2016 WATER, SEWER AND RECYCLED WATER COST OF SERVICE RATE STUDY REPORT

El Toro Water District

FINAL MAY 2, 2016

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FINANCIAL CONSULTANTS, INC.

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May 2, 2016

Dennis P. Cafferty, P.E.
Assistant General Manager / District Engineer
El Toro Water District
24251 Los Alisos Blvd.
Lake Forest, CA 92630

Subject: 2016 Water, Sewer and Recycled Water Cost of Service Rate Study (Study)

Dear Mr. Cafferty:

As part of the annual cost of service and rate update process, El Toro Water District (ETWD or District) engaged Raftelis Financial Consultants, Inc. (RFC) to conduct a cost of service study for the development of its water, sewer, and recycled water rates that are in compliance with Proposition 218 and other legal requirements. As part of the Study, RFC reviewed the latest operating budget, including purchased water costs, conducted cost of service analyses, and calculated the fiscal year (FY) 2016-17 water, sewer and recycled water rates for the District. The updated rates, scheduled to be effective on July 1, 2016, reflect projected changes in net revenue requirements for each enterprise and projected reduction in water sales during drought.

This *2016 Water, Sewer, and Recycled Water Cost of Service Rate Study Report* (Report) summarizes the key findings and recommendations related to the development of the respective rates.

It has been a pleasure working with the District. We would like to thank you for your assistance during the course of the study. If we can be of further assistance please call me at 626-583-1894 or Khanh Phan at 626-233-6762.

Sincerely,

Sudhir Pardiwala
Executive Vice President

Khanh Phan
Sr. Consultant

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Glossary

AF	Acre foot / acre feet
AWWA	American Water Works Association
CCF	100 cubic feet = 748 gallons
CII	Commercial / Industrial / Institutional (i.e. Commercial and Public Authority)
COS	Cost of Service
DF	Drought Factor (see Section 4 for details)
EDU	Equivalent dwelling unit
ET_0	reference Evapotranspiration (see Section 4 for details)
ETAF	ET Adjustment Factors (see Section 4 for details)
FY	Fiscal year
GPCD	Gallons per capita per day
IRR	Irrigation
IWB	Indoor Water Budget (see Section 4 for details)
M1 Manual	M1 Manual, Principles of Water Rates, Fees and Charges, Sixth Edition published by AWWA
MFR	Multi Family Residential
MWD	Metropolitan Water District of Southern California
MWDOC	Municipal Water District of Orange County
O&M	Operations & Maintenance
OWB	Outdoor Water Budget (see Section 4 for details)
R&R	Replacement and Refurbishment
RFC	Raftelis Financial Consultants, Inc.
RW	Recycled Water
SFR	Single Family Residential
SQ FT	Square feet
TWB	Total Water Budget = Indoor Water Budget + Outdoor Water Budget
V_{indoor} / $V_{outdoor}$	Indoor Variance / Outdoor Variance (see Section 4 for details)
WB	Water Budget
WRP	Water Recycling Plant

1 Executive Summary

Utility rates, especially water rates, are coming under increasing scrutiny as supplies tighten, costs and rates increase, and organized groups and customers question the equitability of rates. The El Toro Water District (District) proactively wants to ensure that its rates are consistent with regulatory requirements and are a fair and equitable means of distributing the costs of providing service.

The entire state of California is experiencing a severe and continual drought. Such conditions have prompted Governor Brown to issue an executive order mandating a 25 percent reduction in urban water use inclusive of specific restrictions and prohibitions on outdoor water use. The State has established target reductions in water use for different agencies and the District's reduction target is 24 percent based on calendar year 2013 usage. The rates calculated in this study are based on projected sales in consideration of the drought conditions, the resulting mandatory usage cutbacks, and water budget allocations. The study will maintain a 55 gallon per capita per day (GPCD) allotment, per the statewide efficiency standard referenced in SB x7-7. In addition, the drought factor and the corresponding allocation for Tier 2 shall remain 50% of outdoor usage, which maintains the stronger conservation signal in order to achieve the mandatory cutback percentage.

In light of recent court decisions related to Proposition 218 and the current drought condition in California, the District engaged Raftelis Financial Consultants, Inc. (RFC) to conduct the Water, Sewer, and Recycled Water Cost of Service Study to develop rates for all three enterprises that are equitable and in compliance with Proposition 218. This *2016 Water, Sewer, and Recycled Water Cost of Service Study Report* (Report) summarizes the key findings and recommendations related to the development of the respective rates.

1.1 Legal Framework

The legal framework that supports the proposed rates and the equitable distribution of Costs of Service among Customer Classes in accordance with applicable Constitutional and Statutory Mandates is described in detail within Section 3.1.

1.2 Water, Sewer, and Recycled Water Rate Structure Overview

The District's current water and sewer rate structure consists of the following components to ensure that rates are charged equitably to all customers, provide adequate revenues to fund operating and capital costs and are simple to administer and implement while continuing to promote water efficiency and conservation.

- Water
  - Monthly Service Charges by meter size to recover a portion of operating costs
  - Variable Rates, Tiered Residential, and Uniform Commercial, comprised of the following rate components:
    - Water Supply Cost to fund purchased water supply costs

    - Delivery Rate to recover the remaining operating costs
    - Revenue Offset to provide a rate incentive and affordability for essential water use in Tier 1
    - Conservation and Recycled Water Program costs applied to inefficient and excessive use to fund the District's conservation and supplemental water supply (i.e. Recycled Water expansion) programs
  - Capital Replacement and Refurbishment (R&R) Charges by meter size to pay for capital replacement and refurbishment of the existing water system
- Sewer
  - O&M charges (by dwelling units for residential customers and by usage for non-residential customers) by customer classes
  - Capital R&R Charges by meter size to pay for capital R&R of the existing sewer system

To ensure compliance with Proposition 218, we recommend retaining the same defensible methodology from the 2015 Rate Study to determine justified water rates. The methodology is as follows:

1. Water usage is grouped based on usage and peaking characteristics:
   - Tier 1 – Efficient Indoor or domestic use
   - Tier 2 – Efficient outdoor use
   - Tier 3 – Inefficient use
   - Tier 4 – Excessive use
   - Commercial use will include domestic use, efficient outdoor use, and inefficient use but is combined into a uniform rate since commercial usage varies widely among customers and fixed tiers are not fair to users with widely varying usage characteristics.
2. Water systems are designed to accommodate the peak use of any class or type of customer. Since the system is designed to meet peak conditions, and different uses have different peaks, rates for the different usages can be based on peaking characteristics. Indoor or domestic use has the lowest peaking since this use occurs all year round, therefore Tier 1 comprised of residential (Single Family Residential (SFR) and Multi-Family Residential [MFR]) domestic use will have the lowest rates. Efficient outdoor or irrigation use has higher peaking characteristics, so Tier 2 comprised of efficient outdoor irrigation use has rates based on higher peaking factors. Inefficient and excessive uses have the highest peaking factors and the rates reflect the higher peaking and other costs. In the cost of service analysis, peaking costs are included in the delivery charges. Indoor or domestic use has the lowest peaking factors; therefore all indoor use (residential and commercial) is assigned a lower delivery cost. Outdoor Irrigation is associated with higher peaking factors, so outdoor use comprising of residential irrigation and the current irrigation class will have higher delivery costs. Inefficient and excessive uses have even higher peaking factors and are assigned the highest delivery costs.
3. The Commercial class rates will continue to be a uniform rate based on domestic use and inefficient use. Based on SB x7-7, which requires commercial users to cut back by 10 percent, we define 10 percent of commercial use as inefficient use, which is subjected to higher peaking,

conservation, and supplemental water supply costs as explained below. The remaining 90 percent of use is defined as efficient indoor and other efficient commercial use.

Of the 90 percent of efficient use —

- 10 percent is estimated for efficient outdoor use (9% of overall commercial use)
- 90 percent is estimated for indoor use (81% of overall commercial use).

4. Only the inefficient and excessive usage is targeted for conservation, therefore conservation costs are applied only to inefficient and excessive use.
5. Supplemental water programs are required to meet the demands of inefficient and excessive usage and those costs are assigned to inefficient and excessive usage.
6. Finally, based on the District's current policy objective to provide rate incentives for essential and efficient indoor use, revenues from cell tower lease (aka site lease income) and a portion of the property taxes received by the District are used to offset the essential and efficient usage rate which benefits indoor use (Tier 1), and therefore all residential customers, and commercial indoor use.

In summary, to ensure compliance with Proposition 218, we have identified and allocated the costs and provided conservation incentives to different uses and customer classes in proportion to the service they receive and developed tiers for residential and irrigation customers to meet conservation requirements and harmonized with Article X, Section 2, of the State Constitution:

- Usage will be classified as efficient indoor/domestic, efficient outdoor, inefficient and excessive;
- All customers will benefit from property tax and miscellaneous revenue offsets;
- All inefficient and excessive usage will bear the costs of conservation programs and supplemental water sources (aka Recycled Water (RW) Program Funding);
- Peaking or delivery costs will be assigned to the different usages based on the individual peaking characteristics of each type of usage; and
- Residential rates will continue to be tiered and commercial rates will be uniform.

In FY 2015, the District completed the expansion of its RW system, including Water Recycling Plant (WRP) upgrades to tertiary treatment and RW transmission pipeline expansion and started the customer conversion process from potable to recycled water in order to increase its RW sales and reduce potable water sales. During FY 2016 the District completed the conversion process and increased delivery by 245 acre feet (AF) per year to a projected 1,300 AF per year in FY 2017 to 216 irrigation accounts converted to RW accounts. As part of the Study, RFC developed the recycled water rates that recover the operations and maintenance (O&M) of the recycled water system after the expansion.

1.3 Proposed Water Rates

The recommended rate structure consists of the monthly fixed service and the volumetric commodity rates which are determined as follows (Table 1-1). For more information and detailed analyses, refer to Section 4 for Water Budget and Tier Definitions, Section 5 for Purchased Water Supply Cost, and Section 6 for Cost of Service and Proposed Water Rates.

Table 1-1: Cost Categories and Water Rate Structure

Cost Components	Service Charges	Tier 1 Essential Use	Tier 2 Efficient Use	Tier 3 Inefficient Use	Tier 4 Excessive Use	Commercial Use
Water Supply		x	x	x	x	x
Fixed Delivery Costs	x	x	x	x	x	x
RW Program Funding				x	x	x
Conservation				x	x	x
Customer Service	x					
Meters	x					
Rev Offset		x				x

The proposed water operations and maintenance monthly service charges increased 9.5 percent from FY 2016 levels for each meter size and are shown in Table 1-2[1].

Table 1-2: Monthly Service Charges

Monthly Service Charges Meter Size	Current	FY 2017	$ Change	% Change	Number of Accounts[2]
5/8"	$9.98	$10.93	$0.95	9.5%	2,389
¾"	$13.31	$14.58	$1.27	9.5%	4,877
1"	$19.95	$21.86	$1.91	9.6%	447
1 ½"	$36.56	$40.06	$3.50	9.6%	701
2"	$69.81	$76.48	$6.67	9.6%	1,454
Projected Revenues	**$2,697,660**	**$2,955,286**	**$257,625**	**9.5%**	**9,868**

[1] *Percentage changes vary due to rounding*
[2] *Includes accounts converting to recycled water system*

Water capital R&R charges will remain unchanged from FY 2016 levels and are shown in Table 1-3.

Table 1-3: Water Capital R&R Charges

Capital R&R Charges Meter Size	Current	FY 2017	# of Water Accounts	RW Accts	# of Accounts (including RW)
5/8"	$4.66	$4.66	2,389	0	2,389
¾"	$4.66	$4.66	4,877	0	4,877
1"	$7.78	$7.78	447	0	447
1 ½"	$18.91	$18.91	691	10	701
2"	$47.47	$47.47	1,248	206	1,454
Projected Revenues	**$1,435,374**	**$1,435,374**	**$1,315,759**	**$119,615**	**9,868**

The proposed water commodity rates also will remain unchanged from FY 2016 levels. They are shown in dollars per hundred cubic feet (ccf[3]), by usage type for FY 2017 in Table 1-4 in the first column and the components that make up the charge are shown in the subsequent columns. For further details, refer to Sections 4 to 6 of the Report.

Table 1-4: Proposed Water Commodity Rates

Commodity Rates	FY 2016 Rates	FY 2017 Rates	Water Supply	Delivery	RW Program	Conservation	Revenue Offsets
Tier 1	$2.46	**$2.46**	$2.50	$0.15	$0.00	$0.00	-$0.19
Tier 2	$2.83	**$2.83**	$2.50	$0.33	$0.00	$0.00	$0.00
Tier 3	$5.61	**$5.61**	$2.50	$0.46	$2.28	$0.37	$0.00
Tier 4	$7.18	**$7.18**	$2.50	$0.67	$3.64	$0.37	$0.00
Uniform	$2.79	**$2.79**	$2.50	$0.17	$0.23	$0.04	-$0.15

[3] *1 ccf =100 cubic feet = 748 gallons*

1.4 Proposed Sewer Rates

Revenue requirements for the Sewer Enterprise are projected to increase 4.9 percent. The rates listed in Table 1-5 vary slightly from this percentage due to rounding. For further details, refer to Section 7 of the Report.

Table 1-5: Sewer Rates by Customer Classes

Sewer Rates	FY 2016	FY 2017	$ Change	% Change
Residential Unrestricted	$22.02 / EDU	$23.11 / EDU	$1.09	5.0%
Multi-Family Restricted	$17.46 / EDU	$18.33 / EDU	$0.87	5.0%
Multi-Family Unrestricted	$20.76 / EDU	$21.79 / EDU	$1.03	5.0%
Animal Kennel/Hospital	$3.61 /ccf	$3.79 /ccf	$0.18	5.0%
Car Wash	$3.59 /ccf	$3.77 /ccf	$0.18	5.0%
Department/Retail Store	$3.61 /ccf	$3.79 /ccf	$0.18	5.0%
Dry Cleaners	$3.16 /ccf	$3.32 /ccf	$0.16	5.1%
Golf Course/Camp/Park	$3.15 /ccf	$3.31 /ccf	$0.16	5.1%
Health Spa	$3.60 /ccf	$3.78 /ccf	$0.18	5.0%
Hospital/Convalescent Home	$3.16 /ccf	$3.32 /ccf	$0.16	5.1%
Hotel	$5.47 /ccf	$5.74 /ccf	$0.27	4.9%
Market	$7.17 /ccf	$7.53 /ccf	$0.36	5.0%
Mortuary	$7.14 /ccf	$7.50 /ccf	$0.36	5.0%
Nursery/Greenhouse	$3.20 /ccf	$3.36 /ccf	$0.16	5.0%
Professional/Financial Office	$3.61 /ccf	$3.79 /ccf	$0.18	5.0%
Public Institution	$3.55 /ccf	$3.73 /ccf	$0.18	5.1%
Repair/Service Station	$3.60 /ccf	$3.78 /ccf	$0.18	5.0%
Restaurant	$3.41 /ccf	$3.58 /ccf	$0.17	5.0%
Schools	$3.73 /ccf	$3.92 /ccf	$0.19	5.1%
Theater	$3.61 /ccf	$3.79 /ccf	$0.18	5.0%
Warehouse/Storage	$2.85 /ccf	$3.00 /ccf	$0.15	5.3%
Basic Commercial	$3.16 /ccf	$3.32 /ccf	$0.16	5.1%

The sewer capital R&R charges are projected to remain unchanged for FY 2017 (shown in Table 1-6).

Table 1-6: Sewer Capital R&R Charges

Sewer Capital R&R	FY 2016	FY 2017	$ Change	% Change
Residential				
Single Family Residential	$4.93 / EDU	$4.93 / EDU	$0.00	0.0%
Multi-Family Restricted	$3.91 / EDU	$3.91 / EDU	$0.00	0.0%
Multi-Family Unrestricted	$4.65 / EDU	$4.65 / EDU	$0.00	0.0%
Commercial				
5/8" Meter	$4.34 / month	$4.34 / month	$0.00	0.0%
3/4" Meter	$7.34 / month	$7.34 / month	$0.00	0.0%
1" Meter	$13.55 / month	$13.55 / month	$0.00	0.0%
1-1/2" Meter	$24.07 / month	$24.07 / month	$0.00	0.0%
2" Meter	$70.96 / month	$70.96 / month	$0.00	0.0%
Public Authority				
1" Meter	$4.93 / month	$4.93 / month	$0.00	0.0%
1-1/2" Meter	$24.65 / month	$24.65 / month	$0.00	0.0%
2" Meter	$39.71 / month	$39.71 / month	$0.00	0.0%

1.5 Proposed Recycled Water Rates

With the completion of the Recycled Water Expansion Project, all RW customers (existing and converted customers) are now supplied with higher quality tertiary RW, and subject to the corresponding rates that support the annual cost of providing tertiary RW. The proposed RW rate for FY 2017 is $2.55/ccf[4], which is approximately 90 percent of Tier 2 potable water rate. All RW customers connected to the new recycled water distribution system will be assessed monthly service charges (Table 1-7) and capital R&R charges (Table 1-8), the same as potable meters to recover the customer service, meter service, a portion of capacity and other RW related fixed costs and to pay for capital R&R of the expanded RW system.

[4] *Refer to Section 8 of the Report for further details*

Table 1-7: FY 2017 Recycled Water Monthly Service Charges

Monthly Service Charges Meter Size	FY 2016	FY 2017
5/8"	$9.98	$10.93
¾"	$13.31	$14.58
1"	$19.95	$21.86
1 ½"	$36.56	$40.06
2"	$69.81	$76.48

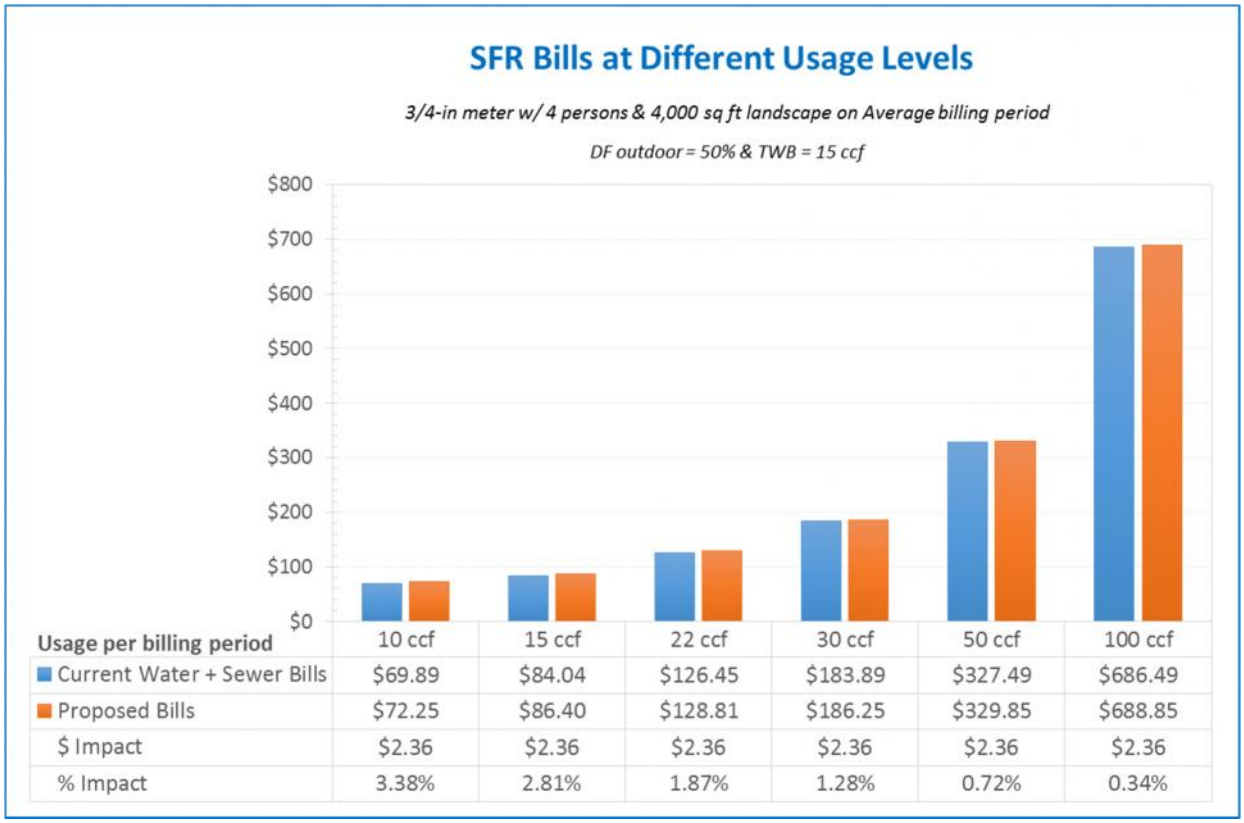
Table 1-8: FY 2017 Recycled Water Capital R&R Charges

Capital R&R Charges Meter Size	FY 2016	FY 2017
5/8"	$4.66	$4.66
¾"	$4.66	$4.66
1"	$7.78	$7.78
1 ½"	$18.91	$18.91
2"	$47.47	$47.47

1.6 Customer Impacts Analysis

Figure 1-1 shows a breakdown of water and sewer bills at various water usage levels for a single family residential user with 4 occupants and 4,000 square feet (sq ft) of landscape area serviced by a ¾-in meter, assuming the outdoor Drought Factor remained at 50%. The combined water and sewer bill increase would be $2.36 per month resulting from the increases in monthly water and sewer fixed service charges. Note that the impacts for recycled water are not shown because residential users do not purchase recycled water.

Figure 1-1: SFR Total Monthly Bill at Different Usage Levels



Usage per billing period	10 ccf	15 ccf	22 ccf	30 ccf	50 ccf	100 ccf
Current Water + Sewer Bills	$69.89	$84.04	$126.45	$183.89	$327.49	$686.49
Proposed Bills	$72.25	$86.40	$128.81	$186.25	$329.85	$688.85
$ Impact	$2.36	$2.36	$2.36	$2.36	$2.36	$2.36
% Impact	3.38%	2.81%	1.87%	1.28%	0.72%	0.34%

2 Introduction

In light of recent court decisions related to Proposition 218 and the current drought condition in California, the District engaged Raftelis Financial Consultants, Inc. (RFC) to conduct the Water, Sewer, and Recycled Water Cost of Service Study to develop rates for all three enterprises that are equitable and in compliance with Proposition 218.

The major objectives of the study include the following:

1. Determine the revenue requirements from water, sewer, and recycled water rates in FY 2017
2. Update the cost-of-service analysis for the Water Enterprise;
3. Update the water rates to meet the District's goals and objectives, including defensibility, affordability for essential use and promoting efficiency and conservation;
4. Update tertiary RW rates;
5. Update the sewer rates; and
6. Conduct customer impact analyses for the proposed water and sewer rates.

This *2016 Water, Sewer, and Recycled Water Cost of Service Study Report* (Report) summarizes the key findings and recommendations related to the development of the water, sewer, and recycled water rates.

2.1 About El Toro Water District

The El Toro Water District (District), located within the southern portion of Orange County, was formed in 1960 under provisions of California Water District Law, Division 13 of the Water Code of the State of California, commencing with Section 34000, for the purpose of providing water and sewer services to the service area. The District is governed by a publicly elected Board of Directors. The District is nearly built out and encompasses the entirety of the City of Laguna Woods and portions of four other cities: Lake Forest, Aliso Viejo, Laguna Hills, and Mission Viejo.

The District provides water, sewer, and recycled water services to a population of approximately 48,500 in a service area of approximately 8.5 square miles. Constructed in phases since 1960, the District's water system is relatively modern. It contains six reservoirs with a combined capacity of 136 million gallons, over 170 miles of water lines, and 8 booster pump stations with 13 pressure zones to deliver water to approximately 10,000 metered water accounts.

The District's sewer system is comprised of 142 miles of collection system pipeline, 3,400 manholes, and 11 pump stations which pump to the District's treatment plant with a rated capacity of 6 million gallons per day. Much of the District's effluent is reused through RW sales. The District has undertaken significant efforts to upgrade its Water Recycling Plant (WRP) to produce higher quality tertiary RW (completed in FY 2015). To make RW available to more customers, the District increased its RW distribution by adding 19 miles of RW distribution pipeline. The distribution expansion enabled RW sales to 216 irrigation accounts,

which will no longer use potable water for irrigation. The conversion of 216 accounts to RW will be completed by June 2016 and projected to increase RW sales to 1,300 AF in FY 2017.

2.2 Background of the Study

The District purchases 100% of its potable water supply from Municipal Water District of Orange County (MWDOC), a wholesale customer of Metropolitan Water District of Southern California (MWD), to meet residential, potable irrigation, commercial/public authority and fire protection demands. Wholesale water costs are driven by continued investment in regional water treatment/delivery system infrastructure, increased water importation costs, securing higher cost water supplies and water storage arrangements due to Northern California Bay-Delta (Bay-Delta) importation regulatory restrictions and increased funding to aggressively pursue near term and long term Bay-Delta solutions that will ensure a greater degree of future water supply reliability to Southern California. The amount paid by the District to MWDOC for wholesale water is the exact amount usually "passed through" to the District's customers in the form of a Potable Water Usage Charge.

However, for FY 2017, the District is not proposing any increases to the existing potable water usage rates though the wholesale water rate is increasing by 4%. The District's ability to absorb the wholesale water rate increase is a result of the District's participation in a five agency collaboration to fund and construct a local water treatment plant (Baker Water Treatment Plant) located in the City of Lake Forest to improve water treatment and water supply reliability for ETWD's customers and South Orange County. The Baker Water Treatment Plant will allow the participating agencies to purchase untreated water from MWDOC at a lower cost than the treated water, reducing the financial burden on the District's customers. Financing of the District's share of associated capital costs for the new facility provides a cost offset that mitigates the majority of the wholesale water cost increase for fiscal year 2016/17. The balance of the cost increase is being funded out of District reserves.

Severe and continual drought conditions in California have prompted Governor Brown to issue an executive order mandating a 25% overall reduction in urban water use in the State, inclusive of specific restrictions and prohibitions on outdoor water use. Specifically, the District has been assigned a mandatory cutback of 24% based on its 2013 calendar year usage. The rates calculated in this study are based on projected sales in consideration of the drought conditions, the resulting mandatory usage cutbacks, and the FY 2016 revisions to the water budget allocations. Those changes to the water budget allocations (discussed in Section 4) included:

1. A permanent reduction of the GPCD allotment from 60 to 55 for indoor usage (new statewide efficiency standard specified in SB x7-7).
2. Tier 2, outdoor allocation was reduced in FY 2016 to 50 percent of the original allocation by changing the drought factor from 100 percent to 50 percent. This effectively reduce the Tier 2 to half its FY 2015 allocation / allotment.

These two changes were intended to send a strong conservation signal in order to help the District achieve its mandatory cutback.

3 Legal Framework and Rate Setting Methodology

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

3.1 Legal Framework

CONSTITUTIONAL MANDATES AND STATUTORY AUTHORITY

Article XIII D, Section 6 (Proposition 218) and Article X, Section 2 of the California Constitution govern the principles applicable to this Rate Study. This Rate Study equitably implements and harmonizes these constitutional mandates in concert with the authority and principles set forth in Water Code Section 370 et seq. which governs Allocation-Based Conservation Water Pricing (commonly referred to as "Water Budget Rate Structure").

This Rate Study provides for an inclining four tier Rate Structure designed to implement, in a reasonable manner, the constitutional mandates and statutory authority and principles referenced above.

CALIFORNIA CONSTITUTION - ARTICLE X, SECTION 2

Article X, Section 2 of the California Constitution (established in 1976) provides as follows:

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

As such, public agencies are constitutionally mandated to maximize the beneficial use of water, prevent waste, and encourage conservation which this Rate Study achieves.

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 were reasonable and proportional to the cost of providing service. The principal requirements for fairness of the fees, as they relate to public water and sewer service are as follows:

1. Water and sewer rates shall not exceed the funds required to provide the service.
2. Revenues derived by the charge shall not be used for any other purpose other than that for which the charge was imposed.
3. The amount of the charge imposed upon any parcel shall not exceed the proportional cost of service attributable to the parcel.

4. No charge may be imposed for a service unless that service is actually used or immediately available to the owner of property.

The rates developed in this Rate Study use a methodology to establish an equitable system of fixed and variable charges that recover the cost of providing service and fairly apportion costs to each customer as required by Proposition 218.

STATUTORY AUTHORITY - GOVERNMENT CODE SECTION 370 ET SEQ. (Allocation-Based Conservation Water Pricing)

In 2000, the California Legislature (AB 2882), consistent with the above-referenced constitutional provisions, adopted a body of law entitled "Allocation-Based Conservation Water Pricing" (Water Code Section 370 et seq.)

Water Code Section 370 provides in part as follows:

> *"The Legislature hereby finds and declares all of the following:*
>
> *(a) The use of allocation-based conservation water pricing by public entities that sell and distribute water is one effective means by which waste or unreasonable use of water can be prevented and water can be saved in the interest of the people and for the public welfare, within the contemplation of Section 2 of Article X of the California Constitution.*
>
> *(b) It is in the best interest of the people of California to encourage public entities to voluntarily use allocation-based conservation water pricing, tailored to local needs and conditions, as a means of increasing efficient uses of water, and further discouraging wasteful or unreasonable use of water under both normal and dry-year hydrologic conditions."*

Water Code Section 372 provides as follows:

> *"(a) A public entity may employ allocation-based conservation water pricing that meets all of the following criteria.*
>
> *(1) Billing is based on metered water use.*
>
> *(2) A basic use allocation is established for each customer account that provides a reasonable amount of water for the customer's needs and property characteristics. Factors used to determine the basic use allocation may include, but are not limited to the number of occupants, the type or classification of use, the size of lot or irrigated area, and the local climate data for the billing period. Nothing in this chapter prohibits a customer of the public entity from challenging whether the basic use allocation established for that customer's account is reasonable under the circumstances. Nothing*

in this chapter is intended to permit public entities to limit the use of property through the establishment of a basic use allocation.

(3) A basic charge is imposed for all water used within the customer's basic use allocation, except that at the option of the public entity, a lower rate may be applied to any portion of the basic use allocation that the public entity has determined to represent superior or more than reasonable conservation efforts.

(4) A conservation charge shall be imposed on all increments of water use in excess of the basic use allocation. The increments may be fixed or may be determined on a percentage or any other basis, without limitation on the number of increments, or any requirement that the increments or conservation charges be sized, or ascend uniformly, or in a specified relationship. The volumetric prices for the lowest through the highest priced increments shall be established in an ascending relationship that is economically structured to encourage conservation and reduce the inefficient use of water, consistent with Section 2 of Article X of the California Constitution.

(b) ---

(1) Except as specified in subdivision (a), the design of an allocation-based conservation pricing rate structure shall be determined in the discretion of the public entity.

(2) The public entity may impose meter charges or other fixed charges to recover fixed costs of water service in addition to the allocation-based conservation pricing rate structure.

(c) A public entity may use one or more allocation-based conservation water pricing structures for any class of municipal or other service that the public entity provides."

As noted in the referenced statutes, "Allocation-Based Conservation Water Pricing Rate Structure" is a form of increasing block rates where the amount of water within the first block or blocks is based on the estimated, efficient water needs of the individual customer. Water-budget rates differ from other metered water rate designs in two key ways. First, the blocks are established based on water budgets that represent varying levels of each customer's efficient water use. Second, water-budget rates require the public agency to set specific standards for what is, and what is not, considered efficient water use for an individual customer.

This Rate Study in conjunction with ETWD's findings and determinations for individual customers establishes a standard for efficient usage and then establishes a budget for each individual customer. That defines how much water is considered efficient. Customers with usage above this efficient usage budget

pay a higher rate for their "inefficient' or wasteful" usage in accordance with Section 372 of the Water Code.

This Rate Study conforms to the principles set forth in the enabling statutes for Water Budget Rate Structures.

TIERED RATES

"Inclining" Block-Rate Structures, (which are synonymous with "Increasing Block-Rate Structures") when properly designed and differentiated by customer class as this Rate Study does, allow a water agency to send consistent price incentives for conservation to customers. For this reason, the heightened interest in water conservation, "Increasing Block-Rates" have been increasingly favored, especially in relatively water-scarce regions, such as Southern California.

PROPORTIONALITY – Proposition 218's Requirement That Fees Be Proportionate to the Cost of Service for Each Parcel

There is a fair amount of ambiguity in the way that Proposition 218 was drafted – none more so than the issue of "proportionality." It has taken a succession of court rulings over several years to clarify the substantive requirement of Proposition 218.

The recent Appellate case of *Griffith v. Pajaro Valley Water Management Agency* (2013) California Court of Appeal, Sixth District has provided much guidance on several important Proposition 218 issues, including the issue of proportionality. In Pajaro, the Appellate Court held in part as follows:

1. That Pajaro's costs of using supplemental water along the coast to prevent salt water intrusion benefited all of Pajaro's customers, including inland customers, using the groundwater basins.

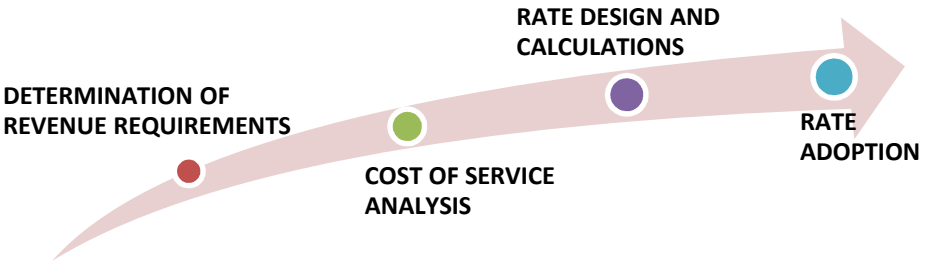
2. That proportionality is not measured on an individual parcel basis, but instead is measured collectively, considering all customer classes. As such, the Appellate Court in Pajaro confirmed the common practice of grouping customers into classes with comparable service costs and setting rates by class rather than parcel by parcel met the Prop 218 requirement that fees be proportionate to the cost of providing service to each parcel.

Under Item 1 noted above, water utilities can reasonably justify that the addition of recycled water to the water resource mix, frees up water for potable uses and therefore all customers should share in the costs of recycled water so that recycled water can be put to beneficial use as required by Article X, Section 2. In essence, this clarification by the appellate court allows agencies to harmonize the mandates of Proposition 218 and Article X, Section 2.

Under Item 2 noted above, utilities can develop rates by customer class and meet the requirements of Proposition 218, as opposed to the strict interpretation which would require cost proportionality for each parcel receiving service. This was another major clarification of Proposition 218 since cost proportionality for individual parcels is almost impossible to achieve in the strict sense.

The Pajaro case rulings provided for the harmonizing of the proportionality requirements of Prop 218 with the efficient use and conservation requirements of Article X, Section 2 by accepting that the supplemental costs of water used by one group of customers should be shared by all users, based on the concept that all users receive benefit from the overall water resources. In the District's case, recycled water adds a water resource that provides benefit to all users by freeing up potable water and therefore the costs of recycled water can be shared by all inefficient potable water users. Due to non-essential usage's demand on the system, the District allocates the cost of funding recycled water system development to Tiers 3 and 4 residential/irrigation usage as well as to CII at a smaller rate based on the assumption that 10 percent of CII water use is non-essential. See Section 6.2.1.2 for further detail.

3.2 Cost-Based Rate Setting Methodology



As stated in the Manual M1, the methodology put forth by the AWWA Rates and Charges Subcommittee is consistent with the Proposition 218 requirement that "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:

1. **DETERMINATION OF REVENUE REQUIREMENT**. The rate-making process starts with the determination of future revenue requirements to sufficiently fund the utility's operation and maintenance (O&M), capital replacement and refurbishment (R&R), capital improvement and perpetuation of the system and to ensure preservation of the utility's financial integrity. The basic revenue requirements of a utility include O&M expenses, debt service payments, contributions to specified reserves and the cost of capital expenditures that are not debt financed.
2. **COST OF SERVICE ANALYSIS**. The annual costs of providing water services, determined in the financial plan development, should be allocated among the customers commensurate with their service requirements. In this step, costs are identified and allocated to cost causation components and distributed to respective customer classes according to the industry standards provided in the Manual M1 published by AWWA. California Government Code Section 54999 mandates agencies to conduct a thorough cost of service analysis every ten years in determining the utility rates.
3. **RATE DESIGN and CALCULATIONS**. Rates do more than simply recover costs. Within the legal framework and industry standards, properly designed rates should support and optimize a blend of various utility objectives, such as conservation, affordability for essential needs, revenue

stability, etc. and should work as a public information tool in communicating these objectives to customers.

4. **RATE ADOPTION**. In the last step of the rate-making process, to comply with the Proposition 218 requirements, the results of the analyses are documented in a Study Report that clearly identifies the nexus between costs and rates to help educate the public about the proposed changes, the rationale and justifications behind the changes and their anticipated financial impacts in layman terms. At least 45 days after sending out the public notices, at a public hearing, the agency shall consider all written protests against the proposed rates. If there is no majority protest, the agency can officially adopt the new rates.

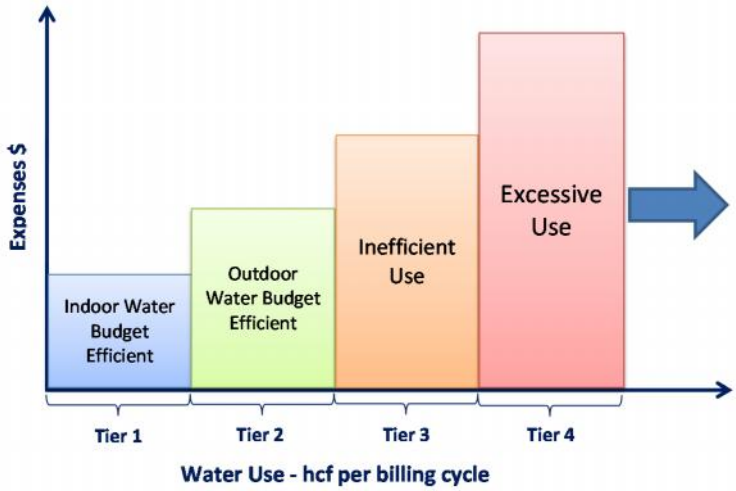
4 Water Budget and Tier Definitions

Since July 1, 2010, the District has implemented a water budget rate structure to incentivize conservation and use water efficiently. The description of the allocations to individual customers and the development of water budgets is described here for completeness of this report.

4.1 Water Budget Definitions

The American Water Works Association Journal defines water budget as "the quantity of water required for an efficient level of water use by that customer" *(Source: American Water Works Association Journal, May 2008, Volume 100, Number 5).* Therefore, each customer has their own allocation or water budget as shown in the following figures. Figure 4-1 shows an example of how the tier breaks are set for water budget customers. Tier 1 is defined by the allotment for indoor use and Tier 2 is defined by the allotment for outdoor use. Tier 3 is set to a percentage of the total water budget (or Tiers 1 and 2) combined. Any use beyond Tier 3 is considered excessive and falls into Tier 4.

Figure 4-1: Water Budget Tiers

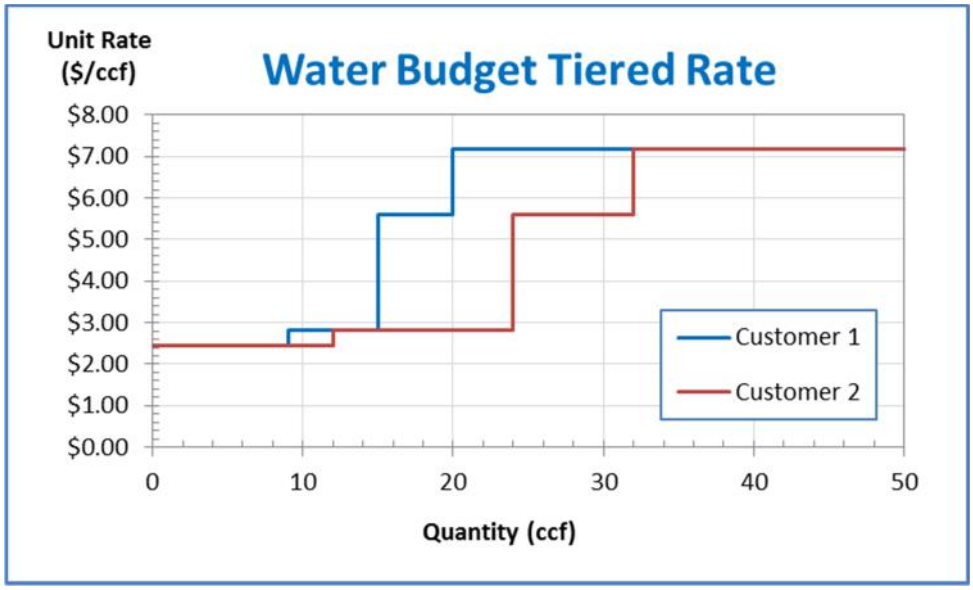


It is worth noting that water budget rate structures are customized for each customer, which results in different tier breaks for different customers. For example, as illustrated by Figure 4-2[5], the first 9 units consumed by Customer 1 is charged at Tier 1 rate, whereas Customer 2 has 12 units at Tier 1 rate ($2.46/ccf) for indoor use. The next 6 units (10 – 15 units) consumed by Customer 1 is reserved for outdoor use, which is charged at Tier 2 rate ($2.83/ccf), and any usage exceeding 20 units[6] will be deemed excessive and charged at the Tier 4 Rate ($7.18/ccf). Similarly, for Customer 2, Tier 2 spans

[5] *For illustrative purpose only, not actual rates of the District*
[6] *Tier 3 = 30% of Total Water Budget (TWB) where as TWB = Indoor WB + Outdoor WB*

from 13-24 units, and usage exceeding 32 units will be charged at Tier 4 Rate ($7.18/ccf). Customer 2, with larger indoor and outdoor water budget (or allotment), represents a residential customer with larger family and bigger irrigated landscape area than Customer 1.

Figure 4-2: Customized Water Budget Tiers[7]



Similar to the Water Budget Rate Study in 2010, the water budget allocations and tiered rate structure are designed for residential and irrigation accounts only; all other customer types will retain the current uniform rate structure.

Indoor Water Budget

The indoor water budget (IWB) is determined by a customer's household size and a standard consumption per person. The proposed IWB formula is as follows:

$$IWB = \frac{GPCD * Household\ Size * Dwelling Units * Days\ of\ Service * DF_{indoor}}{748} + V_{indoor}$$

where

- GPCD – Gallons per capita per day.
  - SB x7-7[8], Section 10608 of the Water Code, established the provisional standard for indoor residential water use at 55 gallons per capita per day. Due to the severity of the

[7] *For illustrative purpose only, not actual rates of the District*

[8] *The language from SB x7-7 setting the 55 GPCD performance standard: (2) The per capita daily water use that is estimated using the sum of the following performance standards: (A) For indoor residential water use, 55 gallons per capita daily water use as a provisional standard.*

drought and to better align with the new efficiency standard, the District Board permanently changed GPCD to 55 for all indoor uses.

- Household Size – Number of residents per dwelling unit. The 2010 census lists the average household size at 2.91 which includes single and multi-family housing. Typically single family household size is greater than 3 and multi-family less than 3. The District policy is to provide adequate water for the health and sanitation needs and minimize customer complaints and requests for variances. The default values for household size are set as follows based on customer characteristics.
    - Single Family: Household Size = 4 persons
    - Apartment: Household Size = 2 persons
    - Multi Family:
        - Restricted: Household Size = 2 persons (senior citizen housing typically 1 to 2 residents per dwelling unit)
        - Unrestricted: Household Size = 3 persons
- Dwelling units – Number of dwelling units served by the meter / account
- Days of Service. The number of days of service varies with each billing cycle for each customer. The actual number of days of service will be applied to calculate the indoor water budget for each billing cycle.
- DF_{indoor} – Indoor drought factor. The percentage of indoor water budget allotted during drought conditions. The drought factor is subject to the approval of the District's Board of Directors. The indoor drought factor is currently set at 100 percent.
- V_{indoor} – Indoor variance. The additional water allotment to be granted for extenuating circumstances is subject to District's approval or verification as outlined in the District's variance program. Variances can be requested by submitting a "Variance/Adjustment Request Form" found on the District's website.
- 748 is the conversion unit from gallons to billing unit of hundred cubic feet (ccf).

Outdoor Water Budget

The outdoor water budget (OWB) is determined by three main variables: irrigable landscape area, weather data and evapotranspiration (ET) Adjustment Factor. The irrigable landscape area, measured as square footage of landscape surface on a customer's property, is estimated using the Orange County Assessors' parcel data - lot size, building size and number of floors - where the actual irrigable landscape area data is not available. The weather data is based on the reference Evapotranspiration (ET_0), which is the amount of water loss to the atmosphere over a given time period under local atmospheric conditions. ET_0 is the amount of water (in inches of water) needed for a hypothetical reference crop to maintain its health and appearance. The ET Adjustment Factor (ETAF) is a coefficient that adjusts ET_0 values based on plant factor and irrigation system efficiency. The updated California Department of Water Resources' Model Water Efficient Landscape Ordinance (Landscape Ordinance) provides the following ETAF for different landscapes:

- Existing landscape (Functional): $ETAF_{Existing}$ = 80%
- New development / redevelopment landscape (Functional): $ETAF_{New}$ = 70%
- Special landscape (Recreational): $ETAF_{Recreational}$ = 100%

The formula to calculate outdoor water budget is as follows:

$$OWB = \left(\frac{\text{Landscape Area} * ET_0 * ETAF}{1200} + V_{outdoor} \right) * DF_{outdoor}$$

where

- ET_0 is measured in inches of water during the billing period based on daily data acquired from the California Irrigation Management Information System (CIMIS) Station 75, which is the closest station to the District's service area.
- ETAF (% of ET_0) is defined using the updated Landscape Ordinance as shown above.
- Landscape Area (or Irrigable Landscape Area) (in square feet) is the measured irrigable landscape area served by customer's meter.
    - Where the measured irrigable landscape area is not available, the landscape area will be estimated by the following formula using the Orange County Assessors' parcel data.
        - $\text{Landscape Area (sq ft)} = 70\% * \left(\text{Lot Size} - \frac{\text{Building Size}}{\text{Number of Floors}} \right)$
    - For accounts dedicated for domestic use only, such as multi-family units, 25 square feet of irrigable landscape area is provided for each dwelling unit for patio plants.
- $DF_{outdoor}$ – Outdoor drought factor. The percentage of outdoor water budget allotted during drought conditions. The drought factor is subject to the approval of the District's Board of Directors.
    - To achieve the State's mandatory cutback, the District maintained the outdoor drought factor of 50% for FY 2016-17 to send stronger pricing signals to outdoor users.
- $V_{outdoor}$ – Outdoor variance. The additional water allotment to be granted for extenuating circumstances is subject to District's approval or verification as outlined in the variance program. Outdoor variance is subject to outdoor drought factor.
- 1200 is the conversion unit from inch*ft^2 to billing unit of hundred cubic feet (ccf).

Water Budget Allocations by Customer Type

The table below summarizes the water budget allocation by customer type. Both Single Family and Multi-Family (restricted and unrestricted) customers will receive an indoor and outdoor water budget. Irrigation accounts will only receive an outdoor budget. Commercial and Public Authority (CII) customers will continue with the current uniform water rate structure.

Table 4-1: FY 2017 Water Budget Allocations by Customer Type

Customer Type	Water Budget Allocations	Default Values
Single Family	IWB + OWB	Household Size = 4 persons; GPCD = 55 $ETAF_{New}$ = 70%; $ETAF_{Existing}$ = 80%; $DF_{outdoor}$ = 50%
Multi Family – Restricted	IWB + OWB	Household Size = 2 persons; GPCD = 55 $ETAF_{New}$ = 70%; $ETAF_{Existing}$ = 80%; $DF_{outdoor}$ = 50%
Multi Family – Unrestricted	IWB + OWB	Household Size = 3 persons; GPCD = 55 $ETAF_{New}$ = 70%; $ETAF_{Existing}$ = 80%; $DF_{outdoor}$ = 50%
Irrigation – Functional*	OWB	$ETAF_{New}$ = 70%; $ETAF_{Existing}$ = 80%; $DF_{outdoor}$ = 50%
Irrigation – Recreational**	OWB	$ETAF_{Recreational}$ = 100%; $DF_{outdoor}$ = 50%
***Irrigation – Functional: whose landscape is ornamental in nature** ****Irrigation – Recreational: whose landscape is used mostly for recreational purposes (school, parks, golf etc…)**		

4.2 Tier Definitions

Based on the information in Table 4-1, the tier definitions are developed as shown in Table 4-2 below. The main difference between Single Family/Multi Family and Irrigation accounts is that Irrigation accounts do not have a Tier 1 allotment which is reserved for indoor use. All three tiered customer types have their Tier 3 allotment defined as 30 percent of their respective total water budget and usage in excess of that falls in Tier 4.

Table 4-2: Tier Definitions by Customer Types

Tiers	Single Family	Multi Family	Irrigation
Tier 1 – Indoor Use	100% IWB	100% IWB	0% OWB
Tier 2 – Outdoor Use	100% OWB	100% OWB	100% OWB
Tier 3 – Inefficient Use	100% to 130% TWB	100% to 130% TWB	100% to 130% OWB
Tier 4 – Excessive Use	Above Tier 3	Above Tier 3	Above Tier 3
***TWB = Total Water Budget = IWB + OWB**			

The tier definitions are tailored to the unique consumption patterns of the District's customers and subject to the District's policy decisions. The proposed tier definitions are based on RFC's usage and impact analysis and numerous policy discussions with the Board. The first priority for water use is essential indoor water use for health, safety, and sanitary purposes. Based on the Board direction, indoor water use is eligible for revenue offsets from site leases and property tax revenues. Maintaining a healthy landscape at efficient water use is non-essential, yet important; thus, efficient outdoor water use is required to pay the Tier 2 rate. The total water budget is the sum of the indoor and outdoor water budgets. Tier 3 provides usage up to 30 percent of the total water budget and usage in excess of that level is considered

to be excessive. The Tier 3 residential usage will represent approximately 4.4 percent of the total usage and Tier 4 usage represents about 2.9 percent of the total usage as shown in Table 4-3 below. The allocation between Tiers 3 and 4 provides a reasonable mechanism for providing incentives for conservation and meeting the District's objectives.

Any usage above an efficient level is subject to higher charges to fund conservation programs and any other supplemental water supply program. The current water supply is reserved for efficient water use within the District for indoor, outdoor, and commercial use. The higher Tier 3 rate serves as a signal for conservation and efficient use, whereas excessive use in Tier 4 incurs the highest marginal costs of providing service.

The Commercial class will continue to be a billed at a uniform rate; however, this rate will encompass domestic use and inefficient use. Based on SB x7-7 (i.e. Water Conservation Act of 2009), which requires commercial users to cut back by 10 percent, we define indoor and efficient outdoor (or process) use at 90 percent of total use and the remaining 10 percent use as inefficient. Additionally, indoor use is defined as 90 percent of the efficient use (90% x 90% = 81%) and the remainder is defined as efficient outdoor use (10% x 90% = 9%). The uniform rate charged to commercial customers will then be a blend of the usage defined here.

In response to the mandatory water usage cutbacks announced by the Governor, the District expects customers to curtail water usage during the drought period. Since usage in tiers will not decrease uniformly, the District projected which tiers are likely to experience usage reductions. Based on the tier definitions shown in Table 4-2 above, the budgeted water usage for FY 2017 is estimated to meet the 24 percent mandatory cutback and shown in Table 4-3 below. The usage shown takes into account FY 2016's changes to the water budget allocation calculation such as the permanent reduction of the GPCD from 60 to 55, temporary Tier 2 reduction to 50% of outdoor usage, and the projected reduction in Tier 3.

Table 4-3: Budgeted Potable Water Usage by Tiers

Tiers	FY 2017	% of Total Use
Tier 1 – Indoor Use	1,661,408	52.0%
Tier 2 – Outdoor Use	874,438	27.4%
Tier 3 – Inefficient Use	140,145	4.4%
Tier 4 – Excessive Use	92,954	2.9%
Uniform – CII Use	428,014	13.4%
Total (ccf) Total (AF)	3,196,959 ccf 7,339 AF	100%

5 Pass-through Water Supply Costs

The District purchases water from the Municipal Water District of Orange County (MWDOC), a member agency of Metropolitan Water District of Southern California (MWD). MWD rates are scheduled to increase in January 2017. The MWD rate increases, along with MWDOC's other costs, will be included in the blended rates charged to the District. As shown in Table 5-1, total combined water supply costs from the MWDOC purchased water ($7.744M) plus the Baker Capital Cost ($0.793M) are partially offset by capital charge revenue funding of $0.500M. The resulting $8.037M in total water supply costs would create a water supply unit cost of $2.51, an increase of one cent. The District decided to instead maintain the current rate of $2.50 by using reserve funding. In order to maintain the $2.50 cost built into the commodity rate, the District will utilize operating reserve funding of $0.045M to reduce the water supply costs to $7.992M, which creates a per unit cost of $2.50, matching that of FY 2016, as shown in Table 5-3. Additionally, water supply unit cost to the District will be treated as unchanged from FY 2016 to FY 2017 as illustrated in Table 5-2. See Appendix 1 for detailed cost breakdown for this source of supply.

Table 5-1: Water Supply Revenue Requirements

Water Supply Revenue Requirements	Budget FY 2017
MWDOC Water Purchased Costs	**$7.744M**
Plus (+) Baker Capital Cost (Debt Service)	$0.793M
Less (-) Capital Charge Revenue Funding	-$0.500M
Total Water Supply Costs	**$8.037M**
Plus (+) Operating Reserve Funding	-$0.045M
Net Water Supply Costs	**$7.992M**
Projected Water Sales	3,196,959 ccf
Water Supply Unit Cost	**$2.50 /ccf**

Table 5-2: Current and Projected Water Supply Unit Cost

	Water Supply Unit Cost ($ / Unit Purchased)	Water Supply Unit Rate[9] ($ / Unit Sold)
Current – FY 2015-16	$2.40 / ccf	$2.50 / ccf
Projected – FY 2016-17	$2.40 / ccf	$2.50 / ccf
Increase / Change	**$0. 00 / ccf**	**$0. 00 / ccf**

Table 5-3: Water Supply Cost Component of the Water Rates ($/ccf)

Tiers	Descriptions	Current	Proposed
Tier 1 – Indoor Use	MWDOC + Baker Blended	$2.50	$2.50
Tier 2 – Outdoor Use	MWDOC + Baker Blended	$2.50	$2.50
Tier 3 – Inefficient Use	MWDOC + Baker Blended	$2.50	$2.50
Tier 4 – Excessive Use	MWDOC + Baker Blended	$2.50	$2.50
Uniform – CII Use	MWDOC + Baker Blended	$2.50	$2.50

[9] *Includes 300 AF water loss. Refer to Appendix 1 for detailed water supply cost calculations.*

6 Water Cost of Service and Proposed Rates

This section details the revenue requirements and explains the allocation methodology consistent with Proposition 218 behind the cost of service calculations of the rates.

6.1 Water Revenue Requirements

The first step in rate-setting is determining a revenue requirement from water rates. The District's total budgeted expenses excluding depreciation and interest expenses to provide water service for FY 2017 are $12.639M (Appendix 2). Non-operating revenues such as cell-site lease, property tax, investment revenues reduce the revenue requirements by $1.45M (Appendix 3). In FY 2017, the District will begin debt payment totaling $0.793M due to its contribution to the construction of the Baker Treatment Plant. This expense is added to the Water O&M Expenses. To further offset the revenue requirement, the District plans on using $0.768M of operating reserves, producing a revenue requirement from unrestricted rates of $11.215M. Then, funding for RW program ($0.754M) and Conservation Program Funding ($0.100M) are added for a total of $12.069M. The RW and conservation program funding are collected in restricted reserves for appropriate future use. Finally, Fire Service Charges are backed out, creating a revenue requirement exclusive of fire service charges of $11.965M.

Details of the figures presented in Table 6-1 can be found in Appendix 3, in the Cash Flow Analysis for the Water Funds. The Cash Flow Analysis is part of the Financial Plan developed by District staff to determine the long-term financial needs of the District. RFC based its determination of the revenue requirements and cost of service for 2017 on the Financial Plan developed by District Staff.

Table 6-1: Water Operating Revenue Requirements from Rates

Water Operating Revenue Requirements	Budget FY 2017	Notes
Total Water O&M Expenses	**$12.639M**	
Less (-) Non-Operating Revenues	-$1.450M	Appendix 3
Plus (+) Debt Service	$0.793M	Appendix 3
Plus (+) Operating Reserve Funding	-$0.768M	Appendix 3
Total Rev Req from Unrestricted Rates	**$11.215M**	
Plus (+) Restricted Reserve Funding for RW	$0.754M	Appendix 6
Plus (+) Conservation Program Funding	$0.100M	Appendix 6
Total Rev Req from Rates	**$12.069M**	
Less (-) Fire Service Charges	-$0.104M	Appendix 6
Net Rev Reqs. excluding Fire SC	**$11.965M**	

6.2 Cost of Service Analysis

Water systems are designed to accommodate the peak use of any class or type of customer. Different parts of a water system are designed to handle different peaks and there are significant costs associated with meeting peak requirements. For example, the District's maximum day usage is estimated to be two times the average usage and facilities such as reservoirs are designed twice as large to ensure that maximum day requirements are met (reservoirs also are designed to meet fire flows). To allocate costs appropriately amongst the different type of usage, an analysis of the peaking costs is provided in Section 6.2.1.1.

6.2.1.1 Peaking Factor Analysis

RFC performed usage analyses for single family customers to determine the monthly peaking factors for each tier using 3-year average consumption (2009-2011) data for the 5,630 single family accounts. The results are shown in Table 6-2. The peaks in each tier are compared to the average for the class to establish the comparative peaking relationship among the tiers.

Table 6-2: Peaking Factor Analysis for Different Usage Types

Tiers	Individual Max Month Average Usage (per unit)[10]	Average Usage per account / unit	Peaking factors (among tiers)
Indoor Use	7.91	18.09	0.44
Outdoor Use	18.00	18.09	1.00
Inefficient Use	25.12	18.09	1.39
Excessive Use	36.92	18.09	2.04

The proposed peaking factors are shown in Table 6-3 for each usage type. The tiers for residential customers are defined based on each usage class as shown in Table 6-3. Commercial use includes both indoor and outdoor use and therefore peaks more than indoor use but less than outdoor. Typical indoor use for commercial is estimated at 90 percent and outdoor use at 10 percent, thus an average of the indoor and outdoor peaking factors was used to approximate the commercial peaking factor (90% x 0.44 + 10% x 1.00) of 0.50. Note that the purpose of this analysis is to define the relative difference in the peaking factors for the different usage classes so that the costs are appropriately allocated.

[10] *Individual max month usage (per unit) = Max month usage per dwelling unit in the 12 months period for each account*
Individual Max Month Average Usage (per unit) = average of the individual max month usage

Table 6-3: Peaking Factors by Usage Class

Tiers	Relative Peaking Factors
Indoor Use	0.44
Outdoor Use	1.00
Inefficient Use	1.39
Excessive Use	2.04
Commercial Use	0.50

The different peaking factors, increasing in the direction of the arrow, may be conceptually represented on the scale shown below

6.2.1.2 Cost of Service Analysis

To allocate costs appropriately to the different usage classes and determine the cost of service rates, revenue requirements are allocated to the following cost causation categories (shown in Table 6-4)[11] consistent with the Base Extra Capacity methodology of the American Water Works Association (AWWA) M1 Manual, *Principles of Water Rates, Fees, and Charges (M1 Manual)*:

1. Water supply costs: Imported water supply costs, allocated to all users in proportion to their usage (See Section 5).
2. Base fixed costs: fixed costs associated with operating and maintaining water system to deliver water to meet average demand, including customer service, meter service, administration, and other base fixed costs.
3. Peaking costs: fixed costs associated with operating and maintaining water system to deliver water to meet peak demand.
4. RW Funding: The use of RW for non-potable needs releases potable supply for inefficient and excessive use. RW is, in essence, the least expensive supplemental source of water available to the District and creates supply for potable needs. The revenues collected under this category will be collected in restricted reserves to assist the RW fund to pay for debt services used to finance the RW expansion project completed in FY 2015.
5. Conservation: Conservation program cost, allocated to inefficient and excessive use to help them conserve water.

[11] *See Appendix 6 for details cost allocations*

6. Revenue Offsets: Property taxes and cell tower lease revenues to provide incentive for indoor/domestic use.

The cost causation categories above are then assigned to each rate component as shown in Table 6-4 below:

Fixed Rate Components (i.e. Monthly Service Charges)

- To recover customer service, meter service, administration and other base fixed costs and a portion of the peaking costs

Commodity Rate Components

- Water supply: to recover imported water supply costs
- Delivery / Peaking: to recover remaining peaking costs associated with operating and maintaining water system to deliver water to meet peak demand. These costs are allocated based on the peaking characteristics of each class of use.
- Recycled Water (RW): to generate supplemental funding sources to pay for RW expansion projects
- Conservation: to recover the conservation program cost, allocated to inefficient and excessive use to help them conserve water.
- Revenue offsets: A portion of the property taxes and cell tower lease revenues to provide incentive for indoor/domestic use.

Capital R&R Charges:

- Funds for the capital replacement and refurbishment of the existing water and RW system.

Table 6-4 below summarizes the revenue requirement for each cost category. The Total Cost of Service Excluding Fire Services of $11.965M, found in Table 6-1, is divided among the various cost components. The costs for RW Funding and Conservation are also found in Table 6-1. The Revenue Offset of $0.395M is comprised of $180K of cell site lease revenue and $215K from property tax[12]. The revenue requirements for water supply, base fixed, and peaking were determined using COS allocation methods recommended by the AWWA. Details of how the revenue requirements for these three cost causation categories were determined can be found in Appendix 6.

The total revenue requirement for each cost causation category is then assigned to a particular rate component. For example, it is appropriate that the entirety of the water supply revenue requirement is assigned to the water supply rate component. RW Funding, Conservation, and the Revenue Offset are all assigned entirely to their respective rate components.

The AWWA M1 Manual describes a cost-of-service approach to setting water rates which results in the distribution of costs to each customer or customer class based on the costs that each incurs. A dual set of

[12] *Remaining property tax is used to offset base fixed costs. Refer to Appendix 6 for details.*

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 on 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, capacity or peaking costs along with base costs are generally considered as fixed water system costs. Ideally an agency could recover 100% of the fixed costs in the fixed charges, thus providing revenue stability; however, it foregoes the affordability for essential use and heavily impacts small users. AWWA's standard methodology assigns and recovers these costs through the variable rate. This provides an incentive for conservation. 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 fixed charges along with the customer-related costs and meter-related costs. Revenue requirements for the District's fixed monthly service charges include 100 percent of base fixed costs, inclusive of billing and customer service costs and other fixed costs to meet average demand, and a portion of the peaking costs. The remaining peaking costs ($728K) are recovered in the delivery rate component of the commodity rates.

Table 6-4: Revenue Requirements by Cost Categories

Cost Categories	Budget FY 2017	Water Monthly Service Charge	Commodity Rates Components				
			Water Supply	Delivery	RW	Conservation	Rev Offset
Water Supply	$7,992,398		$7,992,398				
Base Fixed	$2,375,643	$2,375,643					
Peaking	$1,138,013	$410,013		$728,000			
RW	$754,000				$754,000		
Conservation	$100,000					$100,000	
Rev Offset	-$395,000						-$395,000
Net Rev. Req., excl. Fire SC	**$11,965,054**	**$2,785,656**	**$7,992,398**	**$728,000**	**$754,000**	**$100,000**	**-$395,000**

No increases are necessary to fund the District's programmed capital expenditures in FY 2017 (Table 6-5). At current Capital R&R charges, the District projects to collect $1.435M in total water and recycled water capital revenues, with programmed capital expenditures of $1.202M. An additional $0.500M is reserved for funding of the Baker Water Treatment Plant Facility. The total deficit of $0.267M to be funded from capital reserves results, which results in a deficit of $0.387M and is partially offset by the $0.120M in recycled water capital funding. See Appendix 3 and Appendix 6 for further details.

Table 6-5: Water & RW Capital Revenue Requirements

Water & RW Capital Revenue Requirements	Budget FY 2017	Water	RW
Water Capital Expenditures	$1,202,332	$1,202,332	$0
Plus (+) Restricted Reserve Funding	$500,000	$500,000	$0
Plus (+) Capital Reserve Funding	-$266,958	-$386,573	$119,615
Total Water Capital R&R Revenue Requirement	**$1,435,374**	**$1,315,759**	**$119,615**
Current Water Capital R&R Revenues	$1,435,374	$1,315,759	$119,615
% Rate Increase	**0.0%**	**0.0%**	**0.0%**

The rate structure remains unchanged and consists of the monthly fixed service and the volumetric commodity rates which are determined as follows (Table 6-6):

- The monthly service charge includes customer service, meter service and a portion of the peaking costs (shown in Table 6-6 and Table 6-7). There is a 9.56 percent proposed increase in monthly fixed charges for potable water and RW meters for FY 2017.
- The volumetric water commodity rates include water supply (to recover total purchased water costs from MWDOC), delivery/peaking (to recover the District's remaining peaking costs shown in Table 6-4), RW funding, conservation, and revenue offsets components. There is no proposed increase in the volumetric water commodity rates for FY 2017 due to the Baker Water Treatment Plant and the operating reserve funding's offset mitigating the wholesale water cost increase for FY 2017.

Table 6-6: Cost Categories and Water Rate Structure

	Service Charges	Tier 1 Essential Use	Tier 2 Efficient Use	Tier 3 Inefficient Use	Tier 4 Excessive Use	Uniform Commercial Use
Water Supply		x	x	x	x	x
Fixed Delivery Cost	x	x	x	x	x	x
RW Program Funding				x	x	x
Conservation				x	x	x
Customer Service	x					
Meters	x					
Revenue Offset		x				x

Table 6-7: Proposed Monthly Service Charges

Monthly Service Charges	FY 2016	FY 2017	Potable Accounts	RW Accts
5/8"	$9.98	$10.93	2,389	
¾"	$13.31	$14.58	4,877	
1"	$19.95	$21.86	447	
1 ½"	$36.56	$40.06	691	10
2"	$69.81	$76.48	1,248	206
Projected Revenues	**$2,697,660**	**$2,955,286**	**9,652**	**216**
Potable Meters	$2,520,703	$2,761,420		
RW Meters	$176,958	$193,866		

Delivery Rates (shown in Table 6-8) are applied to all rates based on peaking characteristics for each usage class (shown in Table 6-3). Indoor or domestic use has the lowest peaking factor; therefore all indoor use (residential and commercial) is assigned a lower delivery cost. Outdoor irrigation is associated with higher peaking factors, so outdoor use comprising of residential irrigation and the current dedicated irrigation classes (both functional and recreational), will have higher delivery costs. Inefficient and excessive use has even higher peaking factors and is assigned the highest delivery costs.

Table 6-8: Delivery Rate Calculations

Tier	Rev Req[13]	Total Usage	Relative Peaking Factors	Units of Equiv Service[14]	Rate[15] ($ / ccf)
Tier 1 - Essential Use	$241,474	1,661,408 ccf	0.44	731,020 ccf	**$0.15**
Tier 2 - Efficient Use	$288,848	874,438 ccf	1.00	874,438 ccf	**$0.33**
Tier 3 - Inefficient Use	$64,348	140,145 ccf	1.39	194,802 ccf	**$0.46**
Tier 4 - Excessive Use	$62,638	92,954 ccf	2.04	189,626 ccf	**$0.67**
Uniform - Commercial Use	$70,692	428,014 ccf	0.50	214,007 ccf	**$0.17**
Total	**$728,000**	**3,196,959 ccf**		**2,203,892 ccf**	**$737,284**

The RW program is associated with meeting the demands of inefficient and excessive use and RW program costs are therefore allocated to inefficient and excessive use only (usage in Tiers 3 and 4 and 10 percent of commercial use which is considered to be inefficient and allocated at the same rate as residential

[13] *Revenue Requirements*
[14] *Units of Equivalent Service = Usage * Peaking (or Allocation) Factors*
[15] *Rounded to the nearest cent*

inefficient usage). The RW program provides recycled water and offsets potable water use which is then available for Tiers 3 and 4. To determine the recycled water costs to be assigned to Tiers 3 and 4, RFC obtained the costs of the recycled water system from the 1994 Recycled Water Master Plan. The cost of most efficient conversion is $892/AF and the system-wide conversion cost is $1,430/AF in 1994 dollars, which gives a ratio of 1:1.60. This ratio is utilized for the RW Program funding ratio between Tier 3 and Tier 4 to reflect that Tier 4, excessive usage, should carry the burden of the higher costs to fund the more extensive RW program and should pay more to fund this alternative source of water required to meet Tier 4 demands. Revenues from this cost component are collected in a restricted reserve used to meet the debt service requirements associated with the recycled water system which provides supplemental water and frees up valuable potable water resources to offset the demand imposed by inefficient and excessive use. The rates for the recycled water program to Tiers 3 and 4 are shown in Table 6-9.

Table 6-9: RW Program Funding Rate Calculations

Tier	Rev Req	Total Usage	Allocation Factors	Units of Equiv. Service	Rate ($ / ccf)
Tier 1 - Essential Use	$0	1,661,408 ccf	0.00	0 ccf	**$0.00**
Tier 2 - Efficient Use	$0	874,438 ccf	0.00	0 ccf	**$0.00**
Tier 3 - Inefficient Use	$318,595	140,145 ccf	1.00	140,145 ccf	**$2.28**
Tier 4 - Excessive Use	$338,103	92,954 ccf	1.60	148,726 ccf	**$3.64**
Uniform - Commercial Use	$97,301	428,014 ccf	0.10	42,801 ccf	**$0.23**
Total	**$754,000**	**3,196,959 ccf**		**331,673 ccf**	**$756,326**

Conservation programs are targeted to inefficient and excessive use and therefore conservation costs are applied only to inefficient and excessive use as shown in Table 6-10.

Table 6-10: Conservation Program Funding (aka Conservation) Rate Calculations

Tier	Rev Req	Total Usage	Allocation Factors	Units of Equiv Service	Rate[16] ($ / ccf)
Tier 1 - Essential Use	$0	1,661,408 ccf	0.00	0 ccf	$0.00
Tier 2 - Efficient Use	$0	874,438 ccf	0.00	0 ccf	$0.00
Tier 3 - Inefficient Use	$50,796	140,145 ccf	1.00	140,145 ccf	$0.37
Tier 4 - Excessive Use	$33,691	92,954 ccf	1.00	92,954 ccf	$0.37
Uniform - Commercial Use	$15,513	428,014 ccf	0.10	42,801 ccf	$0.04
Total	**$100,000**	**3,196,959 ccf**		**275,900 ccf**	**$103,367**

Finally, based on the District's current policy objective to provide rate incentives for essential and efficient indoor use, revenues from cell tower lease (site lease income) and a portion of the property taxes received by the District is used to offset the essential and efficient usage rate. The offset applies to indoor/domestic use in Tier 1 and commercial indoor use (shown in Table 6-11).

- To minimize customer impacts and provide incentives for essential and efficient use, $395K from cell tower lease revenues and a portion of property tax is used to provide a revenue offset for efficient indoor and efficient commercial indoor use.
- Note that it is assumed that efficient usage for commercial is 90 percent of total use and of that 90 percent, the indoor usage is 90 percent. Therefore, the indoor usage is 81 percent (90 percent x 90 percent) of the total commercial use. The revenue offset is applied to 81 percent of total commercial use to determine the revenue requirement from the commercial class.
- Note that $0.19 /ccf is applied to the efficient indoor use; and, since commercial rates are uniform, the incentive drops to $0.15 /ccf when applied to the full commercial use. The remaining property tax is used to offset revenue requirements for fixed service charges. Note that all user classes benefit from this offset. Most irrigation customers have associated domestic usage which also benefits from the revenue offset.

[16] *Rounded Up to the nearest cent*

Table 6-11: Revenue Offset Rate Calculations

Tier	Rev Req	Total Usage	Allocation Factors	Units of Equiv Service	Rate[17] ($ / ccf)
Tier 1 - Essential Use	-$326,805	1,661,408 ccf	1.00	1,661,408 ccf	**-$0.19**
Tier 2 - Efficient Use	$0	874,438 ccf	0.00	0 ccf	**$0.00**
Tier 3 - Inefficient Use	$0	140,145 ccf	0.00	0 ccf	**$0.00**
Tier 4 - Excessive Use	$0	92,954 ccf	0.00	0 ccf	**$0.00**
Uniform - Commercial Use	-$68,195	428,014 ccf	0.81	346,691 ccf	**-$0.15**
Total	**-$395,000**	**3,196,959 ccf**		**2,008,099 ccf**	**-$379,870**

In summary, the cost allocation methodology developed herein allocates the costs to customers, meters, and usage. Customer costs are the same for each account and other base fixed and a portion of peaking costs are proportional to the capacity of each meter. The remaining costs are allocated to each usage class in accordance with the demand they place on the system. The usage of each customer class is defined and the costs associated with the usage of each customer type provides the revenue to be recovered from that customer class. The rationale for allocating conservation costs and supplemental water costs allows the development of inclining tiered rates to provide incentives for conservation in the inefficient and excessive water usage identified with each customer class. This methodology meets the requirements of Proposition 218 and Article X of the California Constitution.

6.3 Proposed Rates

Based on the revenue requirements as shown in Table 6-4, monthly service charges will increase 9.56 percent in FY 2017.

Table 6-12: Monthly Service Charges

Monthly Service Charges, Meter Size	FY 2016	FY 2017	$ Change	% Change	Number of Accounts[18]
5/8”	$9.98	$10.93	$0.95	9.5%	2,389
¾”	$13.31	$14.58	$1.27	9.5%	4,877
1”	$19.95	$21.86	$1.91	9.6%	447
1 ½”	$36.56	$40.06	$3.50	9.6%	701
2”	$69.81	$76.48	$6.67	9.6%	1,454
Projected Revenues	**$2,697,660**	**$2,955,286**	**$257,625**	9.5%	**9,868**

[17] *Rounded to the nearest cent*
[18] *Includes accounts converted to recycled water system*

Water capital R&R charges will remain unchanged from FY 2016 levels and are shown in Table 6-13.

Table 6-13: Water Capital R&R Charges

Water Capital R&R Charges, Meter Size	FY 2016	FY 2017	Water Accounts	RW Accts	Water + RW Accounts
5/8"	$4.66	$4.66	2,389	0	2,389
¾"	$4.66	$4.66	4,877	0	4,877
1"	$7.78	$7.78	447	0	447
1 ½"	$18.91	$18.91	691	10	701
2"	$47.47	$47.47	1,248	206	1,454
Projected Revenues	**$1,435,374**	**$1,435,374**	**$1,315,759**	**$119,615**	**9,868**

Based on the individual water rate components shown in Tables 6-6 to 6-11 and the water supply rates shown in Table 5-2, the proposed water commodity rates by usage type for FY 2017 remain unchanged from FY 2016 and are shown in Table 6-14.

Table 6-14: Proposed Water Commodity Rates

Water Rates	FY 2017	Water Supply	Delivery	RW Program	Conservation	Rev Offset
Tier 1 – Essential Use	**$2.46**	$2.50	$0.15	$0.00	$0.00	-$0.19
Tier 2 – Efficient Use	**$2.83**	$2.50	$0.33	$0.00	$0.00	$0.00
Tier 3 – Inefficient Use	**$5.61**	$2.50	$0.46	$2.28	$0.37	$0.00
Tier 4 – Excessive Use	**$7.18**	$2.50	$0.67	$3.64	$0.37	$0.00
Uniform – CII Use	**$2.79**	$2.50	$0.17	$0.23	$0.04	-$0.15
Projected Revenues	**$9,209,505**	**$7,992,398**	**$737,284**	**$756,326**	**$103,367**	**-$379,870**

Based on the individual rate components shown in Table 6-14, the resulting commodity rates effective July 1, 2016 are shown in Table 6-15.

Table 6-15: Water Commodity Rates

Water Rates	Current	FY 2017	Projected Sales
Tier 1 – Essential Use	$2.46	**$2.46**	1,661,408
Tier 2 – Efficient Use	$2.83	**$2.83**	874,438
Tier 3 – Inefficient Use	$5.61	**$5.61**	140,145
Tier 4 – Excessive Use	$7.18	**$7.18**	92,954
Uniform – CII Use	$2.79	**$2.79**	428,014
Projected Revenues	**$9,209,505**	**$9,209,505**	**3,196,959 ccf**

7 Sewer Revenue Requirements and Proposed Rates

The sewer O&M expenses in FY 2017 are budgeted to be $7.487M, as shown in Table 7-1 below. In FY 2017, the District projects to use $320K from non-operating revenues to offset the sewer O&M expenses. The current debt service is $256K for the Northline Lift Station. The resulting revenue requirement from rates is $7.450M, including all the above and $0.027M reserve funding. This represents a $0.350M increase from FY 2016, which would require a 4.9 percent sewer rate increase. The line items shown in Table 7-1 below are further detailed in Appendix 5 – Cash Flow Analysis for Sewer Funds, developed by District Staff and provided to RFC as basis for cost of service analysis. Since the sewer cost structure has not changed, we believe that the cost of service analysis developed previously to determine rates is valid and rates may be increased across the board for FY 2017.

Table 7-1: Sewer Revenue Requirements from Rates

Sewer Revenue Requirements from Rates	Budget FY 2017
Sewer O&M Expenses	$7.487M
Less (-) Non-Operating Revenues	-$0.320M
Plus (+) Debt Service	$0.256M
Plus (+) Operating Reserve Funding	$0.027M
Total Revenue Requirement from Rates	**$7.450M**
Revenues from Current Sewer Rates	$7.100M
Required Revenue Adjustment	**$0.350M**
% Rate Increase	**4.9%**

As shown in Table 7-2, the District has $1.429M in projected capital expenditures for FY 2017. The District also is funding $0.135M toward Capital Reserve. Since projected revenues under the current rates meet these revenue requirements, no increase for Sewer Capital R&R is proposed for FY 2017.

Table 7-2: Sewer Capital R&R Revenue Requirements

Sewer Revenue Requirement from Rates	Budget FY 2017
Total Capital Expenditure	$1.429M
Plus (+) Capital Reserve Funding	$0.135M
Total Sewer Capital R&R Revenues	**$1.565M**
Current Sewer Capital R&R Revenues	$1.565M
% Rate Increase	**0.0%**

The sewer capital R&R charges remain unchanged (shown in Table 7-3). Table 7-4 shows the sewer usage rate changes from FY 2016 to FY 2017. As shown in Table 7-1, the sewer utility requires a 4.9 percent rate increase. Table 7-4 shows the resulting rate increases for all classes. Class increases varying from 4.9 percent are due to rounding.

Table 7-3: Sewer Capital R&R Charges

Sewer Capital R&R	FY 2016	FY 2017	$ Change	% Change
Residential				
Single Family Residential	$4.93 / EDU	$4.93 / EDU	$0.00	0.0%
Multi-Family Restricted	$3.91 / EDU	$3.91 / EDU	$0.00	0.0%
Multi-Family Unrestricted	$4.65 / EDU	$4.65 / EDU	$0.00	0.0%
Commercial				
5/8" Meter	$4.34 / month	$4.34 / month	$0.00	0.0%
3/4" Meter	$7.34 / month	$7.34 / month	$0.00	0.0%
1" Meter	$13.55 / month	$13.55 / month	$0.00	0.0%
1-1/2" Meter	$24.07 / month	$24.07 / month	$0.00	0.0%
2" Meter	$70.96 / month	$70.96 / month	$0.00	0.0%
Public Authority				
1" Meter	$4.93 / month	$4.93 / month	$0.00	0.0%
1-1/2" Meter	$24.65 / month	$24.65 / month	$0.00	0.0%
2" Meter	$39.71 / month	$39.71 / month	$0.00	0.0%

Table 7-4: Sewer Rates by Customer Classes

Sewer Rates	FY 2016	FY 2017	$ Change	% Change
Residential Unrestricted	$22.02 / EDU	$23.11 / EDU	$1.09	5.0%
Multi-Family Restricted	$17.46 / EDU	$18.33 / EDU	$0.87	5.0%
Multi-Family Unrestricted	$20.76 / EDU	$21.79 / EDU	$1.03	5.0%
Animal Kennel/Hospital	$3.61 /ccf	$3.79 /ccf	$0.18	5.0%
Car Wash	$3.59 /ccf	$3.77 /ccf	$0.18	5.0%
Department/Retail Store	$3.61 /ccf	$3.79 /ccf	$0.18	5.0%
Dry Cleaners	$3.16 /ccf	$3.32 /ccf	$0.16	5.1%
Golf Course/Camp/Park	$3.15 /ccf	$3.31 /ccf	$0.16	5.1%
Health Spa	$3.60 /ccf	$3.78 /ccf	$0.18	5.0%
Hospital/Convalescent Home	$3.16 /ccf	$3.32 /ccf	$0.16	5.1%
Hotel	$5.47 /ccf	$5.74 /ccf	$0.27	4.9%
Market	$7.17 /ccf	$7.53 /ccf	$0.36	5.0%
Mortuary	$7.14 /ccf	$7.50 /ccf	$0.36	5.0%
Nursery/Greenhouse	$3.20 /ccf	$3.36 /ccf	$0.16	5.0%
Professional/Financial Office	$3.61 /ccf	$3.79 /ccf	$0.18	5.0%
Public Institution	$3.55 /ccf	$3.73 /ccf	$0.18	5.1%
Repair/Service Station	$3.60 /ccf	$3.78 /ccf	$0.18	5.0%
Restaurant	$3.41 /ccf	$3.58 /ccf	$0.17	5.0%
Schools	$3.73 /ccf	$3.92 /ccf	$0.19	5.1%
Theater	$3.61 /ccf	$3.79 /ccf	$0.18	5.0%
Warehouse/Storage	$2.85 /ccf	$3.00 /ccf	$0.15	5.3%
Basic Commercial	$3.16 /ccf	$3.32 /ccf	$0.16	5.1%

8 Recycled Water Revenue Requirements and Proposed Rates

8.1 Recycled Water System

Prior to the completion of the Recycled Water Expansion Project, the District had only one recycled water (RW) customer who purchased secondary treated disinfected recycled water - Laguna Woods Village Golf Course, operated by the Golden Rain Foundation (GRF). There was neither a monthly service charge nor a capital R&R charge for this RW customer since all services were provided base on the terms of the service contract. With the completion of the RW expansion project, all RW customers (existing and converted customers) are now supplied with higher quality tertiary RW, and subject to the corresponding rates that support the annual cost of providing tertiary RW.

In FY 2015, the District completed the expansion of its recycled water system, including water recycling plant (WRP) upgrades to tertiary treatment and RW distribution system pipeline expansion. The RW expansion capital cost, was financed by the following sources: State Revolving Fund (SRF) Loan, grants, and from restricted reserve (revenues from Tier 3 and Tier 4 potable usage dedicated to recycled water expansion). The District is currently in the process of converting approximately 216 accounts from potable to recycled water for irrigation purposes.

8.2 Projected Recycled Water Sales

The newly-expanded RW system allows for the conversion of potable irrigation customers to RW, which will be completed by the end of FY 2016. The District identified 216 potable irrigation accounts to be converted to RW accounts at various times throughout the fiscal year ending June 30, 2016. This conversion will be completed by June 2016 and the District project RW sales to increase to 1,300 AF in FY 2017. Table 8-1 shows the projected RW sales for FY 2017.

Table 8-1: Projected Recycled Water Sales for FY 2017

	RW Sales	
FY 2016 Budgeted Sales	1,055 AF	459,558 ccf
FY 2017 New Sales	245 AF	106,722 ccf
FY 2017 Budgeted Sales	**1,300 AF**	**566,280 ccf**

8.3 Recycled Water Revenue Requirements from Rates

In FY 2015, the District began separating Recycled Water costs into an independent RW Enterprise Fund. Table 8-2 summarizes the RW revenue requirements from rates for FY 2017. RW O&M expenses and supply are budgeted to be $955K, which will be partially offset by non-operating revenues of $274K. The

RW Fund's debt service payment of $1.603M will be partially covered by restricted reserve funding, in the amount of $647K. The remaining revenue requirement to be recovered from rates is $1.638M. The line items shown in Table 8-2 below are further detailed in Appendix 4 – Cash Flow Analysis for RW Funds, developed by District Staff and provided to RFC as basis for the cost of service analysis.

Table 8-2: RW Revenue Requirement from Rates

RW Revenue Requirement from Rates	Budget FY 2017
Treatment Tertiary Recycled Water	$189,250
Other RW O&M	$766,473
Revenue Requirement for RW	**$955,723**
Less (-) Non-Operating Revenues	-$273,766
Less (-) Restricted Reserve Funding	-$646,900
Plus (+) Debt Service	$1,602,958
Plus (+) Operating Reserve Funding	$0
Total Revenue Requirement from Rates	**$1,638,014**

8.4 Proposed RW Rates

All RW customers connected to the recycled water distribution system will be assessed the same monthly service charges (shown in Table 8-3) and capital R&R charges (shown in Table 8-4) as potable customers to recover the customer service, meter service, a portion of capacity and other RW related fixed costs and to pay for capital R&R of expanded RW system. After the completion of the RW expansion in FY 2015, all RW customers (existing and converting customers) are now supplied with higher quality tertiary RW, and will be subject to the corresponding rates (shown in Table 8-5) that support the annual projected cost of providing tertiary RW.

Table 8-3: FY 2017 Monthly Service Charges

Monthly Service Charges Meter Size	FY 2016	FY 2017
5/8"	$9.98	$10.93
¾"	$13.31	$14.58
1"	$19.95	$21.86
1 ½"	$36.56	$40.06
2"	$69.81	$76.48

Table 8-4: FY 2017 Capital R&R Charges

Capital R&R Charges	FY 2016	FY 2017
5/8	$4.66	$4.66
3/4	$4.66	$4.66
1	$7.78	$7.78
1 1/2	$18.91	$18.91
2	$47.47	$47.47

Table 8-5 adjusts the "Total Revenue Requirements from RW rates" from Table 8-2 with the projected Monthly Service Charges paid by all RW accounts in FY 2017. The unit RW commodity rate is calculated using the net revenue requirements from RW commodity rates divided by projected RW sales of 566,280 ccf or 1,300 AF. The RW commodity rate for FY 2017 is $2.55 / ccf or $1,111 / AF, which is approximately 90% of Tier 2 Potable Water Commodity Rate for FY 2017 and provides an economic incentive for irrigation customers to convert to RW.

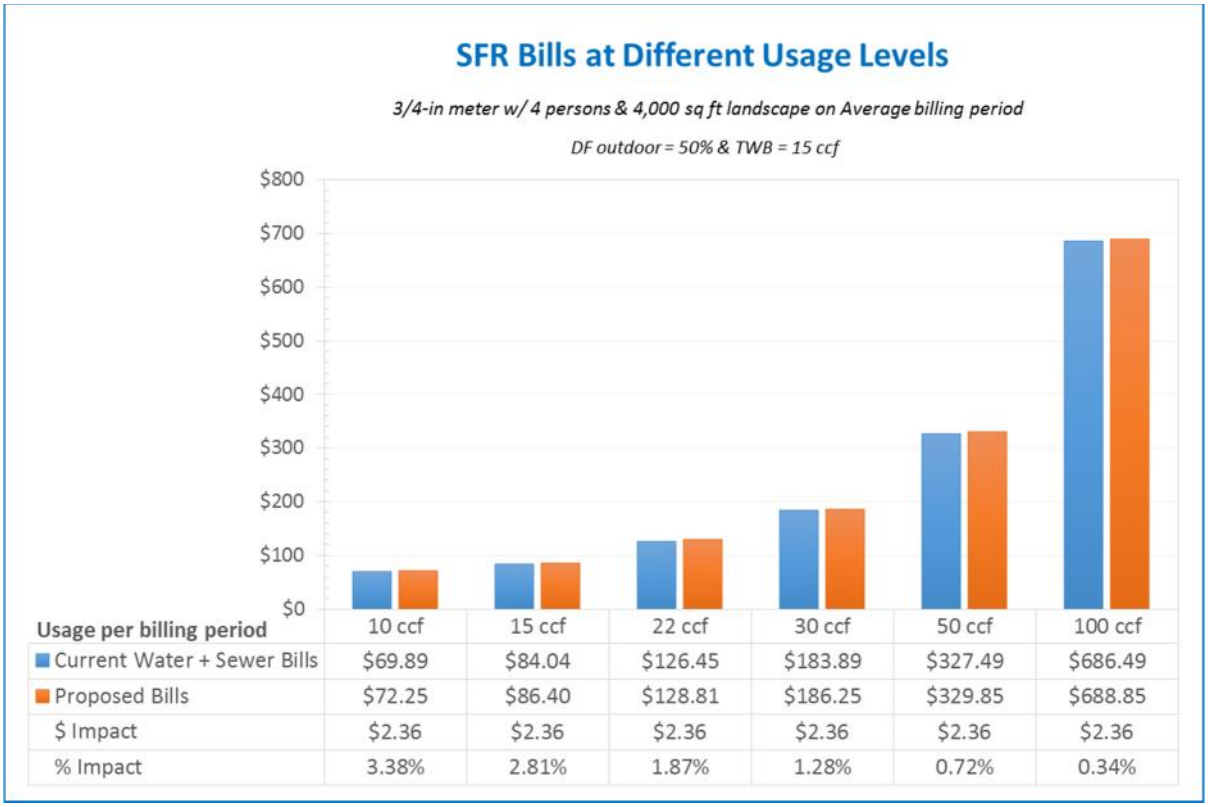
Table 8-5: Unit RW Commodity Rate Calculation

Unit Commodity Rate Calculation	Budget FY 2017
Total Revenue Requirement from RW Rates	**$1,638,014**
Less (-) Monthly Service Charge	-$193,866
Net Revenue Requirements from RW Commodity Rates	**$1,444,148**
Projected RW Sales	566,280 ccf
Unit RW Commodity Rate	**$2.55/ ccf $1,111/AF**
Percent of Tier 2 Potable Water Rate	**90%**

9 Customer Impacts

Figure 9-1 shows a breakdown of water and sewer bills at various water usage levels for a single family residential user with 4 occupants and 4,000 sq. ft. landscape area serviced by a ¾-in meter, assuming the outdoor drought factor remains at 50% from last year rate adoption. The combined water and sewer bill increase would be $2.36 per month, resulting from increases in water and sewer monthly fixed service charges. Note that the impacts for recycled water are not shown because residential users do not purchase recycled water.

Figure 9-1: SFR Total Monthly Bill at Different Usage Levels



Usage per billing period	10 ccf	15 ccf	22 ccf	30 ccf	50 ccf	100 ccf
Current Water + Sewer Bills	$69.89	$84.04	$126.45	$183.89	$327.49	$686.49
Proposed Bills	$72.25	$86.40	$128.81	$186.25	$329.85	$688.85
$ Impact	$2.36	$2.36	$2.36	$2.36	$2.36	$2.36
% Impact	3.38%	2.81%	1.87%	1.28%	0.72%	0.34%

10 Appendices

10.1 Appendix 1 – Pass-through Water Supply Cost

Source: Provided by District Staff on April 14, 2016

EL TORO WATER DISTRICT
2016/17 PURCHASED WATER BUDGET

		2015/16 Budget		2015/16 Actual		2016/17 Budget	
		Jul 2015	Jan 2016	Jul 2015	Jan 2016	Jul 2016	Jan 2017
1	Total Period Demand (AF)	4,000	3,650	3,750	3,500	4,000	3,650
2	Total Annual Demand (AF)		7,650		7,250		7,650
3	MWD Period Demand (AF)	4,000	3,650	3,750	3,500	3,186	2,021
4	MWD Annual Demand (AF)		7,650		7,250		5,207
5	**MWD Untreated Commodity Rates**						
6	System Access Rate	257.00	259.00	257.00	259.00	259.00	289.00
7	System Power Rate	126.00	138.00	126.00	138.00	138.00	124.00
8	Water Stewardship Rate	41.00	41.00	41.00	41.00	41.00	52.00
9	MWD Tier 1 Rate	158.00	156.00	158.00	156.00	156.00	201.00
10	**Subtotal Untreated Full Service**	**582.00**	**594.00**	**582.00**	**594.00**	**594.00**	**666.00**
11	Treatment Surcharge	341.00	348.00	341.00	348.00	348.00	313.00
12	**Total Treated Full Service Rate**	**923.00**	**942.00**	**923.00**	**942.00**	**942.00**	**979.00**
13	**Total Treated Full Service Annual Cost**	**3,692,000**	**3,438,300**	**3,461,250**	**3,297,000**	**3,000,776**	**1,978,632**
14	**MWD Fixed Charges**						
15	Capacity Reservation Charge	93,287	91,606	93,519	84,808	84,808	62,246
16	Readiness To Serve Charge	287,735	278,630	291,977	280,233	280,233	247,262
17	**Total MWD Fixed Charges**		**751,257**		**750,536**		**674,548**
18	**Total MWD Cost**		**7,881,557**		**7,508,786**		**5,653,956**
19	**Total MWD Unit Cost ($/AF)**		**1,030**		**1,036**		**1,086**
20	**MWDOC Connection Rate ($/meter)**	**10.85**		**10.85**		**11.30**	
21	ETWD Meters	9,806		9,806		9,648	
22	**MWDOC Connection Charge ($)**		**106,395**		**106,395**		**109,022**
23	**Baker Water Treatment Plant**						
24	Period Demand (AF)					814	1,629
25	Annual Demand (AF)						2,443
26	**Baker Raw Water Cost**					**483,791**	**1,084,864**
27	Baker O&M Unit Cost (per AF)					212	147
28	**Baker O&M Annual Cost**					**172,666**	**239,452**
29	Baker Capital Cost (Debt Service)					264,412	528,824
30	**Total Period Baker Water Treatment Plant Cost**					**920,869**	**1,853,140**
31	**Total Annual Baker Water Treatment Plant Cost**						**2,774,009**
32	**Baker Water Treatment Plant Unit Cost($/AF)**						**1,135**
33	**Capital Charge Revenue Funding**						**(500,000)**
34	**Total Baker Water Treatment Plant Cost**						**2,274,009**
35	**Total Purchased Water Cost**						
36	MWD		7,881,557		7,508,786		5,653,956
37	MWDOC		106,395		106,395		109,022
38	Baker						2,274,009
39	**Total Purchased Water Cost**		**7,987,953**		**7,615,181**		**8,036,987**
40	**Total Expense (Less Baker Debt Service)**						**7,743,752**
41	Percent Increase Budget to Budget per Unit						0.61%
42	**Overall Imported Water Effective Rate**						
43	Fiscal Year Cost per Acre Foot Purchased		**1,044**		**1,050**		**1,051**
44	Fiscal Year Cost per CCF Purchased		**2.40**		**2.41**		**2.41**
45	Fiscal Year Rate per CCF Sold		**2.50**		**2.52**		**2.51**

10.2 Appendix 2 – O&M Expenses Allocations to Water, RW, and Sewer Funds

Source: Provided by District Staff on April 14, 2016

	2016/17 Budget	Water	Sewer	Recycled Water	Total
Source of Supply	7,876,123	7,876,123			7,876,123
Recycled Water					0
Pumping Water	306,571	306,571			306,571
Treatment Water	45,571	45,571			45,571
Transmission & Distribution Water	459,792	459,792			459,792
Customer Accounts	0	0			0
Outside Treatment Sewer	916,376		916,376		916,376
Pumping Sewer	339,548		339,548		339,548
Treatment Sewer	713,598		713,598		713,598
Treatment Tertiary Recycled Water	189,250			189,250	189,250
Transmission & Distribution Sewer	304,900		304,900		304,900
Operations Support	214,311	85,322	112,472	16,517	214,311
Operations Support Power	10,700	3,700	5,900	1,100	10,700
Fleet	258,180	102,788	135,495	19,898	258,180
Administration	292,000	116,252	153,243	22,504	292,000
Admin Power	36,900	12,900	20,300	3,700	36,900
Administration Indirect Costs	1,622,500	645,956	851,498	125,046	1,622,500
Depreciation & Amortization	2,906,850	1,157,286	1,525,533	224,030	2,906,850
Interest Expense	1,017,000	487,831	109,648	419,521	1,017,000
Total	**17,510,170**	**11,300,092**	**5,188,512**	**1,021,567**	**17,510,170**
Other O&M					
Purchased Water	7,743,751	7,743,751			7,743,751
Recycled Water					0
Recycled Water Offset					0
SOCWA	904,376		904,376		904,376
Fuel & Power	1,013,100	3,700	5,900	$1,100	10,700
Administration	292,000	116,252	153,243	22,504	292,000
Administration Indirect Costs	1,622,500	645,956	851,498	125,046	1,622,500
Depreciation & Amortization	2,906,850	1,157,286	1,525,533	224,030	2,906,850
Interest Expense	1,017,000	487,831	109,648	419,521	1,017,000
Total Other O&M	**2,010,593**	**1,145,315**	**1,638,312**	**229,365**	**3,012,993**
Labor	7,495,905	2,984,298	3,933,899	577,708	7,495,905
Total Expense	**25,006,075**	**14,284,390**	**9,122,411**	**1,599,274**	**25,006,075**
Less Depreciation & Interest	**21,082,225**	**12,639,273**	**7,487,229**	**955,723**	**21,082,225**

10.3 Appendix 3 – Cash Flow Analysis for Water Funds

Source: Provided by District Staff on April 14, 2016

Source: 10YearCashFlow.1617.NS.KP.xlsx sent by Dennis 4/14/16

WATER CASH FLOW

		2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
BEGINNING RESERVE BALANCE		**6,533,976**	**6,754,251**	**5,599,599**	**4,498,036**	**4,027,066**	**3,380,688**	**2,926,269**	**2,861,436**	**2,825,391**	**2,804,367**	**2,797,576**
OPERATIONS & MAINTENANCE CASH FLOW												
O&M REVENUES												
Revenue from 15/16 Commodity Rates (Unrestricted)		7,849,063	8,349,812	8,349,812	8,349,812	8,349,812	8,349,812	8,349,812	8,349,812	8,349,812	8,349,812	8,349,812
Revenue from 15/16 Fixed Meter Rates		2,633,415	2,615,000	2,615,000	2,615,000	2,615,000	2,615,000	2,615,000	2,615,000	2,615,000	2,615,000	2,615,000
Additional Service Revenue Required												
Year	**Rate Action**											
2016/17	MWD Pass Through		0	0	0	0	0	0	0	0	0	0
2016/17	COS Rate Increase		250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000	250,000
2017/18	MWD Pass Through			128,066	128,066	128,066	128,066	128,066	128,066	128,066	128,066	128,066
2017/18	COS Rate Increase			275,000	275,000	275,000	275,000	275,000	275,000	275,000	275,000	275,000
2018/19	MWD Pass Through				320,166	320,166	320,166	320,166	320,166	320,166	320,166	320,166
2018/19	COS Rate Increase				300,000	300,000	300,000	300,000	300,000	300,000	300,000	300,000
2019/20	MWD Pass Through					384,199	384,199	384,199	384,199	384,199	384,199	384,199
2019/20	COS Rate Increase					325,000	325,000	325,000	325,000	325,000	325,000	325,000
2020/21	MWD Pass Through						352,183	352,183	352,183	352,183	352,183	352,183
2020/21	COS Rate Increase						350,000	350,000	350,000	350,000	350,000	350,000
2021/22	MWD Pass Through							384,199	384,199	384,199	384,199	384,199
2021/22	COS Rate Increase							400,000	400,000	400,000	400,000	400,000
2022/23	MWD Pass Through								384,199	384,199	384,199	384,199
2022/23	COS Rate Increase								275,000	275,000	275,000	275,000
2023/24	MWD Pass Through									416,216	416,216	416,216
2023/24	COS Rate Increase									250,000	250,000	250,000
2024/25	MWD Pass Through										448,232	448,232
2024/25	COS Rate Increase										250,000	200,000
2025/26	MWD Pass Through											416,216
2025/26	COS Rate Increase											325,000
Total Unrestricted Water Service Rate Revenue		**10,482,478**	**11,214,812**	**11,617,878**	**12,238,044**	**12,947,243**	**13,649,426**	**14,433,625**	**15,092,824**	**15,759,040**	**16,457,273**	**17,148,488**
Other Sources of Cash												
Restricted Reserves Funding of Conservation Program		100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000	100,000
Capital Charge Funding of Baker Debt Service			500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000	500,000
Property Taxes		474,394	479,618	483,758	491,415	499,421	507,486	515,529	523,758	532,113	540,636	549,185
Miscellaneous Revenue		60,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000	55,000
Other Income (Site Leases)		180,000	180,000	183,600	187,272	191,017	194,838	198,735	202,709	206,763	210,899	215,117
Other Income (R-6 Partners)		107,475	110,000	112,200	114,444	116,733	119,068	121,449	123,878	126,355	128,883	131,460
Investment Income		65,000	25,000	27,998	22,490	20,135	16,903	14,631	14,307	14,127	14,022	13,988
Subtotal Other Sources of Cash		**986,869**	**1,449,618**	**1,462,556**	**1,470,622**	**1,482,307**	**1,493,295**	**1,505,344**	**1,519,652**	**1,534,359**	**1,549,439**	**1,564,749**
TOTAL O&M REVENUES (Unrestricted)		**11,469,348**	**12,664,430**	**13,080,435**	**13,708,666**	**14,429,550**	**15,142,721**	**15,938,970**	**16,612,476**	**17,293,399**	**18,006,711**	**18,713,238**
O&M REVENUE REQUIREMENTS												
Total O & M Expense		11,876,412	12,639,273	12,924,686	13,453,880	14,022,562	14,612,272	15,217,827	15,855,045	16,520,946	17,220,027	17,942,227
Debt Service												
Baker Water Treatment Plant			793,236	793,236	793,236	793,236	793,236	793,236	793,236	793,236	793,236	793,236
Subtotal Debt Service		**0**	**793,236**	**793,236**	**793,236**	**793,236**	**793,236**	**793,236**	**793,236**	**793,236**	**793,236**	**793,236**
TOTAL O&M REVENUE REQUIREMENTS		**11,876,412**	**13,432,509**	**13,717,922**	**14,247,116**	**14,815,797**	**15,405,508**	**16,011,062**	**16,648,280**	**17,314,182**	**18,013,262**	**18,735,462**
ANNUAL O&M SURPLUS (DEFICIT)		**(407,064)**	**(768,079)**	**(637,487)**	**(538,450)**	**(386,247)**	**(262,787)**	**(72,093)**	**(35,804)**	**(20,783)**	**(6,551)**	**(22,224)**

WATER CASH FLOW											
CAPITAL REPLACEMENT & REFURBISHMENT PROGRAM											
CAPITAL EXPENDITURES											
Capital Replacement & Refurbishment Program	597,062	1,202,332	1,279,834	748,280	1,075,890	1,007,390	900,000	1,045,000	1,045,000	1,045,000	1,045,000
Baker Pipeline Capacity Purchase											
Baker Water Treatment Plant											
Baker Water Treatment Plant Construction Period Interest											
TOTALCAPITAL EXPENDITURES	**597,062**	**1,202,332**	**1,279,834**	**748,280**	**1,075,890**	**1,007,390**	**900,000**	**1,045,000**	**1,045,000**	**1,045,000**	**1,045,000**
CAPITAL PROGRAM REVENUE											
Revenue from Existing Capital Charge	1,224,401	815,759	815,759	815,759	815,759	815,759	815,759	815,759	815,759	815,759	815,759
Capital Charge Revenue Increase							91,500	91,500	91,500	91,500	91,500
Capital Charge Revenue Increase								137,500	137,500	137,500	137,500
Subtotal Capital Charge Revenue	**1,224,401**	**815,759**	**815,759**	**815,759**	**815,759**	**815,759**	**907,259**	**1,044,759**	**1,044,759**	**1,044,759**	**1,044,759**
Loan Proceeds - Baker											
Loan Proceeds - Recycled Water Project- SRF											
Capital Reserves											
TOTAL CAPITAL REVENUE	**1,224,401**	**815,759**	**815,759**	**815,759**	**815,759**	**815,759**	**907,259**	**1,044,759**	**1,044,759**	**1,044,759**	**1,044,759**
ANNUAL CAPITAL SURPLUS (DEFICIT)	**627,339**	**(386,573)**	**(464,075)**	**67,479**	**(260,131)**	**(191,631)**	**7,259**	**(241)**	**(241)**	**(241)**	**(241)**
TOTAL CASH FLOW											
TRANSFER FROM RECYCLED WATER	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL ANNUAL RESERVE IMPACT	**220,275**	**(1,154,652)**	**(1,101,562)**	**(470,971)**	**(646,378)**	**(454,418)**	**(64,834)**	**(36,045)**	**(21,024)**	**(6,792)**	**(22,465)**
ENDING RESERVE BALANCE	**6,754,251**	**5,599,599**	**4,498,036**	**4,027,066**	**3,380,688**	**2,926,269**	**2,861,436**	**2,825,391**	**2,804,367**	**2,797,576**	**2,775,110**

10.4 Appendix 4 – Cash Flow Analysis for Recycled Water Funds

Source: Provided by District Staff on April 14, 2016

RECYCLED WATER CASH FLOW												
		2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
BEGINNING RESERVE BALANCE		**0**	**0**	**119,615**	**239,230**	**358,845**	**478,460**	**598,075**	**717,690**	**837,305**	**956,920**	**1,076,535**
OPERATIONS & MAINTENANCE CASH FLOW												
O&M REVENUES												
Revenue from 1516 Commodity Rates		1,092,580	1,427,026	1,461,002	1,511,968	1,574,258	1,630,886	1,693,177	1,755,468	1,817,759	1,891,375	1,959,329
Recycled Water 1617 Rate Increase			16,988									
Revenue from 1516 Fixed Meter Rates		130,622	177,000	177,000	177,000	177,000	177,000	177,000	177,000	177,000	177,000	177,000
Additional Service Revenue Required												
Year	**Rate Action**											
2016/17	COS Rate Increase		17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000	17,000
2017/18	COS Rate Increase			19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000	19,000
2018/19	COS Rate Increase				20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
2019/20	COS Rate Increase					22,000	22,000	22,000	22,000	22,000	22,000	22,000
2020/21	COS Rate Increase						24,000	24,000	24,000	24,000	24,000	24,000
2021/22	COS Rate Increase							27,000	27,000	27,000	27,000	27,000
2022/23	COS Rate Increase								19,000	19,000	19,000	19,000
2023/24	COS Rate Increase									17,000	17,000	17,000
2024/25	COS Rate Increase										17,000	17,000
2025/26	COS Rate Increase											22,000
Total Recycled Water Service Rate Revenue		**1,223,201**	**1,638,014**	**1,674,002**	**1,744,968**	**1,829,258**	**1,909,886**	**1,999,177**	**2,080,468**	**2,159,759**	**2,250,375**	**2,340,329**
Other Sources of Cash												
Restricted Reserves Funding of Debt Service		2,573,155	527,285	528,449	496,681	453,350	415,495	362,366	315,240	284,706	245,042	208,325
Recycled Water Meter Capital Charge Funding of Debt		75,599	119,615	119,615	119,615	119,615	119,615	128,115	140,615	140,615	140,615	140,615
MWD LRP Rebate		170,000	237,500	237,500	237,500	237,500	237,500	237,500	237,500	237,500	237,500	237,500
Property Taxes		34,784	36,266	37,197	37,752	38,289	38,841	39,420	40,000	40,589	41,184	41,799
Restricted Reserve - SRF Loan		(1,602,958)										
Subtotal Other Sources of Cash		**1,250,581**	**920,667**	**922,762**	**891,548**	**848,754**	**811,451**	**767,400**	**733,355**	**703,410**	**664,340**	**628,239**
TOTAL O&M REVENUES		**2,473,782**	**2,558,681**	**2,596,764**	**2,636,515**	**2,678,012**	**2,721,338**	**2,766,578**	**2,813,823**	**2,863,169**	**2,914,716**	**2,968,568**
O&M REVENUE REQUIREMENTS												
Total O & M Expense		870,824	955,723	993,806	1,033,557	1,075,054	1,118,380	1,163,620	1,210,865	1,260,211	1,311,758	1,365,610
Debt Service												
Recycled Water SRF Loan		1,602,958	1,602,958	1,602,958	1,602,958	1,602,958	1,602,958	1,602,958	1,602,958	1,602,958	1,602,958	1,602,958
Subtotal Debt Service		**1,602,958**	**1,602,958**	**1,602,958**	**1,602,958**	**1,602,958**	**1,602,958**	**1,602,958**	**1,602,958**	**1,602,958**	**1,602,958**	**1,602,958**
TOTAL O&M REVENUE REQUIREMENTS		**2,473,782**	**2,558,681**	**2,596,764**	**2,636,515**	**2,678,012**	**2,721,338**	**2,766,578**	**2,813,823**	**2,863,169**	**2,914,716**	**2,968,568**
ANNUAL O&M SURPLUS (DEFICIT)		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

RECYCLED WATER CASH FLOW											
CAPITAL REPLACEMENT & REFURBISHMENT PROGRAM											
CAPITAL EXPENDITURES											
Capital Replacement & Refurbishment Program											
Recycled Water Expansion Project											
TOTALCAPITAL EXPENDITURES	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
CAPITAL PROGRAM REVENUE											
Revenue from Existing Capital Charge		119,615	119,615	119,615	119,615	119,615	119,615	119,615	119,615	119,615	119,615
Subtotal Capital Charge Revenue	**0**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**
Recycled Water Project Grant	0										
Restricted Reserves Funding of Recycled Water Project	0	0									
Loan Proceeds - Recycled Water Project- SRF	0										
Capital Reserves											
TOTAL CAPITAL REVENUE	**0**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**
ANNUAL CAPITAL SURPLUS (DEFICIT)	**0**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**
TRANSFER TO WATER COST CENTER		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TRANSFER TO SEWER COST CENTER		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL CASH FLOW											
TOTAL ANNUAL RESERVE IMPACT	**0**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**	**119,615**
ENDING RESERVE BALANCE	**0**	**119,615**	**239,230**	**358,845**	**478,460**	**598,075**	**717,690**	**837,305**	**956,920**	**1,076,535**	**1,196,150**

10.5 Appendix 5 – Cash Flow Analysis for Sewer Funds

Source: Provided by District Staff on April 14, 2016

SEWER CASH FLOW												
		2015-16	2016-17	2017-18	2018-19	2019-20	2020-21	2021-22	2022-23	2023-24	2024-25	2025-26
BEGINNING RESERVE BALANCE		**6,533,976**	**7,173,492**	**7,335,661**	**7,705,670**	**7,724,086**	**8,178,423**	**8,439,335**	**8,559,212**	**8,703,079**	**8,855,792**	**9,026,387**
OPERATIONS & MAINTENANCE CASH FLOW												
O&M REVENUES												
Revenue from 14/15 Service Rates		7,100,000	7,100,000	7,100,000	7,100,000	7,100,000	7,100,000	7,100,000	7,100,000	7,100,000	7,100,000	7,100,000
Additional Service Revenue Required												
Year	**Rate Action**											
2016/17	COS Rate Increase		350,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000	350,000
2017/18	COS Rate Increase			275,000	275,000	275,000	275,000	275,000	275,000	275,000	275,000	275,000
2018/19	COS Rate Increase				325,000	325,000	325,000	325,000	325,000	325,000	325,000	325,000
2019/20	COS Rate Increase					325,000	325,000	325,000	325,000	325,000	325,000	325,000
2020/21	COS Rate Increase						325,000	325,000	325,000	325,000	325,000	325,000
2021/22	COS Rate Increase							375,000	375,000	375,000	375,000	375,000
2022/23	COS Rate Increase								375,000	375,000	375,000	375,000
2023/24	COS Rate Increase									375,000	375,000	375,000
2024/25	COS Rate Increase										400,000	425,000
2025/26	COS Rate Increase											400,000
Total Wastewater Service Rate Revenue		**7,100,000**	**7,450,000**	**7,725,000**	**8,050,000**	**8,375,000**	**8,700,000**	**9,075,000**	**9,450,000**	**9,825,000**	**10,225,000**	**10,650,000**
Other Sources of Cash												
Release SRF Restricted Reserve		571,267										
Restricted Reserve Funding of WRP SRF Debt Service		1,713,801										
Property Taxes		283,821	284,115	291,044	295,013	298,833	302,763	306,878	310,997	315,174	319,375	323,728
MNWD Payment for RW Service to Golf Course		11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000	11,000
Capital Facilities Fee		0	0	0	0	0	0	0	0	0	0	0
Investment Income		35,000	25,000	36,678	38,528	38,620	40,892	42,197	42,796	43,515	44,279	45,132
Subtotal Other Sources of Cash		**2,614,889**	**320,115**	**338,723**	**344,541**	**348,453**	**354,655**	**360,075**	**364,793**	**369,689**	**374,654**	**379,860**
TOTAL O&M REVENUES		**9,714,889**	**7,770,115**	**8,063,723**	**8,394,541**	**8,723,453**	**9,054,655**	**9,435,075**	**9,814,793**	**10,194,689**	**10,599,654**	**11,029,860**
O&M REVENUE REQUIREMENTS												
Total O & M Expense		7,105,432	7,487,229	7,775,904	8,076,813	8,390,516	8,717,602	9,058,685	9,414,412	9,785,462	10,172,545	10,576,409
Debt Service												
State Revolving Fund Loan		1,713,801										
Northline Lift Station		256,140	256,140	256,140	256,140	256,140	256,140	256,140	256,140	256,140	256,140	256,140
Subtotal Debt Service		**1,969,941**	**256,140**	**256,140**	**256,140**	**256,140**	**256,140**	**256,140**	**256,140**	**256,140**	**256,140**	**256,140**
TOTAL O&M REVENUE REQUIREMENTS		**9,075,372**	**7,743,369**	**8,032,044**	**8,332,953**	**8,646,656**	**8,973,741**	**9,314,824**	**9,670,552**	**10,041,602**	**10,428,685**	**10,832,548**
ANNUAL O&M SURPLUS (DEFICIT)		**639,517**	**26,747**	**31,679**	**61,589**	**76,797**	**80,914**	**120,251**	**144,241**	**153,087**	**170,969**	**197,312**

SEWER CASH FLOW											
CAPITAL REPLACEMENT & REFURBISHMENT PROGRAM											
CAPITAL EXPENDITURES											
Capital Replacement & Refurbishment Program	1,200,000	1,429,204	1,226,296	1,607,798	1,187,086	1,384,628	1,665,000	1,815,000	1,815,000	1,815,000	1,815,000
TOTAL CAPITAL EXPENDITURES	**1,200,000**	**1,429,204**	**1,226,296**	**1,607,798**	**1,187,086**	**1,384,628**	**1,665,000**	**1,815,000**	**1,815,000**	**1,815,000**	**1,815,000**
CAPITAL PROGRAM REVENUE											
Revenue from Existing Capital Charge	1,200,000	1,564,626	1,564,626	1,564,626	1,564,626	1,564,626	1,564,626	1,564,626	1,564,626	1,564,626	1,564,626
Capital Charge Revenue Increase							100,000	100,000	100,000	100,000	100,000
Capital Charge Revenue Increase								150,000	150,000	150,000	150,000
Subtotal Capital Charge Revenue	**1,200,000**	**1,564,626**	**1,564,626**	**1,564,626**	**1,564,626**	**1,564,626**	**1,664,626**	**1,814,626**	**1,814,626**	**1,814,626**	**1,814,626**
Loan Proceeds - Northline											
Capital Reserves											
TOTAL CAPITAL REVENUE	**1,200,000**	**1,564,626**	**1,564,626**	**1,564,626**	**1,564,626**	**1,564,626**	**1,664,626**	**1,814,626**	**1,814,626**	**1,814,626**	**1,814,626**
ANNUAL CAPITAL SURPLUS (DEFICIT)	**0**	**135,422**	**338,330**	**(43,173)**	**377,540**	**179,998**	**(374)**	**(374)**	**(374)**	**(374)**	**(374)**
TOTAL CASH FLOW											
TRANSFER FROM RECYCLED WATER	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
TOTAL ANNUAL RESERVE IMPACT	**639,517**	**162,168**	**370,009**	**18,416**	**454,337**	**260,912**	**119,876**	**143,867**	**152,713**	**170,594**	**196,938**
ENDING RESERVE BALANCE	**7,173,492**	**7,335,661**	**7,705,670**	**7,724,086**	**8,178,423**	**8,439,335**	**8,559,212**	**8,703,079**	**8,855,792**	**9,026,387**	**9,223,324**

10.6 Appendix 6 – Detailed Water Cost of Service Analysis

	Peaking Factors	Base Cost Allocation	Peaking Cost Allocation
Max Day	2.00 x Average Demand	50%	50%
Max Hour	3.00 x Average Demand	33%	67%
Average Demand		42%	58%

Water Revenue Requirements	2016/17	Water Revenue Requirement Components: Water Supply	Base Fixed	Peaking	RW	Conservation	Rev Offset	Capital R&R
O&M Expenses (excl. Interest & Depreciation)								
Source of Supply	$7,876,123	98%	2%					
Pumping Water	$306,571		50.0%	50.0%				
Treatment Water	$45,571		50.0%	50.0%				
Transmission & Distribution Water	$459,792		41.7%	58.3%				
Customer Accounts	$0		100.0%					
Operations Support	$85,322		100.0%					
Operations Support Power	$3,700		100.0%					
Fleet	$102,788		100.0%					
Administration	$116,252		100.0%					
Admin Power	$12,900		100.0%					
Administration Indirect Costs	$645,956		100.0%					
Labor	$2,984,298		76.8%	23.2%				
Subtotal O&M Expenses	***$12,639,273***	***$7,743,752***	***$3,757,508***	***$1,138,013***	***$0***	***$0***	***$0***	***$0***
Other Rev Requirements								
Conservation Program (Restricted)	$100,000					100.0%		
RW Program Funding (Restricted)	$754,000				100.0%			
Debt Service	$793,236	100.0%	0.0%	0.0%				
Unrestricted Capital R&R Funding	$1,202,332							100.0%
Restricted Capital R&R Funding (Baker WTP)	$500,000							100.0%
Subtotal Other Rev Requirements	***$3,349,568***	***$793,236***	***$0***	***$0***	***$754,000***	***$100,000***	***$0***	***$1,702,332***
***Less* Other Revenues**								
Fire Service Charges	-$103,758		100.0%	0.0%				
Restricted Reserves Funding of Conservation Program	-$100,000		100.0%	0.0%				
Capital Charge Funding of Baker Debt Service	-$500,000	100.0%		0.0%				
Property Taxes	-$479,618		55.2%	0.0%			44.8%	
Miscellaneous Revenue	-$55,000		100.0%	0.0%				
Other Income (Site Leases)	-$180,000			0.0%			100.0%	
Other Income (R-6 Partners)	-$110,000		100.0%	0.0%				
Investment Income	-$25,000		100.0%	0.0%				
Subtotal Other Revenues	***-$1,553,376***	***-$500,000***	***-$658,376***	***$0***	***$0***	***$0***	***-$395,000***	***$0***
***Plus Operating* Reserve Funding**	-$768,079	6%	94%					
***Plus Capital* Reserve Funding**	-$386,573							100.0%
NET REV REQUIREMENTS FROM RATES, EXC. FIRE SC	**$13,280,813**	**$7,992,398**	**$2,375,643**	**$1,138,013**	**$754,000**	**$100,000**	**-$395,000**	**$1,315,759**

Water Revenue Requirements	2016/17	Water Rate Components						
		Fixed Charges	Water Supply	Delivery	RW	Conservation	Rev Offset	Capital R&R
Water Supply	$7,992,398		100.0%					
Base Fixed	$2,375,643	100%		0.0%				
Peaking	$1,138,013	36%		64%				
RW	$754,000				100.0%			
Conservation	$100,000					100.0%		
Rev Offset	-$395,000						100.0%	
Capital R&R	$1,315,759							100.0%
Total	**$13,280,813**	**$2,785,656**	**$7,992,398**	**$728,000**	**$754,000**	**$100,000**	**-$395,000**	**$1,315,759**