SCOTTS VALLEY WATER DISTRICT

Water and Recycled Water Rate Study

December 12, 2016

RAFTELIS
FINANCIAL CONSULTANTS, INC.

SCOTTS VALLEY WATER DISTRICT

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October 13, 2016

Ms. Piret Harmon
Scotts Valley Water District
2 Civic Center Drive
Scotts Valley, CA 95066

Subject: 2016 Water and Recycled Water Rates Study

Dear Ms. Harmon,

Raftelis Financial Consultants, Inc. (RFC) is pleased to provide the Water and Recycled Water Rate Study Report (Report) for the Scotts Valley Water District (District or Scotts Valley).

The major objectives of the study include the following:

1. Calculate capacity fees for new potable water and recycled water development in the sevice area.
2. Develop financial plans for the Potable Water and Recycled Water Funds to ensure financial sufficiency, ability to fund operation and maintenance (O&M) needs and secure sufficient funding for capital replacement and improvement.
3. Conduct a cost-of-service analysis for potable water and recycled water, and proportionately allocate the costs of providing service in accordance with Proposition 218.
4. Revise and propose fair and equitable potable and recycled water rates for the different customer types and perform customer impact analysis.
5. Analyze the implications of drought on water demand and propose drought rates to recover the potential revenue losses.

This Report summarizes the key findings and recommendations related to the development of the financial plans for the Water and Recycled Water Funds and the development of the associated water, drought, and recycled water rates in addition to the capacity fees.

It has been a pleasure working with you, and we thank you and District staff for the support provided during the course of this study.

Sincerely,

RAFTELIS FINANCIAL CONSULTANTS, INC.



Sanjay Gaur
Vice President

Khanh Phanh
Senior Consultant

Gabriella Stoyanova-Rozenova
Consultant

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

GLOSSARY

Terms	Descriptions
AF	Acre foot / Acre feet
AWWA	American Water Works Association
CII	Commercial / Industrial / Institutional
CIP	Capital Improvement Projects
COS	Cost of Service
CPI	Consumer Price Index/Indices
CY	Calendar Year
District	Scotts Valley Water District
EMU	Equivalent Meter Unit
ENR CCI	Engineering News-Record Construction Cost Indices
FY	Fiscal Year (July 1 – June 30)
GPCD	Gallons per capita per day
kGal	Kilogallons or thousand gallons
M1 Manual	"Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices M1", 6th edition published by AWWA
MD	Max Day Peaking Factor
MFR	Multi-Family Residential
MH	Max Hour Peaking Factor
O&M	Operations and Maintenance
PAYGO	Pay-As-You-Go
R&R	Repair and Replacement
RFC	Raftelis Financial Consultants, Inc.
RW	Recycled Water
SFR	Single Family Residential
YOY	Year over Year

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1. INTRODUCTION

1.1 STUDY BACKGROUND

In early 2016, Scotts Valley Water District (District) engaged Raftelis Financial Consultants (RFC) to conduct a comprehensive water and recycled water rate study (Study) including 5-year financial plan, capacity fees, cost of service analysis and rate design. The primary goal of the Study was assessment of the financial sustainability of the District and development of equitable rates compliant with Proposition 218. The period covered by the Study is fiscal year (FY) 2016 through FY 2021.

Scotts Valley Water District was established in 1961 to provide water for household consumption and commercial, municipal and firefighting purposes. The District serves most of the City of Scotts Valley and some unincorporated areas north of the City. It is governed by a publicly elected five-member Board of Directors. Directors are elected for a period of four-years and serve overlapping terms.

The District provides potable and recycled water to its customers, while the sewer service is provided by the City of Scotts Valley. The District covers an area of about six square miles, with a population of 10,500. Customers are predominantly single family residences (SFR) but there are also multifamily residences (MFR), industrial and business customers, as well as institutions such as schools and medical facilities. In addition, there are landscape customers who use either potable or recycled water for irrigation. The District provides fire protection through public and private fire connections.

The only source of potable water for the District is the groundwater in the Santa Margarita Groundwater Basin. The District shares the basin with neighboring San Lorenzo Valley Water District, Lompico Water District, and Mount Hermon Association. The recharge of the basin depends only on rainfall and currently there are no other options such as in-lieu recharge or injection of water.

From the early 1980s, population growth and increased pumping, along with the urbanization of the region and droughts caused a significant drop in the groundwater levels, especially in Lompico – one of the largest aquifers of the Santa Margarita Groundwater Basin. The measures taken since the beginning of this century were focused on water conservation, active water management and production of recycled water in order to stop the overdraft of the water aquifers. Those measures helped to stabilize the Lompico aquifer level but the recharge of the depleted aquifer depends solely on natural groundwater replenishment.

Cooperation between the District and the City of Scotts Valley resulted in the development of a recycled water system and, since 2002, recycled water has been provided as an offset of the potable water demand. Recycled water is essentially wastewater generated within the District service area, collected and treated in the Scotts Valley Water Reclamation Facility (WRF), and distributed by the District. A portion of the wastewater is treated to the standards of tertiary disinfected recycled water, suitable for

unrestricted non-potable use, and is sold to the customers. The remainder is disinfected and discharged into the ocean.

Demand for recycled water depends on the type of usage and has a very strong seasonality, with a peak in the summer and very low levels in winter. To improve the utilization of the available capacity throughout the year, a groundwater recharge project (GWR) has been developed to replenish the groundwater basin through injection of treated recycled water in the aquifer. The GWR project will ensure a reliable and drought-poof water replenishment source, will provide water storage which could be tapped during drought years, would have a positive effect on the environment, and would help to decrease some of the operating costs associated with water distribution, such as pumping.

1.2 OBJECTIVES OF THE STUDY

Recent drought and the statewide reduction in water consumption presented a serious challenge to the District with respect to ensuring sufficient revenues to operate, maintain and reinvest in the water system. Furthermore, the water shortage led to adoption of water conservation practices and use of more efficient appliances which constrain the water consumption rebound after the end of the drought spell. The structure of current water rates and their levels were adopted in 2012 and therefore, they do not reflect the circumstances under which the utility currently operates. The District engaged RFC to conduct a comprehensive Water and Recycled Water Study to account for the new factors affecting the utility finances. The major objectives of the Study include the following:

1. Calculate capacity fees for new potable water and recycled water development in the service area.
2. Develop financial plans for the Potable Water and Recycled Water Funds to ensure financial sufficiency, ability to fund operation and maintenance (O&M) needs and secure sufficient funding for capital replacement and improvement.
3. Conduct a cost-of-service analysis for potable water and recycled water, and proportionately allocate the costs of providing service in accordance with Proposition 218.
4. Revise and propose fair and equitable potable and recycled water rates for the different customer types and perform customer impact analysis.
5. Analyze the implications of drought on water demand and propose drought rates to recover the potential revenue losses.

1.3 LEGAL REQUIREMENTS AND RATE SETTING METHODOLOGY

1.3.1 *California Constitution - Article XIII D, Section 6 (Proposition 218)*

Proposition 218, reflected in the California Constitution as Article XIII D, was enacted in 1996 to ensure that rates and fees are reasonable and proportional to the cost of providing service. The principal requirements for fairness of the fees, as they relate to public water service are as follows:

1. A property-related charge (such as water and recycled water rates) imposed by a public agency on a parcel shall not exceed the costs required to provide the property related service.
2. Revenues derived by the charge shall not be used for any purpose other than that for which the charge was imposed.
3. The amount of the charge imposed upon any parcel shall not exceed the proportional cost of service attributable to the parcel.
4. No charge may be imposed for a service unless that service is actually used or immediately available to the owner of property.
5. A written notice of the proposed charge shall be mailed to the record owner of each parcel at least 45 days prior to the public hearing, when the agency considers all written protests against the charge.

As stated in AWWA's *Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices M1*, 6th edition *(M1 Manual)*, "water rates and charges should be recovered from classes of customers in proportion to the cost of serving those customers." Prop 218 requires that water rates cannot be "arbitrary and capricious," meaning that the rate-setting methodology must be sound and that there must be a nexus between the costs and the rates charged. RFC follows industry standard rate setting methodologies set forth by the *M1 Manual* to ensure this study meets Proposition 218 requirements and develops rates that do not exceed the proportionate cost of providing water services.

1.3.2 *California Constitution - Article X, Section 2*

Article X, Section 2 of the California Constitution (established in 1976) states the following:
"It is hereby declared that because of the conditions prevailing in this State the general welfare requires that the water resources of the State be put to beneficial use to the fullest extent of which they are capable, and that the waste or unreasonable use or unreasonable method of use of water be prevented, and that the conservation of such waters is to be exercised with a view to the reasonable and beneficial use thereof in the interest of the people and for the public welfare."

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

In addition, Section 106 of the Water Code declares that the highest priority use of water is for domestic purposes, with irrigation secondary. To meet the objectives of Article X, Section 2, Water Code Section 375 et seq., a water purveyor may utilize its water rate design to incentivize the efficient use of water. The District wishes to establish tiered rates based on the availability of water from each source to incentivize customers to use water as wisely as possible, while based on the proportionate costs incurred to provide water to customer classes to achieve compliance with Proposition 218.

Tiered Rates – "Inclining" tier rate structures (synonymous with "tiered" rates) when properly designed and differentiated by customer class, and allow a water utility to send consistent price signals to customers. Tiered rates meet the requirements of Proposition 218 as long as the tiered rates reasonably reflect the proportionate cost of providing service to users in each *tier*.

1.3.3 *Cost-Based Rate-Setting Methodology*

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

Calculate Revenue Requirement

The rate-making process starts by determining the test year (rate setting year) revenue requirement, which for this study is fiscal year ending (FY) 2016. The revenue requirement should sufficiently fund the utility's O&M, debt service, capital expenses, and reserves.

Cost Of Service Analysis (COS)

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

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

A COS analysis considers both the average quantity of water consumed (base costs) and the peak rate at which it is consumed (peaking or capacity costs as identified by maximum day and maximum hour

[1] *Collectively maximum day and maximum hour costs are known as peaking costs or capacity costs.*

demands).[2] Peaking costs are costs that are incurred during peak times of consumption. There are additional costs associated with designing, constructing, and operating and maintaining facilities to meet peak demands. These peak demand costs need to be allocated to those imposing such costs on the utility. In other words, not all customer classes share the same responsibility for peaking related costs.

Rate Design and Calculations

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

Rate Adoption

Rate adoption is the last step of the rate-making process to comply with Proposition 218. RFC documents the rate study results in this study report to serve as the District's administrative record and a public education tool about the proposed changes, the rationale and justifications behind the changes, and their anticipated financial impacts in lay terms.

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

2. GENERAL ASSUMPTIONS

2.1 INFLATION

The Study period is for Fiscal Years (FY) 2017 to FY 2021, with the Fiscal Year beginning July 1 of the previous calendar year. Various types of assumptions and inputs were incorporated into the Study based on discussions with and/or direction from District staff. These assumptions include account and usage growth rates for different customer classes, inflation factors, and other assumptions. The District's inflationary and other escalatory assumptions are presented in Table 2-1, below.

The salary and benefits escalation factors are based on negotiations between the District and its employees concluded in June2016. Pursuant to the Memorandum of Understanding (MOU), certain classifications that were significantly under market were subject to one-time compensation increases of 9-10%. All non-exempt classifications are subject wage increase equal to the Consumer Price Index for all urban consumers (CPI-U) average percent change in addition to the 5% step increases due to advancement within the salary range.

Table 2-1: Inflation and Other Escalation Factor Assumptions

INFLATION FACTORS	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
CPI	1%	1%	1%	1%	1%
General	3%	3%	3%	3%	3%
Salaries	8%	6%	6%	5%	5%
Benefits	10%	8%	8%	8%	8%
Capital	2%	2%	2%	2%	2%
Electricity	5%	5%	5%	5%	5%
Chemicals	5%	5%	5%	5%	5%
Property Tax	2%	2%	2%	2%	2%
Interest on Reserves	0.5%	0.5%	0.5%	0.5%	0.5%

2.2 PROJECTED DEMAND AND GROWTH

Projecting water demand relies on two variables — the number of accounts and demand per account. In Fiscal Year (FY) 2015, the District served 10,500 customers and expects to add 2,100 more by FY 2040, resulting in 12,600 total customers at buildout according to Urban Water Management Plan 2015 (UWMP 2015). Since account growth projections within the study period (FY 2016-2017) are highly uncertain and may considerably overestimate the revenues from new connections, for the purpose of the financial plan, the District assumes no revenues collected for capacity fees from FY 2017 to FY 2021.

In response to the State's current drought conditions, many District customers have curtailed their potable water use. As drought conditions improve, the District anticipates an increase in water use as behaviors revert back to non-drought conditions. Overall, it is anticipated that water demand will climb

by 8.6 percent above FY 2016 sales in FY 2017, averaging 4 percent growth year over year (YOY) each year thereafter until FY 2021, when it will increase by only 0.2 percent. These annual projected demands for the utilities for each year, shown below in Table 2-2, are based on UWMP 2015 projections provided by District staff.

Recycled water use will see greater increases as current customers convert more potable water use to recycled water. Recycled water use increases were also projected by Staff based on the Urban Water Management Plan. The District does not project the addition of any new recycled water accounts during the Study period.

Table 2-2: Projected Annual Water and Recycled Water Demand in Acre Feet

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Potable Water (AF)	1,106 AF	1,201 AF	1,253 AF	1,304 AF	1,355 AF	1,358 AF
Potable Water (YOY)		8.6%	4.3%	4.1%	3.9%	0.2%
Recycled Water	160 AF	175 AF	189 AF	203 AF	218 AF	232 AF
Recycled Water (YOY)		9.4%	8.2%	7.6%	7.0%	6.6%

2.3 RESERVE POLICY ASSUMPTIONS

A reserve policy is a written document that establishes reserve goals/targets. It provides guidelines for sound financial management with an overall long-range perspective to maintain financial solvency and mitigate financial risks associated with revenue instability, volatile capital costs and emergencies. Adopting and adhering to a sustainable reserve policy enhances financial management transparency and helps achieve or maintain a certain credit rating for future debt issues. Reserves can offset unanticipated reductions in revenues, offset fluctuations in costs of providing services, and fiscal emergencies such as revenue shortfalls, asset failure, and natural disaster. Capital reserves set funds aside for replacement of capital assets as they age and for new capital projects.

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. However, reserves tend to fall into the following categories: operations & maintenance (O&M), rate stabilization, capital repair and replacement (R&R), and emergency.

The District provided FY 2016 budgets for its potable and recycled water services. The District currently use four funds in managing its services:

1. **Fund 01 (Water Fund):** Includes revenue and expenses related to potable water production and delivery;
2. **Fund 02 (Recycled Water Fund):** Includes revenues and expenses related to recycled water production and delivery
3. **Fund Capacity Fees (New Development Fees):** Revenues from capacity fees (proposed infrastructure fees) and expenses for CIP projects related to new development;

4. **Fund Impact Fees (Water Demand Offset Fee**s): Revenues from water demand offset fees and expenses for recycled water treatment plant debt service and funding of CIP projects

Table 2-3 below lists the fund beginning balances as of July 1, 2015, the beginning of FY 2016.

Table 2-3: Reserve Balances

Beginning Fund Balances	Source	7/1/2015
Fund 01: Potable Water		$5,129,875
Fund 02: Recycled Water		$121,520
Capacity Fees		$0
Impact Fees		$218,169
Total Unrestricted	***[1] + [2] + [3] + [4]***	**$5,469,565**

RFC's proposed target levels for FY 2016 are summarized below in Table 2-4 and described in detail in the following subsections.

Table 2-4: Target Reserve Balances for FY 2016

FY 2016	Reserve Targets	Whole District	Fund 01: Potable Water	Fund 02: Recycled Water	Fund Impact Fees
Operating Reserve	90 days of O&M expenses	$1,102,685	$994,120	$108,565	
Rate Stabilization Reserve	20% of commodity revenue	$561,385	$486,814	$74,571	
Capital Emergency Reserve	2.5% of assets value	$459,823	$308,755	$151,068	
Capital R&R Reserve	1yr depreciation	$883,616	$709,294	$174,322	
Debt Service Reserve	100% debt service	$629,094	$355,681	$0	$273,413
Total		**$3,636,602**	**$2,854,665**	**$508,525**	**$273,413**
Reserves as of Jul 1, 2015 Beginning FY 2016		$5,469,565	$5,129,875	$121,520	$218,169

2.3.1 *O&M Reserve*

The purpose of an O&M reserve is to provide working capital to support the operation, maintenance, and administration of the utility. From a risk management perspective, the O&M 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 perfectly predict the revenues and revenue requirements for each billing period, a reserve set aside to hedge the risk of monthly negative cash positions is prudent in financial planning. Another factor to consider when creating a cash flow reserve is the frequency of billing. A utility that bills once a month would require less minimum reserves than a utility that bills semi-annually.

RFC recommends that the District maintain 90 days cash (25 percent of annual operating budget) to ensure adequate working capital for operating expenses. The District bills bimonthly, thus 90 days are the minimum to provide sufficient working capital to account for when expenses occur and revenues are

collected. Additionally, this accounts for revenues varying seasonally while expenses remain relatively static.

The O&M expenses for Potable Water fund for FY 2016 are $3.976M, which translated into $994K of cash reserves for the Potable Water Fund.

Similarly, the Recycled Water Fund budgeted O&M expenses for FY 2016 are $434K, resulting in a necessary cash operating reserve of $109K.

2.3.2 *Capital R&R Reserve*

Capital R&R reserves are used to fund future obligations that are necessary for maintaining a reliable infrastructure. Because water and recycled water utilities are highly capital-intensive enterprises, it is important to accurately estimate long-term R&R costs and develop a reserve to fund the eventual replacement of the system and new capital projects.

RFC proposed that the District maintain a target level for the Capital R&R reserve equal to the annual depreciation expenses.

The Capital R&R reserve for Potable Water Fund for FY 2016 was equal to $709K.

The Capital R&R reserve for Recycled Water Fund was for FY 2016 totals $174K.

2.3.3 *Capital Emergency Reserve*

The purpose of an emergency fund is to allow the utility to provide uninterrupted service in light of a fiscal emergency, natural disaster, or facility failure. An emergency reserve decreases risk by recognizing the high capital cost of the utilities and setting aside adequate funds to restart the system after an event or replace an essential facility. Based on discussions with staff, the capital emergency reserve was set at 2.5 percent of the book net value of assets in the respective year.

The book net value of assets for the Potable Water Fund was estimated at $12.35M in FY 2016 or $309K for capital emergency reserve.

The book net value for assets for the Recycled Water Fund was estimated at $6.042M in FY 2016 yielding a capital emergency reserve of $151K.

2.3.4 *Rate Stabilization and Operating Emergency Reserve*

While it is not typical for utilities to have substantial rate increases in a short period of time, factors such as declining water sales and unexpected increase in short-term O&M expenses may result in large rate increases. In order to minimize rate shocks, a rate stabilization reserve could be set up in order 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.

RFC recommends that the District maintain 20 percent of water sales (commodity) revenues as a rate stabilization reserve.

The water sales revenues for FY 2016 for the Potable Water Fund are $2.434M results in to $487K of rate stabilization reserve for the Potable Water Fund.

The water sales revenues for FY 2016 for the Recycled Water Fund are $373K, which amounts to $75K of rates stabilization reserve for the Recycled Water Fund.

2.3.5 *Debt Service Reserve*

The purpose of the debt service reserves is to secure cash assets for full and timely payment of debt obligations in periods of reduced revenue. Reserves signal to creditors that the utility has a sound debt servicing capacity and add to the District's good reputation.

The Debt Service reserve is set to be equal to 100 percent of the annual debt service for the current year.

The debt service reserve for Potable Water Fund results in $356K and the debt service reserve for the Impact Fees Fund is $273K.

2.4 KEY INFORMATION

The study utilized the following key documents and figures:

1. FY 2015/16 operating budgets for Fund 01 and Fund 02 provided by the District staff in March, 2016;
2. 5-year project budget 2017-20121 received in April 2016 for projected capital projects (CIP);
3. Customer information database and individual bimonthly consumption for FY2015 received in March 2016 and subsequent updates in April 2016 regarding outside district customers and in June 2016 regarding recycled water meter sizes and fire connections;
4. Fund 01 and Fund 02 cash balance received in April 2016;
5. Debt service schedules received in February 2016;
6. Fixed assets for potable and recycled water, received in February 2016;

3. CAPACITY FEES

3.1 LEGAL AND ECONOMIC FRAMEWORK

For publicly owned water systems, most of the assets are typically paid for by the contributions of existing customers through rates, charges, and taxes. In service areas that incorporate new customers, the infrastructure developed by previous customers is generally extended towards the service of new customers. Existing customers' investment in the existing system allows newly connecting customers to take advantage of unused surplus capacity. To further economic equality among new and existing customers, in turn, new connectors will typically buy-in to the existing and pre-funded facilities based on the percentage of remaining available system capacity, effectively putting them on par with existing customers. In other words, the new users are buying into the existing system through a payment for the portion of facilities that has already been constructed in advance of new development.

3.1.1 *Economic Framework*

The basic economic philosophy behind capacity fees is that the costs of providing water service should be paid for by those that receive utility from the product. In order to effect fair distribution of the value of the system, the fee should reflect a reasonable estimate of the cost of providing capacity to new users, and not unduly burden existing users. Accordingly, many utilities make this philosophy one of their primary guiding principles when developing their capacity fee structure.

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

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

3.1.2 *Legal Framework*[3]

The District reserves broad authority over the pricing of water capacity fees. The most salient limitation on this authority is the requirement that recovery costs on new development bear a reasonable relationship to the needs and benefits brought about by the development. Courts have long used a standard of reasonableness to evaluate the legality of capacity fees. The basic statutory standards governing water capacity fees are embodied by Government Code Sections 66013, 66016, 66022 and 66023. Government Code Section 66013, in particular, contains requirements specific to pricing water capacity fees:

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

Section 66013 also includes the following general requirements:

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

3.2 APPROACH

There are two primary steps in calculating capacity fees: (1) determining the cost of capital related to new service connections, and (2) allocating those costs equitably to various types of connections. There are several available methodologies for calculating capacity fees. The various approaches have evolved largely around the basis of changing public policy, legal requirements, and the unique and special circumstances of every local agency. However, there are four general approaches that are widely accepted and appropriate for water capacity fees. They are the "system buy-in", "capacity buy-in", "incremental-cost" and "hybrid" approaches.

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

3.2.1 *Asset Valuation Approach*

As stated earlier, the first step is to determine the asset value of the capital improvements required to furnish services to new users. However, under the equity buy-in approach, the facilities have already been constructed, therefore the goal is to determine the value of the existing system/facilities. To estimate the asset value of the existing facilities required to furnish services to new users, various methods are employed. The principal methods commonly used to value a utility's existing assets are original cost and replacement cost.

1. **Original Cost (OC).** The principal advantages of the original cost method lie in its relative simplicity and stability, since the recorded costs of tangible property are held constant. The major criticism levied against original cost valuation pertains to the disregard of changes in the value of money, which are attributable to inflation and other factors. As evidenced by history, prices tend to increase rather than remain constant. Because the value of money varies inversely with changes in price, monetary values in most recent years have exhibited a definite decline; a fact not recognized by the original cost approach. This situation causes further problems when it is realized that most utility systems are developed over time on a piecemeal basis as demanded by service area growth. Consequently, each additional asset was paid for with dollars of different purchasing power. When these outlays are added together to obtain a plant value the results can be misleading.

2. **Replacement Cost (RC).** Changes in the value of the dollar over time, at least as considered by the impact of inflation, can be recognized by replacement cost asset valuation. The replacement cost represents the cost of duplicating the existing utility facilities (or duplicating its function) at current prices. Unlike the original cost approach, the replacement cost method recognizes price level changes that may have occurred since plant construction. The most accurate replacement cost valuation would involve a physical inventory and appraisal of plant components in terms of their replacement costs at the time of valuation. However, with original cost records available, a reasonable approximation of replacement cost plant value can most easily be ascertained by trending historical original costs. This approach employs the use of cost indices to express actual capital costs experienced by the utility in terms of current dollars. An obvious advantage of the replacement cost approach is that it gives consideration to changes in the value of money over time.

3. **Original Cost Less Depreciation (OCLD) or Replacement Cost Less Depreciation (RCLD).** Considerations of the current value of utility facilities may also be materially affected by the effects of age and depreciation. Depreciation takes into account the anticipated losses in plant value caused by wear and tear, decay, inadequacy, and obsolescence. To provide appropriate recognition of the effects of depreciation on existing utility facilities, both the original cost and reproduction cost valuation measures can also be expressed on an OCLD and RCLD basis. These measures are identical to the aforementioned valuation methods, with the exception that accumulated depreciation is computed for each asset account based upon its age or condition, and deducted from the respective total original cost or replacement cost to determine the OCLD or RCLD measures of plant value.

The District directed RFC to use the RC method to determine the asset value of the water system. Using the RC method will evaluate the capacity fees based on the replacement cost of the assets in today's dollars.

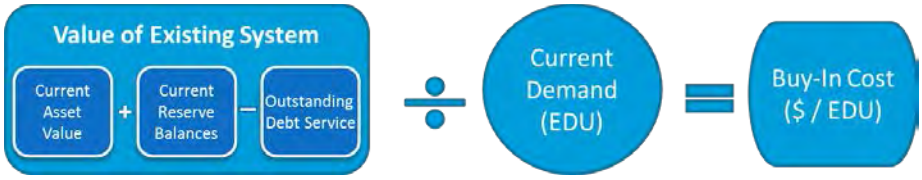
3.2.2 *Capacity Fee Calculation Approach*

3.2.2.1 Equity Buy-In Approach

The equity buy-in approach rests on the premise that new customers are entitled to service at the same water rates as existing customers. However, existing customers have already developed the facilities that will serve new customers, including the costs associated with financing those services. Under this approach, new customers pay only an amount equal to the net investment already made by existing users. This net equity investment figure is then divided by the current demand of the system – number of customers (or equivalent dwelling units) – to determine the buy-in cost per equivalent dwelling unit (EDU).

For instance, if an existing system has 100 equivalent units of average usage and the new connector uses an equivalent unit, then the new customer would pay 1/100th of the total value of the existing system. By contributing this capacity fee, the new connector has bought into the existing system. The user has effectively acquired a financial position on par with existing customers and will face future capital challenges on equal financial footing with those customers. This approach is suited for agencies that have capacity in their system and are essentially close to full build-out. Figure 3-1 shows the framework to calculate the system buy-in capacity fees.

Figure 3-1: Formula for System Buy-In Capacity Fees



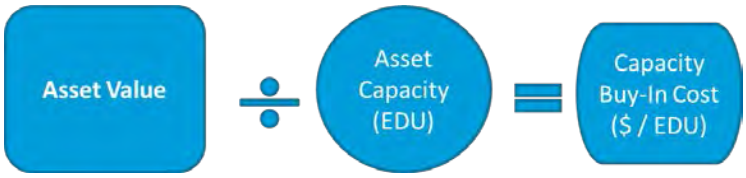
Under this approach, the value of the system is increased by the balance of the reserves. Reserves are included because they represent the health of the utility and more specifically add value to the system as they may be used to maintain the system at the current level of service. Conversely, a utility with no reserves or a negative fund balance would reduce the value of the system as a whole since there is no assurance that the current level of service can be maintained.

Debt funded through existing customer rates (i.e. non-AFC debt) is also accounted for under the equity buy-in approach as it is an obligation that is secured by the value of the system. When debt is issued to finance capital improvements, the obligation is typically paid over time by the existing customers through rates. To avoid double-charging of these debts, the debt obligation is subtracted to determine the net value of the existing system.

3.2.2.2 Capacity Buy-In Approach

The capacity buy-in approach (Figure 3-2) is based on the same premise as that for the equity buy-in approach – that new customers are entitled to service at the same water rates as existing customers. The difference between the two approaches is that for the capacity buy-in approach, for each major asset, the value is divided by its capacity. This approach has two major challenges. First, to determine the capacity of each major asset is problematic, as the system is designed for peak use and customer behavior fluctuates based on economic and weather conditions. Second, it does not address the financial equity that the current user has contributed into reserves. For instance, all else equal, a larger operating reserve balance would be a positive benefit for a new user, since it would produce lower rates in the future. If this were not taken into account, current users would be subsidizing future user rates.

Figure 3-2: Formula for Capacity Buy-In Capacity Fees



3.2.2.3 Incremental Cost Approach

The incremental method (Figure 3-3) is based on the premise that new development (new users) should pay for the additional capacity and expansions necessary to serve the new development. This method is typically used where there is little or no capacity available to accommodate growth and expansion is needed to service the new development. Under the incremental method, growth-related capital improvements are allocated to new development based on their estimated usage or capacity requirements, irrespective of the value of past investments made by existing customers.

For instance, if it costs X dollars ($X) to provide 100 additional EDUs of capacity for average usage and a new connector uses one of those equivalent units, then the new user would pay $X/100 to connect to the system. In other words, new customers pay the incremental cost of capacity. As with the equity buy-in approach, new connectors will effectively acquire a financial position that is on par with existing customers. Use of this method is generally considered to be most appropriate when a significant portion of the capacity required to serve new customers must be provided by the construction of new facilities.

Figure 3-3: Formula for Incremental Cost Capacity Fees

3.2.2.4 *Hybrid Approach*

The hybrid approach (Figure 3-4) is typically used where some capacity is available to serve new growth but additional expansion is still necessary to accommodate new development. Under the hybrid approach the capacity fee is based on the summation of the existing capacity and any necessary expansions. In utilizing this methodology, it is important that system capacity costs are not double-counted when combining costs of the existing system with future costs from the CIP. CIP costs associated with repair and replacement of the existing system should not be included in the calculation, unless specific existing facilities which will be replaced through the CIP can be isolated and removed from the existing asset inventory and cost basis. In this case, the rehabilitative costs of the CIP essentially replace the cost of the relevant existing assets in the existing cost basis. Capital improvements that expand system capacity to serve future customers may be included proportionally to the percentage of the cost specifically required for expansion of the system. Figure 3-4 illustrates the hybrid approach, adding the buy in cost to the incremental cost per equivalent dwelling unit.

Figure 3-4: Formula for Hybrid Capacity Fees

3.3 CURRENT FEES

The District currently has separate "new service connection fees" for the new potable and recycled water customers. The new service connection fee for new potable water customers consists of three components:

1. Connection charge: to recover incurred costs for the District's potable water infrastructure and assets.
2. Impact fee[4]: to recover costs for additional water supply needed as a result of new development.
3. Meter and installation fee[5] – based on the District's actual meter purchase and installation costs.

The District has lower impact fee and connection charge for individual apartments, condominiums, or other small-size residential units with low water consumption and for Water Efficient units (WEU).

The recycled water new service capacity fee has two components:

1. Connection charge: to recover incurred costs for the District's potable water infrastructure and assets.
2. Meter and installation fee – based on the District's actual meter purchase and installation costs.

[4] There is a surplus fee at 1½ times the normal fee for projects outside the District boundaries; Board Item 2.2 Impact Fees July 2011.pdf

[5] This component is usually included in the connection charge. However, for the purpose of the analysis, the District Staff provided meter and installation fee separately from connection charge.

The component costs are the same for both potable and recycled service. The total fees are summarized below in Table 3-1. The existing fees for new fire service connections are summarized in Table 3-2, which vary depending on whether the new capacity also has potable or RW service.

Table 3-1: Existing Fees for New Service Connections

Meter Size	Capacity Charge	Impact Fee	Meter & installation Fee	Potable Water New Service Capacity Fee	Recycled Water New Service Capacity Fee
A	B	C	D	E=B+C+D	F=B+D
5/8"	$9,221	$11,526	$363	$21,110	$9,584
5/8" WEU	$5,534	$6,915	$363	$12,812	n/a
Small System	$9,221	$11,526	$741	$21,488	n/a
Small System WEU	$5,534	$6,915	$741	$13,190	n/a
3/4"	$13,830	$17,288	$396	$31,514	$14,226
1"	$23,046	$28,812	$452	$52,310	$23,498
1 1/2"	$46,108	$57,626	$1,595	$105,329	$47,703
2"	$73,756	$92,199	$1,806	$167,761	$75,562
3"	$138,262	$172,877	$2,230	$313,369	$140,492
4"	$230,436	$288,126	$3,714	$522,276	$234,150

Table 3-2: Existing Fees for New Fire Service Connections

Line No.	Meter Size	Impact Fee	Meter & installation Fee	Connection Charge	Fire Service New Service Capacity Fee
	A	B	C	D	E=B+C+D
Fire Service Connection Fees with Potable or RW Service					
1	Private Fire Service (any size)	$0	$377	$0	$377
2	Fire Hydrant – Public	$0	$0	$3,430	$3,430
3	Fire Hydrant – Private	$0	$0	$3,430	$3,430
Fire Service Connection Fees without Potable or RW Service					
4	2"	$0	$377	$3,430	$3,807
5	3"	$0	$377	$6,430	$6,807
6	4"	$0	$377	$10,717	$11,094
7	6"	$0	$377	$21,435	$21,812
8	Fire Hydrant – Public	$0	$0	$3,430	$3,430
9	Fire Hydrant - Private	$0	$0	$3,430	$3,430

3.4 PROPOSED FEES FRAMEWORK

Much like the District's existing framework, the proposed framework for potable and RW new capacity fees contains several components that are allocated to either potable capacity fees, RW capacity fees, or both. The components are as follows.

1. Potable System Equity Buy-In/Infrastructure Fee
2. Recycled Treatment System Reimbursement/Treatment Fee
3. Recycled Distribution System Equity Buy-In Distribution Fee
4. Groundwater (GW) Recharge / Storage Program Contribution

Each component is described in greater detail in the following sections.

3.4.1 *Potable System Equity Buy-In/Infrastructure Fee*

The infrastructure fee is a one-time charge, paid by new customers, to access the potable water system infrastructure capacity. The charge is based on the value of major backbone infrastructure assets of the potable water system, converted into 2016 dollars by using the ENR 20-city Construction Cost Index. The purpose of the fee is to recover the cost incurred by current customers for investing in system capacity which will serve new customers. The fee increases with the meter size (hydraulic capacity or max safe capacity) of the new connection.

3.4.2 *Recycled Treatment System Reimbursement/Treatment Fee*

In April of 1996, the District entered into an agreement with the City of Scotts Valley (City) for the joint construction of a 1 million gallons per day (MGD) tertiary water treatment plant, to provide RW to City and District customers. Both the City and the District made investments to develop the system.

The treatment fee is a one-time charge, to be paid by new customers of both potable and recycled water systems. This fee is based on the cost (approximated by the total debt service amount) of the recycled water treatment facility and the expected consumption of the new customer. The fee is paid by the new recycled water customers to buy-in a proportionate share of capacity from the recycled water treatment system. New potable water customers will also pay that fee proportional to their potable water connection capacity since the usage of recycled water frees up potable water for new development. The facility will provide purified recycled water to the groundwater recharge, thus enhancing the supply of potable water for new development.

3.4.3 *Recycled Distribution System Equity Buy-In Distribution Fee*

The recycled water distribution fee is a one-time charge to be paid by new customers of both potable and recycled water systems. The fee is based on the total asset value of the recycled water distribution system converted into 2016 dollars and the expected consumption of the new customer. New recycled water customers will pay the fee to buy-in proportionate share capacity of the distribution system. New potable water customers will also pay the distribution fee since the usage of recycled water offsets consumption of potable water which can be used by new customers.

3.4.4 *Groundwater Recharge (GWR) / Storage Program Contribution*

The storage program contribution fee is a one-time charge to be paid by new potable water customers. The fee is based on the cost of the GWR project net of grants. New potable water customers will pay a share of capacity, proportionate to their expected usage of potable water as the project will contribute to the supply and storage of potable water.

The District is exploring options to expand the use of this local, reliable, drought-proof source of water supply. Due to the demand of the District's existing recycled water service, the District has limited additional supply of recycled water in the summer months when irrigation demand is high and excess recycled water available in the winter and shoulder months when irrigation demand is low. During the periods of low recycled water demand, the excess recycled water flows would be available to replenish the local groundwater basin. A Groundwater Recharge project would inject advanced purified recycled water into the Lompico aquifer of the Santa Margarita Groundwater Basin at or near the Hanson Quarry property in Scotts Valley to restore groundwater levels and retain the water within the SMGB watershed for beneficial use.

3.4.5 *Capacity Fee Components*

RFC proposes that the potable water new capacity fees will have all four components, whereas the RW capacity fees will have two (the Recycled Treatment System Reimbursement and the Recycled Distribution System Reimbursement). The proposed framework is summarized in Table 3-3 below.

Table 3-3: Proposed Capacity Fee Components

New Connections	Potable System Equity Buy-In/ Infrastructure Fee	Recycled Treatment System Reimbursement/ Treatment Fee	Recycled Distribution System Equity Buy-In Distribution Fee	GW Recharge / Storage Program Contribution
Potable Water	x	x	x	x
Recycled Water		x	x	

3.5 POTABLE WATER PROPOSED CAPACITY FEES

The components of the potable water capacity fee include:

Infrastructure fee: The District service area has sufficient capacity to meet projected new demand, with system capacity of 1,517AF[6] per year and projected potable water build-out demand in 2040 of 1,400 AF (from UWMP 2015). RFC recommends that the equity buy-in approach is used to determine the infrastructure fees for new water services to bring new customers to par with existing customers' contributions in developing the existing facilities, including the costs associated with financing those services.

[6] Bartle Wells Report, Nov 2009, page 5

The infrastructure fee will be based on the asset value ($53,708,850 as of June 30, 2015, FY 2015), determined using the replacement cost (RC) method, to reflect the cost of providing the expansion capacity as if the capacity was added at the time the new customers were connected to the water system.

Prior to calculating the proposed capacity fee, the number of Equivalent Meter Units (EMUs) must first be determined. In order to create parity across the various meter sizes, each meter size is assigned a factor relative to a 5/8" meter, which has a value of 1. According to the AWWA M1 Manual, a particular meter size's ratio of meter and capacity servicing costs relative to that of a 5/8" meter is its "Equivalent Meter Units" (EMU). For example, a 2-inch meter has 8 times the throughput capacity of a 5/8" meter and therefore has a multiplication factor of 8 to determine its EMU to 5/8" meter. The Meter & Capacity factor escalates as meter size increases because the District's cost to replace a meter increases with its size. Based on 2015 meter data, the customer count and EMUs are shown in Table 3-4.

Table 3-4: Safe Maximum Operating Capacity by Meter Type, per Current AWWA Standards

Meter Size	AWWA Max safe capacity (gpm)	Ratio to 5/8" meter size	Number of Meters	Equivalent Meter Units
	B	C = B / 20 GPM	D[7]	E = C × D
5/8"	20	1.00	3,026	3,026
3/4"	30	1.50	565	848
1"	50	2.50	95	238
1 1/2"	100	5.00	25	125
2"	160	8.00	18	144
3"	350	17.50	3	53
4"	630	31.50	0	0
Total	**3,732**			**4,433**

In order to correctly assess the net actual replacement cost incurred for infrastructure, the existing liabilities in the form of outstanding debt related to potable water services ($4,535,000) and equity in the form of accumulated reserves ($5,129,875) are considered in the net assets valuation (Table 3-5).

[7] For the purpose of connection fee calculation, the number of meters is based on FY 2015. Data provided by the District.

Table 3-5: FY 2016 Potable Water Infrastructure Fee Calculation

	As of June 30, 2015	Source	Value
1	Total Assets Value[8]	*Replacement cost*	$53,708,850
2	Reserve Ending Balance		$5,129,875
3	Less: Outstanding Debt	*District*	$4,535,000
4	**Net Assets Value**	*[1]+[2]-[3]*	**$54,303,725**
5	Current EMU	Table 3-4	4,433
6	Proposed Capacity Fee FY 2015	*[4]/[5]*	$12,251
7	Inflation Adjustment	*ENR CCI 20-City*[9]	102.9%
8	**Proposed Capacity Fee**	***[6]×[7]***	**$12,612**

The Potable Water Infrastructure Fee calculated in Table 3-5 using the sum of EMUs, represents the base fee for a 5/8" meter, and the fees for larger meter sizes are calculated using the AWWA meter size ratios to adjust the base fee to the respective connection size (Table 3-6).

Table 3-6: Proposed Potable Water Infrastructure Fee by Meter Size for 2016

Meter Size	Base Fee	AWWA Ratio *Table 3-4*	Proposed Infrastructure Fees FY 2016
	A	B	C=A×B
5/8"	$12,612	1.00	$12,612
3/4"	$12,612	1.50	$18,918
1"	$12,612	2.50	$31,531
1 1/2"	$12,612	5.00	$63,061
2"	$12,612	8.00	$100,898
3"	$12,612	17.50	$220,715
4"	$12,612	31.50	$397,286

Recycled water treatment and distribution fees: New potable water customers benefit from the existing recycled water treatment and distribution systems as the usage of recycled water frees up potable water resources for new development. In addition, the recycled water treatment facility ensures that treated water will be used in the groundwater recharge and storage program, thus making potable water available to new customers. The recycled water treatment and distribution fees account for the water demand offset secured by the availability of recycled water and reflect the actual costs incurred in the construction of the recycled water systems and the expected average consumption of new customers based on the meter size.

[8] Replacement cost is used to bring the assets value to current dollars.
[9] 30 year annual average index

– The reimbursement for the available recycled water treatment system is based on the cost of the system ($6,243,862[10]) divided by the actual water treatment capacity of 740 AF[11] per year (Table 3-7). The result represents the cost of the recycled water treatment system per acre foot per year. Next, the recycled water treatment system base fee is calculated using the typical annual consumption of a single family residence as a proxy for the 5/8" meter size typical consumption.

  The SFR annual consumption is determined by the equation below**.** The average daily consumption (including indoor and outdoor water usage) is assumed to be 75 gallons per capita per day (GPCD) [12]. According to the data provided by the District, the average number of persons per household (PPH) is three. The annual consumption includes 365 days per year and the result is converted from gallons to acre feet using the conversion factor of 325,853 gallons per acre foot**.**

$$SFR\ annual\ consumption = 75\ GPCD\ \times 3\ PPH\ \times \frac{365\ days}{1\ years} \times \frac{1\ AF}{325{,}853\ gallons}\ =\ .252\ AF/year$$

– The fee for the recycled water distribution system is determined using the capacity buy-in method. The cost of the distribution system is divided by the build-out annual demand in acre feet. The asset valuation method is similar to the one used in the potable water infrastructure fee calculation using the RC as of June 2015. The build-out demand for recycled water is provided by the District's staff and the asset value per AF of demand is calculated. (see Table 3-7)

GWR storage program contribution fee: The District plans to build a groundwater recharge and storage facility which will use treated water from the recycled water plant to recharge the groundwater basin of Scotts Valley. The project will benefit both current and new customers in the long-run providing a reliable source of potable water and generating resources for new development. Therefore, the contribution of the new customers to the program is determined as an offset of the new potable water demand and is based on the total project cost divided by the build-out potable water demand. The cost of the project is reduced by the expected grants. As in the previous two water offset fees, the unit cost per AF is adjusted for the expected annual consumption of new customer.

[10] The total debt service for recycled water treatment system.
[11] Per District staff.
[12] Per District staff.

Table 3-7: Water Offset Fee Components Per Acre Foot

	Water Offset Fees Components	Asset value	Capacity/ Demand	FY 2015	Infl. Adj. ENR CCI 20-City	2016 fee per AF
		A	B	C=A/B	D	E= C × D
1	Recycled Treatment System[13]	$6,243,862	740 AF	$8,438	102.9%	$8,686
2	Recycled Distribution System	$3,295,566	240 AF	$13,732	102.9%	$14,136
3	Groundwater Recharge Project	$10,344,304	1,400 AF	$7,389	102.9%	$7,607

The fees determined above in Table 3-7 are on a per AF basis. However, as determined in the equation shown above, the average SFR user with a 5/8" meter consumes an estimated .252 AF/year. The fees for a 5/8" meter are shown in Table 3-8 below.

Table 3-8: Water Offset Fees for 5/8" Meter

		2016 fee per AF	SFR Annual Consumption (AF)	FY 2016 fee for 5/8" Meter
		A	B	C = A x B
1	Recycled Treatment System	$8,686	.252	$2,189
2	Recycled Distribution System	$14,136	.252	$3,563
3	Groundwater Recharge Project	$7,607	.252	$1,917
4	**Total Fee for Water Offset Components ([1]+[2]+[3])**			**$7,669**

Then the fees components (Table 3-8, column C) are adjusted to account for the meter size using AWWA Ratio (see Table 3-9) to determine the Water Offset Fees.

Table 3-9: Proposed Water Offset Fees[14] by Meter Size for 2016

No. line	Meter Size	AWWA Ratio	Recycled Treatment System Reimbursement	Recycled Distribution System Buy-In	Groundwater Recharge Project	Proposed Water Offset Fees FY 2016
		A	B = $2,189 x A	C = $3,563 x A	D = $1,917 x A	E = B + C + D
1	5/8"	1.00	$2,189	$3,563	$1,917	**$7,669**
2	3/4"	1.50	$3,284	$5,344	$2,876	**$11,504**
3	1"	2.50	$5,473	$8,907	$4,793	**$19,173**
4	1 1/2"	5.00	$10,946	$17,814	$9,585	**$38,345**
5	2"	8.00	$17,514	$28,502	$15,337	**$61,353**
6	3"	17.50	$38,311	$62,348	$33,549	**$134,208**
7	4"	31.50	$68,960	$112,226	$60,388	**$241,574**

Adding the Water Offset Fees (Table 3-9) to the Proposed Infrastructure Fee (Table 3-6) yields the total New Capacity Service Fee. Table 3-10 below summarizes the total for all meter sizes and compares the sum to the existing fees for new service. Please note that the Table 3-10 below do not include meter and installation fees as shown in Table 3-1.

[13] Total debt service COP 2004
[14] Rounding used in calculations.

Table 3-10: Proposed and Current Potable Water Capacity Fees 2016

Meter size	Proposed Infrastructure Fee Table 3-6	Proposed Water Offset Fees Table 3-9	Proposed Capacity Fees	Current Fees (excluding Meter& Installation)	% Change
A	B	C	D= B + C	E	F=D/E-1
5/8"	$12,612	$7,669	**$20,281**	$20,747	-2.2%
3/4"	$18,918	$11,504	**$30,422**	$31,118	-2.2%
1"	$31,531	$19,173	**$50,704**	$51,858	-2.2%
1 ½"	$63,061	$38,345	**$101,406**	$103,734	-2.2%
2"	$100,898	$61,353	**$162,251**	$165,955	-2.2%
3"	$220,715	$134,208	**$354,923**	$311,139	14.1%
4"	$397,286	$241,574	**$638,860**	$518,562	23.2%

In addition, the District will adopt lower water offset fees for multifamily residences (MFR) with individual meters with indoor use only. According to the UWMP 2015, the average GPCD for MFR customers is 45 gallons. Employing the same calculation from the single family annual consumption the average AF of consumption for a MFR customer can be estimated as follows:

$$MFR\ annual\ consumption = 45\ GPCD\ \times 3\ PPH\ \times \frac{365\ days}{1\ years} \times \frac{1\ AF}{325{,}853\ gallons}\ =\ .151\ AF/year$$

$$\frac{Annual\ MFR\ Consumption}{Annual\ SFR\ Consumption} = \frac{.151}{.252} = 60\%$$

As shown above, MFR use represents 60 percent of the average annual SFR consumption assuming the same average household size. The proposed capacity fees for MFR individual meter is $12,169, 60% of the regular SFR capacity fees for 5/8" meter.

$$MFR\ Individual\ Meter\ Capacity\ Fees\ (5/8"\ meter\ only) = 60\%\ \times \$12{,}612 + 60\%\ \times \$7{,}669\ =\ \$12{,}169$$

The installation and meter fees components of the Capacity Fees will be based on actual costs of meters and installation incurred by the District. RFC recommends that the District adjust all components of capacity fees (Infrastructure Fee, Water Demand Offset Fees and Installation and Meter Fees) annually using ENR CCI 20-city to account for inflation in construction costs.

3.6 RECYCLED WATER PROPOSED CAPACITY FEES

Recycled water new capacity fee consists of two components: the *recycled water treatment fee* and the *recycled water distribution fee.* Both components are designed to be equal to the respective components of the potable water capacity fee. Referring to Table 3-8, the 5/8" charge for these two components is as follows:

$$Recycled\ Treatment\ System\ Reimb. + Recycled\ Distr.System\ Equity\ Buy\ in\ = RW\ New\ Capacity\ Fee$$
$$\$2{,}189 + \$3{,}563 = \$5{,}752$$

Applying the AWWA ratios to the 5/8" meter cost of the recycled water capacity fees components from Table 3-8 yields the proposed fees found in Table 3-11 below. Please note that the fees below do not include meter and installation fees as shown in Table 3-1.

Table 3-11: Current and Proposed Recycled Water Capacity Fees

No. line	Meter size	AWWA Meter Ratio	Recycled Treatment System Reimbursement	Recycled Distribution System Buy-In	Proposed Capacity Fees	Current Fees (excl. Meter& Inst'n fee)[15]	% Change
		A	B = $2,189 x A	C = $3,563 x A	D = B + C	E	F=D/E-1
1	5/8"	1.00	$2,189	$3,563	**$5,752**	$9,221	-38%
2	3/4"	1.50	$3,284	$5,344	**$8,628**	$13,532	-38%
3	1"	2.50	$5,473	$8,907	**$14,380**	$23,046	-38%
4	1 ½"	5.00	$10,946	$17,814	**$28,760**	$46,108	-38%
5	2"	8.00	$17,514	$28,502	**$46,016**	$73,756	-38%
6	3"	17.50	$38,311	$62,348	**$100,659**	$138,262	-27%
7	4"	31.50	$68,960	$112,226	**$181,186**	$230,436	-21%

The installation and meter fees components of the Capacity Fees will be based on actual costs of meters and installation incurred by the District. RFC recommends that the District adjust all components of capacity fees (Infrastructure Fee, Water Demand Offset Fees and Installation and Meter Fees) annually using ENR CCI 20-city to account for inflation in construction costs.

3.7 FIRE SERVICE CAPACITY FEES

RFC proposes that new fire service connections and fire hydrants connections will only pay for meter and installation fees based on actual costs incurred by the District. Note that the District installs 5/8" meters as detection meters for all private fire connection sizes.

[15] For comparison purposes the meter and installation component of the fee is excluded (See Table 3-1)

4. FINANCIAL PLAN

4.1 WATER FUND FINANCIAL PLAN

Establishing a utility's revenue requirement is a key first step in the rate setting process. The review involves an analysis of annual operating revenues under the current rates, O&M expenses, capital expenditures, transfers between funds, and reserve requirements. This section of the report provides a discussion of the projected revenues, O&M and capital expenditures, capital improvement financing plan, and revenue adjustments required to ensure the fiscal sustainability of the Water Enterprise.

4.1.1 *Revenues from Current Water Rates*

The current rates were last adjusted December 15, 2015. The District's water service charges have two components. First, customers pay a bimonthly basic meter charge based on meter size. The District also charges for fire service, separating customers into two classes: Residential and Commercial. Fire service customers are also charged a bimonthly basic charge. In addition, the District serves customers outside its boundaries. These outside customers pay 50 percent higher bimonthly charges. Table 4-1 lists the current bimonthly basic meter and fire service charges for both Inside and Outside District customers.

The effective charges for FY 2016 were calculated as weighted averages of the effective charges, to account for the midyear change in the rate.

1. The period from July 1, – December 15, 2015 contains 2.7 of 6 annual billing periods.
2. The period from December 16, 2015 – June 30, 2016 contains 3.3 annual billing periods.

This rate is illustrated by the equation below, with the letters A, B, and C corresponding to the rates identified in Table 4-1 above.

Applying this equation to the calculation of the FY 2016 charge for a 5/8" meter for an Inside District customer arrives at a bimonthly rate of $49.124:

$$A \times \frac{Billing\ Periods\ for\ July\ 1\ to\ Dec.\ 15}{Total\ Billing\ Periods\ per\ Year} + B \times \frac{Billing\ Periods\ Dec.\ 15, June\ 30}{Total\ Billing\ Periods\ per\ Year} = C$$

$$\$48.86 \times \left(\frac{2.7}{6}\right) + \$49.34 \times \left(\frac{3.3}{6}\right) = \$49.124$$

The most recently adopted rates in December 15, 2015 will be the effective current rates for full fiscal years of 2017 to 2021 as shown in column D for Table 4-1.

Table 4-1: Current Bimonthly Basic Meter and Fire Service Charges

Meter Size	Dec 15, 2014	Dec 15, 2015	FY 2016 Effective Current Charges	FY 2017 – FY 2021 Effective Current Charges
	A	B	C	D
INSIDE DISTRICT				
5/8"	$48.86	$49.34	$49.12	$49.34
3/4"	$48.86	$49.34	$49.12	$49.34
1"	$94.34	$95.28	$94.85	$95.28
1 1/2"	$180.34	$182.14	$181.32	$182.14
2"	$271.04	$273.74	$272.50	$273.74
3"	$410.86	$414.98	$413.09	$414.98
4"	$622.10	$628.32	$625.47	$628.32
Fire Service - Residential	$22.62	$22.86	$22.75	$22.86
Fire Service - Commercial	$45.26	$45.70	$45.50	$45.70
OUTSIDE DISTRICT				
5/8"	$73.29	$74.01	$73.68	$74.01
3/4"	$73.29	$74.01	$73.68	$74.01
1"	$141.51	$142.92	$142.27	$142.92
1 1/2"	$270.51	$273.21	$271.97	$273.21
2"	$406.56	$410.61	$408.76	$410.61
3"	$616.29	$622.47	$619.64	$622.47
4"	$933.15	$942.48	$938.21	$942.48
Fire Service - Residential	$33.93	$34.29	$34.13	$34.29
Fire Service - Commercial	$67.89	$68.55	$68.25	$68.55

Customers also pay a commodity usage rate per 1,000 gallons. The District utilizes six water usage tiers, assessing a higher fee on usage falling into each greater tier. All customer classes have water usage assessed based on these six tiers as defined below. Table 4-2 shows both the rates and the tier breaks for each tier for all customer classes. The FY 2016 commodity rates were developed using the same methodology above. The most recently adopted rates in December 15, 2015 will be the effective current rates for full fiscal years of 2017 to 2021 as shown in column D for Table 4-2.

Table 4-2: Current Commodity Rates per 1,000 Gallons

Tier	Tier Breakpoints (gallons)	Dec. 2014	Dec. 2015	FY 2016 Effective Current Rates	FY 2017 – FY 2021 Effective Current Rates
Tier 1	0 to 6,000	$3.57	$3.70	$3.64	$3.70
Tier 2	6,001 to 14,000	$5.98	$6.21	$6.10	$6.21
Tier 3	14,001 to 24,000	$7.72	$8.01	$7.88	$8.01
Tier 4	24,001 to 36,000	$9.30	$9.66	$9.50	$9.66
Tier 5	36,001 to 50,000	$11.91	$12.36	$12.15	$12.36
Tier 6	above 50,000	$13.45	$13.97	$13.73	$13.97

The projected accounts for the Study period shown in Table 4-3 include new meter connections projected by District staff[16].

Table 4-3: Projected Account Totals by Meter Size

Line No.	Meter Size	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	**INSIDE DISTRICT**						
2	5/8"	2,949	2,949	2,949	2,949	2,949	2,949
3	3/4"	539	580	672	706	711	711
4	1"	92	92	92	92	92	92
5	1 1/2"	24	25	26	26	26	26
6	2"	17	18	19	19	19	19
7	3"	3	3	3	3	3	3
8	4"	0	0	0	0	0	0
9	Fire Service - Residential	263	305	397	429	434	434
10	Fire Service - Commercial	143	143	143	143	143	143
11							
12	**OUTSIDE DISTRICT**						
13	5/8"	75	75	75	75	75	75
14	3/4"	36	36	36	36	36	36
15	1"	4	4	4	4	4	4
16	1 1/2"	1	1	1	1	1	1
17	2"	1	1	1	1	1	1
18	3"	0	0	0	0	0	0
19	4"	0	0	0	0	0	0
20	Fire Service - Residential	4	4	4	4	4	4
21	Fire Service - Commercial	7	7	7	7	7	7
22	**Total Accounts**	**4,158**	**4,243**	**4,429**	**4,495**	**4,505**	**4,505**

Potable water usage projections by tier are based on water consumption by tiers in 2015 and the potable water sales projections provided by Staff. The projected potable water sales are expected rebound from the drought and shown in Table 2-2 were used to project potable water usage in 1,000 gallons or kgals by each tier. The projected water sales by tier for every year of the study period shown in Table 4-4 below are based on actual usage data from FY 2015.

[16] District staff projection was based on UWMP 2015 analysis

Table 4-4: Projected Water Usage in 1,000 Gallons by Tier

Tier	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Tier 1	112,237	122,272	127,689	133,106	138,524	138,729
Tier 2	77,687	84,627	88,391	92,154	95,917	96,117
Tier 3	39,160	42,613	44,491	46,369	48,246	48,379
Tier 4	21,695	23,570	24,586	25,602	26,617	26,698
Tier 5	13,972	15,148	15,780	16,412	17,044	17,094
Tier 6	63,131	68,022	70,670	73,317	75,965	76,232
Total	**327,882**	**356,252**	**371,606**	**386,959**	**402,313**	**403,250**

Table 4-5 shows the projected revenues for the study period under the existing rates. The basic meter charge revenue is the fixed portion of the water service charge that increases with meter size. Annual revenues from the water basic meter charge are calculated by multiplying the number of meters of a meter size by their respective charge. In order to obtain the annual revenue, the result is then multiplied by six bimonthly billing periods.

Referring to the bimonthly basic meter charge and account totals in Table 4-1 and Table 4-3 respectively, in FY 2017, the projected Inside District 5/8" meters totaling 2,949 are multiplied by the currently projected basic meter charge, $49.34 (Table 4-1, Line 2). This total is then multiplied by six billing periods. This calculation is shown below.

$$fixed\ charge\ rate\ \times number\ of\ accounts\ with\ 5/8"\ meter\ \times 6\ billing\ periods$$
$$2{,}949 \times \$49.34 \times 6 = \$873{,}199$$

This calculation is repeated for all meter sizes and fire service accounts to arrive at the total basic meter charge revenues for each projected year, as shown in Table 4-5. Repeating this calculation for all meter sizes, the total basic meter charge revenue in FY 2017 is $1,184,684. Fire Service revenue is calculated similarly to arrive at $77,752.

The commodity revenues shown for FY 2016 through FY 2021 are calculated by multiplying the projected tiered usage in a year (Table 4-4) by the corresponding tier rate (Table 4-2). For example, the water sales revenue from Tier 1 usage for FY 2017 can be calculated as follows:

$$Projected\ Tier\ 1\ Usage\ in\ FY\ 2017\ \times Tier\ 1\ Rate$$
$$122{,}272\ \times \$3.70 = \$452{,}406$$

The same calculation is repeated for all tiers to determine the total commodity revenue for each year of the Study period. For FY 2017, the projected water sales are $2,684,450.

Adding together the basic meter charge, fire service charge, and water sales revenues for both Inside and Outside District customers yields the total revenue from current rates, found in Table 4-5 below.

The revenue from basic meter charges for FY 2016 comprises 34 percent of total rate revenue and usage is 66 percent.

Table 4-5: Projected FY 2016-2021 Revenues from Current Water Rates

Line No.		Source	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	**Basic Meter Charge Revenues**							
2	Inside District		$1,141,689	$1,146,801	$1,191,645	$1,201,711	$1,203,191	$1,203,191
3	Outside District		$56,570	$37,882	$56,824	$56,824	$56,824	$56,824
4	Fire Service		$78,623	$77,752	$97,365	$101,754	$102,440	$102,440
5	**Total Basic Meter Charge Revenue**	*[2+3+4]*	**$1,276,882**	**1262435.52**	**1345834.08**	**1360288.56**	**1362454.56**	**1362454.56**
6	**Total Water Sales Revenues**		**$2,434,070**	**$2,684,450**	**$2,797,517**	**$2,910,584**	**$3,023,651**	**$3,031,855**
7	**Total Revenue**	*[5+6]*	**$3,710,952**	**$3,987,694**	**$4,143,351**	**$4,270,873**	**$4,386,106**	**$4,394,309**

4.1.2 *O&M Expenses*

4.1.3 *Water Supply Costs*

The District solely sources its potable water from groundwater in the Santa Margarita Groundwater Basin. There are no direct water purchase costs. However, further water treatment is required as water pumped from the Basin does not meet drinking water standards. The two main variable costs associated with producing drinking water for District customers are electricity for pumping and chemical costs for water treatment.

These costs are variable based on the quantity of water pumped from the wells and charged by unit cost per acre foot (AF). These charges are then incurred on the total acre feet produced annually. Table 4-6 summarizes the District's water supply costs during the Study period as well as the total water production for the study period to which the charges apply. Costs are inflated according to the corresponding inflation factors listed in Table 2-1.

Table 4-6: Unit Cost of Electricity and Chemicals for Production of 1 AF of Potable Water

		FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	**Electricity**	$268 /AF	$281 /AF	$295 /AF	$310 /AF	$326 /AF	$342 /AF
2	**Chemicals**	$91 /AF	$96 /AF	$100 /AF	$105 /AF	$111 /AF	$116 /AF
3	**Water Production (AF)**	1,106	1,201	1,253	1,304	1,355	1,358

To calculate the total cost of the water supply, the total annual water produced is multiplied by the costs per acre foot listed in Table 4-6. This calculation is shown below in Table 4-7 for FY 2016. Similar calculations applied to FY 2017 to FY 201, Table 4-8 shows the projected annual variable cost of electricity and chemicals for the water supply through the study period.

Table 4-7: FY 2016 Variable Water Production Cost Calculation

FY 2016	Potable Water Production	Unit Cost	Projected Annual Variable Cost
	A	B	C = A×B
Electricity	1,106 AF	$268 /AF	$296,500
Chemicals	1,106 AF	$91 /AF	$100,677

Table 4-8: Projected Total Variable Water Production Costs

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Electricity	$296,500	$338,072	$370,090	$404,465	$441,352	$464,497
Chemicals	$100,677	$114,793	$125,665	$137,337	$149,862	$157,721

4.1.4 *Water Operating Expenses*

Using the District's FY 2016 budget values, inflation factors in Table 2-1 were assigned to each line item to determine future O&M costs for the Water Fund. Table 4-9 summarizes budgeted and projected O&M expenses for the Water Fund during the Study period.

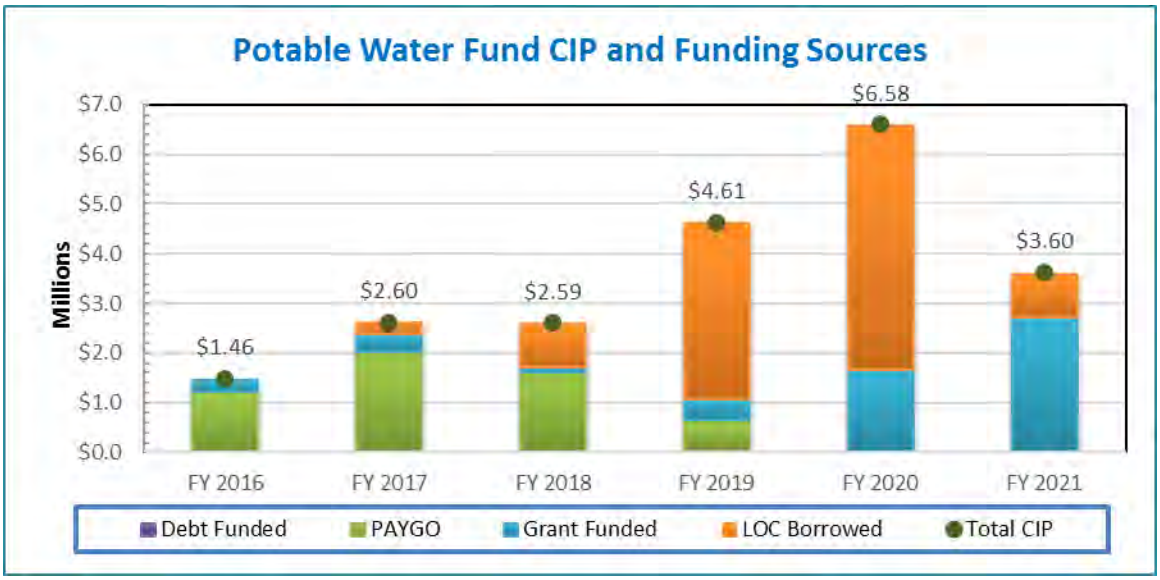
Table 4-9: Projected O&M Expenses for Potable Water Production

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Salaries and Benefits	**$2,057,680**	**$2,227,751**	**$2,373,253**	**$2,528,372**	**$2,677,587**	**$2,835,973**
of which: Conservation	$87,200	$94,100	$100,041	$106,361	$112,248	$118,472
G&A Services	**$742,310**	**$764,579**	**$787,517**	**$811,142**	**$835,476**	**$860,541**
of which: Conservation	$103,700	$106,811	$110,015	$113,316	$116,715	$120,217
Supplies	**$109,715**	**$113,006**	**$116,397**	**$119,889**	**$123,485**	**$127,190**
of which: Conservation	$78,075	$80,417	$82,830	$85,315	$87,874	$90,510
Source of Supply	**$50,000**	**$51,500**	**$53,045**	**$54,636**	**$56,275**	**$57,964**
of which: Conservation	$0	$0	$0	$0	$0	$0
Pumping	**$361,500**	**$405,025**	**$439,053**	**$475,499**	**$514,519**	**$539,859**
Electricity and Power	$296,500	$338,075	$370,095	$404,472	$441,361	$464,506
Pumps and Boosters	$65,000	$66,950	$68,959	$71,027	$73,158	$75,353
Water Treatment	**$270,677**	**$289,894**	**$306,020**	**$323,103**	**$341,202**	**$354,801**
WT Chemicals and Supplies	$100,677	$114,794	$125,667	$137,339	$149,865	$157,724
Other Water Treatment	$170,000	$175,100	$180,353	$185,764	$191,336	$197,077
Transmission & Distribution	**$303,600**	**$312,708**	**$322,089**	**$331,752**	**$341,704**	**$351,956**
Customer Accounts	**$66,400**	**$68,392**	**$70,444**	**$72,557**	**$74,734**	**$76,976**
Other	**$14,600**	**$15,038**	**$15,489**	**$15,954**	**$16,432**	**$16,925**
TOTAL POTABLE WATER O&M	**$3,976,482**	**$4,247,894**	**$4,483,306**	**$4,732,903**	**$4,981,416**	**$5,222,184**

4.1.5 *Capital Improvement Plan (CIP)*

The District has projected capital improvement costs through the end of the Study period to FY 2021 to address repair and replacement (R&R) needs (Figure 4-1). The proposed capital improvement plan will be funded through grants, rate revenue, and debt.

Figure 4-1: 5-Year Water Capital Expenditures



The District has forecasted projects that are both solely funded for and by the Water Fund and others that are also funded partially by the Recycled Water Fund and capacity and impact fees. Table 4-10 shows the share of each project to be financed by the respective fund. Table 4-11 shows the uninflated and inflated Capital Improvement Plan for the Study period. The inflated CIP escalates the value of each year's planned improvements based on the assumption that construction costs increase annually. RFC utilizes the Engineering News Record's CCI 20-City index to apply standard factors. The factors used are listed in the final line of Table 4-11 below.

Table 4-10: Distribution of CIP Across Funds

Project Name	Fund 01 Water Funding %	Fund 02 Recycled Water Funding %	Capacity Fees Funding %	Impact Fees Funding %
Emergency Intertie w/ SLVWD	100%			
Main Replacement Program	50%	50%		
Orchard Run WTP Water Quality Improvements	100%			
El Pueblo WTP Water Quality Improvements	100%			
Well 10 WTP Water Quality Improvements	100%			
MacDorsa Tank Rehabilitation	100%			
Bethany Tank Second Tank Addition	100%			
Bethany Tank Rehabilitation	100%			
Sand Hill BS Expansion/ PV Replacement	80%		20%	
El Pueblo Pumps Reconfiguration	100%			
Lompico Formation Production Well (11A Site)	50%		50%	
Well 9 Replacement (Santa Margarita/ Lompico)	50%		50%	
Hanson Quarry Groundwater Recharge	83%			17%
Recycled Water Fill Station	100%			
Transit Center Stormwater Retention System	50%		50%	
Automated Metering Infrastructure (AMI)	90%	10%		
Meter Replacement Program	100%			
Office Facility Upgrades	90%	10%		
Electronic Security Access	90%	10%		
SCADA Phase 3 Upgrade	90%	10%		
Accounting & Utility Billing Software Replacement	90%	10%		
Vehicle Replacement Program	90%	10%		
Specialized Operations Vehicles	90%	10%		

Table 4-11: Capital Improvement Plan

Project Name	Total	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Emergency Intertie w/ SLVWD	$250,000	$250,000	-	-	-	-	-
Main Replacement Program	$250,000	-	$100,000	-	-	$150,000	-
Orchard Run WTP Water Quality Improvements	$1,500,000	$50,000	$750,000	$700,000	-	-	-
El Pueblo WTP Water Quality Improvements	$100,000	-	-	$100,000	-	-	-
Well 10 WTP Water Quality Improvements	$900,000	-	-	$150,000	$450,000	$300,000	-
MacDorsa Tank Rehabilitation	$504,732	$50,000	$454,732	-	-	-	-
Bethany Tank Second Tank Addition	$400,000	-	$50,000	$100,000	$250,000	-	-
Bethany Tank Rehabilitation	$570,000	-	-	-	$70,000	$150,000	$350,000
Sand Hill BS Expansion/ PV Replacement	$100,000	$100,000	-	-	-	-	-
El Pueblo Pumps Reconfiguration	$86,145	$20,000	$66,145	-	-	-	-
Lompico Formation Production Well (11A Site)	$75,000	$75,000	-	-	-	-	-
Well 9 Replacement (Santa Margarita/ Lompico)	$761,250	-	$150,000	$611,250	-	-	-
Hanson Quarry Groundwater Recharge	$15,130,000	$130,000	$250,000	$1,000,000	$4,000,000	$6,500,000	$3,250,000
Recycled Water Fill Station	$70,000	$20,000	$10,000	$10,000	$10,000	$10,000	$10,000
Transit Center Stormwater Retention System	$1,202,049	$100,000	$1,102,049	-	-	-	-
Automated Metering Infrastructure (AMI)	$450,000	-	$150,000	$150,000	$150,000	-	-
Meter Replacement Program	$500,000	-	$100,000	$100,000	$100,000	$100,000	$100,000
Office Facility Upgrades	$650,000	$650,000	-	-	-	-	-
Electronic Security Access	$50,000	-	$25,000	$25,000	-	-	-
SCADA Phase 3 Upgrade	$75,000	$75,000	-	-	-	-	-
Accounting & Utility Billing Software Replacement	$95,000	$75,000	$20,000	-	-	-	-
Vehicle Replacement Program	$140,000	-	$70,000	$35,000	-	$35,000	-
Specialized Operations Vehicles	$185,000	$ 85,000	-	-	-	-	$100,000
Annual Total (Uninflated)		**$1,680,000**	**$3,297,926**	**$2,981,250**	**$5,030,000**	**$7,245,000**	**$3,810,000**
Annual Total (Inflated)		**$1,680,000**	**$3,363,884**	**$3,101,693**	**$5,337,876**	**$7,842,221**	**$4,206,548**
ENR CCI 20-City Inflation Factors		**100%**	**102%**	**104%**	**106%**	**108%**	**110%**

The District, in cooperation with the City of Scotts Valley, operates a recycled water program. The District distributes water produced by the City to District customers. Demand is high during summer months, when irrigation needs are greater. However, winter month irrigation needs are lower, resulting in less demand for recycled water. The District would like to utilize this water by recharging the overdrawn basin.

The groundwater recharge project is the largest planned improvement, totaling $15.1M. The groundwater recharge system and storage program will construct a facility to use additionally treated water from the recycled water plant to recharge the Santa Margarita Groundwater Basin. The District expects to fund 40 percent of the cost through grants. Remaining funding will come from rate revenues and debt. The District intends to split the funding of the groundwater recharge project between the Water Fund, covering 83 percent of the cost, and Fund Impact Fees will pay the remaining 17 percent. These percentages are based on the split between the current population (10,500) and the projected population (12,600).

In addition, the District is utilizing grants to partially fund other projects. Table 4-12 provides the grants by project and the distribution of grant monies by Fund while Table 4-13Table 4-15 provides the scheduled distribution of monies through the study period.

Table 4-12: Grants by Project and Distribution of Funds

Project Funded	Grant	Fund 01 Water	Fund 02 Recycled Water	Capacity Fees	Impact Fees
Emergency Intertie w/SLVWD	State Grant – Prop. 50	100%	0%	0%	0%
Transit Center Stormwater Retention System	State Grant – Prop 84	50%	0%	50%	0%
Hanson Quarry Groundwater Recharge	Grants for GWR Projects	83%	0%	0%	17%

Table 4-13: Distribution of Grants by Project

	Total	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Emergency Intertie w/SLVWD	**$140,000**	$140,000					
Transit Center Stormwater Retention System	**$850,000**	$100,000	$750,000				
Hanson Quarry Groundwater Recharge	**$5,950,000**	$75,000		$125,000	$500,000	$2,000,000	$3,250,000
Total	**$6,940,000**	**$315,000**	**$750,000**	**$125,000**	**$500,000**	**$2,000,000**	**$3,250,000**

The District will also apply for a line of credit (LOC) for the 2017-2020 period in order to ensure required funding on a timely basis for the groundwater recharge project. The LOC proceeds will be used by the Water Fund (Fund 01) and Fund Impact Fees to finance the gap between the project costs and the available financing.

Table 4-14: Inflated Capital Improvement Program Summary with Grants by Fund

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
CIP Potable Water	$1,462,333	$2,604,809	$2,588,472	$4,614,486	$6,584,615	$3,597,463
CIP Recycled Water	$88,500	$78,030	$21,848	$15,918	$84,971	$11,041
CIP New Development – Capacity Fees	$107,500	$638,545	$317,972	$0	$0	$0
CIP New Development – Impact Fees	$21,667	$42,500	$173,400	$707,472	$1,172,635	$598,044
Total	**$1,680,000**	**$3,363,884**	**$3,101,693**	**$5,337,876**	**$7,842,221**	**$4,206,548**
of which:						
Ground water recharge project (inflated)	$130,000	$255,000	$1,040,400	$4,244,832	$7,035,809	$3,588,263
Expected Grants & Contributions	$315,000	$750,000	$125,000	$500,000	$2,000,000	$3,250,000
Potable water Fund	$252,500	$375,000	$104,167	$416,667	$1,666,667	$2,708,333
Recycled Water Fund	$0	$0	$0	$0	$0	$0
Capacity Fees Fund	$50,000	$375,000	$0	$0	$0	$0
Impact Fees Fund	$12,500	$0	$20,833	$83,333	$333,333	$541,667

4.1.6 *Current and Proposed Debt*

The District has current debt. The first debt issue is the COP 2004, which was used to fund the recycled water treatment plant. Per District staff, this debt service will be funded by impact fees. The second loan, a Wells Fargo Bank Loan, issued in 2011, will be repaid with revenues from the Water Fund (Fund 01).

Table 4-15: Total LOC and Debt Payments

No. line	Current Debt Service	*Source*	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	**Current Debt Service**							
2	COP 2004	*District*	$273,413	$272,358	$275,810	$273,753	$271,269	$273,286
3	2011 WFB Loan	*District*	$355,681	$353,856	$356,788	$354,394	$356,838	$443,956
4	**Total**	***[2+3]***	**$629,094**	**$626,214**	**$632,598**	**$628,146**	**$628,106**	**$717,243**
5	***Current debt Service by fund***							
6	*Fund 01*	*[3]*	$355,681	$353,856	$356,788	$354,394	$356,838	$443,956
7	*Fund 02*		$0	$0	$0	$0	$0	$0
8	*Capacity Fees*		$0	$0	$0	$0	$0	$0
9	*Impact Fees*	*[2]*	$273,413	$272,358	$275,810	$273,753	$271,269	$273,286
10	**LOC interest & principal pay't**	*Table 4-16*	**$0**	**$10,625**	**$53,975**	**$230,843**	**$524,002**	**$16,164,304**
11	**New debt service payments**	*Table 4-17*	**$0**	**$0**	**$0**	**$0**	**$0**	**$726,221**
12	**Total debt and LOC payments**	***[4+10+11]***	**$629,094**	**$636,839**	**$686,573**	**$858,989**	**$1,152,108**	**$17,607,767**

The District has assessed that it will need a line of credit to finance the groundwater recharge and storage project, which falls under the responsibility of the Water Fund and Fund Impact Fees. The District intends to borrow the funds in FY 2017. RFC's analysis assumes a 5 percent interest rate for the

disbursed LOC. The principal is expected to be repaid in full by the end of FY 2021 through the issue of long-term debt. The LOC interest payments and new debt service payments will be divided between the Water Fund (Fund 01) and the Impact Fees Fund using the same shares as the projected funding of CIP, 83 and 17 percent respectively. Table 4-16 provides the details of the LOC while Table 4-17 describes the conditions of the proposed long-term debt. The proposed long-term debt is assumed to have a term of 30 years and a 5 percent interest rate.

Table 4-16: Line of Credit Principal and Interest Payments

No. line			FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	**LOC Borrows (GWR project)**	*Table 4-14*	$0[17]	$255,000	$1,040,400	$4,244,832	$7,035,809	$3,588,263
2	**LOC Interest Expenses - 5%**	***Line 1*5%***	$0	$12,750	$64,770	$277,012	$628,802	$0
3								
4	**LOC Principal Payment (FY 2021)**		**$0**	**$0**	**$0**	**$0**	**$0**	**$16,164,304**
5								
6	LOC Grants& Contributions	Table 4-14	$0	$0	$0	$0	$0	$5,950,000
7	**LOC Principal Payments by Debt Refinance**							
8	Fund 01	*Line 12*83%*	$0	$0	$0	$0	$0	$8,511,920
9	Fund 02	*Line 12*0%*	$0	$0	$0	$0	$0	$0
10	Capacity Fees	*Line 12*0%*	$0	$0	$0	$0	$0	$0
11	Impact Fees	*Line 12*17%*	$0	$0	$0	$0	$0	$1,702,384
12	**Total LOC payments**	**[2]+[4]**	**$0**	**$12,750**	**$64,770**	**$277,012**	**$628,802**	**$16,164,304**

Table 4-17: Proposed New Debt in FY 2021

Line No.	FY 2021	Calculation	Whole District	Fund 01 Water Fund	Impact Fee Fund
1	New debt amount		$11,163,801	$9,303,167	$1,860,633
2	Bond Issuance Costs - 2%	*Line 1×2%*	$223,276	$186,063	$37,213
3	Debt Service Reserves - 6.5%	*Line 1×6.5%*	$726,221	$605,184	$121,037
4	**Debt proceeds to LOC repayment**	***[1-2-3]***	**$10,214,304**	**$8,511,920**	**$1,702,384**
5	**Debt service payments (5%, 30 Years)**		**$726,221**	**$605,184**	**$121,037**

4.1.7 *Status Quo Potable Water Financial Plan*

Table 4-18 displays the District's pro forma under current rates over the study period. All projections shown in the table are based upon the District's current rate structure and do not include any revenue adjustments.

[17] The District did not use LOC funding in FY 2016

Table 4-18: Status Quo Water Fund Financial Plan Pro-Forma

Line No.		Source	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	**Revenues from Current Rates**	*Table 4-5*	**$3,710,952**	**$3,987,694**	**$4,143,351**	**$4,270,873**	**$4,386,106**	**$4,394,309**
2	Service/Standby-Basic Service		$1,198,259	$1,218,498	$1,248,469	$1,258,534	$1,260,014	$1,260,014
3	Service/FP-Fire Meter Service		$78,623	$84,746	$97,365	$101,754	$102,440	$102,440
4	Water Sales		$2,434,070	$2,684,450	$2,797,517	$2,910,584	$3,023,651	$3,031,855
5	**Revenue Adjustments**		**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
6	**Other Operating Revenue**		**$76,749**	**$69,790**	**$69,790**	**$69,790**	**$69,790**	**$69,790**
7	**Non-Operating Revenue**		**$972,580**	**$1,110,400**	**$845,719**	**$1,167,547**	**$2,434,151**	**$3,487,053**
8	Property Taxes		$703,680	$717,754	$732,109	$746,751	$761,686	$776,920
9	Interest		$14,600	$15,847	$7,644	$2,329	$3,998	$0
10	Misc. Non-Operating Revenue		$1,800	$1,800	$1,800	$1,800	$1,800	$1,800
11	Reimbursement / Grants		$252,500	$375,000	$104,167	$416,667	$1,666,667	$2,708,333
12	**TOTAL FUND 01 REVENUE**	*[1+5+6+7]*	**$4,760,281**	**$5,167,885**	**$5,058,860**	**$5,508,209**	**$6,890,046**	**$7,951,152**
13	**TOTAL FUND 01 O&M EXPENSES**	*Table 4-7*	**$3,976,482**	**$4,247,894**	**$4,483,306**	**$4,732,903**	**$4,981,416**	**$5,222,184**
14	**NET REVENUE**	*[12-13]*	**$783,799**	**$919,991**	**$575,554**	**$775,306**	**$1,908,630**	**$2,728,968**
15	**Debt Issue**	*Table 4-17*	**$0**	**$0**	**$0**	**$0**	**$0**	**$9,303,167**
16	Issuance Costs	*Table 4-17*	$0	$0	$0	$0	$0	$186,063
17	Debt Service Reserves	*Table 4-17*	$0	$0	$0	$0	$0	$605,184
18	Debt Proceeds for CIP		**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
19	Debt Proceeds for LOC Refinance	*Table 4-17*	$0	$0	$0	$0	$0	$8,511,920
20	LOC proceeds to Fund 01		$0	$212,500	$867,000	$3,537,360	$5,863,174	$2,990,219
21	**Debt Service**		**$355,681**	**$364,481**	**$410,763**	**$585,237**	**$880,839**	**$14,519,394**
22	Current Debt	*Table 4-15*	$355,681	$353,856	$356,788	$354,394	$356,838	$443,956
23	New Debt		$0	$0	$0	$0	$0	$605,184
24	LOC Interest Payments	*Table 4-16*	$0	$10,625	$53,975	$230,843	$524,002	$0
25	LOC Balloon Principal Payments		$0	$0	$0	$0	$0	$13,470,253
26	**Water CIP**	*Table 4-14*	**$1,462,333**	**$2,604,809**	**$2,588,472**	**$4,614,486**	**$6,584,615**	**$3,597,463**
27	Debt Funded		$0	$0	$0	$0	$0	$0
28	Grant Funded	*Table 4-14*	$252,500	$375,000	$104,167	$416,667	$1,666,667	$2,708,333
29	LOC Borrowed		$0	$212,500	$867,000	$3,537,360	$4,917,949	$889,130
30	PAYGO		$1,209,833	$2,017,309	$1,617,305	$660,459	$0	$0
31	**FUND 01 NET CASH CHANGES**	*14+15-21-26]*	**-$1,034,216**	**-$1,836,800**	**-$1,556,680**	**-$887,057**	**$306,350**	**-$3,885,751**
32	**FUND 01 BEGINNING BALANCES**		**$5,129,875**	**$4,095,660**	**$2,258,860**	**$702,180**	**-$184,877**	**$121,473**
33	**FUND 01 ENDING BALANCES**	*[31+32]*	**$4,095,660**	**$2,258,860**	**$702,180**	**-$184,877**	**$121,473**	**-$3,764,277**
34	**FUND 01 TARGET BALANCES**		**$2,854,665**	**$3,001,754**	**$3,150,270**	**$3,430,941**	**$3,832,892**	**$4,085,066**

Under the "status-quo" scenario, which does not include revenue adjustments, revenues generated from rates and other miscellaneous revenues are inadequate to sufficiently recover the expenses of the Water Fund. The net cash changes are negative every year in the Study period with the exception of FY 2020, which results in a small positive net balance, but is followed by nearly a nearly $3.7M negative balance. In addition, Fund 01 (Water Fund) is unable to meet its target balances after FY 2016.

4.1.8 *Recommendations and Proposed Revenue Adjustments*

To ensure that the Water Fund will have adequate revenues to pay for operating expenses and the rate revenue portion of capital expenditures, RFC recommends the following water revenue adjustments listed in Table 4-19. The revenue adjustments are scheduled to be implemented in December of each year, beginning in December 2017.

Table 4-19: Proposed Revenue Adjustments

Effective Date	Proposed Water Revenue Adjustments
December 2017	25%
December 2018	15%
December 2019	10%
December 2020	10%
December 2021	10%

4.1.9 *Proposed Financial Plan*

A pro forma of the proposed financial plan is shown in Table 4-20 below. The proposed financial plan successfully meets the District's financial needs, while minimizing rate impacts to its customers. While net cash changes (line 31 of Table 4-20) remain negative through FY 2018, they begin a positive trajectory, resulting in a positive net cash balance of $1.36M in FY 2019. FY 2021 has a small negative cash balance of -$147K in FY 2021 due to the new debt issue and LOC principal payments. However, this negative balance is addressed by applying reserves, which are healthy at $7.4M beginning balance, more than $3M above the target balance for that year.

Table 4-20: Proposed Water Financial Plan

Line No.		Source	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	**Revenues from Current Rates**	*Table 4-5*	**$3,710,952**	**$3,987,694**	**$4,143,351**	**$4,270,873**	**$4,386,106**	**$4,394,309**
2	Service/Standby-Basic Service		$1,198,259	$1,218,498	$1,248,469	$1,258,534	$1,260,014	$1,260,014
3	Service/FP-Fire Meter Service		$78,623	$84,746	$97,365	$101,754	$102,440	$102,440
4	Water Sales		$2,434,070	$2,684,450	$2,797,517	$2,910,584	$3,023,651	$3,031,855
5	**Revenue Adjustments**		**$0**	**$581,539**	**$1,489,017**	**$2,226,637**	**$2,953,996**	**$3,694,905**
6	**Other Operating Revenue**		**$76,749**	**$69,790**	**$69,790**	**$69,790**	**$69,790**	**$69,790**
7	**Non-Oper Revenue**		**$972,580**	**$1,111,737**	**$851,839**	**$1,182,330**	**$2,461,169**	**$3,527,614**
8	Property Taxes		$703,680	$717,754	$732,109	$746,751	$761,686	$776,920
9	Interest		$14,600	$17,301	$14,281	$18,289	$32,989	$43,422
10	Misc. Non-Operating Revenue		$1,800	$1,800	$1,800	$1,800	$1,800	$1,800
11	Reimbursement / Grants		$252,500	$375,000	$104,167	$416,667	$1,666,667	$2,708,333
12	**TOTAL FUND 01 REVENUE**	*[1+5+6+7]*	**$4,760,281**	**$5,750,877**	**$6,554,515**	**$7,750,806**	**$9,873,034**	**$11,689,479**
13	**TOTAL FUND 01 O&M EXPENSES**	*Table 4-7*	**$3,976,482**	**$4,247,894**	**$4,483,306**	**$4,732,903**	**$4,981,416**	**$5,222,184**
14	**NET REVENUE**	*[12-13]*	**$783,799**	**$1,502,983**	**$2,071,209**	**$3,017,903**	**$4,891,618**	**$6,467,295**
15	**Debt Issue**	*Table 4-17*	**$0**	**$0**	**$0**	**$0**	**$0**	**$9,303,167**
16	Issuance Costs	*Table 4-17*	$0	$0	$0	$0	$0	$186,063
17	Debt Service Reserves	*Table 4-17*	$0	$0	$0	$0	$0	$605,184
18	Debt Proceeds for CIP		**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
19	Debt Proceeds for LOC Refinance	*Table 4-17*	$0	$0	$0	$0	$0	$8,511,920
20	LOC proceeds to Fund 01		$0	$212,500	$867,000	$3,537,360	$5,863,174	$2,990,219
21	**Debt Service**		**$355,681**	**$364,481**	**$410,763**	**$585,237**	**$880,839**	**$14,519,394**
22	Current Debt	*Table 4-15*	$355,681	$353,856	$356,788	$354,394	$356,838	$443,956
23	New Debt		$0	$0	$0	$0	$0	$605,184
24	LOC Interest Payments	*Table 4-16*	$0	$10,625	$53,975	$230,843	$524,002	$0
25	LOC Balloon Principal Payments		$0	$0	$0	$0	$0	$13,470,253
26	**Water CIP**	*Table 4-14*	**$1,462,333**	**$2,604,809**	**$2,588,472**	**$4,614,486**	**$6,584,615**	**$3,597,463**
27	Debt Funded		$0	$0	$0	$0	$0	$0
28	Grant Funded	*Table 4-14*	$252,500	$375,000	$104,167	$416,667	$1,666,667	$2,708,333
29	LOC Borrowed		$0	$212,500	$867,000	$3,537,360	$4,917,949	$889,130
30	PAYGO		$1,209,833	$2,017,309	$1,617,305	$660,459	$0	$0
31	**FUND 01 NET CASH CHANGES**	*[14+15-21-26]*	**-$1,034,216**	**-$1,253,807**	**-$61,026**	**$1,355,540**	**$3,289,338**	**-$147,424**
32	**FUND 01 BEGINNING BALANCES**		**$5,129,875**	**$4,095,660**	**$2,841,853**	**$2,780,827**	**$4,136,367**	**$7,425,705**
33	**FUND 01 ENDING BALANCES**	*[31+32]*	**$4,095,660**	**$2,841,853**	**$2,780,827**	**$4,136,367**	**$7,425,705**	**$7,278,281**
34	**FUND 01 TARGET BALANCES**		**$2,854,665**	**$3,001,754**	**$3,150,270**	**$3,430,941**	**$3,832,892**	**$4,085,066**

Figure 4-2 illustrates the proposed revenue adjustments by the blue bars, with the debt coverage ratios represented by lines. The red line represents the required debt coverage, while the green line shows the Whole District's actual debt coverage[18]. With the water and recycled water adjustments, the actual ratios far exceed the minimum targets for debt coverage.

Figure 4-2: Potable Water Fund Debt Coverage Ratio[19] with Proposed Revenue Adjustments

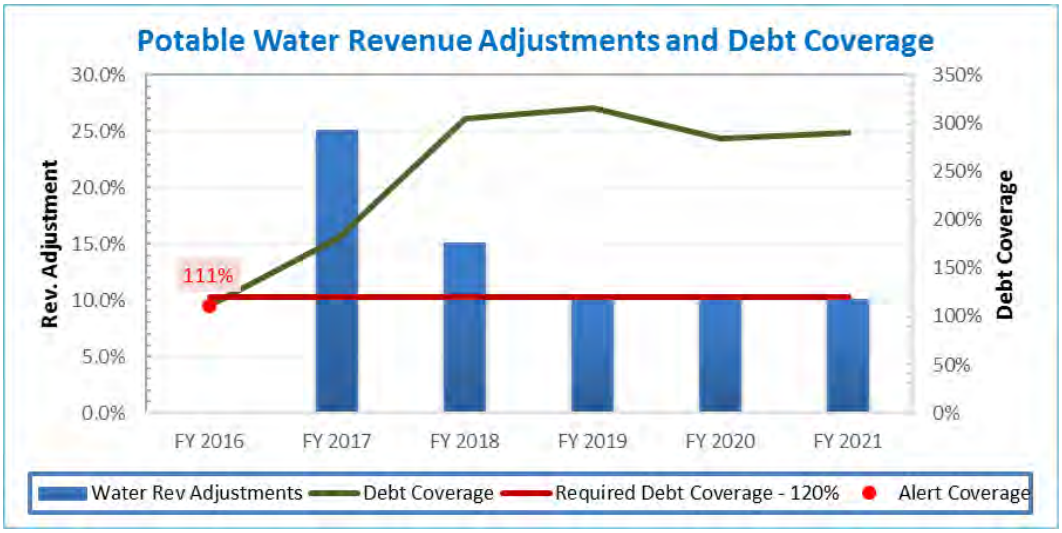


Figure 4-3 illustrates the Water Fund operating position, where the expenses, reserve funding, and debt payments are shown by stacked bars and total revenues at current rates and proposed rates are shown by red and black lines, respectively. The Figure shows positive increases in reserve funding until FY 2021 due to the LOC principle and the issuance of the long-term debt.

[18] See Section 4.3 for District's debt coverage calculations
[19] Debt Coverage ratio is for the Whole District.

Figure 4-3: Proposed Potable Water Fund Operating Financial Plan

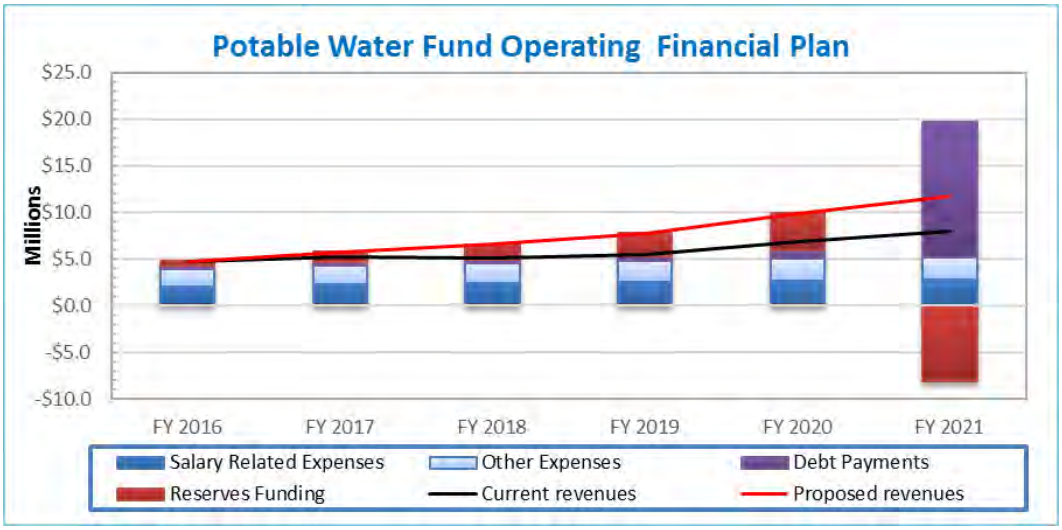
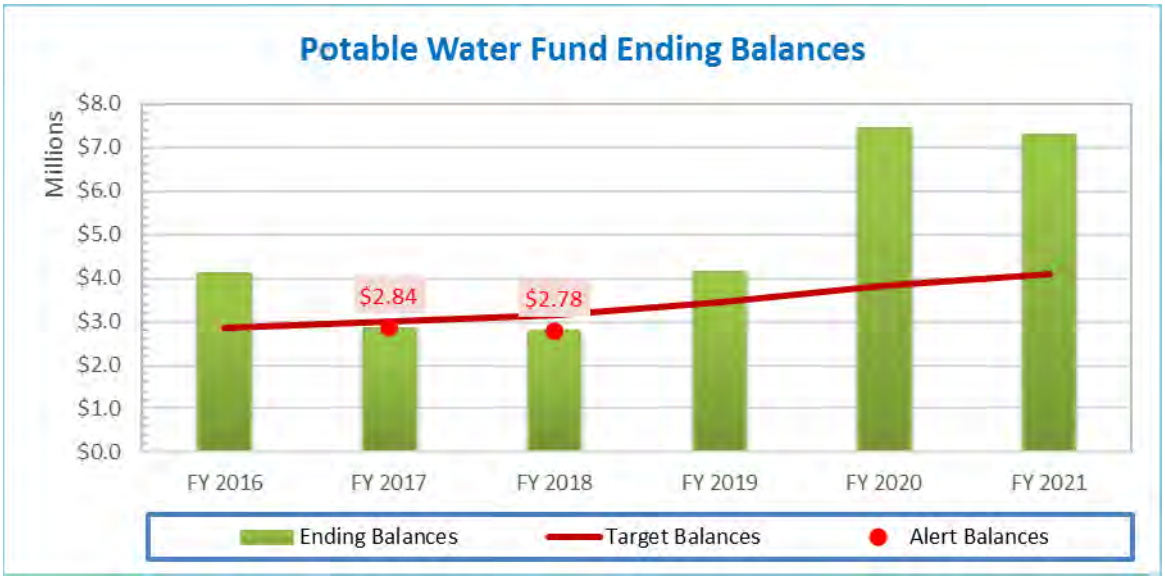


Figure 4-4 shows the annual Water Fund ending fund balance, where the red line indicates the target reserve balance as recommended by the reserve targets discussed in Section 2.3. With the proposed revenue adjustments, the ending fund balance meets the target reserves for all years after FY 2018. The reserves' total ending balance slightly declines in FY 2021 due to coverage of the LOC principle and long-term debt issuance. Additionally, the Water Fund is able to exceed the annual debt coverage of 100 percent of total annual debt service.

Figure 4-4: Potable Water Fund Ending Balances with Proposed Revenue Adjustments



4.2 RECYCLED WATER FINANCIAL PLAN

Much like the Water Fund, a review of the Recycled Water Fund's revenue requirements is the first step in the rate study process. This section of the report provides a discussion of the projected revenues, O&M expenses, other reserve funding and revenue adjustments estimated as required to ensure the fiscal sustainability and solvency of the Recycled Water Fund.

4.2.1 *Revenue from Current Recycled Water Rates*

Recycled Water customers consist solely of Landscape customers. They do not currently pay a basic meter charge. The projected RW accounts shown in Table 4-21 are provided by the District staff for the Study period.

Table 4-21: Projected Recycled Water Accounts

Meter Size	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
5/8"	17	17	17	17	17
3/4"	8	8	8	8	8
1"	13	14	15	17	17
1 1/2"	1	1	1	1	1
2"	12	12	13	13	15
3"	3	3	3	3	3
4"	0	0	0	0	0
Total	**54**	**55**	**57**	**59**	**61**

Recycled Water customers pay only a commodity rate per kGals, charged monthly. As with the potable water rates, Recycled Water commodity rates are structured with six tiers. The FY 2016 rate was developed based on the weighted average of the prior two years' rates as done with the potable water rates. See Section 4.1.1 for details of the methodology. The most recently adopted rates in December 15, 2015 will be the effective current rates for full fiscal years of 2017 to 2021 as shown in column D for Table 4-22.

Table 4-22: Current Recycled Water Rates per kGals

Current Tiers	Current Tier Widths	Dec. 2014	Dec. 2015	FY 2016 Effective Current Rates	FY 2017 – FY 2021 Effective Current Rates
Tier 1	0 to 3,000	$2.86	$2.96	$2.91	$2.96
Tier 2	3,001 to 7,000	$4.78	$4.97	$4.88	$4.97
Tier 3	7,001 to 12,000	$6.18	$6.41	$6.30	$6.41
Tier 4	12,001 to 18,000	$7.44	$7.73	$7.60	$7.73
Tier 5	18,001 to 25,000	$9.53	$9.89	$9.73	$9.89
Tier 6	above 25,000	$10.76	$11.18	$10.99	$11.18

Table 4-23 shows the usage projected across the study period, along with the percent annual increase.

Table 4-23: Projected Recycled Water Sales by Tiers (KGals)

Current Tiers	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Increase	11%	10%	9%	8%	7%	7%
Tier 1	1,052	1,160	1,279	1,398	1,517	1,636
Tier 2	1,166	1,286	1,420	1,553	1,687	1,820
Tier 3	1,316	1,451	1,601	1,751	1,901	2,051
Tier 4	1,404	1,549	1,709	1,870	2,030	2,190
Tier 5	1,406	1,551	1,714	1,876	2,038	2,200
Tier 6	30,166	33,444	37,372	41,301	45,229	49,157
Total	**36,510**	**40,442**	**45,095**	**49,749**	**54,402**	**59,055**

Table 4-24 shows the projected revenues for the study period under the current recycled water rates. Similar to potable water commodity revenue calculations, to calculate the current annual revenue, the usage by tier is multiplied by the tier rate and summed for a total annual usage.

Table 4-24: Projected FY 2016-2021 Recycled Water Commodity Revenue

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Recycled Water Revenue	$372,853	$420,351	$469,090	$517,828	$566,567	$615,305

4.2.2 *O&M Expenses*

The Recycled Water Fund's supply costs consist solely of pumping. This cost is based on the budgeted expenses for FY 2016, increased annually by the electricity cost escalation factor in Table 2-1 and the projected increase in recycled water production in Table 4-23. The projections for other O&M expenses are calculated by increases the FY 2016 expenses provided in the budget by the escalation factors in Table 2-1.

Table 4-25: Projected FY 2016-2021 Recycled Water Fund O&M Expenses

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Salaries and Benefits	$220,320	$237,072	$252,579	$269,112	$285,038	$301,945
G&A Services	$57,330	$59,050	$60,821	$62,646	$64,525	$66,461
Supplies	$4,610	$4,748	$4,891	$5,037	$5,189	$5,344
Source of Supply	$0	$0	$0	$0	$0	$0
Pumping	$5,000	$5,701	$6,241	$6,821	$7,443	$7,833
Water Treatment	$0	$0	$0	$0	$0	$0
Transmission & Distribution	$147,000	$151,410	$155,952	$160,631	$165,450	$170,413
Customer Accounts	$0	$0	$0	$0	$0	$0
Other	$0	$0	$0	$0	$0	$0
Total Recycled Water O&M	**$434,260**	**$457,982**	**$480,485**	**$504,247**	**$527,644**	**$551,997**

4.2.3 *Capital Improvement Plan*

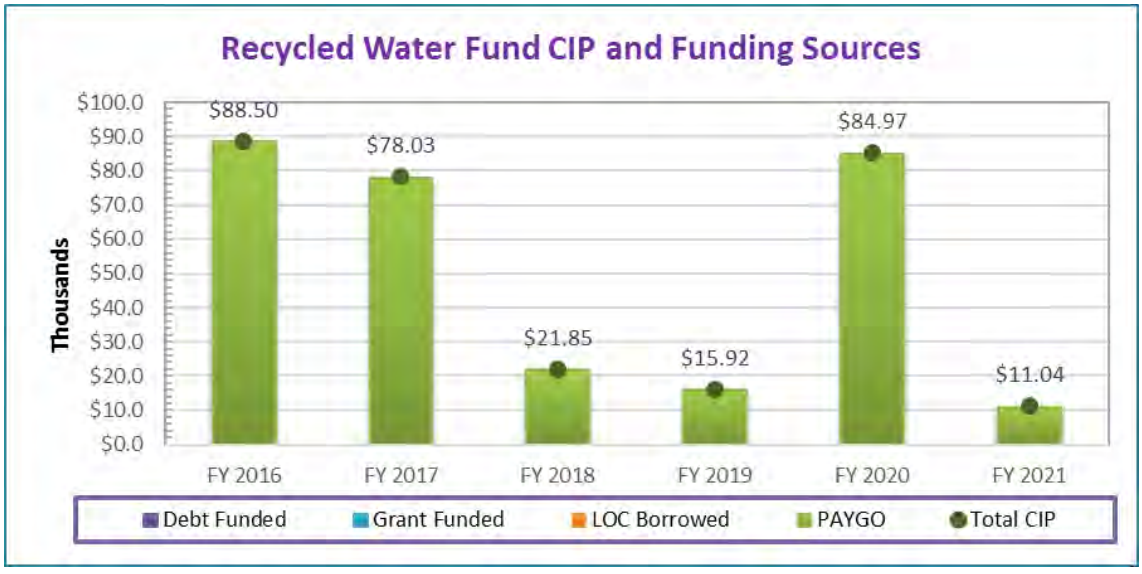
As discussed earlier in Section 4.1.3, the Recycled Water Fund shares the responsibility of a number of improvement projects with the Water Fund. Below extracts the CIP items related to the Recycled Water Fund in Table 4-11 and the Fund's percent share of funding from Table 4-10.

Table 4-26: Recycled Water Fund CIP

Project Name	Fund 01 Water Funding %	Fund 02 Recycled Water Funding %
Main Replacement Program	50%	50%
Automated Metering Infrastructure (AMI)	90%	10%
Office Facility Upgrades	90%	10%
Electronic Security Access	90%	10%
SCADA Phase 3 Upgrade	90%	10%
Accounting & Utility Billing Software Replacement	90%	10%
Vehicle Replacement Program	90%	10%
Specialized Operations Vehicles	90%	10%

As shown in Figure 4-5, the Recycled Water Fund's CIP share is entirely funded through rates or PAYGO.

Figure 4-5: Recycled Water Fund CIP and Funding Sources



4.2.4 *Current and Proposed Debt*

The COP 2004 debt funds were used to develop the recycled water treatment plant. Per District staff, the debt service will be funded by impact fees. The District does not propose any additional debt for the RW fund.

4.2.5 *Status Quo Recycled Water Financial Plan*

Table 4-27 displays the pro forma under current rates over the Study period. All projections shown in the table are based upon the District's current rate structure and do not include rate adjustments. The pro forma incorporates revenues from current rates (Table 4-24), O&M expenses (Table 4-25), and capital expenditures (Table 4-11 and Table 4-26). Under the "status quo" scenario, the Recycled Water Fund maintains a negative ending fund balance that becomes increasingly negative through FY 2020 at -$225,677, only beginning to increase in FY 2021 with an ending fund balance of -$173,409.

Table 4-27: Recycled Water Status Quo Financial Plan Pro-Forma

		Source	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	**Revenues from Current Rates**	*Table 4-23*	**$372,853**	**$420,351**	**$469,090**	**$517,828**	**$566,567**	**$615,305**
2	**Revenue Adjustments**		**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
3	**Other Operating Revenue**		**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
4	**Other Non-Operating Revenue**		**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
5	Interest		$0	$0	$0	$0	$0	$0
6	Reimbursement / Grants		**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
7	**TOTAL FUND 02 REVENUE**	*[1+2+3+4]*	**$372,853**	**$420,351**	**$469,090**	**$517,828**	**$566,567**	**$615,305**
8	**TOTAL FUND 02 O&M EXPENSES**	*Table 4-25*	**$434,260**	**$457,982**	**$480,485**	**$504,247**	**$527,644**	**$551,997**
9	**NET REVENUE**	*[7-8]*	**-$61,407**	**-$37,631**	**-$11,395**	**$13,581**	**$38,922**	**$63,309**
10	**Debt Issue**		$0	$0	$0	$0	$0	$0
11	**Debt Service**		**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
12	**FUND 02 CIP**	*Table 4-26*	**$88,500**	**$78,030**	**$21,848**	**$15,918**	**$84,971**	**$11,041**
13	PAYGO		$88,500	$78,030	$21,848	$15,918	$84,971	$11,041
14	**FUND 02 NET CASH CHANGES**	*[9+11-10-12]*	**-$149,907**	**-$115,661**	**-$33,243**	**-$2,337**	**-$46,049**	**$52,268**
15	**FUND 02 BEGINNING BALANCES**	*Table 2-3*	**$121,520**	**-$28,387**	**-$144,047**	**-$177,291**	**-$179,628**	**-$225,677**
16	**FUND 02 ENDING BALANCES**	*[15+14]*	**-$28,387**	**-$144,047**	**-$177,291**	**-$179,628**	**-$225,677**	**-$173,409**
17	**FUND 02 TARGET BALANCES**	*Table 2-4*	**$508,525**	**$530,463**	**$552,474**	**$574,934**	**$597,437**	**$620,317**

4.2.6 *Recommendations and Proposed Financial Plan*

As the Recycled Water Fund experiences a shortfall in funding during the study period under current rates, RFC recommends the following annual rate increases for the duration of the study period after FY 2016 in order to improve the health of the Fund.

Table 4-28: Proposed RW Revenue Adjustments

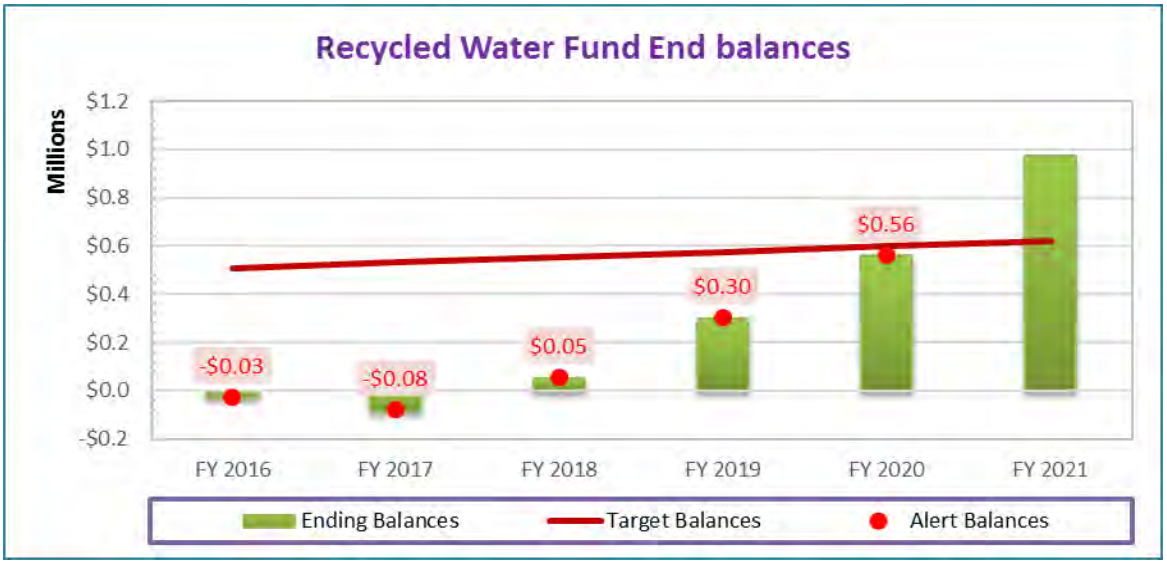
Effective Date	Proposed RW Revenue Adjustments
December 2017	25%
December 2018	15%
December 2019	5%
December 2020	3%
December 2021	3%

The revenue adjustments in Table 4-28 result in the District achieving a positive net cash balance as well as a positive ending balance beginning with FY 2018. The Fund begins to meet its target balance in FY 2021, also shown in Figure 4-6.

Table 4-29: Proposed Recycled Water Financial Plan

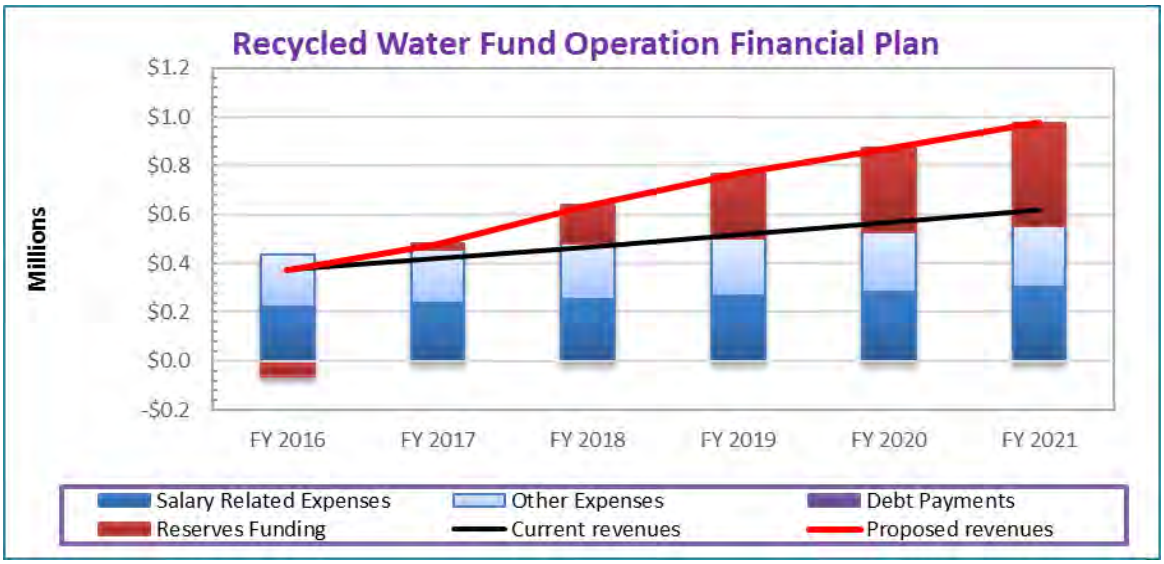
Line No.		Source	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	**Revenues from Current Rates**		$372,853	$420,351	$469,090	$517,828	$566,567	$615,305
2	**Revenue Adjustments**		$0	$61,301	$168,579	$248,261	$303,560	$358,023
3	**Other Operating Revenue**		$0	$0	$0	$0	$0	$0
4	**Other Non-Operating Revenue**		$0	$0	$0	$878	$2,141	$3,821
5	Interest		$0	$0	$0	$878	$2,141	$3,821
6	Reimbursement / Grants		$0	$0	$0	$0	$0	$0
7	**TOTAL FUND 02 REVENUE**		**$372,853**	**$481,652**	**$637,669**	**$766,967**	**$872,268**	**$977,149**
8	**TOTAL FUND 02 O&M EXPENSES**		**$434,260**	**$457,982**	**$480,485**	**$504,247**	**$527,644**	**$551,997**
9	**NET REVENUE**		**$61,407**	**$23,671**	**$157,184**	**$262,719**	**$344,623**	**$425,153**
10	**Debt Issue**		$0	$0	$0	$0	$0	$0
11	**Debt Service**		$0	$0	$0	$0	$0	$0
12	**FUND 02 CIP**		$88,500	$78,030	$21,848	$15,918	$84,971	$11,041
13	PAYGO		$88,500	$78,030	$21,848	$15,918	$84,971	$11,041
14	**FUND 02 NET CASH CHANGES**		**-$149,907**	**-$54,359**	**$135,336**	**$246,801**	**$259,652**	**$414,112**
15	**FUND 02 BEGINNING BALANCES**		**$121,520**	**-$28,387**	**-$82,746**	**$52,589**	**$299,391**	**$559,043**
16	**FUND 02 ENDING BALANCES**		**-$28,387**	**-$82,746**	**$52,589**	**$299,391**	**$559,043**	**$973,155**
17	**FUND 02 TARGET BALANCES**		**$508,525**	**$530,463**	**$552,474**	**$574,934**	**$597,437**	**$620,317**

Figure 4-6: Recycled Water Fund End Balances



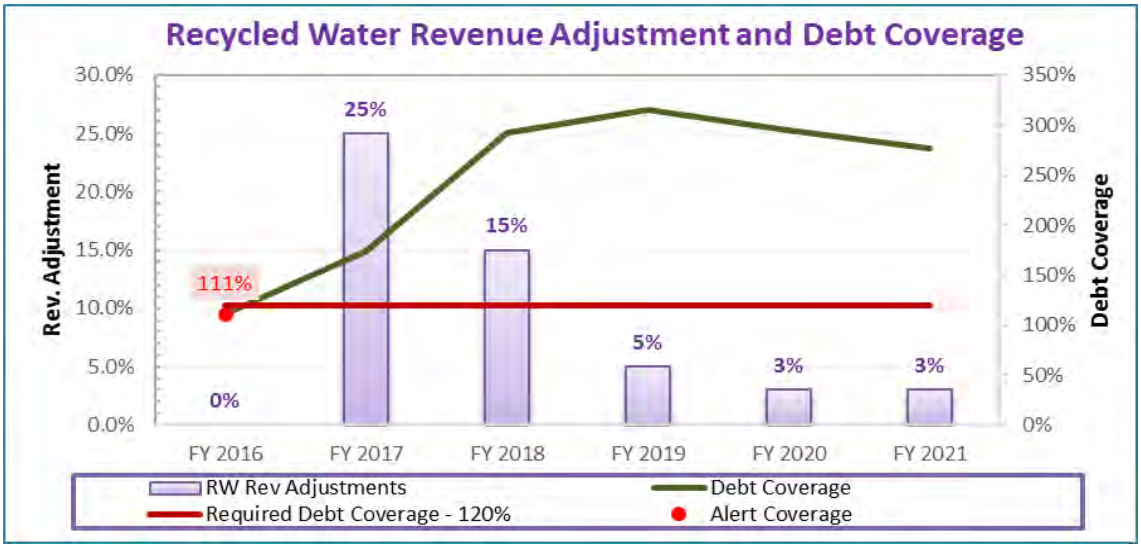
The proposed revenue adjustments allow the Recycled Water Fund to fund its share of the necessary capital expenditures planned for the study period. As shown in Figure 4-7, the proposed revenue, shown by the red line meets all operating obligations, shown by stacked bars. It also contributes to reserves each year of the study period for future capital replacement projects and to meet reserve requirements.

Figure 4-7: Recycled Water Fund Operation Financial Plan



The water and recycled revenue adjustments ensure the debt coverage ratio for the whole district is well above the required 120 percent.

Figure 4-8: Recycled Water Fund Debt Coverage Ratio[20] with Proposed Revenue Adjustments



[20] Debt coverage ratio is for the Whole District

4.3 DISTRICT FINANCIAL PLAN

4.3.1 *Status Quo District Financial Plan (No Revenue Adjustments)*

Table 4-30 shows the financial plan of the entire District without the revenue changes suggested in Section 4.1.6 for the Water Fund and Section 4.2.6 for Recycled Water. The whole district financial plan includes water (Fund 01) and recycled water (Fund 02) funds as well as Capacity Fee and Impact Fee Funds. As with the two main funds, the District sees sharp declines in the ending balance throughout the Study period. By FY 2021, the balance reduces down to -$6.0M, leaving the District in a challenging financial situation. Debt coverage ratio is calculated using Net Revenues divided by Total Debt Service excluding LOC principal payments.

Table 4-30: Whole District Status Quo Financial Plan

		Source	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	**Revenues from Current Rates**	[1]+[2]+[3]	**$4,083,805**	**$4,408,046**	**$4,612,441**	**$4,788,701**	**$4,952,672**	**$5,009,615**
2	Service/Standby-Basic Service		$1,198,259	$1,218,498	$1,248,469	$1,258,534	$1,260,014	$1,260,014
3	Service/FP-Fire Meter Service		$78,623	$84,746	$97,365	$101,754	$102,440	$102,440
4	Water Sales		$2,806,923	$3,104,801	$3,266,607	$3,428,412	$3,590,218	$3,647,160
5	**Revenue Adjustments**		**$0**	**$0**	**$0**	**$0**	**$0**	**$0**
6	**Other Operating Revenue**		**$76,749**	**$69,790**	**$69,790**	**$69,790**	**$69,790**	**$69,790**
7	**New Development Rev**		**$108,834**	**$0**	**$0**	**$0**	**$0**	**$0**
8	Service/Other-Meter Capacity		$95,526	$0	$0	$0	$0	$0
9	Sale of Fire Hydrants		$13,308	$0	$0	$0	$0	$0
10	**Impact Fee Revenue**		**$118,495**	**$0**	**$0**	**$0**	**$0**	**$0**
11	**Non-Oper Revenue**		**$1,036,014**	**$1,485,937**	**$866,553**	**$1,250,880**	**$2,767,484**	**$4,028,720**
12	Property Taxes		$703,680	$717,754	$732,109	$746,751	$761,686	$776,920
13	Interest		$15,534	$16,383	$7,644	$2,329	$3,998	$0
14	Misc. Non-Operating Revenue		$1,800	$1,800	$1,800	$1,800	$1,800	$1,800
15	Reimbursement / Grants		$315,000	$750,000	$125,000	$500,000	$2,000,000	$3,250,000
16	**TOTAL REVENUE**	*[1+5+6+7+10+11]*	**$5,423,897**	**$5,963,772**	**$5,548,783**	**$6,109,371**	**$7,789,946**	**$9,108,124**
17	**TOTAL O&M EXPENSES**	***Table 4-9 + Table 4-25***	**$4,410,742**	**$4,705,876**	**$4,963,791**	**$5,237,151**	**$5,509,060**	**$5,774,181**
18	**NET REVENUE**	*[16-17]*	**$1,013,155**	**$1,257,897**	**$584,993**	**$872,220**	**$2,280,886**	**$3,333,943**
19	**Debt Issue**		**$0**	**$0**	**$0**	**$0**	**$0**	**$11,163,801**
20	Issuance Costs	Table 4-17	$0	$0	$0	$0	$0	$223,276
21	Debt Service Reserves		$0	$0	$0	$0	$0	$726,221
22	Debt Proceeds for CIP		$0	$0	$0	$0	$0	$0
23	Debt Proceeds for LOC Refinance		$0	$0	$0	$0	$0	$10,214,304
24	LOC proceeds to Whole District		$0	$255,000	$1,040,400	$4,244,832	$7,035,809	$3,588,263
25	**Debt Service**	*Table 4-15*	**$629,094**	**$638,964**	**$697,368**	**$905,158**	**$1,256,908**	**$17,607,767**
26	**CIP Outflow**	*Table 4-14*	**$1,680,000**	**$3,363,884**	**$3,101,693**	**$5,337,876**	**$7,842,221**	**$4,206,548**
27	Debt Funded		$0	$0	$0	$0	$0	$0
28	Grant Funded	*Table 4-14*	$315,000	$750,000	$125,000	$500,000	$2,000,000	$3,250,000
29	LOC Borrowed		$0	$255,000	$1,019,567	$4,161,499	$5,757,250	$945,507
30	PAYGO	*[26-27-28-29]*	$1,365,000	$2,358,884	$1,957,126	$676,378	$84,971	$11,041
31	**NET CASH CHANGES**	*[18+19-25-26]*	**-$1,295,939**	**-$2,489,951**	**-$2,173,667**	**-$1,125,982**	**$217,566**	**-$4,677,806**
32	**BEGINNING BALANCE**		**$5,469,565**	**$4,173,626**	**$1,683,675**	**-$489,993**	**-$1,615,975**	**-$1,398,409**
33	**WHOLE DISTRICT (UNRESTRICTED) ENDING BALANCE**	*[32+31]*	**$4,173,626**	**$1,683,675**	**-$489,993**	**-$1,615,975**	**-$1,398,409**	**-$6,076,215**
34	**TARGET RESERVES**		**$3,636,602**	**$3,806,700**	**$3,989,350**	**$4,325,796**	**$4,806,398**	**$5,099,705**
35	**Debt Coverage Ratio**[21]		111.0%	79.5%	66.0%	41.1%	22.3%	5.8%

This is further illustrated in Figure 4-9, which shows the District needing to utilize reserve funds in order to cover expenses beginning in FY 2018, and a significant reliance on reserves in FY 2021 to attempt to address the significant shortfall in revenues' coverage of the year's expenses.

[21] Debt Coverage ratio is the ratio between Net Revenue (excluding Grants) and Debt Service (excl. LOC principal payment)

Figure 4-9: Operating Plan under Status Quo Scenario

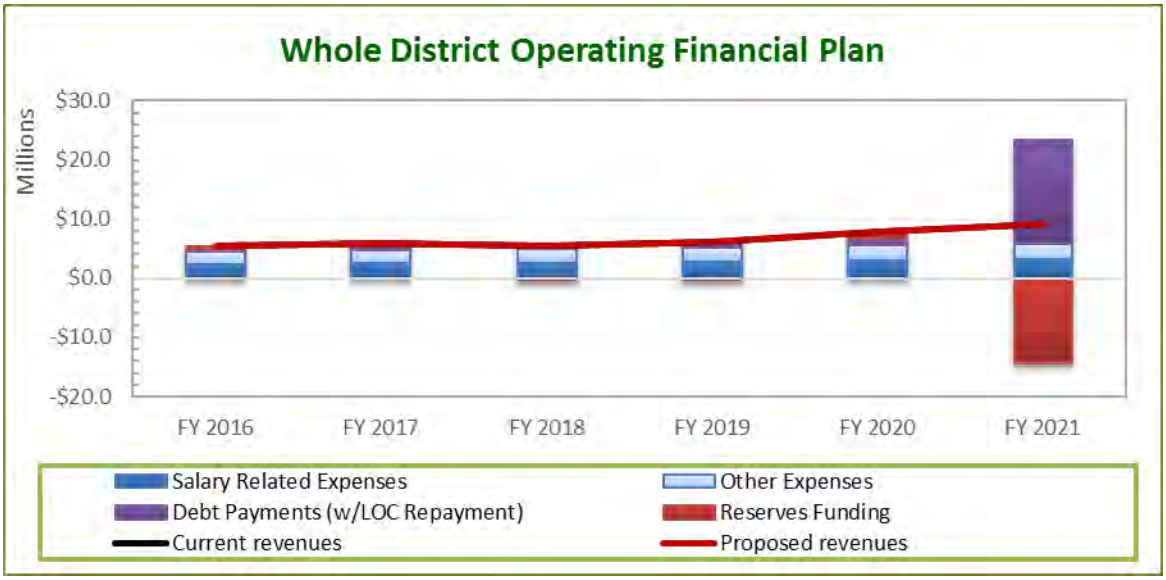
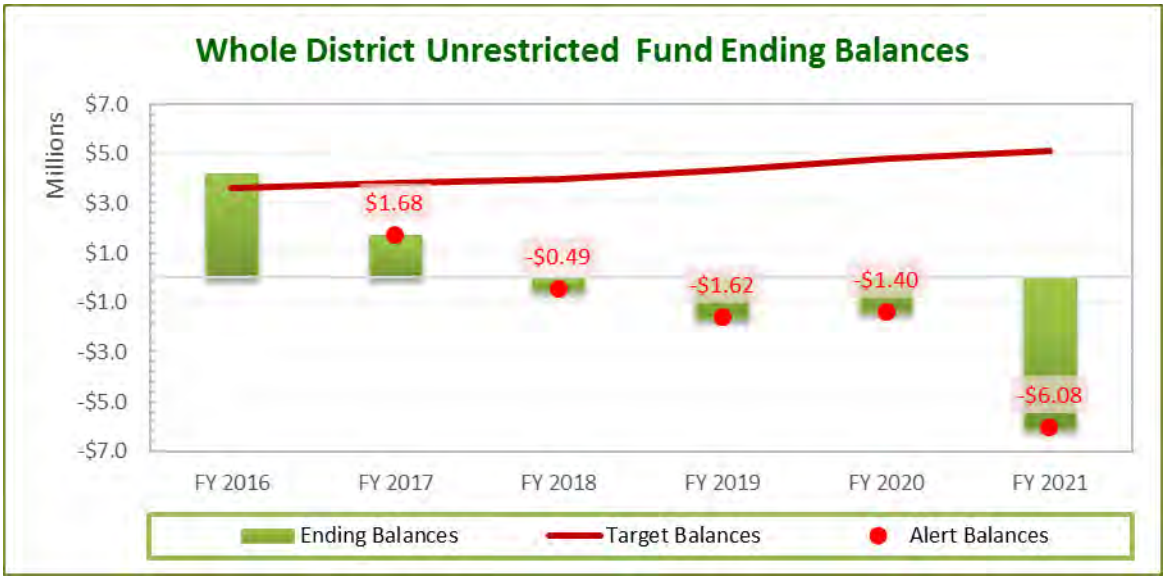


Figure 4-10 below further illustrates the inability of the District to adequately meet expenses without revenue adjustments. Reserves are exhausted after FY 2017 and begin to show negative balances in FY 2018, with a significant deficit in FY 2021. As such, continuing without revenue adjustments is unsustainable for the District.

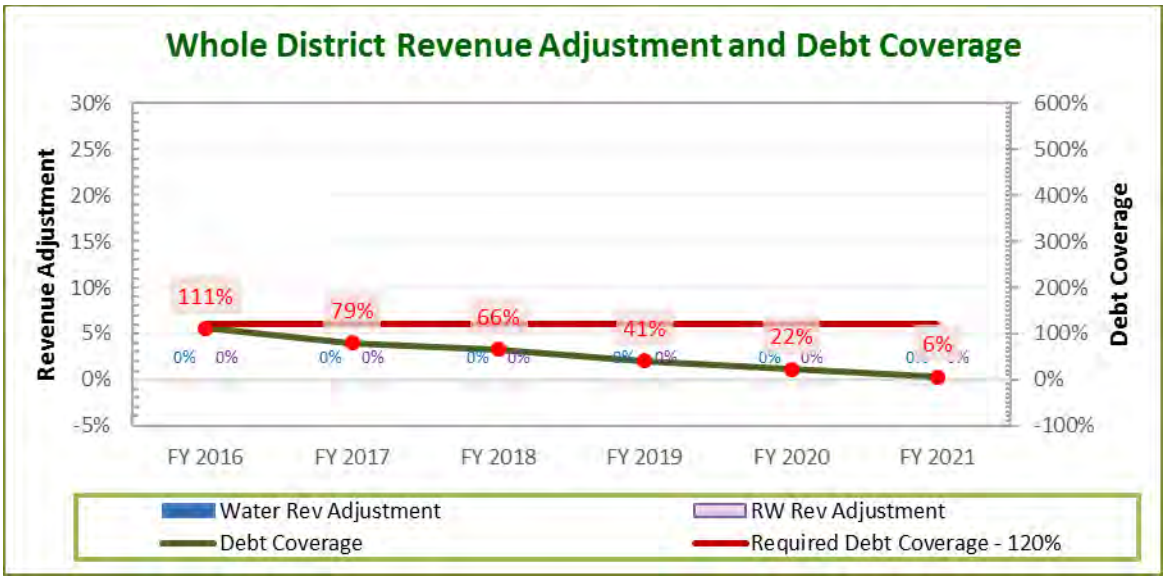
Figure 4-10: Unrestricted Fund Ending Balances under Status Quo Scenario



Furthermore, the District will not be able to meet its debt coverage ratio without sufficient revenue adjustments and the necessary rate adjustments. Figure 4-11 shows the required debt coverage ratio of 120% illustrated by the red line. Actual debt coverage, shown in green, sinks significantly during the Study period, and the District does not meet the required coverage. As it is significantly under the

required ratio, this leaves the District vulnerable in terms of its ability to pay its current and proposed debt in addition to its ability to issue further debt.

Figure 4-11: Debt Coverage under Status Quo Scenario



4.3.2 *Proposed District Financial Plan*

Table 4-31 presents the revenue adjustment for potable and recycled water as proposed in Section 4.1.6 for the Water Fund and Section 4.2.6 for Recycled Water.

Table 4-31: Proposed Revenue Adjustments by Fund

Effective Date	Proposed Water Revenue Adjustments	Proposed Recycled Water Revenue Adjustments
December 2017	25%	25%
December 2018	15%	15%
December 2019	10%	5%
December 2020	10%	3%
December 2021	10%	3%

The financial plan for the whole district, which includes the proposed revenue adjustments, is summarized in Table 4-32. Increased revenues ensure that the District will be able to recover the operating expenses and debt service payments. However, the net cash changes remain negative till FY 2018 due to the significant rate funded capital investments and require some reserve funding. In FY 2019 and FY 2020, as the rate funded CIP declines, the net cash changes turn positive. In FY 2021, net cash changes turn negative again due to the accumulated principal payment on the line of credit. The debt coverage ratio shows healthy levels during the entire projection period.

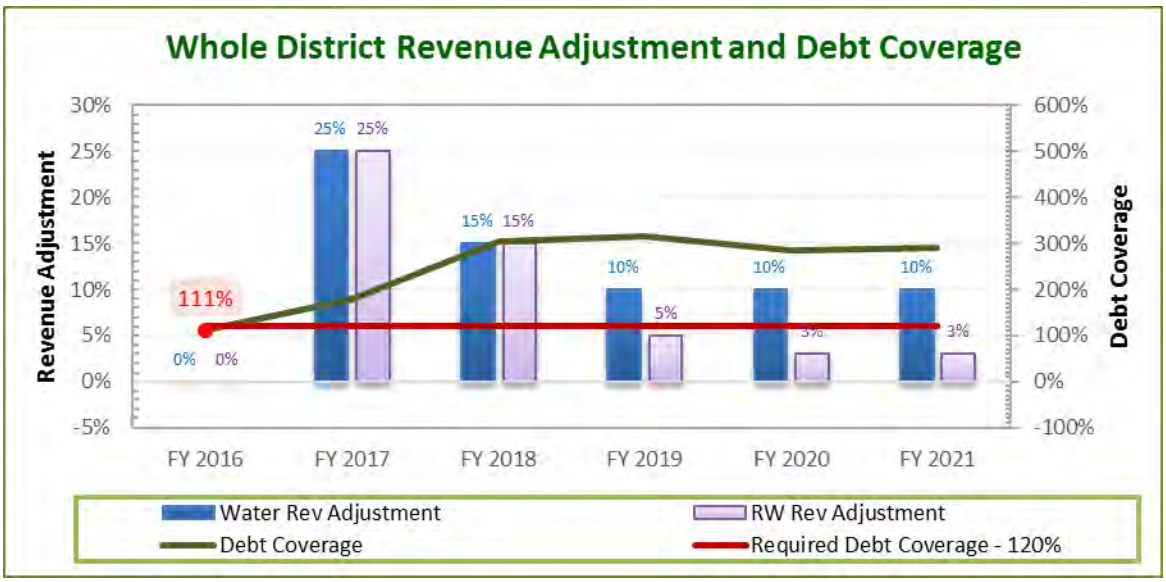
Table 4-32: Whole District Financial Plan with Proposed Revenue Adjustments

		Source	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	**Revenues from Current Rates**		**$4,083,805**	**$4,408,046**	**$4,612,441**	**$4,788,701**	**$4,952,672**	**$5,009,615**
2	Service/Standby-Basic Service		$1,198,259	$1,218,498	$1,248,469	$1,258,534	$1,260,014	$1,260,014
3	Service/FP-Fire Meter Service		$78,623	$84,746	$97,365	$101,754	$102,440	$102,440
4	Water Sales		$2,806,923	$3,104,801	$3,266,607	$3,428,412	$3,590,218	$3,647,160
5	**Revenue Adjustments**		**$0**	**$642,840**	**$1,657,596**	**$2,474,898**	**$3,257,557**	**$4,052,928**
6	**Other Operating Revenue**		**$76,749**	**$69,790**	**$69,790**	**$69,790**	**$69,790**	**$69,790**
7	**New Development Rev**		**$108,834**	**$0**	**$0**	**$0**	**$0**	**$0**
8	Service/Other-Meter Capacity		$95,526	$0	$0	$0	$0	$0
9	Sale of Fire Hydrants		$13,308	$0	$0	$0	$0	$0
10	**Impact Fee Revenue**		**$118,495**	**$0**	**$0**	**$0**	**$0**	**$0**
11	**Non-Oper Revenue**		**$1,036,014**	**$1,487,391**	**$873,190**	**$1,267,718**	**$2,798,616**	**$4,075,963**
12	Property Taxes		$703,680	$717,754	$732,109	$746,751	$761,686	$776,920
13	Interest		$15,534	$17,837	$14,281	$19,167	$35,130	$47,243
14	Misc. Non-Operating Revenue		$1,800	$1,800	$1,800	$1,800	$1,800	$1,800
15	Reimbursement / Grants		$315,000	$750,000	$125,000	$500,000	$2,000,000	$3,250,000
16	**TOTAL REVENUE**	*[1+5+6+7+10+11]*	**$5,423,897**	**$6,608,066**	**$7,213,017**	**$8,601,106**	**$11,078,635**	**$13,208,295**
17	**TOTAL O&M EXPENSES**	***Table 4-9 + Table 4-25***	**$4,410,742**	**$4,705,876**	**$4,963,791**	**$5,237,151**	**$5,509,060**	**$5,774,181**
18	**NET REVENUE**	*[16-17]*	**$1,013,155**	**$1,902,191**	**$2,249,226**	**$3,363,956**	**$5,569,575**	**$7,434,114**
19	**Debt Issue**	Table 4-17	**$0**	**$0**	**$0**	**$0**	**$0**	**$11,163,801**
20	Issuance Costs		$0	$0	$0	$0	$0	$223,276
21	Debt Service Reserves		$0	$0	$0	$0	$0	$726,221
22	Debt Proceeds for CIP		$0	$0	$0	$0	$0	$0
23	Debt Proceeds for LOC Refinance		$0	$0	$0	$0	$0	$10,214,304
24	LOC proceeds to Whole District		$0	$255,000	$1,040,400	$4,244,832	$7,035,809	$3,588,263
25	**Debt Service**	Table 4-15	**$629,094**	**$638,964**	**$697,368**	**$905,158**	**$1,256,908**	**$17,607,767**
26	**CIP Outflow**	Table 4-14	**$1,680,000**	**$3,363,884**	**$3,101,693**	**$5,337,876**	**$7,842,221**	**$4,206,548**
27	Debt Funded		$0	$0	$0	$0	$0	$0
28	Grant Funded		$315,000	$750,000	$125,000	$500,000	$2,000,000	$3,250,000
29	LOC Borrowed		$0	$255,000	$1,019,567	$4,161,499	$5,757,250	$945,507
30	PAYGO	*[26-27-28-29]*	$1,365,000	$2,358,884	$1,957,126	$676,378	$84,971	$11,041
31	**NET CASH CHANGES**	*[18+19-25-26]*	**-$1,295,939**	**-$1,845,657**	**-$509,434**	**$1,365,753**	**$3,506,255**	**-$577,635**
32	**BEGINNING BALANCE**		**$5,469,565**	**$4,173,626**	**$2,327,968**	**$1,818,535**	**$3,184,288**	**$6,690,543**
33	**WHOLE DISTRICT (UNRESTRICTED) ENDING BALANCE**	*[32+31]*	**$4,173,626**	**$2,327,968**	**$1,818,535**	**$3,184,288**	**$6,690,543**	**$6,112,908**
34	**TARGET RESERVES**		**$3,636,602**	**$3,806,700**	**$3,989,350**	**$4,325,796**	**$4,806,398**	**$5,099,705**
35	**Debt Coverage Ratio**[22]		**111.0%**	**180.3%**	**304.6%**	**316.4%**	**284.0%**	**289.9%**

[22] Debt Coverage ratio is the ratio between Net Revenue (excluding Grants) and Debt Service (excl. LOC principal payment)

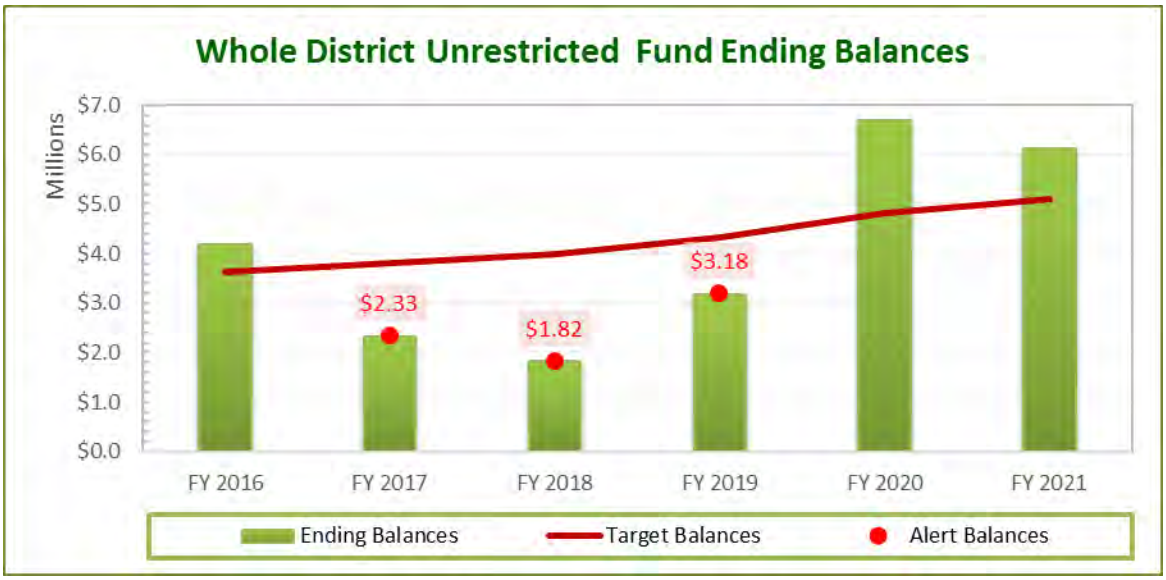
Figure 4-12 illustrates that the debt coverage ratio with proposed revenue adjustments shown in Table 4-31 is well above the required level of 120 percent during the projection period.

Figure 4-12: Debt Coverage under Revenue Adjustment Scenario



The significant share of rate funded capital investment in the beginning of the projection period draws from the District's reserves despite the revenue increase and keeps them below the target level. However, as the rate funded project are completed, the reserves balances increase and stay above the target level even in FY 2021 when the District has to refinance the line of credit principal.

Figure 4-13: Unrestricted Fund Ending Balances with Proposed Revenue Adjustments



5. PROPOSED TIER DEFINITIONS

Tiered Rates, when properly designed, allow a water utility to send consistent price incentives for conservation to customers. Due to heightened interest in water conservation, tiered rates have seen widespread use, especially in relatively water-scarce regions, such as the State of California.

5.1 CURRENT TIER DEFINITIONS

The District currently utilizes a six-tier system applied to all customer classes equally with tier widths in gallons. However, this structure does not consider the usage characteristics of different classes, such as single-family residences and commercial customers.

Table 5-1: Current Tier Structure

Tier	Tier Range (Gals)
Tier 1	0-6,000
Tier 2	6,001-14,000
Tier 3	14,001-24,000
Tier 4	24,001-36,000
Tier 5	36,001-50,000
Tier 6	50,001+

5.2 PROPOSED TIER DEFINITIONS

RFC proposes revising the District's tier definitions and applications. First, RFC proposes that the District reduce the number of tiers from six to four tiers. Tier widths would also be reduced based on the annual groundwater safety yield. Second, RFC proposes applying the tiers only to residential customers and introducing a uniform rate for all non-residential customers.

5.2.1 *Groundwater Availability*

RFC analyzed the District's annual share of groundwater in order to redefine the new water use tiers. The safe yield of 1,506 AF[23] is divided between residential and non-residential customers based on their share of total water usage in FY 2015. According to the information from the District, residential customers used 71 percent of the District's total potable water consumption. Therefore, the annual safe groundwater yield available to residential customers will be 1,071 AF.

[23] Provided by District staff based on historical average safeyield for groundwater basin.

Table 5-2: Groundwater Availability

Safe Yield per Year	Data Source	%	AF	KGal[24]
Residential Customer Consumption	*FY 2015 Consumption Data*	71%	1,071	349,092
Non-Residential Customer Consumption	*FY 2015 Consumption Data*	29%	435	141,790
Total District Annual Yield	***District***	**100%**	**1,506**	**490,882**

RFC then determined the groundwater availability per residential unit based on the same FY 2015 residential usage and the total residential units, per District staff. Per Table 5-3, the calculated safe yield per residential unit in a bimonthly billing period is 15.722 kGals.

Table 5-3: Groundwater Safe Yield per Residential Unit

	Calculation	Yield
Residential Units		3,689
Safe Yield per Residential Unit per Year (KGals)	349,092 KGals Res. Consumption / 3,689 Residential Units =	94.631
Safe Yield per Residential Unit per Bimonthly Period (KGals)	94.631 KGals per Res. Unit / 6 Bimonthly Periods per Year =	15.722

5.2.2 *Proposed Tier Definitions*

RFC proposes four tiers to replace the District's current six tiers. These tiers are based on the following rationale:

Tier 1 – Efficient Water Indoor Water Use Break Point Rationale

Tier 1 represents the lowest cost water available to SFR customers and is designed to provide an adequate allotment for household/indoor use. The Tier 1 width is based on the average number of people in a household, defined as 3 people for the District, and water consumption of 32 gallons per capita day[25] (GPCD). This calculation is shown below and then rounded up to 6,000. Both Single Family and Multi-Family Residential customers receive this width for Tier 1 per dwelling unit.

$$3\ People\ per\ Household \times 32\ Gallons\ per\ Person \times \frac{(365\ Days\ per\ Year)}{(6\ Billing\ Periods\ per\ Year)} = 6{,}000\ Gals$$

Tier 2 – Efficient Outdoor Water Use Break Point Rationale

Tier 2 is designed to provide an adequate allotment for efficient outdoor use for the average residential home. The width of Tier 2 for Single Family Residential customers is calculated as outdoor water consumption for 1,800 sq. feet landscape area. It is based on average bimonthly ET_0 of 7.24 inch (CIMIS station 104, 10 year bimonthly average) and ETAF of 70 percent (CA Code of Regulation, Title 23, Chapter 27). This value is then rounded up to the nearest kGals.

[24] 1 AF = 325.380 kgal

[25] Based on the efficient household water budget per person per day; "*Urban Water Conservation and Efficiency Potential in California*", Pacific Institute, http://pacinst.org/app/uploads/2014/06/ca-water-urban.pdf

$$1{,}800\ sq.ft.\ Landscape\ Area \times 7.24\ in.\ Average\ Bimonthly\ ET_0 \times \left(\frac{70\%\ ETAF}{1200\ Cubic\ Feet}\right) \times 748\ Gals = 6{,}000\ Gals$$

Since MFR customers generally have essentially indoor use only, this customer class will receive a smaller Tier 2 width based on 100 sq. ft per dwelling unit for balcony planting or small outdoor use, per District directions. The same calculation as above is utilized, replacing the 1,800 sq.ft. landscape area with 100 sq.ft. Rounding upward, this results in a 400 gallon tier width.

$$100\ sq.ft.\ Landscape\ Area \times 7.24\ in.\ Average\ Bimonthly\ ET_0 \times \left(\frac{70\%\ ETAF}{1200\ Cubic\ Feet}\right) \times 748\ Gals = 400\ Gals$$

Tier 3 – Groundwater Availability Break Point Rationale

The width of tier 3 is determined by the maximum safe yield of potable water per residential unit and share of residential consumption in total water consumption in FY 2015. Using the values in Table 5-2 and Table 5-3, the Tier 3 upper breakpoint is determined as the rounded total bimonthly max groundwater allotment per residential unit. This value is rounded to the nearest kGal. This is the safety yield of groundwater available to each residential unit if each unit shared the District's safe yield groundwater equally. This upper tier break applies to both Single and Multi-Family users.

$$1{,}071\ AF \times 435.6\ hundred\ cubic\ feet \times \frac{\frac{748\ Gals}{6\ Bimonthly\ Periods}}{3{,}689\ Residential\ Units} = 16{,}000\ Gals$$

Tier 4 – Excessive Usage

Consumption falling into this tier is considered excessive usage for a typical customer as it exceeds the average safe yield of groundwater to each residential unit.

Revised Tier Structure

Table 5-4 shows the new tier structures for residential and non-residential customers. These tiers apply to both Inside and Outside District customers.

Table 5-4: Revised Tier Structures

Tiers	Tier Breaks	Tier Width (gal)
Single Family Residential		
Tier 1	0 to 6,000 gal	6,000
Tier 2	6,001 to 12,000	6,000
Tier 3	12,001 to 16,000	4,000
Tier 4	over 16,000 gal	
Multi-Family Residential (with Indoor Use Only)		
Tier 1	0 to 6,000 gal	6,000
Tier 2	6,001 to 6,400	400
Tier 3	6,401 to 16,000	9,600
Tier 4	over 16,000 gal	
Non-Residential	Uniform	Uniform

5.3 USAGE ANALYSIS

The proposed tier structure reduces the widths of Tiers 2 and 3 for both Single and Multi-Family residential customers, with a greater reduction in Tier 2 for the latter. This is due to the minimal outdoor usage for Multi-Family residential units. In addition, Tiers 5 and 6 have been eliminated. Residential customers will continue to be charged for their use as they fall into the next highest tier. For example, a Single Family residence utilizing 11,000 gallons in a bimonthly period will see 6,000 gallons fall into Tier 1 and the remaining 5,000 gallons will be categorized as Tier 2 usage.

5.3.1 *Residential Water Usage*

Figure 5-1 shows the distribution of residential water use in FY 2015 (July 2014 to June 2015) across both the current and proposed tiers. The increased Tier 1 usage share, despite the same tier width, is due to the accounted per dwelling unit consumption of multifamily residences under the revised tiers. Under the current tiers, shown in blue, the highest 25 percent usage is scattered across Tiers 3-6, with the highest tiers only capturing 3 percent of residential usage each. The proposed reduction to four tiers allocates the highest 28 percent of usage to Tiers 3 and 4, simplifying the tiers while still sending a price signal to excessive water users.

Figure 5-1: Residential Water Usage Distribution

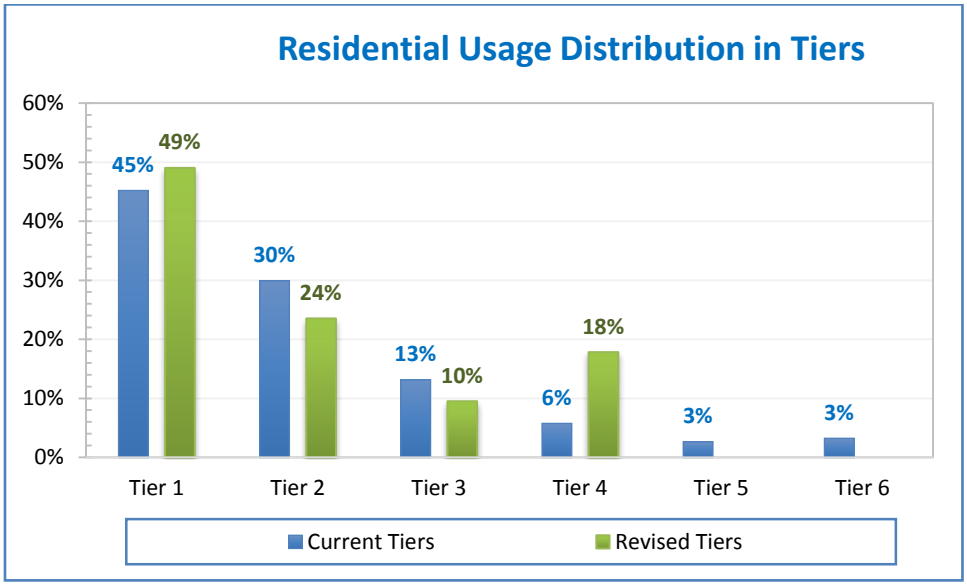


Figure 5-2 illustrates the distribution of bills in a year based on all total water usage billed by customer by billing period. Eighteen (18) percent of the bills in FY 2015 use 16,000 gallons or greater per bimonthly billing period. These bills indicate usage above the safety yield allotment. However, 34 percent of the bills fall below the efficient indoor usage (6,000 gal per dwelling unit). These customers therefore will only have Tier 1 usage.

Figure 5-2: Residential Potable Water Bill Distribution

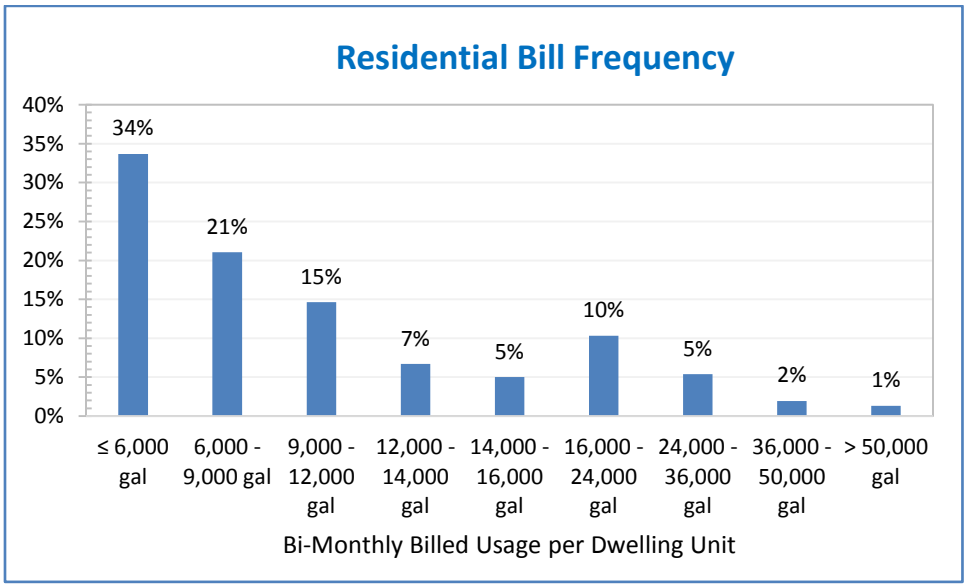


Figure 5-3 shows the usage by period and how it distributes across each tier. July – August 2014 shows the highest usage, making it the maximum bimonthly period. Note as well that Tier 2 usage contracts in winter months as single family outdoor usage shrinks at a greater rate than multi-family, as single family

users have a larger allocation for Tier 2. This results in a Tier 2 that is particularly sensitive to seasonal changes in water use.

Figure 5-3: Residential Bimonthly Usage in Revised Tiers

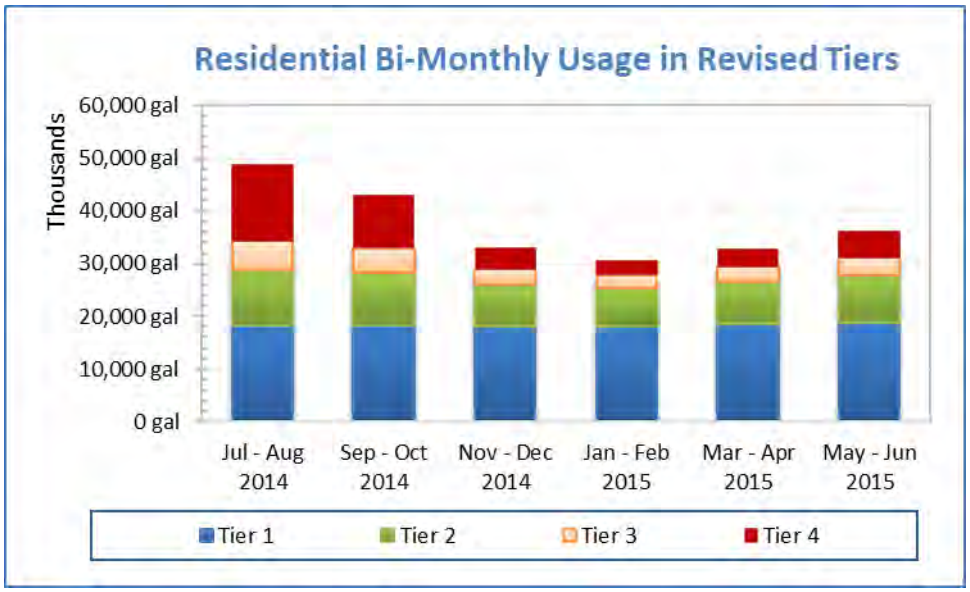


Table 5-5 shows both the maximum and average bimonthly consumption by tier. The final column is the ratio of the maximum over the average for each tier. The peaking factor describes the percent higher than the maximum use is over the average use in order to show the peak usage that the water system must be able to accommodate. The ratio in the Total row of 1.306 represents this ratio for total usage and is the Residential peaking factor.

Table 5-5: Potable Water Residential Peaking Factors

Tiers	Maximum Bimonthly Consumption (gal)	Average Bimonthly Consumption (gal)	Max/Average (Peaking Factor)
	A	B	C = A/B
Tier 1	18,249,914	18,346,634	0.995
Tier 2	10,596,695	8,810,936	1.203
Tier 3	5,393,250	3,566,264	1.513
Tier 4	14,588,376	6,676,116	2.186
Total	**48,828,235**	**37,399,950**	**1.306**

5.3.2 *Non-Residential Potable Water Usage*

Figure 5-4 shows the distribution of bimonthly bills by total usage. Usage is distributed fairly evenly for most usages, with greater numbers of bills charged for either 6,000 or less gallons or greater than 50,000 gallons. Since this distribution is spread more across the different ranges, a uniform rate best serves this class as customers vary greatly in how their use is defined.

Figure 5-4: Non-Residential Bill Frequency

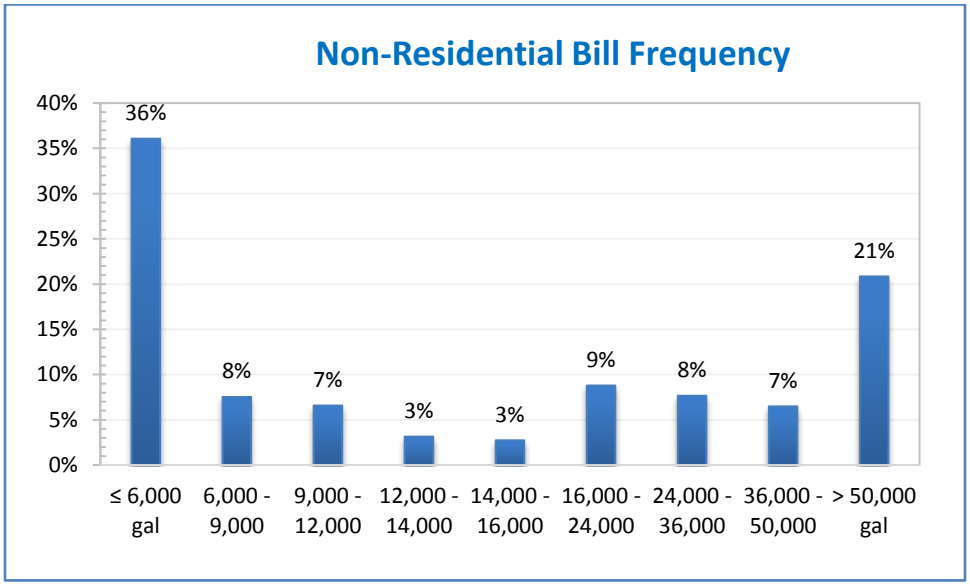


Figure 5-5 shows the distribution of usage across residential and non-residential classes by billing period. As illustrated in the figure, July – August 2014 is the highest billing period for all customer classes, and January – February 2015 is the lowest. Residential customers represent the largest customer class, with Business as the second largest class.

Figure 5-5: Class Peaking Usage Characteristics

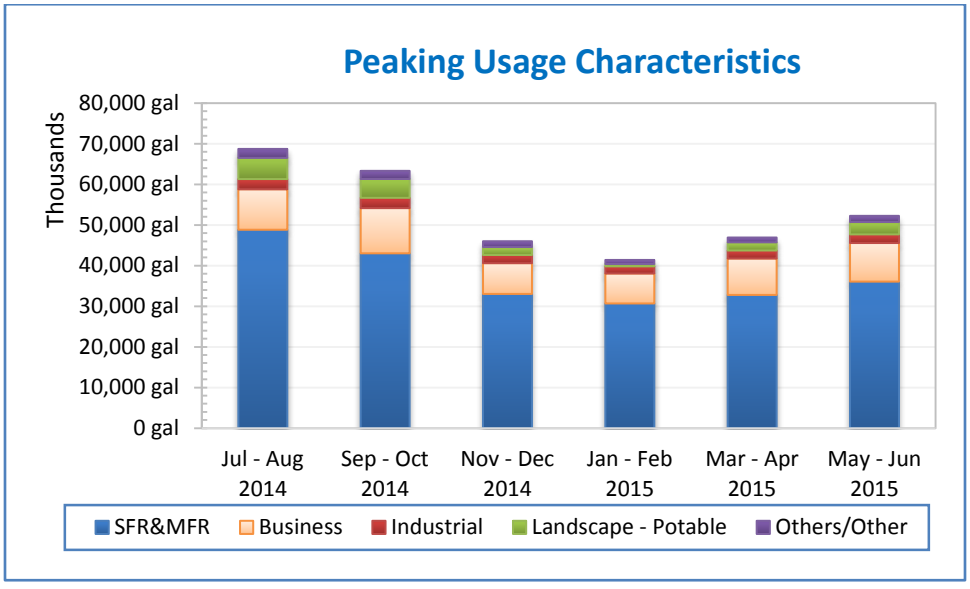


Table 5-6 shows the calculation of the peaking factors for the different non-residential customers. Landscape accounts have the highest peaking factor, likely due to fluctuations in irrigation needs due to weather conditions.

Table 5-6: Peaking Factors for Non-Residential Customers

Non-Residential Classes	Maximum Bimonthly Consumption	Average Bimonthly Consumption	Max/Average (Peaking Factor)
	A	B	C = A/B
CII (Business and Industrial)	12,475,100	11,235,885	1.111
LANDSCAPE - POTABLE	5,209,190	2,906,818	1.793
OTHERS	2,210,550	1,555,262	1.422

6. WATER COST OF SERVICE ANALYSIS

6.1 COST OF SERVICE PROCESS

This subsection provides an overview of a cost-of-service analysis. Each step described below will be described in greater detail throughout this section.

A cost of service analysis distributes a utility's revenue requirements (costs) to each customer class[26]. After determining a utility's revenue requirement, the next step in a cost of service analysis is to functionalize its O&M costs to the following **functions**:

1. Source of Supply
2. Variable Supply
3. Average Demand
4. Storage
5. Pumping
6. Water Treatment
7. Transmission & Distribution
8. Fire Protection
9. Conservation
10. Customer Accounts
11. Revenue Offset
12. General
13. Meters & Services
14. Billing & Customer Service
15. Supplies

The functionalization of costs allows us to better allocate the functionalized costs to the **cost causation components**:

1. Variable Water Supply
2. Base Fixed Costs (costs incurred under average levels of usage)
3. Peaking Costs (costs incurred during high levels of usage)
4. Billing and Customer Service
5. Meters & Services
6. Conservation
7. Revenue Offsets
8. General
9. Fire Protection

[26] Further detail of the Cost-Based Rate-Setting Methodology is provided in Section 1.3.3.

Peaking costs are further divided into maximum day and maximum hour demand. The maximum day demand is the maximum amount of water used in a single day in a year. The maximum hour demand is the maximum usage in an hour on the maximum usage day. Different facilities, such as distribution and storage facilities, and the O&M costs associated with those facilities, are designed to meet the peaking demands of customers. Therefore, extra capacity[27] costs include the O&M and capital costs associated with meeting peak customer demand. This method is consistent with the AWWA M1 Manual, and is widely used in the water industry to perform cost of service analyses.

6.2 COST OF SERVICE ANALYSIS

6.2.1 *Determination of Revenue Requirement*

In this Study, water rates are calculated for FY 2016, known as the test year. Test Year revenue requirements are used in the cost allocation process. Subsequent years' revenue adjustments are incremental and the rates for future years are based on the revenue adjustments shown in Table 4-19 and calculated across-the-board. The District should review the cost of service analysis at least every five years to ensure that the rates are consistent with the costs of providing service.

The annual revenue requirements, or costs of service, to be recovered from water rates and charges are O&M expenses and capital costs. Total FY 2016 cost of service to be recovered from the District's water customers is shown in Table 6-1.

The revenue requirement determination is based upon the premise that the utility must generate annual revenues to meet O&M expenses, debt service needs, reserve levels, and capital investment needs. Revenues from sources other than water rates and charges (e.g. non-operating revenues, grants, reimbursement, miscellaneous revenues, etc.) are deducted from the rate revenue requirement.

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

Table 6-1: 2016 Revenue Requirements

	Source	Total	Functional Cost Component
Revenue Requirements			
O&M cost	*Table 4-9*	$3,976,482	*O&M Costs*
Debt Service	*Table 4-18, line 21*	$355,681	*Capital Costs*
PAYGO CIP	*Table 4-18, line 30*	$1,209,833	*Capital Costs*
Reserve Funding	*Table 4-18, line 31*	-$1,034,216	*Capital Costs*
Subtotal revenue requirements		$4,507,781	
Non-Rate Revenue			
Other operating revenue	*Table 4-18, Line 6*	$76,749	*Revenue Offset*
Property Taxes	*Table 4-18, Line 8*	$703,680	*General*
Interest	*Table 4-18, Line 9*	$14,600	*General*
Misc. Non-Operating Revenue	*Table 4-18, Line 10*	$1,800	
Subtotal Non-Rate Revenues		**$796,829**	
Net Revenue Requirements FY 2016		**$3,710,952**	

6.2.2 *Allocation of Functionalized Costs to Cost Causation Components*

To derive the cost to serve each customer class, costs first need to be functionalized. Once functionalized, the costs are allocated to cost causation components. RFC used the Base-Extra Capacity method, as described in the AWWA M1 Manual, which consists of following functional cost components: Base, Max Day, Max Hour, Fire Protection, Meters, Customer/Customer Service, Conservation, and General. The cost causation components are defined below.

Base Costs are those operating and capital costs of the water system associated with serving customers at a constant, or average, rate of use. Supply costs are associated with meeting average day demand and are therefore typically considered base costs average usage.

Extra Capacity Costs or peaking costs represent those costs incurred to meet customer peak demands for water in excess of average day usage. Total extra capacity costs are subdivided into costs associated with maximum day and maximum hour demands. The maximum day demand is the maximum amount of water used in a single day in a year. The maximum hour (**Max Hour**) demand is the maximum usage in an hour on the maximum usage day (**Max Day**). Various facilities are designed to meet customer peaking needs. For example, transmission lines or reservoirs are designed to meet Max Day requirements. Both have to be designed larger than they would be if the same amount of water were being used at a constant rate throughout the year. The cost associated with constructing a larger line or reservoir is based on system wide peaking factors. For example, if the Max Day factor is 2.0, then certain system facilities have to be designed at least twice as large as required to meet average daily demand. In this case, half of the cost would be allocated to Base (or average day demand) and the other half allocated to Max Day. The calculation of the Max Hour and Max Day demands is explained below.

Customer Service Related Costs include such costs as meter reading, billing, collecting, and customer accounting.

Meter Costs or meter service costs include maintenance and capital costs associated with servicing meters. These costs are assigned based on meter size or equivalent meter capacity.

Allocating costs into these cost components allows us to distribute these cost components to the various customer classes on the basis of their respective base, extra capacity and customer requirements for service.

6.2.3 *Peaking Allocation*

To determine how costs should be allocated to base demand and peak (Max Day and Max Hour) demands, the allocation percentages are derived from actual historical data and assigned to each cost component. Customer service related costs are allocated 100 percent to the customer service component. Costs related to meter maintenance are allocated to the meter service component. These two components, plus a portion of peaking costs are included in the basic meter charges.

To allocate costs to base and peaking cost components, system peaking factors are used. The base demand is assigned a value of 1.0 signifying no peaking demands. The Max Day and Max Hour values shown in Table 6-2 were calculated by dividing the max day or max hour demand in gallons per day by the average demand in gallons per day. The max day peaking factor of 2.26 means that the system delivers 2.26 times the amount of water it does during an average day.

Table 6-2: System Peaking Factors

	Factor
Base	1.0
Max Day	2.26
Max Hour	3.38

Next, the relative proportion of costs assigned to Base, Max Day, and Max Hour are used to allocate costs to the cost causation components. Cost components related solely to providing average day demand, such as supply sources, are allocated 100 percent to Base. Cost components that are designed to meet Max Day peaks, such as reservoirs and transmission facilities, are allocated to both Base and Max Day factors.

The Max Day factor of the District's system is 2.26, which means that Max Day demand is expected to be 226 percent of the average day capacity. Calculating the Max Day allocation of functional costs to the cost causation components results in the following:

$$Base = \frac{Base}{Max\ Day} \approx 44.3\%$$

$$Max\ Day = 1 - Base/Max\ Day \approx 55.7\%$$

Facilities designed for Max Hour peaks, such as distribution system facilities, are allocated similarly. The Max Hour factor is 3.38, so Max Hour facilities are designed to provide 338 percent of the average day capacity. The allocation of Max Hour facilities is shown below:

$$Base = \frac{Base}{Max\ Hour} \approx 29.6\%$$

$$Max\ Day = \frac{Max\ Day - Base}{Max\ Hour} \approx 37.1\%$$

$$Max\ Hour = 1 - 29.6\% - 37.1\% \approx 33.3\%$$

The results of the allocation are presented in Table 6-3 below. These percentages are then applied to the operating and capital improvement expenses to allocate costs amongst Base, Max Day, and Max Hour cost components, which is explained in detail in the following sub-sections. The factors shown below are taken from Table 6-2 above.

Table 6-3: Max Day/Max Hour Facility Allocation Factors

Line No.		Factor	Base	Max Day	Max Hour	Fire Protection
1	**No Fire Protection**					
2	Base	1.0	100.0%	0%	0%	0%
3	Max Day	2.26	44.3%	55.7%	0%	0%
4	Max Hour	3.38	29.6%	37.1%	33.3%	0%
5						
6	**Including Fire Protection**					
7	Base		75%	0%	0%	25%[28]
8	Max Day		33%	42%	0%	25%
9	Max Hour		22%	28%	25%	25%

[28] Cost allocation on a basis proportional to the system design and usage "*Principles of Water Rates, Fees and Charges"*, AWWA, page 143 – 144. Inputs for the calculation are: 10,774 (population as of 2015) and Average Day and Max Day demand.

6.2.4 *Peaking Factors by Customer Class*

As noted above, the peaking characteristics of each customer class can place additional stress on the water system which translates into additional costs. The peaking factors are calculated below.

Table 6-4: Customer Class Peaking Factors

Peaking Factors	Max Billing Period (Gallons)[29]	Average Billing Period (Gallons)[30]	Peaking Factor
	A	B	A/B=C
Residential	48,828,235	37,399,950	1.31
CII	12,475,000	11,235,885	1.11
Landscape	5,209,190	2,906,818	1.79
Others	2,210,550	1,555,262	1.42

6.2.5 *Allocation of Operating Expenses*

In this step, the Water Fund's O&M costs are first functionalized and then allocated to the various cost components. Table 6-5 provides a matrix of the District's functions, in the left most column, which are then allocated to the cost components.

Water supply costs are all allocated entirely to Base, since these costs are shared by all users. Treatment is allocated based on the Max Day facility allocation (see line 3 in Table 6-3). Storage is allocated based on the Max Hour (see line 8 in Table 6-3). General costs are distributed entirely to the General allocation. A summary of the functional cost allocation to cost causation components is shown in Table 6-5 below.

[29] Derived from FY 2015 usage data. Max Billing Period for FY 2015 was July-August.
[30] Derived from FY 2015 usage data. Average Billing Period usage is total annual usage divided by 6 (number of billing periods).

Table 6-5: Functional Cost Allocations

Line No.	Functions	Variable Water Supply	Base Fixed	Max Day	Max Hour	Billing & CS	Meters & Services	Conser-vation	Rev Offsets	General	Fire Protecti on	Variable Water Supply
1	Source of Supply		100%									
2	Variable Supply	100%										100%
3	Regular Demand		58%	31%	11%							
4	Storage		33%	42%							25%	
5	Pumping		30%	37%	33%							
6	Water Treatment		44%	56%								
7	Transmission & Distribution		15%	19%	17%		25%[31]				25%	
8	Fire protection										100%	
9	Conservation							100%				
10	Customer Accounts					100%						
11	Revenue Offset								100%			
12	General									100%		
13	Meters & Services						100%					
14	Billing & CS					100%						
15	Supplies									100%		
16	Capital		**45%**	**21%**	**6%**		**7%**			**7%**	**13%**	
17	O&M	**10%**	**5%**	**5%**	**2%**	**2%**	**2%**	**7%**		**66%**	**2%**	**10%**

Table 6-6 shows how the O&M expenses are allocated. These costs are then combined according to their cost component categorization as shown in Table 6-7. The percent allocations are then calculated. These percent allocations across the cost components will be applied to the revenue requirements.

[31] Meter and Services cost allocation based on the share of meter maintenance cost in total Transmission & Distributions cost.

Table 6-6: O&M Expenses Allocated by Function

Line No.	O&M	Functional Cost Allocation Factors	FY 2016 O&M Expenses
1	**Salaries and Benefits**		
2	*All other*	General	$1,970,480
3	*Conservation*	Conservation	$87,200
4	**G&A Services**		
5	*All other*	General	$638,610
6	*Conservation*	Conservation	$103,700
7	**Supplies**		
8	*All other*	Average demand	$31,640
9	*Conservation*	Conservation	$78,075
10	**Source of Supply**		
11	*All other*	Source of Supply	$50,000
12	*Conservation*	Conservation	$0
13	**Pumping**		
14	*Pumps - Electricity and Power*	Variable Supply	$296,500
15	*Pumps and Boosters*	Pumping	$65,000
16	**Water Treatment**		
17	*WT Chemicals and Supplies*	Variable Supply	$100,677
18	*Other Water Treatment Expenses*	Water Treatment	$170,000
19	**Transmission & Distribution**	Transmission & Distribution	$303,600
20	**Customer Accounts**	Billing & CS	$66,400
21	**Other**	General	$14,600
22	**Total O&M allocation**		**$3,976,482**

Table 6-7: Total O&M Expenses per Function

Line No.	Cost components	O&M Expenses by Cost Components[32]	O&M Expenses Allocation Factors (% of Total)
1	Variable Water Supply	$397,177	10.0%
2	Base Fixed	$208,070	5.2%
3	Max Day	$185,188	4.7%
4	Max Hour	$76,082	1.9%
5	Billing & CS	$66,400	1.7%
6	Meters & Services	$75,000	1.9%
7	Conservation	$268,975	6.8%
8	Rev Offsets	$0	0.0%
9	General	$2,623,690	66.0%
10	Fire Protection	$75,900	1.9%
11	**TOTAL**	**$3,976,482**	100.0%

6.2.6 *Allocation of Capital Costs*

Capital costs include capital improvements financed from annual revenues, debt service and other sources. To allocate capital costs, RFC first functionalizes the District's assets similarly to how the O&M costs were functionalized. After the capital costs are functionalized, RFC uses the resulting allocation percentages (found on Line 16 of Table 6-5) to allocate capital costs to each of the cost causation components. Using this method to allocate capital costs reflects a more accurate distribution of the District's long-term capital expenditures.

Costs are allocated based on the design criteria of each facility and using the same percent allocations shown in Table 6-5. Table 6-8 allocates the assets according to cost allocations as done above for O&M expenses.

[32] See Table 10-2 for details on allocation of O&M Expenses by Cost Components

Table 6-8: Capital Cost Allocations by Function

Line No.	Fixed Assets: Potable Water Grouped by Functions	Functional Cost Allocation Factors	Replacement Cost 2015
1	Land/Rights of Way	General	$1,209,258
2	SCADA	Average demand	$766,842
3	Source of Supply	Source of Supply	$11,022,649
4	Pumps and Related	Pumping	$1,638,934
5	Pump Buildings	Pumping	$352,565
6	Well Pumps	Source of Supply	$58,688
7	Water Treatment	Source of Supply	$3,632,574
8	Treatment Plant	Water Treatment	$6,053,764
9	Distribution, main	Transmission & Distribution	$14,510,479
10	Reservoir/tanks	Storage	$10,002,649
11	Fire Hydrants	Fire protection	$332,066
12	Services	Transmission & Distribution	$1,650,342
13	Office/Shop Bldg.	General	$1,185,052
14	Tools and Equip	General	$219,691
15	Office Equipment	General	$16,029
16	Transportation	General	$623,207
17	Shop Buildings	General	$257,846
18	Computer Equipment	General	$176,214
19			
20	**TOTAL**		**$53,708,850**

As with the O&M expenses, the Capital Costs are then distributed to the cost allocation components as shown in Table 6-9.

Table 6-9: Capital Cost Allocations by Function

Line No.	Cost components	Capital Cost by Cost Components[33]	Capital Cost Allocation Factors (% of Total)
1	Variable Water Supply	$0	0.0%
2	Base Fixed	$24,160,394	45.0%
3	Max Day	$11,537,450	21.5%
4	Max Hour	$3,458,477	6.4%
5	Billing & CS	$0	0.0%
6	Meters & Services	$3,992,298	7.4%
7	Conservation	$0	0.0%
8	Rev Offsets	$0	0.0%
9	General	$3,687,296	6.9%
10	Fire Protection	$6,872,934	12.8%
11	**TOTAL**	**$53,708,850**	100.0%

6.2.7 *Allocation of General and Public Fire Protection Costs*

All costs that apply generally to the District must be allocated to the cost causation categories based on the O&M allocation factors established in Table 6-7 and the Capital allocation factors established in Table 6-9. Table 6-10 shows this allocation of costs. It also shows the reallocation of General costs and Public Fire Protection costs. General costs are reallocated according to the distribution of costs across all other cost allocations except for variable water supply, conservation, revenue offset and fire protection according to the formula below with reference to the Table 6-10 's column letter assignments in the equation. These percent allocations are then multiplied by the General cost allocation total, $2,567,016.

$$General\ Reallocation\ \% = \frac{Column\ B\ Cost\ Component}{Total\ Base\ Fixed, Peaking, Billing\ \&\ CS, Meters\ \&\ Services}$$

For example, the Base Fixed cost component can be calculated as follows:

$$General\ Reallocation\ \% = \frac{Base\ Fixed\ Cost\ Component}{Total} = \frac{\$447{,}069}{\$3{,}710{,}952} = 12\%$$

Public Fire Protection was allocated to Meters & Services because all customers bear the responsibility for public fire protection equally. The remaining Fire Protection allocation represents private fire protection services. Fire protection cost include both public and private protection services. The cost allocation between the two uses the relative demands of the various size fire connections. The relative flow potential per connection is calculated in order to obtain the total number of equivalent fire protection connections. Next, based on the share of public fire connections, the cost for the public fire

[33] Details for Capital Cost Allocation by cost components are in Table 10-1

protection connections is calculated (Table 6-10) and reallocated to Meter and Services cost component Table 6-11). The remaining of the fire protection cost (8.7%) represent private fire protection services.

Table 6-10: Public & Private Fire Allocation

	Connection Size	Fire Demand Factor[34]	Fire Demand Ratio	# of Public Hydrants	# of Private Fire Services	Public Fire Annual Demand	Private Fire Annual Demand
Line No.	A	B	C = B / B1	D	E	F = B*C*6	G = B*D*6
1	5/8"	0.29	1.0		415	0	723
2	3/4"	0.47	1.6			0	0
3	1"	1.00	3.4		1	0	6
4	1 1/2"	2.90	10.0			0	0
5	2"	6.19	21.3			0	0
6	3"	17.98	61.9	13		1,403	0
7	4"	38.32	131.9		1	0	230
8	6"	111.31	383.2	13		8,682	0
9	**Total Fire Demand**			**26**	**417**	**10,085 (91.3%)**	**959 (8.7%)**

Table 6-11: Net Adjusted Revenue Requirements by Cost Component

	Cost Components	Net revenue requirements	Reallocation of "General"	Reallocation of Public Fire Protection	Net Adjusted Rev. Requirements
Line No.	A	B	C	D	E=B+C+D
1	**Variable Water Supply**	**$397,177**	**$0**	**$0**	**$397,177**
2	**Base Fixed**	**$447,069**	**$1,106,073**	**$0**	**$1,553,143**
3	*Max Day*	*$299,319*	*$740,531*	*$0*	*$1,039,850*
4	*Max Hour*	*$110,294*	*$272,874*	*$0*	*$383,168*
5	**Peaking** [Line 3+line 4]	**$409,613**	**$1,013,405**	**$0**	**$1,423,018**
6	**Billing & CS**	**$66,400**	**$164,277**	**$0**	**$230,677**
7	**Meters & Services**	**$114,493**	**$283,261**	**$131,390**	**$529,144**
8	**Conservation**	**$268,975**	**$0**	**$0**	**$268,975**
9	**Rev Offsets**	**-$703,680**	**$0**	**$0**	**-$703,680**
10	**General**	**$2,567,016**	**-$2,567,016**	**$0**	**$0**
11	**Fire Protection**	**$143,888**	**$0**	**-$131,390**[35]	**$12,498**
12	**TOTAL**	**$3,710,952**			**$3,710,952**

[34] AWWA M1 manual, page 147, table IV.8-2 : Fire Demand Factor = (Connection Size^2.63)
[35] 143,888 * 91.3% = $131,390, rounded to the nearest dollar

7. WATER RATE DESIGN AND CUSTOMER IMPACTS

Proposition 218 requires a nexus between the rates charged and the costs of providing service. Based on the proposed financial plan, the cost of service analysis translates this financial requirement into actual rates. The first step in the cost of service analysis is to determine how much revenue is required to be collected from rates. The methodology used is based upon the premise that the utility must generate annual revenues adequate to meet its estimated annual expenses. As part of the cost of service analysis, several adjustments are made to determine the annual revenues needed from rates. Revenues from sources other than potable water rates and charges (e.g. revenues from miscellaneous services) are deducted.

According to the M1 Manual, the cost-of-service approach to setting water rates results in the proportionate distribution of costs to each customer or customer class based on the costs that each incurs. A dual set of fees—fixed and variable—is an extension of this cost causation theory. For example, a utility incurs some costs associated with serving customers irrespective of the amount or rate of water they use, such as billing and customer service costs. These types of costs are referred to as customer-related costs and typically are costs that would be recovered through a fixed charge. These costs are usually recovered on a per-customer basis or some other non-consumptive basis. Regardless of the level of a customer's consumption, a customer will be charged this minimum amount in each bill.

Utilities invest in and continue to maintain facilities to provide capacity to meet all levels of desired consumption including the peak demand plus fire protection, and these costs must be recovered regardless of the amount of water used during a given period. Thus, peaking costs along with base costs and fixed water system costs to meet average demand are generally considered as fixed water system costs. It is ideal that agencies recover 100 percent of their fixed costs through monthly base fees, however, it forgoes the affordability for essential use and heavily impacts efficient users. To balance between affordability and revenue stability, it is a common practice that a portion of the base costs and peaking costs are recovered in the basic meter fee along with customer-related costs and meter-related costs.

The most common method for levying base (or capacity) fees is by meter size. Meter size is a proxy for the potential demand that each customer places on the water system. The District's base meter is most commonly a 5/8" meter. The ratio at which the meter charge increases is a function of the meter's safe operating capacity. For example, based on the AWWA meter capacity ratios, a customer that has a 2-inch meter has the capacity equivalency of eight 5/8" meters. (A 2-inch meter has a safe operating capacity of 160 gallons per minute (gpm) compared to a 5/8" meter which has a safe operating capacity of 20 gpm as listed in Table B-1 in the M1 Manual).

Meter and Service charges are similarly calculated by multiplying a base rate for 5/8" meters by ratios. In this case, they are based on a meter replacement ratio. This ratio is developed by dividing the cost for the installation of a particular meter size by the cost of installation of a 5/8" meter.

Billing and customer service costs related to meter reading, billing and collections are distributed among customers based on the total number of bills rendered in a test year, which is FY 2016 for this Study. Meter service costs, costs related to maintenance and costs related to customer meters and services, are distributed to customers in proportion to estimated costs for meters and services installed. Capacity costs, costs related to capital and costs related to customer meters and services, are distributed in proportion to meter demand capacity as provided by the M1 Manual. According to the M1 Manual, distribution of meter service costs and capacity costs by equivalent meter and service ratios recognizes that meter and service costs vary, depending on considerations such as the size of service pipe, materials used, locations of meters and other local characteristics for various size meters as compared to 1-inch meters and services.

The components of water system costs are recovered through either basic meter charge revenues or water usage charge revenues, or a combination of the two. Through the cost of service analysis, RFC identified four fixed charge components to design the basic meter charge and five commodity rate components to design the commodity rates. Table 7-1 shows the distribution of the total revenue requirement by the District's set fixed and variable rate split of 34% fixed, 66% variable, based on FY 2016 projected water sales. The entirety of the water supply is recovered from commodity rates (Column C). On the other hand, meter & services costs and billing & customer service costs are entirely recovered from fixed charges (column B). Base costs are recovered from both fixed charges and commodity rates (Columns B & C). Costs will be recovered from both inside and outside customers. However, RFC recommends that outside customers do not have their rates increased by an outside city factor beginning in FY 2017.

Table 7-1: Fixed and Variable Rate Revenue Requirements

Cost Components	Net Adjusted Revenue Requirements	Fixed Charges	Variable Water Rates
	A=B+C	B	C
Variable Water Supply	$397,177		$397,177
Base Fixed	$1,553,143	$504,563	$1,048,580
Peaking	$1,423,018		$1,423,018
Billing & CS	$230,677	$230,677	
Meters & Services	$529,144	$529,144	
Conservation	$268,975		$268,975
Rev Offsets	-$703,680		-$703,680
Private Fire	$12,498	$12,498	
Total Revenue Requirements	**$3,710,952**	**$1, 276,882**	**2,434,070**

7.1 DEVELOPMENT OF BASIC METER CHARGES

In order to create parity across the various meter sizes, each meter size is assigned a factor relative to a 5/8" meter, which has a value of 1. According to the AWWA M1 Manual, a particular meter size's ratio of meter and capacity servicing costs relative to that of a 5/8" meter is its "Equivalent Meter Units" (EMU). For example, a 2-inch meter has 5.33 times the throughput capacity of a 5/8" meter and therefore has a multiplication factor of 8 to determine its EMU to 5/8" meter. The Meter Replacement & Capacity factors escalates as meter size increases because the District's cost to service a meter increases with its size. Based on the District account data, the number of accounts and EMUs are shown in Table 7-2.

Table 7-2: Equivalent Meter Unit Calculation

Meter Sizes	Uniform Ratio	Meter Replacement Ratio[36]	AWWA Capacity Ratios	Number of accounts[37]	Bills per Year	Meter Replacement cost EMU	AWWA Ratios Costs EMU	Fire Demand Ratio[38]	Fire Equiv. Units
A	B	C	D	E	F=E×6	G=F×C	H=E×D	I	J=E×I
5/8"	1.0	1.0	1.0	3,024	18,144	18,144	18,144		
3/4"	1.0	1.9	1.5	575	3,450	6,594	5,175		
1"	1.0	1.2	2.5	96	576	716	1,440		
1 1/2"	1.0	4.4	5.0	25	150	659	750		
2"	1.0	5.0	8.0	18	108	537	864		
3"	1.0	6.1	17.5	3	18	111	315		
4"	1.0	10.2	31.5	0	0	0	0		
6"	1.0	10.2	80.0	0	0	0	0		
Fire protection									
5/8"	1.0			415	2,490			1	2,490
1"	1.0			1	6			3.4	21
2"	1.0			0	0			21.3	0
4"	1.0			1	6			131.9	791
Total Equiv Units	**24,948**	**26,761**	**26,688**	**4,158**	**24,948**				**3,302**

The total number of meters is equivalent to the total number of customers. Billing and Customer Service rates are based on the number of bills per year (Column F) based on the uniform ratios as the billing and customers cost component does not depend on the meter size. Meter & Services cost recovery EMUs are derived from the number of bills for meter and installation costs expressed in EMUs (Column G) based on the meter service and installation ratios as the provided services will depend on

[36] Based on meter installation cost in FY 2016, provided by the District
[37] As of FY 2016
[38] From Table 6-10

the meter size installation cost. For capacity cost recovery, the number of bills per EMU (Column H), based on AWWA's safe flow ratios as the capacity cost recovery, depends on the capacity of the meter. Fire protection equivalent units (Column J), based on the fire demand ratios as the cost of the service will be related to the potential demand, depending on the size of the fire connection to recover private fire costs.

The unit basic meter charge components are calculated by dividing the total revenue requirement for each cost allocation by the appropriate units as described in the previous section. The calculations and resulting rate components are shown below in Table 7-3.

Table 7-3: Unit Basic Meter Charge Components

Line No.		Source	Billing & CS	Meters & Services	Capacity	Private Fire Protection
1	Revenue requirements	*Table 7-1*	$230,677	$529,144	$504,563	$12,498
2	Units of Service	*Table 7-2*	24,948	26,761	26,688	3,302
3	**Unit cost**	***Line 1/ Line 2***	**$9.25**	**$19.78**	**$18.91**	**$3.79**

The proposed basic meter charges for FY 2016 in Table 7-4 are derived by adding up the four service charge components – billing & customer service, meters & services, capacity, and private fire protection – for all relevant meters. Potable water meters are charged the first three, while private fire lines are only charged for billing & customer service and private fire protection. The billing & customer service charge of $9.25 is charged equally to all meter sizes and shown in Column B. Meter &Services is charged according to the meter replacement ratios as described in Table 7-2, Column C. The appropriate ratio for a given meter is multiplied by the unit rate of $19.78. Likewise, the Capacity fee by meter size derived from the capacity unit rate of $18.91 is multiplied by the relevant AWWA capacity ratio, shown in Column D of Table 7-2.. Table 7-4 shows the total basic meter charge by meter size resulting from the summation of these components as appropriate for potable water and fire protection meters. Note as stated above that outside city customers are not charged on rates inflated by an outside city factor, as recommended by RFC.

Table 7-4: Basic Meter Charge Components Calculation

Meter Sizes	Billing & CS	Meters & Services	Capacity	Private Fire Protection	Proposed Basic Meter Charges 2016 New Structure
A	B	C	D	E	F =B+C+D+E
5/8"	$9.25	$19.78	$18.91	$0.00	$47.94
3/4"	$9.25	$37.81	$28.37	$0.00	$75.43
1"	$9.25	$24.61	$47.28	$0.00	$81.14
1 1/2"	$9.25	$86.91	$94.55	$0.00	$190.71
2"	$9.25	$98.41	$151.28	$0.00	$258.94
3"	$9.25	$121.48	$330.93	$0.00	$461.66
4"	$9.25	$202.30	$595.67	$0.00	$807.22
6"	$9.25	$202.30	$1,512.80	$0.00	$1,724.35
Fire protection					
5/8"	$9.25	$0.00	$0.00	$3.79	$13.04

7.2 PROPOSED BI-MONTHLY FIXED CHARGES (BASIC METER CHARGES)

Applying the proposed revenue adjustments from Table 4-19 to the proposed bi-monthly basic meter charges in Table 7-4 above yields the proposed bi-monthly basic meter charges for the Study period in Table 7-5. Private Fire Services are based on 5/8" detection meter sizes.

Table 7-5: Proposed Bi-Monthly Basic Meter Charges

	Current	Proposed New Structure	Proposed Dec 2016 (FY 2017)	Proposed Dec 2017 (FY 2018)	Proposed Dec 2018 FY 2019)	Proposed Dec 2019 (FY 2020)	Proposed Dec 2020 (FY 2021)
Rev Adj.		0%	25%	15%	10%	10%	10%
5/8"	$49.34	**$47.94**	$59.93	$68.92	$75.82	$83.41	$91.76
3/4"	$49.34	**$75.43**	$94.29	$108.44	$119.29	$131.22	$144.35
1"	$95.28	**$81.14**	$101.43	$116.65	$128.32	$141.16	$155.28
1 1/2"	$182.14	**$190.71**	$238.39	$274.15	$301.57	$331.73	$364.91
2"	$273.74	**$258.94**	$323.68	$372.24	$409.47	$450.42	$495.47
3"	$414.98	**$461.66**	$577.08	$663.65	$730.02	$803.03	$883.34
4"	$628.32	**$807.22**	$1,009.03	$1,160.39	$1,276.43	$1,404.08	$1,544.49
6"	$628.32	**$1,724.35**	$2,155.44	$2,478.76	$2,726.64	$2,999.31	$3,299.25
Fire Service 5/8"	$22.86	**$13.04**	$16.30	$18.75	$20.63	$22.70	$24.97

7.3 DEVELOPMENT OF COMMODITY RATES

The District's sole water source is local groundwater from the Santa Margarita Groundwater Basin. District costs associated with meeting customer demand are assigned as components of the commodity rates. Variable commodity rates are built through the combination of the six components listed in Table 7-6.

Table 7-6: Commodity Rate Components Description

	Commodity Rate Components	Description
1	Variable Water Supply Cost	Local water variable cost
2	Delivery Costs	Remaining cost of delivering water to customers
3	Peaking Cost	Peaking cost of capital, incl. groundwater recharge program
4	Water use Efficiency	Water use efficiency program related costs
5	Revenue Offsets	Property tax (unrestricted revenues) to provide affordability for essential use
6	Supplementary Water Supply Rate	Contributions to offset recycled water cost

The development of each of these six rate components is described individually below.

7.3.1 *Variable Water Supply Component*

The water supply commodity rate component is designed to recover the local water variable costs. The District's sole water supply is local groundwater from the Santa Margarita Groundwater Basin. Therefore, as shown in Table 4-8, the water supply costs are due to electricity for pumping the groundwater and water treatment chemicals. The water supply component is collected as a unit rate per KGal of potable water consumption.

Table 7-7: Water Supply Commodity Rate Component

	Source	FY 2016
Revenue Requirements		$397,177
Units of Service (KGals)		327,882
Unit Cost ($ per KGal)		**$1.22**

7.3.2 *Variable Non-Water Supply Components*

The first step in determining the the variable non-water supply cost components' base rates is to determine the equivalent units of service for each component. This is because each component is not applied to all customer classes equally. Table 7-8 shows the derivation of each of the equivalent units of service required to derive the remaining five commodity rate components: delivery, peaking, water use efficiency (or conservation), revenue offsets, and supplementary water supply components.

Table 7-8: Potable Water Equivalent Units of Service by Customer Classes

Allocation by Customer Classes	FY 2016 Projected Sales (KGal)	Peaking[39]	Equivalent Peaking Usage	Water Use Efficiency	Rev. Offsets
	A	B	C=A×B	D	E
Source:		Table 6-4			
Residential	234,066	1.306	305,476	1.00	1.00
CII	67,963	1.111	75,507	1.00	0.00
Landscape-Potable	17,130	1.793	30,714	1.00	0.00
Others	8,723	1.422	12,404	1.00	0.00
Total Equivalent Sales (KGals)	**327,882**		**424,101**	**327,882**	**234,066**

As with the peaking factors described in Section 6.2, the water use efficiency and revenue offset factors are used to inflate or deflate usage based on the characteristics of a customer class in relation to the cost component. For example, the water use efficiency component is applied equally across the four customer classes as all customer classes bear the responsibility of efficient water use equally. Within the residential customer class, however, only customers with use in Tiers 3 and 4 will share in this cost. Tiers 1 and 2 are based on efficient, basic indoor and outdoor water needs. Non-residential customers will be equally apportioned their class' share of the efficiency cost as their usage is not tiered.

[39] The numbers shown are rounded.

The revenue offset is property tax for the District. Per District policy, only residential customers receive this offset to provide affordability for health and safety essential use. Within the residential class, Tier 1 usage receives double the offset as the other tiers to aid in affordability of essential health, hygiene, and safety water consumption.

Table 7-9: Residential Tier Revenue Offsets

Tier	FY 2016 Projected Sales (kgal)	Revenue Offset Factor	Equivalent Usage
	A	B	C=A×B
Residential			
Tier 1	113,129	1.00	113,129
Tier 2	57,323	0.50	28,662
Tier 3	22,447	0.50	11,224
Tier 4	41,166	0.50	20,583
Total	**234,066**		**173,598**

Similarly to the basic meter charge components, the variable component base charges are developed by dividing the total revenue requirement for each component defined in Table 7-1 by the equivalent units shown in Table 7-8. This results in the base per unit costs in Table 7-10 below.

Table 7-10: Unit Cost Calculations

		Source:	Delivery	Peaking	Water Use Efficiency	Rev. Offsets
1	Revenue Requirements	*Table 7-1*	$1,048,580	$1,423,018	$268,975	-$703,680
2	Units of Service (KGals)	*Table 7-8*	327,882	424,101	327,882	234,066
3	**Unit Cost**[40] (KGals)	*Line 1/ Line 2*	**$3.20**	**$3.36**	**$0.83**	**-$3.01**

Taking the allocations of equivalent units derived in Table 7-8 and multiplying them by the unit costs calculated in Table 7-11 provides the revenue requirement responsibility of each class to the different variable cost components. These totals are shown in Table 7-11.

Table 7-11: Commodity Rate Revenue Requirement Allocation by Customer Class

Customer Classes	Delivery	Peaking	Water Use Efficiency	Rev. Offsets[41]
Residential	$749,011	$1,026,398	$194,275	-$703,680
CII	$217,482	$253,703	$56,409	$0
Landscape-Potable	$54,816	$103,199	$14,218	$0
Others	$27,914	$41,678	$7,240	$0

[40] All unit costs are rounded up to the nearest cent.
[41] The Revenue Offset allocation value is calculated using the rounded unit cost in Table 7-9.

The revenue requirement for residential customers is further broken down by tier, as described above and in Table 7-9. Therefore, the residential commodity rate must also be differentiated by tier. Table 7-12 shows the equivalent units, calculated as they were in Table 7-8. The total residential customer revenue requirement for each cost allocation is listed below in Line 7. Line 9 shows the the unit rates for each allocation by dividing Line 7 by Line 6. Each base unit is multiplied by the corresponding factor derived in Table 7-8 and Table 7-9 for the Water Use Efficiency and Revenue Offset components and shown below for the Peaking component.

Table 7-12: Residential Rate Calculations

Line No.	Tier	FY 2016 Projected Sales (KGals)	Delivery	Peaking Factors	Peaking	Water Use Efficiency[42]	Rev. Offsets[43]
		A	B	C	D=A×C	E	F
1	**Residential**						
2	Tier 1	113,129	113,129	0.995	112,564	0	113,129
3	Tier 2	57,323	57,323	1.203	68,960	0	28,920
4	Tier 3	22,447	22,447	1.513	33,963	22,447	11,325
5	Tier 4	41,166	41,166	2.186	89,990	41,166	20,768
6	**Total Equivalent Units of Service**	**234,066**	**234,066**		**305,476**	**63,614**	**174,142**
7	**Revenue Requirement**		**$749,011**		**$1,026,398**	**$194,275**	**-$703,680**
8							
9	**Unit Rate**	***Line 7/Line 6***	**$3.20**		**$3.37**	**$3.06**	**-$4.04**
10	Tier 1		$3.20	0.995	$3.36	$0.00	-$4.04
11	Tier 2		$3.20	1.203	$4.06	$0.00	-$2.02
12	Tier 3		$3.20	1.513	$5.10	$3.06	-$2.02
13	Tier 4		$3.20	2.186	$7.37	$3.06	-$2.02

The peaking rates for the non-residential classes are based on the peaking factors for each class. The peaking factor is multiplied by the base unit cost to arrive at this cost. For example, the peaking cost rate for Landscape – Potable customers is equal to the unit rate $3.36 multiplied by the peaking factor 1.793, then rounded up to the nearest cent to arrive at $6.03.

Table 7-13: Non-Residential Peaking Rate Calculation

	Base Rate	Peaking Factor	Peaking Rate[44]

[42] Only Tier 3 and Tier 4 consumers will share the cost for water efficiency units.
[43] Only residential customers will receive revenue offsets with tier one getting the twice bigger offset and Tier 2 to Tier 4.
[44] Peaking rates are calculated by multiplying the unit cost by the respective peaking factor by customer class and is rounded up to the nearest cent.

	A	B	C=A×B
CII (Commercial & Industrial, Institutional)	$3.36	1.111	$3.74
Landscape-Potable	$3.36	1.793	$6.03
Others	$3.36	1.422	$4.78

Finally, the components of the variable rate are added together to produce the proposed rates for each customer class and tier. Table 7-14 shows the rate components and their summation to the proposed rates for FY 2016.

Table 7-14: Derivation of FY 2016 Commodity Rate per KGal

		Variable Supply	Delivery	Peaking	Water Use Efficiency[45]	Rev. Offsets	ProposedRates – New Structure
	Source:	Table 7-7	Table 7-10				
		A	B	*C*	*D*	*E*	F = A+B+C+D+E
1	**Residential**			*Table 7-12*	*Table 7-12*	*Table 7-12*	
2	Tier 1	$1.22	$3.20	$3.36	$0.00	-$4.04	$3.74
3	Tier 2	$1.22	$3.20	$4.06	$0.00	-$2.02	$6.46
4	Tier 3	$1.22	$3.20	$5.10	$3.06	-$2.02	$10.56
5	Tier 4	$1.22	$3.20	$7.37	$3.06	-$2.02	$12.83
6	**Non-Residential**			*Table 7-13*	*Table 7-10*	*Table 7-8*	
7	**Business**	$1.22	$3.20	$3.74	$0.83	$0.00	$8.99
8	**Industrial**	$1.22	$3.20	$3.74	$0.83	$0.00	$8.99
9	**Landscape – Potable**	$1.22	$3.20	$6.03	$0.83	$0.00	$11.28
10	**Others**	$1.22	$3.20	$4.78	$0.83	$0.00	$10.03

7.3.3 *Supplemental Water Charge Component*

In addition to the proposed commodity rate above, RFC suggests the District establish a Supplemental Water Supply Rate added to the variable rate. RFC proposes that the surcharge be implemented in FY 2017. If implemented, revenues generated from the Supplemental Water Supply Rates would be transferred from the Water Fund (Fund 01) to a restricted reserve fund. These funds would then tranfer to the Recycled Water Fund (Fund 02) and and be allocated as a revenue offset for the Recycled Water system.

This added charge is intended to provide an offset for recycled water costs. Potable water services benefit from the presence of recycled water services, as they reduce the demand on potable water. In addition to improving water supply availability, recycled water also makes the potable water supply more reliable. Due to these benefits, potable water users should share a portion of the recycled water system costs. The benefits received are the equivalent to recycled water sales divided across the total potable and recycled water sales. This results in the percent that recycled water constitutes of all water available through the District, potable or recycled. The total recycled water service cost to be recovered by the potable water customers is calculated as a share of the revenue requirements for recycled water.

[45] The water efficiency component of the commodity rate is based on the water efficiency factors by customer class and tiers and the unit cost for water efficiency cost recovery for the respective customer class

In 2016, the recycled water sales totalled 160 AF and total potable and recycled water sales combined were 1,266 AF. Thus the share to be recovered by the supplemental water charge is 12.6%. The recycled water revenue requirement is assessed to be $522,760, 12.6 percent of which is $65,952. This is the revenue requirement for the charge. The requirement is then divided by the total potable water units, 327,882, resulting in the unit cost per kGal of $0.21.

Table 7-15: Supplemental Water Supply Charge Calculation

Potable Water Contribution to RW Revenue Requirement	$65,952
Total Units of Water Service	327,882
Unit Cost[46] per KGal	**$0.21**

All potable water customer classes would pay for the recycled water supplemental water charge in proportion to their consumption. This charge would be added to the commodity rate and charged per KGal. However, Residential Tier 1 water usage would not pay the supplemental water charge. Tier 1 represents standard indoor water consumption necessary for basic needs. It is the District's policy to ensure that this basic necessity for health and safety be allocated the cheapest water resources, which cannot be replaced by recycled water.

Taking the unit cost and multiplying it by the water sales to each customer class, the total cost allocation is calculated for each class, shown in Table 7-16. The supplemental water supply cost for the residential class is then distributed across Tiers 2-4 according to their water use in FY 2016.

Table 7-16: Recycled Water Cost Allocation to Potable Water Customer Classes

Recycled Water Cost Allocations to Potable Water Customer Classes	Projected Sales FY 2016 A	Unit Rate (Table 7-14) B	RW Costs C = A x B
Residential	234,066	$0.21	$49,154
CII	67,963	$0.21	$14,272
Landscape – Potable	17,130	$0.21	$3,597
Others	8,723	$0.21	$1,832
Total	**327,882 kgal**	**$0.21**	**$68,855[47]**

The total Recycled Water revenue requirement for potable water residential classes is $49,154. Total units of Residential use in Tiers 2-4 is 120,936, resulting in a Residential Supplemental Water Supply Charge of $0.41. Table 7-18 shows the resulting Supplemental Water Supply Charges for all classes and tiers across the study period. Note that the charge does not increase with the annual revenue adjustments.

[46] The number is rounded up.
[47] Due to rounding

Table 7-17: Recycled Water Cost Allocation to Potable Water Customer Classes

	$
Total RW Revenue Requirement for Potable Water Residential Customers (Table 7-15)	$49,154
Total Units of Potable Water Residential Service Subject to RW Costs[48] (KGal)	120,936
Residential Supplemental Water Supply Charge	**$0.41**

Table 7-18: Proposed Supplemental Water Supply Charges FY 2017-2021

	FY 2016 Dec 2015 Current	Proposed Dec 2017 (FY 2018)	Proposed Dec 2018 FY 2019)	Proposed Dec 2019 (FY 2020)	Proposed Dec 2020 (FY 2021)	Proposed Dec 2017 (FY 2018)
Residential						
Tier 1	$0.00	$0.00	$0.00	$0.00	$0.00	$0.00
Tier 2	$0.00	$0.41	$0.41	$0.41	$0.41	$0.41
Tier 3	$0.00	$0.41	$0.41	$0.41	$0.41	$0.41
Tier 4	$0.00	$0.41	$0.41	$0.41	$0.41	$0.41
Non-Residential						
CII	$0.00	$0.21	$0.21	$0.21	$0.21	$0.21
Landscape – Potable	$0.00	$0.21	$0.21	$0.21	$0.21	$0.21
Others	$0.00	$0.21	$0.21	$0.21	$0.21	$0.21
Effective Usage @ Proposed Rates[49]		51%	51%	51%	51%	51%
Projected Sales (kgal)						
Residential (Tiers 2 – 4)	**132,041**	**138,155**	**144,268**	**150,382**	**150,865**	**132,041**
Tier 1	113,129	123,517	129,236	134,955	140,673	141,126
Tier 2	57,323	62,587	65,484	68,382	71,280	71,509
Tier 3	22,447	24,508	25,643	26,778	27,913	28,002
Tier 4	41,166	44,946	47,027	49,108	51,189	51,354
Non-Residential	**100,693**	**104,215**	**107,737**	**111,258**	**111,259**	**100,693**
CII	67,963	70,589	72,176	73,763	75,351	75,351
Landscape – Potable	17,130	19,571	20,636	21,700	22,765	22,765
Others	8,723	10,533	11,403	12,273	13,143	13,143
Projected Revenues[50]	**$0**	**$38,646**	**$78,529**	**$81,775**	**$85,021**	**$85,219**

7.4 PROPOSED COMMODITY RATES

The proposed commodity rates developed for each tier in Table 7-14 and shown in Column F of Table 7-14 are replicated below in Column E in Table 7-19 below. Much like the basic meter charges, the

[48] Only Tier 2, Tier 3 and Tier 4
[49] Based FY 2015 Consumption database
[50] Rev for FY 2017 = Σ 51% *(138,155*$0.41 + 104,215*$0.21)+49%*(138,155*$0.00 + 104,215*$0.00)=$38,646

commodity rates are increased each year of the study period per the proposed revenue adjustments found in Table 4-19.

Table 7-19: FY 2016 - 2021 Proposed Commodity Rates without Supplemental Water Supply Charges

Customer Class	Current Tier Breaks	Proposed Tier Breaks	Current	Proposed New Structure	Proposed Dec 2016 (FY 2017)	Proposed Dec 2017 (FY 2018)	Proposed Dec 2018 FY 2019)	Proposed Dec 2019 (FY 2020)	Proposed Dec 2020 (FY 2021)
A	B	C	D	E	F	G	H	I	J
Rev Adj. [51]				0%	25%	15%	10%	10%	10%
Residential									
Tier 1	6,000 gal	6,000 gal	$3.70	$3.74	$4.89	$5.63	$6.20	$6.83	$7.52
Tier 2	14,000 gal	12,000 gal	$6.21	$6.46	$8.18	$9.41	$10.36	$11.41	$12.56
Tier 3	24,000 gal	16,000 gal	$8.01	$10.56	$13.31	$15.31	$16.85	$18.54	$20.40
Tier 4	36,000 gal	> 16,000 gal	$9.66	$12.83	$16.15	$18.58	$20.45	$22.50	$24.76
Tier 5	50,000 gal		$12.36						
Tier 6	>50,000 gal		$13.97						
Non-Residential[52]									
Business			$11.26	$8.99	$11.24	$12.93	$14.23	$15.66	$17.23
Industrial			$9.58	$8.99	$11.24	$12.93	$14.23	$15.66	$17.23
Landscape - Potable			$10.70	$11.28	$14.10	$16.22	$17.85	$19.64	$21.61
Others			$10.61	$10.03	$12.54	$14.43	$15.88	$17.47	$19.22

[51] Note that the actual rate increase year on year may not be equal to the revenue adjustment due to the revenue offset component. Revenue offset component is based on revenues from tax on property and it cannot increase at the same rate as the revenue adjustment. The rate of increase of the revenue offset component is constrained to 20%. See Appendix for details

[52] The current rates for 2016 are calculated as average for the respective customer class.

Table 7-20: FY 2016 - 2021 Proposed Commodity Rates with Supplemental Water Supply Charges

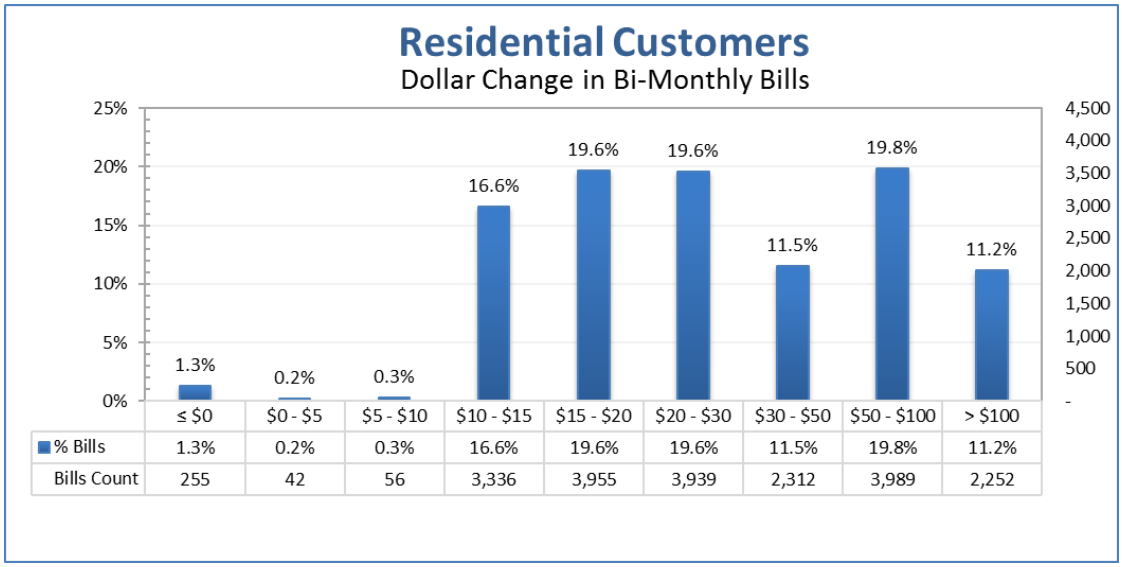
Customer Class	Current Tier Breaks	Proposed Tier Breaks	Current	Proposed New Structure	Proposed Dec 2016 (FY 2017)	Proposed Dec 2017 (FY 2018)	Proposed Dec 2018 FY 2019)	Proposed Dec 2019 (FY 2020)	Proposed Dec 2020 (FY 2021)
A	B	C	D	E	F	G	H	I	J
Rev Adj. [53]				0%	25%	15%	10%	10%	10%
Residential									
Tier 1	6,000 gal	6,000 gal	$3.70	$3.74	$4.89	$5.63	$6.20	$6.83	$7.52
Tier 2	14,000 gal	12,000 gal	$6.21	$6.87	$8.59	$9.82	$10.77	$11.82	$12.97
Tier 3	24,000 gal	16,000 gal	$8.01	$10.97	$13.72	$15.72	$17.26	$18.95	$20.81
Tier 4	36,000 gal	> 16,000 gal	$9.66	$13.24	$16.56	$18.99	$20.86	$22.91	$25.17
Tier 5	50,000 gal		$12.36						
Tier 6	>50,000 gal		$13.97						
Non-Residential									
Business			$11.26	$9.20	$11.45	$13.14	$14.44	$15.87	$17.44
Industrial			$9.58	$9.20	$11.45	$13.14	$14.44	$15.87	$17.44
Landscape - Potable			$10.70	$11.49	$14.31	$16.43	$18.06	$19.85	$21.82
Others			$10.61	$10.24	$12.75	$14.64	$16.09	$17.68	$19.43

7.5 CUSTOMER BILL IMPACTS

Figure 7-1 compares the bill totals for a residential customer under both the current and proposed rates. Most customers will see an increase of at least $10, with 40% of customers seeing an increase of $30 or higher. This is due to the reduction in the number of tiers as well as the tier widths in addition to the increases in the basic meter charge.

[53] Note that the actual rate increase year on year may not be equal to the revenue adjustment due to the revenue offset component. Revenue offset component is based on revenues from tax on property and it cannot increase at the same rate as the revenue adjustment. The rate of increase of the revenue offset component is constrained to 20%. For details see Table 10-5.

Figure 7-1: Proposed FY 2017 Residential Potable Water Customer Bill Impacts



Looking at a sample bimonthly bill for average use with FY 2017 rates, a Single Family residence will see a $29.63 increase in their water bill. The median user will see a $22.49 increase. Both increases average approximately a 30% increase. However, high water users will see a significant increase. At three times the average use, a customer will see a 66% increase, equaling about $189. This is due to the tier changes. A multi-family residence will see a similar pattern in increase shown in Figure 7-3

Figure 7-2: FY 2017 Sample Single Family Residential Water Bills

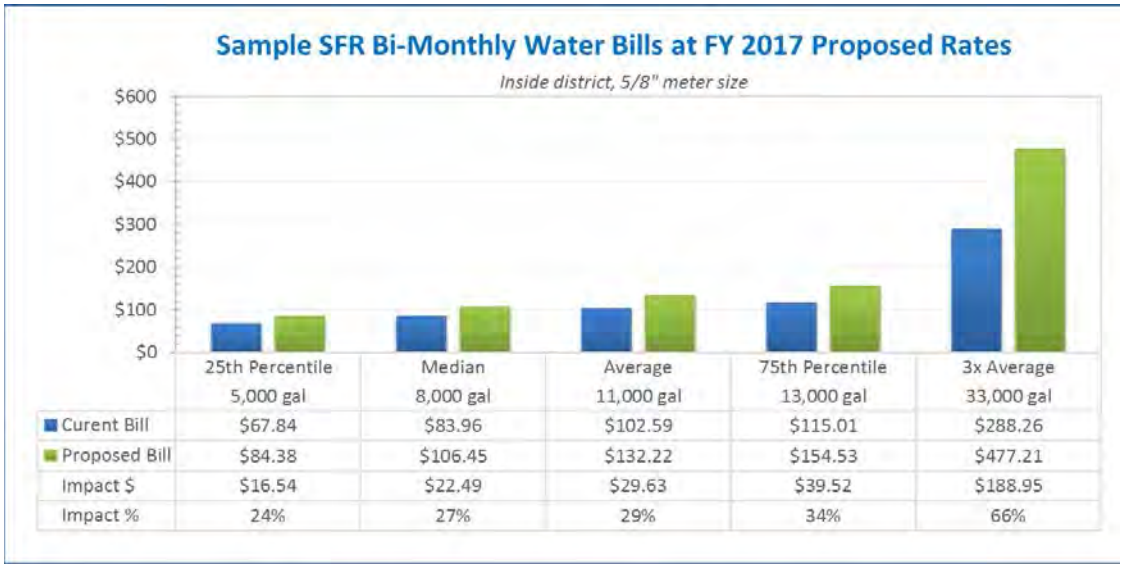
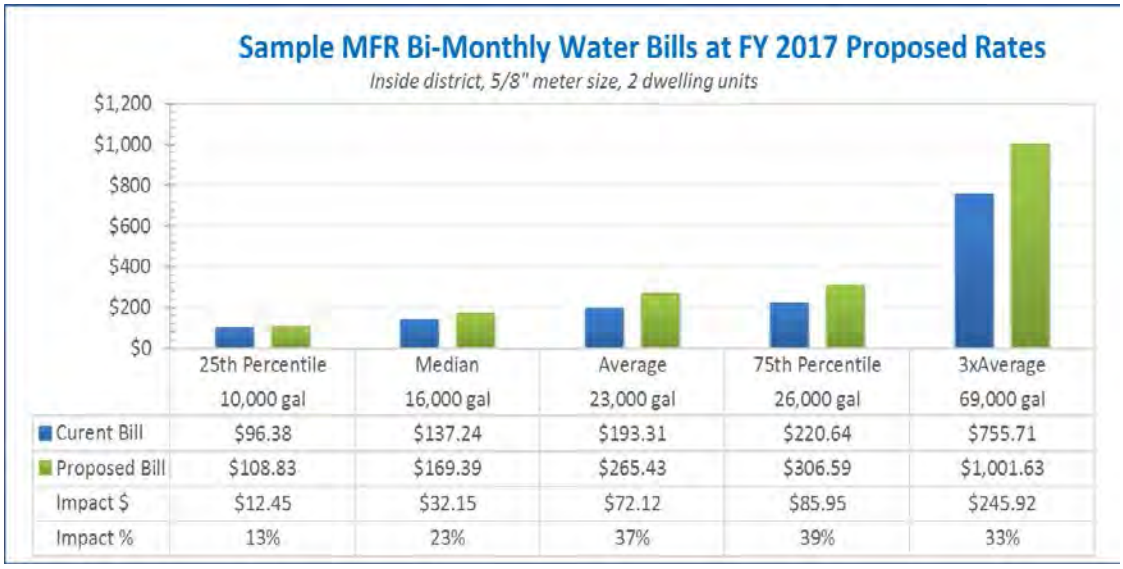


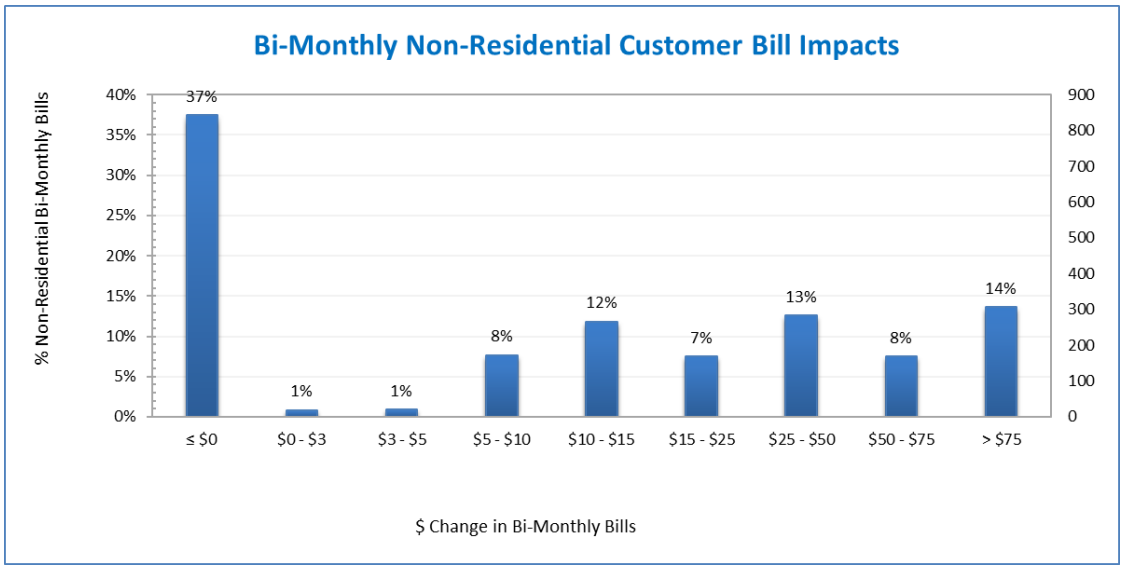
Figure 7-3: FY 2017 Sample Multi-Family Residential Water Bill



	25th Percentile 10,000 gal	Median 16,000 gal	Average 23,000 gal	75th Percentile 26,000 gal	3xAverage 69,000 gal
Curent Bill	$96.38	$137.24	$193.31	$220.64	$755.71
Proposed Bill	$108.83	$169.39	$265.43	$306.59	$1,001.63
Impact $	$12.45	$32.15	$72.12	$85.95	$245.92
Impact %	13%	23%	37%	39%	33%

Non-Residential customers will see a different pattern in bill impacts due to the uniform usage rates. 37 percent of non-residential customers will see a reduction in their bills. Approximately one-third of customers will see increases of $15 or higher.

Figure 7-4: Proposed FY 2017 Potable Water Residential Customer Bill



8. DROUGHT RATES

This section documents the key assumptions involved in the development of drought surcharges, an overview of the drought stages and water consumption reduction methodology, corresponding revenue impact, drought surcharge calculations and proposed surcharges.

Drought rates are specific surcharges that are applied during drought spells in addition to the base (non-drought) potable water rates. The need for these surcharges arises from the two contradicting objectives of a water utility under drought conditions: (i) facilitate the reduction in water consumption to reflect the decreased supply of water resources; (ii) maintain adequate revenues to meet the revenue requirements for the smooth operation of the system. Thus, drought surcharges are designed as a revenue neutral cost recovery mechanism to achieve the mandatory overall consumption reduction during drought, while protecting the utility by maintaining revenue sufficiency.

8.1 CONSUMPTION REDUCTION

In order to assess the reduction in water sales under drought conditions, the District defined 3 Stages of Drought in its Update Water Shortage Contigency Plan: Stage 1 represents normal water consumption (approximated by FY 2016 potable water sales), while Stage 2 and Stage 3 assume different levels of drought severity and imply targeted reduction in water usage by customer class.

Table 8-1 provides details for targeted water consumption reduction by drought stage, type of customer and season . Reduction by customer class is based on the assumption that excessive and inefficient use of water would decrease first since it tends to be more discretionary and responsive to price changes. In the District's case, this type of consumption is mostly related to the outdoor consumption of Residential and landscape Irrigation customers, as demonstrated by the high seasonality in their usage, and to a lesser extend to other non-residential customers. The latter represent a more heterogeneous group, so efficient consumption is much more difficult to estimate; therefore, the targeted reductions due to water shortages in that group are lower.

Table 8-1: Potable Water Usage Reduction from FY 2016 Sales

	Stage 1	Stage 2		Stage 3	
	Normal / No Reduction	Winter	Summer	Winter	Summer
Residential (SFR & MFR)	0%	10%	19%	15%	24%
Non-Residential					
Business	0%	5%	5%	10%	10%
Industrial	0%	5%	5%	10%	10%
Landscape - Potable	0%	20%	30%	25%	50%
Others	0%	5%	5%	10%	10%

The reduction in water consumption by residential customers is assumed to begin with Tier 4 and Tier 3 as consumption within Tiers 1 and 2 represents efficient indoor and outdoor water usage. Specifically, to achieve the targeted water usage reduction, excessive water consumption (Tier 4) is decreased first and if not enough, inefficient water consumption (Tier 3) is reduced as well, so that the residential customer class water usage target is met.

Table 8-2 shows the reduction in sales by drought stage, customer class and season. As an illustration, the winter residential consumption under Stage 2 needs to decrease by 10 percent compared to its current level (Table 8-1) or by 10,064 kGal (Table 8-2, Line 1, Column D). Consistent with the method described above, excessive consumption (Tier 4) is reduced first (Tier 4 consumption of 10,800 kGal is reduced by 10,064 kGal). Similarly, residential winter consumption under Stage 3 needs to be decreased by 15 percent or 15,096 kGal. In this case, the reduction in Tier 4 of 10,800 kGal would not be sufficient to achieve the target, so consumption in Tier 3 has to be reduced by 4,296 kGal.

Table 8-2: Sales Reduction Based on Drought Stages (kGals)

		FY 2016 Projected Sales		Stage 2 Sale Reduction Goals		Stage 3 Sale Reduction Goals		Residual Sales after Reduction		Sale Reduction	
		Winter (A)	Summer (B)	Winter (C)	Summer (D)	Winter (E)	Summer (F)	Stage 2 (G = A+B - C - D)	Stage 3 (H = A + B - E - F)	Stage 2 (I = C + D)	Stage 3 (J = E + F)
1	**Residential (SFR & MFR)**	100,642	133,424	10,064	25,432	15,096	32,103	198,569	186,866	35,496	40,528
2	**Non-Residential**										
3	Business	24,123	30,842	1,206	1,542	2,412	3,084	52,216	49,468	2,748	3,954
4	Industrial	5,771	7,227	289	361	577	723	12,349	11,699	650	939
5	Landscape - Potable	4,477	12,653	895	3,796	1,119	6,327	12,439	9,684	4,691	4,915
6	Others	3,365	5,358	168	268	336	536	8,287	7,851	436	604
7	**Total (kgal)**	**138,378**	**189,504**	**12,623**	**31,399**	**19,541**	**42,773**	**283,860**	**265,568**	**44,022**	**50,941**

Table 8-3 summarizes sales by drought stages expressed as percent of non-drought year sales.

Table 8-3: Residential Reduction Goals (kGals)

		FY 2016 Projected Sales (kgal)		Stage 2 Sale Reduction Goals		Stage 3 Sale Reduction Goals		Residual Sales after Reduction		Sale Reduction	
		Winter (A)	Summer (B)	Winter (C)	Summer (D)	Winter (E)	Summer (F)	Stage 2 (G = A+B-C-D)	Stage 3 (H = A+B-E-F)	Stage 2 (I = C + D)	Stage 3 (J = E + F)
	Reduction Goal (Table 8-2)			10,064	25,432	15,096	32,103	198,569	186,866	35,496	47,199
1	**Residential (SFR & MFR)**										
2	**Tier 1**	57,073	57,749	0	0	0	0	114,821	114,821	0	0
3	Tier 2	24,444	30,699	0	0	0	0	55,143	55,143	0	0
4	Tier 3	8,325	13,994	0	0	4,296	1,121	22,319	16,902	0	4,296
5	Tier 4	10,800	30,982	10,064	25,432	10,800	30,982	6,286	0	35,496	36,232
6	**Total (kgal)**	**100,642**	**133,424**	**10,064**	**25,432**	**15,096**	**32,103**	**198,569**	**186,866**	**35,496**	**40,528**
7	**Total DSC Sales (Tiers 2-4)** *(rows 3+4+5)*							**83,748**	**72,045**		

8.2 DROUGHT SURCHARGE CALCULATION AND PROPOSED SURCHARGES

The basis for calculation of the drought surcharges is the baseline (non-drought) revenue requirement, assumed equal to the FY 2017 revenue requirement calculated in Section 4.1.6.

In general, to determine the drought surcharges, baseline revenue requirements have to be modified for each drought stage to account for cost savings from reduced water purchases (variable cost). However, since Scotts Valley Water District has its own groundwater resources, the water purchase cost is zero and consequently, the reduction in consumption does not have an effect on revenue requirements. Moreover, the reduced water sales will continue to generate unrecoverable fixed costs which include the costs associated with delivery, peaking, conservation, revenue offsets, etc. Those cost components remain the same, despite the reduction in water sales, and thus the overall revenue requirements for the functioning of the system will not change. RFC proposes general commodity drought surcharges designed to be revenue neutral against the backdrop of lower sales during drought stages, that is, the proposed drought surcharges for each stage should recover the FY 2017 revenue requirement.

The process of surcharge calculation includes several steps. First, sales revenue reduction is calculated (Table 8-4, Columns I and J) based on the proposed non-drought base rates (excluding supplemental water supply rates) by customer class and tier and the respective decrease in consumption.

Table 8-4: Sales Revenue Reduction

					Sales reduction (kgal)		Remaining Sales (kgal)		Sales Revenue Reduction	
Line	Customer Class / Tiers		Base Rates 2017	Sales (kgal) projections FY 2016	Stage 2	Stage 3	Stage 2	Stage 3	Stage 2	Stage 3
No.	A	B	C	D	E	F	G=D-E	H=D-F	I=C×E	J=C×F
1	**Residential**	*[1+2+3+4]*		234,066	**35,496**	**47,199**	**198,569**	**186,866**	**$573,263**	**$746,886**
2	Tier 1		$4.89	114,821	0	0	114,821	114,821	$0	$0
3	Tier 2		$8.18	55,143	0	0	55,143	55,143	$0	$0
4	Tier 3		$13.31	22,319	0	5,417	22,319	16,902	$0	$72,105
5	Tier 4		$16.15	41,782	35,496	41,782	6,286	0	$573,263	$674,781
6	**Non-Residential**	*[7+8+9+10]*		93,817	**8,526**	**15,115**	**85,291**	**78,702**	**$109,813**	**$192,316**
7	Business		$11.24	54,965	2,748	5,496	52,216	49,468	$30,890	$61,780
8	Industrial		$11.24	12,999	650	1,300	12,349	11,699	$7,305	$14,611
9	Landscape – Potable		$14.10	17,130	4,691	7,446	12,439	9,684	$66,149	$104,987
10	Others		$12.54	8,723	436	872	8,287	7,851	$5,469	$10,939
11	**Total**	*[1+6]*		**327,882**	**44,022**	**62,314**	**283,860**	**265,568**	**$683,077**	**$939,202**

Next, the unit drought rates of $2.41/kgal and $3.54/kgal for Stage 2 and Stage 3, respectively are determined by distributing the revenue reduction across all remaining sales (the sales which need to generate the recovery of revenue). Unit cost rates are the proposed rates for non-residential customers. (see Table 8-5)

Table 8-5: Unit Drought Rates

No. Line		Source	Stage 2	Stage 3
1	Sales reduction	Table 8-4 (columns I & J)	$683,077	$939,202
2	Remaining Sales in kgal	Table 8-4 (columns G & H)	283,860	265,568
3	**Unit Drought Rates ($/kgal)**	**[1]/[2]**	**$2.41**[54]	**$3.54**[55]

The revenue recovery amount to be collected from residential customers equals the unit drought rate multiplied by the remaining residential consumption under the respective drought stage; thus, the revenue to be recovered from residential customers under Stages 2 and 3 would be $479K and $662K, respectively (Table 8-6).

As noted above, consumption within Tier 1 represents efficient indoor consumption and as such it cannot be subject to reduction due to drought. Since the rate structure needs to ensure the affordability of standard consumption, Tier 1 customers do not contribute to the revenue recovery. Therefore, the cost allocated to residential customers is distributed between Tier 2, 3 and 4 customers, resulting in drought rates of $5.72/kgal and $9.19/kgal for Stages 2 and 3, respectively.

[54] The ratio is rounded up to the nearest cent.
[55] The ratio is rounded up to the nearest cent.

Table 8-6: Allocation of Revenue Reductions to be Recovered by Customer Classes

No. Line	Customer classes	Stage 2 Remaining Sales A	Stage 3 Remaining Sales B	Stage 2 Drought Rev C = $2.41 x A	Stage 3 Drought Rev D = $3.54 x B
1	**Residential**	**198,569**	**186,866**	**$478,552**	**$661,506**
2	**Non-Residential**			**$205,551**	**$278,606**
3	Business	52,216	49,468	$125,841	$175,117
4	Industrial	12,349	11,699	$29,761	$41,414
5	Landscape – Potable	12,439	9,684	$29,978	$34,283
6	**Others**	**8,287**	**7,851**	**$19,971**	**$27,791**
7	**Total**	**283,860**	**265,568**	**$684,104**	**$940,112**

Table 8-7: Residential Drought Rates Calculation

No. Line		Source	Stage 2	Stage 3
1	Revenues to be collected from residential Customers	*Table 8-6 (C1 & D1)*	$478,552	$661,506
2	Sales to collect the drought rates[56] (kgal)	*Table 8-4 (Tiers 2-4)*	83,748	72,045
3	**Residential Drought Rates ($/kgal)**	***[1]/[2]***	**$5.72**[57]	**$9.19**[58]

Table 8-8 summarizes the proposed Drought Rates for Residential and Non-Residentail use under Stage 2 and Stage 3 as defined in the

Table 8-8: Proposed Drought Rates

	Stage 2	Stage 3
Residential		
Tier 1	$0.00 / kGal	$0.00 / kGal
Tier 2	$5.72 / kGal	$9.19 / kGal
Tier 3	$5.72 / kGal	$9.19 / kGal
Tier 4	$5.72 / kGal	$9.19 / kGal
Non-Residential	$2.41 / kGal	$3.54 / kGal

[56] Remaining sales in Tier 2, Tier 3 and Tier 4.
[57] The ratio is rounded up to the nearest cent.
[58] The ratio is rounded up to the nearest cent.

9. RECYCLED WATER PROPOSED RATES

9.1 BASIC METER CHARGES

To enhance revenue stability, RFC proposes that the District implement Recycled Water basic service charges based on meter sizes. RFC recommends the District utilize the same charges by meter as the Water Fund. In consideration of the impact of the new rates' introduction, RFC proposes a gradual implementation of the basic meter charges over five years. Table 9-1 shows the 5-year Phase-in Monthly Basic Meter Charges for RW services from FY 2017 to FY 2021, where as in FY 2021, RW services will pay the same Basic Meter Charges per month as potable water services. Note that potable water services are billed bi-monthly and RW services are billed monthly. The basic meter charges shown below are rounded up to the nearest cent.

Table 9-1: Proposed Phase-In Recycled Water Monthly Basic Meter Charges

	Current	Proposed New Structure	Proposed Dec 2016 (FY 2017)	Proposed Dec 2017 (FY 2018)	Proposed Dec 2018 FY 2019)	Proposed Dec 2019 (FY 2020)	Proposed Dec 2020 (FY 2021)
% of Potable Basic Meter Charge		0%	20%	40%	60%	80%	100%
RW Basic Meter Charge							
5/8"	$0.00	$0.00	$6.00	$13.79	$22.75	$33.37	$45.88
3/4"	$0.00	$0.00	$9.43	$21.69	$35.79	$52.49	$72.18
1"	$0.00	$0.00	$10.15	$23.33	$38.50	$56.47	$77.64
1 1/2"	$0.00	$0.00	$23.84	$54.83	$90.48	$132.70	$182.46
2"	$0.00	$0.00	$32.37	$74.45	$122.85	$180.17	$247.74
3"	$0.00	$0.00	$57.71	$132.73	$219.01	$321.22	$441.67
4"	$0.00	$0.00	$100.91	$232.08	$382.93	$561.64	$772.25
6"	$0.00	$0.00	$215.55	$495.76	$818.00	$1,199.73	$1,649.63
# of RW Meters							
5/8"			17	17	17	17	17
3/4"			8	8	8	8	8
1"			13	14	15	17	17
1 1/2"			1	1	1	1	1
2"			12	12	13	13	15
3"			3	3	3	3	3
4"							
6"							
Projected Revenues[59]			**$10,859**	**$26,145**	**$44,066**	**$68,953**	**$94,810**

[59]Example: FY 2017 Rev = Σ ($6.00 * 17 + $9.43*8+$10.15*13+$23.84*1+$32.37*12+$57.71*3)*12 bills = $10,859

9.2 COMMODITY RATE

RFC proposes that the District implement a uniform recycled water commodity rate. The uniform rate is calculated based on the residual recycled water costs after the service charge revenues are collected and the Supplemental Water Supply revenue offset is transferred from the Water Fund's restricted fund. Table 9-2 shows the remaining revenue requirements once the basic meter charge revenue and the revenue offset are subtracted.

Table 9-2: Recycled Water Revenue Requirements

No. Line	Revenue Requirements		FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
1	O&M Expenses	Table 4-25	$434,260	$457,982	$480,485	$504,247	$527,644	$551,997
2	Debt Service		$0	$0	$0	$0	$0	$0
3	PAYGO CIP	Table 4-14	$88,500	$78,030	$21,848	$15,918	$84,971	$11,041
4	Reserve Funding at Current Rate Rev		-$149,907	-$115,661	-$33,243	-$1,460	-$43,908	$56,089
5	**Subtotal Revenue Requirements**	**[1+2+3+4]**	**$372,853**	**$420,351**	**$469,090**	**$518,706**	**$568,708**	**$619,126**
6	**Subtotal Other Revenues**	**Table 4-29**	**$0**	**$0**	**$0**	**-$878**	**-$2,141**	**-$3,821**
7	**Net Rev. Requirement form Current Rates**	**[5-6]**	**$372,853**	**$420,351**	**$469,090**	**$517,828**	**$566,567**	**$615,305**
8	Proposed Rev Adjustment		0%	25%	15%	5%	3%	3%
9	Cumulative Rev. Adjustment		100%	125%	144%	151%	155%	160%
10	**Proposed Rev. Requirements**	**[7]*[9]**	**$372,853**	**$525,439**	**$674,316**	**$781,597**	**$880,817**	**$985,286**
11	Less Basic Meter Charges Revenues	Table 9-1	$0	*-$10,859*	*-$26,145*	*-$44,066*	*-$68,953*	*-$94,810*
12	Less Supplemental Potable Rates Offset	Table 7-17	$0	-$38,646	-$78,529	-$81,775	-$85,021	-$85,219
13	**Net Proposed RW commodity rate rev. req't**	**[10+11+12]**	**$372,853**	**$475,934**	**$569,643**	**$655,757**	**$726,843**	**$805,257**

As shown in Table 9-3, the net proposed usage rate revenue requirement is divided by the projected sales to calculate the uniform RW commodity rates per KGal for the study period.

Table 9-3: Recycled Water Proposed Commodity Rate Calculations

Line No.		Source	Current New Structure	Proposed Dec 2016 (FY 2017)	Proposed Dec 2017 (FY 2018)	Proposed Dec 2018 FY 2019)	Proposed Dec 2019 (FY 2020)	Proposed Dec 2020 (FY 2021)
1	**Net Proposed RW Commodity Rate Revenue Requirements**	Table 9-2	**$372,853**	**$475,934**	**$569,643**	**$655,757**	**$726,843**	**$805,257**
2	Projected Sales (kgal)	Table 4-23	36,510	40,442	45,095	49,749	54,402	59,055
3	**Uniform RW Commodity Rates ($/kgal)**	***[1/2]***	**$10.22**	**$11.77**	**$12.64**	**$13.19**	**$13.37**	**$13.64**

9.3 CUSTOMER BILL IMPACTS

Figure 9-1 summarizes the projected impacts on RW bills under FY 2017 proposed rates, phase-in basic meter charges and commodity rates shown in Table 9-1 and Table 9-3, respectively. 50 percent of customers will see a bill increase of 100 percent or greater. No customers will see a reduction and 4 percent of customers will see an increase under 10 percent.

Figure 9-1: Recycled Water Proposed FY 2017 Bill Impacts

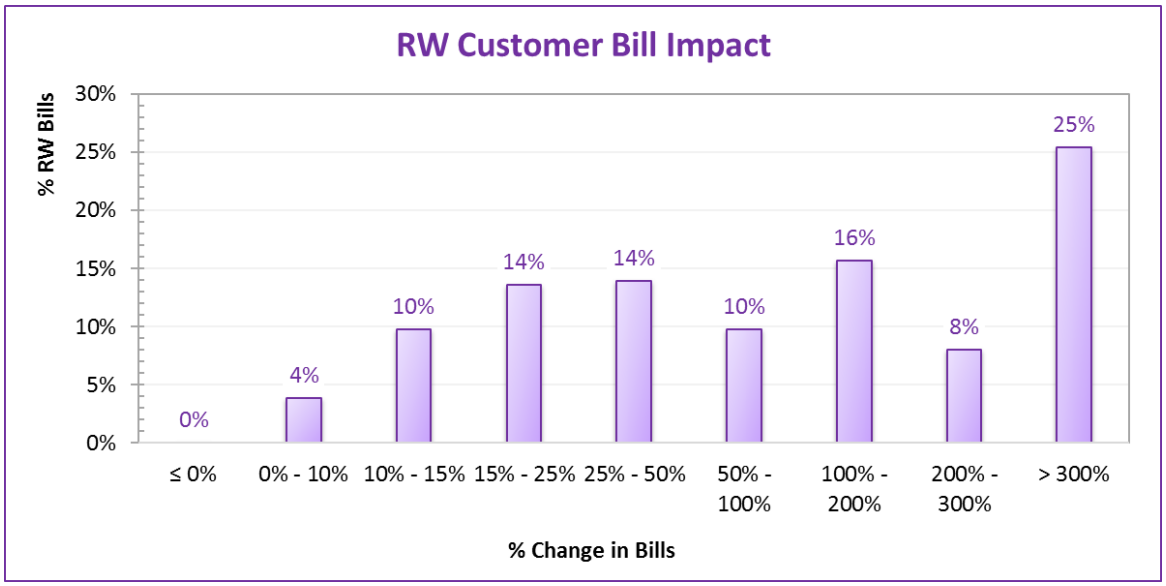
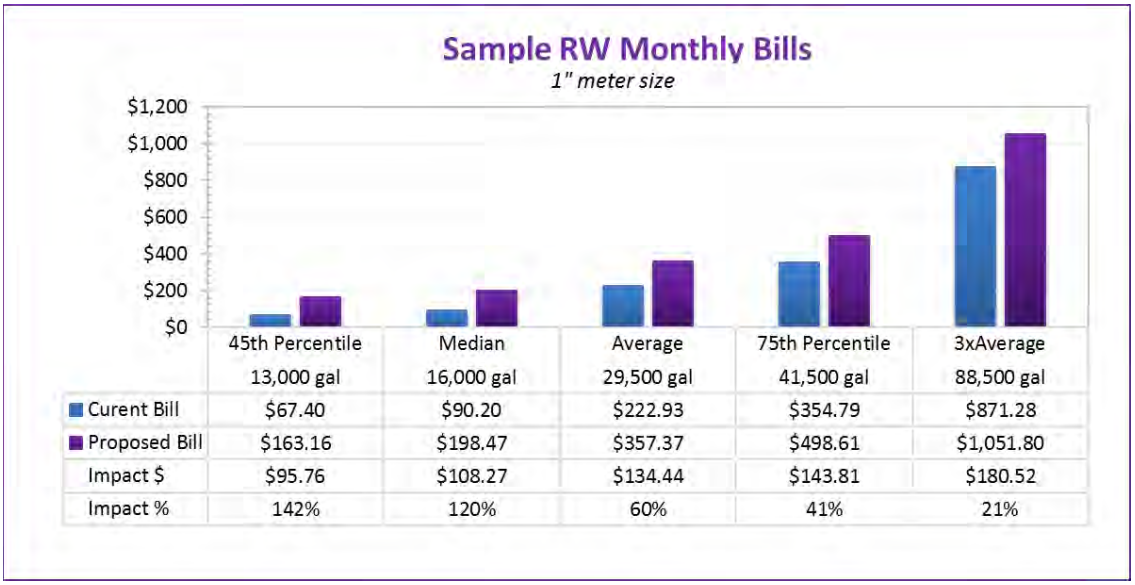


Figure 9-2 shows the projected RW bills under proposed rates effective Dec 2016 under different RW usage level. The average customer, using 29,500 gallons, will see approximately 60 percent increase of $134.44, resulting in a bill of $357.37. Lower use customers will see an approximately 142 percent increase. In contrast, customers using 3x the average (88,500 gal per month) will only see a 21 percent increase as the uniform rate benefits these users the most.

Figure 9-2: FY 2017 Sample Recycled Water Bills



	45th Percentile	Median	Average	75th Percentile	3xAverage
	13,000 gal	16,000 gal	29,500 gal	41,500 gal	88,500 gal
Curent Bill	$67.40	$90.20	$222.93	$354.79	$871.28
Proposed Bill	$163.16	$198.47	$357.37	$498.61	$1,051.80
Impact $	$95.76	$108.27	$134.44	$143.81	$180.52
Impact %	142%	120%	60%	41%	21%

10. APPENDIX

Table 10-1: Capital Cost Allocation by Component and Cost Allocation Factors

				Cost Components										
Line No.	Potable Water Fixed Assets By Functions	Fuctional Cost Allocation Factors	2015 Replacement Cost	Variable Water Supply	Base Fixed	Max Day	Max Hour	Billing & CS	Meters & Services	Conserv ation	Rev Offsets	General	Fire Protection	Total
	A	B	C	D	E	F	G	H	I	J	K	L	M	N
1	Land/Rights of Way	General	$1,209,258									$1,209,258		$1,209,258
2	SCADA	Average demand	$766,842		$444,512	$237,126	$85,205							$766,842
3	Source of Supply	Source of Supply	$11,022,649		$11,022,649									$11,022,649
4	Pumps and Related	Pumping	$1,638,934		$484,465	$608,157	$546,311							$1,638,934
5	Pump Buildings	Pumping	$352,565		$104,218	$130,826	$117,522							$352,565
6	Well Pumps	Source of Supply	$58,688		$58,688									$58,688
7	Water Treatment	Source of Supply	$3,632,574		$3,632,574									$3,632,574
8	Treatment Plant	Water Treatment	$6,053,764		$2,684,219	$3,369,545								$6,053,764
9	Distrubution, Main	Transmission & Distribution	$14,510,479		$2,157,348	$2,708,155	$2,432,752		$3,584,604				$3,627,620	$14,510,479
10	Reservoir/Tanks	Storage	$10,002,649		$3,326,357	$4,175,630							$2,500,662	$10,002,649
11	Fire Hydrants	Fire protection	$332,066										$332,066	$332,066
12	Services	Transmission & Distribution	$1,650,342		$245,365	$308,011	$276,688		$407,693				$412,585	$1,650,342
13	Office/Shop Bldg	General	$1,185,052									$1,185,052		$1,185,052
14	Tools and Equip	General	$219,691									$219,691		$219,691
15	Office Equipment	General	$16,029									$16,029		$16,029
16	Transportation	General	$623,207									$623,207		$623,207
17	Shop Buildings	General	$257,846									$257,846		$257,846
18	Computer Equipment	General	$176,214									$176,214		$176,214
19	**TOTAL**	**{1+..+18]**	**$53,708,850**		**$24,160,394**	**$11,537,450**	**$3,458,477**	**$0**	**$3,992,298**	**$0**	**$0**	**$3,687,296**	**$6,872,934**	**$53,708,850**
20	Capital cost by functions	Line 20 as % of Total		**45%**	**21%**	**6%**	**0%**	**7%**	**0%**	**0%**	**7%**	**13%**	**100%**	

Table 10-2: O&M Allocation by Cost Components and Allocation Factors

Line No.	O&M Potable Water	Functional Cost Allocation	O&M Expenses FY 2016	Variable Water Supply	Base Fixed	Max Day	Max Hour	Billing & CS	Meters & Services	Conservation	Rev Offsets	General	Fire Protection
1	**Salaries and Benefits**												
2	*All other*	General	$1,970,480									$1,970,480	
3	*Conservation*	Conservation	$87,200							$87,200			
4	**G&A Services**												
5	*All other*	General	$638,610									$638,610	
6	*Conservation*	Conservation	$103,700							$103,700			
7	**Supplies**												
8	*All other*	Average demand	$31,640		$18,341	$9,784	$3,516						
9	*Conservation*	Conservation	$78,075							$78,075			
10	**Source of Supply**												
11	*All other*	Source of Supply	$50,000		$50,000								
12	*Conservation*	Conservation	$0							$0			
13	**Pumping**												
14	*Pumps - Electricity and Power*	Variable Supply	$296,500	$296,500									
15	*Pumps and Boosters*	Pumping	$65,000		$19,214	$24,119	$21,667						
16	**Water Treatment**												
17	*WT Chemicals and Supplies*	Variable Supply	$100,677	$100,677									
18	*Other Water Treatment Expenses*	Water Treatment	$170,000		$75,377	$94,623							
19	**Transmission & Distribution**	Transmission & Distribution	$303,600		$45,138	$56,662	$50,900		$75,000				$75,900
20	**WEU/Conservation**	Conservation	$0							$0			
21	**Customer Accounts**	Billing & CS	$66,400					$66,400					
22	**Other**	General	$14,600									$14,600	
23	**Total O&M allocation**	[1+..+22]	**$3,976,482**	**$397,177**	**$208,070**	**$185,188**	**$76,082**	**$66,400**	**$75,000**	**$268,975**	**$0**	**$2,623,690**	**$75,900**
24	**O&M allocation in percent**	Line 23 as % of total		**10%**	**5%**	**5%**	**2%**	**2%**	**2%**	**7%**	**0%**	**66%**	**2%**

Table 10-3: Water Fund Cost Component Revenue Requirement Allocations

					COST COMPONENTS									
Line No.	Cost allocation Potable Water		Allocation Factors by Functions	FY 2016	Variable Water Supply	Base Fixed	Max Day	Max Hour	Billing & CS	Meters & Services	Conservation	Rev Offsets	General	Fire Protection
	A		B	C	D	E	F	G	H	I	J	K	L	M
1	**REVENUE REQUIREMENTS**													
2	O&M Expenses		O&M Costs	$3,976,482	$397,177	$208,070	$185,188	$76,082	$66,400	$75,000	$268,975	$0	$2,623,690	$75,900
3	Debt Service		Capital Costs	$355,681	$0	$160,000	$76,406	$22,903	$0	$26,439	$0	$0	$24,419	$45,515
4	PAYGO CIP		Capital Costs	$1,209,833	$0	$544,232	$259,890	$77,905	$0	$89,930	$0	$0	$83,059	$154,818
5	Reserve Funding		Capital Costs	-$1,034,216	$0	-$465,232	-$222,165	-$66,596	$0	-$76,876	$0	$0	-$71,002	-$132,345
6														
7	**Subtotal revenue requirements**	**[2+3+4+5]**		**$4,507,781**	**$397,177**	**$447,069**	**$299,319**	**$110,294**	**$66,400**	**$114,493**	**$268,975**	**$0**	**$2,660,165**	**$143,888**
8														
9	**NON-RATE REVENUE**													
10	Other operating revenue		General	$76,749	$0	$0	$0	$0	$0	$0	$0	$0	$76,749	$0
11	Property Taxes		Revenue Offset	$703,680	$0	$0	$0	$0	$0	$0	$0	$703,680	$0	$0
12	Interest		General	$14,600	$0	$0	$0	$0	$0	$0	$0	$0	$14,600	$0
13	Misc. Non-Operating Revenue		General	$1,800	$0	$0	$0	$0	$0	$0	$0	$0	$1,800	$0
14	**Subtotal non-rate revenues**	**[10+11+12+13]**		**$796,829**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$0**	**$703,680**	**$93,149**	**$0**
15														
16	**Net Revenue Requirements**	**[7-14]**		**$3,710,952**	**$397,177**	**$447,069**	**$299,319**	**$110,294**	**$66,400**	**$114,493**	**$268,975**	**-$703,680**	**$2,567,016**	**$143,888**
17	Reallocation factors for "General"					43%	29%	11%	6%	11%				
18	General Cost Allocation					$1,106,073	$740,531	$272,874	$164,277	$283,261			- **$2,567,016**	
19	Public Fire Protection Cost Reallocation									$131,390				$131,390
20	**Net Adjusted Revenue Requirements**	**[16+18+19]**		**$3,710,952**	**$397,177**	**$1,553,143**	**$1,039,850**	**$383,168**	**$230,677**	**$529,144**	**$268,975**	**-$703,680**	**$0**	**$12,498**

Table 10-4: Potable Water Cost Components to Rate Components

			RATE COMPONENTS								
No. line	Cost Components	Net Adjusted Revenue Requirements	Variable Supply	Delivery	Peaking	Water Use Efficiency	Revenue Offsets	Billing & CS	Meters & Services	Capacity	Private Fire Protection
	A	B	C	D	E	F	G	H	I	J	K
1	Variable Water Supply	$397,177	$397,177								
2	Base Fixed	$1,553,143		$1,048,580						$504,563	
3	Peaking	$1,423,018			$1,423,018						
4	Billing & CS	$230,677						$230,677			
5	Meters & Services	$529,144							$529,144		
6	Conservation	$268,975				$268,975					
6	Rev Offsets	-$703,680					-$703,680				
7	Private Fire	$12,498									$12,498
8	**Total Revenue Requirements**	**$3,710,952**	**$397,177**	**$1,048,580**	**$1,423,018**	**$268,975**	**-$703,680**	**$230,677**	**$529,144**	**$504,563**	**$12,498**

Table 10-5: Residential Water Rate Increase

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
Revised COS Water Rates w/ Rev. Offset						
Effective increase		*25%*	*15%*	*10%*	*10%*	*10%*
Residential						
Tier 1	$7.78	$9.73	$11.19	$12.31	$13.55	$14.91
Tier 2	$8.48	$10.60	$12.19	$13.41	$14.76	$16.24
Tier 3	$12.58	$15.73	$18.09	$19.90	$21.89	$24.08
Tier 4	$14.85	$18.57	$21.36	$23.50	$25.85	$28.44
Rev. Offset						
Effective increase		*20%*	*15%*	*10%*	*10%*	*10%*
Residential						
Tier 1	-$4.04	-$4.84	-$5.56	-$6.11	-$6.72	-$7.39
Tier 2	-$2.02	-$2.42	-$2.78	-$3.05	-$3.35	-$3.68
Tier 3	-$2.02	-$2.42	-$2.78	-$3.05	-$3.35	-$3.68
Tier 4	-$2.02	-$2.42	-$2.78	-$3.05	-$3.35	-$3.68
Total Revised COS rates						
Residential						
Tier 1	$3.74	$4.89	$5.63	$6.20	$6.83	$7.52
Tier 2	$6.46	$8.18	$9.41	$10.36	$11.41	$12.56
Tier 3	$10.56	$13.31	$15.31	$16.85	$18.54	$20.40
Tier 4	$12.83	$16.15	$18.58	$20.45	$22.50	$24.76