TRABUCO CANYON WATER DISTRICT

2015 Water, Recycled Water and Wastewater Rate Study Report

December 7, 2015

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December 5, 2015

Board of Directors and
Hector Ruiz, P.E.
General Manager
Trabuco Canyon Water District
32003 Dove Canyon Drive
Trabuco Canyon, CA 92679

Subject: Trabuco Canyon Water District 2015 Water, Recycled Water, and Sanitation Rate Study Report

Dear Members of the Board and Mr. Ruiz,

Raftelis Financial Consultants, Inc. (RFC) is pleased to provide this 2015 Water, Recycled Water and Wastewater Rate Study Report (Report) for Trabuco Canyon Water District (District).

The major objectives of the study include the following:

1. Develop financial plans for the District's Water, Recycled Water (RW) and Wastewater (WW) utilities to ensure financial sufficiency, meet operation and maintenance (O&M) costs, and help ensure sufficient funding for capital refurbishment and replacement (R&R) needs;
2. Conduct a cost-of-service (COS) analysis for the District's Water, RW, and WW utilities;
3. Provide documentation to support proposed revisions to the current residential water tiered rate structure to meet the District's objectives for enhanced revenue stability; and
4. Develop fair and equitable 5-year water, RW and WW rates to enhance revenue stability which conform to Proposition 218 requirements based on the analysis and methodology set out in this Report.

This Report summarizes our key findings and recommendations. It has been a pleasure working with you and we appreciate the support from your customer service, operations, engineering, and accounting staff including the District's Treasurer, Cindy Byerrum, who provided financial information for this study.

Sincerely,

RAFTELIS FINANCIAL CONSULTANTS, INC.

Steve Gagnon
Senior Consultant

Khanh Phan
Senior Consultant

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GLOSSARY

Commonly Used Terms

Terms	Descriptions
AF	Acre foot / Acre feet, 1 AF = 435.6 CCF
AWWA	American Water Works Association
Board	Board of Directors of the District
CCF	Centum cubic feet or 100 cubic feet, 1 HCF = 748 gallons
CIP	Capital Improvement Projects
COS	Cost of Service
CPI	Consumer Price Index/Indices
District	Trabuco Canyon Water District
EMU	Equivalent Meter Unit
ERU	Equivalent Residential Unit
ENR CCI	Engineering News Records Construction Cost Indices
ET	Evapotranspiration Rate
ETAF	Evapotranspiration Factor
FYE	Fiscal Year Ending (July 1 – June 30)
GPCD	Gallons per capita per day
IRWD	Irvine Ranch Water District
IWB	Indoor Water Budget
KGAL	Thousands of gallons
M1 Manual	"Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices M1" published by AWWA
MFR	Multi-Family Residential
MGD	Million gallons per day
MWD	Metropolitan Water District of Southern California
MWDOC	Municipal Water District of Orange County
O&M	Operations and Maintenance
OWB	Outdoor Water Budget
PAYGO	Pay-As-You-Go
R&R	Refurbishment and Replacement
PERS	Public Employees Retirement System
Report	Trabuco Canyon Water District 2015 Water, Recycled Water and Wastewater Study Report
RFC	Raftelis Financial Consultants, Inc.
SAC	Santiago Aqueduct Commission
SFR	Single Family Residential

SMWD	Santa Margarita Water District
State	State of California
TRSC	Temporary Revenue Stabilization Charge
WRES	Water Reliability and Emergency Storage Charge

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1 INTRODUCTION

1.1 STUDY/REPORT BACKGROUND

In the summer of 2015, the Trabuco Canyon Water District (the District) engaged Raftelis Financial Consultants (RFC) to conduct a Water, Recycled Water and Wastewater Rate Study (Study) which included preparation of a ten-year Financial Plan. In light of recent Statewide drought conditions and water rate litigation, the District pursued a rate study to help plan for a sound financial program for the District and to set rates and charges that are based on the true costs to serve each customer class and tier (as defined herein).

This Report summarizes the key findings and recommendations related to the development of the financial plans for Water, Recycled Water and Wastewater Funds and the development of potable water, recycled water, and wastewater rates and rate structures (including the TRSC). For purposes of the analysis set out in this Report, the terms "Rate(s)" and "Charge(s)" may be used interchangeably.

The District is a county water district organized and existing pursuant to California Water Code Sections 30000 (the County Water District Law). The District provides water, recycled water and wastewater services to customers located within the District boundaries. The District's primary facilities are comprised of a Water Treatment Plant located in the City of Lake Forest, the Waste Water Treatment Plant located in the upper Robinson Ranch development, the Trabuco Creek Wells facility located in Trabuco Canyon, and the Administration Facility which located just outside the gates of Dove Canyon. Appendix 12.1 shows a map of the District's facilities.

The principal objectives of the study and the Report include the following:

1. Develop financial plans for the District's Water, Recycled Water (RW) and Wastewater (WW) utilities to ensure financial sufficiency, meet operation and maintenance (O&M) costs, and help ensure sufficient funding for capital refurbishment and replacement (R&R) needs;
2. Conduct a cost-of-service (COS) analysis for the District's Water, RW, and WW utilities;
3. Provide documentation to support proposed revisions to the current residential water tiered rate structure to meet the District's objectives for enhanced revenue stability; and
4. Develop fair and equitable 5-year water, RW and WW rates to enhance revenue stability which conform with Proposition 218 requirements based on the analysis and methodology set out in this Report.

This Report includes data provided by the District, uses certain outside objective reference points and studies and utilizes standards and methodologies that have been developed by the water and wastewater industries over a considerable period of time.

1.2 Legal Requirements and Rate Setting Methodology

1.2.1 Legal Requirements

In November 1996, California voters approved Proposition 218, which amended the California Constitution by adding Articles XIII C and Article XIII D. Article XIII D placed certain limitations on the use of the revenue collected from property-related fees and charges and on the amount of the fee or charge that may be imposed on each parcel by governmental agencies. Additionally, it established procedural requirements for imposing new, or increasing existing, property-related fees and charges. Water and sanitation service fees were determined to be property-related fees, and thus subject to the requirements and limitations of Proposition 218, by the California Supreme Court ruling issued in the case of *Bighorn-Desert View Water Agency v. Verjil*.

In accordance with the Proposition 218 requirements and limitations, a property-related fee or charge must meet all of the following requirements:

(1) Revenue derived from the fee or charge must not exceed the funds required to provide the corresponding property-related service;

(2) Revenue from the fee or charge must not be used for any purpose other than that for which the fee or charge is imposed;

(3) The amount of a fee or charge imposed upon any parcel or person as an incident of property ownership must not exceed the proportional cost of the service attributable to such parcel;

(4) The fee or charge may not be imposed for a service, unless the service is actually used by, or immediately available to, the owner of the property subject to the fee or charge. A fee or charge based on potential or future use of a service is not permitted, and stand-by charges must be classified as assessments subject to the ballot protest and proportionality requirements for assessments; and

(5) No fee or charge may be imposed for general governmental services, such as police, fire, ambulance, or libraries, where the service is available to the public in substantially the same manner as it is to property owners.

The five substantive requirements in Article XIII D are structured to place limitations on (1) the use of the revenue collected from property-related fees and charges and (2) the allocation of costs recovered by such fees or charges to ensure that they are proportionate to the cost of providing the service(s) attributable to each parcel.

For purposes of this Report RFC notes that property tax revenues allocated to the District pursuant to State law are not subject to the provisions and limitations of Proposition 218.

1.2.2 Rate Setting Methodology

This Report was prepared using the principles established by the American Water Works Association's *Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices M1* (the "M1 Manual") which

establishes commonly accepted professional standards for cost of service (COS) studies. The M1 Manual general principles of rate structure design and the objectives of the Report are described below.

The M1 Manual provides that the first step in ratemaking is to determine the adequate funding of a utility. This is referred to as the "revenue requirement" analysis. This analysis considers the utility's short-term and long-term service requirements and objectives over a given planning horizon, including capital facilities and system operations and maintenance, to determine the adequacy of a utility's existing rates to recover its costs. A number of factors may affect these projections, including the number of customers served, water-use trends, nonrecurring sales, weather, conservation, use restrictions, inflation, interest rates, wholesale contracts, capital finance needs, changes in tax laws (to the extent applicable), and other changes in operating and economic conditions.

After determining a utility's revenue requirement, a utility's next step is a cost of service (COS) analysis. Utilizing a public agency's approved budget, financial reports, operating data and capital improvement plans, a rate study categorizes (functionalizes) a utility's costs (such as treatment, storage, and pumping), and assets of the utility system among major operating functions to determine the cost of service.

After cost functionalization, the rate study allocates those "functionalized costs" to cost components and then further distributes costs to the customer classes (e.g., single-family residential, multi-family residential and commercial) by determining customer class demand patterns and the contribution of each class to incurred costs. Rate design is the final part of the M1 Manual's rate-making procedure and uses the revenue requirement(s) and cost of service analysis to determine appropriate rates and rate structure for each customer class.

2 GENERAL ASSUMPTIONS

Certain principal assumptions utilized in the preparation of this Report are set out in this Section. Unless otherwise stated herein, the described assumptions are used consistently within this Report.

2.1 INFLATION

The study period for this Report is for Fiscal Years Ending (FYE) 2016[1] to FYE 2025. The assumptions used are based on discussions with and/or direction from District staff. These include the projected number of customer accounts, annual water consumption growth rates for different customer classes and inflation factors. The inflation factor assumptions are presented in Table 2-1, below.

- General inflation is based on the change in the 10-year Consumer Price Index for Los Angeles/Riverside/Orange County areas for FYE 2006 - FYE 2015.
- Salary inflation is based on the 10-year Historical Average increase of Automatic Cost of Living Adjustments put forth by the Social Security Administration.
- Electricity inflation is based on the average 5-Year change in retail electricity prices from 2011-2015
- The other inflation factors were estimated by District staff.

The other revenue escalatory factors, as shown at the bottom of Table 2-1 are used to project the increase in the District's other revenues and property tax revenues allocated to the District pursuant to State law.

[1] *FYE 2016: Fiscal Year 2015/2016 (From July 1, 2015 to June 30, 2016)*

Table 2-1: Inflationary Assumptions

KEY FACTORS	FYE 2017	FYE 2018	FYE 2019	FYE 2020	FYE 2021 & beyond
Cost Escalation Factors					
General Inflation		2.0%	2.0%	2.0%	2.0%
Salary		2.5%	2.5%	2.5%	2.5%
Benefits		5.0%	5.0%	5.0%	5.0%
Medical		5.0%	5.0%	5.0%	5.0%
PERS		3.0%	3.0%	3.0%	3.0%
Chemical		2.0%	2.0%	2.0%	2.0%
Electricity		5.0%	5.0%	5.0%	5.0%
Fuel		2.0%	2.0%	2.0%	2.0%
Water Supply Costs	5.0%	5.0%	5.0%	5.0%	5.0%
Contracted Public Agency Services		2.0%	2.0%	2.0%	2.0%
Construction		3.5%	3.5%	3.5%	3.5%
Other Rev Escalation Factors					
Other Rev		1.5%	1.5%	1.5%	1.5%
Property Tax		1.5%	1.5%	1.5%	1.5%
Reserve Interest		0.5%	0.5%	0.5%	0.5%

2.2 PROJECTED DEMAND AND GROWTH

Table 2-2 shows water account growth (Equivalent Dwelling Unit [EDU] growth) and water use assumptions that were developed in cooperation with District staff. The EDUs, for both water and wastewater, reflect anticipated additional customers due to new residential development occurring within the District within the study time-frame (including the Lyon Homes, Skyridge and Saddle Crest developments). Table 2-2 shows the projected additional demand, under drought (reduced) conditions and non-drought (normal) conditions. The demand factors shown were developed with District staff and assume that customers will reduce water use by 32% over approximately an 8 month period,[2] which equates to approximately a 22% decrease in FYE 2016; This establishes a projected water sales of 2,055 AF, after which sales would slowly return to projected "new normal" level(s) in FYE 2020 of 2,815 AF.

[2] *The 8 month period coincides with the statewide SWRCB mandate to reduce water use between June 2015 to February 2016*

Table 2-2: Projected Account Growth Rate and Projected Water Sales

	FYE 2015	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020	FYE 2021 & beyond
Projected Added EDUs							
Water		0 EDU	120 EDUs	35 EDUs	35 EDUs	0 EDU	0 EDU
RW		0 EDU	0 EDU	0 EDU	0 EDU	0 EDU	0 EDU
WW		0 EDU	120 EDUs	30 EDUs	35 EDUs	0 EDU	0 EDU
Projected Added Water Demand from New EDU (cumulative) before Reduction							
Skyridge			83 AF	83 AF	83 AF	83 AF	83 AF
Others			11 AF	59 AF	106 AF	106 AF	106 AF
Projected Added Water Demand from New EDU (cumulative) with Projected Reduction							
Skyridge			66 AF	71 AF	79 AF	83 AF	83 AF
Others			9 AF	50 AF	101 AF	106 AF	106 AF
Demand Factors (% of 2015 Sales)		**78%**	**80%**	**85%**	**95%**	**100%**	**100%**
Projected Water Sales							
Water **(Normal)**	2,626 AF	2,626 AF	2,720 AF	2,767 AF	2,815 AF	2,815 AF	2,815 AF
Water **(Reduced)**	2,626 AF	2,055 AF	2,176 AF	2,352 AF	2,674 AF	2,815 AF	2,815 AF
RW	817 AF	817 AF	817 AF	817 AF	817 AF	817 AF	817 AF

2.3 RESERVE POLICY

2.3.1 Reserve Policy Background

A reserve policy is a written document that provides a basis for a public agency's financial reserves and the levels thereof. The Board has adopted a Reserves Policy for the District, which was considered as part of the preparation of this Report (see Discussion under 2.3.2, below). Reserves enable the District to address revenue shortfalls due to economic recessions or droughts, offset water purchase cost fluctuations and provide funds in case of an asset failure and/or natural disaster. Reserve policies also provide guidelines for sound financial management with an overall long-range perspective to maintain financial solvency. Reserves also set aside funds for capital asset replacement as they age (and need to be replaced) and for new capital projects. Additionally, adopting and adhering to a sustainable reserve policy enhances financial management transparency and helps achieve or maintain favorable credit rating(s) for future District debt issues.

The appropriate amount of reserves and reserve types are determined by a variety of factors, such as the size of the operating budget, the amount of debt, the type of rate structure, frequency of customer billing and risk of natural disaster. While reserves vary by water agency, most reserves tend to fall into the following categories: operating, rate stabilization, capital and emergency. These are each further discussed below.

Operating Reserve – The purpose of an operating reserve is to provide working capital to support the operation, maintenance and administration of the utility. From a risk management perspective, the operating

reserve supports the District's cash flow needs during normal operations and ensures that operations can continue should there be significant events that impact cash flows. As it is unlikely for a utility to precisely predict the revenues and revenue requirements for each billing period, a reserve set aside to hedge the risk of monthly negative cash positions is part of prudent financial planning and fiscal management.

Rate Stabilization – While it is not typical for utilities to have substantial rate increases in a short period of time, factors such as declining potable water sales and rapidly increasing potable water supply costs may result in large rate increases. In order to minimize customer rate shocks, the District has established a rate stabilization reserve to smooth rate increases through gradual increases in rates as opposed to abrupt and large rate increases. A rate stabilization reserve acts as a buffer to protect customers from experiencing large shifts in their bills. While rate stabilization reserves vary by agency, typical rate stabilization reserve goals are 10 to 20% of annual operating revenues.

Capital Reserve – Capital reserves fund the replacement and renewal of utility's infrastructure. Because water, RW and WW utilities are highly capital-intensive enterprises, it is important to accurately estimate long-term capital costs and develop a reserve to fund the eventual replacement of the system and new capital projects. Capital reserves vary the most (amongst all reserve targets) by agency. There are three accepted industry standard methods used to establish capital reserves:

1) Use from 1 to 5 times the average capital expense over 5 to 10 years;
2) Use a percent of asset value, normally valued at replacement cost, of 2 to 5 percent; and
3) Use asset depreciation, normally calculated using replacement cost.

Emergency – An emergency reserve seeks to minimize disruptions in service during a natural disaster or asset/facility failure. An emergency reserve decreases risk by setting aside adequate funds to rebuild/replace an essential facility or pipeline after failure/disaster. Normally, a local public agency performs a critical asset analysis as the basis for the target level of emergency reserve. The District does not currently have an emergency reserve.

2.3.2 Current Reserves

The District's current reserve policy (Res. 2015-1211 Adopted May 20, 2015) is summarized in Table 2-3 and can be found in its entirety in Appendix 12.2 of the Appendices.

Table 2-3: Current District Reserve Policy

Reserves	Water	RW	WW
Operations *(days of operating budget)*	60 days	60 days	60 days
Rate Stabilization	10% of operating revenues	10% of operating revenues	20% of operating budget
Equipment Maintenance	$450K	$0	$450K
District Capital	$100K	$0	$100K
Debt Coverage[3]	1.10x - Current Official Statement for Series A & Series C Debt		

Applying the current District reserve policies/targets to the FYE 2016 budget yields the reserve targets for each Fund found in Table 2-4 below.

Table 2-4: Current Reserve Targets for FYE 2016

	Water	RW	WW
Operating and Rate Stab Fund (60 days of Operating Budget + Rate Stab)	$1,146K	$208K	$699K
Capital Fund (Equip Maintenance + District Capital)	$550K	$0K	$550K
Total Reserve Target	**$1,684K**	**$208K**	**$1,249K**
Current Balance for Operating and Capital Funds (as of 7/1/15)	**$5,394K**	**$0K**	**$599K**

2.3.3 Proposed Reserves

RFC reviewed the District's current reserve policy and proposed alternative reserve targets shown in Table 2-5 – which were used to develop the financial plan and revenue adjustments for this Report. Section 2.3.1 discusses industry standard methodologies that were used to develop those reserve targets. RFC used annual depreciation to set the proposed capital reserve target which is calculated as shown in Table 2-6. The District's prior capital reserve targets were low regardless of the methodology used to set the target. RFC notes that the annual depreciation calculated as shown in Table 2-6 uses original cost, which produces a conservative (low) estimate of depreciation. Deprecation (and therefore the reserve target) using replacement cost would suggest a higher reserve level however, the addition of the two current reserves (Equipment Maintenance and the old capital reserve) yield a reasonable total capital reserve goal as shown in Table 2-5.

[3] *Debt Coverage = (Total Revenues – O&M expenses)/Debt Service for the Whole District level (not individual utility level)*

Table 2-5: Proposed District Reserve Targets for FYE 2016

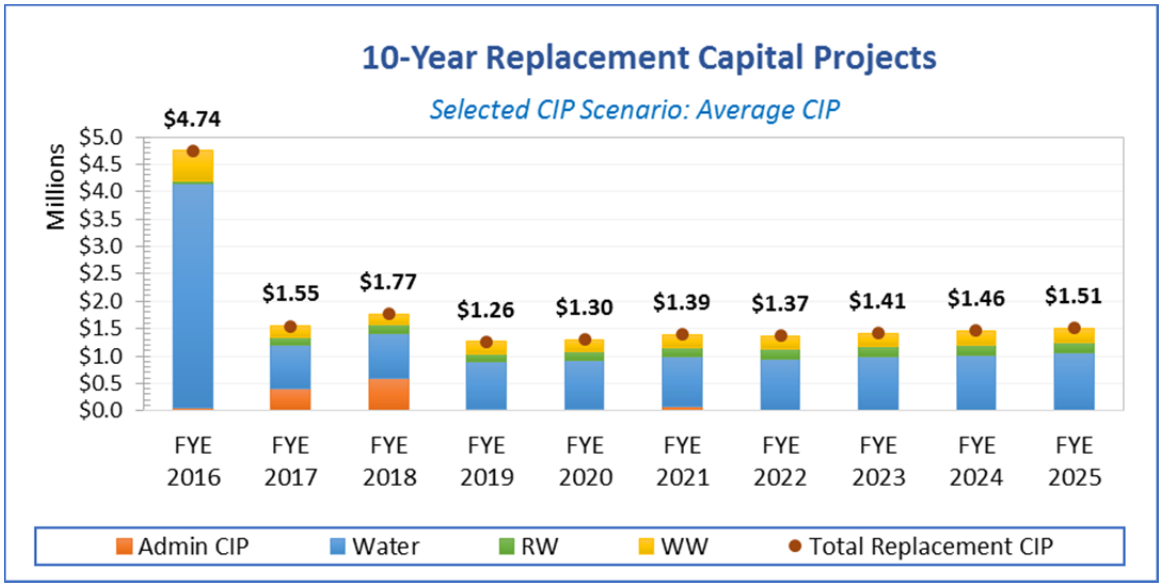
	Water	RW	WW
Operating and Rate Stab Fund (60 days of Operating Budget + Rate Stab)	$1,134K	$208K	$699K
Capital Fund			
Equip Maintenance Reserve	$450K	$0K	$450K
Capital (Old)	$100k	$0K	$100K
Recommended Capital Reserve	$1,700K	$200K	$1,440K
Total Capital Reserve	2,250K	$200K	$1,990K
Total Targets	**$3,384K**	**$408K**	**$2,689K**
Current Balance for Operating and Capital Funds (as of 7/1/15)	**$5,394K**	**$0K**	**$599K**

Table 2-6: Assets Values and Annual Depreciation Expenses as of June 30, 2015

	Asset Values (Original Costs)	Annual Depreciation Expenses (Original Costs)	Recommended Capital Reserve Targets
Water	$ 48,271,235	$ 1,667,591	$ 1,700,000
RW	$ 5,421,094	$ 196,234	$ 200,000
WW	$ 47,342,986	$ 1,437,353	$ 1,440,000
Total	**$ 101,035,315**	**$ 3,301,177**	**$ 3,340,000**

Figure 2-1 shows the Capital projects for each District utility function. The average capital expenditure, including FYE 2016, for the water, recycled water and wastewater utilities are $1.2M, $162K, and $261K respectively. Actual capital expenditures will vary from year to year, however to minimize customer impacts, the District elected to use the average "essential" CIP. The financial plan sections below discuss the CIP for each District utility in more detail. Figure 2-1 shows the total CIP over the 10-year study period.

Figure 2-1: 10-year Projected Replacement Capital Projects



2.4 Key Financial Information

The study utilized the following key financial documents and figures provided by District staff:

1. FYE 2016 Budget and projected FYE 2017 Budget and subsequent updates provided up through September 30, 2015. The Budget was allocated to the Water, RW and WW Utilities.[4]
2. The 10-year CIP: District staff and RFC developed an essential CIP which contained necessary CIP projects and a planned CIP which contained projects suggested by the District's Engineering, Operations, and Maintenance Departments and applicable CIP projects within Water and Wastewater Master Plans. To minimize rate impacts, the District elected to set rates utilizing the essential CIP.
3. Water supply cost projections.
4. An asset list for District Water, Recycled Water and WW utilities as of 6/30/2015.
5. Reserve fund balances as of June 30, 2015, provided on October 13, 2015. The reserve balances are shown in Table 2-7.
6. A customer information database and individual monthly consumption for the period July 2013 to June 2015.

[4] *The District currently has only one budget for Water, RW and WW Funds. District Staff allocated the budget to the three Funds based on best estimates.*

Table 2-7: Reserve Fund Balances as of 6/30/2015

Reserve Balances as of 6/30/2015	Water	Recycled Water	WW	Total District
Operating & Rate Stab	$ 1,201,052	$ 0	$ 48,976	**$ 1,250,028**
Capital	$ 4,192,682	$ 0	$ 550,000	**$ 4,742,682**
Capacity Fees	$ 1,340,438	$ 0	$ 719,949	**$ 2,060,387**
Total Reserves	**$ 6,734,172**	**$ 0**	**$ 2,659,363**	**$ 8,053,097**
Total w/o Capacity Fees Fund	**$ 5,393,734**	**$ 0**	**$ 598,976**	**$ 5,992,710**

3 WATER FINANCIAL PLAN

RFC reviewed the District's revenue requirements, which is the first step in the rate study process. RFC analyzed annual operating revenues, operation and maintenance (O&M) expenses, transfers between funds and reserve requirements. This Section of the Report provides a discussion of the projected revenues, O&M expenses, other reserve funding and revenue adjustments needed to ensure the fiscal sustainability and solvency of the District's water utility. Recycled Water utility services are addressed in Section 4 of this Report.

3.1 REVENUE FROM CURRENT WATER RATES

The District's existing water rates and rate structure (including water rate customer classes and tiers) were in effect as of January 1, 2013. Tables 3-1 through 3-3 show the existing water rate structure and rates. The District's charges for potable water service consist of the following:

- A fixed charge known as a Meter Flat Rate, shown in Table 3-1,
- A fixed charge known as the Water Reliability and Emergency Storage (WRES) Charge, shown in Table 3-2
- Water usage rates by class and tier, based on water consumption, as shown in Table 3-3.

Table 3-1: Current Monthly Meter Flat Rates

Meter Size	Meter Flat Rates
Effective Date	January 1, 2013
5/8"	$ 8.25
¾"	$ 10.76
1"	$ 16.77
1 ½"	$ 31.78
2"	$ 49.79
3"	$ 91.83
4"	$ 151.87
6"	$ 302.00
10"	$ 482.14
Multi-Family	
1"	$ 33.54
1 ½"	$ 99.58
Hydrant Meter*	$ 56.90

*Hydrant meters are typically used for construction water, street repairs, and street cleaning.

Table 3-2: Current Water Reliability and Emergency Storage (WRES) Charges

Meter Size	From Jan 1, 2010 – Jan 1, 2019	From Jan 1, 2020 – Jan 1, 2029
5/8"	$ 16.50	$ 16.04
¾"	$ 16.50	$ 16.04
1"	$ 26.39	$ 25.25
1 ½"	$ 39.59	$ 38.48
2"	$ 52.78	$ 51.30
3"	$ 79.17	$ 76.95
4"	$ 105.56	$ 102.60
6"	$ 158.34	$ 153.90
10"	$ 224.32	$ 218.03

Table 3-3: Current Water Usage Rates in effect as of January 1, 2013

	Base Zones	Portola Zone	Topanga Zone	Canyon Creek Zone	Falcon Zone	Joplin Zone
Residential						
Tier 1	$2.19	$1.80	$2.32	$3.58	$3.33	
Tier 2	$2.24	$1.83	$2.37	$3.66	$3.40	
Tier 3	$2.30	$1.87	$2.42	$3.74	$3.47	
Tier 4	$2.79	$2.26	$2.95	$4.58	$4.50	
Tier 5	$3.34	$3.34	$3.52	$5.50	$5.09	
Tier 6	$3.95	$3.95	$4.17	$6.53	$6.05	
Tier 7	$4.70	$4.70	$4.97	$7.79	$7.22	
Tier 8	$5.57	$5.57	$5.89	$9.25		
Others						
Multi-Family	$2.64					
Commercial	$2.76					$4.17
Construction	$3.64					
Irrigation (HOA)	$2.91					
Irrigation (Commercial)	$3.02					
Irrigation			$2.94		$3.47	
Lang Well	$2.76					
Agriculture	**Jan - Jun**	**Jul – Dec**				
Tier 1	$2.45	$2.45				
Tier 2	$3.30	$3.48				
Tier 3	$3.85	$4.19				
Tier 4	$4.39	$4.91				
Tier 5	$4.93	$5.64				

The current water usage rates and rate structure incorporates a seasonable adjustment. As shown in Table 3-4 the tier breakpoints vary with the winter (October – March) and summer (April – September) seasons.

Table 3-4: Current Monthly Tier Definitions

	Falcon Zone		All Other Zones	
Residential	**Oct - Mar**	**Apr - Sep**	**Oct - Mar**	**Apr - Sep**
Tier 1	0 – 6 ccf	0 – 9 ccf	0 – 6 ccf	0 – 9 ccf
Tier 2	7 – 36	10 – 54	7 – 12	10 – 18
Tier 3	37 – 48	55 – 72	13 – 18	19 – 27
Tier 4	49 – 60	73 – 90	19 – 24	28 – 36
Tier 5	61 – 72	91 – 108	25 – 30	37 – 45
Tier 6	73 – 84	109 – 126	31 – 36	46 – 54
Tier 7	85+	127+	37 – 42	55 – 63
Tier 8			43+	64+
Agriculture	**Jan – Jun**	**Jul – Dec**		
Tier 1	0 – 30 ccf	0 – 30 ccf		
Tier 2	31 – 60	31 – 60		
Tier 3	61 – 90	61 – 90		
Tier 4	91 – 150	91 – 150		
Tier 5	151+	151+		

The District's water revenue is a function of the number of accounts and water use. Table 3-5 summarizes the projected number of accounts by meter size for the study period. RFC added the EDUs due to projected new residential units, found in Table 2-2, to the number of existing accounts to determine the projected number of accounts for future years.

Table 3-5: Projected District Potable Water Accounts by Meter Size

Meter Size	FYE 2015	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020 & beyond
	Actual	*Estimated*	*Projected*	*Projected*	*Projected*	*Projected*
5/8"	2,649	2,649	2,769	2,769	2,769	2,769
¾"	872	872	872	872	872	872
1"	239	239	239	274	309	309
1 ½"	39	39	39	39	39	39
2"	119	119	119	119	119	119
3"	6	6	6	6	6	6
4"	3	3	3	3	3	3
6"	2	2	2	2	2	2
10"	0	0	0	0	0	0
Multi-Family						
1”	18	18	18	18	18	18
1 ½"	13	13	13	13	13	13
Hydrant Meter	13	13	13	13	13	13
Total	**3,973**	**3,973**	**4,093**	**4,128**	**4,163**	**4,163**

Table 3-6 shows the FYE 2015 actual and projected water use in hundred cubic feet (ccf) and acre feet (AF). The water use shown in Table 3-6 was used to calculate water sales revenue under existing rates. The water use shown in Table 3-6 incorporates the water use reductions and account growth shown and discussed in Table 2-2.

Table 3-6: Projected Potable Water Sales at Current Rate Structure

	FYE 2015	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020 & beyond
	Actual	Projected	Projected	Projected	Projected	Projected
Residential	688,170	538,493	550,536	584,945	653,762	688,170
Residential (Portola Zone)	70,168	54,906	56,134	59,643	66,660	70,168
Residential (Topanga Zone)	5,593	4,377	4,474	4,754	5,313	5,593
Residential (Canyon Creek Zone)	1,812	1,418	1,450	1,540	1,721	1,812
Residential (Falcon Zone)	1,159	907	927	985	1,101	1,159
Agriculture (Jan-Jun)	41,366	32,369	33,093	35,161	39,298	41,366
Agriculture (Jul-Dec)	83,780	65,558	67,024	71,213	79,591	83,780
Non-Tiered Rates						
Multi-Family	15,174	11,874	12,139	12,898	14,415	15,174
Commercial	57,422	44,933	45,938	48,809	54,551	57,422
Commercial (Joplin Zone)	6,629	5,187	5,303	5,635	6,298	6,629
Construction	1,964	1,537	1,571	1,669	1,866	1,964
Irrigation (HOA)	117,331	91,812	93,865	99,731	111,464	117,331
Irrigation (Commercial)	43,542	34,072	34,834	37,011	41,365	43,542
Irrigation (Falcon)	1,863	1,458	1,490	1,584	1,770	1,863
Irrigation (Topanga)	5,904	4,620	4,723	5,018	5,609	5,904
Lang Well	1,951	1,527	1,561	1,658	1,853	1,951
Summerfield Homes	22	17	18	19	21	22
New Growth Skyridge	0	0	28,924	30,732	34,347	36,155
New Growth Residential	0	0	3,833	21,660	43,865	46,174
Total Potable (ccf)	**1,143,850**	**895,063**	**947,837**	**1,024,664**	**1,164,869**	**1,226,178**
Total Potable (AF)	**2,626 AF**	**2,055 AF**	**2,176 AF**	**2,352 AF**	**2,674 AF**	**2,815 AF**

Table 3-7 shows the projected revenue for the study period under the District's existing potable water rates and rate structure. The water revenues shown for FYE 2016 through FYE 2020 are calculated by multiplying the projected usage by the current rates. For example, the commodity water revenue from Multi-Family (MF) for FYE 2016 can be calculated as follows:

$$Projected\ MF\ Usage\ for\ FYE\ 2016\ \times Multi-Family\ Rate$$

$$11{,}874\ ccf\ \times \$2.64\ /ccf\ = \$31{,}347$$

The same calculation is repeated for all customer classes to determine the total water revenue for each FYE of the study period.

The revenue from existing District meter flat rates are calculated by multiplying the number of meters by the respective rate(s) for each meter size. For example, the meter flat rate revenue from all 3/4" meters for FYE 2016 is calculated as follows:

$$Meter\ flat\ rate\ for\ 3/4"\ meter \times \text{number of } 3/4"\ meters\ \times 12\ months$$
$$\$10.76\ \times 872\ \times 12 = \$112{,}593$$

The same calculation is repeated for all meter sizes and then added to determine the total meter flat rate revenues for all customers.

Table 3-7: Projected Revenue from Current Water Rates

	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020	FYE 2021 & beyond
Meter Flat Rates	$ 559,896	$ 571,776	$ 578,819	$ 585,863	$ 585,863	$ 585,863
Water Usage Rates	$ 2,514,530	$ 2,644,251	$ 2,848,971	$ 3,228,240	$ 3,398,148	$ 3,398,148
Total Water Rev from Current Rates	**$ 3,074,426**	**$3,216,027**	**$ 3,427,790**	**$3,814,103**	**$ 3,984,010**	**$ 3,984,010**

Table 3-8 shows the projected revenues from the Water Reliability and Emergency Storage (WRES) Charge. This fixed charge recovers costs associated with District water reliability and emergency storage projects which are the Trabuco Creek Wells Facility (formerly the Rose/Lang Well project), capacity in the Baker Water Treatment Facility, and distribution system improvements including an additional 2 million gallons of emergency storage.

Table 3-8: Projected Revenues from WRES Charges

WRES Charges	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020	FYE 2021 & beyond
Water Meters			$ 928,821	$ 939,905	$ 926,000	$ 912,096
RW Meters[5]			$ 16,688	$ 16,688	$ 16,454	$ 16,220
Total WRES Revenues	**$ 905,600**[6]	**$ 905,600**[7]	**$ 945,509**	**$ 956,593**	**$ 942,455**	**$ 928,317**

[5] *WRES charges for RW meters are recorded in the Water Fund to pay for the share of the Water Reliability and Emergency Storage capital projects, which is currently funded from the Water Capital Fund. When necessary, potable water is supplied to the RW system.*
[6] *Based on Budget*
[7] *Based on Budget*

3.2 Miscellaneous Water Revenues

In addition to revenues from water rates, the Water Fund also receives miscellaneous revenue from different sources such as interest earnings, property tax revenues, and other operating/non-operating sources. Total miscellaneous revenues for the study period is shown in Table 3-9. Interest income is calculated based on actual water reserve balances. The revenues for FYE 2016 and 2017 were taken from the District's Budget and the out years were projected using the escalatory factors shown in Table 2-1. WRES revenues from both potable and recycled water WRES charges, and the corresponding expenditures, are incorporated into the Water Financial Plan.

Table 3-9: Projected Miscellaneous Water Revenues

	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Other Operating Rev	$105,250	$106,150	$107,367	$108,603	$109,857	$111,130	$112,422	$113,733	$115,064	$116,415
Non-Operating Rev										
Property Tax Unrestricted	$748,750	$763,700	$775,156	$786,783	$798,585	$810,563	$822,722	$835,063	$847,589	$860,302
Interest Revenue	$13,370	$13,650	$18,774	$15,402	$14,914	$15,725	$16,744	$18,155	$19,847	$21,827
Development Services	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Sale of Fixed Asset	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other Non-Operating Revenue	$26,650	$27,150	$27,557	$27,971	$28,390	$28,816	$29,248	$29,687	$30,132	$30,584
Total Misc. Revenues	**$894,020**	**$910,650**	**$928,854**	**$938,758**	**$951,746**	**$966,234**	**$981,135**	**$996,637**	**$1,012,631**	**$1,029,129**
Capital Revenues										
Water + RW WRES Charges	$905,600	$905,600	$945,509	$956,593	$942,455	$928,317	$928,317	$928,317	$928,317	$928,317
Other Capital Contribution	$5,090,022	$0	$0	$0	$472,765	$0	$0	$0	$0	$0
Total Capital Revenues	**$5,995,622**	**$905,600**	**$945,509**	**$956,593**	**$1,415,220**	**$928,317**	**$928,317**	**$928,317**	**$928,317**	**$928,317**

3.3 Water O&M Expenses

3.3.1 Water Supply Costs

Based on projections and input from District staff, the respective sources of water per unit price, expected purchase quantities and projected water purchase expenses are shown in Table 3-10. The total potable water supply costs shown in line 22 of Table 3-10 are determined by multiplying the per unit costs for each source of potable water by the corresponding quantity purchased from that source, and adding in the fixed costs associated with each source. Projected sales from Table 3-6 were used to calculate water supply costs for FYE 2016 and later fiscal years.

Table 3-10: Projected Potable Water Supply Costs

Line No.		FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
		A	B	C	D	E	F	G	H	I	J
1	**Variable Water Supply Unit Costs**										
2	SMWD/IRWD Treated (East)	$932/AF	$963/AF	$1,011/AF	$1,062/AF	$1,115/AF	$1,171/AF	$1,229/AF	$1,291/AF	$1,355/AF	$1,423/AF
3	SAC Untreated	$587/AF	$607/AF	$638/AF	$670/AF	$703/AF	$738/AF	$775/AF	$814/AF	$855/AF	$897/AF
4											
5	**Water Demand**										
6	Water Sales	2,055 AF	2,176 AF	2,352 AF	2,674 AF	2,815 AF	2,815 AF	2,815 AF	2,815 AF	2,815 AF	2,815 AF
7	Water System Loss (2.7%)	55 AF	56 AF	61 AF	69 AF	70 AF	70 AF	70 AF	70 AF	70 AF	70 AF
8	Water Treatment Loss	170 AF	170 AF	170 AF	170 AF	170 AF	170 AF	170 AF	170 AF	170 AF	170 AF
9	**Total Water Demand**	**2,280 AF**	**2,402 AF**	**2,583 AF**	**2,913 AF**	**3,055 AF**	**3,055 AF**	**3,055 AF**	**3,055 AF**	**3,055 AF**	**3,055 AF**
10											
11	**Water Supply to Meet Demand**										
12	SMWD/IRWD Treated	279 AF	282 AF	290 AF	307 AF	315 AF	315 AF	315 AF	315 AF	315 AF	315 AF
13	SMWD / Skyridge Treated	0 AF	68 AF	72 AF	81 AF	85 AF	85 AF	85 AF	85 AF	85 AF	85 AF
14	SAC Untreated	2,001 AF	2,052 AF	2,220 AF	2,525 AF	2,655 AF	2,655 AF	2,655 AF	2,655 AF	2,655 AF	2,655 AF
15	**Total Water Supply**	**2,280 AF**	**2,402 AF**	**2,583 AF**	**2,913 AF**	**3,055 AF**	**3,055 AF**	**3,055 AF**	**3,055 AF**	**3,055 AF**	**3,055 AF**
16											
17	Variable Water Supply Costs	$1,435,300	$1,583,463	$1,782,684	$2,102,711	$2,313,022	$2,428,673	$2,550,106	$2,677,612	$2,811,492	$2,952,067
18	Water Fixed Costs										
19	Treated (MWDOC/SMWD/IRWD)	$336,200	$342,424	$358,295	$374,960	$392,458	$410,831	$430,122	$450,379	$471,647	$493,980
20	SAC Untreated	$57,966	$59,125	$62,082	$65,186	$68,445	$71,867	$75,461	$79,234	$83,195	$87,355
21	**Total Water Supply Costs**	**$1,829,466**	**$1,985,012**	**$2,203,060**	**$2,542,856**	**$2,773,925**	**$2,911,371**	**$3,055,689**	**$3,207,224**	**$3,366,335**	**$3,533,402**

3.3.2 Water Operating Expenses

The District currently has one budget for all three of its utility functions. District staff allocated the total budget to each utility function by estimating time, materials and other costs associated with each function. This allocation is shown in Appendix 12.5. Using the District's FYE 2016 Budget and projected costs for FYE 2017, RFC adjusted each line item to determine future O&M expenses shown in Table 3-11. The Water Supply Costs are taken from the calculated values in Table 3-10 above. Please refer to the District's Budget document for descriptions of each expense item.

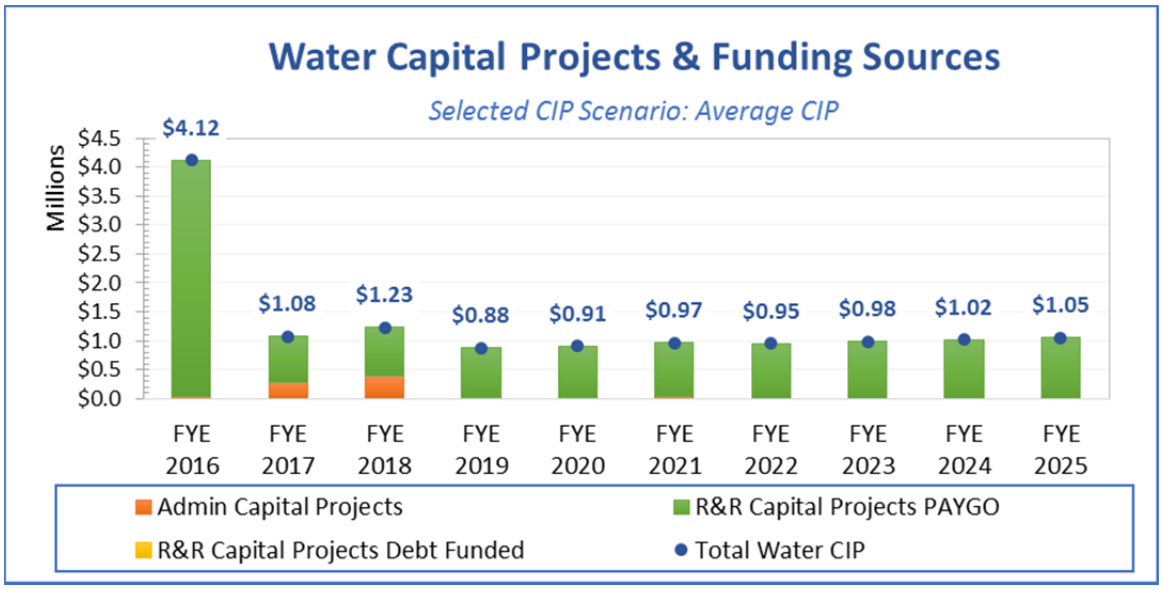
Table 3-11: Budgeted and Projected Potable Water Operating Expenses

	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Other Operating Rev	$105,250	$106,150	$107,367	$108,603	$109,857	$111,130	$112,422	$113,733	$115,064	$116,415
Non-Operating Rev										
Property Tax Unrestricted	$748,750	$763,700	$775,156	$786,783	$798,585	$810,563	$822,722	$835,063	$847,589	$860,302
Interest Revenue	$13,370	$13,650	$18,774	$15,402	$14,914	$15,725	$16,744	$18,155	$19,847	$21,827
Other Non-Operating Revenue	$26,650	$27,150	$27,557	$27,971	$28,390	$28,816	$29,248	$29,687	$30,132	$30,584
Total Misc. Revenues	**$894,020**	**$910,650**	**$928,854**	**$938,758**	**$951,746**	**$966,234**	**$981,135**	**$996,637**	**$1,012,631**	**$1,029,129**
Capital Revenues										
Water + RW WRES Charges	$905,600	$905,600	$945,509	$956,593	$942,455	$928,317	$928,317	$928,317	$928,317	$928,317
Other Capital Contribution	$5,090,022	$0	$0	$0	$472,765	$0	$0	$0	$0	$0
Total Capital Revenues	**$5,995,622**	**$905,600**	**$945,509**	**$956,593**	**$1,415,220**	**$928,317**	**$928,317**	**$928,317**	**$928,317**	**$928,317**

3.4 Projected Capital Replacement Projects

The District has allocated approximately $13.2M in capital expenditures during the study period, as shown in Figure 3-1[8] (A full list of projects and costs can be found in the Appendix 12.4). The essential Capital Improvement Plan (CIP) was selected and averaged to minimize customer rate impacts – it is the average of the ***essential*** CIP projects over the study period. As referenced earlier in this Report, to minimize customer rate impacts the District elected to utilize the essential CIP, as opposed to the original and higher CIP. RFC projected future CIP expenses by adjusting the FYE 2017 value using the capital cost inflation factor shown in Table 2-1. Administrative capital projects are allocated 70% to Water, 5% to RW and 25% to the WW Utilities based on District staff's estimates of time, resources and materials allocated to each such utility function. The District plans to fund all capital projects through rate revenues (also known as pay-as-you-go [PAYGO] funding), as shown by the green bars in Figure 3-1 below.

Figure 3-1: Projected Water Capital Projects and Funding Sources



3.5 Debt Service

The District currently has three outstanding securities obligations:

1) 1994 Trabuco Canyon PFA Senior Lien Series A Bonds (Series A Bonds)
2) 1994 Trabuco Canyon PFA Series C Bonds (Series C Bonds)
3) State Revolving Fund Loan -- SRF09CX102 (SRF Loan).

The Series A Bonds are scheduled to fully mature before the end of FYE 2016 and thus debt service requirements on the Series A Bonds were not included in this Report. The Series C Bonds are secured

[8] *Admin Capital Projects are allocated 70% to Water, 25% to WW and 5% to RW per District Staff estimates*

through an underlying District installment purchase obligation for which the District's General Fund revenues are pledged. The Series C Bonds were used to fund both Water and Wastewater capital projects in equal proportion (50/50) and the SRF Loan funded water utility projects. Table 3-12 shows the District's total debt service obligations and annual payments with the last line showing the water utility's allocated portion.

Table 3-12: Current Debt Service

	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020	FYE 2021
Series C Bonds	$ 914,143	$ 920,223	$ 913,558	$ 904,453	$ 917,145	$ 0
SRF Loan	$ 230,381	$ 230,381	$ 230,381	$ 230,381	$ 230,381	$ 230,381
Total Debt	**$ 1,144,524**	**$ 1,150,604**	**$ 1,143,939**	**$ 1,134,834**	**$ 1,147,526**	**$ 230,381**
Water	**$ 687,452**	**$ 690,492**	**$ 687,160**	**$ 682,607**	**$ 688,954**	**$ 230,381**

3.6 Status Quo Potable Water Financial Plan

Figure 3-2 graphically shows the operating financial plan assuming the District did not increase revenues (increase rates) through the referenced time period. As shown below, the District's costs, which are the summation of the blue, green and yellow bars are greater than projected revenues shown by the red line. The District uses reserves to fund the revenue shortfall, as shown by the red bar below the x axis, which signifies the use of reserves. This demonstrates that under the assumptions described in the preceding sections, the District needs to increase revenues to maintain fiscal solvency and cover long term operating costs.

Figure 3-2: Status Quo Operating Financial Plan (Assumes No Rate Increases)

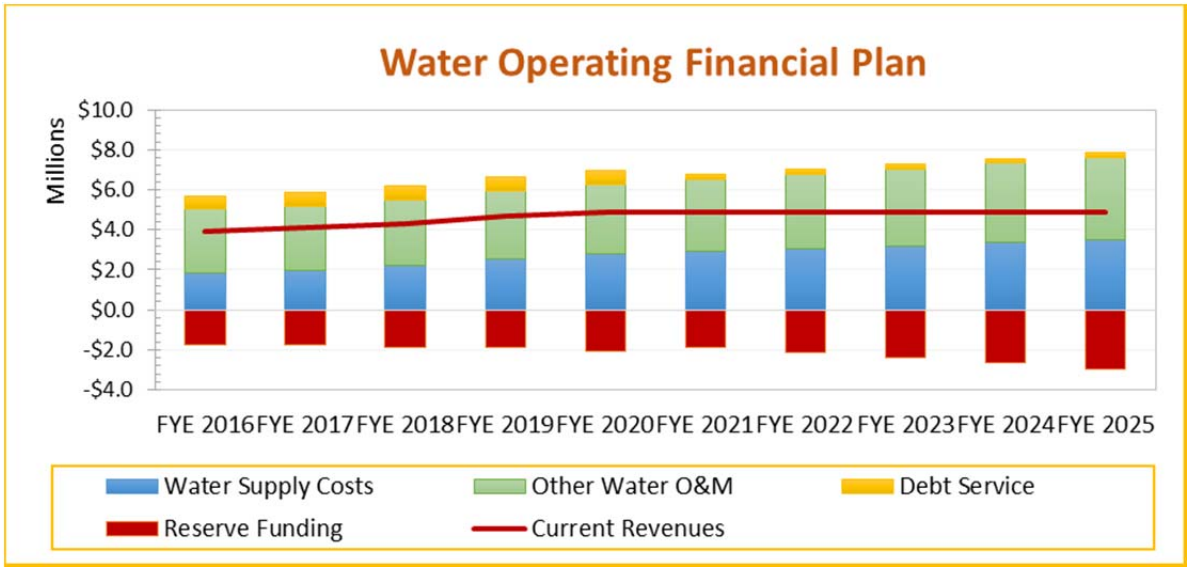
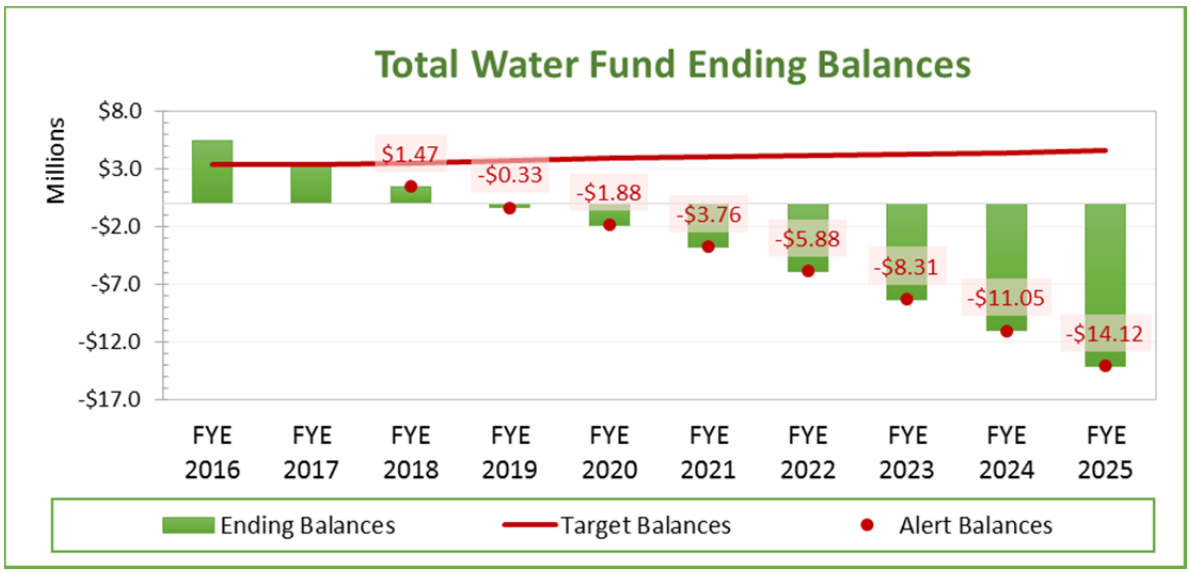


Figure 3-3 also shows unacceptable reserve balances under the status-quo scenario of no revenue adjustments.

Figure 3-3: Status-Quo Ending Reserve Balances



3.7 Proposed Potable Water Financial Plan

As shown in Section 3.6, the District needs to increase revenues in order to meet operating costs, maintain fiscal solvency and for the other reasons set out in this Report. Table 3-13 shows the proposed revenue adjustments at the beginning of each calendar year. The District's most recent (and earlier) rate increases on January 1, 2013 were primarily based on keeping pace with water supply cost increases from the District's wholesale water provider (Metropolitan Water District of Orange County) and were not based on meeting other cost of services or maintaining adequate reserves.

Table 3-13: Proposed Potable Water Revenue Adjustments

Fiscal Year Ending	Effective Date	Proposed Water Revenue Adjustments
2016	Jan 1, 2016	8%
2017	Jan 1, 2017	5%
2018	Jan 1, 2018	5%
2019	Jan 1, 2019	5%
2020	Jan 1, 2020	5%

3.7.1 Wholesale Water Purchase Cost Pass-Through

Assembly Bill (AB) 3030[9] enables retail utilities to establish a provision for directly passing through the increased costs of imported water from its wholesale suppliers to its retail customers as part of a five year rate adoption. RFC recommends that the District establish the pass-through water supply cost provision as allowed by AB 3030 as part of the proposed rate adjustment proceedings. The District has decided to pass-through its wholesale water purchase costs from the Metropolitan Water District of Orange County (MWDOC), which in turn purchases water from the Metropolitan Water District of Southern California (MET).

A pass-through provision reduces District risk since the District's largest expense (water purchase costs) can be immediately passed through to customers. Without a pass-through provision, the District must set rates based on projected future wholesale costs – which can be difficult to estimate. Additionally, rate increases may be delayed causing the District to absorb its wholesale cost increases for some period of time. Actual wholesale water supply pass-through costs will be determined annually to align with actual water cost increases imposed on the District.

[9] *Legislation which added Section 53756 to the California Government Code.*

3.7.2 Temporary Revenue Stabilization Charge (TRSC)

As shown in Table 3-6, the District faces significant reductions in potable water use with resulting significant decrease(s) in potable water sales revenues. As part of the current rate-review process, the District will be setting potable water rates assuming long-term water use and not the anticipated (drought) water sales levels for FYE 2016, (if drought water sales were assumed, District target water rates would, of necessity, be higher). To recover the lost revenue so that the District can meet its fixed costs, this Report recommends that the District impose a Temporary Revenue Stabilization Charge (TRSC).

Table 3-13 shows the derivation of the Temporary Revenue Stabilization Charge. The proposed TRSC is based on the water sales assumptions discussed in Table 3-6. The factors in developing the TRSC, and shown in Table 3-14, are as follows:

1) The revenue during a non-drought "new normal" fiscal year is shown in line 1.
2) The anticipated revenue, as a result of the drought and State-wide mandated water use reductions are shown in line 2.
3) The difference between line 1 and 2 is shown in line 3 – this is the estimated revenue shortfalls (under assumptions discussed in Table 3-6) due to the drought conditions.
4) Operational expenses during a non-drought "new normal" year is shown in line 4. "New normal" presumes that potable water consumption rates will be reduced for a significant period (possibly permanently).
5) The estimated operational expenses as a result of the drought conditions are shown in line 5. The expenses are lower since the District purchases and treats less water during a drought.
6) The difference between lines 4 and 5 is shown in line 6. This is the reduced operational expense resulting from buying and treating less water.
7) Subtracting line 3 from line 6 yields the estimated revenue lost due to reduced water sales.

Based on RFC's assumptions, the District's TRSC should strive to recover approximately $350k to $400k per year until the drought restrictions are removed by the Board.

Table 3-13: Projected Temporary Revenue Stabilization Charge (TRSC) Revenue Requirements

Line No.		Notes	FYE 2016
			A
1	Normal Sales Revenues from Rates	With projected rev adjustments and pass-through rev	$3,924,287
2	Reduced Sales Revenues from Rates	With projected rev adjustments and pass-through rev	$3,197,403
3	**Revenues Loss**	**Row 2 - Row 1**	**-$726,884**
4	O&M Expenses @ Normal Sales	Estimated water supply costs @ normal sales	$5,406,415
5	O&M Expenses @ Reduced Sales	Table 3-10	$5,028,618
6	**Water Supply Cost Savings**	**Row 5 - Row 4**	**-$377,796**
7	**TRSC Rev Requirement**	Row 6 - Row 3	**$349,088**

Table 3-14 shows the Water Utility pro forma including;

1) The proposed revenue adjustments shown in Table 3-13;
2) The revenue from the wholesaler pass-throughs as discussed in Section 3.7.1; and
3) The revenue from the TRSC discussed in Section 3.7.2

As shown in Table 3-14, the total water utility ending balance declines until FYE 2019 and begins to recover in FYE 2020. This is also shown graphically in Figure 3-4 by the negative reserve funding (red bars below the x axis). Note that Table 3-14 does not include capacity charge funding since capacity charge revenue must be tracked separately and be used for growth-related capital projects as required by California law and District actions in adopting and implementing the District's capacity charges.

Table 3-14: Proposed Potable Water Financial Plan

WATER FUND PROFORMA		FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
New Rates effective in		Jan	Jan	Jan	Jan	Jan	Jan	Jan	Jan	Jan	Jan
REVENUES											
Revenues from Current Rates		$ 3,074,426	$ 3,216,027	$ 3,427,790	$ 3,814,103	$ 3,984,010	$ 3,984,010	$ 3,984,010	$ 3,984,010	$ 3,984,010	$ 3,984,010
Revenue Adjustments		$ 122,977	$ 344,115	$ 556,502	$ 840,886	$ 1,121,462	$ 1,337,511	$ 1,523,764	$ 1,716,536	$ 1,916,056	$ 2,122,558
Pass-through WS Revenues		$ -	$ 122,830	$ 234,267	$ 379,446	$ 526,608	$ 664,054	$ 808,373	$ 959,907	$ 1,119,019	$ 1,286,085
Temporary Rev Stabilization Charges		$ 174,544	$ 364,877	$ 345,735	$ 205,070	$ 49,668	$ -	$ -	$ -	$ -	$ -
Other Operating Revenues		$ 105,250	$ 106,150	$ 107,367	$ 108,603	$ 109,857	$ 111,130	$ 112,422	$ 113,733	$ 115,064	$ 116,415
Non-Operating Revenues		**$ 788,770**	**$ 804,500**	**$ 821,487**	**$ 830,156**	**$ 841,889**	**$ 855,105**	**$ 868,714**	**$ 882,905**	**$ 897,567**	**$ 912,714**
Property Tax Unrestricted		$ 748,750	$ 763,700	$ 775,156	$ 786,783	$ 798,585	$ 810,563	$ 822,722	$ 835,063	$ 847,589	$ 860,302
Interest Revenue		$ 13,370	$ 13,650	$ 18,774	$ 15,402	$ 14,914	$ 15,725	$ 16,744	$ 18,155	$ 19,847	$ 21,827
Misc. Non-Operating Revenues		$ 26,650	$ 27,150	$ 27,557	$ 27,971	$ 28,390	$ 28,816	$ 29,248	$ 29,687	$ 30,132	$ 30,584
Capital Revenues		**$ 5,995,622**	**$ 905,600**	**$ 945,509**	**$ 956,593**	**$ 1,415,220**	**$ 928,317**	**$ 928,317**	**$ 928,317**	**$ 928,317**	**$ 928,317**
WRES Charges		$ 905,600	$ 905,600	$ 945,509	$ 956,593	$ 942,455	$ 928,317	$ 928,317	$ 928,317	$ 928,317	$ 928,317
Other Capital Contribution		$ 5,090,022	$ -	$ -	$ -	$ 472,765	$ -	$ -	$ -	$ -	$ -
TOTAL REVENUES		**$ 10,261,589**	**$ 5,864,099**	**$ 6,438,658**	**$ 7,134,856**	**$ 8,048,715**	**$ 7,880,126**	**$ 8,225,599**	**$ 8,585,408**	**$ 8,960,032**	**$ 9,350,099**
OPERATING EXPENSES											
Source of Supply		$ 1,829,466	$ 1,985,012	$ 2,203,060	$ 2,542,856	$ 2,773,925	$ 2,911,371	$ 3,055,689	$ 3,207,224	$ 3,366,335	$ 3,533,402
Salaries & Benefits		$ 1,709,370	$ 1,740,540	$ 1,793,958	$ 1,849,181	$ 1,906,276	$ 1,965,315	$ 2,026,370	$ 2,089,518	$ 2,154,839	$ 2,222,416
Supplies & Services		$ 338,565	$ 337,605	$ 344,614	$ 351,777	$ 359,097	$ 366,577	$ 374,221	$ 382,035	$ 390,020	$ 398,183
Other Expenses		$ 1,151,218	$ 1,118,448	$ 1,158,128	$ 1,199,464	$ 1,242,535	$ 1,287,420	$ 1,334,202	$ 1,382,970	$ 1,433,816	$ 1,486,836
Transfers to Rate Stab Reserve		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
TOTAL OPERATING EXPENSES		**$ 5,028,618**	**$ 5,181,605**	**$ 5,499,760**	**$ 5,943,279**	**$ 6,281,833**	**$ 6,530,682**	**$ 6,790,483**	**$ 7,061,746**	**$ 7,345,010**	**$ 7,640,837**
NET REVENUES		**$ 5,232,971**	**$ 682,494**	**$ 938,898**	**$ 1,191,576**	**$ 1,766,882**	**$ 1,349,444**	**$ 1,435,117**	**$ 1,523,661**	**$ 1,615,022**	**$ 1,709,261**
DEBT SERVICE		**$ 687,452**	**$ 690,492**	**$ 687,160**	**$ 682,607**	**$ 688,954**	**$ 230,381**	**$ 230,381**	**$ 230,381**	**$ 230,381**	**$ 230,381**
Current Debt Service		$ 687,452	$ 690,492	$ 687,160	$ 682,607	$ 688,954	$ 230,381	$ 230,381	$ 230,381	$ 230,381	$ 230,381
Proposed Debt Service		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
REPLACEMENT CAPITAL PROJECTS		**$ 4,123,600**	**$ 1,077,200**	**$ 1,233,720**	**$ 875,726**	**$ 906,377**	**$ 966,214**	**$ 950,149**	**$ 983,404**	**$ 1,017,823**	**$ 1,053,447**
PAYGO		$ 4,123,600	$ 1,077,200	$ 1,233,720	$ 875,726	$ 906,377	$ 966,214	$ 950,149	$ 983,404	$ 1,017,823	$ 1,053,447
Debt Funded		$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NET CASH CHANGES		**$ 421,918**	**$ (1,085,198)**	**$ (981,982)**	**$ (366,757)**	**$ 171,551**	**$ 152,849**	**$ 254,587**	**$ 309,876**	**$ 366,817**	**$ 425,433**
BEGINNING BALANCES		**$ 5,393,734**	**$ 5,815,653**	**$ 4,730,454**	**$ 3,748,472**	**$ 3,381,715**	**$ 3,553,266**	**$ 3,706,115**	**$ 3,960,701**	**$ 4,270,578**	**$ 4,637,395**
ENDING BALANCES		**$ 5,815,653**	**$ 4,730,454**	**$ 3,748,472**	**$ 3,381,715**	**$ 3,553,266**	**$ 3,706,115**	**$ 3,960,701**	**$ 4,270,578**	**$ 4,637,395**	**$ 5,062,828**
TARGET BALANCE		**$ 3,396,363**	**$ 3,470,068**	**$ 3,654,676**	**$ 3,890,677**	**$ 4,090,453**	**$ 4,254,021**	**$ 4,420,153**	**$ 4,592,705**	**$ 4,771,936**	**$ 4,958,114**
Operating	60 days of operating	$ 826,622	$ 851,771	$ 904,070	$ 976,977	$ 1,032,630	$ 1,073,537	$ 1,116,244	$ 1,160,835	$ 1,207,399	$ 1,256,028
Rate Stab	10% of operating	$ 319,740	$ 368,297	$ 421,856	$ 503,443	$ 563,208	$ 598,558	$ 631,615	$ 666,045	$ 701,908	$ 739,265
Equip. Maintenance	$ 450,000	$ 450,000	$ 450,000	$ 465,750	$ 482,051	$ 498,923	$ 516,385	$ 534,459	$ 553,165	$ 572,526	$ 592,564
District Capital Reserve	$ 100,000	$ 100,000	$ 100,000	$ 103,500	$ 107,123	$ 110,872	$ 114,752	$ 118,769	$ 122,926	$ 127,228	$ 131,681
Depreciation Reserve	$1,700,000	$1,700,000	$1,700,000	$1,759,500	$1,821,083	$1,884,820	$1,950,789	$2,019,067	$2,089,734	$2,162,875	$2,238,575

The proposed revenue adjustments are intended to achieve the following:

1) An operating financial plan, shown in Figure 3-4, that over the course of 6-years, fully covers operational and debt service expenses. In FYE 2021 the proposed revenue (shown by green line) meets all operating obligations (shown by stacked bars) and contributes to reserves for capital project funding and / or to meet reserve requirements. Reserve funding accelerates after FYE 2021 due to the retirement of Series C Bonds.
2) Rate adjustments that minimize customer impacts.
3) Much improved reserve ending balances compared to the reserve ending balances from the Status Quo scenario. As shown in Figure 3-5, total reserve balances are drawn down (shown by green bar) until they slowly recover starting in FYE 2020 as the green bar gradually moves closer to the target

reserve level (shown by red line). Years where total water reserve balances are not projected to reach target levels are shown as "Alert Balances."

Figure 3-4: Potable Water Operating Financial Plan

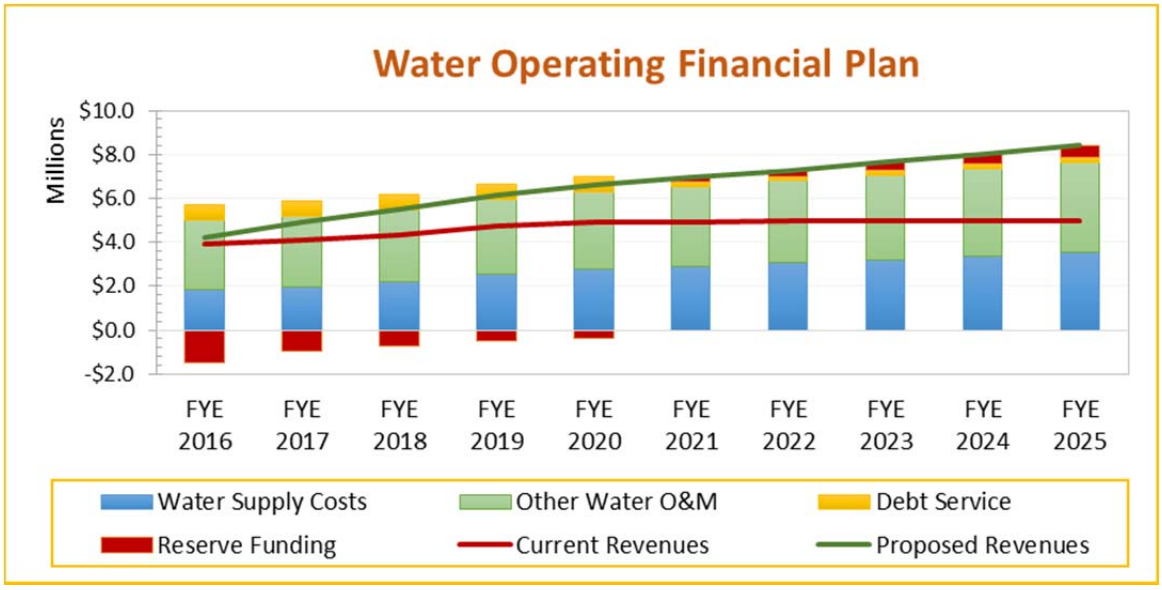
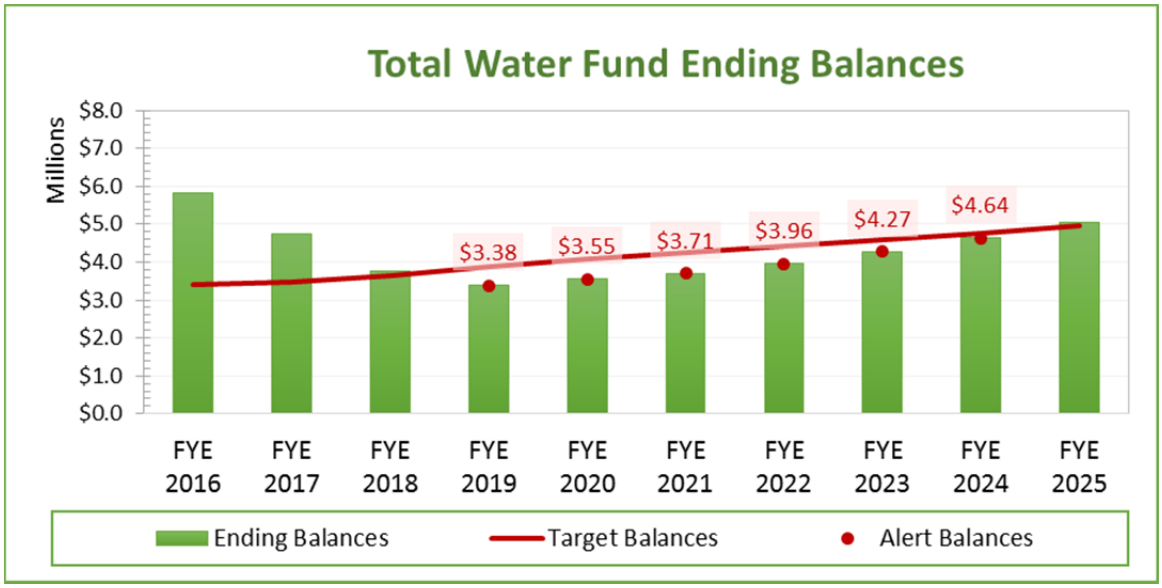


Figure 3-5: Projected Water Fund (Operating and Capital) Ending Balances



4 RECYCLED WATER FINANCIAL PLAN

This portion of the Report addresses the District's Recycled Water (RW) utility financial plan. RFC reviewed the Recycled Water) Utility's revenue requirement, which is the first step in a rate study. RFC analyzed annual operating revenues under the status quo (without revenue adjustments), O&M expenses, transfers between funds, and reserve requirements. This Report Section discusses projected revenues, O&M expenses, other reserve funding and revenue adjustments required to ensure the fiscal sustainability and solvency of the District's Recycled Water Fund.

4.1 REVENUES FROM CURRENT RW RATES

The current rates were last adjusted on January 1, 2009. Table 4-1 summarizes the current District RW rates, including RW Meter Flat Rates by meter size (same as Potable Water services) and WRES Charges by meter size. Table 4-2 shows the existing RW Usage Rates by customer class.

Table 4-1: Current RW Meter Flat Rates and WRES Charges

Meter Size	RW Meter Flat Rates	WRES Charges	
	Jan 1, 2013	Jan 1, 2010 – 2019	Jan 1, 2020 –2029
5/8"	$ 8.25	$ 16.50	$ 16.04
¾"	$ 10.76	$ 16.50	$ 16.04
1"	$ 16.77	$ 26.39	$ 25.25
1 ½"	$ 31.78	$ 33.64	$ 32.70
2"	$ 49.79	$ 44.86	$ 43.60
3"	$ 91.83	$ 67.30	$ 65.42
4"	$ 151.87	$ 89.73	$ 87.21
6"	$ 302.00	$ 158.34	$ 153.90
10"	$ 482.14	$ 224.32	$ 218.03

Table 4-2: Current RW Usage Rates

Rate Code	Customer Class	RW Usage Rates
63	Recycled	$3.17 / kgal
64	Recycled Golf Course	$3.33 / kgal
77	Recycled	$2.41 / ccf

Table 4-3 summarizes the projected number of RW accounts by meter size for the study period. As shown in Table 2-2, no growth is assumed for recycled water accounts during the study period.

Table 4-3: Projected Recycled Water Accounts

RW Services	FYE 2015	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020 & beyond
	Estimated	*Projected*	*Projected*	*Projected*	*Projected*	*Projected*
5/8"	0	0	0	0	0	0
¾"	0	0	0	0	0	0
1"	0	0	0	0	0	0
1 ½"	4	4	4	4	4	4
2"	15	15	15	15	15	15
3"	2	2	2	2	2	2
4"	0	0	0	0	0	0
6"	0	0	0	0	0	0
10"	2	2	2	2	2	2
Total	**23**	**23**	**23**	**23**	**23**	**23**

RFC assumed that recycled water sales will remain constant throughout the study period, as shown in Table 4-4. The Statewide mandate to reduce water consumption due to the current Statewide drought conditions does not apply to use of Recycled Water.

Table 4-4: Projected Recycled Water Sales

Rate Code	Customer Class	FYE 2015	FYE 2016	FYE 2017	FYE 2018	FYE 2019 & beyond
63	Recycled (kgal)	94,462	94,462	94,462	94,462	94,462
64	Recycled Golf Course (kgal)	135,814	135,814	135,814	135,814	135,814
77	Recycled (ccf)	47,831	47,831	47,831	47,831	47,831
	Total (ccf)	**355,687**	**355,687**	**355,687**	**355,687**	**355,687**
	Total (AF)	**817 AF**	**817 AF**	**817 AF**	**817 AF**	**817 AF**

Table 4-5 shows the projected RW commodity revenues for the study period under the District's existing rates. RFC calculated the commodity revenue shown for FYE 2016 through FYE 2020 by multiplying the projected usage by the current rate. For example, the commodity revenue for Recycled Water users for FYE 2016 can be calculated as follows:

$$Projected\ use \times Recycled\ Rate$$

$$47{,}831 \times \$2.41 = \$115{,}273$$

RFC performed the same calculation for all RW user classes to determine the total RW commodity revenues for each year of the study period. RFC also performed a similar calculation for RW meter flat charges by meter size and then added all meter sizes to determine the total RW meter flat rate revenue. The total estimated revenue from both RW commodity rates and RW meter flat rates is shown by fiscal year in Table 4-5.

Table 4-5: Projected Revenues from Current Recycled Water Rates

	FYE 2015	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020	FYE 2021 & beyond
RW Meter Flat Rates	$ 24,263	$ 24,263	$ 24,263	$ 24,263	$ 24,263	$ 24,263	$ 24,263
RW Usage Rates	$ 870,804	$ 870,804	$ 870,804	$ 870,804	$ 870,804	$ 870,804	$ 870,804
Total RW Rev from Current Rates	**$ 895,067**	**$ 895,067**	**$ 895,067**	**$ 895,067**	**$ 895,067**	**$ 895,067**	**$ 895,067**

4.2 Recycled Water O&M Expenses

4.2.1 Recycled Water Supply Costs

During a drought and through new water use efficiency measures, indoor water use is reduced which results in less RW produced. In addition, there is less rainfall during a drought which results in a higher demand for irrigation water while also resulting in less runoff for the District to capture and reuse. During drought periods, the District must purchase potable water to meet the demands of Recycled Water customers and supplement its RW supply because RW water supply is dependent on indoor potable water use and runoff. When indoor potable water use decreases there is less wastewater flow available to be treated and used for RW production. As shown in Table 4-6, the District should no longer need to purchase supplemental water for its Recycled Water system after the drought eases. Based on RW use projections, the per unit price of supplemental water, and expected purchase quantities, RFC calculated the RW supply costs as shown in Table 4-6. RFC determined the total water supply costs at the bottom of Table 4-6 by multiplying the per unit water costs by the quantity purchased.

Table 4-6: Projected Recycled Water Supply Costs

Line No.		FYE 2016 A	FYE 2017 B	FYE 2018 C	FYE 2019 D	FYE 2020 E	FYE 2021 F	FYE 2022 G	FYE 2023 H	FYE 2024 I	FYE 2025 J
1	RW Supplemental	150 AF	65 AF	71 AF	80 AF	0 AF	0 AF	0 AF	0 AF	0 AF	0 AF
2	Unit Variable Cost, Treated Water	$932/AF	$963/AF	$1,011/AF	$1,062/AF	$1,115/AF	$1,171/AF	$1,229/AF	$1,291/AF	$1,355/AF	$1,423/AF
3	**Total RW Supplemental Cost**	**$139,733**	**$62,875**	**$71,370**	**$85,193**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**

4.2.2 Recycled Water Operating Expenses

The District budgeted RW expenses for FYE 2016 and 2017. RFC applied inflation factors to these budgeted values to determine future RW expenses as shown in Table 4-7. The Recycled Water supply costs are taken from the calculated values in Table 4-6 above. Please refer to the District Budget document for more specific descriptions of each listed expense item.

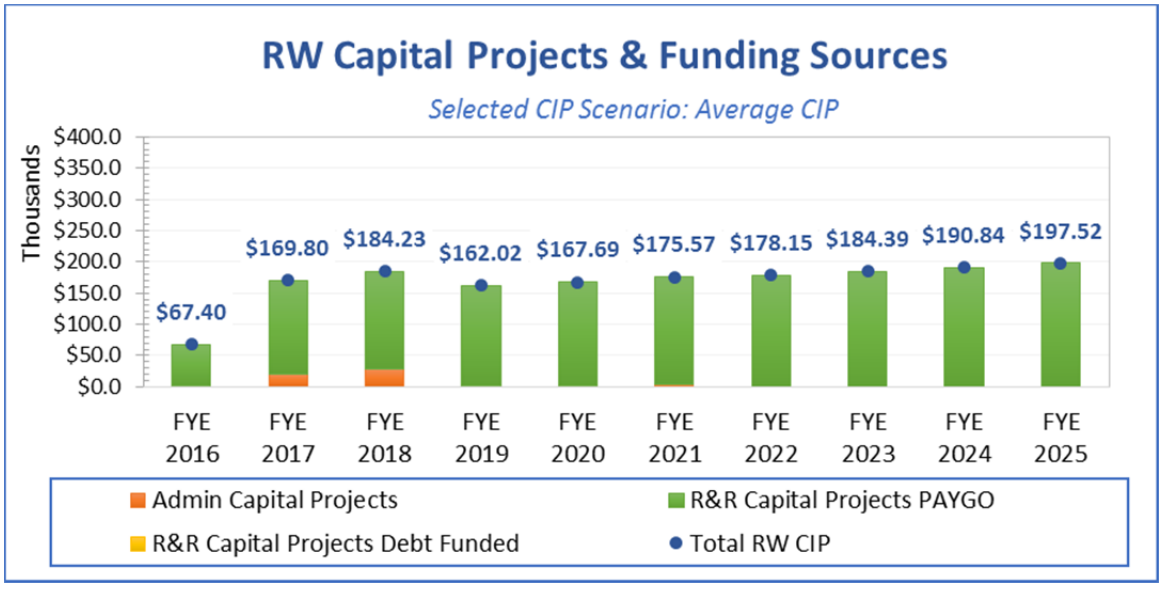
Table 4-7: Budgeted and Projected RW Operating Expenses

	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
RW O&M										
Source of Supply	$ 139,733	$ 62,875	$ 71,370	$ 85,193	$ -	$ -	$ -	$ -	$ -	$ -
Water Related Expense	$ 325	$ 332	$ 339	$ 345	$ 352	$ 359	$ 367	$ 374	$ 381	$ 389
Sanitation Expense	$ 72,620	$ 60,421	$ 61,629	$ 62,862	$ 64,119	$ 65,402	$ 66,710	$ 68,044	$ 69,405	$ 70,793
Urban Runoff & Recovery	$ 186,916	$ 211,194	$ 219,708	$ 228,607	$ 237,908	$ 247,633	$ 257,800	$ 268,431	$ 279,549	$ 291,176
Salaries & Benefits	$ 254,383	$ 259,940	$ 268,122	$ 276,589	$ 285,352	$ 294,423	$ 303,814	$ 313,536	$ 323,604	$ 334,031
Board Expense	$ 39,200	$ 39,984	$ 41,609	$ 43,306	$ 45,079	$ 46,931	$ 48,866	$ 50,888	$ 53,001	$ 55,209
Supplies & Services	$ 28,349	$ 28,871	$ 29,450	$ 30,041	$ 30,643	$ 31,258	$ 31,885	$ 32,524	$ 33,177	$ 33,842
TOTAL RW O&M	**$ 721,526**	**$ 663,618**	**$ 692,227**	**$ 726,943**	**$ 663,454**	**$ 686,006**	**$ 709,441**	**$ 733,797**	**$ 759,117**	**$ 785,440**

4.3 Projected Capital Replacement Projects

The District plans to allocate approximately $1.7M in RW capital expenditures during the study period, as shown in Figure 4-1 (A full list of projected projects and costs can be found in the Section 12.4). The total CIP was averaged over 10 years so as to minimize rate fluctuations and this yearly amount was escalated using the capital cost inflation factor shown in Table 2-1. The RW water CIP includes administrative capital projects which were allocated 70% to Water, 5% to RW and 25% to WW. The orange portion of the bars in Figure 4-1 are the Recycled Water Utility's share of administrative projects. The District plans to fund the RW capital projects using rate revenue, or PAYGO, as shown by the green bars in Figure 4-1 below.

Figure 4-1: Projected Recycled Water Replacement CIP and Funding Sources



4.4 Debt Service

The RW Fund currently has no outstanding debt. The District does not currently plan to issue debt for RW projects within the study period.

4.5 Status Quo RW Financial Plan

Figures 4-2 and 4-3 graphically displays the RW Operating Financial Plan and total ending reserve balances assuming no revenue increases (rate increases). Under the "status quo" - no revenue increase scenario, revenue generated from current rates and other miscellaneous revenues are sufficient to meet the RW utility's operating and capital needs and operational costs (i.e. the stacked bars in Figure 4-2 are touching the green line). However as shown in Figure 4-3, the RW utility total reserve balances do not meet the targets set in Section 2.3. Therefore RFC proposes a one-time RW revenue adjustment, as discussed in Section 4.6, to more expeditiously meet RW reserve targets.

Figure 4-2: Recycled Water Operating Financial Plan (Assumes No Revenue Increase)

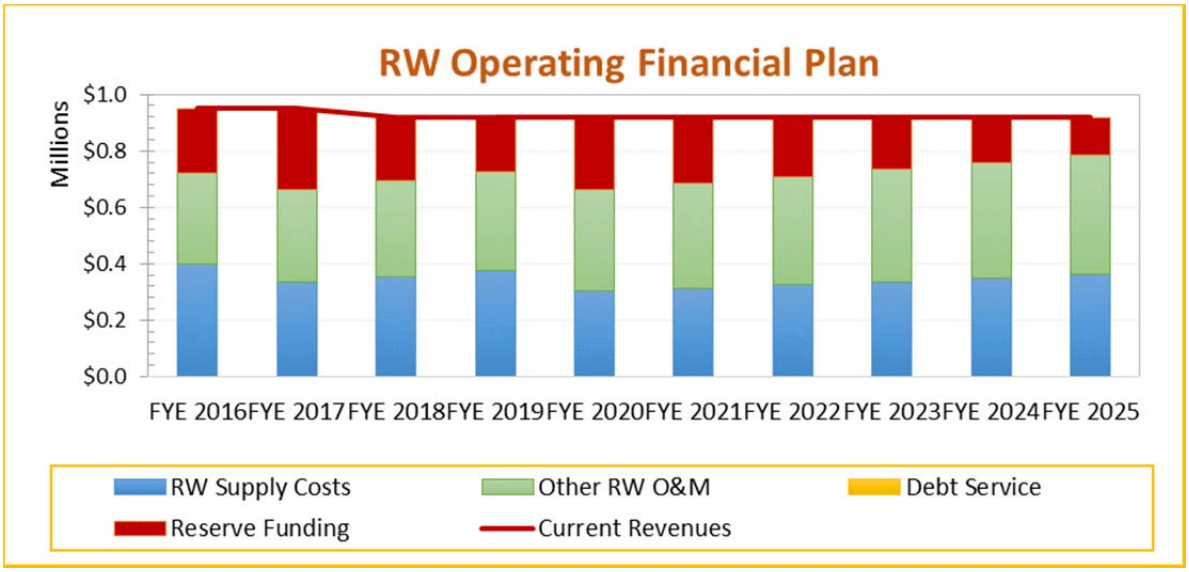
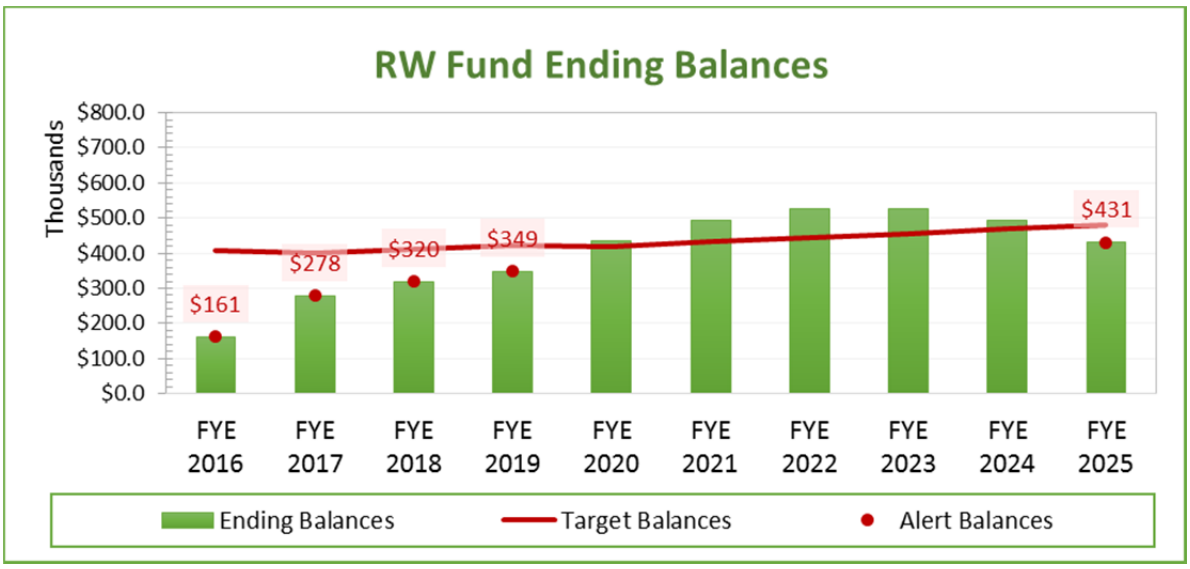


Figure 4-3: Recycled Water Total Ending Balances (Assumes No Revenue Increase)



4.6 Proposed Recycled Water Financial Plan

The proposed RW revenue adjustments are shown in Table 4-8.

Table 4-8: Proposed Recycled Water Revenue Adjustments

Fiscal Year Ending	Effective Date	Proposed RW Revenue Adjustments
2016	Jan 1, 2016	2%
2017	Jan 1, 2017	0%
2018	Jan 1, 2018	0%
2019	Jan 1, 2019	0%
2020	Jan 1, 2020	0%

Table 4-9 shows the RW pro forma with revenue adjustments as shown in Table 4-8. The one time RW revenue adjustment will help the RW utility more quickly meet its reserve target(s) as proposed in Section 2.3. The revenue adjustment will also act to:

- Ensures positive net RW revenues for the entirety of the study period with strong contributions to RW reserves every year, as shown in Figure 4-4.
- As shown in Figure 4-5, the ending balance (shown by green bars) increases every year and nearly reaches its target in FYE 2019.

Table 4-9: Proposed Recycled Water Financial Plan

RW FUND PROFORMA	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
New Rates effective in	Jan	Jan	Jan	Jan	Jan	Jan	Jan	Jan	Jan	Jan
REVENUES										
Revenues from Current Rates	$ 895,067	$ 895,067	$ 895,067	$ 895,067	$ 895,067	$ 895,067	$ 895,067	$ 895,067	$ 895,067	$ 895,067
Revenue Adjustments	$ 8,951	$ 17,901	$ 17,901	$ 17,901	$ 17,901	$ 17,901	$ 17,901	$ 17,901	$ 17,901	$ 17,901
Other Operating Revenues	$ 55,300	$ 55,300	$ 21,500	$ 21,500	$ 21,500	$ 21,500	$ 21,500	$ 21,500	$ 21,500	$ 21,500
Non-Operating Revenues	**$ -**	**$ -**	**$ 1,622**	**$ 1,889**	**$ 2,272**	**$ 2,725**	**$ 3,038**	**$ 3,212**	**$ 3,230**	**$ 3,086**
Property Tax Unrestricted	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Interest Revenue	$ -	$ -	$ 1,622	$ 1,889	$ 2,272	$ 2,725	$ 3,038	$ 3,212	$ 3,230	$ 3,086
Misc. Non-Operating Revenues	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Capital Revenues	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Water Reliability and Emergency	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
Other Capital Contribution	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
TOTAL REVENUES	**$ 959,318**	**$ 968,269**	**$ 936,090**	**$ 936,358**	**$ 936,740**	**$ 937,193**	**$ 937,507**	**$ 937,681**	**$ 937,699**	**$ 937,554**
OPERATING EXPENSES										
Source of Supply	$ 399,269	$ 334,490	$ 352,708	$ 376,661	$ 302,028	$ 313,034	$ 324,510	$ 336,475	$ 348,954	$ 361,969
Salaries & Benefits	$ 254,383	$ 259,940	$ 268,122	$ 276,589	$ 285,352	$ 294,423	$ 303,814	$ 313,536	$ 323,604	$ 334,031
Supplies & Services	$ 28,674	$ 29,203	$ 29,789	$ 30,386	$ 30,995	$ 31,617	$ 32,251	$ 32,898	$ 33,558	$ 34,231
Other Expenses	$ 39,200	$ 39,984	$ 41,609	$ 43,306	$ 45,079	$ 46,931	$ 48,866	$ 50,888	$ 53,001	$ 55,209
TOTAL OPERATING EXPENSES	**$ 721,526**	**$ 663,618**	**$ 692,227**	**$ 726,943**	**$ 663,454**	**$ 686,006**	**$ 709,441**	**$ 733,797**	**$ 759,117**	**$ 785,440**
NET REVENUES	**$ 237,792**	**$ 304,651**	**$ 243,863**	**$ 209,415**	**$ 273,286**	**$ 251,187**	**$ 228,066**	**$ 203,883**	**$ 178,582**	**$ 152,114**
REPLACEMENT CAPITAL PROJECTS	**$ 67,400**	**$ 169,800**	**$ 184,230**	**$ 162,023**	**$ 167,694**	**$ 175,571**	**$ 178,153**	**$ 184,388**	**$ 190,842**	**$ 197,521**
PAYGO	$ 67,400	$ 169,800	$ 184,230	$ 162,023	$ 167,694	$ 175,571	$ 178,153	$ 184,388	$ 190,842	$ 197,521
Debt Funded	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NET CASH CHANGES	**$ 170,392**	**$ 134,851**	**$ 59,633**	**$ 47,392**	**$ 105,592**	**$ 75,616**	**$ 49,913**	**$ 19,495**	**$ (12,260)**	**$ (45,407)**
BEGINNING BALANCES	**$ -**	**$ 170,392**	**$ 305,243**	**$ 364,876**	**$ 412,268**	**$ 517,860**	**$ 593,477**	**$ 643,390**	**$ 662,885**	**$ 650,625**
ENDING BALANCES	**$ 170,392**	**$ 305,243**	**$ 364,876**	**$ 412,268**	**$ 517,860**	**$ 593,477**	**$ 643,390**	**$ 662,885**	**$ 650,625**	**$ 605,218**
TARGET BALANCE	**$ 409,009**	**$ 400,385**	**$ 412,088**	**$ 425,039**	**$ 422,101**	**$ 433,570**	**$ 445,454**	**$ 457,772**	**$ 470,539**	**$ 483,772**
Operating 60 days of operating budget	$ 118,607	$ 109,088	$ 113,791	$ 119,497	$ 109,061	$ 112,768	$ 116,620	$ 120,624	$ 124,786	$ 129,113
Rate Stab 10% of operating revenues	$ 90,402	$ 91,297	$ 91,297	$ 91,297	$ 91,297	$ 91,297	$ 91,297	$ 91,297	$ 91,297	$ 91,297
Depreciation Reserves $ 200,000	$ 200,000	$ 200,000	$ 207,000	$ 214,245	$ 221,744	$ 229,505	$ 237,537	$ 245,851	$ 254,456	$ 263,362

Figure 4-4: Recycled Water Operating Financial Plan

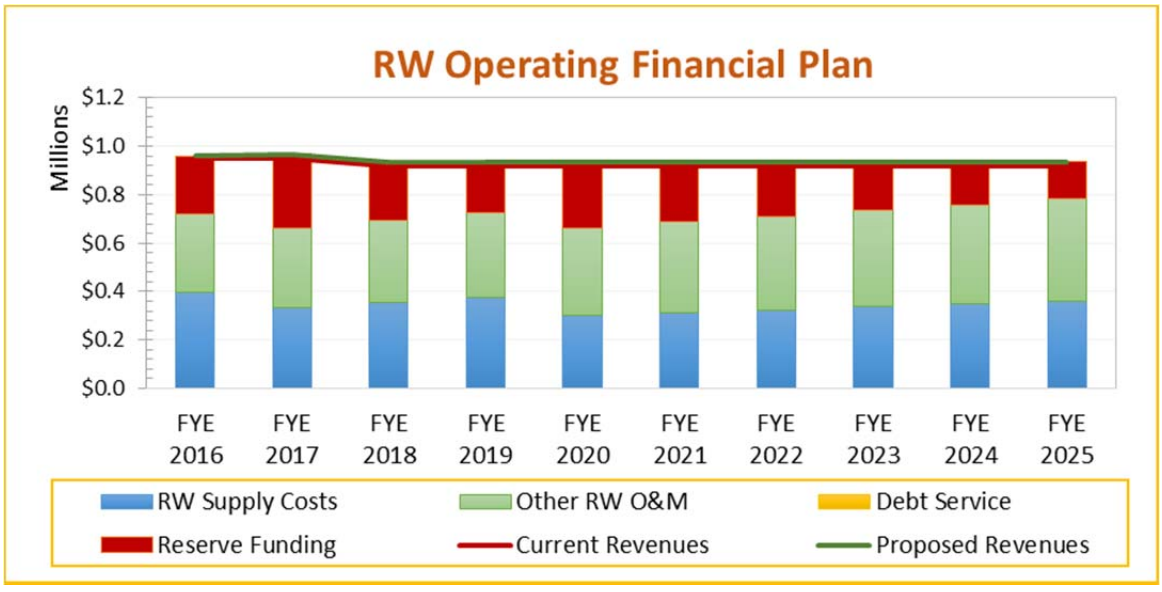
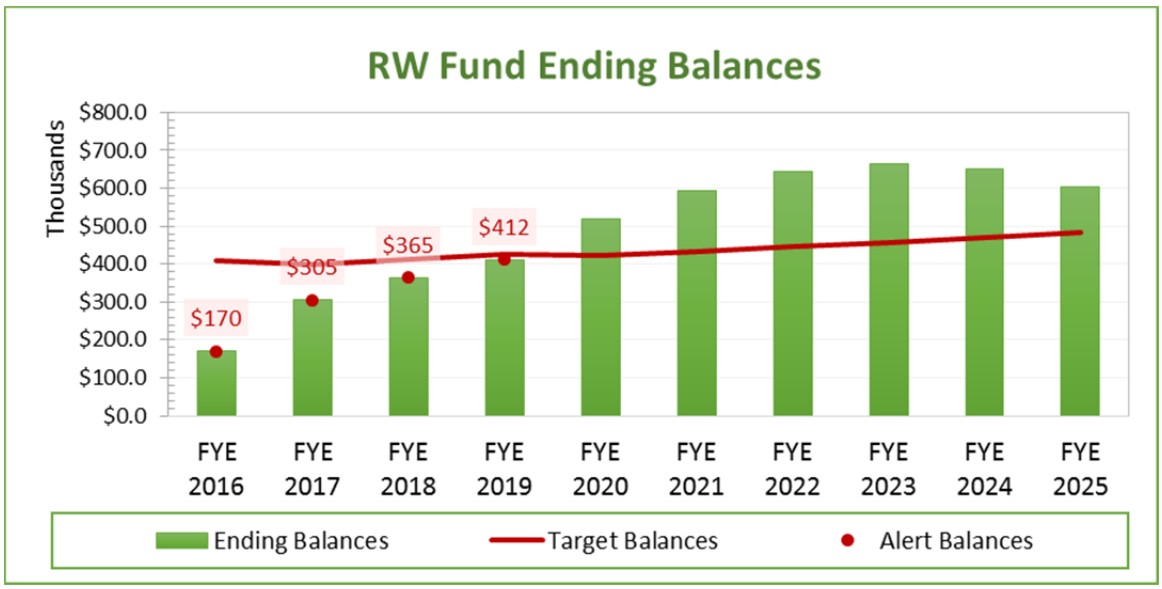


Figure 4-5: Projected Recycled Water Fund Ending Balances



5 WASTEWATER FINANCIAL PLAN

This section of the Report addresses the District's Wastewater (WW) financial requirements, rates and charges. RFC reviewed the District's revenue requirements, which is the first step in the rate study process. RFC analyzed the District's WW annual operating revenues, operation and maintenance (O&M) expenses, transfers between funds, and reserve requirements. This Section of the Report provides a discussion of the projected revenues, O&M expenses, other reserve funding and revenue adjustments needed to ensure the fiscal sustainability and solvency of the District's Wastewater Utility function.

5.1 REVENUES FROM CURRENT WW RATES

Table 5-1 shows the current Wastewater (WW) monthly rates and charges in effect since before 1997. Single Family Residential (SFR) is charged a flat rate. Non-Single Family customers are charged a fixed charge by meter size and a per water unit charge by customer class as shown in Table 5-1.

Table 5-1: Current WW Monthly Rates and Charges

Effective Date	1/1/2013
Sewer Flat Charges	
Single Family Residential	$ 19.80
Miscellaneous Customers with Specific WW Service Agreements	
County of Orange	$ 189.75
Rancho Las Lomas	$ 250.00
Portola - Zadeh/Rutter	$ 547.78
Chiquita - Zadeh/Rutter	$ 223.08
CA Quartet	$ 4,321.60

Table 5-1: Current WW Rates (cont.)

Effective Date	1/1/2013
Non-Single Family Residential	
Sewer Fixed Charges	
5/8"	$ 5.00
3/4"	$ 7.19
1"	$ 11.58
1-1/2"	$ 22.56
2"	$ 35.74
3"	$ 66.58
4"	$ 110.40
Sewer Per Unit Charge	
Commercial Low	$ 1.92
Commercial Medium	$ 2.72
Commercial High	$ 4.30
Multi Family	$ 1.92
Church	$ 1.92
School	$ 1.92
Government	$ 1.92

Table 5-2 summarizes the projected number of accounts by customer class. RFC added the number of accounts (EDUs) found in Table 2-2 to the existing number of accounts for FYE 2015 to project the number of WW accounts for future years.

Table 5-2: Projected WW Accounts

WW Services	FYE 2015	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020 & beyond
	Estimated	*Projected*	*Projected*	*Projected*	*Projected*	*Projected*
Single Family Residential	3,516	3,516	3,636	3,666	3,701	3,701
County of Orange	0	0	0	0	0	0
Rancho Las Lomas	1	1	1	1	1	1
Portola - Zadeh/Rutter	1	1	1	1	1	1
Chiquita - Zadeh/Rutter	1	1	1	1	1	1
CA Quartet	1	1	1	1	1	1
Non-SFR						
5/8"	3	3	3	3	3	3
3/4"	4	4	4	4	4	4
1"	27	27	27	27	27	27
1-1/2"	15	15	15	15	15	15
2"	21	21	21	21	21	21
3"	1	1	1	1	1	1
4"	1	1	1	1	1	1
Total	**3,592**	**3,592**	**3,712**	**3,742**	**3,777**	**3,777**

Table 5-3 shows the projected WW billed flows. The District provided billed flow for FYE 2015. Table 5-3 shows that RFC assumed that Non-Single Family WW billed flows remain constant during the study period.

Table 5-3: Projected Billed Flows Summary (ccf)

WW Services	FYE 2015	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020 & beyond
	Estimated	*Projected*	*Projected*	*Projected*	*Projected*	*Projected*
Non-SFR						
Commercial Low	6,310	6,310	6,310	6,310	6,310	6,310
Commercial Medium	7,824	7,824	7,824	7,824	7,824	7,824
Commercial High	4,556	4,556	4,556	4,556	4,556	4,556
Multi Family	15,174	15,174	15,174	15,174	15,174	15,174
Church	4,731	4,731	4,731	4,731	4,731	4,731
School	832	832	832	832	832	832
Government	2	2	2	2	2	2
Total	**39,429**	**39,429**	**39,429**	**39,429**	**39,429**	**39,429**

RFC determined fixed (flat) revenues from current WW rates by multiplying the current WW rates by the number of accounts for the given year. For example, the annual WW revenues for SFR customers under current WW rates are calculated as follows:

$$SFR\ Sanitation\ Rate\ \times Number\ of\ projected\ SFR\ accounts\ for\ 2016\ \times 12\ months$$
$$\$19.80\ \times 3{,}516\ \times 12 = \$835{,}402$$

The same calculation is repeated for other customer classes and for each commercial customer class which includes a volumetric charge. The total revenues from current WW rates are shown in Table 5-4 below.

Table 5-4: Calculated Revenues from Current WW Rates

	FYE 2015	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020 & Beyond
Misc. by Agreement Sewer Flat Charges	$ 64,110	$ 64,110	$ 64,110	$ 64,110	$ 64,110	$ 64,110
Sewer Flat Charges	$ 854,870	$ 854,870	$ 883,382	$ 890,510	$ 898,826	$ 898,826
Sewer Per Unit Charge	$ 92,806	$ 92,806	$ 92,806	$ 92,806	$ 92,806	$ 92,806
Total Revenues from Current WW Rates	**$ 1,011,785**	**$ 1,011,785**	**$ 1,040,297**	**$ 1,047,425**	**$ 1,055,741**	**$ 1,055,741**

5.2 Miscellaneous WW Revenues

In addition to revenues from rates, the WW Utility also receives miscellaneous revenues from different sources such as interest earnings, and other operating/non-operating sources. Total miscellaneous revenues for the study period are shown in Table 5-5. RFC projected miscellaneous WW revenues by taking FYE 2015 actual revenues and escalating these values by the factors shown in Table 2-1 under Other Revenue Escalation factors (except interest income which is calculated based on actual reserve balances in the WW Fund).

Table 5-5: Projected Miscellaneous WW Revenues

Revenue Component	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Other Operating Rev	$123,000	$123,000	$123,000	$123,000	$123,000	$123,000	$123,000	$123,000	$123,000	$123,000
Non-Operating Rev										
Property Tax Unrestricted	$748,750	$763,700	$775,156	$786,783	$798,585	$810,563	$822,722	$835,063	$847,589	$860,302
Interest Revenue	$5,730	$5,850	$7,719	$6,601	$7,132	$8,868	$10,653	$12,533	$14,468	$16,458
Development Services	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Sale of Fixed Asset	$0	$0	$0	$0	$0	$0	$0	$0	$0	$0
Other Non-Operating Revenue	$26,650	$27,150	$27,557	$27,971	$28,390	$28,816	$29,248	$29,687	$30,132	$30,584
Total Misc. Revenues	**$904,130**	**$919,700**	**$933,432**	**$944,354**	**$957,107**	**$971,247**	**$985,623**	**$1,000,283**	**$1,015,188**	**$1,030,345**
Capital Revenues										
Other Capital Contribution	$2,559,500	$0	$0	$0	$472,765	$0	$0	$0	$0	$0
Total Capital Revenues	**$2,559,500**	**$0**	**$0**	**$0**	**$472,765**	**$0**	**$0**	**$0**	**$0**	**$0**

5.3 WW O&M Expenses

Using the District's FYE 2016 budgeted values and FYE 2017 projections, inflation factors were assigned to each line item to determine future O&M costs for the WW Fund. Table 5-6 summarizes budgeted and projected O&M expenses for the WW Fund. Please refer to the District's Budget document for more specific descriptions of each expense item. Note that the O&M component named Water Related Expense refers to billing and collection costs for WW bills (and not water expenses).

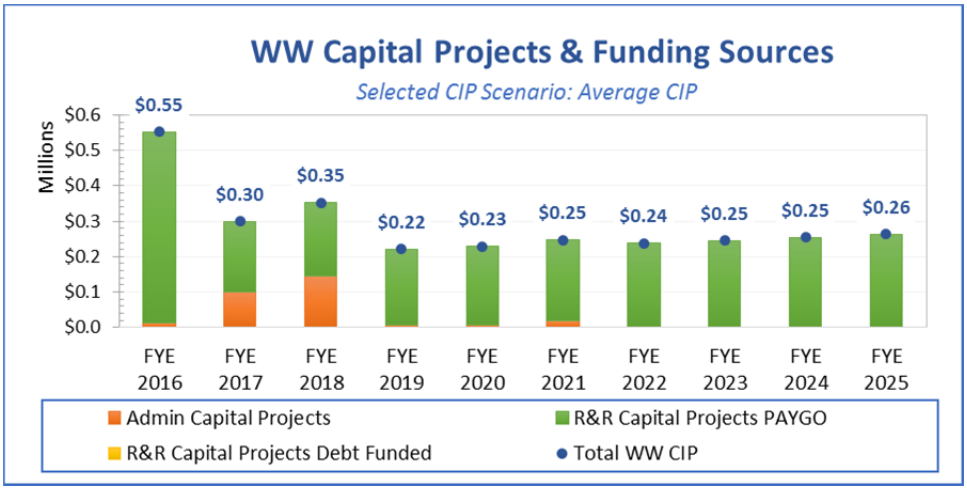
Table 5-6: Projected WW O&M Expenses

O&M Component	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Water Related Expense	$ 50,827	$ 51,843	$ 52,880	$ 53,938	$ 55,016	$ 56,117	$ 57,239	$ 58,384	$ 59,552	$ 60,743
Sanitation Expense	$ 762,143	$ 715,580	$ 739,999	$ 765,910	$ 789,586	$ 814,153	$ 839,649	$ 866,117	$ 893,597	$ 922,135
Salaries & Benefits	$ 763,148	$ 779,820	$ 804,366	$ 829,767	$ 856,057	$ 883,269	$ 911,441	$ 940,609	$ 970,813	$ 1,002,093
Board Expense	$ 39,200	$ 39,984	$ 41,609	$ 43,306	$ 45,079	$ 46,931	$ 48,866	$ 50,888	$ 53,001	$ 55,209
Supplies & Services	$ 302,886	$ 301,954	$ 308,226	$ 314,635	$ 321,185	$ 327,878	$ 334,719	$ 341,710	$ 348,857	$ 356,162
TOTAL WW O&M	**$ 1,918,204**	**$ 1,889,181**	**$ 1,947,080**	**$ 2,007,557**	**$ 2,066,923**	**$ 2,128,348**	**$ 2,191,914**	**$ 2,257,708**	**$ 2,325,819**	**$ 2,396,342**

5.4 Projected Capital Replacement Projects

The District plans to execute approximately $2.9M in WW capital expenditures during the study period, as shown in Figure 5-1 (A full list of WW projects and costs can be found in the Appendix 12.4). The District elected to minimize fluctuations the CIP expenditures by averaging the total CIP over 10 years to reduce rate fluctuations and customer impacts. CIP costs for future years are determined by using the average CIP cost and inflating the value by the capital cost inflation factor shown in Table 2-1. Administrative capital projects are allocated 70% to Water, 5% to RW and 25% to WW Fund based on District staff's estimates. The District will fund the replacement CIP via rate revenue (PAYGO) as show by the green bars in Figure 5-1 below.

Figure 5-1: Projected WW Replacement CIP and Funding Sources



5.5 Debt Service

As discussed in Section 3.5, the District currently has two outstanding securities obligations that were considered for the study period. Table 5-7 shows the District's total debt service obligations and annual payments with the last line showing the WW utility's allocated share which is 50% of the Series C Bonds.

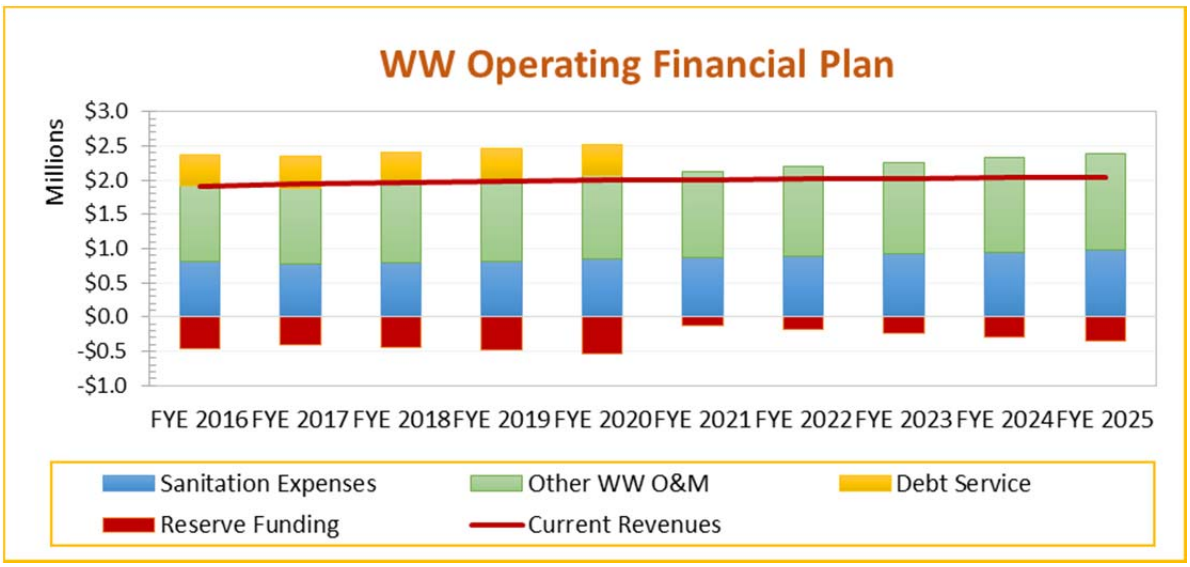
Table 5-7: Current WW Debt Service

	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020	FYE 2021
Series C Bonds	$ 914,143	$ 920,223	$ 913,558	$ 904,453	$ 917,145	$ 0
SRF Loan	$ 230,381	$ 230,381	$ 230,381	$ 230,381	$ 230,381	$ 230,381
Total Debt	**$ 1,144,524**	**$ 1,150,604**	**$ 1,143,939**	**$ 1,134,834**	**$ 1,147,526**	**$ 230,381**
WW	**$ 457,071**	**$ 460,111**	**$ 456,779**	**$ 452,226**	**$ 458,573**	**$ -**

5.6 Status Quo Wastewater Financial Plan

Figure 5-2 displays the District's WW Operating Financial Plan in graphical format assuming no revenue adjustments ("Status Quo") over the study period. As shown in Figure 5-2, the District's WW operating costs, which are the summation of the blue, green and yellow bars are greater than current WW revenues shown by the red line (under current rates). The District uses reserves to fund the revenue shortfall as shown by the red bar below the x-axis which signifies the use of reserves. This demonstrates that under the assumptions described in the preceding sections, the District needs to increase WW revenues to maintain fiscal solvency and cover long term operating costs. Under the "status quo" scenario, the District is unable to meet WW reserve requirements as set in the Reserve Policy discussed in Section 2.3 (projected ending balances are less than target balances) and does not maintain fiscal sustainability and solvency.

Figure 5-2: Status Quo WW Financial Plan (at Current Rates)



5.7 PROPOSED WW FINANCIAL PLAN

As demonstrated by Figure 5-2, The District's WW utility needs revenue adjustments to meet target reserves and maintain financial sufficiency. The proposed WW revenue adjustments are shown in Table 5-8.

Table 5-8: Proposed Sanitation Revenue Adjustments

Fiscal Year Ending	Effective Date	Proposed WW Revenue Adjustments
2016	Jan 1, 2016	25%
2017	Jan 1, 2017	15%
2018	Jan 1, 2018	5%
2019	Jan 1, 2019	5%
2020	Jan 1, 2020	5%

Table 5-9 shows the pro forma for the WW utility and Figure 5-3 shows the operating financial plan assuming the proposed WW revenue adjustments shown above. Figure 5-4 shows the ending reserve balances assuming the proposed WW revenue adjustments. The proposed WW revenue adjustments result in the following:

- As shown in Table 5-9 by the net cash changes line, the WW utility continues to use reserves however it uses less reserves each year as the rate adjustments go into effect over time. As shown in Figure 5-4, WW reserves begin to recover in FYE 2020. The District wishes to minimize customer impacts and therefore elects to reach reserve targets over the 9-year period WW reserves are nearly met in FYE 2024).
- As shown in Figure 5- 3, the proposed WW revenue (shown by the green line) meets operating obligations (shown by stacked bars) beginning in FYE 2018. However WW revenue is not sufficient to cover *capital* contributions and thus total reserves continue to fall until FYE 2019 as shown in Figure 5-4.

Table 5-9: Proposed WW Financial Plan

WW FUND PROFORMA	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
New Rates effective in	Jan	Jan	Jan	Jan	Jan	Jan	Jan	Jan	Jan	Jan
REVENUES										
Revenues from Current Rates	$ 947,676	$ 976,188	$ 983,316	$ 991,632	$ 991,632	$ 991,632	$ 991,632	$ 991,632	$ 991,632	$ 991,632
Revenue Adjustments	$ 118,459	$ 335,565	$ 465,539	$ 542,531	$ 619,239	$ 691,532	$ 758,859	$ 828,878	$ 901,699	$ 977,432
Misc. by Agreement Sewer Flat Charg	$ 64,110	$ 64,110	$ 64,110	$ 64,110	$ 64,110	$ 64,110	$ 64,110	$ 64,110	$ 64,110	$ 64,110
Other Operating Revenues	$ 123,000	$ 123,000	$ 123,000	$ 123,000	$ 123,000	$ 123,000	$ 123,000	$ 123,000	$ 123,000	$ 123,000
Non-Operating Revenues	**$ 781,130**	**$ 796,700**	**$ 810,432**	**$ 821,354**	**$ 834,107**	**$ 848,247**	**$ 862,623**	**$ 877,283**	**$ 892,188**	**$ 907,345**
Property Tax Unrestricted	$ 748,750	$ 763,700	$ 775,156	$ 786,783	$ 798,585	$ 810,563	$ 822,722	$ 835,063	$ 847,589	$ 860,302
Interest Revenue	$ 5,730	$ 5,850	$ 7,719	$ 6,601	$ 7,132	$ 8,868	$ 10,653	$ 12,533	$ 14,468	$ 16,458
Misc. Non-Operating Revenues	$ 26,650	$ 27,150	$ 27,557	$ 27,971	$ 28,390	$ 28,816	$ 29,248	$ 29,687	$ 30,132	$ 30,584
Capital Revenues	**$ 2,559,500**	**$ -**	**$ -**	**$ -**	**$ 472,765**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Other Capital Contribution	$ 2,559,500	$ -	$ -	$ -	$ 472,765	$ -	$ -	$ -	$ -	$ -
TOTAL REVENUES	**$ 4,593,875**	**$ 2,295,562**	**$ 2,446,396**	**$ 2,542,627**	**$ 3,104,852**	**$ 2,718,520**	**$ 2,800,223**	**$ 2,884,902**	**$ 2,972,628**	**$ 3,063,518**
OPERATING EXPENSES										
Sanitation Expenses	$ 812,970	$ 767,423	$ 792,879	$ 819,848	$ 844,602	$ 870,269	$ 896,889	$ 924,501	$ 953,149	$ 982,878
Salaries & Benefits	$ 763,148	$ 779,820	$ 804,366	$ 829,767	$ 856,057	$ 883,269	$ 911,441	$ 940,609	$ 970,813	$ 1,002,093
Supplies & Services	$ 302,886	$ 301,954	$ 308,226	$ 314,635	$ 321,185	$ 327,878	$ 334,719	$ 341,710	$ 348,857	$ 356,162
Other Expenses	$ 39,200	$ 39,984	$ 41,609	$ 43,306	$ 45,079	$ 46,931	$ 48,866	$ 50,888	$ 53,001	$ 55,209
TOTAL OPERATING EXPENSES	**$ 1,918,204**	**$ 1,889,181**	**$ 1,947,080**	**$ 2,007,557**	**$ 2,066,923**	**$ 2,128,348**	**$ 2,191,914**	**$ 2,257,708**	**$ 2,325,819**	**$ 2,396,342**
NET REVENUES	**$ 2,675,671**	**$ 406,381**	**$ 499,316**	**$ 535,070**	**$ 1,037,930**	**$ 590,172**	**$ 608,309**	**$ 627,194**	**$ 646,809**	**$ 667,176**
DEBT SERVICE	**$ 457,071**	**$ 460,111**	**$ 456,779**	**$ 452,226**	**$ 458,573**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Current Debt Service	$ 457,071	$ 460,111	$ 456,779	$ 452,226	$ 458,573	$ -	$ -	$ -	$ -	$ -
Proposed Debt Service	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
REPLACEMENT CAPITAL PROJECTS	**$ 552,000**	**$ 299,000**	**$ 351,900**	**$ 220,940**	**$ 228,673**	**$ 246,717**	**$ 237,537**	**$ 245,851**	**$ 254,456**	**$ 263,362**
PAYGO	$ 552,000	$ 299,000	$ 351,900	$ 220,940	$ 228,673	$ 246,717	$ 237,537	$ 245,851	$ 254,456	$ 263,362
Debt Funded	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
NET CASH CHANGES	**$ 1,666,599**	**$ (352,730)**	**$ (309,363)**	**$ (138,097)**	**$ 350,684**	**$ 343,455**	**$ 370,772**	**$ 381,343**	**$ 392,353**	**$ 403,814**
BEGINNING BALANCES	**$ 598,976**	**$ 2,265,575**	**$ 1,912,845**	**$ 1,603,482**	**$ 1,465,386**	**$ 1,816,070**	**$ 2,159,525**	**$ 2,530,296**	**$ 2,911,640**	**$ 3,303,993**
ENDING BALANCES	**$ 2,265,575**	**$ 1,912,845**	**$ 1,603,482**	**$ 1,465,386**	**$ 1,816,070**	**$ 2,159,525**	**$ 2,530,296**	**$ 2,911,640**	**$ 3,303,993**	**$ 3,707,807**
TARGET BALANCE	**$ 2,688,962**	**$ 2,678,387**	**$ 2,769,134**	**$ 2,863,258**	**$ 2,959,501**	**$ 3,059,106**	**$ 3,162,193**	**$ 3,268,890**	**$ 3,379,326**	**$ 3,493,637**
Operating 60 days of operating budget	$ 315,321	$ 310,550	$ 320,068	$ 330,009	$ 339,768	$ 349,865	$ 360,315	$ 371,130	$ 382,326	$ 393,919
Rate Stab 20% of operating budget	$ 383,641	$ 377,836	$ 389,416	$ 401,511	$ 413,385	$ 425,670	$ 438,383	$ 451,542	$ 465,164	$ 479,268
Equip. Maintenance $ 450,000	$ 450,000	$ 450,000	$ 465,750	$ 482,051	$ 498,923	$ 516,385	$ 534,459	$ 553,165	$ 572,526	$ 592,564
District Capital $ 100,000	$ 100,000	$ 100,000	$ 103,500	$ 107,123	$ 110,872	$ 114,752	$ 118,769	$ 122,926	$ 127,228	$ 131,681
Depreciation Reserves $ 1,440,000	$ 1,440,000	$ 1,440,000	$ 1,490,400	$ 1,542,564	$ 1,596,554	$ 1,652,433	$ 1,710,268	$ 1,770,128	$ 1,832,082	$ 1,896,205

Figure 5-3: WW Operating Financial Plan

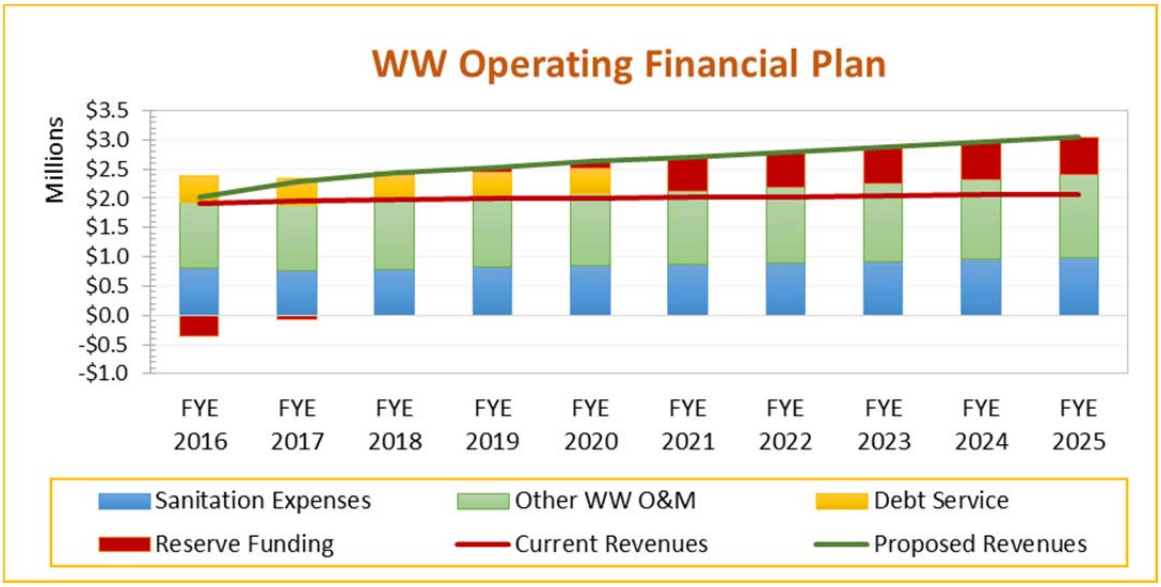
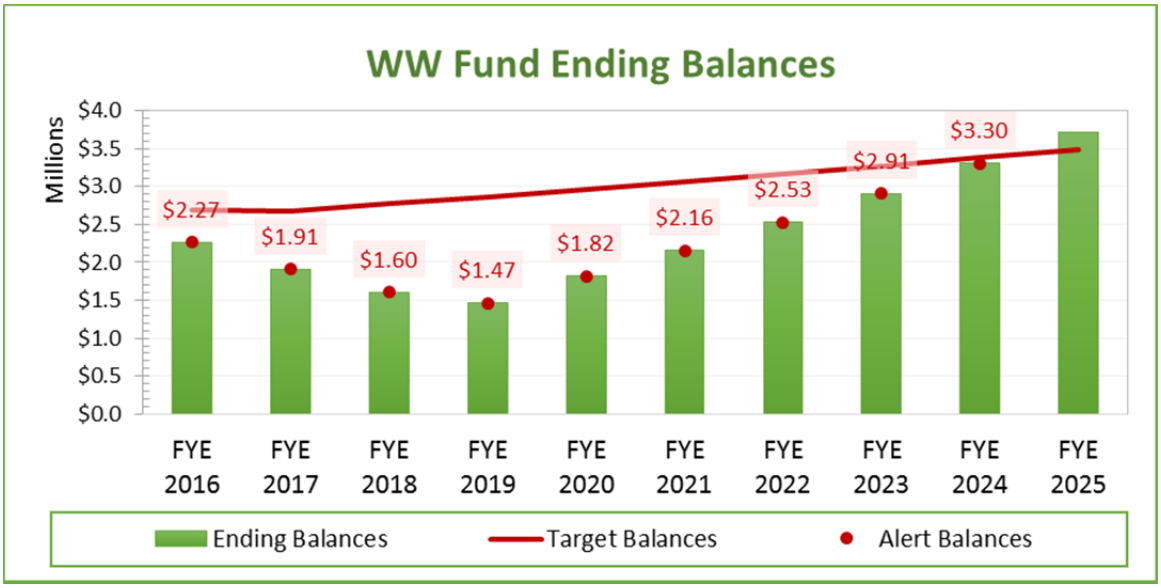


Figure 5-4: Projected WW Fund Ending Balances



6 WATER RATE STRUCTURE AND USAGE ANALYSIS

6.1 PRICING OBJECTIVES

RFC conducted a pricing objectives exercise with the District Board. This evaluation helps RFC ascertain what is most important to the Board, as the policy setting body of the District, in terms of what the rate structure accomplishes. The pricing objectives are defined as follows:

1) **Revenue Stability:** this objective minimizes revenue fluctuations associated with fluctuating water sales. This objective implies a higher fixed charge which does not vary with water consumption.
2) **Affordability:** promotes low water bills with corresponding low water use. This objective implies a lower fixed charge and tiered rates with the lowest tier set at the District's lowest cost of water.
3) **Fairness:** implies that rates are allocated using Cost of Service principles and are based on how classes use the water system. This favors a low fixed charge so that bills are in proportion to use.
4) **Conservation:** favors a rate structure that sends a strong conservation signal through higher bills with corresponding use. This objective implies a tiered rate structure and a low fixed charge.
5) **Simplicity:** favors a simple rate structure (uniform rates) that customers understand and is easy for staff to implement.

Table 6-1 shows the results of the pricing objectives exercise – the 5 Board members could rank each objective with a score of 1 to 5 with 5 signifying most importance. The top pricing objective was revenue stability. Revenue stability has been a concern for many water agencies in this time of need for conservation and Statewide drought. The second most important objective was affordability. These top two pricing objectives conflict with one another. To try to accommodate both, RFC created a rate structure with a high fixed charge (promoting revenue stability) and a tiered rate structure in which the rate for the 1st Tier is based on the lowest cost of water. The District should collect approximately 36% of its revenues through fixed charges (including the Water Reliability and Emergency Storage (WRES) charge) – which will promote revenue stability, while remaining affordable for low water volume users.

Table 6-1: Pricing Objectives Results

Pricing Objective	Score	Average Score
Revenue Stability	**24**	**4.8**
Affordability	**18**	**3.6**
Fairness	17	3.4
Conservation	11	2.2
Simplicity	5	1

6.2 TIER DESIGN (COMMODITY USAGE RATES)

Table 6-2 shows the revised tier breakpoints. Proposition 218 requires that tiered rates be based on the cost of serving water to that tier. One cost that is used to differentiate rates between tiers is water supply costs. Creating cost-based rates, by tier, becomes more difficult, and potentially more prone to legal challenge, to incorporate into a proposed rate structure as the number of tiers increases. The District previously had 8 residential tiers and only two sources of water (assuming no groundwater supply as has been the case since April 2013). Creating a meaningful, cost based rate structure, for an 8 tier rate structure would be a significant challenge. Therefore, RFC recommended a 4 tier water rate structure as shown in Table 6-2.

The proposed water rate tiers were designed as follows:

1) Tier 1 is for essential indoor use and is equated to approximately 3.3 people per home[10] using 55 gallons per day[11] per person over a calendar (30-day) month (rounded up). This is also known as an indoor water budget (IWB).
2) Tier 2 is set at an amount that is for an average lot's outdoor use. It assumes a 3,500 square foot of landscaped area, an evapotranspiration factor (ETAF) of 80%[12], the average monthly evapotranspiration of 4.14 inches[13] to create an outdoor water budget of 10 hundred cubic feet (ccf) which is added to the Tier 1 breakpoint.
3) Tier 3 is set at an amount equal to water needs for an average lot (residential parcel) during the hottest summer months. It assumes an average landscaped area of 3,500 square feet, an evapotranspiration factor of 100% (which assumes non-drought tolerant plantings), and the 10-year maximum monthly evapotranspiration of 7.22 inches. This creates an additional outdoor water budget of 12 ccf which is added to the 18 ccf Tier 2 breakpoint.
4) Tier 4 is considered the high volume use tier and captures use above 30 ccf.

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[10] *See Appendix 12.3 for population estimates.*
[11] *Fifty five gallons per capita per day is a reasonable amount of indoor water use set forth in Senate Bill X7-7.*
[12] *An evapotranspiration factor accounts for the type plants and efficiency of an irrigation system. ETAFs for current home construction is 70% to account for efficient irrigation systems and drought tolerant plants. The ETAF associated with the age of homes built in the District is 80%.*
[13] *Evapotranspiration was taken from the California Irrigation Management Information System Station 75*

Table 6-2: Proposed Single Family Residential Revised Tier Definitions

	Tier Range	
Tier 1	0 – 8 ccf	GPCD = 55 3.3 people per household IWB = 8 ccf / month
Tier 2	9 – 18 ccf	Average landscape area = 3,500 sq. ft. ETAF = 80%, average monthly ET_0 = 4.14in OWB_{avg} = 10 ccf / month
Tier 3	19 – 30 ccf	Average landscape area = 3,500 sq. ft. ETAF = 100%, 10-year max month ET_0 = 7.22 in OWB_{max} = 22 ccf / month Tier 3 = OWB_{max} – OWB_{avg} = 12 ccf / month
Tier 4	Above 30 ccf	

6.3 Potable Water Use

Figure 6-1 below shows the percentage of District customers (bills) and the percentage of use that would fall into each revised tier using FYE 2015 (from July 2014 to June 2015) consumption data. As shown, 66% of customers and 78% of use are expected to fall within Tiers 1 and 2.

Figure 6-1: Single Family Residential Usage and Bill Distribution in Proposed Revised Tiers

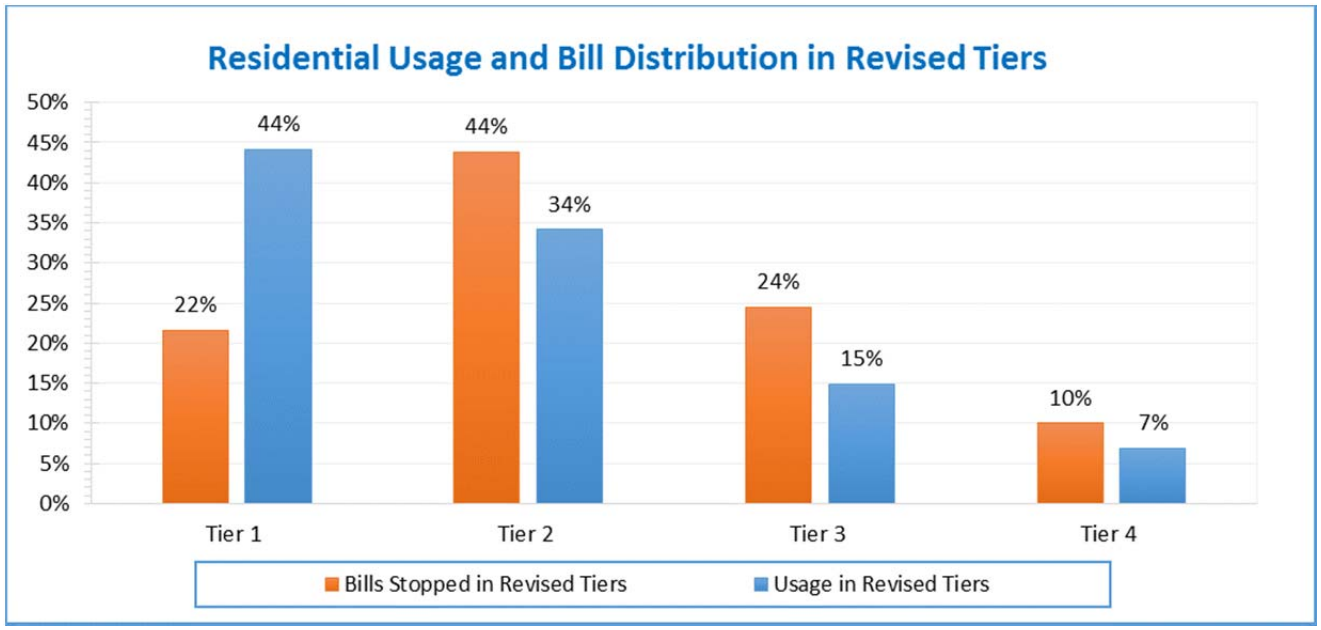


Figure 6-2 shows monthly total water use (left hand column of graph) for FYE 2014 and 2015. This chart shows that there are seasonal peaks to water use within the District. RFC used these seasonal peaks to

estimate peaking factors for each user class. RFC used August 2013 usage to calculate peaking factors for all classes - these are known as coincidental peaking factors. Peaking factors are shown in Table 6-3.

Figure 6-2: FYE 2014 and 2015 Usage by Customer Class by Month

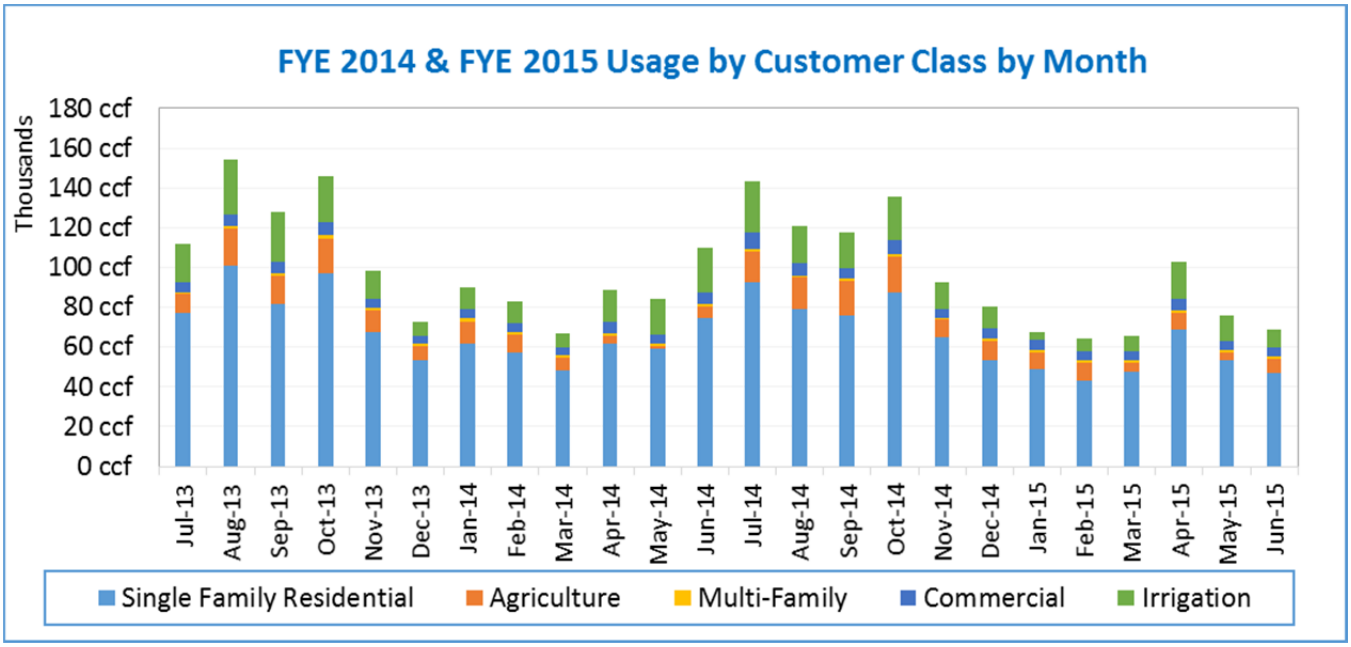


Figure 6-3 also shows water use for FYE 2014 and 2015 solely for the Single Family customer class. This water use data was used to calculate the Single Family peaking factors also shown in Table 6-3.

Figure 6-3: SFR Monthly Usage in Proposed/Revised Tiers

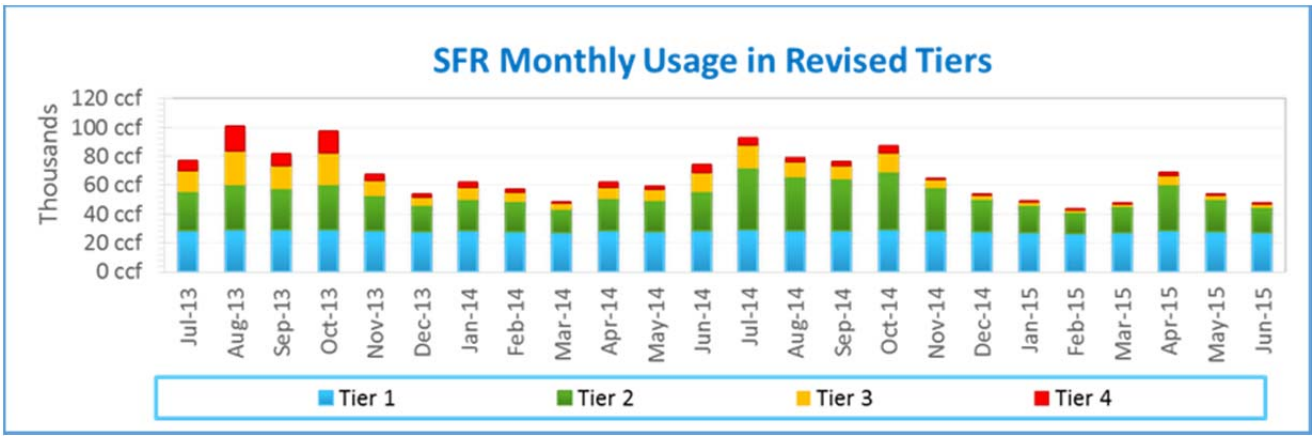


Table 6-3 shows the calculation of the peaking factors by customer class and by proposed tier structure. The peaking factors are calculated by dividing the maximum monthly use by the average monthly use for each customer class and each tier. The peaking factors play an integral role in determining the cost of providing service to each customer class and proposed tier. The peaking factors help allocate the extra capacity (or peaking) costs (defined in Section 8.2) to the customer classes. A customer class with a higher peaking factor is allocated a higher proportion of extra capacity costs – which are costs associated with serving customers during times of peak use.

Table 6-3: Peaking Characteristics for Potable Water Usage

Customer Class	Max Month (Aug 2013)	Average Month	Peaking Factors Max / Average
Single Family Residential	100,690	66,722	1.5
Agriculture	18,825	10,089	1.9
Multi-Family	1,208	1,246	1.0
Commercial	6,124	5,188	1.2
Irrigation	27,251	15,484	1.8
Construction	89	44	2.0
Lang Well	Same as Commercial by agreement		1.2
Total	**154,512**	**98,952**	**1.6**

Single Family Residential	Max Month (Aug 2013)	Average Month	Peaking Factors Max / Average
Tier 1	29,250	28,237	**1.0**
Tier 2	31,492	22,949	**1.4**
Tier 3	23,290	10,472	**2.2**
Tier 4	16,755	5,064	**3.3**
Total SFR	**100,787**	**66,722**	**1.5**

7 RECYCLED WATER USAGE ANALYSIS

Similar to potable water, RFC analyzed historical use to determine peaking factors for each RW customer group. Figure 7-1 shows the monthly recycled water usage for FYEs 2014 and 2015.

Figure 7-1: RW Monthly Usage for FYE 2014 & 2015

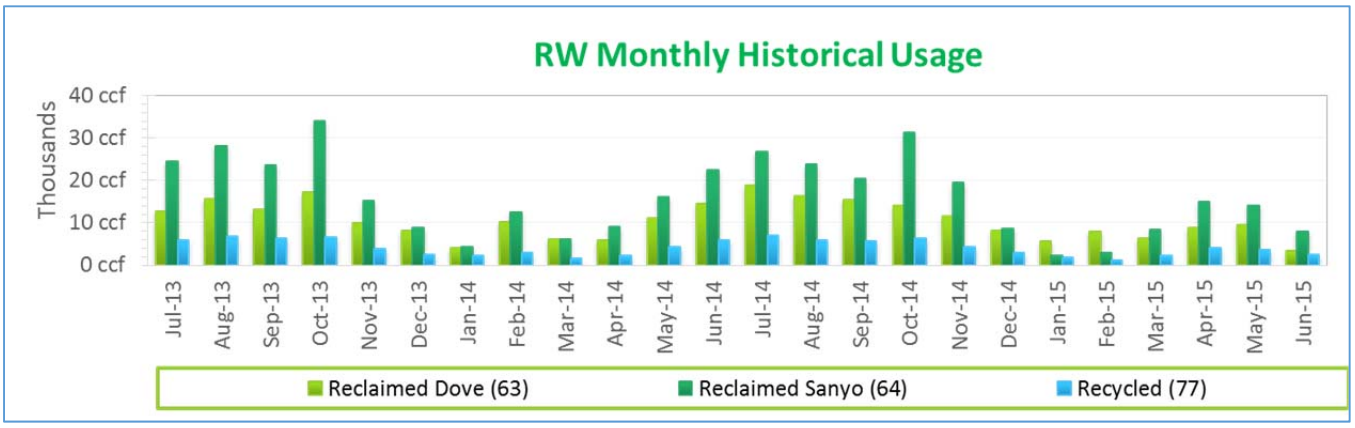


Table 7-1 shows the calculation of RW peaking factors calculated in the same manner as potable water peaking factors. Similar to water, the RW system also has extra capacity costs (described in Section 8.2) and peaking factors are used to allocate these costs to each customer class and therefore play an integral role in determining the cost of service to RW customer classes. RFC normalized the peaking factors, as shown in the last column, by dividing each peaking factor by the peaking factor for the Other Recycled HOA class -this does not change the allocation of peaking costs.

Table 7-1: Peaking Characteristics for Recycled Water Usage

	Max Month (Oct 2013)	Average Month	Peaking Factors Max / Average	Normalized Peaking Factors
Recycled Dove HOA	17,234	10,646	1.6	1.0
Recycled Golf Course	33,936	16,119	2.1	1.3
Other Recycled HOA's	6,587	4,146	1.6	1.0
Total RW	**57,757**	**30,911**	**1.9**	

8 WATER COST OF SERVICE ANALYSIS & RATE DESIGN

8.1 REVENUE REQUIREMENT

Proposition 218 requires a nexus between the rates charged in each tier and the costs of providing service to those tiers. Based on the proposed financial plan, the cost of service analysis allocates this financial revenue requirement to each customer class and tier. The first step in the cost of service analysis is to determine the revenue requirement (how much revenue is required to be collected from rates). The revenue requirement is based upon the premise that the utility must generate annual revenues adequate to meet its estimated annual expenses, including debt service and capital expenses as well as reserve funding. As shown in lines 7 through 16 of Table 8-1, revenue from sources other than potable water rates and charges (e.g. revenues from miscellaneous services) are deducted.

The revenue requirement from rates includes adjustments, shown in line 19 of Table 8-1, to determine the *annual* revenue requirement. The financial plan (from Section 3) shows that the revenue adjustment for FYE 2016 is effective on January 1, 2016, which is 6 months into the fiscal year. Therefore RFC annualized these revenues and the annualized adjustment is shown in line 19 of Table 8-1.

Table 8-1: Annualized Water Revenue Requirement for FYE 2016

		FYE 2016	Notes
1	**REVENUE REQUIREMENT**		
2	Water O&M Expenses	$5,028,618	Table 3-14
3	Debt Service	$687,452	Table 3-14
4	Rate Funded Replacement CIP	$4,123,600	Table 3-14
5	Reserve Funding	$298,941	Table 3-14[14]
6	**SUBTOTAL REVENUE REQUIREMENT**	**$10,138,612**	*Sum Rows 2 to 5*
7	**Less Non-Operating Revenues**		
8	Pass-through WS Revenues	$0	Table 3-14
9	Temporary Rev Stabilization Charges	$174,544	Table 3-14
10	Other Operating Revenues	$105,250	Table 3-14
11	Property Tax Unrestricted	$748,750	Table 3-14
12	Interest Revenue	$13,370	Table 3-14
13	Misc. Non-Operating Revenues	$26,650	Table 3-14
14	WRES Charges	$905,600	Table 3-14
15	Other Capital Contribution	$5,090,022	Table 3-14
16	**SUBTOTAL NON-OPERATING REVENUE**	**$7,064,186**	*Sum Rows 8 to 15*
17	**NET REVENUE REQUIREMENTS FROM CURRENT RATES**	**$3,074,426**	*Row 6 – Row 16*
18	Proposed Revenue Adjustment for FYE 2016	8%	Table 3-14
19	Annualized Proposed Revenue Adjustment	$245,954	*Row 18*Row 17*
20	Annualized Temporary Rev Stabilization Charges	$349,088	Table 3-13
21	**TOTAL REVENUE REQUIREMENTS FROM PROPOSED RATES**	**$3,669,468**	***Row 17+Row 19+Row 20***

8.2 Cost of Service Analysis

According to the AWWA M1 Manual, the costs incurred by a water utility are based upon cost drivers imposed on the system by its customers. Water utility facilities are designed and sized to meet one or more of these cost drivers (known as cost components). The capital costs incurred in the construction of these facilities, as well as the O&M expenses incurred in operating the system, are allocated to these cost components. The service requirements that are used to allocate costs to the cost components include:

1) the annual volume of water consumed;

[14] *Net Cash Balance for FYE 2016 ($421.9K) – Revenue Adjustment ($123K) = $298.9K*

2) the peak water demands for each customer class;
3) the number of customers in each class; and
4) fire capacity required to maintain adequate fire protection.

The American Water Works Association puts forth two methods for cost of service analyses: (1) the Base-Extra Capacity method and (2) the Commodity-Demand method. The Commodity-Demand method places a slight emphasis on peaking costs. This Report uses the Base-Extra Capacity method, which is more widely used in the water industry when addressing service to retail customers.

The second step in the cost of service analysis is to allocate the revenue requirement to the cost components. The cost components include:

- **Potable water supply costs –** the cost of procuring and treating potable water to meet customer demands.
- **Base costs –** costs incurred to meet average daily water demand. Base costs include operations and maintenance and capital costs under average (base) demand conditions, a portion of operations and maintenance costs associated with storage, treatment, pumping and distributions facilities, and certain water capital cost investments.
- **Extra capacity or peaking costs –** water system costs to meet maximum day and maximum hour, or peaking, demand. Extra capacity costs are associated with meeting water demands that exceed average daily (base) demand.
- **Conservation –** the cost of operating a conservation program to prevent water waste, encourage conservation and efficient water use.
- **Meter service –** costs associated with maintaining and servicing water meters.
- **Customer service –** costs associated with customer billing, answering customer calls and addressing other customer service needs and District administrative costs.
- **Fire Protection –** costs associated with maintaining capacity associated with fighting fires.
- **Revenue Offset –** revenue offsets is non-rate revenue that the District can use (at its discretion) to offset rates for certain tiers or classes.

Billing, administration and customer service costs, fire protection and meter service costs are fixed costs that do not vary with customer water consumption. Fire protection costs are related to the costs that apply solely to the fire protection function of the water system, both public and private, such as fire hydrants and related branch mains and valves, and the additional capacity required in the system to accommodate fire flow in case of an emergency.

Table 8-2 summarizes the peaking characteristics of the District's water system as documented by the District's Water Master Plan 1999 prepared by Montgomery Watson[15]. The following definitions are used to determine the system wide water peaking factors:

- **Average Daily Flow –** volume of water delivered to the distribution system over the course of a year divided by 365 days.

[15] *Water Master Plan 1999, page 2-19*

- **Average Hourly Flow –** volume of water delivered to the distribution system over the course of a year divided by 8,760 hours (hours in a year).
- **Peak Day Demand –** largest volume of water delivered to the system in a single day.
- **Peak Hour Demand –** maximum volume of water delivered to the system in a single hour.

The Max Day peaking factor[16] is calculated as follows:

$$\frac{\text{Peak Day Demand}}{\text{Average Daily Flow}} = 1.95$$

The Max Hour peaking factor[17] (Peak Hour Demand) is calculated as follows:

$$\frac{\text{Peak Hour Demand}}{\text{Average Hourly Flow}} = 4.82$$

These ratios are used to determine the appropriate percentage allocation of total O&M and capital costs towards peaking, as shown in Appendix 12.5.

Table 8-2: Water System Peaking Factors

	Peaking Factors
Base	1.00
Max Day	1.95
Max Hour	4.82

The revenue requirement, derived in Table 8-1, is allocated to the cost components as shown in column A of

The revenue adjustment is applied to each line item of the revenue requirement in proportion to the ratio of each cost component (aside from water supply costs, conservation program costs, revenue offset and elevation) to the total revenue requirement. This is shown mathematically below. For example, the revenue adjustment (Column B in Table 8-3) for the peaking cost component is calculated as follows:

$$\frac{Rev\ requirement\ for\ peaking}{Base + Peaking + Meters + Billing\ \&\ CS} = Allocation\ factor$$

$$\frac{\$1.188M}{\$0.494M + \$1.188M + \$0.165M + \$0.054M} = 62.5\%$$

$$Allocation\ factor \times Total\ Revenue\ adjustment = Revenue\ adjustment\ applied\ to\ cost\ component$$

[16] *Figure provided by District's Water Master Plan 1999, page 2-19*
[17] *Figure provided by District's Water Master Plan 1999, page 2-19*

Therefore the revenue adjustment for peaking costs = $62.5\% \text{ x } \$246\text{K} = \$153.7\text{K}$. The $246K is the annual revenue adjustment from line 19 in Table 8-1.

RFC notes that the total revenue requirement allocated to the cost components and shown in Table 8-3, matches the revenue requirement in Table 8-1.

Table 8-3[18]. Note that the annualized revenue adjustment (shown in row 19 of Table 8-1) applies only to water system costs (Base, Peaking, B&CS and Meter). The water supply costs reflect the anticipated water costs for FYE 2016. For further detail please see Appendix 12.5, which shows the step-by-step allocations.

The revenue adjustment is applied to each line item of the revenue requirement in proportion to the ratio of each cost component (aside from water supply costs, conservation program costs, revenue offset and elevation) to the total revenue requirement. This is shown mathematically below. For example, the revenue adjustment (Column B in Table 8-3) for the peaking cost component is calculated as follows:

$$\frac{Rev\ requirement\ for\ peaking}{Base + Peaking + Meters + Billing\ \&\ CS} = Allocation\ factor$$

$$\frac{\$1.188M}{\$0.494M + \$1.188M + \$0.165M + \$0.054M} = 62.5\%$$

$$Allocation\ factor\ \times Total\ Revenue\ adjustment = Revenue\ adjustment\ applied\ to\ cost\ component$$

Therefore the revenue adjustment for peaking costs = 62.5% x $\$246\text{K} = \$153.7\text{K}$. The $246K is the annual revenue adjustment from line 19 in Table 8-1.

RFC notes that the total revenue requirement allocated to the cost components and shown in Table 8-3, matches the revenue requirement in Table 8-1.

[18] *Further details on the allocation to cost components is shown in Appendix 12.5*

Table 8-3: Allocated Potable Water System Costs

Cost Component	FYE 2016 @ Current Rates (A)	Revenue Adjustment & TRSC (B)	FYE 2016 @ Proposed Rates (C = A + B)
Water Supply	$ 1,829,466	$ -	$ 1,829,466
Base	$ 493,710	$ 63,892	$ 557,601
Peaking	$ 1,188,165	$ 153,763	$ 1,341,927
Billing & CS	$ 164,697	$ 21,314	$ 186,011
Meter Services	$ 53,982	$ 6,986	$ 60,967
Conservation	$ 100,000	$ -	$ 100,000
Rev Offsets[19]	$ (775,400)	$ -	$ (775,400)
Elevation	$ 19,807	$ -	$ 19,807
Annualized Temporary Rev Stabilization Charges		$ 349,088	$ 349,088
Total	**$ 3,074,426**	**$ 595,042**	**$ 3,669,468**

8.3 Fixed (Flat) versus Variable Charges

The cost components shown in Table 8-3 are recovered from customers through fixed (the District uses the term "Meter Flat Rates") and volumetric (commodity) charges. Table 8-4 shows the total revenue requirement (in column A) to be collected through Meter Flat Charges (column D) and volumetric rate components (columns B, C and E). Table 8-4 shows that elevation costs (electricity and pump maintenance) are collected via a volumetric rate as is the proposed TRSC. RFC notes that for the peaking cost component, a portion of peaking costs shall be collected through the Meter Flat Charge as shown in columns C and D.

Meter Flat Rates

Meter Flat Rates recover the costs associated with three cost components;

1) Billing and customer service costs;
2) Meter service costs; and
3) Peaking costs (a portion of).

Billing, administration and customer service costs are costs related to meter reading, administration, billing and collecting. These costs are distributed among customers based on the total number of bills in each class. Billing, administration and customer service costs are normally collected through a fixed charge because a utility incurs these costs irrespective of a customers' water use. Billing and customer service costs are related to the number of customers.

[19] *Includes Property Tax Unrestricted ($748.75K) and Misc. Non-Operating Revenues ($26.65K)*

Meter service costs are costs related to maintaining and replacing customer meters. This cost component is distributed to customers in proportion to the estimated replacement cost (which is a function of the size of the meter) of meters in each customer class.

Capacity, or Peaking, costs are costs related to meeting peak water demands. As shown in Table 8-4, a portion of peaking costs are collected through the meter flat rate as shown in column D (fixed charge). When collected through the Meter Flat charge, peaking costs are distributed in proportion to potential meter demand capacity which is a function of meter size. Meter size is a proxy for the potential peaking demand (as opposed to peaking factors discussed in Section 6.3) that each customer places on the water system. The District's most common meter size is a ¾-inch meter. For purposes of collecting peaking costs through the Meter Flat Charge, RFC assumed that a class' peaking demand is in proportion to the number of hydraulically equivalent meters by class. To calculate the number of hydraulically equivalent meters, RFC multiplied the number of meters in each class by the AWWA meter capacity ratios for each meter size. For example, based on the AWWA meter capacity ratios, a customer that has a 2-inch meter has the capacity equivalency of 5.33 ¾-inch meters. (A 2-inch meter has a safe operating capacity of 160 gallons per minute [gpm] compared to a ¾-inch meter which has a safe operating capacity of 30 gpm as listed in Table B-1 in the M1 Manual).

Water Usage Rates (Volumetric Rates)

Table 8-4 also shows the cost components that are collected through water usage (volumetric) rates in column C. Table 8-5 shows how these variable rate components are allocated to each of the unit rate components that make up the total commodity (usage) rate.

Table 8-4: Potable Water Revenue Requirements Allocated to Fixed/Variable Rate Components

Revenue Requirement by Cost Categories	FYE 2016 @ Proposed Rates (A)	Elevation Charges (B)	Water Usage Rates (C)	Meter Flat Rates (D)	Temp. Rev Stab. Charges (E)
Water Supply	$1,829,466		$1,829,466		
Base Fixed	$557,601		$557,601	$0	
Peaking	$1,341,927		$805,156	$536,771	
Billing & CS	$186,011			$186,011	
Meter Service	$60,967			$60,967	
Conservation	$100,000		$100,000		
Rev Offsets	-$775,400		-$775,400		
Elevation	$19,807	$19,807			
Annualized Temporary Rev Stabilization Charges	$349,088				$349,088
Total	**$3,669,468**	**$19,807**	**$2,516,824**	**$783,750**	**$349,088**

Table 8-5 shows the further distinction that a portion of water supply costs are fixed and RFC further allocated those fixed costs to the delivery component as shown in Table 8-5. The delivery rate component is the same for all user classes.

Table 8-5: Potable Water Usage Revenue Requirement Allocated to Rate Components

	FYE 2016 (Column C of Table 8-4) (A)	Variable Supply (B)	Delivery (C)	Peaking (D)	Conservation (E)	Rev Offsets (F)
Water Supply	$1,829,466	$1,435,300	$394,166			
Base/Delivery	$557,601		$557,601			
Peaking	$805,156			$805,156		
Conservation	$100,000				$100,000	
Rev Offsets	-$775,400					-$775,400
Total	**$2,516,824**	**$1,435,300**	**$951,767**	**$805,156**	**$100,000**	**-$775,400**

8.4 WATER RATE DERIVATION

8.4.1 Meter Flat Rates

To calculate Meter Flat Rates RFC determined:

1) The number of bills per year;
2) The number of cost equivalent meter units (EMUs); and
3) The number of capacity equivalent (hydraulically equivalent) meter units.

Table 8-6 shows the calculation of each of these factors. Column D shows the calculation of the total number of bills per year – which is the number of accounts multiplied by 12. For cost and capacity EMUs, each meter size is assigned a factor relative to a ¾-inch (and 5/8-inch) meter, which has a value of 1. For cost equivalent meters, shown in column E, the replacement cost (column B) of each meter is used to calculate the number of cost EMUs[20].

Capacity (hydraulically) equivalent meters are discussed in Section 8.3.1 and are based on the potential water flow through each meter type based on size. For example, as noted earlier, a 2-inch meter has 5.33 times the throughput capacity of a ¾" meter and therefore its hydraulic capacity factor is 5.33. Column C in Table 8-5 shows the AWWA hydraulic capacity ratios by meter size. The number of capacity equivalent meter units (EMUs) is shown in column F and is column C multiplied by column D.

[20] *To calculate the component of the monthly bill due to meter service costs RFC used the number of bills in column D*

Table 8-6: Equivalent Meter Units (EMUs) for FYE 2016

	Number of Accts (A)	Meter Replacement Cost Ratios[21] (B)	Capacity Ratios[22] (C)	# of Bills per Year D = A x 12	Cost EMUs per Year E = B x D[23]	Capacity EMUs per Year F = C x D[24]
5/8"	2,649	1.00	1.00	31,788	31,788	31,788
¾"	872	1.00	1.00	10,464	10,464	10,464
1"	257	1.22	1.67	3,084	3,768	5,140
1 ½"	39	2.90	3.33	468	1,357	1,560
2"	132	3.02	5.33	1,584	4,789	8,448
3"	6	4.75	11.67	72	342	840
4"	3	5.49	21.00	36	198	756
6"	2	10.23	53.33	24	246	1,280
10"	-	26.46	140.00	-	-	-
Hydrant Meter	13	5.45	11.67	156	850	1,820
Total	**3,973 accounts**			**47,676 bills**	**53,800 EMUs**	**62,096 EMUs**

Table 8-7 shows the derivation of the proposed Meter Flat Charges. As mentioned earlier, the Meter Flat Charge recovers costs associated with three cost components: 1) Billing, Administration & Customer Service, which is uniform for all accounts, 2) meter service and 3) capacity (peaking) costs. The latter two increase with meter replacement cost and AWWA capacity ratios. The Billing, Administration & Customer Service unit cost is simply the revenue requirement (column A) divided by the number of bills. The Meter Service component is divided by the cost EMUs (column B) to determine the unit rate. The Capacity component is divided by the capacity EMUs to yield each component of the Meter Flat charge shown in column C. The total Meter Flat Charge for a 5/8-inch or ¾-inch meter is shown at the bottom of column C in Table 8-7.

Table 8-7: Components for FYE 2016 Meter Flat Rates for Water Service

	Rev Requirement *(From Table 8-4)* *(A)*	Units of Service *(From Table 8-6)* *(B)*		Unit Cost of Service *C = (A / B)*
Capacity	$536,771	62,096	EMUs / yr.	$8.65 / EMU
Meter Service	$60,967	53,800	EMUs / yr.	$1.14 / EMU
Billing & Customer Service	$186,011	47,676	bills / yr.	$3.91 / bill
Total	**$783,750**			**$13.70 / EMU**

[21] *Based on Meter Replacement Costs provided by District staff on October 8, 2015*
[22] *From Safe maximum operating capacity (AWWA M1 Manual Exhibit B, Table B-1), using ¾" as standard meter size*
[23] *Figures in column are rounded and may not be exactly as calculated in formula*
[24] *Figures in column are rounded and may not be exactly as calculated in formula*

The meter service component of the proposed Meter Flat Rate is determined by multiplying the unit cost of $1.14 (from Table 8-7) by the appropriate cost equivalent meter factor found in column B of Table 8-6. The capacity component of the Meter Flat Rate is determined by multiplying the unit cost of $8.65 (from Table 8-7) by the appropriate capacity ratio found in column C of Table 8-6. Adding these three components together yields the total proposed monthly Meter Flat Rate by each meter size for FYE 2016, as shown in column D of Table 8-8.

Table 8-8: FYE 2016 Meter Flat Rates

Meter Size	Number of Accounts	Billing & CS (A)	Meters & Services (B)	Capacity (C)	Proposed Monthly Meter Flat Rate D = A + B + C
5/8"	2,649	$ 3.91	$ 1.14	$ 8.65	**$ 13.70**
¾"	872	$ 3.91	$ 1.14	$ 8.65	**$ 13.70**
1"	257	$ 3.91	$ 1.40	$ 14.42	**$ 19.73**
1 ½"	39	$ 3.91	$ 3.31	$ 28.84	**$ 36.06**
2"	132	$ 3.91	$ 3.45	$ 46.14	**$ 53.50**
3"	6	$ 3.91	$ 5.42	$ 100.92	**$ 110.25**
4"	3	$ 3.91	$ 6.26	$ 181.65	**$ 191.82**
6"	2	$ 3.91	$ 11.67	$ 461.34	**$ 476.92**
10"	-	$ 3.91	$ 30.17	$ 1,211.00	**$ 1,245.08**
Hydrant Meter	13	$ 3.91	$ 6.22	$ 100.92	**$ 111.05**

Table 8-9 shows the proposed 5-year Meter Flat Rates – they are derived by multiplying the FYE 2016 rates by the yearly revenue adjustments shown at the top of the table.

Table 8-9: Proposed 5-Year Meter Flat Rates

Meter Flat Rates *Prop. Rev Adjustments*	Current	FYE 2016 *8%*	FYE 2017 *5%*	FYE 2018 *5%*	FYE 2019 *5%*	FYE 2020 *5%*
Effective Date	**Jan 1, 2015**	**Jan 1, 2016**	**Jan 1, 2017**	**Jan 1, 2018**	**Jan 1, 2019**	**Jan 1, 2020**
5/8"	$ 8.25	$ 13.70	$ 14.39	$ 15.11	$ 15.87	$ 16.67
¾"	$ 10.76	$ 13.70	$ 14.39	$ 15.11	$ 15.87	$ 16.67
1"	$ 16.77	$ 19.73	$ 20.72	$ 21.76	$ 22.85	$ 24.00
1 ½"	$ 31.78	$ 36.06	$ 37.87	$ 39.77	$ 41.76	$ 43.85
2"	$ 49.79	$ 53.50	$ 56.18	$ 58.99	$ 61.94	$ 65.04
3"	$ 91.83	$ 110.25	$ 115.77	$ 121.56	$ 127.64	$ 134.03
4"	$ 151.87	$ 191.82	$ 201.42	$ 211.50	$ 222.08	$ 233.19
6"	$ 302.00	$ 476.92	$ 500.77	$ 525.81	$ 552.11	$ 579.72
10"	$ 482.14	$ 1,245.08	$ 1,307.34	$ 1,372.71	$ 1,441.35	$ 1,513.42
Hydrant Meter	$ 56.90	$ 111.05	$ 116.61	$ 122.45	$ 128.58	$ 135.01

8.4.2 Water Usage Rate (Volumetric Consumption Rate)

The total Water Usage Rate is the summation of the unit rates shown below. The unit rates are the unitized cost components described above in Section 8.3 (Table 8-5). The unit rates are calculated a by dividing the total cost (by cost component) by the units of service for each cost component. The unit rates are:

1) The water supply unit rate (cost);
2) The delivery unit rate;
3) The peaking unit rate;
4) The conservation unit rate; and
5) The revenue offset unit rate.

8.4.3 Water Supply Unit Rate

The District has two water sources; 1) treated water from the Metropolitan Water District of Orange County (MWDOC) billed through Santa Margarita Water District and Irvine Ranch Water District and 2) untreated water also from MWDOC billed through the Santiago Aqueduct Commission (SAC) and metered at the District's SAC line connection and treated through the District's Dimension Water Treatment Plant. Table 8-10 shows the derivation of the blended water rate and the imported water rate. The blended water rate is the weighted average rate of the sources shown in lines 1 through 3. RFC divided the total water cost in column B, line 4 by the total water sold (column A, line 5) to yield the blended water rate shown in column B, line 5. To calculate the imported treated water RFC multiplied the treated water rate (in column B, line 1 or 2) by the ratio of water supplied to water sold[25] to yield the imported water rate shown in column B line 6.

Table 8-10: Derivation of Purchased Water Costs by Source

Line No.	Supply Source	Quantity (AF) (A)		Rate ($ /AF) (B)
1	Santa Margarita WD (Treated)	150		$931.55
2	Irvine Ranch WD (Treated)	129		$931.55
3	SAC (Untreated)	2,001		$587.40
4				
6	Total Water Supplied	2,280	Total Water Cost	$1,435,300
7			Blended Water Rate	**$1.61 / ccf**
8			Imported Water Rate	**$2.38 / ccf**

[25] *This accounts for distribution system water loss and water needed during treatment plant maintenance and adjusts the treated water rate for water losses*

Table 8-11 shows the rate derivation of the rates for each Single Family Tier. As shown in Table 8-11, for purposes of the rate and revenue analysis portion of this Report, tiers 1 and 2 are allocated blended water. Tier 3 is allocated a mix of blended water (with its corresponding rate) and fully treated water – the rate reflects the allocation of water from both sources. This assumes that the District has reached the District's water treatment plant capacity and must purchase imported treated water to meet Tier 3 demands.[26] Lastly, Tier 4 is allocated solely imported treated water (which becomes necessary to meet peaking demand requirements and therefore the rate in this tier reflects the cost of imported treated water shown in Table 8-10. The supply source for all other classes is blended water and therefore the supply unit rate for all other classes is the same the blended water rate derived in Table 8-10.

Table 8-11: FYE 2016 Variable Water Supply Rate Component of Water Usage Rates

	Water Supply Sources	Unit Variable Rates
SFR		
Tier 1	Blended	$1.61 / ccf
Tier 2	Blended	$1.61 / ccf
Tier 3	Blended + Fully Treated	$1.89 / ccf
Tier 4	Fully Treated	$2.38 / ccf
Non-SFR	Blended	$1.61 / ccf

8.4.4 Delivery, Peaking, Conservation and Revenue Offset Unit Rates

RFC has derived the supply unit rate (above) for inclusion in the total water usage rate. RFC also derived the remaining unit rates; 1) delivery, 2) peaking, 3) conservation and 4) revenue offsets. To do so RFC divided the revenue requirement for each water usage rate component by the equivalent sales for each component and class/tier. RFC first estimated the sales in each tier as shown in Table 8-12 – which is the total SFR use from Table 3-6 multiplied by the Tier Use distribution shown in Figure 6-1 (and restated in column A of Table 8-12).

Table 8-12: Projected Water Sales in Revised Tiers

		Usage Distribution *(Figure 6-1)* *(A)*	Projected Sales (ccf) (B)	Notes
1	**Single Family**		**600,119 ccf**	
2	Tier 1	44%	264,606	*A2 * B1*
3	Tier 2	34%	204,897	*A3 * B1*
4	Tier 3	15%	89,150	*A4 * B1*
5	Tier 4	7%	41,466	*A5 * B1*
6	**Non-Single Family**		**294,947 ccf**	

[26] *The Tier 3 rate assumes 64% of Tier 3 demand is met from blended water and 36% is imported treated water which yields the $1.89 / ccf.*

7	**Total Water Sales**	**895,066 ccf** ***(Total from Table 3-6)*** **2,055 AF**

RFC then calculated the equivalent water sales for each rate component by class and tier. This is shown in Table 8-13. The peaking equivalent sales shown in column C is the sales in column A multiplied by the peaking factors shown in Table 6-3. RFC noted that for the equivalent sales for conservation RFC did not include construction water demands and Tier 1 and Tier 2 water sales. This signifies that construction water demands and Tiers 1 and 2 are not allocated conservation program costs since they are not the principal subject of the conservation program efforts and resulting program and education costs. Similarly for the revenue offset equivalent sales RFC did not include construction water demands and Tier 3 and Tier 4 water sales, so that construction and Tiers 3 and 4 do not benefit from revenue offsets. Revenue offsets are the use of property tax revenue to offset rates. Property tax revenue is non-rate revenue and therefore the District has discretion as to how to use/apply this revenue. The District and RFC recommend using this revenue (as an offset) to promote affordability by lowering the rate for Tiers 1 and 2 and all other classes. The Construction class does not pay property tax (as they are temporary customers) and should not receive the benefit of property tax revenue.

Table 8-13: Projected Equivalent Water Sales for each Rate Component

Line No.	Customer Classes	Projected Sales (A)	Delivery (B)	Peaking[27] (C)	Conservation (D)	Rev Offsets (E)
1	**Single Family Residential**	600,102	600,102	900,153	600,102	600,102
2	**Agriculture**	97,927	97,927	186,061	97,927	97,927
3	**Others**					
4	Multi-Family	11,874	11,874	11,874	11,874	11,874
5	Commercial	50,120	50,120	60,144	50,120	50,120
6	Irrigation	131,962	131,962	237,532	131,962	131,962
7	Construction	1,537	1,537	3,074	0	0
8	Lang Well	1,527	1,527	1,832	1,527	1,527
9	Summerfield	17	17	26	17	17
10	**TOTAL FYE 2016 Sales**	**895,066**	**895,066**	**1,400,696**	**893,529**	**893,529**
11	**SFR (SFR + Summerfield)**					
12	Tier 1	264,606	264,606	264,606	0	264,606
13	Tier 2	204,897	204,897	286,856	0	204,897
14	Tier 3	89,150	89,150	196,130	89,150	0
15	Tier 4	41,466	41,466	136,838	41,466	0

[27] *Column A * Peaking Factors shown in Table 6-3*

16	**TOTAL SFR**	**600,119**	**600,119**	**884,430**	**130,616**	**469,503**

RFC derived the unit rates for each rate component by dividing the revenue requirement for each component (Table 8-5) by the equivalent water sales (also known as units of service). Tables 8 -14 through 8-17 show the derivation of the unit rate components.

Table 8-14: Delivery Unit Rate

	FYE 2016	Notes
Revenue Requirement	$ 951,767	*Table 8-5*
Unit of Service	895,066 ccf	*B10 of Table 8-13*
Unit Rate	**$1.07/ccf**	*Rounded up to nearest cent*

Table 8-15: Peaking Unit Rate

	FYE 2016	Notes
Revenue Requirement	$ 805,156	*Table 8-5*
Unit of Service	1,400,696 ccf	*C10 of Table 8-13*
Unit Rate	**$0.58/ccf**	*Rounded up to nearest cent*

Table 8-16: Conservation Unit Rate

	FYE 2016	Notes
Revenue Requirement	$ 100,000	*Table 8-5*
Unit of Service	893,529 ccf	*D10 of Table 8-13*
Unit Rate	**$0.12/ccf**	*Rounded up to nearest cent*

Table 8-17: Revenue Offset Unit Rate

	FYE 2016	Notes
Revenue Requirement	$ (775,400)	*Table 8-5*
Unit of Service	893,529 ccf	*E10 of Table 8-13*
Unit Rate	**-$0.86/ccf**	*Rounded down to nearest cent*

RFC has derived the unit rates for each rate component of the total water usage rate. In Table 8-19, RFC then applied this unit rate to the equivalent water sales shown in Table 8-13 to properly distribute costs (revenue requirement) to each class. RFC notes that the totals in each column of Table 8-18 approximate those in Table 8-5 with a slight deviation resulting from rounding.

Table 8-18: Delivery, Peaking, Conservation & Revenue Offset Revenue Requirement Allocated to Customer Classes

	Allocation of Rev Req to Customer Classes	Delivery *(Row 1 * Column B **Table 8-14**)*	Peaking *(Row 1 * Column C Table 8-14)*	Conservation *(Row 1 * Column D Table 8-14)*	Rev Offsets *(Row 1 * Column E Table 8-14)*
1	Unit Cost of Service	**$1.07 / ccf**	**$0.58 / ccf**	**$0.12 / ccf**	**$ (0.86) / ccf**
2					
3	**Single Family Residential**	$ 642,109	$ 522,089	$ 72,012	$ (516,088)
4	**Agriculture**	$ 104,782	$ 107,916	$ 11,751	$ (84,217)
5	**Others**	$ -	$ -	$ -	$ -
6	Multi-Family	$ 12,705	$ 6,887	$ 1,425	$ (10,212)
7	Commercial	$ 53,628	$ 34,884	$ 6,014	$ (43,103)
8	Irrigation	$ 141,199	$ 137,768	$ 15,835	$ (113,487)
9	Construction	$ 1,645	$ 1,783	$ -	$ -
10	Lang Well	$ 1,634	$ 1,063	$ 183	$ (1,313)
11	Summerfield	$ 18	$ 15	$ 2	$ (15)
12	**Total**	**$ 957,721**	**$ 812,404**	**$ 107,223**	**$ (768,435)**

RFC then calculated the unit rates for SFR. Summing line 3 and 11 (Summerfield customers are Single Family customers) in Table 8-18 yields line 1 in Table 8-19. This revenue requirement is divided by the SFR units of service found in line 16 of Table 8-13 to yield the SFR unit rates (by cost component) shown in line 3. These unit rates are then applied to the equivalent water sales for SFR tiers shown in lines 11 through 15 in Table 8-13 to produce the revenue requirement by tier shown in lines 6 through 10 in Table 8-19.

Table 8-19: Delivery, Peaking, Conservation & Revenue Offset Revenue Requirement Allocated to SFR Tiers

	Allocation of Rev Req to Customer Classes	Delivery	Peaking	Conservation	Rev Offsets
1	**Rev Requirement for SFR**	**$ 642,127**	**$ 522,104**	**$ 72,014**	**$ (516,102)**
2	Units of Service (ccf) (Row *16 of Table 8-13)*	600,119	884,430	131,616	469,503
3	**Unit SFR Cost of Service**	**$ 1.07**	**$ 0.60**	**$ 0.56**	**$ (1.09)**
4					
5	**SFR Rev Req to Tiers**				
6	Tier 1	$ 283,128	$ 158,764	$ -	$ (288,421)
8	Tier 2	$ 219,240	$ 172,113	$ -	$ (223,338)
9	Tier 3	$ 95,391	$ 117,678	$ 49,924	$ -
10	Tier 4	$ 44,369	$ 82,103	$ 23,221	$ -

RFC then calculated the unit rates for each rate component that sum to the total water usage rate. Table 8-20 shows this calculation. For the SFR class the unit rates are calculated by dividing the revenue requirements in Table 8-19 (line 6 through 10) by the projected sales in column A of Table 8-13. For the remaining classes the unit rates are calculated by dividing the revenue requirements in Table 8-18 (lines 4 through 10) by the projected sales in column A of Table 8-13.

Table 8-20: Delivery, Peaking, Conservation & Revenue Offset Water Usage Rate Components

		Delivery	Peaking	Conservation	Rev Offsets
1	**Single Family Residential**				
2	Tier 1	$ 1.07	$ 0.60	$ -	$ (1.09)
3	Tier 2	$ 1.07	$ 0.84	$ -	$ (1.09)
4	Tier 3	$ 1.07	$ 1.32	$ 0.56	$ -
5	Tier 4	$ 1.07	$ 1.98	$ 0.56	$ -
6	**Agriculture**	$ 1.07	$ 1.11	$ 0.12	$ (0.86)
7	**Others**				
8	Multi-Family	$ 1.07	$ 0.58	$ 0.12	$ (0.86)
9	Commercial	$ 1.07	$ 0.70	$ 0.12	$ (0.86)
10	Irrigation	$ 1.07	$ 1.05	$ 0.12	$ (0.86)
11	Construction	$ 1.07	$ 1.16	$ -	$ -
12	Lang Well	$ 1.07	$ 0.70	$ 0.12	$ (0.86)

RFC then added the unit rate components to calculate the total proposed commodity rate for each tier and class as shown below in Table 8-21. Note that for SFR the Revenue Offset is applied solely to Tiers 1 and 2 and the conservation costs are only applied to Tiers 3 and 4 reflecting the focus of conservation program and education efforts and costs.

Table 8-21: Proposed Water Usage Rates for FYE 2016

	Water Supply (A)	Delivery (B)	Peaking (C)	Conservation (D)	Rev Offset (E)	Proposed Sum(A to E)
	Table 8-11	*Table 8-20*	*Table 8-20*	*Table 8-20*	*Table 8-20*	
Single Family Residential						
Tier 1	$1.61	$1.07	$0.60	$0.00	-$1.09	**$2.19**
Tier 2	$1.61	$1.07	$0.84	$0.00	-$1.09	**$2.43**
Tier 3	$1.89	$1.07	$1.32	$0.56	$0.00	**$4.84**
Tier 4	$2.38	$1.07	$1.98	$0.56	$0.00	**$5.99**
Agriculture	$1.61	$1.07	$1.11	$0.12	-$0.86	**$3.05**
Others						
Multi-Family	$1.61	$1.07	$0.58	$0.12	-$0.86	**$2.52**
Commercial	$1.61	$1.07	$0.70	$0.12	-$0.86	**$2.64**
Irrigation	$1.61	$1.07	$1.05	$0.12	-$0.86	**$2.99**
Construction	$1.61	$1.07	$1.16	$0.00	$0.00	**$3.84**
Lang Well	$1.61	$1.07	$0.70	$0.12	-$0.86	**$2.64**

Table 8-22 shows the 5-Year Proposed Water Usage Rates. The Water Usage Rates increase each year of the Study period per the proposed revenue adjustments.

Table 8-22: Proposed 5-Year Water Usage Rates (excluding Pass-through Rates, Elevation Surcharges and Temporary Revenue Stabilization Charges (TRSC))

	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
Rev Adjustment	**8%**	**5%**	**5%**	**5%**	**5%**
Single Family Residential (SFR)					
Tier 1 (0 – 8 ccf)	$ 2.19	$ 2.30	$ 2.42	$ 2.55	$ 2.68
Tier 2 (9 – 18 ccf)	$ 2.43	$ 2.56	$ 2.69	$ 2.83	$ 2.98
Tier 3 (19 – 30 ccf)	$ 4.84	$ 5.09	$ 5.35	$ 5.62	$ 5.91
Tier 4 (above 30 ccf)	$ 5.99	$ 6.29	$ 6.61	$ 6.95	$ 7.30
Non-SFR (Uniform)					
Agriculture	$ 3.05	$ 3.21	$ 3.38	$ 3.55	$ 3.73
Multi Family	$ 2.52	$ 2.65	$ 2.79	$ 2.93	$ 3.08
Commercial	$ 2.64	$ 2.78	$ 2.92	$ 3.07	$ 3.23
Construction	$ 3.84	$ 4.04	$ 4.25	$ 4.47	$ 4.70
Irrigation	$ 2.99	$ 3.14	$ 3.30	$ 3.47	$ 3.65

8.4.5 Temporary Revenue Stabilization Charge (TRSC)

Table 8-23 shows the derivation of the TRSC percentage increase to be applied to all Water Usage rates. From Table 3-13 RFC calculated the estimated revenue loss due to reduced water sales resulting from State directed mandatory water use reductions stemming from the Statewide drought conditions. Dividing this lost revenue by the expected water use revenue requirement in column A of Table 8-5 yields the percentage increase that is applied to all Water Usage rates. The TRSC would remain in place until the Board determines the drought situation/conditions have terminated or abated and that revenues have stabilized to "new normal" levels.

Table 8-23: Derivation of the TRSC

	FYE 2016
Estimated Revenue Lost	$349,088
Water Usage Revenue Requirement	$2,516,824
% Increase Applied to Water Usage Rates	**14%**

Table 8-24 shows the application of the TRSC percentage increase to each class and tier and the resulting proposed TRSC.

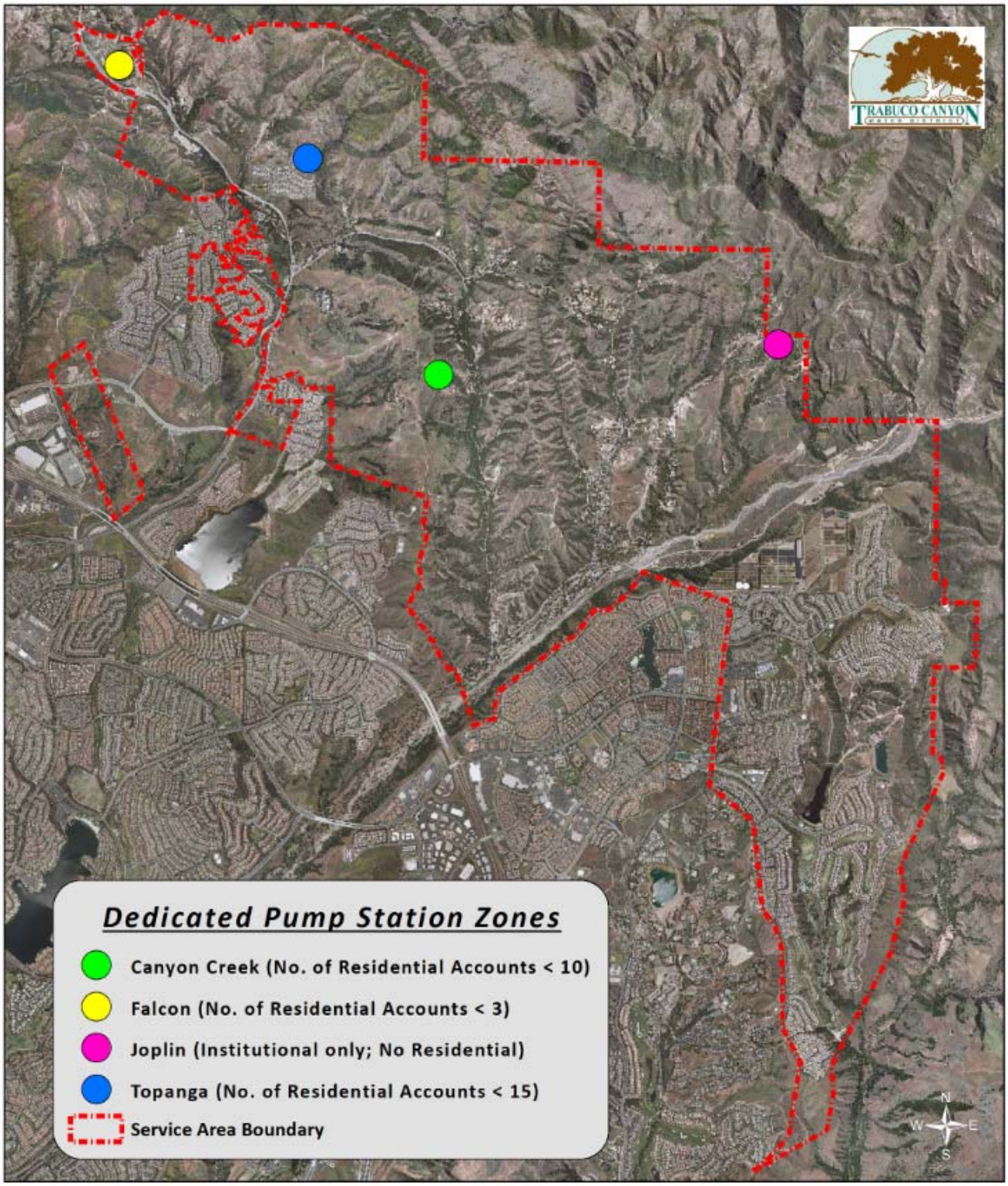
Table 8-24: Proposed Temporary Revenue Stabilization Charge (TRSC)

	FYE 2016	
% Increase for TRSC	**14%**	
Single Family Residential (SFR)		
Tier 1 (0 – 8 ccf)	$	0.31
Tier 2 (9 – 18 ccf)	$	0.34
Tier 3 (19 – 30 ccf)	$	0.68
Tier 4 (above 30 ccf)	$	0.84
Non-SFR (Uniform)		
Agriculture	$	0.43
Multi Family	$	0.35
Commercial	$	0.37
Construction	$	0.54
Irrigation	$	0.42

8.4.6 Zone Surcharges

Zone Surcharges recover the costs associated with pumping water to the District's various pumping zones (which are located above the District's standard service elevation). Provision of water service to higher elevations involves added costs for pumping (electrical costs) and certain O&M costs for pumping facilities. These costs are specific and measurable for each elevation area. Zones subject to these added costs are shown in Figure 8-1.

Figure 8-1: Map of (Pumping) Zones



The Zones have a dedicated booster pump station that is operated and maintained for that specific zone only. Table 8-25 shows the derivation of the elevation charges. The costs shown in columns A through C are added and divided by the projected sales in column D to yield the corresponding elevation charges shown in column F.

Table 8-25: Derivation of Zone Surcharges (shown by Zone)

Zones	Electricity (A)	Repairs & Maintenance (B)	Elevation Pumping O&M (C)	Projected Sales (D)	Unit Rate ($/ccf) (F)
Topanga	$ 2,546	$ 1,431	$ 3,977	8,997	**$ 0.45**
Canyon Creek	$ 1,582	$ 729	$ 2,311	1,418	**$ 1.63**
Falcon	$ 2,833	$ 1,193	$ 4,026	2,365	**$ 1.71**
Joplin	$ 7,903	$ 1,590	$ 9,493	5,187	**$ 1.84**

Table 8-26 shows the elevation charges by elevation zone for the next 5-years. The elevation charges are increased each year of the study period per the proposed revenue adjustments shown at the top of Table 8-26.

Table 8-26: 5-Year Proposed Zone Surcharges

Rev Adjustment	FYE 2016	FYE 2017 *5%*	FYE 2018 *5%*	FYE 2019 *5%*	FYE 2020 *5%*
Effective Date	*Jan 1, 2016*	*Jan 1, 2017*	*Jan 1, 2018*	*Jan 1, 2019*	*Jan 1, 2020*
Topanga	$ 0.45	$ 0.48	$ 0.51	$ 0.54	$ 0.57
Canyon Creek	$ 1.63	$ 1.72	$ 1.81	$ 1.91	$ 2.01
Falcon	$ 1.71	$ 1.80	$ 1.89	$ 1.99	$ 2.09
Joplin	$ 1.84	$ 1.94	$ 2.04	$ 2.15	$ 2.26

8.4.7 Water Wholesale Pass-throughs

The District has decided to pass-through its wholesale water purchase costs from the Metropolitan Water District of Orange County (MWDOC), which in turn purchases water from the Metropolitan Water District of Southern California (MET). There are no pass-throughs on Jan 1, 2016. However the District will implement pass-throughs on Jan 1, 2017. This pass-through is currently estimated to be $0.13/ccf (but the actual pass-through may be different since the District's wholesaler has not published rates for 2017). The water rate pass-through charge for each subsequent fiscal year will be calculated based on actual wholesale purchased water costs imposed on the District. The calculation is the (total) fiscal year difference in actual wholesale water costs (both fixed and variable wholesale charges) divided by the estimated water use for that fiscal year. Future year wholesale water costs, and resulting changes to the District's Water Usage Rates, are not known at this time.

9 RECYCLED WATER COST OF SERVICE ANALYSIS & RATE DESIGN

9.1 REVENUE REQUIREMENT

Proposition 218 requires a nexus between the rates charged in each tier and the costs of providing service to those tiers. Based on the proposed financial plan, the cost of service analysis allocates this financial revenue requirement to each customer class and tier. The first step in the cost of service analysis is to determine the revenue requirement(s) (how much revenue is required to be collected from rates). The revenue requirement is based upon the premise that the utility must generate annual revenues adequate to meet its estimated annual expenses, including debt service and capital expenses as well as reserve funding. As shown in lines 8 through 11 of Table 9-1, revenue from sources other than Recycled Water (RW) rates and charges (e.g. other operating revenues and interest income) are deducted since this is non-rate revenue that helps meet the District's overall revenue requirements.

The financial plan shows the required revenue adjustment for FYE 2016 will be effective in January 2016, which is 6 months into the fiscal year. Therefore, RFC annualized this revenue adjustment – this is shown in line 15 of Table 9-1. The total revenue requirement is shown in row 16.

Table 9-1: Annualized FYE 2016 Recycled Water Revenue Requirement

		FYE 2016	Notes
1	**REVENUE REQUIREMENT**		
2	Recycled Water O&M Expenses	$721,526	*Table 4-9*
3	Debt Service	$0	*Table 4-9*
4	Rate Funded Replacement CIP	$67,400	*Table 4-9*
5	Reserve Funding	$161,442	***Error! Reference source not found.***[28]
6	**SUBTOTAL REVENUE REQUIREMENT**	**$950,367**	
7			
8	**Less Other Revenues**		
9	Other Operating Revenues	$55,300	*Table 4-9*
10	Interest Income	$0	*Table 4-9*
11	**SUBTOTAL NON-OPERATING REVENUES**	**$55,300**	
12			
13	**NET REVENUE REQUIREMENT FROM CURRENT RATES**	**$895,067**	*Row 6 - Row 11*
14	Proposed Revenue Adjustment for FYE 2016	2.0%	*Table 4-8*
15	Annualized Proposed Revenue Adjustment[29]	$17,901	*Row 13*Row 14*
16	**TOTAL REV REQ FROM PROPOSED RECYCLED WATER RATES**	**$912,969**	***Row 13 + Row 15***

Table 9-2 shows the system-wide Recycled Water peaking factors as set out in the District's Recycled Water Master Plan. These peaking factors are used to determine the appropriate allocation of total O&M and capital costs that are associated with RW peaking (capacity), as shown in Section 12.6 of the Appendix. The Max Day and Max Hour peaking factors for RW are calculated as follows:

$$Max\ Day = \frac{\text{Peak Day Demand}}{\text{Average Daily Flow}} = 2.20$$

$$Max\ Hour = \frac{\text{Peak Hour Demand}}{\text{Average Hourly Flow}} = 5.40$$

Table 9-2: Recycled Water System Peaking Factors

	Peaking Factors
Base	1.00
Max Day	2.20
Max Hour	5.40

[28] *Net Cash Balance for FYE 2016– Revenue Adjustment*

[29] *Revenue Adjustments effective for FYE 2016 (6 months) shown in the pro-forma in = $5.35M * 2% * 6 months / 12 months = $53,540*

Similar to the water Cost of Service, RFC allocated the revenue requirement to the cost components as shown in column B of Table 9-3. Table 9-3 also shows how each cost component will be collected from RW customers: through a Recycled Water Usage Rate (column C) and a Meter Flat Charge (column D). The full, step by step allocation of the revenue requirement to the cost components and the rate components (Water Usage Rate and Meter Flat Rate) is set out in Appendix 12.6.

Table 9-3: Allocated Recycled Water System Costs

Cost Component (A)	FYE 2016 (B)	Water Usage Rate (C)	Meter Flat Charge (D)
Supply	$700,540	$700,540	
Base	$46,498	$36,977	$9,521
Peaking	$165,438	$131,563	$33,875
Billing & Customer Service	$493	$0	$493
Total Revenue Requirement	**$912,969**	**$869,080**	**$43,889**

9.2 Recycled Water Rate Calculations

9.2.1 Recycled Water Meter Flat Rates

The District's current Meter Flat Charge for RW is the same as for potable water. RFC recommends that the District continue the same charge for both potable and Recycled Water services since the Meter Flat Charge reflects similar billing, administration & customer Service, meter Service and capacity costs. Table 9-4 shows the proposed 5-year RW Meter Flat Rates (Same as potable water).

Table 9-4: 5-year Proposed Monthly Meter Flat Rates for Recycled Water Services

	# of Accounts	Current	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
5/8”	0	$8.25	$13.70	$13.70	$13.70	$13.70	$13.70
3/4"	0	$10.76	$13.70	$13.70	$13.70	$13.70	$13.70
1"	0	$16.77	$19.73	$19.73	$19.73	$19.73	$19.73
1 1/2"	4	$31.78	$36.06	$36.06	$36.06	$36.06	$36.06
2"	15	$49.79	$53.50	$53.50	$53.50	$53.50	$53.50
3"	2	$91.83	$110.25	$110.25	$110.25	$110.25	$110.25
4"	0	$151.87	$191.82	$191.82	$191.82	$191.82	$191.82
6"	0	$302.00	$476.92	$476.92	$476.92	$476.92	$476.92
10"	2	$482.14	$1,245.08	$1,245.08	$1,245.08	$1,245.08	$1,245.08
Total	**638**	**$43,889**	**$43,889**	**$43,889**	**$43,889**	**$43,889**	**$43,889**

9.2.2 Recycled Water Usage Rates

To calculate the RW Water Usage rates RFC calculated equivalent flows. This is shown in Table 9-5 for each RW customer class. To calculate the equivalent flows RFC multiplied the equivalency ratios[30] (shown in the top of the table) by the usage shown in column A for each customer class.

Table 9-5: Allocating Recycled Water Usage Components

Equivalency Ratios	Usage (ccf) (A)	Supply (B)	Delivery (C)	Peaking (D)
Recycled Dove HOA		1.0	1.0	1.0
Recycled Golf Course		1.0	1.0	1.3
Other Recycled HOAs		1.0	1.0	1.0
Equivalent Flows				
Recycled Dove HOA	126,286	126,286	126,286	126,286
Recycled Golf Course	181,570	181,570	181,570	236,040
Other Recycled HOAs	47,831	47,831	47,831	47,831
Total	**355,687**	**355,687**	**355,687**	**410,157**

[30] *The equivalency ratios shown in column D are normalized peaking factors. They are normalized by dividing the peaking factor for each class by the Other Recycled HOAs class.*

To calculate the RW Usage unit rate components RFC divided the total cost allocated to each cost component shown in column C of Table 9 -3 by the total equivalent units of service (same as the total equivalent flows) shown at the bottom of Table 9-5 as shown in Table 9-6.

Table 9-6: Calculation of RW Units Cost of Service

Equivalency Ratios		Supply	Delivery	Peaking
Total for Each Cost Component		$700,540	$36,977	$131,563
Equivalent Units of Service		355,687	355,687	410,157
Unit Cost of Service		**$1.97**	**$0.11**	**$0.33**

To distribute the cost components to each RW customer class RFC multiplied the unit Cost of Service in Table 9-6 by the equivalent flows for each cost component shown in Table 9-5 (columns B, C and D). The results are shown in lines 1 through 4 in Table 9-7. To calculate the unit rate of for each RW customer class RFC divided the allocated cost by cost component (line 1 through 3) by the usage for each class found in column B in Table 9-7 to yield the unit cost component rates shown in columns C, D and E. Note that line 5 and 6 are in units of thousands of gallons (kgal) while line 7 is in units of hundred cubic feet (ccf). RFC rounded the unit cost component rates up to the nearest cent and therefore this results in a slight difference in estimated revenue as shown by comparing lines 8 and 4. RFC has derived each unit rate of the total RW Usage Rate and the total RW Usage rate is calculated by summing columns C, D and E – which is shown in column F.

The RW usage rate shown in column F includes the proposed (annual) 2% revenue adjustment. Since there are no further revenue adjustments proposed these rates remain the same for the 5-year study period as shown in Table 9-8.

Table 9-7: FYE 2016 Recycled Water Supply Rate Component of RW Commodity Charges

Line No.	Equivalency Ratios (A)	Usage (ccf) (B)	Supply (C)	Delivery (D)	Peaking (E)	Total RW Usage Rate (F)
1	Recycled Dove HOA		$248,726	$13,129	$40,508	
2	Recycled Golf Course		$357,609	$18,876	$75,713	
3	Other Recycled HOAs		$94,205	$4,972	$15,342	
4	Total		$700,540	$36,977	$131,563	
5	Recycled Dove HOA	94,462 kgal	$2.64/kgal	$0.14/kgal	$0.43/kgal	**$3.21**
6	Recycled Golf Course	135,814 kgal	$2.64/kgal	$0.14/kgal	$0.56/kgal	**$3.34**
7	Other Recycled HOAs	47,831 ccf	$1.97/ccf	$0.11/ccf	$0.33/ccf	**$2.41**
8	**Total**		**$702,156**	**$37,500**	**$132,459**	

Table 9-8: Recycled Water Five Year Water Usage Rates

	FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020
Recycled ($/ kgal)	$3.21	$3.21	$3.21	$3.21	$3.21
Reclaimed Golf Course ($/ kgal)	$3.34	$3.34	$3.34	$3.34	$3.34
Recycled ($/ccf)	$2.41	$2.41	$2.41	$2.41	$2.41

10 WASTEWATER COST OF SERVICE ANALYSIS & RATE DESIGN

10.1 WASTEWATER COST OF SERVICE ANALYSIS

This Section discusses the allocation of O&M expenses and capital costs to wastewater (sewer) functions, cost components, the determination of unit costs and rate calculation by customer class.

The proposed wastewater (WW) utility costs of service for the District were developed consistent with guidelines detailed in the Water Environment Federation (WEF) Manual of Practice No. 27, Financing and Charges for Wastewater Systems, 2004.

The wastewater COS analysis consists of seven major steps, as outlined below:

1. Determine non-residential customer wastewater flow and strength loadings based on water usage.
2. Conduct a wastewater plant mass balance, using non-residential flows and strengths to deduce the flow and strength of the residential customer class taking into consideration infiltration and inflow (I&I).
3. Functionalize O&M and capital costs into functions: Collection, Lifting, Treatment, Disposal, Billing and Customer Service and General (Administration).
4. Allocate the costs in each functions to cost components: Flow, Biochemical Oxygen Demand[31] (BOD), Total Suspended Solids[32] (TSS), Billing and Customer Service and General.
5. Establish the wastewater flow and strength by customer class.
6. Calculate the unit cost component rates by dividing the total cost in each cost component in Step 4 by the flow and strengths in Step 5.
7. Calculate the cost by customer class by multiplying the unit cost components in Step 6 by the flow and strengths established in Step 5.

10.1.1 Current Wastewater Classes of Service

The District currently has eight WW customer classes. The assumed strength of wastewater flows for each customer class in shown in Table 10-1. The strengths were taken from the Los Angeles County Sanitation District (LACSD) Revenue Program Report, pages 21 -22. The strength data was collected by the LACSD and are used as industry standards in setting strengths and rates for different classes through the southern California region. The data is representative of a large sample of customers in each class and therefore best represents the typical strength for each class. The term strength is used to signify both BOD and TSS concentration in wastewater.

[31] *BOD is a measure of oxygen utilization by the microorganisms in wastewater. The more waste matter in a wastewater stream the higher the BOD which in turn incurs higher treatment costs since the wastewater treatment plant most oxygenate the wastewater.*

[32] *TSS is a measure of suspended solids in wastewater. The higher the TSS the higher the solids loading which incurs more treatment costs to remove, dewater and dispose of the solids*

Table 10-1: Wastewater Classes of Service and Strength Concentrations

Classes	Description	BOD (mg/L)	TSS (mg/L)
Residential			
Single Family		240	255
Multifamily		240	255
Commercial			
Commercial- Low	Office Building	309	270
Commercial- Medium	Shopping Center	664	432
Commercial High	Restaurant	1,200	600
Other – Non-Residential			
Church		309	270
Government		309	270
School		309	270

10.1.2 Plant Balance Analysis

The plant mass balance is used to estimate the sanitation loadings (flow and strength) generated by each customer class. While wastewater is not metered when it enters the collection system, the total amount of flow and strength entering the treatment plant every day is a known quantity[33]. Non-residential customer flows can be estimated based on their water usage and strengths, which are estimated based on estimates from the LACSD which has compiled historical strength data (shown in Table 10-1). The remaining plant flow and strength loadings, net of the total less infiltration and inflow[34] (I&I), are due to residential customers and are calculated based on strength and flow assumptions for the other non-residential classes.

Table 10-2 shows the plant mass balance. The estimated residential flow is shown in line 17 and equates to approximately 50 gallons per capita per day assuming 3.3 people per household[35] which correlates well with the industry standard estimate of the amount of indoor water use per person. The estimated residential strength concentration is 240 and 255 milligrams per liter (mg/l) of BOD and TSS, respectively, which also correlates well with the industry standard estimate of residential strength concentrations. This validates the plant mass balance assumed strengths.

The estimated wastewater flows and loadings by District customer class are shown in Table 10-2 line 7 through 17.

[33] *Provided by the District Staff for FYE 2014*
[34] *Estimated by the District Staff*
[35] *Average density for the District residential classes = 3.30. See Appendix 12.3*

Table 10-2: FYE 2015 Plant Mass Balance

Line No.	Data for FYE 2015	Flow (MGD)	BOD (lbs/day)	TSS (lbs/day)	Return Factors	Flow (ccf)	BOD (mg/L)	TSS (mg/L)
1	**Total Treatment Plant Influent**	**0.66**	**1,445**	**1,445**		**320,107**	**264**	**264**
2	Robinson WWTP	0.56	1,177	1,177		275,214	250	250
3	Chiquita WWTP	0.09	269	269		44,893	350	350
4	Less I&I	-	-	-		-	100	100
5	**Net Plant**	**0.66**	**1,445**	**1,445**		**320,107**	**264**	**264**
6								
7	**Non-Residential**							
8	Commercial Low	0.01	30	26	90%	5,679	309	270
9	Commercial Medium	0.01	80	52	90%	7,042	664	432
10	Commercial High	0.01	84	42	90%	4,100	1,200	600
11								
12	Church	0.01	23	20	90%	4,258	309	270
13	School	0.00	4	3	90%	749	309	270
14	Government	0.00	0	0	90%	2	309	270
15	**Total Non-Residential Est. WW Flows**	**0.04**	**221**	**143**		**21,830**	**591**	**384**
16								
17	**Estimated Residential WW Flows**	**0.61**	**1,225**	**1,302**		**298,277**	**240**	**255**

10.1.3 Revenue Requirement Functionalization

The District's wastewater utility is comprised of various facilities, each designed and operated to fulfill a given function. Functionalizing wastewater costs allows RFC to better allocate the functionalized cost to the cost components (Flow, BOD and TSS) since industry guidance exists regarding such allocations. For instance, as shown in Table 10-3, treatment costs are allocated approximately 1/3 to each cost component. Note that the general cost component is reallocated to the other cost components in a latter step. Table 10-3 shows the functionalized FYE 2016 O&M expense in the first column and the percentage used to allocate the functionalize cost to each cost component. The resulting overall allocation to each cost component is shown in the bottom line. The resulting allocation (last line) is calculated by dividing the total amount allocated to each cost component by the total O&M budget in the last column.

Table 10-3: Functionalization and Allocation of O&M Expenses

O&M Expenses by Function	FYE 2016	Flow	BOD	TSS	B&CS	General	Total
General & Admin	$ 1,244,154	0%	0%	0%	5%	95%	**100%**
Billing & Cust. Ser.	$ 50,827	0%	0%	0%	100%	0%	**100%**
Treatment	$ 623,223	31%	30%	30%	0%	10%	**100%**
Total	**$ 1,918,204**	**$ 190,527**	**$ 185,430**	**$ 185,430**	**$ 113,034**	**$ 1,243,783**	**$ 1,918,204**
Resulting Allocation		**10%**	**10%**	**10%**	**6%**	**65%**	

Similar to the District's O&M expenses, RFC functionalized assets and allocate the functionalized asset value to the cost components. Table 10-4 shows the functionalization and allocation of assets to cost components. RFC allocated the District's assets to cost components and use the resulting allocation to allocate the District's capital expenses to cost components. Industry guidance exists regarding the allocation of the

functionalized asset values to the cost components. For example, the collection and lift station functions are normally allocated 100% to flow as shown in Table 10-4. Secondary treatment is allocated 40% to BOD and 40% to TSS to reflect the fact that wastewater strength is a primary driver of costs associated with secondary treatment. Line 14 in Table 10-4 shows the resulting overall wastewater asset allocation to the cost components. The overall asset allocation is calculated by dividing the total for each cost component by the total wastewater asset value in the last column. The overall asset allocation is used in subsequent steps to allocate capital related expenses to the cost components.

Table 10-4: Functionalization and Allocation of Wastewater Assets

Line No.	As of 6/30/15	Replacement Costs						
	Assets by Function	Asset Value	Flow (ccf)	BOD (lb / day)	TSS (lb / day)	Bill &Cust Service (bills / yr)	General	Total
1	G&A	$ 1,705,300	0%	0%	0%	5%	95%	**100%**
2	Billing & CS	$ -	0%	0%	0%	100%	0%	**100%**
3	Collection	$ 35,955,788	100%	0%	0%	0%	0%	**100%**
4	Lift Stations	$ 6,476,215	100%	0%	0%	0%	0%	**100%**
5	Disposal	$ 2,169,859	0%	50%	50%	0%	0%	**100%**
6	Sewer General	$ 1,034,859	0%	0%	0%	0%	100%	**100%**
7	Chiquita Treatment	$ 21,929,216	30%	30%	30%	0%	10%	**100%**
8	Primary Treatment	$ 469,201	95%	0%	0%	0%	5%	**100%**
9	Secondary Treatment	$ 258,003	15%	40%	40%	0%	5%	**100%**
10	Tertiary Treatment	$ -	0%	0%	0%	0%	100%	**100%**
11	Solids Handling	$ -	20%	10%	50%	0%	20%	**100%**
12	Treatment General	$ 23,965,183	30%	30%	30%	0%	10%	**100%**
13	**Total**	**$ 93,963,624**	**$ 56,684,765**	**$ 14,956,450**	**$ 14,956,450**	**$ 85,265**	**$ 7,280,694**	**$ 93,963,624**
14	**WW Asset Allocation**		**60.3%**	**15.9%**	**15.9%**	**0.1%**	**7.7%**	

10.1.4 Revenue Requirement Determination and Allocation to Cost Components

Next RFC determined the wastewater revenue requirement, which includes funds to cover yearly operating expenses, capital expenses, reserves and debt service. Table 10-5 shows the determination and allocation of the wastewater revenue requirement under current rates (before the proposed rate adjustments) – to the cost components. To determine the current revenue requirement, RFC added all operating and capital expenses as shown in line 7, and subtracted other non-rate revenues as shown in line 17, to yield the net revenue requirement shown in line 19. Table 10-5 also allocates this net revenue requirement to the cost components shown in columns C through G. The O&M expenses shown in line 2 are taken from Table 10-3. The remaining revenues, as well as the other revenues, are taken from Table 5-9. RFC used the resulting allocation for wastewater assets shown in Table 10-4 to allocate debt service (line 3), rate funded CIP (line 4), and reserve funding (line 6) to the cost components. To allocate other revenues to the cost components, RFC used the resulting O&M allocation shown in Table 10-3 to allocate lines 10 through14 to the cost components. Line 16 is allocated using the resulting asset allocation from Table 10-4. In lines 20 and 21 RFC reallocated the general cost component to the other cost component in proportion to the percentage shown in line 20[36]. Line 23 shows the allocation of the current revenue requirement to the cost components.

Table 10-5: Determination of the Wastewater Revenue Requirement

Line No.	CURRENT REVENUE REQUIREMENT	FYE 2016	Flow (ccf)	BOD (lb / day)	TSS (lb / day)	Bill &Cust Service (bills / yr)	General	Total
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)
1	**REVENUE REQUIREMENTS**							
2	O&M Expenses	$ 1,918,204	$ 190,527	$ 185,430	$ 185,430	$ 113,034	$ 1,243,783	**$ 1,918,204**
3	Debt Service	$ 457,071	$ 275,734	$ 72,753	$ 72,753	$ 415	$ 35,416	**$ 457,071**
4	Rate Funded Replacement CIP	$ 552,000	$ 333,001	$ 87,863	$ 87,863	$ 501	$ 42,771	**$ 552,000**
5	Transfers to Other Funds	$ -	$ -	$ -	$ -	$ -	$ -	**$ -**
6	Reserve Funding w/o Rev Adjustment	$ 1,548,140	$ 933,935	$ 246,422	$ 246,422	$ 1,405	$ 119,956	**$ 1,548,140**
7	**SUBTOTAL REVENUE REQUIREMENTS**	**$ 4,475,415**	**$ 1,733,197**	**$ 592,469**	**$ 592,469**	**$ 115,355**	**$ 1,441,926**	**$ 4,475,415**
8								
9	***Less Other Revenues***							
10	Misc. by Agreement Sewer Flat Charges	$ 64,110	$ 6,368	$ 6,197	$ 6,197	$ 3,778	$ 41,569	**$ 64,110**
11	Other Operating Revenues	$ 123,000	$ 12,217	$ 11,890	$ 11,890	$ 7,248	$ 79,754	**$ 123,000**
12	Property Tax Unrestricted	$ 748,750	$ 74,370	$ 72,381	$ 72,381	$ 44,122	$ 485,497	**$ 748,750**
13	Interest Revenue	$ 5,730	$ 569	$ 554	$ 554	$ 338	$ 3,715	**$ 5,730**
14	Misc. Non-Operating Revenues	$ 26,650	$ 2,647	$ 2,576	$ 2,576	$ 1,570	$ 17,280	**$ 26,650**
16	Other Capital Contribution	$ 2,559,500	$ 1,544,051	$ 407,403	$ 407,403	$ 2,323	$ 198,321	**$ 2,559,500**
17	**SUBTOTAL NON-OPERATING REVENUES**	**$ 3,527,740**	**$ 1,640,222**	**$ 501,001**	**$ 501,001**	**$ 59,378**	**$ 826,137**	**$ 3,527,740**
18								
19	**NET REVENUE REQ FROM CURRENT RATES**	**$ 947,676**	**$ 92,975**	**$ 91,468**	**$ 91,468**	**$ 55,977**	**$ 615,789**	**$ 947,676**
20	General Cost Allocation Factors		28.0%	27.6%	27.6%	16.9%		
21	Reallocation of General Costs		$ 172,508	$ 169,711	$ 169,711	$ 103,860	$ (615,789)	
22								
23	**NET ADJUSTED REV REQMT FROM CURRENT RATES**	**$ 947,676**	**$ 265,483**	**$ 261,178**	**$ 261,178**	**$ 159,837**	**$ -**	**$ 947,676**

[36] *The percentages shown are the percent of the total revenue requirement for each cost component without the general cost component*

10.1.5 Determine Units of Service

Next RFC determined the units of service for each cost component. The units of service by cost component and by class is shown in line 13 of Table 10-6. With the exception of the Residential class, the units of service were determined for non-Residential customers in Table 10-2 (the WW treatment plant mass balance). RFC added the units of service for the Residential class by estimating the yearly flow[37] for multi-family and single family customers as well as the daily load of BOD[38] and TSS[39] they contribute to the wastewater treatment plant. The total units of service are shown in line 13 to Table 10-6.

Table 10-6: Determination of Units of Service

Line No	Customer Class	Yearly Flow (ccf / yr)	BOD (lb / day)	TSS (lb / day)	Bill &Cust Service (bills / yr)
	(A)	(B)	(C)	(D)	(E)
1	**Units of Service by Customer Class**				
2	**Residential**	**298,277**	**1,225**	**1,302**	**42,564**
3	Multi Family	14,833	61	65	372
4	Single Family Residential	283,444	1,164	1,237	42,192
5	**Commercial**	**16,821**	**194**	**120**	**420**
6	Commercial Low	5,679	30	26	300
7	Commercial Medium	7,042	80	52	72
8	Commercial High	4,100	84	42	48
9	**Other Non-Residential**	**5,009**	**26**	**23**	**72**
10	Church	4,258	23	20	36
11	School	749	4	3	24
12	Government	2	0	0	12
13	**Total Units of Service**	**320,107**	**1,445**	**1,445**	**43,056**

10.1.6 Determine Unit Costs by Cost Component

In order to allocate the cost of service to the customer classes, RFC calculated unit costs for the cost components as follows:

$$Unit\ Cost = \frac{Total\ annual\ component\ costs}{Total\ annual\ service\ units}$$

RFC calculated unit costs for flow, BOD, TSS, and billing, administration and customer service cost components. Table 10-7 shows the derivation of the unit costs by cost component. The unit costs are

[37] *For Multi-family: 50 gpcd*3.3 persons per dwelling unit * 184 dwelling units * 365 days/yr. divided by 748 gallons per ccf*
*For Single-family: 50 gpcd*3.3 persons per dwelling unit * 3,516 dwelling units * 365 days/yr. divided by 748 gallons per ccf*

[38] *For BOD: Yearly Flow in ccf/365*748 gal/ccf/1,000,000 gal per MGD* 240 mg/L (Table 10-2)* 8.34*
[39] *For TSS: Yearly Flow in ccf/365*748 gal/ccf/1,000,000 gal per MGD*255 mg/L (Table 10-2) *8.34*
*8.34 is a conversion factor to convert MGD*mg/L into lbs. per day*

derived by taking the revenue requirement (by cost component) in line 23 of Table 10-5 and dividing by the total units of service (by cost component) shown in line 13 of Table 10-6.

Table 10-7: Derivation of Unit Costs by Cost Component

	Flow	BOD	TSS	Bill & Cust Service
Unit Costs at Current Rates	**$ 0.83**	**$ 180.69**	**$ 180.69**	**$ 3.71**
Units	$ / ccf	$ / lb	$ / lb	$ / bill

10.1.7 Derivation of the Cost of Service

RFC was then able to derive the cost to serve each user class as shown in Table 10-8. RFC calculated the cost to serve each class by multiplying the unit costs by component in Table 10-7 by the units of service (by class and by component) shown in Table 10-6. For example, for Multi-family RFC multiplied the flow unit rate (Table 10-7) by the yearly Multi-family flow (column B, line 3 of Table 10-6) to yield the cost of service associated with flow (column B, line 3) in Table 10-8. RFC performed similar calculations for all classes and all cost components. RFC noted that the total cost of service (under current rates) equals the net revenue requirement shown in Table 10-5.

Table 10-8: Derivation of the WW Cost of Service

Line No.	Customer Class (A)	Flow (B)	BOD (C)	TSS (D)	Bill & Cust Service (E)	Total COS FY
1	**WW Revenue Requirements from Current Rates**					
2	**Residential**	**$ 247,378**	**$ 221,305**	**$ 235,278**	**$ 158,010**	**$ 861,971**
3	Multi Family	$ 12,302	$ 11,005	$ 11,700	$ 1,381	$ 36,389
4	Single Family Residential	$ 235,076	$ 210,299	$ 223,578	$ 156,629	$ 825,583
5	**Commercial**	**$ 13,951**	**$ 35,086**	**$ 21,724**	**$ 1,559**	**$ 72,320**
6	Commercial Low	$ 4,710	$ 5,429	$ 4,735	$ 1,114	$ 15,987
7	Commercial Medium	$ 5,840	$ 14,451	$ 9,393	$ 267	$ 29,951
8	Commercial High	$ 3,401	$ 15,206	$ 7,597	$ 178	$ 26,381
9	**Other Non-Residential**	**$ 4,154**	**$ 4,788**	**$ 4,176**	**$ 267**	**$ 13,385**
10	Church	$ 3,531	$ 4,070	$ 3,550	$ 134	$ 11,285
11	School	$ 621	$ 716	$ 624	$ 89	$ 2,050
12	Government	$ 1	$ 2	$ 2	$ 45	$ 49
13	**Total**	**$ 265,483**	**$ 261,178**	**$ 261,178**	**$ 159,837**	**$ 947,676**

10.2 Derivation of Wastewater Rates (Under the Revised Wastewater Rate Structure and Current Revenue Requirement)

Based on the foregoing assumptions and calculations, RFC can derived the WW charges based on the cost to serve each class. RFC first derives the Residential wastewater charges. Note that the charges derived below are designed to collect the same amount of revenue as the existing charges – however under a revised rate structure. In other words, the rates collect the District's current revenue requirement before the proposed rate adjustments discussed in Section 5.7 are factored in.

10.2.1 Residential

Table 10-9 shows the derivation of the Residential WW Charges in lines 2 and 3. The residential WW rates consist of two components: 1) a fixed component which collects billing, administration and customer service costs and 2) a flat charge which collects costs associated with wastewater flows and strength (BOD and TSS). The fixed component (column I) is derived by dividing billing, administration and customer service costs (column D) by the number of bills per year (column F). As shown in column I, the fixed charge is the same for all customer classes. The second component of the Residential Charge is the monthly flat charge derived in column H by dividing the total flow based cost components (Flow, BOD and TSS) shown in column C[40], by the total number of equivalent dwelling units shown in column E. The total Residential Charge, under the District current revenue requirement is the summation of these two components ($19.57).

10.2.2 Commercial and Other Non-Residential

The Commercial and Other Non-Residential WW customer classes also have a two component rate structure: 1) the fixed charge which collects billing and customer service costs (derived in the same manner as the Residential Charge) and 2) a volumetric component which collects the flow based cost components (Flow, BOD and TSS). The volumetric component, shown in column J, is derived by dividing the total flow based cost components, shown in column C, by the volumetric units of service shown in column G to yield the volumetric rate in column J.

[40] *The totals in this column are the summation of columns B, C and D in Table 10-8*

Table 10-9: Derivation of WW Rates

Line No.	Customer Class	Current Revenue Requirements			Units of Service			WW Rate Components		
		FYE 2016	Flow Based	Billing & Cust Service	Flat Charges	Fixed	Volumetric	Monthly Flat Charges	Fixed	Volumetric
					ERU / month	*bills / year*	*ccf / yr*	*$ / ERU*	*$ / bill*	*$ / ccf*
	(A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)	(J)
1	**Residential**									
2	Multi Family	$ 36,389	$ 35,008	$ 1,381	184	372		$ 15.86	$ 3.71	
3	Single Family Residential	$ 825,583	$ 668,953	$ 156,629	3,516	42,192		$ 15.86	$ 3.71	
4	**Commercial**									
5	Commercial Low	$ 15,987	$ 14,874	$ 1,114		300	5,679		$ 3.71	$ 2.62
6	Commercial Medium	$ 29,951	$ 29,684	$ 267		72	7,042		$ 3.71	$ 4.22
7	Commercial High	$ 26,381	$ 26,203	$ 178		48	4,100		$ 3.71	$ 6.40
8	**Other Non-Residential**									
9	Church	$ 11,285	$ 11,152	$ 134		36	4,258		$ 3.71	$ 2.62
10	School	$ 2,050	$ 1,961	$ 89		24	749		$ 3.71	$ 2.62
11	Government	$ 49	$ 5	$ 45		12	2		$ 3.71	$ 2.62
12										
13	**TOTAL**	**$ 947,676**	**$ 787,839**	**$ 159,837**	**3,700**	**43,056**	**21,830**			

10.2.3 Proposed Wastewater Rates

To calculate the proposed rates, RFC multiplied the rates derived in Table 10-9 by the revenue adjustments proposed in Section 5.7, as shown in Table 10-10, for the Residential class and Table 10-11 for the Non-Residential Classes.

Table 10-10: Proposed 5-year Residential Wastewater Rates

Line No.	Customer Class	Revised Current Rate	Jan 1, 2016	Jan 1, 2017	Jan 1, 2017	Jan 1, 2018	Jan 1, 2019
		0%	25%	15%	5%	5%	5%
	(A)	(B)	(C)	(D)	(E)	(F)	(G)
	Residential						
1	Multi Family	$ 19.57	$ 24.47	$ 28.15	$ 29.57	$ 31.06	$ 32.62
2	Single Family Residential	$ 19.57	$ 24.47	$ 28.15	$ 29.57	$ 31.06	$ 32.62

Table 10-11: Proposed 5-year Non-Residential Wastewater Rates

Line No.	Customer Class	Revised Current Rate	Jan 1, 2016	Jan 1, 2017	Jan 1, 2017	Jan 1, 2018	Jan 1, 2019
		0%	25%	15%	5%	5%	5%
	(A)	(B)	(C)	(D)	(E)	(F)	(G)
1	**Fixed Charge**						
2	All Classes	$ 3.71	$ 4.64	$ 5.34	$ 5.61	$ 5.90	$ 6.20
3	**Volumetric Rate**						
4	**Commercial**						
5	Commercial Low	$ 2.62	$ 3.28	$ 3.78	$ 3.97	$ 4.17	$ 4.38
6	Commercial Medium	$ 4.22	$ 5.28	$ 6.08	$ 6.39	$ 6.71	$ 7.05
7	Commercial High	$ 6.40	$ 8.00	$ 9.20	$ 9.66	$ 10.15	$ 10.66
8	**Other Non-Residential**						
9	Church	$ 2.62	$ 3.28	$ 3.78	$ 3.97	$ 4.17	$ 4.38
10	School	$ 2.62	$ 3.28	$ 3.78	$ 3.97	$ 4.17	$ 4.38
11	Government	$ 2.62	$ 3.28	$ 3.78	$ 3.97	$ 4.17	$ 4.38

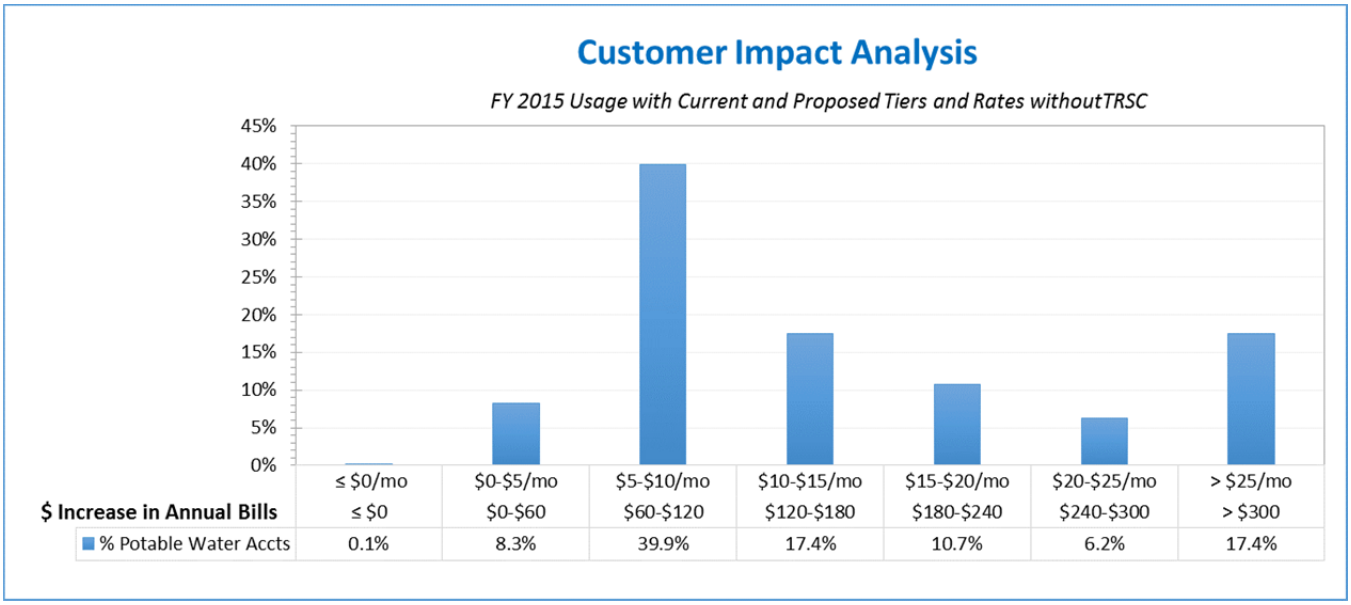
11 CUSTOMER BILL IMPACT ANALYSIS

Section 11 describes the customer bill impacts for each District utility by comparing bills under the proposed rates and rate structures and existing rates and rate structures.

11.1 WATER CUSTOMER IMPACT ANALYSIS

Figure 11-1 shows the water customer bill impacts for *all* District customer classes assuming customers use the same amount of water as they did in FYE 2015. As shown, approximately 40% of all District customers will see a $5 to $10 dollar increase per month and that approximately 48.3% of *all* customers (adding the first three columns of the figure) are expected to see an increase of $5 to $10 per month or less. Note that Figure 11-1 does not include the effects of the Temporary Revenue Stabilization Charge (TRSC) which is designed to collect lost revenue due to decreased water sales resulting from the Statewide drought conditions and State mandated water reductions. In theory, the addition of the TRSC should not increase customer bills because customers are *expected to reduce their water use during the drought*. However if they do not reduce their water use, their bill will increase.

Figure 11-1: Potable Water Customer Impacts without TRSC in Bills

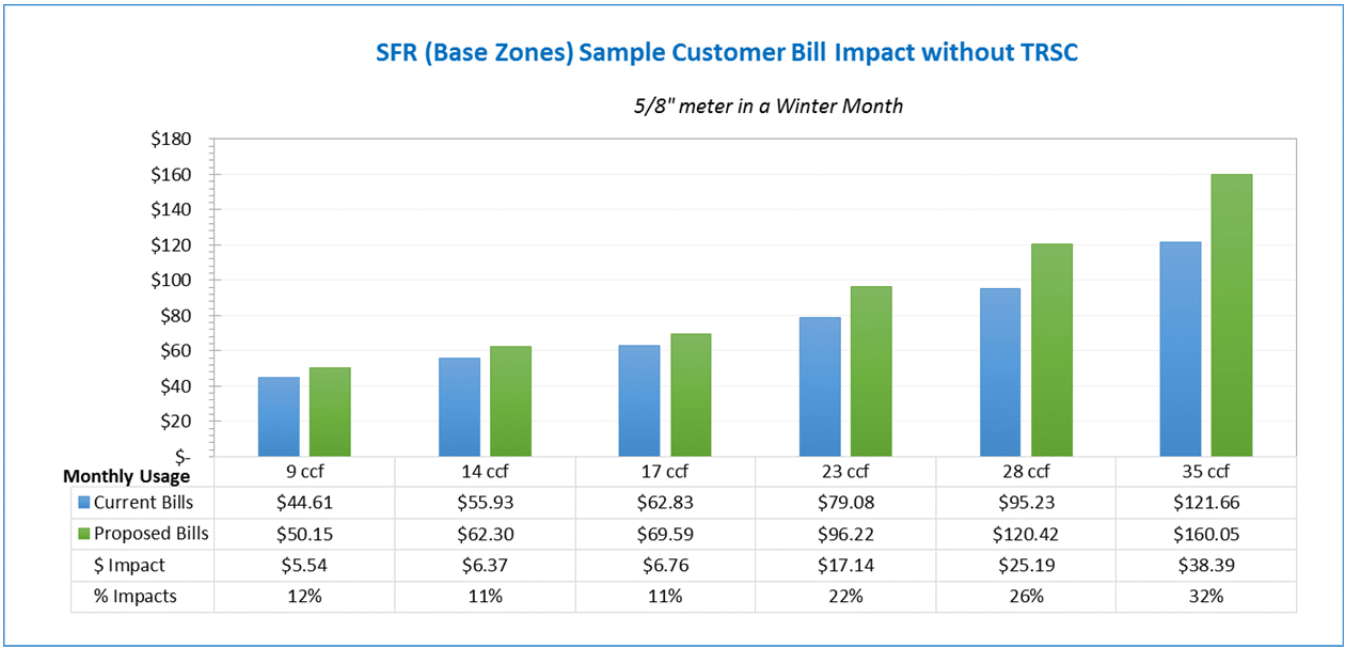


11.1.1 Residential Bill Impacts

Figures 11-2 and 11-3 show the estimated Single Family Residential (SFR) bill impacts at different levels of water use for the base zone (not including zone area charges). The figures shows bills under current rates in blue and bills under the proposed rates in green with the dollar and percent impact at the bottom of each figure. The average monthly SFR use is presumed to be 17 ccf (hundred cubic feet). The District currently has a seasonal rate structure in which the tier breakpoints increase during the summer – allowing more water use in each tier during the summer period. Therefore the bill impacts depend on whether one is comparing

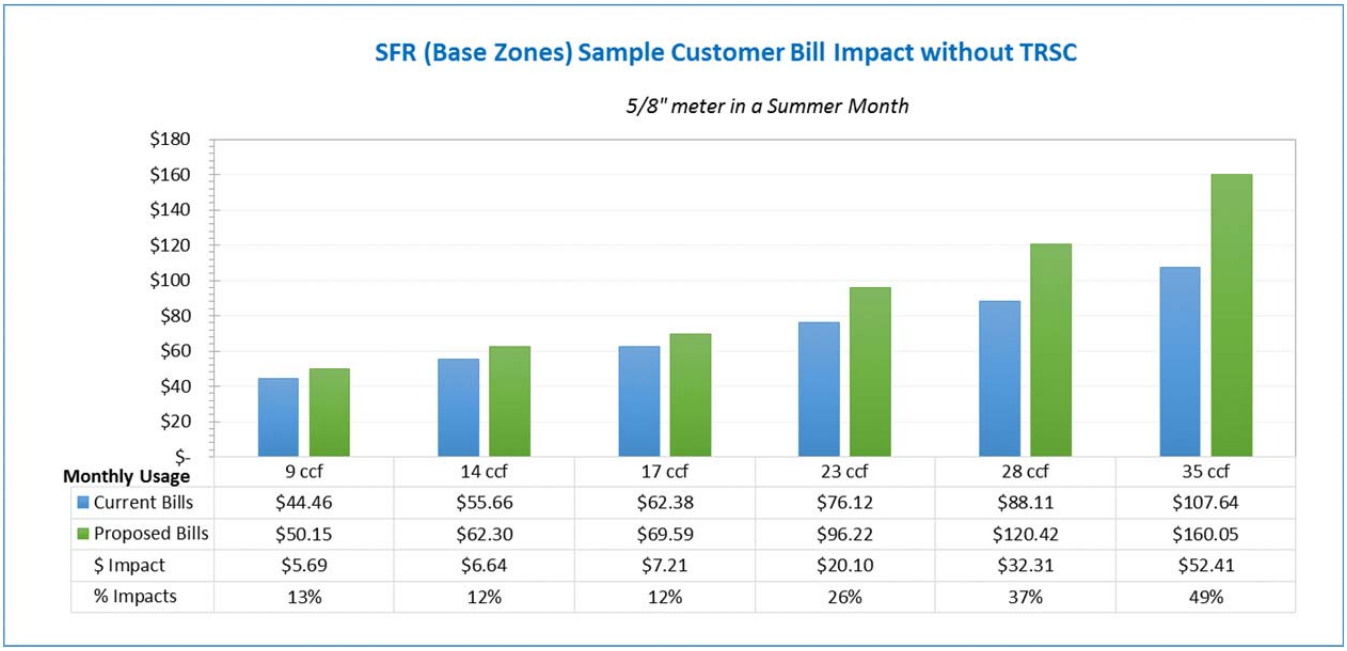
the summer or winter bills to the revised rate structure as shown in Figure 11-2 and 11.3. As shown in Figures 11-2 and 11-3 the average SFR will see a monthly bill increase of approximately $7.00.

Figure 11-2: Residential Sample Water Bill Impacts excluding TRSC – Winter Months



Monthly Usage	9 ccf	14 ccf	17 ccf	23 ccf	28 ccf	35 ccf
Current Bills	$44.61	$55.93	$62.83	$79.08	$95.23	$121.66
Proposed Bills	$50.15	$62.30	$69.59	$96.22	$120.42	$160.05
$ Impact	$5.54	$6.37	$6.76	$17.14	$25.19	$38.39
% Impacts	12%	11%	11%	22%	26%	32%

Figure 11-3: Residential Sample Water Bill Impacts excluding TRSC – Summer Months

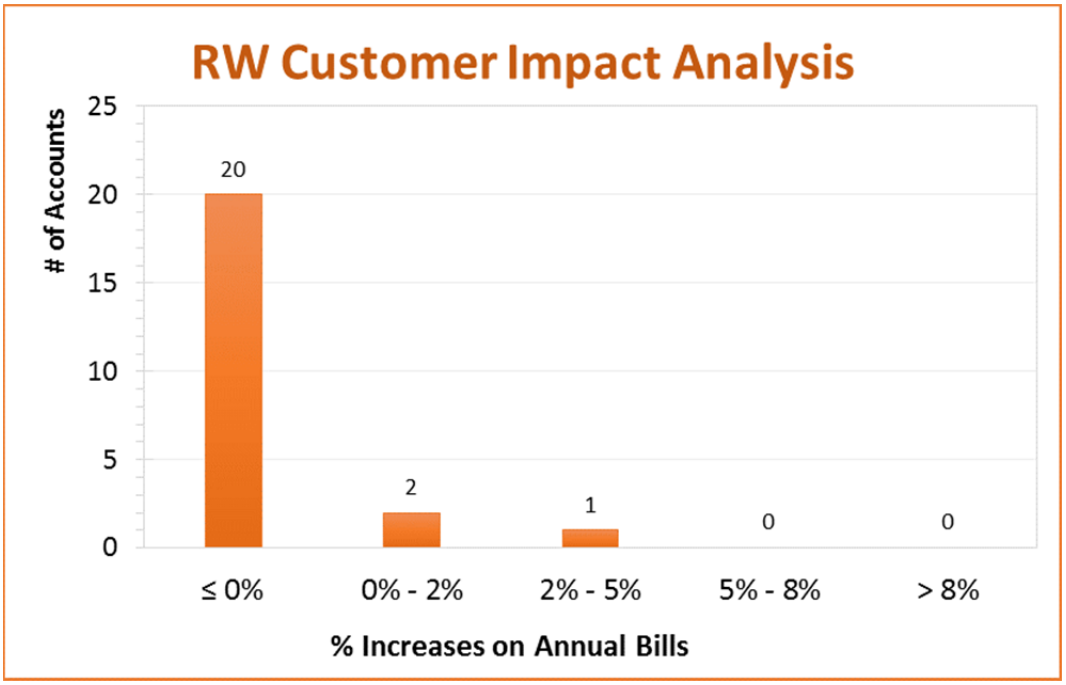


Monthly Usage	9 ccf	14 ccf	17 ccf	23 ccf	28 ccf	35 ccf
Current Bills	$44.46	$55.66	$62.38	$76.12	$88.11	$107.64
Proposed Bills	$50.15	$62.30	$69.59	$96.22	$120.42	$160.05
$ Impact	$5.69	$6.64	$7.21	$20.10	$32.31	$52.41
% Impacts	13%	12%	12%	26%	37%	49%

11.2 Recycled Water Customer Impact Analysis

Figure 11-4 shows the number of Recycled Water accounts that will realize the percentage bill impacts shown at the bottom of the Figure. As shown 20 out of 23 accounts will see no RW bill impacts under the proposed revised RW rates.

Figure 11-4: Recycled Water Customer Impacts



11.3 WW Customer Impact Analysis

11.3.1 WW Cost of Service

Before RFC compares current and proposed wastewater bill impacts RFC views it as useful to review the results of the Cost of Service (COS) analysis (which allocates the total revenue requirement to classes) both pre and post the proposed 25% revenue adjustment. Table 11-1 shows the Cost of Service analysis before the revenue adjustment (25%) in column A. It shows that, assuming the revised wastewater flow strength guidelines from the Los Angeles County Sanitation District and assumed flows (90% return to sewer for the commercial class) that the commercial (see % change column, commercial medium and low) customers share a higher cost responsibility for the wastewater system than they are currently contributing through the current rate structure. Similarly School and Government customers have a lower cost responsibility.

Table 11-1: WW Customer Impact Analysis for Revised COS Rates Before Revenue Adjustment

Customer Impacts	Current (A)	Revised COS (B)	% Change (C)
Residential	**$ 870,556**	**$ 861,971**	**-1%**
Multi Family	$ 35,155	$ 36,389	4%
Single Family Residential	$ 835,402	$ 825,583	-1%
Commercial	**$ 63,860**	**$ 72,320**	**13%**
Commercial Low	$ 18,146	$ 15,987	-12%
Commercial Medium	$ 24,750	$ 29,951	21%
Commercial High	$ 20,964	$ 26,381	26%
Other Non-Residential	**$ 13,259**	**$ 13,385**	**1%**
Church	$ 10,001	$ 11,285	13%
School	$ 2,825	$ 2,050	-27%
Government	$ 433	$ 49	-89%
TOTAL	**$ 947,676**	**$ 947,676**	**0%**

Table 11-2 shows the COS analysis *after* the 25% revenue adjustment. As shown in that Table, Commercial Medium and Commercial High customers are assigned a higher share of costs and therefore it can be expected that their bills will increase. Note that the revenue adjustment for FYE 2016 is 25%.

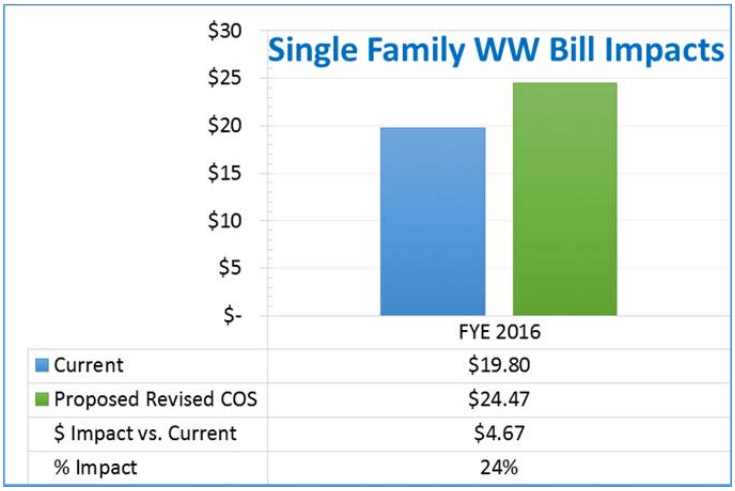
Table 11-2: WW Customer Impact Analysis for Revised COS Rates After Revenue Adjustment

Customer Impacts	Current	Revised COS	% Change
Residential	**$ 870,556**	**$ 1,077,464**	**24%**
Multi Family	$ 35,155	$ 45,486	29%
Single Family Residential	$ 835,402	$ 1,031,978	24%
Commercial	**$ 63,860**	**$ 90,400**	**42%**
Commercial Low	$ 18,146	$ 19,984	10%
Commercial Medium	$ 24,750	$ 37,439	51%
Commercial High	$ 20,964	$ 32,977	57%
Other Non-Residential	**$ 13,259**	**$ 16,731**	**26%**
Church	$ 10,001	$ 14,107	41%
School	$ 2,825	$ 2,563	-9%
Government	$ 433	$ 62	-86%
TOTAL	**$ 947,676**	**$ 1,184,595**	**25%**

11.3.2 WW Single Family Residential Bill Impacts

Figure 11-5 shows the Single Family Residential bill Wastewater bill impact resulting from the proposed WW rates.

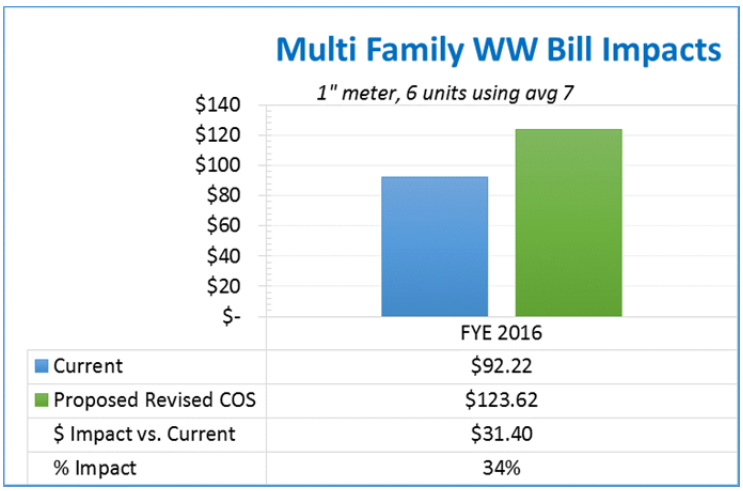
Figure 11-5: Single Family Wastewater Bill Impact



11.3.3 WW Multi-family Residential Bill Impacts

Figure 11-6 shows the WW Multi-family (MF) bill impacts assuming a 1 inch water meter, seven hundred (700) cubic feet of water use and 6 dwelling units. The current MF rate structure is a function of meter size and water use. The proposed charge is a flat charge per number of dwelling units.

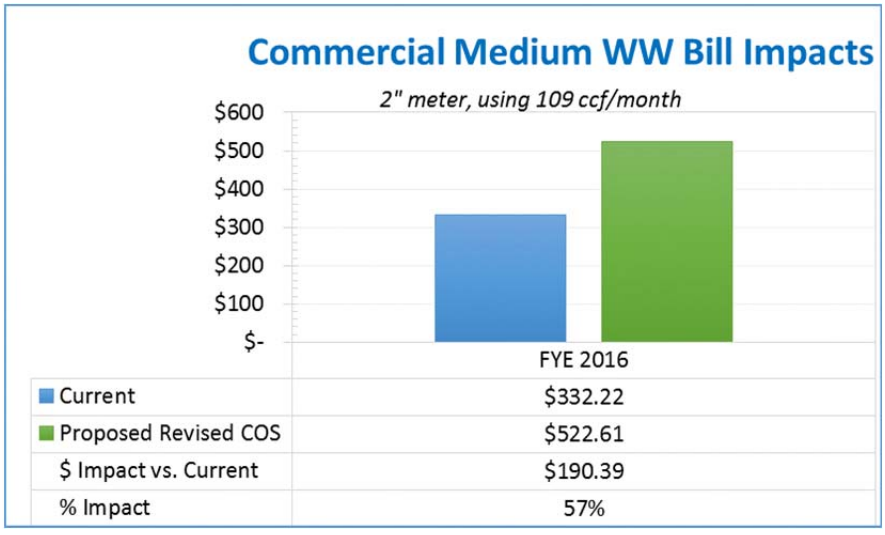
Figure 11-6:Multi-family Wastewater Bill Impact



11.3.4 WW Commercial - Medium Bill Impact

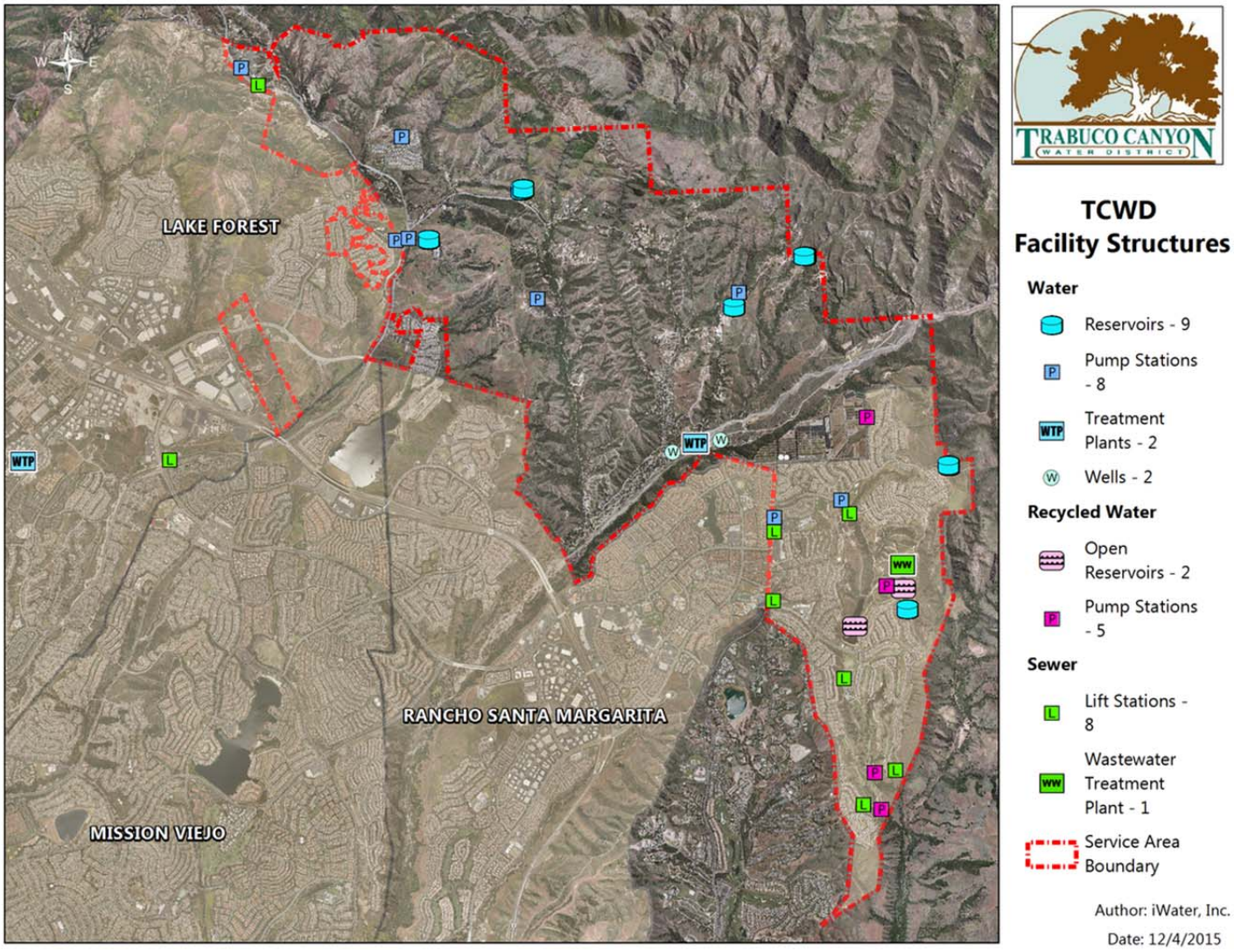
Figure 11-7 shows the Commercial-Medium bill impact assuming a 2-inch water meter and 109 hundred cubic feet per month of water use (which is the average for this class). To calculate the anticipated WW bill for this user class, RFC assumed 90% of water use is returned to the sewer system – therefore RFC multiplied water use by 90%. As expected, Commercial-Medium customers will see a significant increase in their WW bill due to revised cost of service calculations and the revenue adjustment of 25%.

Figure 11-7: Commercial Medium WW Bill Impact



12 APPENDICES

12.1 DISTRICT FACILITIES



12.2 CURRENT RESERVE POLICY

RESOLUTION NO. 2015-1211

RESOLUTION OF THE BOARD OF DIRECTORS OF THE TRABUCO CANYON WATER DISTRICT ADOPTING AND APPROVING A RESERVE FUNDS POLICY, DESIGNATING OPERATING RESERVE LEVELS, RESCINDING AND SUPERCEDING CERTAIN PRIOR RESOLUTIONS AND TAKING RELATED ACTIONS

WHEREAS, the Trabuco Canyon Water District ("District" or "TCWD") is a county water district organized and operating pursuant to California Water Code ("Water Code") Sections 30000 and following; and

WHEREAS, the Board of Directors of TCWD ("Board") is responsible for establishing policies for the prudent financial management of TCWD, including, but not limited to, policies concerning reserve funds, in consultation with TCWD's General Manager, financial staff and TCWD's Treasurer; and

WHEREAS, Section 5 of Article XIII B of the California Constitution expressly authorizes special districts and other local public agencies with the authority to establish reserve funds as they deem reasonable and proper to meet specific current and future needs of such special district; and

WHEREAS, the efficient use and management of such reserves helps to assure the current and future ability of TCWD to provide, transport, and distribute potable and recycled water to its customers and to provide wastewater services to its customers; and

WHEREAS, the Board has previously adopted Resolutions implementing policies and practices establishing certain reserve funds and designated funding levels to provide financial stability for extraordinary fiscal circumstances which may arise, the repair and replacement of facilities, the funding of debt obligations and to provide flexibility with respect to establishing rates and other matters as set out in the Resolutions described in Attachment "A," attached hereto and incorporated herein by this reference (collectively, the "Prior Resolutions"); and

WHEREAS, the Board has received and considered information provided by TCWD staff and TCWD's Treasurer with respect to TCWD's Reserve Policy and Operating Reserve Fund levels; and

WHEREAS, the Board has considered the rescission and superseding of the Prior Resolutions; and

WHEREAS, the Board, based on the factors, information and conditions described herein, has determined that it is prudent and appropriate at this time to adopt an updated Reserve Fund Policy and designate Operating Reserve Fund Levels.

NOW, THEREFORE, THE BOARD OF DIRECTORS OF THE TRABUCO CANYON WATER DISTRICT DOES HEREBY RESOLVE, DETERMINE AND ORDER AS FOLLOWS:

Section 1. Recitals. The Board does hereby find and determine that the foregoing recitals and above-referenced determinations are true and correct.

Section 2. Authority. The actions set out in this Resolution are authorized pursuant to State law, including, but not limited to, Section 5 of Article XIII B of the California Constitution and Sections 30523, 31000 and 31001 of the California Water Code.

Section 3. Findings. The Board hereby finds and determines as follows:

(a) The implementation of the Trabuco Canyon Water District Reserve Fund Policy is advisable, and in the best interests of TCWD, based upon the information presented to the Board.

(b) The designated Operating Reserve Fund levels are necessary to carry out the current and future mission and operations of TCWD.

Section 4. Adoption of Reserve Fund Policy. The Trabuco Canyon Water District Reserve Fund Policy attached hereto as Attachment "B" (and incorporated herein by this reference) is adopted as of the Effective Date (as defined herein). The Reserve Funds designated therein shall be created and/or maintained consistent with the provisions of this Resolution.

Section 5. Designation of Operating Reserve Fund Levels. The Board hereby designates the Operating Reserve Fund levels set out in Attachment "C" (and incorporated herein by this reference) for the corresponding Reserve Funds implemented hereby. TCWD's Treasurer shall provide to the Board periodic written reports on the Operating Reserve Fund levels.

Section 6. Rescission and Superceding Prior Resolutions. The Prior Resolutions are hereby rescinded and superceded by this Resolution effective upon the Effective Date.

Section 7. Further Actions. The General Manager, the District's Treasurer and the District's staff and consultants are authorized to take any and all actions necessary to implement the directives and intention of this Resolution.

Section 8. Periodic Review. It is the policy of the Board that the amount(s) of the Reserve Funds will be reviewed at least annually by the Board (which may be in conjunction with the consideration and adoption of the annual TCWD budget), and may be changed by action of the Board in accordance with the stated criteria for each Reserve Fund specified herein; however, revisions of the stated criteria shall only be made by Board resolution.

Section 9. Effective Date. This Resolution shall be effective upon adoption ("Effective Date").

Section 10. Effectiveness of Resolution. The findings, determinations, directives and actions set out in this Resolution shall remain in force and effect until repealed, amended, rescinded or modified by action of the Board.

[Remainder of this page intentionally left blank]

ADOPTED, SIGNED, and APPROVED this 20th day of May, 2015.

TRABUCO CANYON WATER DISTRICT:

President/Vice President

Secretary/Assistant Secretary

STATE OF CALIFORNIA)
) ss.
COUNTY OF ORANGE)

I, Michael Perea, Secretary of the Board of the Trabuco Canyon Water District, do hereby certify that the foregoing resolution was duly adopted by the Board of such District at a meeting of such Board held on the 20th day of May, 2015, of which meeting all of the members of the Board had due notice and at which a quorum thereof were present and acting throughout and for which notice and an agenda was prepared and posted as required by law and that at such meeting such resolution was adopted by the following vote:

AYES: Dopudja, Acosta, Haselton, Mandich, Safranski

NOES: None

ABSTAIN: None

ABSENT: None

Secretary of the Board,
Trabuco Canyon Water District

STATE OF CALIFORNIA)
) ss.
COUNTY OF ORANGE)

I, Michael Perea, Secretary of the Board of the Trabuco Canyon Water District, do hereby certify that the foregoing is a full, true and correct copy of Resolution No. 2015-1211 of such Board and that the same has not been amended or repealed.

Dated this 20th day of May, 2015.

Secretary of the Board,
Trabuco Canyon Water District

ATTACHMENT "A"

DESCRIPTION OF PRIOR RESOLUTIONS

RESOLUTION NO.	ADOPTED	TITLE
99-887	June 16, 1999	RESOLUTION OF THE BOARD OF DIRECTORS OF TRABUCO CANYON WATER DISTRICT ESTABLISHING A WATER RATE STABILIZATION RESERVE FUND
99-888	June 16, 1999	RESOLUTION OF THE BOARD OF DIRECTORS OF TRABUCO CANYON WATER DISTRICT ESTABLISHING A SEWER RATE STABILIZATION RESERVE FUND
99-889	June 16, 1999	RESOLUTION OF THE BOARD OF DIRECTORS OF TRABUCO CANYON WATER DISTRICT ESTABLISHING A WORKING CAPITAL RESERVE FUND
99-890	June 16, 1999	RESOLUTION OF THE BOARD OF DIRECTORS OF TRABUCO CANYON WATER DISTRICT ESTABLISHING AN EMERGENCY REPAIR RESERVE FUND
99-891	June 16, 1999	RESOLUTION OF THE BOARD OF DIRECTORS OF TRABUCO CANYON WATER DISTRICT ESTABLISHING AN PERIODIC REPLACEMENT RESERVE FUND
99-892	June 16, 1999	RESOLUTION OF THE BOARD OF DIRECTORS OF TRABUCO CANYON WATER DISTRICT ESTABLISHING AN ACCOUNTING POLICY FOR DEBT SERVICE RESERVE FUND
2000-934A	November 15, 2000	RESOLUTION OF THE BOARD OF DIRECTORS OF TRABUCO CANYON WATER DISTRICT ESTABLISHING A SANITATION SYSTEM CAPITAL IMPROVEMENTS RESERVE FUND
2001-939	February 21, 2001	RESOLUTION OF THE BOARD OF DIRECTORS OF TRABUCO CANYON WATER DISTRICT ESTABLISHING AN EMERGENCY CAPITAL REPAIR RESERVE FUND

ATTACHMENT "B"

TRABUCO CANYON WATER DISTRICT RESERVE FUND POLICY

1. **Working Capital (Operating) Reserve:** This reserve provides day to day working capital and also provides for contingency funds to continue operations in the event of an unanticipated short-term cash shortfall.

- Source of reserve funding: Excess net revenues over expenditures
- Use of reserves: In the normal course of operations, and can be drawn down the event of an unanticipated need for cash to maintain basic District operations
- Recommendation: Set this reserve at a minimum of 60 days of budgeted operating expenses; adjust annually when the final budget is adopted

2. **Refundable Deposits Reserve:** This reserve covers deposits made by an applicant for hydrant/construction meters and water use efficiency program deposits. As deposits are received a liability account is adjusted to display amount owed back to the applicant when the hydrant/construction meter is returned or the applicant's project is completed.

- Source of reserve funding: Deposits from applicants requesting a hydrant/construction meter or applicant for water use efficiency program
- Use of reserves: Funds are returned to applicant upon termination of service for hydrant/construction water and receipt of hydrant/construction meter to the District or completion of project per the water use efficiency program
- Recommendation: Dissolve this reserve since amounts are immaterial and any deposits owed back to homeowners or developers for meters can easily be paid for out of the District's working capital

3. **Developer Deposits Reserve:** This reserve covers deposits by developers or owners of property within the District's service area that request service for water, wastewater, and/or recycled water to their development and/or property. This reserve has been used by the District to ensure that deposits by developers/property owners for work done to new/existing property could be adequately drawn upon by the District, and refunded when the project is done. This reserve is used to cover the cost of administrative, engineering, and operations time and expenses required of project including time for plan checks, inspection, testing, and yearly administrative and account management fees. Any additional capital needed for project is requested to the developer and work is ceased until additional capital is received if the deposit is exhausted.

- Source of reserve funding: Deposits from developers and/or property owners

- Use of reserves: Labor time and expenses to review property and plans for project, conduct inspections, tests; and other District expenses for the project. Remaining funds are returned to developer upon completion of project.

- Recommendation: Dissolve this reserve since amounts are immaterial and none of the current amounts in this reserve are legally required to be separated

Individual developments and projects would continue to be monitored for work performed, costs incurred, and remaining deposit balance.

4. **Oaks at Trabuco Reserve:** This reserve was formerly called Interim Sewer. This is a deposit through an agreement with the developer of the Oaks at Trabuco Development. The reserve amount and designated investment is per the agreement with the developer, and is designed to be used by the District in the event that the developer becomes insolvent.

This reserve retains the interest that it earns and will be returned to the developer in the event that such a refund occurs in the future.

- Source of reserve funding: Funds provided by the Developer

- Use of reserves: Reserves are to be used in the event the project becomes insolvent and in accordance with the agreement

- Recommendation: Continue to adjust the amount in this reserve on a quarterly basis for interest and maintain reserve account, as required by the agreement

5. **Water and Sanitation Rate Stabilization Reserves:** These two reserve funds were established in the Financial Plan prepared in 2000. They were intended to provide rate stability in periods of fluctuating system demands. Minimum reserve amounts were recommended at 5% of annual operating expenses, less depreciation and amortization and plus interest earnings and loan principal payments. Maximum reserve amounts were recommended at 7.5%.

Typical uses for Rate Stabilization Reserves in the utility industry are to meet a portion of the utility's revenue requirements. The reserves allow for a smoothing of rates in the event of short to mid-term rate revenue loss and/or higher than anticipated budget costs that cannot be supported by normal revenues. Revenue losses for water can occur due to water conservation and expense hikes can be caused many variables, most notably infrastructure failure. Although revenues for Sanitation are fairly stable, there is a risk of large expenses in the event that fines were imposed from a spill or other public safety violation.

- Source of reserve funding: Excess net revenues over expenditures

- Use of reserves: To be used in the event of short-term, unusual events that increase the District's revenue requirements

- Recommendation: Set the Water Rate Stabilization Reserve at a minimum of 10% of budgeted operating revenues (less Standby and Other Revenues). Set the Sanitation Rate Stabilization Reserve at a minimum of 20% of budgeted operating expenses. Amounts to be adjusted annually during the budget adoption process.

6. **Internal Financing Reserve.** This reserve was formerly called the Special Designations Reserve, and was informally created to internally finance large construction costs or large one-time costs. This reserve allows the District to finance capital projects or other one-time material costs internally, which spares the District from interest expense associated with debt, and also allows for projects to commence on a timely basis.

For example, the District has several projects that will be paid for with the Water Reliability and Emergency Storage Fees approved in 2010. These funds are collected in level amounts over twenty years, however, the projects need to be paid for before that. The Internal Financing Reserve can be borrowed from to finance these projects, and then repaid when the fees are collected.

- Source of reserve funding: Excess revenues over expenditures, FEMA or Cal OES reimbursements, and WRES funds if this reserve was used to finance the projects

- Use of reserves: To be used in the budgeting process to cover or finance one-time, project costs

- Recommendation: Allow this reserve to fund projects and one-time events as Board approved

BOARD COMMITTED CAPITAL RESERVES

7. **District Capital Projects Reserve:** This reserve was established to cover capital projects or large maintenance project for water or sanitation, or combined projects. Examples in the present and past include meter replacement programs (recently being funded by the EMC reserve), administration related items such as vehicles, master plans, computer software and hardware, and district equipment and building rehabilitation and repair for the administrative office.

    - Sources: Excess net revenues over expenditures

    - Uses: District wide capital administrative needs not identified in other reserve funds

    - Recommendation: Use the reserve to fund projects that are district-wide administrative projects that both water and sanitation benefit from. Exclude costs that are related solely to Water or Sanitation. Initially fund this reserve at a flat amount of $200,000, and then evaluate each year during the budget process.

8. **Equipment Maintenance Program Reserve:** It appears that this fund is a blend of the Emergency Repairs and Periodic Replacement Fund recommended in the financial plan performed in 2000. The Emergency Repairs Reserve was intended to be used in a natural disaster or emergency. The Periodic Replacement Fund was intended to be used to fund non-capital purchases under $5,000, however, could also be used in the event of an emergency that required a capital outlay. Over the years, it has been the practice of the District to use this fund for routine, recurring, capital repair and replacement of the District facilities and equipment for both water and sanitation (capital outlay), and for capital and repair purchases or construction both above and below $5,000.

   Typical expenditures in this fund have included repairs and replacements in both the water and wastewater systems, including items such as meter purchases, pump station repairs, generators, pump and valve replacement and repairs, Supervisory Control and Data Acquisition (SCADA) improvements, reservoir rehabilitations, etc. Ideally, this reserve would be funded each year at a level amount from the water and sanitation rates, and drawn down as needed for capital repair/replacement and equipment purchases. This capital outlay expense would be budgeted in a separate section of the budget in order to track the amount projected and amount used.

   - Sources: Excess revenues over expenditures
   - Uses: As needed throughout the year for routine repairs and replacements
   - Recommendation: Initially fund this reserve at $900,000, and then review for appropriateness each year during the budget process. As these funds are used, there should be a mechanism to add reserve funding to the rates each year to help keep rates level in spite of changing capital and maintenance needs.

RESTRICTED RESERVES

9. **Capital Improvement Charge (CIC) Reserve:** The purpose of this reserve is to provide funding for water distribution and treatment facilities required to provide water service to new development within the District's service area. It may also be used as a "buy in" fee for past costs incurred by the District to expand water distribution and treatment facilities.

   Interest earned in this fund remains in this reserve fund.

   - Source of reserve funding: Impact fees from developers and interest earnings
   - Use of reserves: Can be drawn down to fund past and future infrastructure costs
   - Recommendation: Continue to keep these reserves restricted, as legally required, and use to fund future improvements to the District's capacity

10. **Water Storage Facilities Reserve:** This reserve is used to provide for the water storage requirements mandated by the Districts Rules and Regulations to provide funding to obtain additional water storage capacity in order to meet operating, emergency and reserve water storage and fire flow requirements resulting from new development within the Districts area.

    Interest earned remains in this reserve fund.

    - Source of reserve funding: Impact fees from developers and interest earnings
    - Use of reserves: Costs of project or acquisition that obtain additional storage capacity. This can include costs to finance, plan, design acquire property, construct, reconstruct, or rehabilitate a new facility.
    - Recommendation: Continue to keep these reserves restricted, as legally required, and use to fund future improvements to the District's water storage facilities

11. **Sanitation Capital Improvement Reserve:** This reserve is used to fund capital improvements in the District's sanitation system. Developers pay this fee as a "buy in" to the system already developed by the District to adequately serve expansion, as well as additions to the system in the future. This reserve will increase as developer fees are collected, and decrease as expenditures incur to improve the sanitation and wastewater system.

    Interest earned remains in this reserve fund.

    - Source of reserve funding: Impact fees from developers and interest earnings
    - Use of reserves: Costs can disbursed against past infrastructure costs or future capital improvements that increase capacity
    - Recommendation: Continue to keep these reserves restricted, as legally required, and use to fund future improvements to the District's sanitation and wastewater capital improvements

12. **Baker Water Treatment Reserve:** This reserve is used to fund the Baker Water Treatment Plant. Five agencies have agreements with Irvine Ranch Water District, the lead agency, to plan, design, and construct the Baker Water Treatment Plant (WTP). The District capacity ownership of the Baker WTP is 4.598%. The District's capacity ownership in the Baker WTP is to provide reliability to its customers including access to Irvine Lake water as an emergency source of supply

    Interest earned remains in this reserve fund.

    - Source of reserve funding: Water Reliability and Emergency Storage (WRES) fees and interested earned

- Use of reserves: Planning, design, and construction costs for the Baker Water Treatment Plant

- Recommendation: Continue to keep these reserves restricted, as legally required, and use to fund the Baker Water Treatment Plant.

13. **Trabuco Creek Wells Reserve** This reserve is used to pay off a loan acquired through the California State Revolving Fund (SRF) for the planning, design, and construction of the Trabuco Creek Wells Facility that treats groundwater under the influence of surface water from the Rose Canyon and Lang Wells, as required by the California State Water Resources Control Board.

    Interest earned remains in this reserve fund.

    - Source of reserve funding: Water Reliability and Emergency Storage (WRES) fees and interest earned

    - Use of reserves: To pay interest and principal payments for SRF loan

    - Recommendation: Continue to keep these reserves restricted, as legally required, and use to pay the debt service on the SRF loan

14. **Reservoir/Distribution Improvements Reserve**: This reserve is used to fund the planning, design, and construction of a new 2 million gallon storage reservoir that will provide for additional operational and emergency water storage, providing further reliability and redundancy and for construction of a reservoir inter-tie transmission main and improvements to infrastructure in the Dove and Trabuco Highlands Community to improve the reliability and redundancy of the District's water transmission and distribution system.

    Interest earned remains in this reserve fund.

    - Source of reserve funding: Water Reliability and Emergency Storage (WRES) fees and interest earned

    - Use of reserves: Future new 2 million gallon reservoir and improvements to existing transmission and distribution system

    - Recommendation: Continue to keep these reserves restricted, as legally required, and use to fund future new 2 million gallon reservoir and improvements to the District's water transmission and distribution system

15. **RD#5 Reserve:** This reserve is used to fund the repair and replacement of infrastructure related to Reassessment District No. 5, El Toro Road sewer facilities, including the trunk sewer extension along El Toro Road and Santiago Canyon Road, and capacity ownership of Phase II of Santa Margarita Water District's Chiquita System.

- Source of reserve funding: Property tax assessments assigned to accounts in Community District Number Five (now inactive, but there is a balance remaining in the reserve from past assessments)

- Use of reserves: Constructions of sewer treatment capacity and facilities and reclaimed water facilities in the RD#5 zone

- Recommendation: Continue to keep these reserves restricted, as legally required, and use to fund future improvements to the District's system, which benefits the RD#5 zone directly or indirectly

ATTACHMENT "C"

DESIGNATION OF OPERATING RESERVE FUND LEVELS

Reserves as of February 28, 2015

			Est.	Original Amount	Investment Restrictions	Investment Source	As of 2/28/15	Recommended Amount	
	COMMITTED OPERATING RESERVES								
	1	Checking Account	-		Wells Fargo		1,261,400	-	
	2	Working Capital	1999	565,225	LAIF		630,702	1,265,934	a
	3	Capital Improvements (Charges)	?	889,223		Dev. Impact Fees	158,552	158,552	
	4	Interim Sewage Deposit	2010		LAIF	Developer	101,010	101,010	
	5	Water Rate Stabilization	1999	252,919	LAIF		479,560	393,820	b
	6	Sewer Rate Stabilization	1999	-	LAIF		181,159	179,480	c
	7	Special Designations/Internal Financing	?				3,124,848	3,124,848	
	BOARD COMMITTED CAPITAL RESERVES								
	8	District Capital Projects	?				434,907	200,000	d
	9	Equipment Maintenance Capital					559,023	900,000	d
	10	Unrestricted-Investment at Cost			LAIF		(1,071,901)	-	e
	RESTRICTED RESERVES								
	11	Water Storage (Facilities)	?	383,434		Dev. Impact Fees	685,174	685,174	
	12	Sanitation System Capital Improvements	2000	210,592	LAIF	Dev. Impact Fees	271,190	271,190	
	13	Baker WTP	2010		None	WRES	-	-	
	14	Trabuco Creek Wells	2010		SRF loan	WRES	844,357	844,357	
	15	Reservoir/Distribution Improvements	2010		None	WRES	1,055,842	1,055,842	
	16	RD#5	2011	69,732	GF	RD Bond Surplus	70,593	70,593	
X	17	Refundable Deposits	?	4,165			9,150	-	
X	18	Developer Deposits	?	39,335			53,318	-	
X	19	Emergency Capital Repair	2001	1,255,343	LAIF		-	-	
X	20	Debt Service	?	2,840,608	?		-	-	
X	21	Construction	1999	2,051,342	LAIF			-	
X	22	Emergency Repairs	1999	210,000	LAIF		-	-	
X	23	Periodic Replacements	1999	1,631,575	LAIF		-	-	
X	24	Investment in Fixed Assets	1999	1,632,962	LAIF		-	-	
X	25	Unreserved Retained Earnings	?	926,043	LAIF		-	-	
X	26	Deferred Compensation	?	122,501			-	-	
X-Recommendation to dissolve						Total	$ 8,848,884	$ 9,250,800	
							Shortage	$ 401,916	f

a. 60 days of Budgeted Operating Expenses
$7,701,100 FY 14/15 budgeted operating expenses X 60/365 = $1,265,934

b. 10% of Budgeted Operating Revenue
FY 14/15 Water Operating Revenues, less
Standy By and Other Operating Revenues $ 3,938,200

c. 20% of Budgeted Operating Expenses for FY 14/15
Sanitation Operating Expenses $ 897,400

d. Based on historical average

e. This amount will fluctuate as working capital changes throughout the year

f. This shortage will be funded with Series B Bond Reserve proceeds as needed

12.3 Population Methodology (Prepared by District Staff, May 29 2015)

MEMORANDUM

TRABUCO CANYON WATER DISTRICT

TO: Hector Ruiz P.E., General Manager

FROM: Lorrie Lausten P.E., Engineer

DATE: May 29, 2015

SUBJECT: Trabuco Canyon Water District's Population Methodology

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A revision has been made to Trabuco Canyon Water District's (District) population estimates in accordance with the "Simplified California Urban Water Service Area Population Methodology" (Method) that was developed in October 2014 by the Department of Water Resources (DWR) for the purpose of implementing the State Water Resources Control Board (State) Emergency Drought Regulation. The original population estimate submitted in June 2014 of 14,907, as reported in District's 2010 Urban Water Management Plan, utilized outdated population information from the 2000 U.S. Census and the 2001-2010 California State Department of Finance (CDF) annual estimates. In working with the Municipal Water District of Orange County (MWDOC), the District updated this estimate in September 2014 based on a projected population of 12,700. However, this value was a projection and was not based on billing records and customer accounts. The value was based on the estimates that were prepared by the Center for Demographic Research at CSU Fullerton (CDR) from the 2010 U.S. Census data. In October 2014, the State issued a methodology for calculating population. I reviewed the State's method and I am recommending a revision and correction of the District's population in accordance with the State's methodology. I believe that following the State's Method would be more appropriate in representing the District's population by utilizing the current residential connections and it would provide a consistent comparison with other agencies in the state. To this end, the District's total population served was revised to 13,175.

TCWD Population and Connection Data for 2000-2014

Calendar Year	Population	Connections		Connections / Households [2]	Persons / Household (Approximate)	Notes
		SF	MF [1]			
2000	10900	3743	184	3927	2.8	2000 UWMP Data-Population estimated by the Foothill Specific Plan
2005	13665	3771	184	3955	3.5	2005 UWMP Data-Population estimated by: 2000 Census, Sub-Ara Master Plans, Foothill Specific Plan, County of Orange Tenative Tract maps, Developers.
2010	14907	3773	184	3957	3.8	2010 UWMP Data-Population est. by MWDOC, using Center of Demographic Research. This is based on the cal State Dept of Finanace population data which was derived from the 2000 Census-2010 was not available.
2010	13168	3773	184	3957	3.3	Population Data-Center for Demographic Research at CSUF
2014	13175	3775	184	3959	3.3	[3] **2011-2015 Population Methodology:** Since TCWD's service area does not match a municipal area, population shall be estimated by "Persons per Residential Connection" method. **"PERSONS PER RESIDENTIAL CONNECTION" POPULATION METHOD:** ***STEP 1:*** Use the 2010 Census data for population **STEP 2**: 1)Using water billing records, determine the # of residential customers served in 2010. 2)Divide the 2010 population by the 2010 residential connections. 3)this will give you the persons/residential connection for 2010 census year. **STEP 3:** Estimate the population for the non-census years. 1) Calculate the # of residential connections for the non-census years. 2) multiply the number of residential connections by the persons per connection for the 2010 census data. 3) The result is the estimated population for the non-census years

(1) Multi-Family is 31 accounts that serve 184 dwelling units
(2) Connection data from TCWD FY Billing Data
(3) Persons per Residential Connection are per October 2014 State Water Resources Control Board's "Simplified California Urban Water Service Area Population Methodology"

12.4 CAPITAL IMPROVEMENT PLAN

Average CIP Fund	Type	CIP Descriptions		FYE 2016	FYE 2017	FYE 2018	FYE 2019	FYE 2020	FYE 2021	FYE 2022	FYE 2023	FYE 2024	FYE 2025
Administration	Building	Network Server Upgrade	**R**						**$ 60,000**				
Administration	Improvements	Telephone System	R		$ 10,000								
Administration	Improvements	Xerox Copier	R		$ 10,000								
Administration	Improvements	Electronic Attendance Manager -Stanley Security	R	$ 8,000									
Administration	Building	Lobby Improvements/Security Upgrades	N		$ 6,000								
Administration	Improvements	Local Weather Station- TCWD Website Access	N		**$ 20,000**								
Administration	Vehicles	Pool Vehicle - SUV	R			$ 35,000							
Administration	Meter Reading/Billing	Utility Billing System	R		$ 125,000								
Administration	Meter Reading/Billing	AMR Meters	R		$ 25,000	$ 25,000	$ 25,000	$ 25,000					
Administration	Telemetry	Water and Wastwater SCADA System	R		$ 200,000	$ 500,000							
Water	Vehicles	Utility Service Truck	R	$ 35,000									
Water	Buildings	Perimeter Security Fence	N	$ 15,000									
Water	Treatment Facilities	Backwash Recycling- Phase 1	N	$ 30,000									
Water	Baker WTP		R	$ 1,900,000									
Water	Water Storage	Cooks Corner Reservoir	R	$ 85,000									
Water	Water Storage	Harris Grade No. 2 Reservoir	G						$ 1,000,000				
Water	Pumping	Electrical (VFDs) & Controls/Telemetry	G		$ 150,000								
Water	Pumping	Booster Pump Station (3 new 2 cfs pumps)	G		$ 150,000								
Water	Pumping	Surge Tank (Hydropnuematic)	G			$ 45,000							
Water	Pumping	Fire Pump Upgrades w/Future Development	G							$ 100,000			
Water	Pipelines	Serrano Creek Crossing	R	$ 2,000,000									
Water	Pipelines	Mountain View Drive (300ft+FH+12 Services)	R	$ 25,000									
WW	Building	Access/Service Road Desilting	R	$ 50,000									
WW	Primary Treatment	Grit Chamber	G		$ 200,000								
WW	Secondary Treatment	Air Diffuser Replacement	R	$ 10,000									
WW	Secondary Treatment	SBR Aeration System - Blowers, Aerators, Airlines	G		$ 800,000								
WW	Secondary Treatment	SBR Aeration System - Dissolved Oxygen Control	G		$ 100,000								
WW	Solids Handling	Aerobic Digester Sludge/Decant PS	R	$ 100,000									
WW	Sewage Treatment Fac	CIP Projects by SMWD	R	$ 30,000									
WW	Sewage Pumping	CIP Projects by SMWD	R	$ 350,000									
WW	Sewage Pumping	Wet Well (New Development)	G	$ 150,000									
RW	Pipelines	RW Conversions (TY, Robinson Ranch)	N	$ 50,000									
RW	Pipelines	RW Hydrant Connections (Construction Water)	N	$ 15,000									
Administration	Vehicles	Chlorine Delivery Truck	R	$ 40,000									
Water		Routine Annual CIP (Average)	R		$ 800,000	$ 800,000	$ 800,000	$ 800,000	$ 800,000	$ 800,000	$ 800,000	$ 800,000	$ 800,000
WW		Routine Annual CIP (Average)	R		$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000	$ 200,000
RW		Routine Annual CIP (Average)	R		$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000	$ 150,000
TOTAL (Uninflated)				**$ 4,893,000**	**$ 2,946,000**	**$ 1,755,000**	**$ 1,175,000**	**$ 1,175,000**	**$ 2,210,000**	**$ 1,250,000**	**$ 1,150,000**	**$ 1,150,000**	**$ 1,150,000**

12.5 Water Cost of Service Component Allocations

WATER, RW & WW RATE MODEL FYE 2016

	Peaking Factors	Base Fixed	Max Day	Max Hour		Sources:						Fire
Average Demand	1.00	100.0%										Storage
Max Day Demand	1.95	51.3%	48.7%			Page 2-19 of Master Plan 1999 prepared by Montgomery Watson						
Max Hour Demand	4.82	20.8%	19.7%	59.5%		Page 2-19 of Master Plan 1999 prepared by Montgomery Watson						Distribution
Treatment Plant Capacity	3.60 MGD											

Functions	Water Supply	Base Fixed	Max Day	Max Hour	Billing & CS	Meters &	Conservation	Rev Offsets	Elevation	General	Fire	Total
Supply	100.0%									0.0%		**100.0%**
Average Demand		100.0%										**100.0%**
Peak Demand		20.8%	19.7%	59.5%								**100.0%**
Storage		45.0%	42.7%	0.0%						0.0%	12.3%	**100.0%**
Pumping		20.8%	19.7%	59.5%						0.0%		**100.0%**
Treatment		51.3%	48.7%	0.0%						0.0%		**100.0%**
T&D		16.2%	15.4%	46.4%						0.0%	22.0%	**100.0%**
Fire Protection										0.0%	100.0%	**100.0%**
Meters Service						100.0%				0.0%		**100.0%**
G&A					5.0%					95.0%		**100.0%**
Billing & CS					100.0%					0.0%		**100.0%**
Conservation							100.0%			0.0%		**100.0%**
Revenue Offset								100.0%		0.0%		**100.0%**
Elevation Pumping		19.2%	18.3%	55.1%					7.4%	0.0%		**100.0%**
Capital Contribution										100.0%		**100.0%**
Capital Costs	0.0%	21.3%	19.1%	36.9%	0.3%	1.3%	0.0%	0.0%	0.0%	5.0%	16.1%	**100.0%**
Capital Costs w/o Supply		21.3%	19.1%	36.9%	0.3%	1.3%	0.0%	0.0%	0.0%	5.0%	16.1%	**100.0%**
O&M Costs	36.4%	5.5%	5.3%	4.1%	3.3%	0.0%	2.0%	0.0%	0.4%	42.3%	0.6%	**100.0%**
O&M w/o Supply		8.7%	8.3%	6.5%	5.3%	0.0%	3.1%	0.0%	0.6%	66.5%	1.0%	**100.0%**

Fire Storage	1,170,000	12%				
Total Storage	9,500,000				Total Hydrants	541
Average Day Demand	4 cfs	Max Month Demand	5 cfs		Private Hydrants	0 0%
System Capacity	10 cfs	Max Day Demand	8 cfs			

12.6 RW COST ALLOCATION FACTORS

WATER, RW & WW RATE MODEL FYE 2016

	Peaking	Base Fixed	Max Day	Max Hour	Sources:
Average Demand	1.00	100.0%			
Max Day Demand	2.20	45.5%	54.5%		Page 2-19 of Master Plan 1999 prepared by Montgomery Watson
Max Hour Demand	5.43	18.4%	22.1%	59.5%	Page 2-19 of Master Plan 1999 prepared by Montgomery Watson

Functions	Supply	Base Fixed	Max Day	Max Hour	Billing & CS	Meters & Services	Conservation	Rev Offsets	Elevation	General	Fire Protection	Total
Supply	100.0%									0.0%		**100.0%**
Storage		45.5%	54.5%							0.0%		**100.0%**
Pumping		18.4%	22.1%	59.5%						0.0%		**100.0%**
Treatment		45.5%	54.5%							0.0%		**100.0%**
T&D		18.4%	22.1%	59.5%						0.0%		**100.0%**
Fire Protection										0.0%	100.0%	**100.0%**
Meters Service						100.0%				0.0%		**100.0%**
G&A										100.0%		**100.0%**
Billing & CS					100.0%					0.0%		**100.0%**
Conservation							100.0%			0.0%		**100.0%**
Revenue Offset								100.0%		0.0%		**100.0%**
Elevation Pumping									100.0%	0.0%		**100.0%**
Capital Costs	25.4%	12.4%	14.9%	29.2%	0.0%	0.0%	0.0%	0.0%	0.0%	18.1%	0.0%	**100.0%**
O&M Costs	55.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	44.6%	0.0%	**100.0%**

12.7 Wastewater Allocation to Cost Components

Provided in the text of the document – therefore not needed