



Santa Clarita Water Division

Retail Water Rate Cost of Service Study Report

September 2017





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September 11, 2017

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Subject: Retail Water Rate Cost of Service Study Report

Dear Mr. Abercrombie,

Raftelis Financial Consultants, Inc. (Raftelis) is pleased to provide this Retail Water Rate Cost of Service Study Report (Study) for Santa Clarita Water Division (Division) to address financial needs of the Division and to establish updated water rates. The study includes a five-year financial forecast and recommends rates for three years (calendar years 2018, 2019 and 2020). The rate structure is consistent with direction provided to us from Division staff.

The major objectives of the Study include the following:

1. Develop financial plans for the Division to ensure financial sufficiency, meet operation and maintenance (O&M) costs, and ensure sufficient funding for capital replacement and refurbishment (R&R) needs over the five years.
2. Perform cost-of-service analysis for the Division based on recent historical usage.
3. Develop water rates in compliance with California Constitution article XIII D, section 6 (commonly referred to as Proposition 218).

This Report summarizes the key findings and recommendations related to the development of the financial plan and the development of rates for the water enterprise.

It has been a pleasure working with you, and we thank you and the Division staff, especially Elizabeth Ooms-Graziano, for the support provided during the course of this Study.

Sincerely,

RAFTELIS FINANCIAL CONSULTANTS, INC.

Sanjay Gaur
Vice President

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1 EXECUTIVE SUMMARY

1.1 BACKGROUND OF THE DIVISION

The Santa Clarita Water Division (Division) of the Castaic Lake Water Agency (CLWA) contracted with Raftelis to conduct a Water Cost of Service and Rate Study (Study), develop a financial plan, and design water rates for the Division over the next three years, from Fiscal Year (FY) 2018 through FY 2020.

The Division's service area covers an area of approximately 55 square miles, including the unincorporated communities of Canyon Country, Saugus, Newhall and portions of the City of Santa Clarita. The Division serves approximately 31,300 service connections with a population of approximately 125,000. On an annual basis, the Division serves approximately 22,000 acre-feet of potable water, obtained from local groundwater and purchased water from CLWA.

The Division, like other water agencies in California, recently faced challenges related to the reduction in water usage due to ongoing drought, conservation efforts and State-mandated conservation targets. The State-mandated conservation targets have been lifted and water usage has increased. Nonetheless, the Division continues to experience permanent conservation results that will help the Division meet the State-mandated target of 20% conservation by the year 2020.

This Study report has three components:

1. The five-year forecast analyzes demand, water supply, and cost projections to determine the Division's overall revenue requirements.
2. The cost of service analysis proportionately allocates the revenue requirements among various customer classes.
3. The rate design determines how rate revenues will be collected from the respective customer classes.

This results in a three-year rate schedule that does the following:

1. Provides for the ability to pass-through increases in purchased water and power.
2. Results in additional 2 percent revenue increases for calendar years 2019 and 2020.
3. Changes the rate structure from tiered rates to uniform rates.

Raftelis Financial Consultants (Raftelis) used standard water ratemaking practices to calculate the proposed rates as described by the American Water Works Association (AWWA) in its Principles of Water Rates, Fees, and Charges Manual of Water Supply Practices M1 (6th edition) (M1 Manual). The basis for the proposed rates follows industry-accepted cost of service principles and complies with all State of California law requirements.

1.2 WATER REVENUE SOURCES

SCWD has three distinct customer classes: Single-Family Residential (SFR), Irrigation (customers with dedicated irrigation meters), and All Other Customers (multi-family residential, institutional, commercial, and industrial customers). The rate structure for the SCWD retail water service charges is

comprised of four components: (1) a fixed monthly Meter Service Charge, determined on the basis of the size of the meter serving the property (in inches); (2) a variable Commodity Charge, determined on the basis of metered units of water delivered (with each unit equal to one hundred cubic feet (CCF), or 748 gallons); (3) a Private Fire Service Protection Charge, determined on the basis of the diameter of the fireline serving the property (in inches); and (4) a Jumper Charge, determined on the basis of Meter Service Charge applicable to a one inch meter plus the applicable Commodity Charge for the use of five CCF of water per month, for estimated monthly consumption usage.

The Meter Charge is designed to recover a significant portion of SCWD's fixed costs, including certain operations and maintenance costs, and meter reading, billings and collections, and accounting costs. The rates for the Meter Charge are the same for all customer classes depending on the customer's meter size.

The Commodity Charge is designed to recover a portion of SCWD's fixed costs and all of its variable costs of purchasing and delivering water. Currently for SFR customers, the Commodity Charge consists of three tiers that impose higher rates as the level of consumption increases. At this time, SCWD is transitioning from the SFR tiered rate structure to a uniform volumetric rate structure (i.e., a constant unit price for all metered volumetric units of water) for all classes of customers.

The Private Fire Service Protection Charge is designed to recover the cost of providing water for private fire protection services and is imposed only on properties that, as a condition of extending or initiating water service, are required to install a private fire suppression system, or have requested the delivery of water for the purpose of private fire service protection.

A Jumper Charge is imposed to temporarily provide water when a property is not connected to the system. The charge is based on the applicable Meter Service Charge for a one-inch meter plus the applicable Commodity Charge for the use of five CCF of water per month.

Together, the four rate components are designed to proportionately allocate the cost of providing water service on a parcel basis among the customer classes. If approved, all adjustments to and increases in the rates will be effective on January 1 for the years shown in the tables below. Note that the Division operates on a Fiscal Year basis (July 1 to June 30) but implements rates on a calendar year basis. Some charts will show Calendar Year and some will show Fiscal Year numbers.

Revenue figures were annualized in two different ways depending on revenue source. First: meter service charge and fire service charge fiscal year revenue was split so that six months of revenue was calculated using one calendar year's charges and six months of revenue was calculated using the next year's charges, with the number of meters held constant for that fiscal year. Commodity revenue was separated based on actual commodity usage patterns. Commodity usage revenue that occurred in July through December is calculated using the relevant year's charges while commodity usage revenue that occurred in January through June is calculated using the subsequent year's rates. The Division generally experiences a majority of its usage in the first half of the fiscal year.

The Division's water purchase costs were calculated using the average of the purchase cost per AF in the beginning of the fiscal year and the end of the fiscal year. This method is a more conservative way of estimating the Division's purchased water costs, as the Division tends to sell more water in the first half of the fiscal year compared to the latter half.

1.3 FINANCIAL HEALTH AND PROPOSED RECOMMENDATIONS

The Division reported that its beginning operating balance in FY 2017 was roughly \$29M. The Division's annual planned capital improvement expenditures average \$5.6M through FY 2021. The Division will be unable to fund this capital improvement program without additional revenue and its reserves will be depleted as a result.

After review of the Division's current revenues, revenue requirements, and reserves, it is recommended that the Division adjust revenue by 2 percent in FY 2019 and FY 2020. In addition to these rate adjustments, it is recommended that the Division pass-through any increases in its wholesale water costs and electricity costs onto the Commodity Charge rates. It is also recommended that the Division fund its upcoming capital projects through pay-as-you-go (PAYGO) funding, as opposed to issuing debt.

Overall, the proposed financial plan for the Division aims to strike a balance between maintaining a strong financial position, while drawing down its unrestricted fund balance, and minimizing rate increases to its customers through a multi-year measured approach. Under the proposed plan with the proposed revenue adjustments, it is projected that the Division will maintain a positive fiscal condition and will meet the minimum reserve targets over the five-year Study period.

In addition to reviewing the Division's current financial health, Raftelis also reviewed the current rate structure and consumption data to determine the most appropriate rate structure moving forward. After discussion with the Board, the Division decided to eliminate its tiered water rates altogether and adopt a uniform water rate for all customers.

Table 1-1 through **Table 1-4** summarizes the Division's current and proposed rates. They are all proposed to be implemented on January 1 of each year. Note that **Table 1-2** includes a wholesale water cost pass-through for 2018 but not for 2019 and 2020, and that the final rates are therefore as yet undetermined. The Division also will pass-through any incremental increases in electrical costs beyond those projected in the Study as they arise, which is not shown by the pass-through adjustment in **Table 1-2**.

**Table 1-1: Current and Proposed Rates for Monthly Service Charge (\$/Meter Size in Inches)
Effective January 1**

Meter Size	Current CY 2017	Proposed CY 2018	Proposed CY 2019	Proposed CY 2020
5/8 x 3/4"	\$19.98	\$21.45	\$21.88	\$22.32
3/4"	\$25.26	\$29.09	\$29.68	\$30.28
1"	\$35.80	\$44.36	\$45.25	\$46.16
1.5"	\$62.16	\$82.55	\$84.21	\$85.90
2"	\$93.80	\$128.37	\$130.94	\$133.56
3"	\$178.18	\$250.58	\$255.60	\$260.72
4"	\$273.11	\$388.05	\$395.82	\$403.74
6"	\$536.79	\$769.93	\$785.33	\$801.04
8"	\$853.19	\$1,228.18	\$1,252.75	\$1,277.81

Table 1-2: Current and Proposed Commodity Charge (\$/CCF)

Class/ Tier	Tier Width	Current CY 2016	Current CY 2017	Proposed CY 2018	Proposed CY 2019	Proposed CY 2020
SFR Tier 1	1-14 CCF	\$1.74	\$1.80			
SFR Tier 2	15-49 CCF	\$1.94	\$2.01			
SFR Tier 3	≥ 50 CCF	\$2.55	\$2.64			
MFR		\$1.94	\$2.01			
Commercial		\$1.94	\$2.01			
Industrial		\$1.94	\$2.01			
Irrigation		\$2.55	\$2.64			
Water Mutual		\$1.94	\$2.01			
Proposed Uniform Rate				\$1.86	\$1.90	\$1.94
Wholesale Water Pass-through				\$0.05	TBD	TBD
Total Rate				\$1.91	\$1.90 ¹	\$1.94 ¹

¹ Does not include wholesale water pass-through rate or potential electricity pass-through rate.

**Table 1-3: Proposed Rates for Fire Service Charges (\$/Fire Service Line Size)
Effective January 1**

Meter Size	Current CY 2017	Proposed CY 2018	Proposed CY 2019	Proposed CY 2020
1"	\$2.84	\$2.95	\$3.01	\$3.08
2"	\$5.68	\$5.90	\$6.02	\$6.15
4"	\$11.36	\$11.79	\$12.03	\$12.28
6"	\$17.04	\$17.68	\$18.04	\$18.41
8"	\$22.72	\$23.57	\$24.05	\$24.54
10"	\$28.40	\$29.46	\$30.05	\$30.66
12"	\$34.08	\$35.35	\$36.06	\$36.79
14"	\$39.76	\$41.24	\$42.07	\$42.92
16"	\$45.44	\$47.13	\$48.08	\$49.05
18"	\$51.12	\$53.02	\$54.09	\$55.18
20"	\$56.80	\$58.91	\$60.09	\$61.30

Jumpers are the initial connection of new development to the Division’s water system. The Division provides these jumpers for a monthly charge. These jumpers also come with an assumed 5 CCF of water use. These monthly charges are shown in **Table 1-4** below.

Table 1-4: Proposed Jumper Charge Rate Calculation through CY 2020

	Proposed CY 2018	Proposed CY 2019	Proposed CY 2020
1" Meter Rate	\$44.36	\$45.25	\$46.16
5 CCF Rate	9.55	9.75	9.95
Jumper Charge	\$53.91	\$55.00	\$56.11

2 INTRODUCTION

In 2015, the Division contracted with Raftelis to study the Division's water cost of service and develop recommendations for rate adjustment to reflect the cost of providing service to specific classes of customers. This Rate Study (Study) includes three components:

1. A five-year forecast that analyzes demand, water supply mix, and cost projections to ensure financial sufficiency, meet operations and maintenance (O&M) costs, ensure sufficient funding for capital replacement and refurbishment (R&R) needs, ensure sufficient funding for debt service, and maintain adequate reserve fund levels.
2. A cost-of-service analysis that proportionately allocates the Division's revenue requirements among various customer classes.
3. Water rates developed in compliance with California Constitution article XIII D, section 6 (commonly referred to as Proposition 218).

2.1 STUDY APPROACH

The Study approach is summarized as follows:

- **Financial Plan (Five-year Forecast):** The financial plan is a five-year forecast which projects the Division's future demands, future mix of water supplies, and future expenditures in order to calculate its revenue requirements for the Study period. This analysis reviews the adequacy of the level of current water rates. From this analysis, a determination can be made as to the overall level of water rate adjustments needed to provide adequate and prudent funding for both operating and capital needs.
- **Cost of Service Analysis:** The next step of the rate study process is the cost of service analysis. This analysis proportionately allocates the revenue requirements among various customer classes, including allocating the revenue requirements to fixed and variable charges.
- **Rate Design:** The final step of the comprehensive rate study process is the design of water rates to collect the desired levels of revenue, based on the results of the revenue requirement and cost of service analyses. The rate design determines how the rate revenues will be collected from the various customer classes.

This Study includes the following sections in addition to the Executive Summary and the Introduction:

- **Section 3** summarizes the development of the Financial Plan (five-year forecast) for the Division.
- **Section 4** describes the Study's findings and results of the cost of service analysis.
- **Section 5** describes the rate design methodology and calculation of the proposed water rates for the Division.

Before discussing the development of the financial plan, the general assumptions used during the course of the Study are discussed below.

2.2 ASSUMPTIONS USED IN THE STUDY

The period for the Study uses FY 2017 as the budget year and the model makes financial projections through FY 2020-21. Rate projections are made for five years for financial planning purposes, but recommendations for rate adjustments are **for three years only**.

2.2.1 WATER DEMAND/CONSUMPTION

After the easing of State-mandated conservation requirements, the Division has experienced an increase in water consumption. The Division has incorporated this rebound in consumption into its demand projections, as well as growth in the number of customer accounts. The projections included in this study assume the Division will remain compliant with the State-mandated goal of 20% total conservation by 2020. Based on historic averages and development in progress, **Table 2-1** below shows projected account growth factors across the Study period.

Table 2-1: Account Growth Factor Across Study Period

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Account Growth Factor	1.6%	1.6%	1.6%	1.6%	1.4%

Table 2-2 shows the change in projected consumption across the Study period. FY 2018 shows a total increase of 18%, comprised of overall increase in consumption/demand of 8% plus an additional 10% for a major grading project. In FY 2019 the model projects a total decrease of 4%, comprised of overall increase in consumption of 5% less a decrease of 9% for the major grading project in FY 2018. FY 2020 and thereafter shows the assumption of an increase in consumption of roughly 4% per year.

Table 2-2: Projected Consumption Totals

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Residential Consumption	5,214,215	5,719,648	5,983,608	6,198,975	6,348,468
Non-Residential Consumption	4,447,838	5,670,938	4,930,218	5,101,037	5,214,582
Total (CCF)	9,662,053	11,390,586	10,913,826	11,300,012	11,563,050
Total (AF)	22,181	26,149	25,055	25,941	26,545
Year-on-Year Change (%)		18%	-4%	4%	2%

2.2.2 MIX OF WATER SUPPLY

The Division obtains water from two sources – purchased water from the CLWA (imported supplies and Saugus 1&2 Well water) and local groundwater. Due to lower than usual groundwater levels during the drought and high allocations of State Water Project supplies, the Division’s mix of supplies has been more reliant on purchased water in recent years. This Study assumes the Division returns to its historical mix of water supplies as shown in **Table 2-3** :

Table 2-3: Groundwater and Purchased Water Projections

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Percentage of Demand met by Groundwater	25.0%	16.0%	30.0%	40.0%	40.0%
Percentage of Demand Met by Purchased Water	75.0%	84.0%	70.0%	60.0%	60.0%

2.2.3 OPERATING COST ESCALATION FACTORS

Certain cost escalation assumptions and inputs were incorporated into the Study to adequately model expected future operating costs of the Division. These assumptions were based on discussions with, and/or direction from, Division management. Division management generally relied on recent escalation factors used for budgeting purposes. The assumed escalation factors are shown in **Table 2-4**.

Table 2-4: Division Cost Escalation Factors

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
General	3.0%	3.0%	3.0%	3.0%	3.0%
Salary	3.0%	3.0%	3.0%	3.0%	3.0%
Benefits	3.0%	3.0%	3.0%	3.0%	3.0%
Chemicals	5.0%	5.0%	5.0%	5.0%	5.0%
Utilities	5.0%	5.0%	5.0%	5.0%	5.0%
Construction	0.0%	0.0%	2.5%	2.5%	2.5%
Conservation	5.0%	5.0%	5.0%	5.0%	5.0%
Saugus 1&2 Well Water	5.0%	5.0%	5.0%	5.0%	5.0%
CLWA Imported Water	9.0%	9.6%	5.0%	5.0%	5.0%

2.2.4 PROJECTED COST SAVINGS FROM NEW WATER AGENCY ECONOMIES OF SCALE

State legislation has been introduced to create a new Santa Clarita Valley Water Agency, effective January 1, 2018, that would include the Division, along with CLWA and the Newhall County Water District. This is the result of a year of study and public discussion that included a financial analysis showing cost savings over a 10-year period. One-third of the projected cost savings have been included in this financial plan, as follows in **Table 2-5**:

Table 2-5: Division Cost Savings Estimate

	FY 2018	FY 2019	FY 2020
Projected Cost Savings	\$125,000	\$321,000	\$381,000

2.2.5 MISCELLANEOUS REVENUES

The financial plan assumes the following growth in miscellaneous revenues, which are available to offset overall revenue requirements:

Table 2-6: Revenue Growth

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Miscellaneous Revenues	0.0%	0.0%	0.0%	0.0%	0.0%
Rentals	2.0%	2.0%	2.0%	2.0%	2.0%
Interest Income	0.0%	0.0%	0.0%	0.0%	0.0%

3 DIVISION FINANCIAL PLAN

This financial plan is a five-year forecast which projects the Division's future demands, future mix of water supplies, and future expenditures in order to calculate revenue requirements. The five-year forecast includes the costs of O&M, capital improvements program (CIP), debt service, reserve fund targets, and debt service coverage ratios. The results of this financial plan are used to determine the revenue adjustments needed to meet ongoing expenses and provide fiscal stability to the Division. In summary, the results of this plan recommend the following:

1. Providing pass-through adjustments for purchased water and power
2. General revenue requirement increases of 2% in calendar years 2019 and 2020

3.1 ANALYSIS OF PURCHASED WATER AND POWER AND PASS-THROUGH ADJUSTMENTS

The Division will pass-through to its customers any increases in the rates for purchased wholesale water and also for power. Because power is a small overall cost of the Division, the calculations in this Study do include anticipated energy cost increases (5% per year). The Division will pass-through any energy cost increases beyond these budgeted levels when they are increased.

3.1.1 PROJECTED IMPORTED WATER DEMAND AND COSTS

In a given year, purchased water costs can account for upwards of 40% of the Division's O&M costs. Consequently, Raftelis modeled these costs separately from other O&M costs which are escalated according to the escalation factors in **Table 2-4**. There are several variables that affect the cost of purchased water and these variables are the purchased water costs and the purchased water mix. There are two main sources of water supply; the Division historically has derived roughly 40% of the supply from its own groundwater, but recently it has been receiving less than that due to drought conditions, with the remainder of the water needed to meet demand being met by purchased water from CLWA. Purchased water from CLWA comes from two different sources: Saugus 1&2 Well water (which undergoes perchlorate treatment) and imported water (from the State Water Project and the Buena Vista/Rosedale Rio Bravo water supply in Kern County). The Division receives approximately 3,000 acre-feet (AF) per year of Saugus 1&2 Well water. The remainder of purchased water is imported water.

The amount of water purchases necessary for each fiscal year (FY) are calculated by taking the projected water usage in CCF (hundred cubic feet; the billing system unit) from **Table 2-2**, converting the CCF to AF and applying a water loss factor. Raftelis calculated the water loss factor by averaging the water loss factor for the last two fiscal years which averages 6.55%. The projected total water requirements, including adjustments for the assumed water loss factor, are shown in **Table 3-1**.

Table 3-1: Projected Fiscal Year Water Requirements in AF

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Water Sales	22,181 AF	26,149 AF	25,055 AF	25,941 AF	26,545 AF
Water Purchases Necessary (after water loss factor)	23,736 AF	27,982 AF	26,811 AF	27,760 AF	28,406 AF

The projected mix of water is based on **Table 2-3**. From these percentages Raftelis calculated how much CLWA imported water would be used by first using the groundwater percentage in **Table 2-3** and then using the 3,000 AF of Saugus 1&2 Well water. The remainder is met by purchasing CLWA imported water. The totals of each type of water purchase required are shown in **Table 3-2** below. The Division provided projections for the percentage of demand expected to be met by Division groundwater through the Study period with the remaining percentage to be met by CLWA Saugus 1&2 Well water and imported water percentages.

Table 3-2: Projected Fiscal Year Water Requirements by Source in AF

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Percentage of Demand Met by Division Groundwater (Division Wells)	24.9%	16.0%	30.0%	40.0%	40.0%
Percentage of Demand Met by CLWA Imported Water	75.1%	84.0%	70.0%	60.0%	60.0%
Division Groundwater Used to Meet Demand (AF)	5,910	4,477	8,043	11,104	11,362
CLWA Saugus 1&2 Well water Used to Meet Demand (AF)	3,000	3,000	3,000	3,000	3,000
CLWA Imported Water Used to Meet Demand (AF)	14,826	20,505	15,768	13,656	14,043
Total Water Required (AF)	23,736	27,982	26,811	27,760	28,406

Note that Saugus 1&2 Well water, while technically groundwater, is purchased from CLWA and is billed at the “CLWA Saugus 1&2 Well” water rates. CLWA’s current and projected variable wholesale rates for imported water are shown in **Table 3-3** below. CLWA has only adopted rates through FY 2018. Rates for FY 2019 through 2021 are projected according to the percentages shown in **Table 2-4**.

Table 3-3: Projected FY 2017 to FY 2021 Variable Wholesale Rates for Purchased Water in \$/AF

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
CLWA Saugus 1&2 Wells	\$175.35	\$184.12	\$193.33	\$203.00	\$213.15
CLWA Imported Water	\$218.18	\$239.13	\$251.08	\$263.64	\$276.82

The Division also pays a fixed charge to CLWA. This charge is assessed on a 10-year rolling average of the Division’s imported water use. The rate that the Division pays, and its 10-year rolling average (and

projected 10-year rolling average going forward) are shown in **Table 3-4**. Note that the amount shown in FY 2017 is not a calculation but rather the budgeted amount CLWA expected to collect from the Division in FY 2017.

Table 3-4: Projected CLWA Fixed Charge

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Imported Water Fixed Charge (\$/AF/Year)	\$218.18	\$239.13	\$251.08	\$263.64	\$276.82
Imported Water 10-Year Rolling Average (AF/Year)	16,801	16,992	16,795	16,641	16,683
Imported Demand Fixed Charge (\$/Year)	\$7,094,764	\$7,407,873	\$7,688,021	\$7,998,771	\$8,419,625

The variable rate is calculated by multiplying the relevant rate by the amount of AF the Division is expected to purchase in that year. Using the projected water sales in **Table 3-2** and the adopted and projected rates in **Table 3-3** and **Table 3-4**. The Division’s total projected water costs are shown in **Table 3-5** below.

Table 3-5: Projected Purchased Water Costs

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
CLWA Saugus 1&2 Well	\$526,050	\$552,360	\$579,990	\$609,000	\$639,450
CLWA Fixed Charge ²	\$7,094,764	\$7,407,873	\$7,688,021	\$7,998,771	\$8,419,625
CLWA Imported Water Charge ²	\$3,135,449	\$4,688,497	\$3,864,683	\$3,514,412	\$3,794,902
Total Projected Water Cost	\$10,756,263	\$12,648,729	\$12,132,694	\$12,122,184	\$12,853,976

3.1.2 PASS-THROUGH CALCULATION

As discussed above, the Division will pass-through to its customers any increases in the rates for purchased water that CLWA imposes on it. These pass-through rate increases will be calculated by utilizing the FY 2017 CLWA rates and calculating what the total CLWA associated costs would be without an increase, and comparing that to the projected water costs shown in **Table 3-5**. The CLWA rates are scheduled to be adopted on a calendar year basis. In order to compare the rate increases on a FY basis, Raftelis divided each projected total cost by 12 (for the number of months in a year) and then divided the monthly cost by the average monthly consumption for that fiscal year. The projected monthly

² CLWA future fixed and imported water charges are estimates only. CLWA wholesale water rates are only approved through December 2018.

consumption are the total values taken from **Table 3-6** and **Table 3-7** (less fireline consumption) divided by 12.

The resulting pass-through rates for FY 2018 and calculation steps are shown **Table 3-6**. The rates that CLWA has implemented are in effect through December 31, 2018, so the pass-through from FY 2018 will be held constant until CLWA rates increase again. These pass-through rates are not shown for years beyond FY 2018 because they will be recalculated when CLWA adopts further rate adjustments. Future increases in purchased wholesale water costs due to adjustments in CLWA’s wholesale water rates will be passed through by the Division based on the adopted rates.

Table 3-6: Pass-Through Calculation for FY 2018

	Source	FY 2018
1	Fixed Charge	Table 3-5 \$7,094,764
2	FY 2017 Imported Water Charges (\$/AF)	Table 3-3 \$218.18
3	FY 2017 Saugus 1&2 Well Charge (\$/AF)	Table 3-3 \$175.35
4	FY 2018 CLWA Imported Water (AF)	Table 3-2 20,505
5	FY 2018 CLWA Saugus 1&2 Well Water (AF)	Table 3-2 3,000
6	Projected CLWA Cost w/ FY 2017 Rates	Line1 + Line2*Line4 + Line3*Line5 \$12,094,571
7	Projected CLWA Cost w/ FY 2018 Rates	Table 3-5 \$12,648,729
8	Projected Monthly Cost w/ FY 2017 Rates	Line6/12 \$1,007,881
9	Projected Monthly Cost w/ FY 2018 Rates	Line7/12 \$1,054,061
10	Projected Increase in Monthly Cost	Line9-Line8 \$46,180
11	Projected Monthly Consumption	Table 2-2 948,690
12	Pass-through Adjustment	Line10/Line11 \$0.05
13	Incremental Adjustment	\$0.05

3.2 ADDITIONAL REVENUE REQUIREMENTS

A review of the Division’s revenue requirements is a key step in the rate design process. The review involves analyses of annual operating revenues under the current rates, O&M expenses, capital expenditures, transfers between funds, and reserve requirements. This section of the Study provides a discussion on projected revenues, O&M and capital expenditures, the capital improvement financing plan, debt service requirements, and overall revenue requirements over the five-year projection period.

The first step in determining revenue requirements is to run a five-year projection or pro forma based on current rates, taking into account the current items:

- Projected consumption
- Projected mix of water supplies to meet projected consumption
- Projected cost of water supplies
- Projected operations and maintenance costs
- Projected capital costs

- Projected debt service
- Maintaining reserve fund levels and debt coverage ratios
- Projected revenues at **current rates**

Based on this analysis, if the projected revenues at current rates are not adequate to fund the items above, additional revenues, and hence rate increases, are recommended. For this Study, the pro forma includes the pass-through adjustment for FY 2018 described in **Section 3.1.2** above.

Details on projected revenues and expenditures are included in the following appendices in Section 7:

- Appendix 1 – Projected Fixed Monthly Service Charge Revenues Based on Current Rates, including projected meter totals for the five-year planning period based on the account growth escalation factors from **Table 2-1** and the projected fixed Monthly Service Charge revenues based on current rates
- Appendix 2 – Projected Variable Water Usage Commodity Charges Based on Current Rates, including projected water usage by category and tier for the five-year planning period based on the escalation factors from **Table 2-2** and the projected Commodity Charge revenues based on current rates
- Appendix 3 – Projected Fire Service Revenue Based on Current Rates, including Fire Service Meter Charge current rates, meter totals for the five-year planning period based on the escalation factors from **Table 2-1** and the projected fixed Monthly Service Charge revenues based on current rates
- Appendix 4 – Projected Water Rate Revenues at Current Rates and Projected Miscellaneous Revenues
- Appendix 5 – Projected Operations and Maintenance Expenditures
- Appendix 6 – Projected Debt Service
- Appendix 7 – Projected Capital Improvement Program Expenditures
- Appendix 8 – Analysis of Reserve Funds

3.3 FINANCIAL OUTLOOK AT CURRENT RATES

The results of the pro forma based on current rates (assuming the purchased water and power pass-through charges) show that revenues generated from current rates and other miscellaneous revenues exceed operational expenses through FY 2020 and the Division has adequate reserves to fund its capital costs through FY 2020; however, starting in FY 2021, reserves will be below the minimum target and will also need to be used to fund the shortfall of the Division’s revenue requirements, which will not be met by operating revenues. The Division’s O&M costs continue to increase through annual inflationary adjustments as previously listed under **Table 2-4**. As such, current revenues cannot fully fund both O&M and capital costs without drawing down reserves each year. By FY 2020, the total reserves would be depleted and overdrawn.

In conclusion, the Division will not be able to fund its CIP program under the current rates over the next five years while maintaining its minimum target reserve balances. A pro forma showing the status quo financial plan (with no rate adjustments) is shown in **Table 3-7**. The FY 2017 expenses are the Division's estimated FY 2017 expenses, expenses in future years are projected using the adjustment factors in **Table 2-4**.

Table 3-7: Status Quo Pro forma

Line	Description	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	Revenues					
2	Existing Rev from Rates	\$30,985,316	\$35,372,533	\$34,694,267	\$35,760,058	\$36,521,816
3	Rev from Rev Adjustments	\$0	\$0	\$0	\$0	\$0
4	Other Revenues	\$1,456,400	\$1,464,808	\$1,473,384	\$1,482,132	\$1,491,054
5	Pass-through Adjustment	\$0	\$0	\$0	\$0	\$0
6	Total Revenues	\$32,441,716	\$36,837,341	\$36,167,651	\$37,242,190	\$38,012,870
7	Revenue Requirements					
8	Supply (Water Only)	\$10,756,263	\$12,178,700	\$12,132,694	\$12,122,184	\$12,853,976
9	Supply (Other Costs)	\$233,998	\$251,300	\$258,839	\$266,604	\$274,602
10	Pumping	\$2,806,178	\$3,079,101	\$3,537,435	\$3,881,218	\$4,064,550
11	Water Treatment	\$1,126,416	\$1,229,000	\$1,263,476	\$1,307,130	\$1,351,204
12	Transmission and Distribution	\$4,479,854	\$4,638,401	\$4,642,978	\$4,747,008	\$4,889,418
13	Customer Service	\$985,688	\$1,026,101	\$1,056,884	\$1,088,590	\$1,121,248
14	Engineering	\$882,789	\$1,203,800	\$1,239,914	\$1,277,111	\$1,315,424
15	Administrative and General	\$3,494,659	\$3,738,900	\$3,804,455	\$3,915,094	\$4,044,745
16	O&M Adjustment	\$406,130	\$0	\$0	\$0	\$0
17	Total O&M	\$25,171,975	\$27,345,302	\$27,936,674	\$28,604,940	\$29,915,168
18	Net Revenues	\$7,269,740	\$9,492,039	\$8,230,977	\$8,637,251	\$8,097,702
19	Debt Proceeds to Fund	\$0	\$0	\$0	\$0	\$0
20	Current Debt Service	\$2,809,100	\$5,268,375	\$5,395,069	\$5,510,613	\$5,630,238
21	Proposed Debt Service	\$0	\$0	\$0	\$0	\$0
22	Debt Reserve Used for Payment	\$0	\$0	\$0	\$0	\$0
23	Total Debt Service	\$2,809,100	\$5,268,375	\$5,395,069	\$5,510,613	\$5,630,238
24	Revenue Used for CIP	\$4,214,700	\$5,201,900	\$6,231,385	\$5,683,041	\$6,437,760
25	CIP Expenditure	\$4,214,700	\$5,201,900	\$6,231,385	\$5,683,041	\$6,437,760
26	Net Annual Cash Balance	\$245,940	-\$978,236	-\$3,395,477	-\$2,556,403	-\$3,970,295
27	Beginning Reserve Balance	\$29,013,046	\$29,258,986	\$28,280,750	\$24,885,273	\$22,328,870
28	Ending Reserve Balance	\$29,258,986	\$28,280,750	\$24,885,273	\$22,328,870	\$18,358,575
29	Coverage Ratio	259%	180%	153%	157%	144%
30	Days Cash	424	377	325	285	224

3.4 PROPOSED FINANCIAL PLAN

To ensure that the Division will have adequate revenues to fund operating expenses, capital expenditures, and comply with existing bond covenants (debt service requirements), it is recommended that the Division increase rates in FY 2019 and FY 2020. All revenue adjustments would be of equal magnitude and occur on January 1 of each fiscal year. A summary of the Division's proposed revenue

increases is shown below in **Table 3-8**. Note that the pass-through increases for FY 2019 and FY 2020 would be in addition to the increases shown below.

Table 3-8: Revenue Adjustment Summary

Year	Month	Adjustment Percentage
FY 2018	January	0.0%
FY 2019	January	2.0%
FY 2020	January	2.0%

The combination of revenue increases and pass-through rate adjustments would enable the Division to complete the planned capital projects for the Study period while maintaining an appropriate level of reserves over the next four years. Although there is a 0% revenue adjustment in FY 2018, the Division is projected to collect more revenue in FY 2018 than in FY 2017 because of the mid-year FY 2017 revenue adjustment, implemented in January of 2017. Since this revenue adjustment will be in place for the entire fiscal year rather than half, the logical expectation for increased revenue would be half the magnitude of the FY 2017 fiscal year adjustment.

A pro forma showing the results of the proposed revenue adjustments in **Table 3-8** is shown in **Table 3-9** below. The proposed revenue adjustments will account for the Division’s annual financial needs while allowing the Division to draw down its unrestricted fund balance, maintain positive net revenues through the Study period, and comply with current debt covenants. Note that the Pass-through adjustments shown in **Table 3-9** includes a pass-through based on projected CLWA rate increases.

Table 3-9: Five-Year Proposed Financial Plan - Pro forma

Line	Description	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	Revenues					
2	Existing Rev from Rates	\$30,985,316	\$35,372,533	\$34,694,267	\$35,760,058	\$36,521,816
3	Rev from Rev Adjustments	\$0	\$0	\$346,943	\$1,079,954	\$1,475,481
4	Other Revenues	\$1,456,400	\$1,464,808	\$1,473,384	\$1,482,132	\$1,491,054
5	Pass-through Adjustment	\$0	\$277,079	\$812,936	\$1,296,841	\$1,845,570
6	Total Revenues	\$32,441,716	\$37,114,420	\$37,327,529	\$39,618,985	\$41,333,921
7	Revenue Requirements					
8	Supply (Water Only)	\$10,756,263	\$12,178,700	\$12,132,694	\$12,122,184	\$12,853,976
9	Supply (Other Costs)	\$233,998	\$251,300	\$258,839	\$266,604	\$274,602
10	Pumping	\$2,806,178	\$3,079,101	\$3,537,435	\$3,881,218	\$4,064,550
11	Water Treatment	\$1,126,416	\$1,229,000	\$1,263,476	\$1,307,130	\$1,351,204
12	Transmission and Distribution	\$4,479,854	\$4,638,401	\$4,642,978	\$4,747,008	\$4,889,418
13	Customer Service	\$985,688	\$1,026,101	\$1,056,884	\$1,088,590	\$1,121,248
14	Engineering	\$882,789	\$1,203,800	\$1,239,914	\$1,277,111	\$1,315,424
15	Administrative and General	\$3,494,659	\$3,738,900	\$3,804,455	\$3,915,094	\$4,044,745
16	O&M Adjustment	\$406,130	\$0	\$0	\$0	\$0
17	Total O&M	\$25,171,975	\$27,345,302	\$27,936,674	\$28,604,940	\$29,915,168
18	Net Revenues	\$7,269,740	\$9,769,118	\$9,390,855	\$11,014,045	\$11,418,753
19	Debt Proceeds to Fund	\$0	\$0	\$0	\$0	\$0
20	Current Debt Service	\$2,809,100	\$5,268,375	\$5,395,069	\$5,510,613	\$5,630,238
21	Proposed Debt Service	\$0	\$0	\$0	\$0	\$0
22	Debt Reserve Used for Payment	\$0	\$0	\$0	\$0	\$0
23	Total Debt Service	\$2,809,100	\$5,268,375	\$5,395,069	\$5,510,613	\$5,630,238
24	Revenue Used for CIP	\$4,214,700	\$5,201,900	\$6,231,385	\$5,683,041	\$6,437,760
25	CIP Expenditure	\$4,214,700	\$5,201,900	\$6,231,385	\$5,683,041	\$6,437,760
26	Net Annual Cash Balance	\$245,940	-\$701,157	-\$2,235,599	-\$179,608	-\$649,244
27	Beginning Reserve Balance	\$29,013,046	\$29,258,986	\$28,557,829	\$26,322,231	\$26,142,622
28	Ending Reserve Balance	\$29,258,986	\$28,557,829	\$26,322,231	\$26,142,622	\$25,493,378
29	Coverage Ratio	259%	185%	174%	200%	203%
30	Days Cash	424	381	344	334	311

Table 3-10 provides an in-depth analysis of the Division’s reserve requirements and its Unrestricted Reserve balance through the Study Period. This table shows that the reserve targets are fully funded through FY 2021, and that the Unrestricted Reserve fund balance is being drawn down through the Study period.

Table 3-10: Reserve Summary

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Operating Reserve Fund Target	\$6,292,994	\$6,836,325	\$6,984,169	\$7,151,235	\$7,478,792
Rate Stabilization Reserve Fund Target	\$4,767,797	\$5,467,442	\$5,498,122	\$5,840,528	\$6,216,121
Capital Reserve Fund Target	\$1,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000
Liability Repayment Reserve	\$0	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000
Emergency Reserve Fund Target	\$1,000,000	\$2,200,000	\$2,200,000	\$2,200,000	\$2,200,000
Total Reserve Target	\$13,060,791	\$21,503,767	\$21,682,290	\$22,191,763	\$22,894,913
Total Reserve Ending Balance	\$29,258,986	\$28,557,829	\$26,322,231	\$26,142,622	\$25,493,378

4 COST OF SERVICE AND RATE DESIGN

4.1 LEGAL FRAMEWORK AND RATE METHODOLOGY BACKGROUND

California Constitution article XIII D, section 6 (commonly referred to as Proposition 218) states that:

1. Revenues derived from a property-related charge (such as water service charges) imposed by a public agency shall not exceed the funds required to provide the property-related service.
2. Revenues derived from 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 by, or immediately available to, the owner of property.
5. No 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 the Manual M1, “the costs of water rates and charges should be recovered from classes of customers in proportion to the cost of serving those customers.” Proposition 218 ensures 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 the costs incurred and the rates charged.

4.2 COST BASED RATE SETTING METHODOLOGY

This Study used the Base-Extra Capacity method of the Manual M1 in allocating costs. 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 Division’s O&M, debt service, capital expenses, and reserve funding. The Division’s revenue requirements are tied to its cost of providing service. This cost is then used as the basis to develop unit costs for the water rate components.

A cost of service analysis involves the following:

1. Functionalizing costs. This analysis arranges the cost data by major operating functions. Examples of functions are sources of supply, pumping, treatment, transmission, distribution, and customer service (e.g., meter servicing and customer billing and collection).
2. Allocating functionalized costs to cost causation components. This analysis assigns the functionalized costs to cost causation components. A cost of service 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). Peaking costs are costs that are incurred during peak times of consumption. 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. In other words, not all customers share the same responsibility for peaking related costs. Cost causation components include base delivery, peak delivery which consists of maximum day and maximum hour³, customer service and billing, customer service metering, conservation, and fire service.

3. Distributing the cost causation components into rate components. This analysis allocates the classified costs to each class of service based upon each class's proportional contribution to that specific cost component.

4.3 FUNCTIONALIZED COSTS

The total cost of water service is analyzed by particular operational function in order to equitably distribute costs in relation to how the costs are incurred, in general, which then allows each functional cost component to be recovered through the most appropriate revenue recovery (i.e., fixed charge versus variable charge). **Table 4-1** provides a summary of the Division's FY 2017 estimated expenses by functionalized cost components (i.e., function). These expenses provide a list of Division functions. Note that the Division's functionalized cost components include a heading titled "Source of Supply" that includes the Division's FY 2017 estimated amount for purchased water. The Purchased Water heading represents Raftelis's calculated purchased water totals, which is a subset of the "Source of Supply" functionalized cost components. Note the inclusion of an adjustment for annualized current rates: the Division is adopting rates that are revenue neutral with the FY 2017 rate adjusted rates. Since the FY 2017 rate adjustment occurred in January of 2017, it is necessary to determine what the Division's revenue would have been in FY 2017 if those rates had been in place for the entire fiscal year in order to create rates that are revenue neutral with the rates adopted in FY 2017.

³ System capacity is the system's ability to supply water to all delivery points at the time when demanded. The time of greatest demand is known as peak demand. Peak-day and peak-hour demands describe the amount of water needed by customers on the day of greatest water need and hour of greatest water need, respectively. These demands have significant cost-of-service implications because the infrastructure for water supply and distribution needs to be sized to provide not just the average water demand, but rather the peak demands of customers. Both the operating costs and capital asset related costs incurred to accommodate the peak flows are generally allocated to each customer based upon the customer's contribution to the peak month, day and hour event.

Table 4-1: Summary of Division FY 2017 Costs by Function

Functionalized Cost	Total	Source
Source of Supply (Other Costs)	\$233,998	Table 7-14
Source of Supply (Purchased Water)	\$10,756,263	Table 7-14
Pumping	\$2,806,178	Table 7-14
Water Treatment	\$1,126,416	Table 7-14
Transmission and Distribution	\$4,479,854	Table 7-14
Customer Service	\$985,688	Table 7-14
Engineering	\$882,789	Table 7-14
Administrative and General	\$3,494,659	Table 7-14
O&M Adjustment	\$406,130	Table 7-14
<hr/>		
Subtotal O&M	\$25,171,975	
Debt Service	\$2,809,100	Table 7-15
Fund Balance	\$4,460,640	Table 3-9 In 29+ In 32
Adjustment for Annualized Current Rates	\$624,762	
Less: Non-Operating Revenues	\$1,456,400	Table 3-9 In 4
<hr/>		
Total Revenue Requirement	\$31,610,078	

4.4 ALLOCATING FUNCTIONS TO COST CAUSATION COMPONENTS

After functionalizing costs, the next step is to allocate the functionalized costs to **Cost Causation Components**. This is done by categorizing the water budget items by their cost function. For this Study, Raftelis identified seven distinct cost causation components as well as three supply related cost causation components. These cost causation components are: Base Delivery, Maximum Day, Maximum Hour, Customer Service Billing, Customer Service Metering, Conservation and Fire. The three supply related cost causation components are: Division Groundwater, CLWA Saugus 1&2 Well Water and CLWA imported water. These cost causation components correspond to functional cost components. The first step in functionalizing cost causation components is identifying system-wide peaking factors to derive the allocation bases for the peaking related cost causation components (i.e., Base Delivery, Maximum Day, and Maximum Hour). Division Staff provided Raftelis with the following system-wide peaking factors, which were used to calculate the allocation for peaking related cost causation components. Note that these peaking factors are a ratio of system wide-flow to average flow (“Base”) during Maximum Day (Max Day) and Maximum Hour (Max Hour) events. The system-wide peaking factors are used to derive the cost causation component allocation bases (i.e., percentages). These peaking characteristics are shown in **Table 4-2**.

Table 4-2: System-Wide Peaking Characteristics

	System Wide Ratio
Base	1.00
Max Day	1.74
Max Hour	3.55

The equations to determine peaking allocations are shown below.

$$Base = \frac{Base}{Max\ Day}$$

$$Max\ Day = \frac{Max\ Day - Base}{Max\ Day}$$

$$Max\ Hour = \frac{Max\ Hour - Max\ Day}{Max\ Hour}$$

These peaking characteristics result in the following cost causation components allocations for Maximum Day:

$$Base = \frac{Base}{Max\ Day} = \frac{1}{1.74} \approx 57\%$$

$$Max\ Day = \frac{1.74 - 1}{1.74} \approx 43\%$$

For the Max Hour component, the calculations are shown below.

$$Base = \frac{Base}{Max\ Hour} = \frac{1}{3.55} \approx 28\%$$

$$Max\ Day = \frac{Max\ Day - Base}{Max\ Hour} = \frac{0.74}{3.55} \approx 21\%$$

$$Max\ Hour = \frac{Max\ Hour - Max\ Day}{Max\ Hour} = \frac{1.79}{3.55} \approx 51\%$$

The results of these calculations are shown in **Table 4-3** below.

Table 4-3: Maximum Day and Maximum Hour Calculations

	Base	Max Day	Max Hour
Base	100%		
Max Day	57%	43%	
Max Hour	28%	21%	51%

4.4.1 COST OF SERVICE

The functionalization of costs allows us to better allocate costs to the cost causation components. In addition to the cost causation components commonly found in most agencies, Raftelis separated the supply costs into three separate components representative of the Division’s three sources of water supply. The Division’s cost causation components are below:

1. Base costs (costs incurred under average levels of usage)
2. Peaking costs – Maximum Day (costs incurred during high levels of usage)
3. Peaking costs – Maximum Hour (costs incurred during high levels of usage)
4. Division Groundwater (Supply)
5. CLWA Imported Water (Supply)
6. CLWA Saugus 1&2 Well Water (Supply)
7. Conservation
8. Customer Service Metering
9. Customer service Billing
10. Fire

Peaking costs are those which vary with peak demand, or the maximum rates of flow to customers. Peaking costs are 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. System capacity is required when there are large demands for water placed upon the system (e.g., summer lawn watering). For water utilities, capacity related costs are generally related to the sizing of facilities needed to meet a customer’s maximum water demand at any point in time, and the O&M costs associated with those facilities. For example, portions of distribution facilities (pipes) and storage facilities (reservoirs) must be adequately designed and sized to meet the peaking demands of customers. Therefore, extra capacity⁴ costs include the O&M and capital costs associated with meeting peak customer demand. This method is consistent with the M1 Manual, and is widely used in the water industry to perform cost of service analyses.

After obtaining the summary of revenue requirements from the budget, the revenue requirements are allocated to functional cost components. **Table 4-4** shows the percentage allocation for each cost causation component. The functions shown in **Table 4-1** are allocated to cost components depending on

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

which cost causation component that function most closely aligns with. Some are split up, most notably the purchased water function, if some of the causes are caused by more than one component.

The capital allocation was obtained by examining the Division's fixed asset list and determining what proportion of the total asset value was related to which cost causation component.

The pumping/wells allocation was obtained with input from Division staff. Division staff reported that pumping costs and power usage are typically 24% higher during summer (peak) months, so 24% of pumping/wells costs are allocated to the Maximum Hour cost causation component. The remainder is split proportionally between supply components by water purchases.

Table 4-4: Allocation to Cost Causation Components

Cost Categories	Base	Max Day	Max Hour	Groundwater	CLWA Imported Water	Saugus 1&2 Wells	Conservation	Customer Service Billing	Customer Service Metering	Fire
General/Admin	50%							50%		
Conservation							100%			
Treatment				100%						
Base	100%									
Max Day	52%	38%								10%
Max Hour	25%	19%	46%							10%
Max Hour (No Fire)	28%	21%	51%							
CLWA Imported Water					100%					
Saugus 1&2 Well Water						100%				
CLWA and Saugus					83%	17%				
Customer Service								50%	50%	
Pumping/Wells			24%	35%	34%	7%				
Meters									100%	
Fire										100%
Capital	76%	1%	5%	8%	2%	0%		2%	1%	4%

The monthly fixed Service Charges recover all of the costs associated with Customer Service Billing and Customer Service Metering and a majority of the Fire protection costs. The Fire Service charges collect the remainder of the fire costs. The Commodity Charges recover all costs associated with Base, Maximum Day, Maximum Hour, Conservation, and the three Supply components. The allocation of functions goes roughly as follows (and can be seen in the appendix **Section 7.9** for more detail): Pumping was designated a Pumping/Wells cost, Water Treatment was designated a Treatment Cost, Transmission and Distribution was designated a Maximum Hour cost since the Transmission and Distribution system has to be able to handle a maximum hour event, Customer Service was designated a Customer Service cost, Engineering was designated a Maximum Day cost since generally part of the Engineering staff’s function is to plan for peaking events, and Administrative and General were designated General/Admin costs, with a portion designated as Conservation. This Conservation portion is equal to the Division spending on conservation programs. These allocations are shown in detail in the appendix **Section 7.9**.

The Study calculated water rates based on FY 2017 as the base year through FY 2021 for the new proposed rates. The annual revenue requirements or costs of service to be recovered from rates include O&M expenses and the amount of the proposed revenue adjustment that includes the Division’s non-operating revenues as offsets (reductions) of total revenue requirements. The non-operating revenue offsets will reduce the total cost of service to be recovered from proposed rates which in turn will also reduce the required rate adjustments. These additional offsets and adjustments are allocated proportionately to the cost of each cost component as a percentage of the total cost of service. The results are summarized below in **Table 4-5**.

The Adjustment for Annualized Current Rates is a calculation to account for the half year of revenue “missed” by the FY 2017 rate adjustment. Since half of the year would be billed with the FY 2016 rates prior to the 3.5% revenue adjustment on January 1 2017, the FY 2017 revenues are lower than the rates would recover given a full fiscal year of implementation. Therefore, to create fully revenue neutral rates it is necessary to adjust revenues upwards. This number was calculated by multiplying the FY 2017 implemented rates by total FY 2017 consumption and meters.

Table 4-5: Revenue Requirements by Function – Fiscal Year 2016-17

	Total	Base	Max Day	Max Hour	Division Groundwater	CLWA Imported Water	Saugus 1&2 Wells	Conservation	Customer Service Billing	Customer Service Metering	Fire
Subtotal O&M	\$25,171,975	\$3,279,329	\$1,178,341	\$2,729,168	\$2,103,089	\$11,386,296	\$759,988	\$526,837	\$2,179,820	\$492,844	\$536,264
Existing Debt Service	\$2,809,100	\$2,146,771	\$35,522	\$132,634	\$217,194	\$65,311	\$13,216	\$0	\$53,025	\$33,234	\$112,193
Fund Balance	\$4,460,640	\$3,408,912	\$56,406	\$210,613	\$344,887	\$103,710	\$20,986	\$0	\$84,200	\$52,773	\$178,153
New Debt	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal Revenue Requirements	\$32,441,716	\$8,835,012	\$1,270,269	\$3,072,414	\$2,665,170	\$11,555,317	\$794,190	\$526,837	\$2,317,046	\$578,851	\$826,610
Less Revenue Offset											
Non-Operating (Other) Revenues	\$1,456,400	27%	4%	9%	8%	36%	2%	2%	7%	2%	3%
Subtotal Revenue Offsets	\$1,456,400	\$396,629	\$57,026	\$137,929	\$119,647	\$518,751	\$35,653	\$23,651	\$104,019	\$25,986	\$37,109
Midyear Rate Adjustment	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Adjustment for Annualized Current Rates	\$624,762	\$170,145	\$24,463	\$59,169	\$51,326	\$222,532	\$15,295	\$10,146	\$44,622	\$11,148	\$15,919
CLWA Rate Passthrough	\$0										
Total Cost of Service to be Recovered from Proposed Rates	\$31,610,078	\$8,608,528	\$1,237,706	\$2,993,654	\$2,596,848	\$11,259,099	\$773,831	\$513,332	\$2,257,649	\$564,012	\$805,420

These cost causation component functions were then simplified into six **rate components**. These rate components are: Meter Capacity, Accounts, Fire, Water Supply, Conservation, and Peaking. These rate components provide the basis for rate structure design. This process is shown in **Table 4-6**.

The following rate components are fixed Service Charge components:

1. The Meter Capacity rate component includes the costs associated with the fixed costs of system maintenance. This rate component consists of the Base system cost causation component, the Customer Service - Metering cost causation component, 10% of supply costs (i.e., Division Groundwater, CLWA Imported Water, and CLWA Saugus 1&2 Wells) and the majority of the cost-causation component associated with Fire.⁵
2. The Accounts rate component includes the functional costs associated with providing customer service and billing and consists of the Customer Service – Billing functional cost causation component.
3. The Fire rate component includes the costs associated with maintaining extra system capacity to deal with fire events. The 90% of Fire costs causation components recovered by the Meter Capacity rate component can be considered to be the Division’s public fire cost.

The next three rate components are variable Commodity Charge components:

4. The Water Supply rate component consists of 90% of the combined cost causation components of the three sources of water the Division supplies (i.e., Division Groundwater, CLWA Imported Water, and CLWA Saugus 1&2 Wells).
5. The Conservation rate component consists only of the costs from the Conservation cost causation component; no other costs are to be recovered by the Conservation rate component.
6. Finally, the Peaking rate component consists of the cost causation components associated with both Maximum Day and Maximum Hour, which are both considered to be Peaking costs.

These rate component totals are shown in Line 11 of **Table 4-6**.

⁵ All fire related costs that are not met by current Fire Service Meter Charge revenues are met by the Meter Capacity rate component.

Table 4-6: Rate Components and Cost Allocations – Fiscal Year 2016-17

Line #	Cost Causation Components	Source: Table 4-6 Cost of Service	Fixed			Variable		
			Meter Capacity	Accounts	Private Fire	Water Supply	Conservation	Peaking
1	Base	\$8,608,528	100%					
2	Max Day	\$1,237,706						100%
3	Max Hour	\$2,993,654						100%
4	Division Groundwater	\$2,596,848	10%			90%		
5	CLWA Imported Water	\$11,259,099	10%			90%		
6	CLWA Saugus 1&2 Well Water	\$773,831	10%			90%		
7	Conservation	\$513,332					100%	
8	Customer Service - Billing	\$2,257,649		100%				
9	Customer Service - Metering	\$564,012	100%					
10	Fire	\$805,420	90%		10%			
11	Total	\$31,610,078	\$11,360,395	\$2,257,649	\$80,542	\$13,166,800	\$513,332	\$0

5 RATE DERIVATION

5.1 PROPOSED RATE STRUCTURE

The proposed rate structure for the Commodity Charge is a uniform charge for all customers. The Division is electing to eliminate its inclining tier rate structure and implement a uniform commodity structure for all customers. Note that while the Division operates on a FY basis, it is planning on implementing new rates on January 1 of every year in the Study period.

5.2 RATE DERIVATION

The next section deals with the derivation of the rates. The first section addresses the rates for fixed Service Charge calculation, and the second section discusses the derivation of the rates for the Commodity Charges.

5.2.1 FIXED CHARGES

The monthly fixed Service Charge is designed to recover the following rate components: Accounts related costs and Meter Capacity related costs. Accounts costs are uniform for all customers and include such costs as meter reading, billing, collecting and accounting. These costs are assumed to be uniform for all customers because they do not depend on, and are not impacted by, meter size or consumption. **Table 5-1** shows the total Number of Meters and **Table 4-6** shows Meter Capacity costs; however, in order to determine the unit rate for each of these costs, a denominator has to be found. For the Accounts based costs the denominator is the total annual number of bills in the service area. For Meter Capacity related costs, the costs are assessed based on a meter equivalency capacity ratio. This ratio is based on the rated capacity in gallons per minute (GPM) of each meter size. This assumes that larger meters have the potential to demand more capacity, or said differently, exert more peaking characteristics compared to smaller meters. The potential capacity demanded (peaking) is proportional to the potential flow through each meter size as established by the AWWA hydraulic capacity ratios. The ratios shown in **Table 5-1** are the ratio of potential flow through each meter size compared to the flow through a 1-inch meter as the standard meter size.⁶

One-inch meters were selected as the standard since the Division is not anticipating the future installation of any meters smaller than 1-inch in the future due to fire service requirements. Every other meter's rated capacity is divided by the 1-inch meter's capacity (50 GPM) to get that meter's capacity ratio. This capacity ratio is also used to calculate total Meter Equivalent Units (MEUs) in the system, by multiplying the capacity ratio by the relevant number of total meters. **Figure 5-1** shows the capacity ratio calculation for a 3/4-inch meter.

⁶ The MEU calculation in the COS Study differs from the MEU calculation in the Capacity Fee Study. This is because the MEUs in the capacity fee study are a proxy for households whereas the MEUs in the COS study are used as a proxy for each meter's ability to reach into the system. This is based on the Safe Operating capacity of the meter. Basically, the difference is: a ¾ inch meter only has 60% of the capacity of a 1 inch meter, but both still can serve a single household, so both count as 1 MEU in the Capacity Fee Study.

Figure 5-1: Capacity Ratio Calculation for ¾ Inch Meter

$$\frac{30GPM}{50GPM} = 0.6 \text{ Capacity Ratio}$$

Table 5-1 shows the total number of meters (accounts) and MEU totals by meter size for the Division’s total service area.

Table 5-1: Total Number of Meters and Meter Equivalent Units

Meter Size	Meters A	Flow (GPM) B	MEU Ratio C	Total MEUs D=A×C
5/8" x 3/4"	6,296	20	0.4	2,518.4
3/4"	18,105	30	0.6	10,863.0
1"	3,986	50	1	3,986.0
1.5"	729	100	2	1,458.0
2"	1,193	160	3.2	3,817.6
3"	44	320	6.4	281.6
4"	113	500	10	1,130.0
6"	24	1000	20	480.0
8"	8	1600	32	256.0
Total	30,498			24,790.6

Table 5-2 shows the Accounts costs allocated evenly over the number of meters. There are 30,498 meters in the Division’s service area, which equates to 365,976 bills annually.⁷

Table 5-2: Accounts Component of the Fixed Charge

Line	Accounts Charge Calculation	Source or Calculation	FY 2017
1	Total Accounts Cost	Table 4-6	\$2,257,649
2	Number of Meters	Table 5-1	30,498
3	Annual Bills	Line 2×12	365,976
4	Accounts Charge per Bill	Line 1/Line 3	\$6.17

Meter Capacity costs include the meter related costs, base delivery related costs and a majority of public fire related costs. These costs are assigned based on meter size. Based on these ratios, the total equivalent meters equals 24,790.6; therefore, the number of MEUs per year is 24,790.6 multiplied by 12, which equals 297,487.2. **Table 5-3** shows Meter Capacity costs allocated over the Division’s total MEUs.

⁷ 30,498 meters×12 months=365,976 bills annually.

Table 5-3: Meter Capacity Cost Component of the Fixed Service Charge

Line	Meter Capacity Charge Calculation	Source or Calculation	FY 2017
1	Total Meter Capacity Cost	Table 4-6	\$11,360,395
2	Number of MEUs	Table 5-1	24,790.6
3	Annual MEUs	Line 2×12	297,487.2
4	Meter Capacity Charge for Base MEU	Line 1/Line 3	\$38.19

Table 5-4 summarizes the proposed rates for monthly fixed Service Charge for FY 2017. The monthly fixed Service Charge includes both the Customer Service - Billing rate component and the Customer Service - Metering rate component.

Table 5-4: Monthly Fixed Charge Calculation

Source	Table 5-1	Table 5-3	Table 5-2	Table 1-1			
Meter Size	Capacity Ratio	Meter Capacity Charge	Customer Service Charge	COS Rate	Current Rate	Dollar Change	Percent Change
	A	B=A×\$38.19	C	D=B+C	E	F=E-D	G=F/E
5/8" x 3/4"	0.4	\$15.28	\$6.17	\$21.45	\$19.98	\$1.47	7%
3/4"	0.6	\$22.91	\$6.17	\$29.09	\$25.26	\$3.83	15%
1"	1.0	\$38.19	\$6.17	\$44.36	\$35.80	\$8.56	24%
1.5"	2.0	\$76.38	\$6.17	\$82.55	\$62.16	\$20.39	33%
2"	3.2	\$122.20	\$6.17	\$128.37	\$93.80	\$34.57	37%
3"	6.4	\$244.40	\$6.17	\$250.58	\$178.18	\$72.40	41%
4"	10.0	\$381.88	\$6.17	\$388.05	\$273.11	\$114.94	42%
6"	20.0	\$763.76	\$6.17	\$769.93	\$536.79	\$233.14	43%
8"	32.0	\$1,222.01	\$6.17	\$1,228.18	\$853.19	\$374.99	44%

Table 5-5 shows the proposed rates for the Monthly Service Charge through FY 2020. Though these rates are shown on a FY basis, the Division is planning on implementing rate changes on January 1st of each Fiscal Year, going forward from 2018. Therefore, these rates will actually only be in place for half of each FY. Note that the COS rates for FY 2017 will not be implemented in FY 2017, but will be in FY 2018 (because the rates for FY 2018 are the same as FY 2017).

Table 5-5: Proposed Monthly Service Charges (FY 2017 – FY 2020) (\$/Meter Size)

Meter Size	Current				
	Rate	FY 2017	FY 2018	FY 2019	FY 2020
5/8 x 3/4"	\$19.98	\$21.45	\$21.45	\$21.88	\$22.32
3/4"	\$25.26	\$29.09	\$29.09	\$29.68	\$30.28
1"	\$35.80	\$44.36	\$44.36	\$45.25	\$46.16
1.5"	\$62.16	\$82.55	\$82.55	\$84.21	\$85.90
2"	\$93.80	\$128.37	\$128.37	\$130.94	\$133.56
3"	\$178.18	\$250.58	\$250.58	\$255.60	\$260.72
4"	\$273.11	\$388.05	\$388.05	\$395.82	\$403.74
6"	\$536.79	\$769.93	\$769.93	\$785.33	\$801.04
8"	\$853.19	\$1,228.18	\$1,228.18	\$1,252.75	\$1,277.81

5.2.2 FIRE SERVICE CHARGES

Fire Service Charges are calculated in a similar fashion to monthly fixed Service Charges, as they are also fixed charges that are assessed monthly. However, instead of using MEU ratios, the Fire Service Charges use the diameter of the fire line as a proxy for a Fire Meter Equivalent Unit (FMEU) ratio per direction by Division Staff. **Table 5-6** shows the calculation of FMEUs in the Division’s service area.

Table 5-6: Fire Service Lines and Fire Meter Equivalent Units

Fireline Size (In Inches)	A	B	C=A×B
	Count	FMEU Ratio	FMEU Total
1"	3	1	3
2"	31	2	62
4"	78	4	312
6"	59	6	354
8"	149	8	1,192
10"	15	10	150
12"	6	12	72
14"	1	14	14
16"	4	16	64
18"	2	18	36
20"	1	20	20
Total	349		2,279

The next step in determining rates for the Fire Service Charge is finding the rate for one FMEU, also called the Fire Service Base Charge. This is done by dividing the total Private Fire cost from **Table 4-6** by the total number of FMEUs in **Table 5-6**. This step is shown in **Table 5-7**.

Table 5-7: Fire Service Base Charge Calculation

Line	Fire Service Charge Calculation	Source or Calculation	FY 2017
1	Total Private Fire Cost	Table 4-6	\$80,542
2	Number of FMEUs	Table 5-6	2,279
3	Annual Bills	Line 2×12	27,348
4	Fire Service Base Charge	Line 1/Line 3	\$2.95

The final step in calculating Fire Service Rates for the Test Year is to multiply the Fire Service Base Charge by the FMEU ratio. This gives the Fire Service Charge for each fire meter size. This calculation is shown in **Table 5-8**.

Table 5-8: Fire Service Charge Calculation

Source	Table 5-7	Table 5-6	Table 1-3			
Fireline Size (In Inches)	Fire Service Charge per FMEU	FMEU Ratio	COS Rate	Current Rate	Dollar Change	Percent Change
	A	B	C=A×B	D	E=C-D	F=C/D-1
1"	\$2.95	1	\$2.95	\$2.84	\$0.11	4%
2"	\$2.95	2	\$5.90	\$5.68	\$0.22	4%
4"	\$2.95	4	\$11.79	\$11.36	\$0.43	4%
6"	\$2.95	6	\$17.68	\$17.04	\$0.64	4%
8"	\$2.95	8	\$23.57	\$22.72	\$0.85	4%
10"	\$2.95	10	\$29.46	\$28.40	\$1.06	4%
12"	\$2.95	12	\$35.35	\$34.08	\$1.27	4%
14"	\$2.95	14	\$41.24	\$39.76	\$1.48	4%
16"	\$2.95	16	\$47.13	\$45.44	\$1.69	4%
18"	\$2.95	18	\$53.02	\$51.12	\$1.90	4%
20"	\$2.95	20	\$58.91	\$56.80	\$2.11	4%

The final step in determining rates for the Fire Service Charge for the Study period is to escalate the 1-inch diameter fire line according to the proposed revenue increases from **Table 3-8** as the base for calculating the larger fire lines. These rates are shown in **Table 5-9**.

Table 5-9: Proposed Monthly Fire Service Charge (FY 2017-FY 2020) (\$/Fire Line Size)

Fireline Size (In Inches)	Current Rate	FY 2017	FY 2018	FY 2019	FY 2020
1"	\$2.84	\$2.95	\$2.95	\$3.01	\$3.08
2"	\$5.68	\$5.90	\$5.90	\$6.02	\$6.15
4"	\$11.36	\$11.79	\$11.79	\$12.03	\$12.28
6"	\$17.04	\$17.68	\$17.68	\$18.04	\$18.41
8"	\$22.72	\$23.57	\$23.57	\$24.05	\$24.54
10"	\$28.40	\$29.46	\$29.46	\$30.05	\$30.66
12"	\$34.08	\$35.35	\$35.35	\$36.06	\$36.79
14"	\$39.76	\$41.24	\$41.24	\$42.07	\$42.92
16"	\$45.44	\$47.13	\$47.13	\$48.08	\$49.05
18"	\$51.12	\$53.02	\$53.02	\$54.09	\$55.18
20"	\$56.80	\$58.91	\$58.91	\$60.09	\$61.30

5.2.3 VARIABLE COMMODITY CHARGES

Approximately 57% of the Division’s revenue requirements are proposed to be recovered from the Commodity Charges. For this analysis, the three variable rate components, supply, conservation, and peaking, were allocated equally to each unit of water sold. These costs are identified in **Table 4-6**. These costs must be divided by the projected amount of CCF of water sold in FY 2017. Dividing the total rate component by the total number of CCF of water sold yields the unit rate. The sum of each of the three unit rates (from Peaking, Conservation, and Supply) equals the rate per unit of water.

5.2.3.1 Peaking Costs

Extra capacity or peaking costs, represent those costs incurred to meet customer peak demands for water in excess of a baseline usage. Total extra capacity costs are apportioned between Maximum Day and Maximum Hour demands based on the type of expense. 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 are designed to meet different peaking characteristics. Therefore, extra capacity costs include repair & maintenance, personnel, capital improvements and a portion of debt, and have been apportioned between Base, Maximum Day, and Maximum Hour.

Since the Division is implementing a uniform rate structure, costs associated with peaking and conservation will be divided evenly across all usage, each unit will pay the same rate for peaking costs. **Table 5-10** shows how the Peaking costs are calculated.

CCF sale totals are taken from **Table 2-2**. The Peaking Rate Component is taken from **Table 4-6**.

Table 5-10: Peaking Unit Rate Calculation

Rate Calculation	Table 2-2	Table 4-6	Unit Rate (\$/ CCF)
	FY 2017	Peaking	
	Annual Billed Consumption	Rate Component	
	A	B	C=B/A
Uniform Rate	9,662,053	\$4,231,360	\$0.44

5.2.3.2 Conservation Costs

The Division’s Conservation Costs are the costs associated with its conservation program. These costs are equally allocated to each unit of water sold. The total Conservation Rate Component is shown in **Table 4-6**. This calculation is shown in **Table 5-11**.

Table 5-11: Conservation Unit Rate Calculation

Rate Calculation	Table 2-2	Table 4-6	Unit Rate (\$/ CCF)
	FY 2017	Conservation	
	Annual Billed Consumption	Rate Component	
	A	B	C=B/A
Uniform Rate	9,662,053	\$513,332	\$0.05

5.2.3.3 Water Supply Costs

The Division has three separate sources of water. These sources are SCWD Groundwater, CLWA Saugus 1&2 Well water, and CLWA Imported water. Since the Division is proposing to use a uniform rate, it will collect the average supply cost of all sources; all customers will pay a blended water cost that takes into account the average cost of supply. **Table 5-12** shows the calculation that gives the Supply cost per unit of water. The Supply costs are taken from **Table 4-6**.

Table 5-12: Supply Unit Rate Calculation

Rate Calculation	Table 2-2	Table 4-6	Unit Rate (\$/ CCF)
	FY 2017	Supply Rate	
	Annual Billed Consumption	Component	
	A	B	C=B/A
Uniform Rate	9,662,053	\$13,166,800	\$1.36

5.2.4 COS BASED VARIABLE RATES

The above costs are totaled in **Table 5-13** below, which shows the cost of service based rates for Commodity Charges in FY 2017 and **Table 5-14** shows proposed rates in FY 2017 through FY 2021. These rates are calculated by escalating the COS based rates by the rate adjustments in **Section 3.4** to

determine the base rates for the next year. Note that the final rate in column D is rounded up reflecting hidden digits.

Table 5-13: COS Uniform Commodity Rate for FY 2017 (\$/CCF)

	Table 5-10 Peaking Cost A	Table 5-11 Conservation Cost B	Table 5-12 Supply Cost C	Total Rate D= A+B+C
Uniform Rate	\$0.44	\$0.05	\$1.36	\$1.86

Table 5-14: COS Rates for Commodity Charges through FY 2020 (\$/CCF)

Adoption Month Year	January FY 2017	January FY 2018	January FY 2019	January FY 2020
Uniform Rate	\$1.86	\$1.86	\$1.90	\$1.94

The final step in the rate calculation is to add the annual wholesale water pass-through adjustments, calculated in **Section 3.1.2**, to the above rates. To recap, the cumulative pass-through adjustments from **Table 3-6** are shown in **Table 5-15**. Again, CLWA has not implemented rate increases beyond CY 2018, so the pass-through adjustment for CY 2019 and CY 2020 are held constant at the CY 2018 pass-through rate. This is subject to change pending CLWA adjusting its rates.

Table 5-15: Pass-through Rates through FY 2020 (\$/CCF)

	FY 2018
Pass-through Adjustment	\$0.05

The results of adding the pass-through adjustments shown in **Table 5-15** to the proposed rates in **Table 5-14** are shown in **Table 5-16**. Note that these rates are rounded up in this last step, so that the numbers may not add exactly but are all within \$0.01 of the total one would expect. Also note that future pass-through rates will have a different magnitude, so these rates per CCF will likely change in the future.

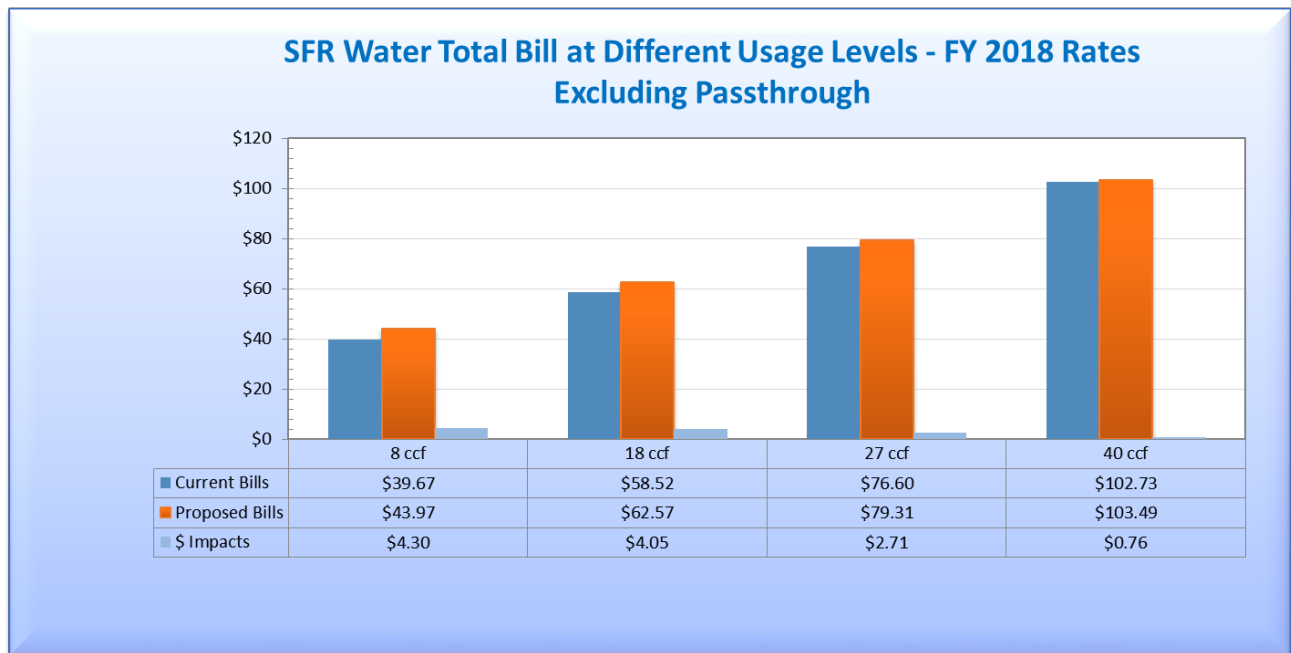
Table 5-16: Proposed Final Rates through FY 2020

	January FY 2018	January FY 2019	January FY 2020
Uniform Rate	\$1.91	\$1.95	\$1.99

5.3 CUSTOMER IMPACTS

Figure 5-2 shows the relative SFR bill impact of the existing Board approved FY 2017 rates and adjusted rate structure. It also shows the comparative impacts of bills at different usages for SFR accounts with a ¾-inch meter.

Figure 5-2: SFR Bills at Different Usage Levels



Raftelis escalated FY 2015’s account level usage to FY 2017’s predicted usage on an account level and monthly basis. After doing so, Raftelis determined what the impacts of the new rates for the Commodity Charges and fixed Service Charges would be on an account level basis. **Figure 5-3, Figure 5-4, and Figure 5-5** show the projected impacts of these rates on bills based on this usage analysis. For example, over 60% of single family residential bills will increase by \$5 or less per month.

Figure 5-3: SFR Bill Impacts

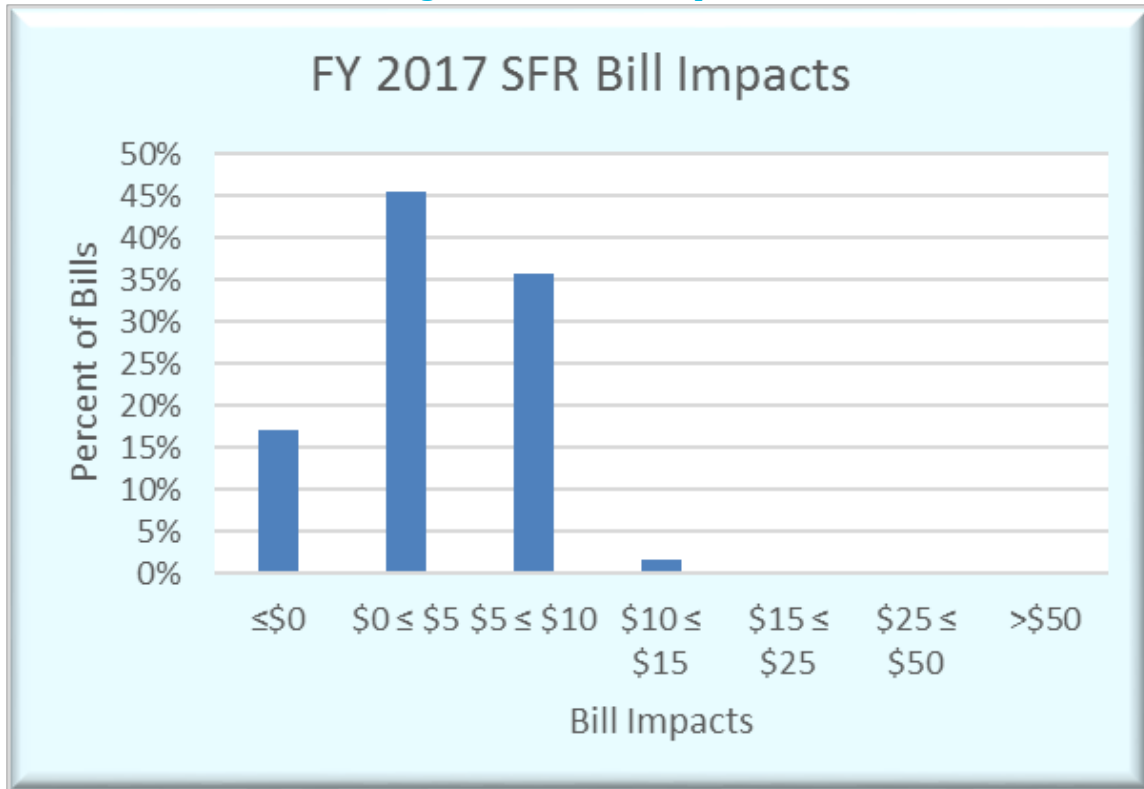


Figure 5-4: Irrigation Bill Impacts

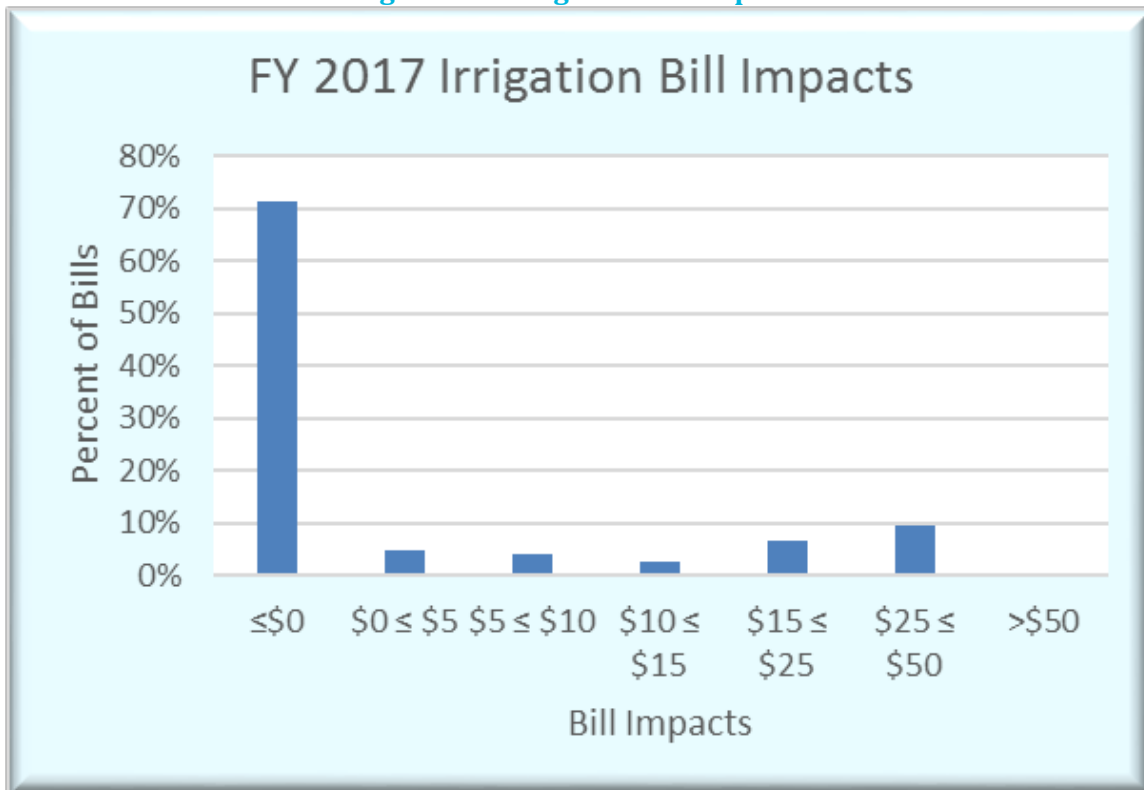
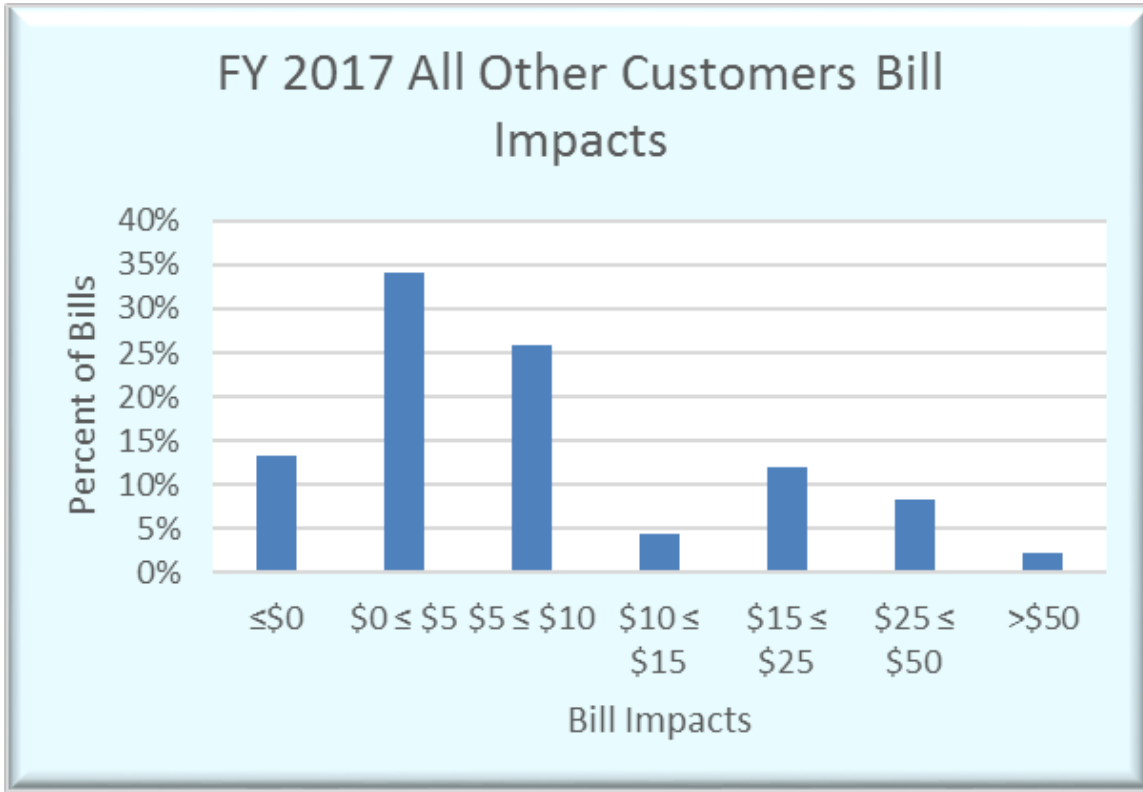


Figure 5-5: All Other Customers Bill Impacts



6. JUMPER RATES

This section will discuss the Division’s proposed Jumper rates. Jumpers are the initial connection of new development to the Division Water System. Jumpers represent the initial temporary connection used by construction firms for use while constructing new buildings. The Division is anticipating an increase in Jumper usage in its service area. The Jumpers that the Division provides are 1” in diameter. They come with an assumed usage of 5 CCF. The base rate for the Division’s Jumpers is the 1” meter rate and an added base usage of 5 CCF of water at the uniform rate. This calculation is shown in **Table 6-1**.

Table 6-1: Jumper Rate Calculation for FY 2017

Source	Table 5-5	Table 5-13 x 5 5 CCF at	
Jumper Rate	1" Meter Rate	Uniform Rate	Total Rate
	A	B	C=A+B
FY 2017 Rate	\$44.36	\$9.30	\$53.66

The Jumper rate for the rest of the Study period is shown in **Table 6-2**. They are escalated according to the rate increases shown in **Table 3-8**. The Jumper rates in future years include the 2018 wholesale pass-through rate.

Table 6-2: Jumper Rate Calculation through FY 2020

	FY 2017	FY 2018	FY 2019	FY 2020
Jumper Rate	\$53.66	\$53.91	\$55.00	\$56.11

7 APPENDICES

7.1 APPENDIX 1 – PROJECTED FIXED MONTHLY SERVICE CHARGE REVENUES BASED ON CURRENT RATES

Fixed Monthly Service Changes

The current rates for the fixed monthly Service Charge by meter size are shown below in **Table 7-1**.

Table 7-1: CY 2017 Rates for Fixed Monthly Service Charge (\$/Meter Size in Inches)

Meter Size	CY 2017
5/8 x 3/4"	\$19.98
3/4"	\$25.26
1"	\$35.80
1.5"	\$62.16
2"	\$93.80
3"	\$178.18
4"	\$273.11
6"	\$536.79
8"	\$853.19

The number of meters by meter size are shown in **Table 7-2** below. These meters are inflated by the account growth factor in **Table 2-1**, although the growth anticipated in 5/8" x 3/4" meters and 3/4" meters is in 1" meters as the Division is no longer installing meters smaller than 1".

Table 7-2: Projected Number of Meters by Meter Size (In Inches)

Meter Size	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
5/8" x 3/4"	6,296	6,296	6,296	6,296	6,296
3/4"	18,105	18,105	18,105	18,105	18,105
1"	3,986	4,431	4,883	5,342	5,758
1.5"	729	740	752	764	775
2"	1,193	1,212	1,231	1,250	1,267
3"	44	45	46	47	48
4"	113	115	117	119	121
6"	24	24	24	24	24
8"	8	8	8	8	8

Table 7-3 shows total projected fixed charge revenue over the Study period by meter size, calculated using the information in **Table 7-1** and **Table 7-2**. Note that due to the fact that the Division increases rates on the CY basis, fixed charge revenue in FY 2017 is calculated by using CY 2016 charges for six

months and CY 2017 charges for the remaining six months. The revenue for all other years is projected using CY 2017 rates.

Table 7-3: Projected Service Charge Revenue by Meter Size (In Inches)

Meter Size	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
5/8 x 3/4"	\$1,483,841	\$1,509,529	\$1,509,529	\$1,509,529	\$1,509,529
3/4"	\$5,395,652	\$5,487,988	\$5,487,988	\$5,487,988	\$5,487,988
1"	\$1,683,447	\$1,903,558	\$2,097,737	\$2,294,923	\$2,473,637
1.5"	\$534,590	\$551,981	\$560,932	\$569,883	\$578,088
2"	\$1,320,150	\$1,364,227	\$1,385,614	\$1,407,000	\$1,426,135
3"	\$92,487	\$96,217	\$98,355	\$100,494	\$102,632
4"	\$364,072	\$376,892	\$383,446	\$390,001	\$396,556
6"	\$151,982	\$154,596	\$154,596	\$154,596	\$154,596
8"	\$80,521	\$81,906	\$81,906	\$81,906	\$81,906
Total Revenue	\$11,106,744	\$11,526,893	\$11,760,102	\$11,996,319	\$12,211,066

7.2 APPENDIX 2 – PROJECTED VARIABLE WATER USAGE COMMODITY CHARGES BASED ON CURRENT RATES

The current rates for the variable water usage commodity charges are charged in the following categories:

Single Family Residence (SFR)
 Multi-Family Residence (MFR)
 Commercial
 Industrial
 Irrigation
 Water Mutual

The Division’s current rates for the Commodity Charge are shown below in **Table 7-4** and **Table 7-5**, in hundred cubic foot (CCF).

Table 7-4: CY 2017 Rates for SFR Commodity Charge (\$/CCF)

SFR Tiers	Tier Width	CY 2017
Tier 1	1-14 CCF	\$1.80
Tier 2	15-49 CCF	\$2.01
Tier 3	≥ 50 CCF	\$2.64

Table 7-5: CY 2017 Rates for Non-SFR Commodity Charge (\$/CCF)

Customer Class	CY 2017
MFR	\$2.01
Commercial	\$2.01
Industrial	\$2.64
Irrigation	\$2.01
Water Mutual	\$2.01

Table 7-6 and **Table 7-7** show projected water sales through FY 2021 in hundred cubic feet (CCF). These sales account for the Water Demand Factor and projected account growth shown in **Table 2-1** and **Table 2-2**, provided by Staff. Note that **Table 7-7** shows fire line consumption, which is not billed but counts toward water purchases (as an operating cost).

Table 7-6: Projected SFR Usage by Tier (In CCF) through FY 2021

	SFR Tiers	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Jul-Dec	Tier 1	1,764,399	1,935,429	2,024,748	2,097,624	2,148,210
	Tier 2	1,121,656	1,230,382	1,287,164	1,333,493	1,365,651
	Tier 3	371,757	407,793	426,613	441,968	452,626
Jan-Jun	Tier 1	1,477,711	1,620,951	1,695,757	1,756,792	1,799,159
	Tier 2	401,895	440,852	461,197	477,797	489,319
	Tier 3	76,797	84,241	88,129	91,301	93,503
	SFR Total	5,214,215	5,719,648	5,983,608	6,198,975	6,348,468

Table 7-7: Projected Non-SFR Usage (In CCF) through FY 2021

Customer Class	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	
Jul-Dec	MFR	697,813	765,455	800,780	829,602	849,609
	Commercial	481,275	1,270,496	588,325	572,170	585,968
	Industrial	21,187	23,241	24,314	25,189	25,796
	Water Mutual	124,720	136,810	143,124	148,275	151,851
	Irrigation	1,410,132	1,522,943	1,599,090	1,679,045	1,712,626
	Fire Service	5,741	6,297	6,588	6,825	6,990
Jan-Jun	MFR	634,684	696,206	728,336	754,551	772,748
	Commercial	470,381	598,088	356,024	368,838	377,733
	Industrial	14,552	15,963	16,700	17,301	17,718
	Water Mutual	64,848	71,134	74,417	77,095	78,954
	Irrigation	522,500	564,300	592,515	622,141	634,584
	Fire Service	5	5	5	5	5
Total Irrigation	1,932,632	2,087,243	2,191,605	2,301,186	2,347,210	
All Other Customers	2,515,206	3,583,695	2,738,613	2,799,851	2,867,372	

Table 7-8 projects total commodity revenue through the Study period, calculated using usage information found in **Table 7-6** and **Table 7-7** and the rates in **Table 7-4** and **Table 7-5**.

Table 7-8: Projected Commodity Charge Revenue through FY 2021

Customer Class		FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
SFR						
Jul-Dec	Tier 1	\$3,071,113	\$3,486,675	\$3,647,584	\$3,778,870	\$3,870,000
	Tier 2	\$2,177,695	\$2,472,330	\$2,586,427	\$2,679,521	\$2,744,139
	Tier 3	\$948,873	\$1,077,267	\$1,126,984	\$1,167,547	\$1,195,702
Jan-Jun	Tier 1	\$2,662,096	\$2,920,143	\$3,054,906	\$3,164,861	\$3,241,185
	Tier 2	\$807,568	\$885,848	\$926,729	\$960,085	\$983,238
	Tier 3	\$202,875	\$222,539	\$232,810	\$241,190	\$247,007
SFR Commodity						
Revenue		\$9,870,219	\$11,064,802	\$11,575,440	\$11,992,073	\$12,281,271
Non-SFR						
Jul-Dec	MFR	\$1,354,804	\$1,538,105	\$1,609,087	\$1,667,002	\$1,707,204
	Commercial	\$934,395	\$2,552,935	\$1,182,180	\$1,149,718	\$1,177,444
	Industrial	\$41,135	\$46,700	\$48,857	\$50,615	\$51,834
	Irrigation	\$242,144	\$274,906	\$287,593	\$297,944	\$305,129
	Water Mutual	\$3,599,221	\$4,023,159	\$4,224,316	\$4,435,533	\$4,524,244
	Fire Line	\$0	\$0	\$0	\$0	\$0
Jan-Jun	MFR	\$1,275,334	\$1,398,956	\$1,463,518	\$1,516,195	\$1,552,760
	Commercial	\$945,184	\$1,201,798	\$715,395	\$741,143	\$759,017
	Industrial	\$29,241	\$32,076	\$33,557	\$34,765	\$35,603
	Irrigation	\$130,306	\$142,937	\$149,534	\$154,915	\$158,650
	Water Mutual	\$1,380,288	\$1,490,711	\$1,565,247	\$1,643,510	\$1,676,381
	Fire Line	\$0	\$0	\$0	\$0	\$0
Non-SFR Commodity						
Revenue		\$9,932,051	\$12,702,283	\$11,279,283	\$11,691,339	\$11,948,266

7.3 APPENDIX 3 – PROJECTED FIRE SERVICE REVENUE BASED ON CURRENT RATES

The rates for the Fire Service Meter Charge are shown in **Table 7-9** below, and the total number of fire meters for the Study period is shown in **Table 7-10**.

Table 7-9: Current CY 2017 Rates for Monthly Fire Service Charge (\$/Fire Line Size in Inches)

	CY 2017
1"	\$2.84
2"	\$5.68
4"	\$11.36
6"	\$17.04
8"	\$22.72
10"	\$28.40
12"	\$34.08
14"	\$39.76
16"	\$45.44
18"	\$51.12
20"	\$56.80

Table 7-10: Projected Number of Fire Service Meters by Fire Line Size (In Inches) through FY 2021

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1"	3	3	3	3	3
2"	31	31	31	31	31
4"	78	79	80	81	82
6"	59	60	61	62	63
8"	149	151	153	155	157
10"	15	15	15	15	15
12"	6	6	6	6	6
14"	1	1	1	1	1
16"	4	4	4	4	4
18"	2	2	2	2	2
20"	1	1	1	1	1

Table 7-11 shows total revenue from the Fire Service Meter Charge that the Division is projected to collect through the Study period. This revenue is calculated using the rates shown in **Table 7-9** and the quantities shown in **Table 7-10**.

Table 7-11: Projected Fire Service Meter Charge Revenue through FY 2021

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1"	\$100	\$102	\$102	\$102	\$102
2"	\$2,076	\$2,113	\$2,113	\$2,113	\$2,113
4"	\$10,446	\$10,769	\$10,906	\$11,042	\$11,178
6"	\$11,852	\$12,269	\$12,473	\$12,678	\$12,882
8"	\$39,908	\$41,169	\$41,714	\$42,259	\$42,804
10"	\$5,022	\$5,112	\$5,112	\$5,112	\$5,112
12"	\$2,411	\$2,454	\$2,454	\$2,454	\$2,454
14"	\$469	\$477	\$477	\$477	\$477
16"	\$2,143	\$2,181	\$2,181	\$2,181	\$2,181
18"	\$1,205	\$1,227	\$1,227	\$1,227	\$1,227
20"	\$670	\$682	\$682	\$682	\$682
Fire Service Revenue	\$76,301	\$78,554	\$79,440	\$80,327	\$81,213

7.4 APPENDIX 4 – PROJECTED WATER RATE REVENUES AT CURRENT RATES AND PROJECTED MISCELLANEOUS REVENUES

Table 7-12 shows projected water revenues at current rates based on the information shown in Appendices 7.1 through 7.3.

Table 7-12: Projected Water Rate Revenues at Current Rates

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Fixed Service Charge Revenue	\$11,106,744	\$11,526,893	\$11,760,102	\$11,996,319	\$12,211,066
Fire Service Meter Charge Revenue	\$76,301	\$78,554	\$79,440	\$80,327	\$81,213
SFR Commodity Charge Revenue	\$9,870,219	\$11,064,802	\$11,575,440	\$11,992,073	\$12,281,271
Non-SFR Commodity Charge Revenue	\$9,932,051	\$12,702,283	\$11,279,283	\$11,691,339	\$11,948,266
Total Calculated Revenue	\$30,985,316	\$35,372,533	\$34,694,267	\$35,760,058	\$36,521,816

Additionally, the Division has several sources of non-operating revenue. These are shown **Table 7-13**. Projected revenues are based on the escalation factors in **Table 2-6**.

Table 7-13: Projected Non-Operating Revenues through FY 2021

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Other Income - Cellular Antenna Rental and Miscellaneous	\$286,000	\$291,720	\$297,554	\$303,505	\$309,576
Rental Income - 22722 Soledad Canyon Road Office Building	\$134,400	\$137,088	\$139,830	\$142,626	\$145,479
Interest Earnings - SCWD Fund	\$236,000	\$236,000	\$236,000	\$236,000	\$236,000
Interest Earnings - COP Fund	\$0	\$0	\$0	\$0	\$0
Miscellaneous Service Charges and Late Fees	\$800,000	\$800,000	\$800,000	\$800,000	\$800,000
Total Projected Non-Operating Rev	\$1,456,400	\$1,464,808	\$1,473,384	\$1,482,132	\$1,491,054

7.5 APPENDIX 5 – PROJECTED OPERATIONS AND MAINTENANCE EXPENDITURES

Table 7-14 shows total budgeted and projected O&M expenses, from FY 2017 through FY 2021, based on the escalation factors shown in **Table 2-4**. The O&M Adjustment Amount line in FY 2017 is in place to match the FY 2017 budgeted amount to its actuals.

Table 7-14: Projected O&M Costs

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Source of Supply (Other Costs ⁸)	\$233,998	\$251,300	\$258,839	\$266,604	\$274,602
Source of Supply (Purchased Water) (Table 3-5)	\$10,756,263	\$12,178,700	\$12,132,694	\$12,122,184	\$12,853,976
Pumping	\$2,806,178	\$3,079,101	\$3,537,435	\$3,881,218	\$4,064,550
Water Treatment	\$1,126,416	\$1,229,000	\$1,263,476	\$1,307,130	\$1,351,204
Transmission and Distribution	\$4,479,854	\$4,638,401	\$4,642,978	\$4,747,008	\$4,889,418
Customer Service	\$985,688	\$1,026,101	\$1,056,884	\$1,088,590	\$1,121,248
Engineering	\$882,789	\$1,203,800	\$1,239,914	\$1,277,111	\$1,315,424
Administrative and General	\$3,494,659	\$3,738,900	\$3,804,455	\$3,915,094	\$4,044,745
O&M Adjustment Amount	\$406,130	\$0	\$0	\$0	\$0
Subtotal O&M	\$25,171,975	\$27,345,302	\$27,936,674	\$28,604,940	\$29,915,168

⁸ Other Costs include all other costs (Labor, Burden and Benefits, Materials and Supplies, Outside Services, etc.) from Source of Supply category excluding CLWA's Purchased Water.

7.6 APPENDIX 6 – PROJECTED DEBT SERVICE

A summary of the Division’s current debt service payments is shown below. The Division is in the processing of refunding its 2011 A Revenue Bonds which is estimated to reduce annual debt service by \$220,000 each year. These savings are included in the totals in **Table 7-15** below.

Table 7-15: Current Debt Service Schedule

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Existing Debt Service	\$2,809,100	\$5,268,375	\$5,395,069	\$5,510,613	\$5,630,238

7.7 APPENDIX 7 – PROJECTED CAPITAL IMPROVEMENT PROGRAM EXPENDITURES

The Division has adopted a long-term capital improvement plan (CIP) to address future capital needs. This CIP is based on the extensive 2013 Retail Water System Master Plan. These needs are divided into Expansion-Related Projects and Upgrade-Related Projects. Expansion-Related Projects are funded by Capacity Fees (discussed in a separate report), and Upgrade-Related Projects are to be rate funded. **Table 7-16** shows a summary of the upcoming 5-year CIP provided by the Division. The Division’s future CIP needs will be funded on a Pay-As-You-Go (PAYGO) basis.

Table 7-16: CIP Summary

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1 Expansion Projects	\$1,591,500	\$1,221,000	\$286,488	\$545,274	\$367,758
2 Upgrade Projects	\$4,214,700	\$5,201,900	\$6,231,385	\$5,683,041	\$6,437,760
3 Total expenditures (Line 1 + Line 2)	\$5,806,200	\$6,422,900	\$6,517,873	\$6,228,315	\$6,805,518

7.8 APPENDIX 8 – ANALYSIS OF RESERVE FUNDS

Currently, the Division maintains five reserve targets.

1. **Operating Reserve Fund.** Covers unscheduled costs relating to the operation of the retail water system, including, but not limited to, unforeseen repairs, emergencies, unexpected increases in treatment costs, regulatory changes, unforeseen legal expenses and disruption of a source of supply. The target balance for the Operating Reserve Fund shall be set at 25% of the Retail Annual Operating Expense Budget. Funds from the Operating Reserve Fund shall be used exclusively for operating expenses of the retail water system, unless otherwise authorized by the Board of Directors. The Operating Reserve Fund was fully funded by June 2014. Additional allocations to the Operating Reserve Fund, to replace funds expended over the fiscal year or to increase the balance to match increases in the Annual Operating Expense Budget, shall be included in the annual budget. If the balance in the Operating Reserve Fund drops below 50% of the target amount during a fiscal year, staff will advise the Board of Directors and recommend appropriate action. In any year, the balance in the Operating Reserve Fund shall not exceed 25% of that year's Operating Expense Budget.
2. **Rate Stabilization Reserve Fund.** Offsets revenue reductions resulting from reduced retail water sales during periods when consumption is 10% or more below average consumption. The Rate Stabilization Reserve Fund shall have a target balance of 15% of Retail Annual Operating Revenue Budget. Additional allocations to the Rate Stabilization Reserve Fund to replace funds expended over the fiscal year or to increase the balance to match increases in the Annual Operating Revenue Budget, shall be included in the annual budget. If the balance in the Rate Stabilization Reserve Fund drops below 50% of the target amount during a fiscal year, staff will advise the Board of Directors and recommend appropriate action. In any year, the balance in the Operating Rate Stabilization Reserve Fund shall not exceed 15% of that year's Operating Revenue Budget.
3. **Capital Reserve Fund.** Covers any unexpected and unplanned infrastructure and replacement repairs not included in the budget. The Capital Reserve Fund shall have a target balance of \$5 million. Additional allocation to the Capital Reserve Fund to replace funds expended over the fiscal year shall be included in the annual budget. If the balance in the Capital Reserve Fund drops below 50% of the target amount during a fiscal year, staff will advise the Board of Directors and recommend appropriate action. In any year, the balance in the Capital Reserve Fund shall not exceed \$5 million.
4. **Emergency Reserve Fund.** Covers any emergency repairs and expenses due to unforeseen natural disasters such as earthquake, fire, etc. The Emergency Reserve Fund covers immediate repairs and expenses to restore the Division's operations for continued water delivery to its customers. The Emergency Reserve Fund shall have a target balance of \$2.2 million based on two percent of net capital assets. Industry Standard is 2 to 3 percent of net capital assets and the Federal Emergency Management Agency (FEMA) guideline is approximately 2 percent. Additional allocation to the Emergency Reserve Fund to replace funds expended over the fiscal year shall be included in the annual budget. If the balance in the Emergency Reserve Fund drops below 50% of the target amount during a fiscal year, staff will advise the Board of Directors and recommend appropriate action. In any year, the balance in the Emergency Reserve Fund shall not exceed \$2.2 million.
5. **Liability Repayment Reserve Fund.** Mitigates significant future financial impact for long-term debts such as CalPERS and OPEB Unfunded Liability and other such liabilities. Provides funds for

repayments of debt and future interest expense. The Liability Repayment Reserve Fund shall have an initial target balance of \$2 million and reviewed annually during the Budget process.

6. **Unrestricted Reserve Fund.** This fund is the residual net resources in excess of all the reserve target limits mentioned in items 1 through 5 above. The Unrestricted Reserve Fund balance is available for any purposes approved by the Board of Directors. The balance in the Unrestricted Reserve Fund shall not drop below zero.

The Division’s total reserve target for the Study period is shown in **Table 7-17**. This table does not show the Division’s ending balances. That information is shown in **Table 3-10**, which reflects the proposed revenue adjustment.

Table 7-17: Reserve Target Summary

	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Operating Reserve Fund Target	\$6,292,994	\$6,836,325	\$6,984,169	\$7,151,235	\$7,478,792
Rate Stabilization Reserve Fund Target	\$4,767,797	\$5,467,442	\$5,498,122	\$5,840,528	\$6,216,121
Capital Reserve Fund Target	\$1,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000
Liability Repayment Reserve	\$0	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000
Emergency Reserve Fund Target	\$1,000,000	\$2,200,000	\$2,200,000	\$2,200,000	\$2,200,000
Total Reserve Target	\$13,060,791	\$21,503,767	\$21,682,290	\$22,191,763	\$22,894,913

7.9 APPENDIX 9 – FUNCTIONALIZED COST COMPONENT ALLOCATION DETAIL

Table 7-18: Budget Functionalization

	Total	Base	Max Day	Max Hour	Division Ground-water	CLWA Imported Water	CLWA Saugus Well 1&2	Conservation	Customer Service – Billing	Customer Service - Metering	Fire
	Total Expense										
	Allocated Cost Component										
Source of Supply											
Purchased Water											
<i>Saugus 1&2 Well</i>	\$526,050						\$526,050				
<i>Imported Demand Fixed Charge</i>	\$7,094,764					\$7,094,764					
<i>Variable Rate</i>	\$3,135,449					\$3,135,449					
Labor	\$142,683					\$118,670	\$24,013				
Burden and Benefits	\$75,404					\$62,714	\$12,690				
Transportation	\$15,122					\$12,577	\$2,545				
Materials and Supplies	\$100					\$83	\$17				
Outside Services	\$0					\$0	\$0				
Other	\$689					\$573	\$116				
Pumping											
Power for Pumping	\$1,811,140			\$434,674	\$630,356	\$620,542	\$125,569				
Labor	\$407,366			\$97,768	\$141,781	\$139,574	\$28,243				
Burden and Benefits	\$209,586			\$50,301	\$72,945	\$71,809	\$14,531				
Transportation	\$58,706			\$14,089	\$20,432	\$20,114	\$4,070				

Materials and Supplies	\$104,374	Pumping/ Wells	\$0	\$0	\$25,050	\$36,327	\$35,761	\$7,236	\$0	\$0	\$0	\$0
Outside Services	\$199,742	Pumping/ Wells	\$0	\$0	\$47,938	\$69,519	\$68,437	\$13,848	\$0	\$0	\$0	\$0
Other	\$15,264	Pumping/ Wells	\$0	\$0	\$3,663	\$5,313	\$5,230	\$1,058	\$0	\$0	\$0	\$0
Water Treatment												
Chemicals	\$94,638	Division Ground- water	\$0	\$0	\$0	\$94,638	\$0	\$0	\$0	\$0	\$0	\$0
Labor	\$386,480	Division Ground- water	\$0	\$0	\$0	\$386,480	\$0	\$0	\$0	\$0	\$0	\$0
Burden and Benefits	\$198,588	Division Ground- water	\$0	\$0	\$0	\$198,588	\$0	\$0	\$0	\$0	\$0	\$0
Transportation	\$49,872	Division Ground- water	\$0	\$0	\$0	\$49,872	\$0	\$0	\$0	\$0	\$0	\$0
Materials and Supplies	\$77,019	Division Ground- water	\$0	\$0	\$0	\$77,019	\$0	\$0	\$0	\$0	\$0	\$0
Outside Services	\$316,571	Division Ground- water	\$0	\$0	\$0	\$316,571	\$0	\$0	\$0	\$0	\$0	\$0
Other	\$3,248	Division Ground- water	\$0	\$0	\$0	\$3,248	\$0	\$0	\$0	\$0	\$0	\$0
Transmission and Distribution												
Labor	\$1,824,573	Max Hour	\$462,568	\$342,300	\$837,248	\$0	\$0	\$0	\$0	\$0	\$0	\$182,457
Burden and Benefits	\$972,646	Max Hour	\$246,586	\$182,474	\$446,321	\$0	\$0	\$0	\$0	\$0	\$0	\$97,265
Transportation	\$166,478	Max Hour	\$42,206	\$31,232	\$76,392	\$0	\$0	\$0	\$0	\$0	\$0	\$16,648
Materials and Supplies	\$619,736	Max Hour	\$157,116	\$116,266	\$284,380	\$0	\$0	\$0	\$0	\$0	\$0	\$61,974
Outside Services	\$783,867	Max Hour	\$198,727	\$147,058	\$359,696	\$0	\$0	\$0	\$0	\$0	\$0	\$78,387
Other	\$112,554	Max Hour	\$28,535	\$21,116	\$51,648	\$0	\$0	\$0	\$0	\$0	\$0	\$11,255

Customer Service													
Uncollectibles	\$65,712	Customer Service - Billing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$32,856	\$32,856	\$0
Labor	\$340,573	Customer Service - Billing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$170,287	\$170,287	\$0
Burden and Benefits	\$193,774	Customer Service - Billing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$96,887	\$96,887	\$0
Transportation	\$0	Customer Service - Billing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Materials and Supplies	\$159,766	Customer Service - Billing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$79,883	\$79,883	\$0
Outside Services	\$220,126	Customer Service - Billing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$110,063	\$110,063	\$0
Other	\$5,737	Customer Service - Billing	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,869	\$2,869	\$0
Engineering													
Labor	\$398,139	Max Day	\$205,934	\$152,391	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$39,814
Burden and Benefits	\$195,013	Max Day	\$100,869	\$74,643	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$19,501
Transportation	\$5,471	Max Day	\$2,830	\$2,094	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$547
Materials and Supplies	\$23,585	Max Day	\$12,199	\$9,027	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,359
Outside Services	\$237,286	Max Day	\$122,734	\$90,823	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$23,729
Other	\$23,295	Max Day	\$12,049	\$8,916	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$2,330
Administrative and General													
Labor	\$780,931	General/Admin	\$390,466	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$390,466	\$0	\$0
Burden and Benefits	\$391,079	General/Admin	\$195,540	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$195,540	\$0	\$0
Shared Labor/Burden and Benefits from CLWA	\$608,174	General/Admin	\$304,087	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$304,087	\$0	\$0

Transportation	\$3,293	General/ Admin	\$1,647	\$0	\$0	\$0	\$0	\$0	\$0	\$1,647	\$0	\$0
Materials and Supplies	\$104,726	General/ Admin	\$52,363	\$0	\$0	\$0	\$0	\$0	\$0	\$52,363	\$0	\$0
Outside Services	\$405,700	General/ Admin	\$202,850	\$0	\$0	\$0	\$0	\$0	\$0	\$202,850	\$0	\$0
Conservation Directors	\$526,837	Conservat ion	\$0	\$0	\$0	\$0	\$0	\$0	\$526,837	\$0	\$0	\$0
Compensation	\$9,863	General/ Admin	\$4,932	\$0	\$0	\$0	\$0	\$0	\$0	\$4,932	\$0	\$0
Professional Services	\$303,593	General/ Admin	\$151,797	\$0	\$0	\$0	\$0	\$0	\$0	\$151,797	\$0	\$0
Property, Liability and Retiree Medical Insurance	\$354,406	General/ Admin	\$177,203	\$0	\$0	\$0	\$0	\$0	\$0	\$177,203	\$0	\$0
Dues and Memberships	\$53,134	General/ Admin	\$26,567	\$0	\$0	\$0	\$0	\$0	\$0	\$26,567	\$0	\$0
Other Administrative and General Transfer Labor	\$88,041	General/ Admin	\$44,021	\$0	\$0	\$0	\$0	\$0	\$0	\$44,021	\$0	\$0
	-\$135,118	General/ Admin	-\$67,559	\$0	\$0	\$0	\$0	\$0	\$0	-\$67,559	\$0	\$0
O&M Adjustment Amount	\$406,130	General/ Admin	\$203,065	\$0	\$0	\$0	\$0	\$0	\$0	\$203,065	\$0	\$0
Subtotal O&M Existing Debt Service	\$25,171,975		\$3,279,329	\$1,178,341	\$2,729,168	\$2,103,089	\$11,386,296	\$759,988	\$526,837	\$2,179,820	\$492,844	\$536,264
Fund Balance	\$2,809,100	Capital	\$2,146,771	\$35,522	\$132,634	\$217,194	\$65,311	\$13,216	\$0	\$53,025	\$33,234	\$112,193
	\$4,460,640	Capital	\$3,408,912	\$56,406	\$210,613	\$344,887	\$103,710	\$20,986	\$0	\$84,200	\$52,773	\$178,153
New Debt	\$0	Capital	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal Revenue Requirements	\$32,441,716		\$8,835,012	\$1,270,269	\$3,072,414	\$2,665,170	\$11,555,317	\$794,190	\$526,837	\$2,317,046	\$578,851	\$826,610
Less Revenue Offset Non-Operating (Other) Revenues	\$1,456,400		27%	4%	9%	8%	36%	2%	2%	7%	2%	3%
Subtotal Revenue Offsets	\$1,456,400		\$396,629	\$57,026	\$137,929	\$119,647	\$518,751	\$35,653	\$23,651	\$104,019	\$25,986	\$37,109
Midyear Rate Adjustment	\$0		\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Adjustment for Annualized Current Rates	\$624,762	\$170,145	\$24,463	\$59,169	\$51,326	\$222,532	\$15,295	\$10,146	\$44,622	\$11,148	\$15,919
CLWA Rate Passthrough	\$0										
Total Cost of Service to be Recovered from Proposed Rates	\$31,610,078	\$8,608,528	\$1,237,706	\$2,993,654	\$2,596,848	\$11,259,099	\$773,831	\$513,332	\$2,257,649	\$564,012	\$805,420