TOTAL**	**$1,725,141**	**$497,433**	**$235,899**	**$100,491**	**$0**	**$102,235**	**$44,741**	**$0**	**$2,705,940**