



YORBA LINDA WATER DISTRICT

2015 Water and Sewer Rate Study
Report

FINAL August 25, 2015





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August 25, 2015

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Subject: 2015 Water and Sewer Rate Study Report

Dear Ms. Lugo,

Raftelis Financial Consultants, Inc. (RFC) is pleased to provide this 2015 Water and Sewer Rate Study Report (Report) for the Yorba Linda Water District (District) to develop water and sewer rates that are equitable and in compliance with Proposition 218.

The major objectives of the study include the following:

1. Develop financial plans for the water and sewer enterprises to ensure financial sufficiency, meet operation and maintenance (O&M) costs, ensure sufficient funding for capital refurbishment and replacement (R&R) needs; In addition, the analysis contained in this Report makes assumptions regarding customer water usage during the current drought conditions and ensures that the District is financially prepared for a period of reduced sales.
2. Conduct a cost-of-service analysis for the water and sewer services; and
3. Develop fair and equitable 5-year water and sewer rates to enhance revenue stability for recovering fixed costs while in compliance with Proposition 218 requirements.

The Report summarizes the key findings and recommendations related to the development of the financial plans for Water and Sewer utilities and the development of the associated water and sewer rates.

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

Sincerely,

RAFTELIS FINANCIAL CONSULTANTS, INC.

A handwritten signature in black ink, appearing to read 'Sanjay Gaur', written over a light blue horizontal line.

Sanjay Gaur
Vice President

A handwritten signature in black ink, appearing to read 'Khanh Phan', written over a light blue horizontal line.

Khanh Phan
Senior Consultant

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GLOSSARY

Commonly Used Terms

Terms	Descriptions
AF	Acre foot / Acre feet, 1 AF = 435.6 CCF
AWWA	American Water Works Association
BPP	Basin Pumping Percentage (percentage of water demand to be met by Groundwater)
CII-Regular	Existing Commercial, Irrigation, Industrial customers
CII-YLC	Commercial, Irrigation, Industrial customers annexed from the City of Yorba Linda
CIP	Capital Improvement Projects
COS	Cost of Service
COP	Certificate of Participation
CPI	Consumer Price Index/Indices
CUP	Conjunctive Use Program
EBL	Employee Benefit Liability
EMU	Equivalent Meter Unit
ENR CCI	Engineering News Records Construction Cost Indices
FY	Fiscal Year (July 1 – June 30)
GPCD	Gallons per capita per day
HCF	Hundred cubic feet or 100 cubic feet, 1 HCF = 748 gallons
LOC	Line of Credit
M1 Manual	"Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices M1" published by AWWA
MFR	Multi-Family Residential
MGD	Million gallons per day
MWD	Metropolitan Water District of Southern California
MWDOC	Municipal Water District of Orange County
O&M	Operations and Maintenance
OCWD	Orange County Water District
PAYGO	Pay-As-You-Go
R&R	Refurbishment and Replacement
RFC	Raftelis Financial Consultants, Inc.
SFR	Single Family Residential
SWRCB	State Water Resources Control Board

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1 INTRODUCTION

1.1 BACKGROUND OF THE STUDY

Yorba Linda Water District (District) currently provides water service to over 24,000 residential and commercial accounts located in the City of Yorba Linda, portions of Brea, Anaheim and Placentia. The District's current water rate structure consists of a monthly base fee, which increases with meter size, and a uniform water usage charge based on the units of water usage within a billing period.

The District currently utilizes two sources of water supply: groundwater from Orange County Water District (OCWD) and imported water from Municipal Water District of Orange County (MWDOC). In response to the statewide drought declaration by Governor Brown, the District has declared a Stage 3 Water Supply Shortage and has been mandated to reduce 36% of water use District-wide by the State Water Resources Control Board (SWRCB).

Like many water agencies, the District relies on water usage sales to help recover a portion of its fixed costs. This practice reduces the monthly base fee and promotes affordability for low volume water users. However, this practice can also create financial volatility when water demand fluctuates due to economic or weather conditions, such as the current drought. The proposed rates in this Report reflect the cost of service and provide an enhancement of revenue stability for covering fixed costs. The District is proposing an increase in the revenue it receives from its customer connections over the next 5 years.

The District provides sewer collection service to over 25,000 accounts, including some annexed accounts formerly serviced by the City of Yorba Linda. The District currently has two sets of monthly base fees and volumetric rates for its Commercial customer connections.

To determine the District's financial needs for the upcoming 5-year period, RFC completed financial plans and cost of service (COS) studies for the District's water and sewer enterprises. This Report includes the assumptions used in the study, findings and proposed staff recommendations, as well as the resulting rates.

1.2 OBJECTIVES OF THE STUDY

This report was prepared using the principles established by the American Water Works Association. The American Water Works Association "Principles of Water Rates, Fees, and Charges: Manual of Water Supply Practices M1" (the "M1 Manual") establishes commonly accepted professional standards for cost of service studies. The M1 Manual general principles of rate structure design and the objectives of the Study are described below.

According to the M1 Manual, the first step in the ratemaking analysis is to determine the adequate and appropriate funding of a utility. This is referred to as the "revenue requirements" analysis. This analysis considers the short-term and long-term service objectives of the utility over a given planning horizon, including capital facilities and system operations and maintenance, to determine the adequacy of a

utility's existing rates to recover its costs. A number of factors may affect these projections, including the number of customer connections served, water-use trends, nonrecurring sales, weather, conservation, use restrictions, inflation, interest rates, wholesale contracts, capital finance needs, changes in tax laws, and other changes in operating and economic conditions.

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

After the assets and the costs of operating those assets are properly categorized by function, the rate study allocates those "functionalized costs" to the various customer connection classes (e.g., single-family residential, multi-family residential and commercial) by determining the characteristics of those classes and the contribution of each to incurred costs such as peaking factors or different delivery costs, service characteristics and demand patterns. Rate design is the final part of the M1 Manual's rate-making procedure and generally uses the revenue requirement and cost of service analysis to determine appropriate rates for each customer connection class.

The major objectives of the study include the following:

1. Develop financial plans for the water and sewer enterprises to ensure financial sufficiency, meet operation and maintenance (O&M) costs, ensure sufficient funding for capital refurbishment and replacement (R&R) needs. In addition, the analysis contained in this Report makes assumptions regarding customer connection water usage during the current drought conditions and ensures that the District is financially prepared for a period of reduced sales.
2. Conduct a cost-of-service analysis for the water and sewer services; and
3. Develop fair and equitable 5-year water and sewer rates to enhance revenue stability for recovering fixed costs while in compliance with Proposition 218 requirements.

This Report provides an overview of the study and includes findings and recommendations for water and sewer financial plan and rates.

1.3 LEGAL REQUIREMENTS AND RATE SETTING METHODOLOGY

1.3.1 Legal Requirements

There are two Constitutional provisions that govern and impact water rates — Article X, Section 2 ("Article X") and Article XIII D, Section 6 ("Article XIII D"). Article X was added to the California Constitution in 1928 as former Article XIV, Section 3, and amended in 1976. Article X provides that:

"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. “

In November 1996, California voters approved Proposition 218, which amended the California Constitution by adding Article XIII C and Article XIII D. Article XIII D placed substantive limitations on the use of the revenue collected from property-related fees and on the amount of the fee that may be imposed on each parcel. Additionally, it established procedural requirements for imposing new, or increasing existing, property-related fees. Water and wastewater service fees are property-related fees.

In accordance with these provisions, a property-related fee must meet all of the following requirements: (1) revenues derived from the fee must not exceed the funds required to provide the property-related service; (2) revenues from the fee must not be used for any purpose other than that for which the fee is imposed; (3) the amount of a fee imposed upon any parcel or person as an incident of property ownership must not exceed the proportional cost of the service attributable to the parcel; (4) the fee may not be imposed for a service, unless the service is actually used by, or immediately available to, the owner of the property subject to the fee. A fee based on potential or future use of a service is not permitted, and stand-by charges must be classified as assessments subject to the ballot protest and proportionality requirements for assessments; (5) no fee may be imposed for general governmental services, such as police, fire, ambulance, or libraries, where the service is available to the public in substantially the same manner as it is to property owners. The five substantive requirements in Article XIII D are structured to place limitations on (1) the use of the revenue collected from property-related fees and (2) the allocation of costs recovered by such fees to ensure that they are proportionate to the cost of providing the service attributable to each parcel.

1.3.2 Rate Setting Process

Revenue Requirements. The Study used the revenue requirements method for allocating costs. This methodology is consistent with industry standards established by the American Water Works Association, Principles of Water Rates, Fees and Charges: Manual of Water Supply Practices M1 (the “M1 Manual”). The revenue requirements analysis “compares the revenues of the utility to its operating and capital costs to determine the adequacy of the existing rates to recover the utility’s costs.” American Water Works Association, Principles of Water Rates, Fees and Charges: Manual of Water Supply Practices M1 (6th ed. 2012). The revenue requirements are analyzed through the development of a long-term financial plan. Based on the best information currently available, the financial plan incorporates projected operations and maintenance costs, capital expenditures, debt service, growth, and conservation assumptions to estimate annual required revenues.

Cost of Service. After determining a utility’s revenue requirements, the next step in the analysis is determining the cost of service. The Study arranged the costs, expenses, and assets of the water system by major operating functions to determine the cost of service. After the assets and the costs of operating those assets were properly categorized by function, the Study classified them and allocated the revenue requirements to the various customer connection classes (e.g., single-family residential, irrigation, and commercial) by determining the characteristics of those classes and the customer connection class contribution to the incurred costs such as peaking factors or different delivery costs,

service characteristics and demand patterns. This analysis included a review of such matters as system operations and water usage data—e.g., capacity (peak demand)¹, commodity (average demand)², number of customer connections, customer service and accounting, equivalent meter size, and public fire protection services.³ The impact that these matters have on system operations determined how the costs were allocated among the various customer connection classes.

Rate Design. The final part of the analysis was the rate design. The rate design involved developing a rate structure that proportionately recovers costs from customer connections. The final rate structure and rate recommendations were designed to fund the utility's long-term projected costs of providing service; proportionally allocate costs to all customer connections; provide a reasonable and prudent balance of revenue stability while encouraging conservation; and comply with the substantive requirements of Article XIII D.

¹ System capacity is the system's ability to supply water to all delivery points at the time when demanded. It is measured by each customer connection's water demand at the time of greatest system demand. The time of greatest demand is known as peak demand. Peak demand costs recover the costs of facilities needed to meet the peak use, or demands, placed on the system by each customer connection class. Both the operating costs and the capital assets related costs incurred to accommodate the peak flows are allocated to each customer connection class based upon the class contribution to the peak day event.

² Commodity refers to the amount of metered water usage over a specific time period, typically a twelve-month period.

³ This refers to the need to increase the size of mainlines to provide public fire protection requirements.

2 GENERAL ASSUMPTIONS

2.1 INFLATION

The Study period is from Fiscal Year (FY) 2016 to 2020. Various types of assumptions and inputs were incorporated into the Study based on discussions with District staff. These include the projected number of accounts and annual growth rates in consumption for different customer connection classes, and inflation factors and other assumptions. The inflation factor assumptions are presented in Table 2-1, below.

Table 2-1: Inflation Factor Assumptions

KEY FACTORS	FY 2017	FY 2018	FY 2019	FY 2020
General (CPI)	4%	4%	3%	3%
Personnel	8%	8%	8%	8%
Energy	9%	9%	9%	9%
Water Cost	9%	9%	9%	9%
ENR CCI⁴	4%	4%	3%	3%

The general inflation rate of 3 to 4% is based on District's staff estimates on minimum wage increases and economy. A personnel inflation rate of 8% is based on District staff estimates for salary and benefits costs increases. Energy inflation rate and water cost increases of 9% are based on District staff estimates. A construction rate of 3 to 4% (applied to capital projects) is based on District staff estimates and based on the estimated Engineering News Records Construction Cost Indices (ENR CCI) 10-year average.

2.2 PROJECTED DEMAND AND GROWTH

To estimate future water usage, two primary factors are used – account growth and the water demanded per account. Given that the District is mostly built-out, it is estimated that the total number of accounts will increase by approximately 100 accounts per year during the Study period. In consideration of the current drought conditions and the District's assigned mandatory water usage cutback of 36% from the SWRCB, total water demand is projected to decrease by 36% for FY 2016. For FY 2017 through FY 2020 usage is expected to rebound by 5% per year, but will remain at 15% below 2013 sales due to permanent changes made by the District's customers such as lawn removal and fixture replacement.

⁴ ENR CCI: Engineering News Record Construction Cost Indices

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

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Account Growth			100 accts	100 accts	100 accts	100 accts
Projected Water Sales	18,752 AF	13,298 AF	14,581 AF	15,623 AF	16,664 AF	17,706 AF
% Reduction from 2013 Sales (20,831 AF)	10%	36%	30%	25%	20%	15%

2.3 RESERVE POLICY

A reserve policy is a written document that provides a basis for the Agency to cope with unanticipated reductions in revenues, offset fluctuations in costs of providing services, fiscal emergencies such as revenue shortfalls, asset failure, natural disaster, etc. It also provides guidelines for sound financial management with an overall long-range perspective to maintain financial solvency and mitigate financial risks associated with revenue instability, volatile capital costs and emergencies. It also sets funds aside for replacement of capital assets as they age as well as for new innovative capital projects. Additionally, adopting and adhering to a sustainable reserve policy enhances financial management transparency and helps achieve or maintain a certain credit rating for future debt issues.

The appropriate amount of reserve and reserve types are determined by a variety of factors, such as the size of the operating budget, the amount of debt, the type of rate structure, frequency of customer billing, and risk of natural disaster. With this being said, most reserves tend to fall into the following categories: operations & maintenance (O&M) cash flow, rate stabilization, capital refurbishment and replacement (R&R), and emergency.

O&M Cash Flow – The purpose of an O&M reserve is to provide working capital to support the operation, maintenance and administration of the utility. From a risk management perspective, the O&M reserve supports the District’s cash flow needs during normal operations and ensures that operations can continue should there be significant events that impact cash flows. As it is unlikely for a utility to predict perfectly the revenues and revenue requirements for each billing period, a reserve set aside to hedge the risk of monthly negative cash positions is prudent in financial planning. Another factor to consider when creating a cash flow reserve is the frequency of billing. A utility that bills once a month would require less minimum reserves than a utility that bills semi-annually.

Rate Stabilization and Operating Emergency – While it is not typical for utilities to have substantial rate increases in a short period of time, factors such as declining water sales and rapidly increasing water supply costs may result in large unforeseen rate increases. In order to minimize rate shocks, a rate stabilization reserve could be set up in order to smooth rate increases through gradual increases in the rates as opposed to abrupt and large rate increases. A rate stabilization reserve acts as a buffer to protect customer connections from experiencing large shifts in their bills.

Capital Emergency – The purpose of an emergency fund is to allow the utility to provide uninterrupted service in light of a fiscal emergency, natural disaster or facility failure. An emergency reserve decreases risk by recognizing the high capital cost of the utilities and setting aside adequate funds to restart the system after an event or replace an essential facility. Critical asset analysis completed by staff provides the basis for the target level of emergency reserve.

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

The District currently has an adopted reserve policy for its Water and Sewer Enterprises (shown in Table 2-3). Both the Water and Sewer Enterprise have an Operations Reserve of 12% of annual O&M costs and an Emergency Reserve of \$1M. The Water Enterprise has a Debt Service Reserve of \$4.87M and a required minimum debt coverage ratio of 110%. The Sewer Enterprise has no issued debt and does not have a financial policy in place for Debt Service Reserves or a required minimum debt coverage ratio. The Capital R&R Reserve is approximately \$2M for the Water Enterprise and \$345K for the Sewer Enterprise. Both Enterprises have reserves for the Employee Benefit Liability (EBL) – \$182K for Water and \$15K for Sewer. See Appendix 1 for further detail of the current reserve policy.

Table 2-3: Current Financial Policy

Reserves	Water	Sewer
Operations	12% of O&M	12% of O&M
Emergency	\$1M	\$1M
Capital Replacement	\$2.02M <i>(\$1.82M Capital + \$200K for Maintenance)</i>	\$345K
COP/ Debt Service	\$4.87M <i>(\$2.15M for 2008 COP Reserve + \$2.72M for Debt Service)</i>	\$0
Employee Benefit Liability (EBL)	\$182K	\$15K
Debt Coverage	1.10x By Official Statement	N/A

After evaluation of its current financial policies, the District is proposing to make the following changes:

- Increase its Operations Reserve from 12% to 25% of annual O&M. The District is billing monthly for its water and sewer services and expenses are paid monthly. However, there is a 30 day gap between when revenues are received and expenses paid. Like many water agencies, the District is partially reliant on water usage sales to pay for fixed infrastructure costs. Considering that water sales are seasonal (high during summer and lower during winter months) and most of the utilities system costs are relatively fixed throughout the year, having a higher Operations Reserve is warranted. A reserve target of 25% of O&M budget, or 90 days of the operating budget, is considered standard within the industry.

- Due to the potential volatility of water costs caused by the recent drought, RFC recommends establishing a Rate Stabilization Reserve for the water enterprise. To avoid rate spikes caused by the potential volatility of water sales, 15% of water commodity revenues (aka water usage charges) can be set as Rate Stabilization Reserve.
- Based on District Staff assessment of major repair of critical assets, the District proposes to establish \$10M for Water Emergency reserve and \$3M for Sewer Emergency Reserve.
- Capital Replacement Reserve targets for both enterprises are proposed to be set at 2% of asset values (inflated to current dollars for replacement costs using ENR CCI from original costs) to adequately build the working capital necessary for annual capital projects.
- Debt service reserves and EBL reserves are restricted reserves based on current policy and are not proposed to change for either enterprise.
- Based on Standards and Poors (S&P) rating criteria, a debt coverage ratio⁵ of 1.25x or higher is required to be considered in good standing. Better ratings will result in lower interest rates should the District have the need for issuing debt in the future. Also, it gives some buffer for the District during periods of volatile water sales to avoid technical default; technical default is when debt coverage falls below the requirement of the Official Debt Statement at 1.10. RFC recommends that the District set its Debt coverage requirement for current and any future debt at 1.25.

A summary of the proposed financial policies is provided in Table 2-4 below.

Table 2-4: Revised and Proposed Financial Policy

	Water	Sewer
Reserve Policy		
Operations	25% of O&M	25% of O&M
Rate Stabilization	15% of Commodity Revenues	N/A
Emergency	\$10M for major repair of critical assets	\$3M for major repair of critical assets
Capital Replacement	2% of asset value by replacement costs	2% of asset value by replacement costs
COP/ Debt Service	100% of annual total debt service + \$2.147M 2008 COP Restricted	100% of annual total debt service
Employee Benefit Liability (EBL)	Based on District's projections	Based on District's projections
Debt Coverage	1.25x for Good standing per S&P rating criteria	1.25x for Good standing per S&P rating criteria

⁵ Debt Coverage = Net Revenues / Debt Service

Net Revenues = Total Revenue – Total O&M

Debt Service = Principal and Interest for the long-term annual debt payment

2.4 KEY FINANCIAL INFORMATION

The Study utilized the following key financial documents and figures:

1. FY 2016 Budget provided by District staff in May 2015
2. 5-year Projected CIP Budget provided by District Staff in May 2015
3. Water supply cost projections provided by District staff for FY 2016 in May 2015
4. Projected beginning fund balances as of July 1, 2015 provided by District staff in May 2015

Table 2-5: Beginning Fund Balances

Reserve Balances as of July 1, ____	Water (FY 2015) 2014	Water (FY 2016) 2015	Sewer (FY 2015) 2014	Sewer (FY 2016) 2015
Operation Reserve	\$3,136,962	\$4,395,782	\$160,489	\$434,611
Rate Stabilization Reserve	\$0	\$0		
Emergency Reserve	\$1,010,940	\$1,026,207	\$1,010,396	\$1,018,596
Capital Replacement and Maintenance Reserve	\$16,876,503	\$17,593,484	\$2,127,063	\$2,236,904
Debt Service and COP Reserve	\$4,882,348	\$5,652,792		
EBL Reserve	\$186,070	\$186,306	\$14,006	\$14,018
Total	\$26,092,823	\$28,854,571	\$3,311,954	\$3,704,129

3 WATER FUND – FINANCIAL PLAN AND RATES

3.1 WATER REVENUE REQUIREMENTS

A review of a utility's revenue requirements is a key first step in the rate study process. The review involves an analysis of annual operating revenues under the status quo, operation and maintenance (O&M) expenses, transfers between funds, and reserve requirements. This section of the report provides a discussion of the projected revenues, O&M expenses, other reserve funding and revenue adjustments estimated as required to ensure the fiscal sustainability and solvency of the Water Fund.

3.1.1 Revenues from Current Water Rates

The current rates, last updated on July 1, 2014, were originally developed in the 2012 Rate Study. The District's water service charges have two components – a fixed component (monthly base fee) and a volumetric component (water usage sales). The monthly base fee increases along with meter size because it is assumed that customer connections with larger meter sizes consume more water and the costs to provide service to these customer connections is also higher. A typical single family home with a 1" meter has a monthly base fee of \$16.77. The volumetric component of the water service charge is the number of units consumed (measured in hundred cubic feet) multiplied by the uniform rate of \$2.70 per unit. The rates for both the monthly base fee and monthly water usage charge are summarized in Table 3-1 below.

Table 3-1: Current Water Rates

Water Base Fee by Meter Size	FY 2014	FY 2015
Effective Date	July 1, 2013	July 1, 2014
5/8	\$8.80	\$10.06
3/4	\$8.80	\$10.06
1	\$14.67	\$16.77
1 1/2	\$29.34	\$33.54
2	\$46.94	\$53.66
3	\$102.67	\$117.37
4	\$187.80	\$211.26
6	\$410.67	\$469.47
8	\$704.00	\$804.80
10	\$1,114.67	\$1,274.27
Water Usage Charge		
Uniform Rate (\$ / hcf⁶)	\$2.64	\$2.70

⁶ 1 hcf = 100 cubic feet = 748 gallon

In April 2015, the State Water Resources Control Board of California issued a mandatory statewide water usage cutback of 25% in response to the extended drought conditions. In order to achieve the statewide cutback, each water agency was assigned a water usage reduction factor based on its calendar year 2013 usage; the District was assigned a mandatory cutback factor of 36%. In light of the drought conditions, many of the District's customers have taken steps to reduce their consumption. Even after the drought has ended, it is projected that water usage will be 15% lower than 2013 sales because of the permanent changes customers have made to reduce water usage such as turf removal and fixture replacement.

In addition to the water usage reduction, the District is anticipating approximately 100 new accounts per year during the Study period, since the service area is near build-out (see Table 2-2). Table 3-2 summarizes the projected number of accounts by meter size for the Study period, as well as the volume of water sold by the District. The number of total accounts starts at 24,638 in FY 2016 and climbs gradually each year by 100 accounts. The entirety of the projected account growth is assigned to the 1" meter size category, which is the District's most common meter size.

Table 3-2: Projected Water Accounts and Usage

Account Summary	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Account Growth			100 accts	100 accts	100 accts	100 accts
5/8	28	28	28	28	28	28
3/4	5,587	5,617	5,617	5,617	5,617	5,617
1	17,205	17,271	17,371	17,471	17,571	17,671
1 1/2	573	573	573	573	573	573
2	1,138	1,138	1,138	1,138	1,138	1,138
3	5	6	6	6	6	6
4	4	4	4	4	4	4
6	1	1	1	1	1	1
8	0	0	0	0	0	0
10	0	0	0	0	0	0
Total	24,541	24,638	24,738	24,838	24,938	25,038
Total Water Sales						
Acre Feet (AF)⁷	18,752	13,298	14,581	15,623	16,664	17,706
hcf	8,168,198	5,792,702	6,351,647	6,805,336	7,259,025	7,712,714

⁷ Acre Foot (Feet) is equivalent to approximately 325,000 gallons or 435.6 HCF. The number of AF sold is multiplied by 435.6 to determine the hcf sold in the following row.

The projected Monthly Base Fee revenues can be determined by multiplying the number of accounts in each meter size by its corresponding monthly charge. Similarly, the projected Water Usage Charge revenues can be determined by multiplying the projected water sales by the water usage rate of \$2.70. Together, the total revenue from current rates can be obtained as shown in Table 3-3. The calculated revenues for FY 2015 of \$27,180,529 are within less than a percent of the budgeted total of \$27,042,873.

Table 3-3: Projected Revenues from Current Water Rates

Calculated Revenues from Current Rates	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Service Charges	\$5,126,395	\$5,144,707	\$5,164,831	\$5,184,955	\$5,205,079	\$5,225,203
Water Revenues	\$22,054,134	\$15,640,295	\$17,149,446	\$18,374,407	\$19,599,367	\$20,824,327
Total	\$27,180,529	\$20,785,002	\$22,314,277	\$23,559,362	\$24,804,446	\$26,049,531
Forecast From Budget for FY 2015						
Service Charges	4,988,739					
Water Revenues	22,054,134					
Total	\$27,042,873					

3.1.2 Miscellaneous Water Revenues

In addition to revenue from rates, the Water Operating Fund also receives miscellaneous revenues from different sources such as interest earnings, property taxes, and other operating/non-operating sources. The property tax revenue received by the District is a portion of the 1% ad valorem tax levied on property. While, property tax revenue, interest earnings, and non-operating revenue are fairly stable, other operating revenues can fluctuate.

Total miscellaneous revenues for the Study period are shown in Table 3-4.

Table 3-4: Projected Miscellaneous Water Revenues

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Other Operating Revenues	\$1,237,953	\$645,110	\$756,678	\$768,028	\$779,548	\$791,242
Interest	\$119,005	\$85,000	\$82,269	\$83,442	\$94,581	\$123,598
Property Taxes	\$1,454,342	\$1,395,000	\$1,408,950	\$1,423,040	\$1,437,270	\$1,451,643
Non-Operating Revenue	\$702,159	\$565,200	\$573,678	\$582,283	\$591,017	\$599,883
Total	\$3,513,458	\$2,690,310	\$2,821,575	\$2,856,793	\$2,902,417	\$2,966,365

3.1.3 Water O&M Expenses

3.1.3.1 Water Supply Costs

The District has two sources of water supply – (1) local groundwater, (2) treated import water. The groundwater supply is managed by Orange County Water District (OCWD), while the import supplies are managed by Municipal Water District of Orange County (MWDOC). These are the two agencies in which the District purchases their water supply from. The District currently has the infrastructure in place to supply 70% of its water needs with groundwater and the remaining 30% with treated import water. Additionally, in 2013 OCWD, MWDOC and the District entered into an agreement that allows Metropolitan Water District of Southern California (MET) to store untreated import water in the groundwater basin. This water can be pumped out of the groundwater basin in times of need and purchased through MWDOC at treated import water rates less energy and maintenance costs. This is known as the Conjunctive Use Program (CUP).

As managers of the groundwater basis, OCWD sets the limits for the amount of water that can be pumped out of the local groundwater basis. This is referred to as the Basin Pumping Percentage (BPP). As a member agency of OCWD, the District has access to this water supply at the limits set by OCWD. The current BPP for the District is set at 70%. However, for FY 2015 and FY 2016, the District is anticipating pumping a portion of the CUP water out of the groundwater basin. Due to current infrastructure capacities the District will have to reduce its purchases of groundwater in order to meet the obligation of pumping CUP water. For example, for the District to fulfill a CUP obligation of 1,600 acre feet with estimated total water demands of 16,000 acre feet 10% of the total water purchases will be purchased at CUP water rates, therefore reducing ground water purchases to 60% of total supply.

Both of the District's wholesale water suppliers have a base fee and volumetric component to their rate structures. For FY 2016, the District incurs a base fee from OCWD of \$300,000 and has a variable unit charge of \$322 per AF.

The District is reliant on imported water from MWDOC to meet the remaining 30% of demand. The District incurs three separate base fees (readiness to serve, capacity charge, and retail charge) from MWDOC, which total approximately \$1.26M for FY 2016. Since MWDOC adjusts its rates on a calendar year basis, the volumetric rate changes midway through the fiscal year. From July through December of 2015, the cost per AF is \$924. From January to June of 2016, the cost of per AF will rise to \$942.

Based on projections and inputs from District staff, the respective sources of water, per unit price, and expected purchase quantities are shown in Table 3-5 below. The total water supply costs at the bottom of the table are determined by multiplying the per unit costs for each source of water by the corresponding quantity purchased from that source, and adding in the base fee associated with each source. Actual sales figures were used for FY 2015 and projected sales were used for FY 2016 and beyond. As part of the water financial plan model, RFC calculates the District's water supply costs for future years.

Table 3-5: Projected Purchased Water Supply Costs

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Water Sales	18,752 AF	13,298 AF	14,581 AF	15,623 AF	16,664 AF	17,706 AF
Water Demand <i>(with 5% water loss)</i>	19,739 AF	13,998 AF	15,349 AF	16,445 AF	17,542 AF	18,638 AF
BPP	70%	70%	70%	70%	70%	70%
Water Demand to be met by						
OCWD	11,821 AF	8,203 AF	10,744 AF	11,512 AF	12,279 AF	13,046 AF
CUP	1,996 AF	1,596 AF	0 AF	0 AF	0 AF	0 AF
MWDOC	5,922 AF	4,199 AF	4,605 AF	4,934 AF	5,262 AF	5,591 AF
Water Supply Cost Components						
OCWD						
Fixed	\$300,000	\$300,000	\$327,000	\$356,430	\$388,509	\$423,474
Variable Unit Cost	\$294 / AF	\$322 / AF	\$351 / AF	\$383 / AF	\$417 / AF	\$455 / AF
CUP Unit Cost	\$781 / AF	\$826 / AF	\$832 / AF	\$917 / AF	\$1,009 / AF	\$1,110 / AF
MWDOC						
MWD RTS	\$717,714	\$736,896	\$803,217	\$875,506	\$954,302	\$1,040,189
MWD Capacity Charge	\$229,757	\$270,692	\$295,054	\$321,609	\$350,554	\$382,104
MWDOC Retail Charge	\$250,257	\$257,954	\$281,169	\$306,475	\$334,057	\$364,122
MWDOC Unit Cost	\$905 / AF	\$932 / AF	\$980 / AF	\$1,068 / AF	\$1,165 / AF	\$1,269 / AF
July – Dec <i>(55% of FY demand)</i>	\$891 / AF	\$924 / AF	\$942 / AF	\$1,027 / AF	\$1,119 / AF	\$1,220 / AF
Jan – Jun <i>(45% of FY demand)</i>	\$924 / AF	\$942 / AF	\$1,027 / AF	\$1,119 / AF	\$1,220 / AF	\$1,330 / AF
Water Supply Costs without Future Increases⁸						
OCWD	\$3,775,365	\$2,941,296	\$3,759,623	\$4,006,739	\$4,253,855	\$4,500,971
CUP	\$1,557,878	\$1,317,415	\$0	\$0	\$0	\$0
MWDOC	\$6,558,928	\$5,178,727	\$5,556,315	\$5,862,799	\$6,169,283	\$6,475,767
Total	\$11,892,171	\$9,437,439	\$9,315,938	\$9,869,538	\$10,423,138	\$10,976,738
Projected Water Supply Costs						
OCWD						
Fixed	\$300,000	\$300,000	\$327,000	\$356,430	\$388,509	\$423,474
Variable	\$3,475,365	\$2,641,296	\$3,770,989	\$4,403,976	\$5,120,357	\$5,930,013
CUP	\$1,557,878	\$1,317,415	\$0	\$0	\$0	\$0
MWDOC						
Fixed	\$1,197,728	\$1,265,541	\$1,379,440	\$1,503,590	\$1,638,913	\$1,786,415
Variable	\$5,361,200	\$3,913,186	\$4,513,481	\$5,271,101	\$6,128,534	\$7,097,608
Total	\$11,892,171	\$9,437,439	\$9,990,910	\$11,535,097	\$13,276,312	\$15,237,510
Projected Pass-through WS Costs⁹	\$0	\$0	\$674,972	\$1,665,559	\$2,853,174	\$4,260,773

⁸ FY 2016 Fixed Costs + FY 2016 Unit Cost * Projected Sales⁹ Pass-through = Total Projected Water Supply Costs – Total Water Supply Costs without future increases

3.1.3.2 Water O&M Expenses

Using the District's FY 2016 budget values, inflation factors were assigned to each line item to determine future O&M costs for the Water Fund. RFC worked closely with District staff to identify any non-recurring costs and other anticipated expenses for the Study period. In addition, the District will continue to pass through the increases in water supply costs from its wholesalers onto retail customer connections as allowed by Assembly Bill (AB) 3030. Table 3-6 summarizes budgeted and projected O&M expenses for the Water Fund during the Study period.

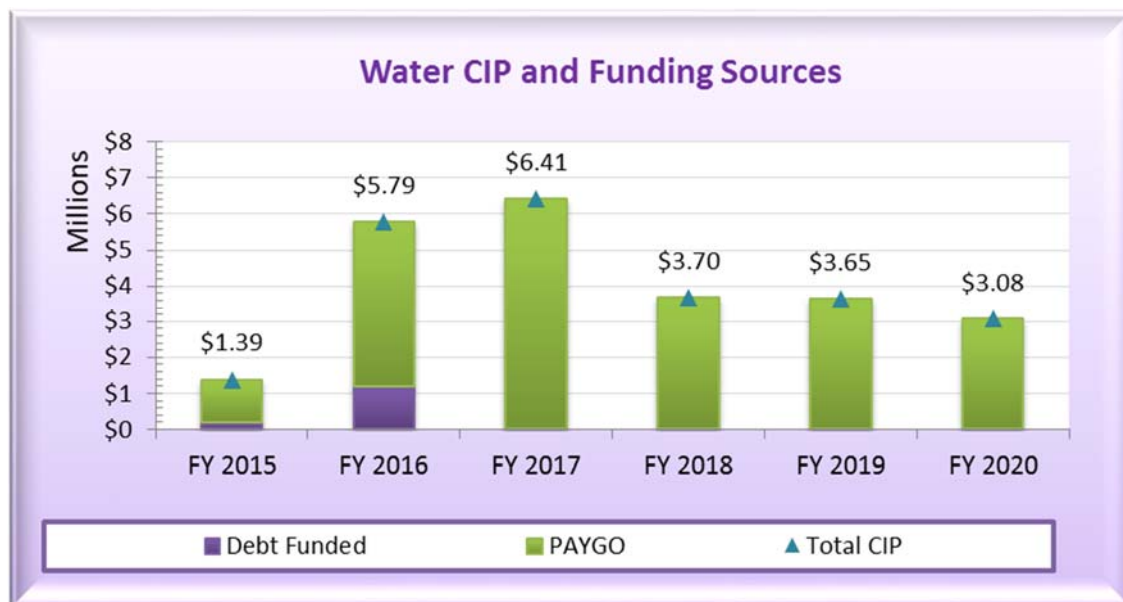
Table 3-6: Budgeted and Projected Water O&M Expenses

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Power	\$1,142,849	\$1,403,404	\$1,677,314	\$1,958,863	\$2,277,505	\$2,637,636
Water Supply Costs	\$12,708,101	\$10,677,006	\$9,990,910	\$11,535,097	\$13,276,312	\$15,237,510
Salary Related Expenses	\$6,853,668	\$7,906,784	\$8,539,327	\$9,222,473	\$9,960,271	\$10,757,093
Supplies & Services	\$3,374,504	\$3,891,663	\$4,198,778	\$4,378,635	\$4,526,067	\$4,679,208
Total	\$24,079,123	\$23,878,858	\$24,406,330	\$27,095,069	\$30,040,155	\$33,311,446

3.1.4 Projected Capital Improvement Projects

The District has programmed approximately \$22M in capital expenditures during the Study period for the water enterprise, as shown in Figure 3-1. (A full list of projects and costs can be found in the Section 6.2). The CIP costs for future years are determined by using the programmed/budgeted costs and inflating the value by the capital cost inflation factor shown in Table 2-1.

While most of the District's CIP expenditures are paid for by current rate revenues (pay-as-you-go basis, PAYGO funded), there is some use of debt. The District currently has an open line of credit (LOC) with maximum borrowing limit of \$7M. As of March 2015, the outstanding principal balance of the LOC is \$5.621M, with a remaining borrow limit of \$1.379M. The District is planning to continue to use its LOC to finance capital projects for FY 2015 (\$179K) and FY 2016 (\$1.2M), as indicated by the purple portion of the bar in Figure 3-1.

Figure 3-1: Projected Water CIP and Funding Sources

3.1.5 Current Debt Service

The District currently has two outstanding long-term debts: Certificate of Participation (COP) 2008 and Refunding Bond 2012A. The debt service payments for these two loans are summarized in Table 3-7. In addition, the District pays an annual interest rate of approximately 1% on its \$7M LOC until the end of the term in FY 2018. In FY 2018, the District will be required to make a balloon payment for the full principal payment of the \$7M LOC. The balloon payment was originally scheduled for FY 2017, but the District is planning to extend to term of the balloon payment until FY 2018. For the purposes of the Financial Plan, it is assumed that the balloon payment of \$7M will occur in FY 2018. Table 3-7 summarizes the total debt service across the District's three sources of debt for the water enterprise.

Table 3-7: Current Debt Service

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
COP 2008	\$2,129,596	\$2,129,596	\$2,128,396	\$2,125,996	\$2,127,296	\$2,127,196
Refunding Bond 2012A	\$593,913	\$591,963	\$588,488	\$588,313	\$591,213	\$583,713
LOC Principal Payment	\$0	\$0	\$0	\$7,000,000	\$0	\$0
Total	\$2,723,509	\$2,721,559	\$2,716,884	\$9,714,309	\$2,718,509	\$2,710,909

3.2 WATER FINANCIAL PLAN

3.2.1 Status Quo Water Financial Plan

Table 3-8 displays the pro forma of the District's Water Fund under current rates over the Study period. All projections shown in the table are based upon the District's current rate structure and do not include any rate adjustments or pass-through increases on wholesale water costs. The pro-forma incorporates the data shown in Table 3-3 through Table 3-7 and Figure 3-1.

Under the "status-quo" scenario, revenues generated from rates and other miscellaneous revenues are inadequate to sufficiently recover operating expenses of the utility beginning in FY 2016 and the debt coverage ratio falls below the target level of 125%. Since current revenues cannot even meet operating expenses, the sizable CIP expenditures and debt service during the Study period would have to be funded from reserves. While the ending reserve balance is already below target levels, it becomes negative in FY 2018 under this scenario. In short, the District is unable to maintain fiscal sustainability and solvency under the current rates.

Table 3-8: Status Quo Water Financial Plan (No Revenue Adjustment)

Descriptions	FY 2015 Estimated	FY 2016 Budgeted	FY 2017 Projected	FY 2018 Projected	FY 2019 Projected	FY 2020 Projected
Projected Water Sales	18,752 AF	13,298 AF	14,581 AF	15,623 AF	16,664 AF	17,706 AF
REVENUES						
Existing Revenues from Rates	\$27,180,529	\$20,785,002	\$22,314,277	\$23,559,362	\$24,804,446	\$26,049,531
Service Charges	\$5,126,395	\$5,144,707	\$5,164,831	\$5,184,955	\$5,205,079	\$5,225,203
Commodity	\$22,054,134	\$15,640,295	\$17,149,446	\$18,374,407	\$19,599,367	\$20,824,327
Proposed Rev Adjustments	\$0	\$0	\$0	\$0	\$0	\$0
Proposed Rev Adjustments (%)	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Passthrough Water Supply Cost Rev	\$0	\$0	\$0	\$0	\$0	\$0
Property Tax	\$1,454,342	\$1,395,000	\$1,408,950	\$1,423,040	\$1,437,270	\$1,451,643
Other Revenues	\$2,059,116	\$1,295,310	\$1,380,403	\$1,365,896	\$1,351,220	\$1,342,807
TOTAL REVENUES	\$30,693,987	\$23,475,312	\$25,103,630	\$26,348,297	\$27,592,936	\$28,843,980
EXPENSES						
O&M Expenses	\$24,079,123	\$23,878,858	\$24,406,330	\$27,095,069	\$30,040,155	\$33,311,446
Power Costs	\$1,142,849	\$1,403,404	\$1,677,314	\$1,958,863	\$2,277,505	\$2,637,636
Water Supply Costs	\$12,708,101	\$10,677,006	\$9,990,910	\$11,535,097	\$13,276,312	\$15,237,510
Salary Related Expenses	\$6,853,668	\$7,906,784	\$8,539,327	\$9,222,473	\$9,960,271	\$10,757,093
Supplies & Services	\$3,374,504	\$3,891,663	\$4,198,778	\$4,378,635	\$4,526,067	\$4,679,208
Other Non-Operating Expenses	\$9,250	\$22,000	\$22,880	\$23,795	\$24,509	\$25,244
LOC Interest Expenses	\$58,000	\$70,000	\$70,000	\$70,000	\$0	\$0
OPEB Payment	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
TOTAL EXPENSES	\$24,246,373	\$24,070,858	\$24,599,210	\$27,288,864	\$30,164,664	\$33,436,691
NET REVENUES	\$6,447,614	-\$595,546	\$504,420	-\$940,567	-\$2,571,728	-\$4,592,711
New LT Debt Issues	\$0	\$0	\$0	\$0	\$0	\$0
New ST Debt Issues	\$0	\$0	\$0	\$0	\$0	\$0
New LOC Borrow	\$179,217	\$1,200,000	\$0	\$0	\$0	\$0
TOTAL PROPOSED DEBT	\$179,217	\$1,200,000	\$0	\$0	\$0	\$0
Available for CIP	\$179,217	\$1,200,000	\$0	\$0	\$0	\$0
Transfers to COP Reserves	\$0	\$0	\$0	\$0	\$0	\$0
DEBT SERVICE						
LOC Principal Payment	\$0	\$0	\$0	\$7,000,000	\$0	\$0
Current Debt Service	\$2,723,509	\$2,721,559	\$2,716,884	\$2,714,309	\$2,718,509	\$2,710,909
Proposed LT Debt Service	\$0	\$0	\$0	\$0	\$0	\$0
Proposed ST Debt Service	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DEBT SERVICE	\$2,723,509	\$2,721,559	\$2,716,884	\$9,714,309	\$2,718,509	\$2,710,909
CIP						
Debt Funded	\$179,217	\$1,200,000	\$0	\$0	\$0	\$0
PayGo	\$1,207,085	\$4,593,233	\$6,411,345	\$3,696,151	\$3,645,604	\$3,075,218
TOTAL CIP	\$1,386,302	\$5,793,233	\$6,411,345	\$3,696,151	\$3,645,604	\$3,075,218
NET CASH BALANCES	\$2,517,020	-\$7,910,337	-\$8,623,809	-\$14,351,026	-\$8,935,840	-\$10,378,838
Beginning Reserve Balances	\$26,092,823	\$28,854,571	\$20,944,234	\$12,320,425	-\$2,030,601	-\$10,966,442
Ending Reserve Balances	\$28,609,843	\$20,944,234	\$12,320,425	-\$2,030,601	-\$10,966,442	-\$21,345,279
Target Reserve Balances	\$31,534,004	\$30,613,912	\$31,340,398	\$32,577,948	\$33,804,357	\$35,124,879
Debt Coverage Ratio	237%	-22%	19%	-35%	-95%	-169%
Required Debt Coverage Ratio	125%	125%	125%	125%	125%	125%

3.2.2 Proposed Water Financial Plan

The District previously adopted a resolution authorizing automatic adjustments to its rates to pass through for a five-year period projected increases in the rates for wholesale water. RFC recommends that the District continue its use of pass-through increases for wholesale water costs. Actual water supply pass-through costs will be determined annually to align with actual water cost increases imposed on the District.

In addition to the pass-through water supply costs, the Water Fund needs additional revenue adjustments as shown in Table 3-9 to meet the target reserve requirement and maintain financial sufficiency for its expenses and other funding obligations.

Table 3-9: Proposed Water Revenue Adjustments

Fiscal Year	Effective Date	Proposed Water Revenue Adjustments
2016	October 1, 2015	36%
2017	July 1, 2016	5%
2018	July 1, 2017	5%
2019	July 1, 2018	5%
2020	July 1, 2020	5%

Table 3-10 shows the pro-forma for the Water Fund with revenues from the automatic pass-through increases for wholesale water and the proposed revenue adjustments shown above. Cumulatively, these factors result in the following:

- Positive net water income and positive net water cash balances beginning in FY 2017. As shown in Figure 3-2, the proposed revenue (shown by green line) begins to meet all operating and debt obligations (shown by stacked bars) in FY 2016 and subsequently contributes to reserves in future years.
- The District stays above the debt coverage ratio threshold of 125% throughout the Study period.
- Water Fund ending balances improve during the Study period. As shown in Figure 3-3, the ending balance (shown by green bar) gradually moves closer to the target reserve level (shown by red line), effectively meeting it starting FY 2019.

Table 3-10: Proposed Water Financial Plan

Descriptions	FY 2015 Estimated	FY 2016 Budgeted	FY 2017 Projected	FY 2018 Projected	FY 2019 Projected	FY 2020 Projected
Projected Water Sales	18,752 AF	13,298 AF	14,581 AF	15,623 AF	16,664 AF	17,706 AF
REVENUES						
Existing Revenues from Rates	\$27,180,529	\$20,785,002	\$22,314,277	\$23,559,362	\$24,804,446	\$26,049,531
Service Charges	\$5,126,395	\$5,144,707	\$5,164,831	\$5,184,955	\$5,205,079	\$5,225,203
Commodity	\$22,054,134	\$15,640,295	\$17,149,446	\$18,374,407	\$19,599,367	\$20,824,327
Proposed Rev Adjustments	\$0	\$5,611,951	\$9,550,511	\$11,765,545	\$14,246,930	\$17,012,649
Proposed Rev Adjustments (%)	0.0%	36.0%	5.0%	5.0%	5.0%	5.0%
Passthrough Water Supply Cost Rev	\$0	\$0	\$674,972	\$1,665,559	\$2,853,174	\$4,260,773
Property Tax	\$1,454,342	\$1,395,000	\$1,408,950	\$1,423,040	\$1,437,270	\$1,451,643
Other Revenues	\$2,059,116	\$1,295,310	\$1,412,625	\$1,433,753	\$1,465,147	\$1,514,723
TOTAL REVENUES	\$30,693,987	\$29,087,262	\$35,361,335	\$39,847,259	\$44,806,967	\$50,289,318
EXPENSES						
O&M Expenses	\$24,079,123	\$23,878,858	\$24,406,330	\$27,095,069	\$30,040,155	\$33,311,446
Power Costs	\$1,142,849	\$1,403,404	\$1,677,314	\$1,958,863	\$2,277,505	\$2,637,636
Water Supply Costs	\$12,708,101	\$10,677,006	\$9,990,910	\$11,535,097	\$13,276,312	\$15,237,510
Salary Related Expenses	\$6,853,668	\$7,906,784	\$8,539,327	\$9,222,473	\$9,960,271	\$10,757,093
Supplies & Services	\$3,374,504	\$3,891,663	\$4,198,778	\$4,378,635	\$4,526,067	\$4,679,208
Other Non-Operating Expenses	\$9,250	\$22,000	\$22,880	\$23,795	\$24,509	\$25,244
LOC Interest Expenses	\$58,000	\$70,000	\$70,000	\$70,000	\$0	\$0
OPEB Payment	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
TOTAL EXPENSES	\$24,246,373	\$24,070,858	\$24,599,210	\$27,288,864	\$30,164,664	\$33,436,691
NET REVENUES	\$6,447,614	\$5,016,405	\$10,762,125	\$12,558,395	\$14,642,303	\$16,852,627
New LT Debt Issues	\$0	\$0	\$0	\$0	\$0	\$0
New ST Debt Issues	\$0	\$0	\$0	\$0	\$0	\$0
New LOC Borrow	\$179,217	\$1,200,000	\$0	\$0	\$0	\$0
TOTAL PROPOSED DEBT	\$179,217	\$1,200,000	\$0	\$0	\$0	\$0
Available for CIP	\$179,217	\$1,200,000	\$0	\$0	\$0	\$0
Transfers to COP Reserves	\$0	\$0	\$0	\$0	\$0	\$0
DEBT SERVICE						
LOC Principal Payment	\$0	\$0	\$0	\$7,000,000	\$0	\$0
Current Debt Service	\$2,723,509	\$2,721,559	\$2,716,884	\$2,714,309	\$2,718,509	\$2,710,909
Proposed LT Debt Service	\$0	\$0	\$0	\$0	\$0	\$0
Proposed ST Debt Service	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DEBT SERVICE	\$2,723,509	\$2,721,559	\$2,716,884	\$9,714,309	\$2,718,509	\$2,710,909
CIP						
Debt Funded	\$179,217	\$1,200,000	\$0	\$0	\$0	\$0
PayGo	\$1,207,085	\$4,593,233	\$6,411,345	\$3,696,151	\$3,645,604	\$3,075,218
TOTAL CIP	\$1,386,302	\$5,793,233	\$6,411,345	\$3,696,151	\$3,645,604	\$3,075,218
NET CASH BALANCES	\$2,517,020	-\$2,298,387	\$1,633,897	-\$852,064	\$8,278,190	\$11,066,500
Beginning Reserve Balances	\$26,092,823	\$28,854,571	\$26,556,184	\$28,190,081	\$27,338,016	\$35,616,206
Ending Reserve Balances	\$28,609,843	\$26,556,184	\$28,190,081	\$27,338,016	\$35,616,206	\$46,682,707
Target Reserve Balances	\$31,534,004	\$31,247,344	\$32,441,392	\$33,954,375	\$35,492,951	\$37,164,898
Debt Coverage Ratio	237%	184%	396%	463%	539%	622%
Required Debt Coverage Ratio	125%	125%	125%	125%	125%	125%

Figure 3-2: Water Operating Financial Plan

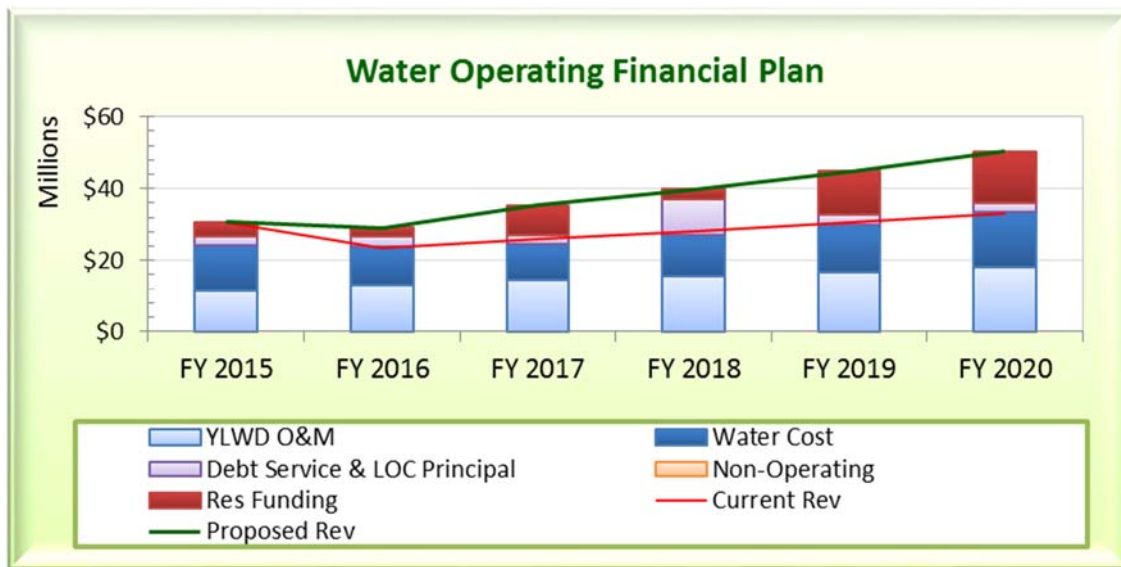
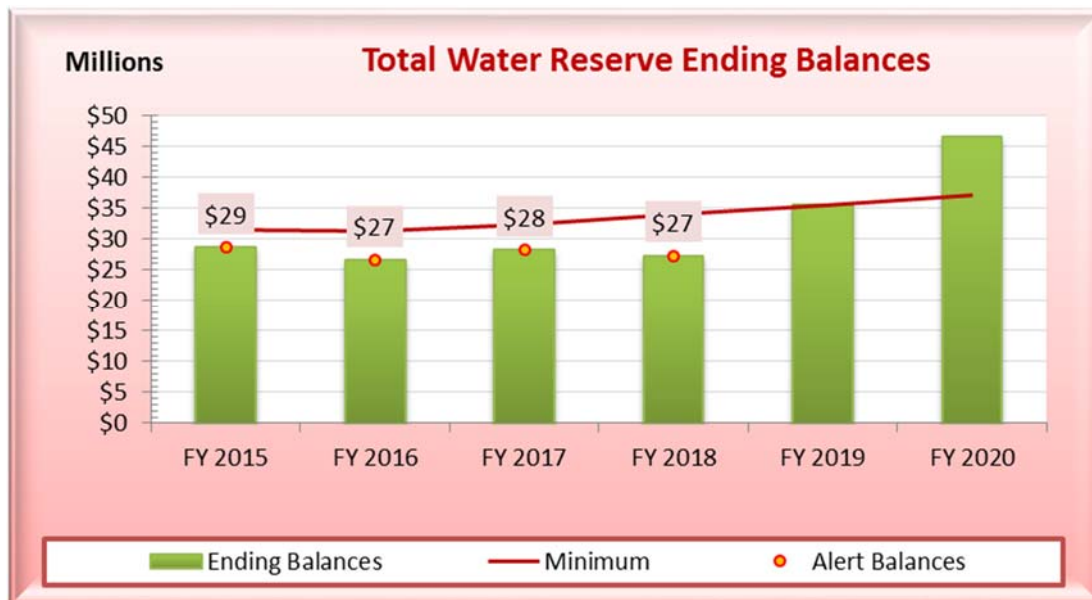


Figure 3-3: Projected Water Fund Ending Balances



3.3 COST OF SERVICE ANALYSIS AND WATER RATE DESIGN

3.3.1 Water Cost of Service Analysis

Proposition 218 requires a nexus between the rates charged and the costs of providing service. Based on the proposed financial plan, the cost of service analysis translates this financial requirement into actual rates. The first step in the cost of service analysis is to determine how much revenue is required to be collected from rates. The methodology used is based upon the premise that the utility must generate annual revenues adequate to meet its projected annual expenses. Revenues from sources other than water rates and charges (e.g. revenues from miscellaneous services) are deducted. The financial plan shows the required revenue adjustment for FY 2016 effective October 1, 2015, or 9 months of revenues under new rates, however, the calculated revenue requirement shown in Table 3-11 is annualized for FY 2016.

Table 3-11: Annualized Water Revenue Requirement for FY 2016

REVENUE REQUIREMENTS	FY 2016	Notes
O&M Expenses	\$23,878,858	Table 3-6
Other Non-Operating Expenses	\$22,000	Table 3-8
LOC Interest Expenses	\$70,000	Table 3-8
OPEB Payment	\$100,000	Table 3-8
Debt Service	\$2,721,559	Table 3-8
Rate Funded CIP	\$5,793,233	Table 3-8
Reserve Funding	-\$7,910,337	Table 3-8
SUBTOTAL REVENUE REQUIREMENTS	\$24,675,312	
LESS: OTHER REVENUES		
Property Tax	-\$1,395,000	Table 3-8
Other Revenues	-\$1,295,310	Table 3-8
New LOC Borrow / New Debt Proceeds for CIP	-\$1,200,000	Table 3-8
SUBTOTAL OTHER REVENUES	-\$3,890,310	
NET REVENUE REQUIREMENT FROM CURRENT RATES	\$20,785,002	
Proposed Revenue Adjustment for FY 2016	36%	Table 3-9
Annualized Proposed Revenue Adjustment ¹⁰	\$7,482,601	
TOTAL REVENUE REQUIREMENTS FROM PROPOSED RATES	\$28,267,603	

¹⁰ Revenue Adjustments effective for FY 2016 (9 months) shown in the pro-forma in Table 3-10 = \$20.785M * 36% * 9 months / 12 months = \$5.612M

According AWWA M1 Manual (Principles of Water Rates, Fees and Charges), the costs incurred in a water utility are based upon the specific service requirements or cost drivers imposed on the system by its customer connections. Each of the various water utility facilities are designed and sized to meet one or more of these cost drivers. The capital costs incurred in the construction/installation of these facilities, as well as the O&M expenses incurred in running the system, are linked to these service requirements. The principal service requirements that drive costs include the annual volume of water consumed, the peak water demands incurred, the number of customer connections in the system, and the number of fire services required to maintain adequate fire protection. Accordingly, these service requirements are the basis for the selection of the cost components used in the second step in the cost-of-service allocation process.

The AWWA recommends two methods for classifying costs among various customer connections: (1) the Base-Extra Capacity method in which costs are allocated to the different customer connection categories proportionate to their use of the water system; and (2) the Commodity-Demand method in which costs are proportionately allocated to each customer connection category based on their peak demand. Although the two methods vary in the way in which costs are allocated, both result in rates designed to recover the reasonable cost of service during periods of both average and peak demands. This Study uses the Base-Extra Capacity method, which is widely used in the water industry to serve retail customer connections.

The second step in the cost of service analysis is to functionalize the revenue requirements into cost components. This analysis employs the “Base-Extra Capacity” method, under which water utility costs of service are assigned to basic functional cost components including: water supply costs; base costs (fixed costs incurred to meet average demand); extra capacity or peaking costs (fixed water system costs to meet maximum day and maximum hour, or peaking, demand); and conservation, meter service and customer-service related costs as described in the M1 Manual. Base costs include operations and maintenance and capital costs under average (base) demand conditions, a portion of operations and maintenance costs associated with storage, treatment, pumping and distributions facilities, and certain water capital cost investments. Extra capacity costs are costs associated with meeting water demands that exceed average (base) levels of use by system customer connections. These costs are incurred because of water use variations and peak demands of customer connections. Both base and peaking costs are considered fixed costs along with billing and customer service costs, fire protection and meter service costs. Customer costs are costs associated with serving customer connections, such as meter reading, billing, customer service, etc. Direct fire protection costs are related to the costs that apply solely to the fire protection function of the water system, both public and private, such as fire hydrants and related branch mains and valves, and the additional capacity required in the system to accommodate fire flow in case of an emergency. Table 3-12 summarizes the peaking characteristics of the District’s water system determined by the District’s Water Master Plan 2005¹¹. The Average Daily Flow is the volume of water delivered to the system over the course of a year divided by 365 days. The Peak Day Demand is the largest volume of water delivered to the system in a single day. Similarly, the

¹¹ Water Master Plan Chapter 7 Section 7.6

Peak Hour Demand is the maximum volume of water delivered to the system in a single hour. The Max Day peaking factor, which is the ratio of Peak Day Demand over Average Daily Flow, is 1.5 and the Max Hour peaking factor, or Peak Hour Demand over Average Daily Flow, is 2.55. These ratios are used to determine the appropriate percentage allocation of total O&M and capital costs towards peaking, as shown in Section 6.3 and Section 6.4 of the Appendix.

Table 3-12: Water System Peaking Factors

Peaking Factors	
Base	1.00
Max Day	1.50
Max Hour	2.55

The revenue to be recovered from rates of \$28,267,603 is allocated according to the categories listed below in Table 3-13. Note that the annualized revenue adjustment of \$7,482,601 (shown in Table 3-11) applies only to water system costs (Base Fixed, Peaking, B&CS and Meter). The water supply and power costs reflect the anticipated water and power costs for FY 2016. For further detail please see Section 6.4 of the Appendix, which shows the step-by-step allocations.

Table 3-13: Allocated Water System Cost

Revenue Requirements	FY 2016 at Current Rates	Revenue Adjustment	FY 2016 with Rev Adjustments
Water Supply	\$10,677,006		\$10,677,006
Power	\$1,403,404		\$1,403,404
Base Fixed	\$3,365,270	\$2,892,838	\$6,258,108
Peaking	\$4,418,941	\$3,798,589	\$8,217,530
B&CS	\$534,411	\$459,388	\$993,798
Meter	\$385,971	\$331,786	\$717,757
Total	\$20,785,002	\$7,482,601	\$28,267,603

According to the M1 Manual, the cost-of-service approach to setting water rates results in the proportionate distribution of costs to each customer connection or customer connection class based on the costs that each incurs. A dual set of fees—fixed and variable—is an extension of this cost causation theory. For example, a utility incurs some costs associated with serving customer connections 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 connection basis or some other non-consumptive basis. Regardless of the level of a customer connection's consumption, a customer connection will be charged this minimum amount in each bill.

Utilities invest in and continue to maintain facilities to provide capacity to meet all levels of desired consumption including the peak¹² demand plus fire protection, and these costs must be recovered regardless of the amount of water used during a given period. Thus, peaking costs along with base costs and fixed water system costs to meet average demand are generally considered as fixed water system costs. It is ideal that agencies recover 100% of the fixed costs through monthly base fees, however, it forgoes the affordability for essential use and heavily impacts efficient users. To balance between affordability and revenue stability, it is a common practice that a portion of the base costs and peaking costs are recovered in the monthly base fee along with the customer-related costs and meter-related costs.

The most common method for levying base fees is by meter size. Meter size is a proxy for the estimated demand that each customer connection places on the water system. The District's base meter is most commonly a 1-inch meter. The ratio at which the meter charge increases is a function of the meter's safe operating capacity. For example, based on the AWWA meter capacity ratios, a customer that has a 2-inch meter has the capacity equivalency of 5.33 $\frac{3}{4}$ -inch meters. (A 2-inch meter has a safe operating capacity of 160 gallons per minute (gpm) compared to a $\frac{3}{4}$ -inch meter which has a safe operating capacity of 30 gpm as listed in Table B-1 in the M1 Manual).

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

The components of water system costs are recovered through either monthly base fee revenues, water usage charge revenues, or a combination of both. As shown in Table 3-14 below, the entirety of the water supply and power costs are recovered from water usage charges. On the other hand, meter costs and billing & customer service costs are entirely recovered from fixed base fees. Base and peaking costs are recovered from both monthly base fees and water usage charges.

¹² Peaking costs are the costs related to providing water during high-demand periods.

Table 3-14: Revenue Requirements Allocated to Rate Components

Cost Categories	FY 2016	Monthly Base Fees		Water Usage Charges		
		Billing & CS	Capacity	Water Supply	Power	Delivery
Water Supply	\$10,677,006			\$10,677,006		
Power	\$1,403,404				\$1,403,404	
Base Fixed	\$6,258,108		\$4,755,527			\$1,502,581
Peaking	\$8,217,530		\$6,244,489			\$1,973,041
Billing & CS¹³	\$993,798	\$993,798				
Meter	\$717,757		\$717,757			
Total	\$28,267,603	\$993,798	\$11,717,774	\$10,677,006	\$1,403,404	\$3,475,622

3.3.2 Monthly Base Fees

In order to create parity across the various meter sizes, each meter size is assigned a factor relative to a $\frac{3}{4}$ " meter, which has a value of 1. According to the AWWA M1 Manual, a particular meter size's ratio of meter and capacity servicing costs relative to that of a $\frac{3}{4}$ " meter is its "Equivalent Meter Units" (EMU). As described in Section 3.3.1, a 2-inch meter has 5.33 times the throughput capacity of a $\frac{3}{4}$ " meter and therefore has a multiplication factor of 5.33 to determine its EMU to $\frac{3}{4}$ " meter. The Meter & Capacity factor escalates as meter size increases because the District's cost to service a meter increases with its size. Table 3-15 summarizes the EMUs for each fixed cost component.

Table 3-15: Equivalent Meter Units (EMUs)

Meter Sizes	Number of Accts	Meter & Capacity Factor	# of Bills per Yr	Capacity EMUs per Yr ¹⁴
5/8	28	1.00	336	336
3/4	5,617	1.00	67,404	67,404
1	17,271	1.67	207,252	345,420
1 1/2	573	3.33	6,876	22,920
2	1,138	5.33	13,656	72,832
3	6	11.67	72	840
4	4	21.00	48	1,008
6	1	53.33	12	640
8	0	93.33	0	0
10	0	140.00	0	0
Total	24,638 accounts		295,656 bills	511,400 EMUs

¹³ Billing & Customer Service

¹⁴ Example: 17,271 1-inch meters in 12 billing periods potential draw on the system is equivalent to 345,420 $\frac{3}{4}$ -inch meters (17,271*12 bills/year * 1.67)

Monthly base fee components include: customer service – uniform for all accounts; meter service – maintenance and capital costs related to meters and inclusive of delivery-related fixed costs, proportionate to meter cost ratios; and capacity – peaking and fire protection related costs increased by meter capacity ratios. The unit rate for each component for FY 2016, is shown in Table 3-16.

Table 3-16: Components for Monthly Base Fees for FY 2016

	Revenue Requirement (From Table 3-14)	Units of Service (From Table 3-15)	Unit Cost of Service
Billing & CS	\$993,798	295,656 bills / yr	\$3.37 / bill
Capacity	\$11,717,774	511,400 EMUs / yr	\$22.92 / EMU
Total	\$12,711,572		
% of Total Rev	45%		

The monthly fixed charges proposed for FY 2016 in Table 3-17 are built from adding up the monthly service charge components – billing/customer service, and capacity. As noted above the customer service costs is the same for each account regardless of meter size. The capacity component of the monthly base fee is determined by multiplying the unit cost of \$22.92 (found in Table 3-16 and Table 3-17) by the appropriate meter factor found in Table 3-15. Adding these two components together yields the total proposed monthly base fee for each meter size for FY 2016, as shown in Table 3-17 below.

Table 3-17: Monthly Base Fee for FY 2016

Meter Size	Number of Accounts	Billing & CS	Capacity	Proposed Monthly Base Fee
5/8	28	\$3.37	\$22.92	\$26.29 / month
3/4	5,617	\$3.37	\$22.92	\$26.29 / month
1	17,271	\$3.37	\$38.20	\$41.57 / month
1 1/2	573	\$3.37	\$76.40	\$79.77 / month
2	1,138	\$3.37	\$122.24	\$125.61 / month
3	6	\$3.37	\$267.40	\$270.77 / month
4	4	\$3.37	\$481.32	\$484.69 / month
6	1	\$3.37	\$1,222.40	\$1,225.77 / month
8	0	\$3.37	\$2,139.20	\$2,142.57 / month
10	0	\$3.37	\$3,208.80	\$3,212.17 / month

In order to better align fixed revenues with fixed costs and reduce revenue volatility, the District proposes to collect all necessary revenue increases from the monthly base fees, and leave the water usage charge unchanged. Although the District is not proposing any adjustment to the water usage charge, the rate may increase in future years because of increases in the pass-through water supply costs, which the District will calculate every year based on more realistic water supply cost increases.

While the overall increase in revenue for the water enterprise as a whole is 5% (as found in Table 3-9), the monthly base fee increases by 11-12% each year since the entirety of the revenue adjustment is being placed on the monthly base fee. Table 3-18 summarizes the base monthly fee for each meter size for each year of the Study period. It should be noted that the proposed rates are based on currently available financial information. Based upon updated financial information, District Staff will annually evaluate the financial health of the District to determine the required revenue adjustment prior to implementing new rates.

Table 3-18: 5-year Monthly Base Fees

Meter Size (inch)	Current	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
	7/1/2014	10/1/2015	7/1/2016	7/1/2017	7/1/2018	7/1/2019
5/8	\$10.06	\$26.29	\$29.37	\$32.73	\$36.39	\$40.36
3/4	\$10.06	\$26.29	\$29.37	\$32.73	\$36.39	\$40.36
1	\$16.77	\$41.57	\$46.44	\$51.76	\$57.54	\$63.81
1 1/2	\$33.54	\$79.77	\$89.12	\$99.32	\$110.41	\$122.44
2	\$53.66	\$125.61	\$140.33	\$156.39	\$173.85	\$192.78
3	\$117.37	\$270.77	\$302.49	\$337.09	\$374.72	\$415.53
4	\$211.26	\$484.69	\$541.46	\$603.39	\$670.74	\$743.78
6	\$469.47	\$1,225.77	\$1,369.34	\$1,525.96	\$1,696.28	\$1,880.98
8	\$804.80	\$2,142.57	\$2,393.52	\$2,667.28	\$2,964.98	\$3,287.83
10	\$1,274.27	\$3,212.17	\$3,588.39	\$3,998.81	\$4,445.12	\$4,929.13

3.3.3 Water Usage Charge Components

3.3.3.1 Water Usage Charge

In meeting Proposition 218 requirements, RFC conducted a cost of service analysis and identified three different rate components for the water usage charge, including Water Supply, Power and Delivery. Each of the rate components is described in Table 3-19.

Table 3-19: Descriptions of Proposed Water Usage Charge Components

Rate Components	Description
Water Supply	To recover water supply costs assessed by OCWD and MWDOC as described in Section 3.1.3.1 1. OCWD - o Fixed Costs - o Variable Costs 2. MWDOC - o Fixed Costs - o Variable Costs
Power	To recover the District's power costs incurred to deliver the water to end users
Delivery	To recover remaining base costs (costs to meet average daily flow) and remaining peaking costs (costs to meet peak demand)

Table 3-20 shows the FY 2016 revenue requirement for each of the three water usage rate components. Dividing each cost component by the total projected sales produces the unit cost of service for each of the rate components.

Table 3-20: Components for Water Usage Charges in FY 2016

	Water Supply	Power	Delivery	Proposed FY 2016
Revenue Requirements <i>(From Table 3-14)</i>	\$10,677,006	\$1,403,404	\$3,475,621	\$15,556,031
Units of Service <i>(From Table 3-2)</i>	5,792,702 hcf	5,792,702 hcf	5,792,702 hcf	5,792,702 hcf
Unit Cost of Service	\$1.85 / hcf	\$0.25 / hcf	\$0.60 / hcf	\$2.70 / hcf

3.3.3.2 Pass-through Water Supply Rates

As described in Section 3.3.3.2, the District will use the pass-through provision to make adjustments to its rates to address increases in the cost of wholesale water. While Table 3-21 shows the projected pass-through rates, actual water supply pass-through costs will be determined by the District Staff annually to align with actual water cost increases imposed on the District.

Table 3-21: Estimated Cumulative Pass-through Water Supply Rates

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Estimated Pass-through <i>(from Tables 3-5 or 3-10)</i>	\$0	\$674,972	\$1,665,559	\$2,853,174	\$4,260,773
Projected Sales (hcf) <i>(From Table 3-2)</i>	5,792,702	6,351,647	6,805,336	7,259,025	7,712,714
Est. Cumulative Pass-through Water Supply Rate	\$0.00 / hcf	\$0.11 / hcf	\$0.25 / hcf	\$0.40 / hcf	\$0.56 / hcf

4 SEWER FUND – FINANCIAL PLAN AND RATES

4.1 SEWER REVENUE REQUIREMENTS

A review of a utility's revenue requirements is a key first step in the rate study process. The review involves an analysis of annual operating revenues under the status quo, operation and maintenance (O&M) expenses, transfers between funds and reserve requirements. This section of the report provides a discussion of the projected revenues, O&M expenses, other reserve funding and revenue adjustments estimated as required to ensure the fiscal sustainability and solvency of the Sewer Fund.

4.1.1 Revenues from Current Sewer Rates

The District provides sewer collection services within its service area for both residential and commercial use. Treatment of the District's flow is performed by the Orange County Sanitation District. In addition to its existing customer connections, the District annexed a portion of the City of Yorba Linda's service area. These annexed customer connections are denoted with "YLC" in Table 4-1 below. All residential customer connections pay a flat rate for sewer collection service, depending on their dwelling type (single family residential or multi-family residential). Existing Commercial customer connections (CII-Regular) pay a monthly base fee of \$5.50 per month plus a volumetric fee of \$0.46 for all water usage beyond 22 hcf. The annexed Commercial customer connections (CII-YLC) pay an annual base rate based on their water meter size (also shown in monthly costs in Table 4-1) as well as a volumetric rate of \$0.176 per hcf, based on 90% of the prior year's water usage.

Table 4-1: Current Sewer Rates

Sewer Maintenance Charges		Current Rate	
SFR-District	Individual Metered	\$5.50	per month
MFR-District	Master Metered	\$3.85	per unit per month
SFR-YLC	SFR, formerly by City	\$5.50	per month
MFR-YLC	MFR, formerly by City, on Tax Roll	\$5.50	per unit per month
CII-Regular	Commercial District customer connections	\$5.50	per month
CII-YLC	Prior City Commercial Customer Connections		
Meter Size		Annual Rate on Tax Roll	
5/8" Meter	\$14.41	\$1.20	per month
3/4" Meter	\$21.02	\$1.75	per month
1" Meter	\$27.54	\$2.30	per month
1 1/2" Meter	\$67.01	\$5.58	per month
2" Meter	\$106.49	\$8.87	per month
3" Meter	\$211.69	\$17.64	per month
4" Meter	\$330.11	\$27.51	per month
6" Meter	\$658.94	\$54.91	per month
Sewer Flow / Commodity Rates			
CII-Regular	all usage above 22 hcf	\$0.460	per hcf
CII-YLC	90% of prior year usage	\$0.176	per hcf

District staff provided RFC with the estimated actual number of accounts for FY 2015 and projected for FY 2016 and estimated that approximately 100 single family sewer accounts will be added per year during the Study period (as previously mentioned in Section 2.2). Table 4-2 provides a summary of the projected number of sewer accounts by customer connection type.

Table 4-2: Projected Sewer Account Summary

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
SFR-District	15,527	15,627	15,727	15,827	15,927	16,027
MFR-District	1,414	1,414	1,414	1,414	1,414	1,414
SFR-YLC	5,582	5,582	5,582	5,582	5,582	5,582
MFR-YLC	2,192	2,192	2,192	2,192	2,192	2,192
CII-Regular	377	377	377	377	377	377
CII-YLC	201	201	201	201	201	201
CII-YLC by Meter Size						
<i>5/8" Meter</i>						
<i>3/4" Meter</i>	4	4	4	4	4	4
<i>1" Meter</i>	58	58	58	58	58	58
<i>1 1/2" Meter</i>	22	22	22	22	22	22
<i>2" Meter</i>	116	116	116	116	116	116
<i>3" Meter</i>						
<i>4" Meter</i>	1	1	1	1	1	1
<i>6" Meter</i>						
Total	25,293	25,393	25,493	25,593	25,693	25,793

As stated above, commercial customer connections have a volumetric component to their sewer bill. Each CII-Regular customer connection is charged \$0.46 beyond 22 units of water. Each unit of water beyond 22 units is referred to as an “overage unit”. As shown in Table 4-3 below, the District anticipates 234,316 overage units in FY 2016, which translates into approximately \$108K in volumetric revenue (as shown in Table 4-4). For the CII-YLC customer connections, 90% of the prior year’s water usage is multiplied by a rate of \$0.176 per unit. The anticipated volume of 264,709 units multiplied by the return factor of 90% and the per unit rate of \$0.176 yields \$33K in volumetric revenue from CII-YLC customer connections, as shown in Table 4-4. The volumetric quantities are displayed in Table 4-3 below.

Table 4-3: Projected Commercial Sewer Billed Flows (ccf) under Current Rate Structure

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
CII Regular Total Usage	302,516	302,516	302,516	302,516	302,516	302,516
CII Overages	234,316	234,316	234,316	234,316	234,316	234,316
CII-YLC Volume	209,328	264,709	264,709	264,709	264,709	264,709
90% of CII-YLC Volume	188,395	238,238	238,238	238,238	238,238	238,238

By summing the projected revenue values from volumetric charges and monthly fixed charges, the total revenue from current rates can be obtained as shown in Table 4-4 below. The calculated revenue for FY 2015 (\$1,784,856) is validated by the District's budgeted revenue for FY 2015 (\$1,783,575), less than a 1/10th of a percent difference.

Table 4-4: Projected Sewer Revenues from Current Rates

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Sewer Maintenance Charges						
Sewer Charge Revenue	\$1,483,403	\$1,490,003	\$1,496,603	\$1,503,203	\$1,509,803	\$1,516,403
Sewer Parcel Assessments	\$160,511	\$160,511	\$160,511	\$160,511	\$160,511	\$160,511
Sewer Flow / Commodity Rates						
Sewer Charge Revenue	\$107,785	\$107,785	\$107,785	\$107,785	\$107,785	\$107,785
Sewer Parcel Assessments	\$33,158	\$41,930	\$41,930	\$41,930	\$41,930	\$41,930
Total	\$1,784,856	\$1,800,229	\$1,806,829	\$1,813,429	\$1,820,029	\$1,826,629
Sewer Charge Revenue	\$1,591,188	\$1,597,788	\$1,604,388	\$1,610,988	\$1,617,588	\$1,624,188
Sewer Parcel Assessments	\$193,668	\$202,440	\$202,440	\$202,440	\$202,440	\$202,440
Actual / Budget	\$1,783,575	\$1,785,848				
Sewer Charge Revenue	\$1,588,680	\$1,584,348				
Sewer Parcel Assessments	\$194,895	\$201,500				

4.1.2 Miscellaneous Sewer Revenues

In addition to revenue from rates, Sewer Fund also receives miscellaneous revenues from different sources such as other operating revenue, interest, and non-operating revenue, to offset the operating costs. Interest revenues are calculated by multiplying the average ending fund balance by the reserve interest rate. Exclusive of interest revenues, total miscellaneous revenues are projected to increase at 1% per year during the Study period as shown in Table 4-5.

Table 4-5: Projected Miscellaneous Sewer Revenues

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Other Operating Revenue	\$60,440	\$36,291	\$36,835	\$37,388	\$37,949	\$38,518
Interest	\$14,679	\$8,000	\$10,289	\$12,156	\$14,285	\$16,711
Non-Operating Revenue	\$6,425	\$11,925	\$12,104	\$12,285	\$12,470	\$12,657
Total Miscellaneous Revenues	\$81,544	\$56,216	\$59,228	\$61,830	\$64,703	\$67,886

4.1.3 Sewer Expenses

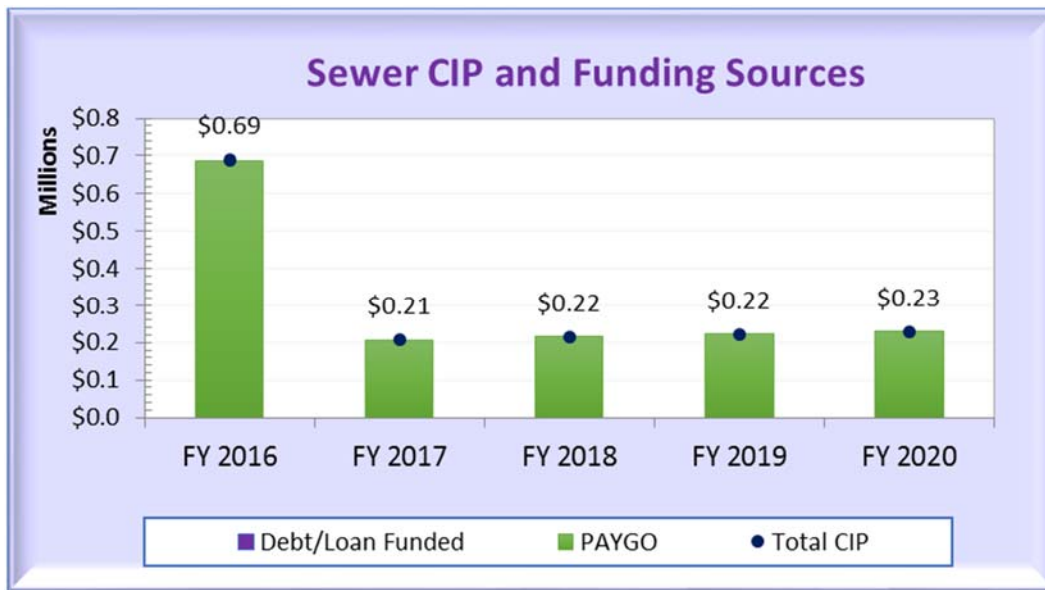
The District's FY 2016 budget values and the assumed inflation factors for the study period (as detailed in Section 2.1) were used as the basis for projecting O&M costs. Table 4-6 summarizes budgeted and projected O&M expenses for Sewer Fund.

Table 4-6: Projected Sewer Expenses

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Salary Related Expenses	\$979,273	\$845,865	\$913,535	\$986,617	\$1,065,547	\$1,150,791
Supplies & Services	\$452,717	\$988,704	\$454,855	\$473,439	\$488,152	\$503,352
Total O&M Expenses	\$1,431,990	\$1,834,569	\$1,368,390	\$1,460,056	\$1,553,698	\$1,654,142
Non-Operating Expenses	\$0	\$0	\$0	\$0	\$0	\$0
OPEB Obligations	\$0	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500
TOTAL EXPENSES	\$1,431,990	\$1,842,069	\$1,375,890	\$1,467,556	\$1,561,198	\$1,661,642
% Change		29%	-25%	7%	6%	6%

4.1.4 Sewer Capital Improvement Projects (CIP)

The District has programmed approximately \$1.6M in capital expenditures during the Study period for the sewer enterprise, as shown in Figure 4-1 (See Section 6.2 in the Appendix). Sewer CIP includes the replacement for vehicle and capital equipment for the Sewer Fund. The values provided by District staff for the 5-year Sewer CIP are in 2016 dollars. The CIP costs for future years are determined by using the programmed/budgeted costs and inflating the value by the capital cost inflation factor shown in Table 2-1.

Figure 4-1: Projected 5-Year Sewer CIP

4.2 SEWER FINANCIAL PLAN

4.2.1 Status Quo Sewer Financial Plan

Table 4-7 displays the pro-forma of the District's Sewer Fund under current rates over the Study period. All projections shown in the table are based upon the current rate structure and do not include any rate adjustments. The pro-forma incorporates the data shown in Table 4-4 through Table 4-6 and Figure 4-1.

Under the "status-quo" scenario, revenues generated from rates and other miscellaneous revenues are inadequate to sufficiently recover operating expenses of the utility beginning in FY 2016. Much like the water enterprise, the current revenues barely meet operating expenses, which would require CIP expenditures to be funded from reserves. While the ending reserve balance is already below target levels, it dives further below target levels under the status quo scenario. In short, the District is unable to maintain fiscal sustainability and solvency under the current sewer rates.

Table 4-7: Status Quo Sewer Financial Plan (No Revenue Adjustment)

Proposed Revenue Adjustments (%)	FY 2015 0.0%	FY 2016 0.0%	FY 2017 0.0%	FY 2018 0.0%	FY 2019 0.0%	FY 2020 0.0%
REVENUES						
Existing Revenues From Rates	\$1,783,575	\$1,800,229	\$1,806,829	\$1,813,429	\$1,820,029	\$1,826,629
Proposed Revenue Adjustments	\$0	\$0	\$0	\$0	\$0	\$0
Other Operating Revenue	\$60,440	\$36,291	\$36,835	\$37,388	\$37,949	\$38,518
Interest Income	\$14,679	\$8,000	\$9,512	\$10,219	\$10,648	\$10,790
Other Non-Operating Revenue	\$6,425	\$11,925	\$12,104	\$12,285	\$12,470	\$12,657
TOTAL REVENUES	\$1,865,119	\$1,856,445	\$1,865,280	\$1,873,321	\$1,881,095	\$1,888,594
EXPENSES						
Salary Related Expenses	\$979,273	\$845,865	\$913,535	\$986,617	\$1,065,547	\$1,150,791
Supplies & Services	\$452,717	\$988,704	\$454,855	\$473,439	\$488,152	\$503,352
Total Non-Operating Expenses	\$0	\$0	\$0	\$0	\$0	\$0
OPEB Obligations	\$0	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500
TOTAL EXPENSES	\$1,431,990	\$1,842,069	\$1,375,890	\$1,467,556	\$1,561,198	\$1,661,642
NET REVENUES	\$433,130	\$14,375	\$489,391	\$405,764	\$319,897	\$226,951
Total CIP						
Debt/Loan Funded	\$0	\$688,421	\$208,000	\$216,320	\$222,810	\$229,494
PAYGO	\$0	\$688,421	\$208,000	\$216,320	\$222,810	\$229,494
PROPOSED DEBT ISSUES						
Proceeds to Debt Reserve Fund	\$0	\$0	\$0	\$0	\$0	\$0
Debt Proceeds to Capital R&R Fund	\$0	\$0	\$0	\$0	\$0	\$0
DEBT SERVICE						
Existing Debt Service	\$0	\$0	\$0	\$0	\$0	\$0
Proposed Debt Service	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DEBT SERVICE	\$0	\$0	\$0	\$0	\$0	\$0
NET CASH BALANCES	\$433,130	-\$674,046	\$281,391	\$189,444	\$97,087	-\$2,543
BEGINNING SEWER FUND BALANCES	\$3,311,954	\$3,704,129	\$3,030,083	\$3,311,474	\$3,500,918	\$3,598,006
ENDING SEWER FUND BALANCES	\$3,745,084	\$3,030,083	\$3,311,474	\$3,500,918	\$3,598,006	\$3,595,463
TARGET FUND BALANCES	\$5,287,296	\$5,387,941	\$5,348,008	\$5,450,601	\$5,536,159	\$5,625,282
Sewer Operating 25% of O&M Budget	\$357,997	\$458,642	\$342,097	\$365,014	\$388,425	\$413,536
Sewer Capital R&R 2% of Asset Values	\$1,915,298	\$1,915,298	\$1,991,910	\$2,071,587	\$2,133,734	\$2,197,746
Sewer Emergency \$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000
Sewer EBL Reserves \$14,000	\$14,000	\$14,000	\$14,000	\$14,000	\$14,000	\$14,000
DEBT COVERAGE RATIO	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
TARGET DEBT COVERAGE	125%	125%	125%	125%	125%	125%

4.2.2 Proposed Sewer Financial Plan

As shown in the pro-forma above in Table 4-7, the sewer enterprise will experience ending fund balances that do not meet target levels under the current sewer rates. To meet the target reserve requirements set forth in Section 2.3 and maintain financial sufficiency for its expenses and other funding obligations, the sewer enterprise will require additional revenues. Table 4-8 below outlines the proposed revenue adjustments through FY 2020 which will allow the sewer enterprise to meet its obligations. It includes an 8% revenue adjustment for each year of the study period. Note that the first revenue adjustment is proposed to occur in October of 2015, while the remaining revenue adjustment will occur at the beginning of each fiscal year.

Table 4-8: Proposed Sewer Revenue Adjustments

Fiscal Year	Effective Date	Proposed Sewer Revenue Adjustments
2016	October 1, 2015	8%
2017	July 1, 2016	8%
2018	July 1, 2017	8%
2019	July 1, 2018	8%
2020	July 1, 2019	8%

Table 4-9 shows the pro-forma for the sewer enterprise under proposed revenue adjustments. Cumulatively, these factors result in the following:

- Positive net income and positive net cash balances for each year of the Study period, with the exception of FY 2016 due to programmed CIP expenditures.
- Proposed revenues (shown by green line in Figure 4-2) are sufficient to meet obligations (shown by stack bars), including a surplus to replenish reserves in subsequent years.
- Although the sewer ending balances (shown by red bars in Figure 4-3) are well below reserve target levels (shown by green line in Figure 4-3) for most of the Study period, they approach target levels in FY 2019, and surpass targets in FY 2020.

Table 4-9: Proposed Sewer Financial Plan

Proposed Revenue Adjustments (%)	FY 2015 0.0%	FY 2016 8.0%	FY 2017 8.0%	FY 2018 8.0%	FY 2019 8.0%	FY 2020 8.0%
REVENUES						
Existing Revenues From Rates	\$1,783,575	\$1,800,229	\$1,806,829	\$1,813,429	\$1,820,029	\$1,826,629
Proposed Revenue Adjustments	\$0	\$108,014	\$300,656	\$470,969	\$656,100	\$857,288
Other Operating Revenue	\$60,440	\$36,291	\$36,835	\$37,388	\$37,949	\$38,518
Interest Income	\$14,679	\$8,000	\$10,289	\$12,156	\$14,285	\$16,711
Other Non-Operating Revenue	\$6,425	\$11,925	\$12,104	\$12,285	\$12,470	\$12,657
TOTAL REVENUES	\$1,865,119	\$1,964,458	\$2,166,713	\$2,346,227	\$2,540,832	\$2,751,803
EXPENSES						
Salary Related Expenses	\$979,273	\$845,865	\$913,535	\$986,617	\$1,065,547	\$1,150,791
Supplies & Services	\$452,717	\$988,704	\$454,855	\$473,439	\$488,152	\$503,352
Total Non-Operating Expenses	\$0	\$0	\$0	\$0	\$0	\$0
OPEB Obligations	\$0	\$7,500	\$7,500	\$7,500	\$7,500	\$7,500
TOTAL EXPENSES	\$1,431,990	\$1,842,069	\$1,375,890	\$1,467,556	\$1,561,198	\$1,661,642
NET REVENUES	\$433,130	\$122,389	\$790,823	\$878,671	\$979,634	\$1,090,160
Total CIP						
Debt/Loan Funded	\$0	\$688,421	\$208,000	\$216,320	\$222,810	\$229,494
PAYGO	\$0	\$0	\$0	\$0	\$0	\$0
PROPOSED DEBT ISSUES	\$0	\$0	\$0	\$0	\$0	\$0
Proceeds to Debt Reserve Fund	\$0	\$0	\$0	\$0	\$0	\$0
Debt Proceeds to Capital R&R Fund	\$0	\$0	\$0	\$0	\$0	\$0
DEBT SERVICE						
Existing Debt Service	\$0	\$0	\$0	\$0	\$0	\$0
Proposed Debt Service	\$0	\$0	\$0	\$0	\$0	\$0
TOTAL DEBT SERVICE	\$0	\$0	\$0	\$0	\$0	\$0
NET CASH BALANCES	\$433,130	-\$566,032	\$582,823	\$662,351	\$756,824	\$860,667
BEGINNING SEWER FUND BALANCES	\$3,311,954	\$3,704,129	\$3,138,097	\$3,720,920	\$4,383,272	\$5,140,096
ENDING SEWER FUND BALANCES	\$3,745,084	\$3,138,097	\$3,720,920	\$4,383,272	\$5,140,096	\$6,000,762
TARGET FUND BALANCES	\$5,287,296	\$5,387,941	\$5,348,008	\$5,450,601	\$5,536,159	\$5,625,282
Sewer Operating 25% of O&M Budget	\$357,997	\$458,642	\$342,097	\$365,014	\$388,425	\$413,536
Sewer Capital R&R 2% of Asset Values	\$1,915,298	\$1,915,298	\$1,991,910	\$2,071,587	\$2,133,734	\$2,197,746
Sewer Emergency \$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000	\$3,000,000
Sewer EBL Reserves \$14,000	\$14,000	\$14,000	\$14,000	\$14,000	\$14,000	\$14,000
DEBT COVERAGE RATIO	#N/A	#N/A	#N/A	#N/A	#N/A	#N/A
TARGET DEBT COVERAGE	125%	125%	125%	125%	125%	125%

Figure 4-2: Sewer Operating Financial Plan

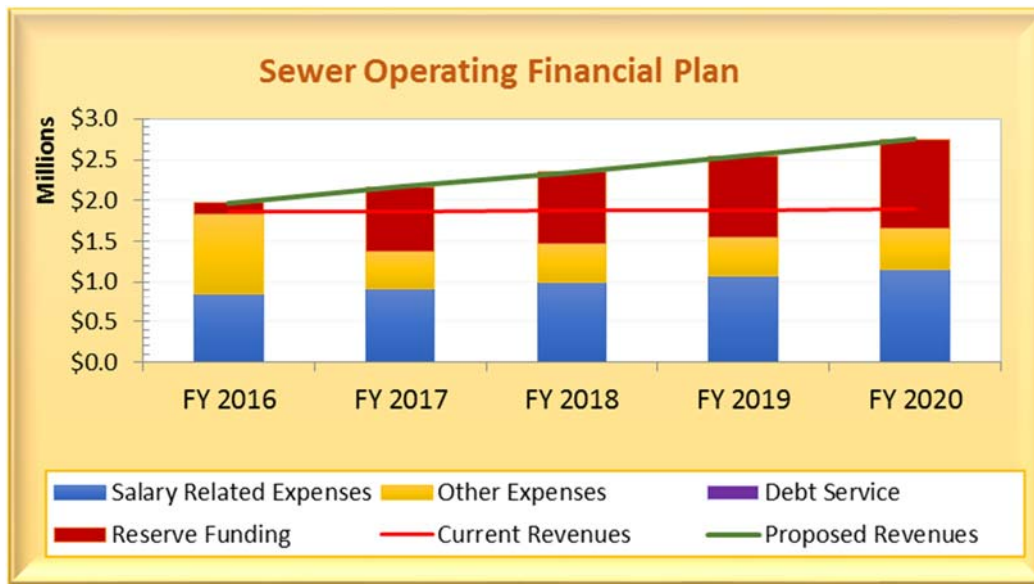
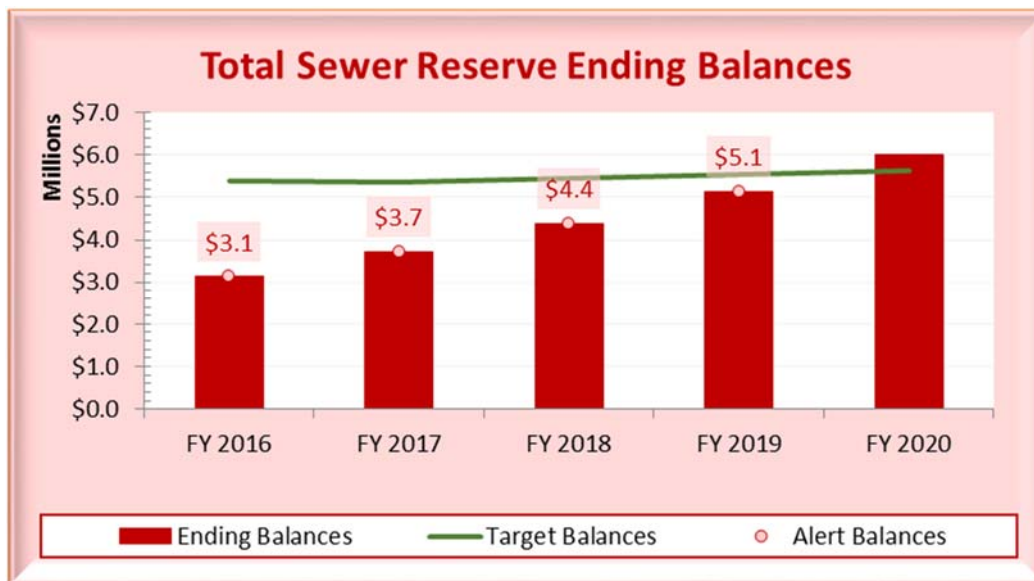


Figure 4-3: Projected Sewer Fund Ending Balances



4.3 COST OF SERVICE ANALYSIS AND SEWER RATE DEVELOPMENT

Government Code Section 54999 requires agencies to perform a cost of service analysis at least once every ten years. A cost of service analysis ensures that rates properly reflect the cost of providing service to the customer connection, and are thus fair to customers.

For the analysis, a “test” year was established in which revenue requirements for that year were evaluated and the resulting rates for that year were calculated. The following analysis uses FY 2016 as the test year.

4.3.1 Recommendations

In reviewing the District’s existing sewer rate structure, there were two primary concerns. First, the current rate structure was developed more than 10 years ago and there is no administrative record supporting the development of current rates. Secondly, there are inconsistencies in the rate structures for the two types of Commercial customer connections served by the District – the existing Commercial customer connections within the District (CII-Regular) and those annexed from the City of Yorba Linda (CII-YLC). The rates charged differ in terms of the monthly base fee and the volumetric flow charge assessed, as summarized below:

1. Monthly sewer base fee:
 - a. CII-Regular: \$5.50 per month with 22 hcf included before incurring overages
 - b. CII-YLC: by meter size (\$1.20 - \$54.91 per month) with no hcf included
2. Volumetric commodity rate:
 - a. CII-Regular: \$0.46 per hcf above 22 hcf
 - b. CII-YLC: \$0.176 per hcf for 90% of prior year usage

To address the rate structure inconsistency, RFC recommends that the District harmonize the rates for the two subsets of Commercial customer connections. The base fee would be identical for both groups and include a base flow allotment, equivalent to a single family residential home. Any flow beyond the base allotment would be charged at the volumetric rate. The volumetric rate would also be identical for both groups of Commercial customer connections. The flow for Commercial customer connections would be estimated by using 83% of the prior year’s water usage, because it is assumed that 83% of a Commercial customer connections’ potable water usage is returned in the sewer system (as estimated by District staff).

For residential accounts, the residential sewer flow is recommended to be set to 55 GPCD. A GPCD of 55 is the new indoor efficient water usage for residential accounts per SB x7-7. In addition, the density per single family home would be set to 3.04 persons¹⁵ and 2.5 persons for multi-family residential homes (as estimated by District staff).

¹⁵ Household density for Single Family as reported by E-5 by California Department of Finance on May 2015, “E-5 Population and Housing Estimates for Cities, Counties, and the State, January 1, 2011-2015, with 2010 Benchmark”

4.3.2 Cost of Service Analysis & Sewer Rates Development

Proposition 218 requires a nexus between the rates charged and the costs of providing service. Based on the proposed financial plan, the cost of service analysis translates this financial requirement into actual rates. The first step in the cost of service analysis is to determine how much revenue is required to be collected from rates. The methodology used is based upon the premise that the utility must generate annual revenues adequate to meet its estimated annual expenses. Revenues from sources other than rates and charges (e.g. revenues from miscellaneous services) are deducted as shown in Table 4-10. The financial plan shows the required revenue adjustment for FY 2016 effective in October 1 2015, or 9 months of revenues under new rates, however, the calculated revenue requirement shown in Table 4-10 is annualized for FY 2016.

Table 4-10: Annualized Sewer Revenue Requirement for FY 2016

REVENUE REQUIREMENTS	FY 2016	Notes
O&M Expenses	\$1,834,569	Table 4-6
OPEB Payment	\$7,500	Table 4-7
Debt Service	\$0	Table 4-7
Rate Funded CIP	\$688,421	Table 4-7
Reserve Funding	-\$674,046	Table 4-7
SUBTOTAL REVENUE REQUIREMENTS	\$1,856,445	Table 4-7
LESS: OTHER REVENUES		
Other Operating Revenue	-\$36,291	Table 4-7
Interest Income	-\$8,000	Table 4-7
Other Non-Operating Revenue	-\$11,925	Table 4-7
SUBTOTAL OTHER REVENUES	-\$56,216	
NET REVENUE REQUIREMENT FROM CURRENT RATES	\$1,800,229	
Proposed Revenue Adjustment	8%	Table 4-8
Annualized Proposed Revenue Adjustment	\$144,018	
NET REVENUE REQUIREMENT FROM PROPOSED RATES	\$1,944,247	

Based on the recommendations listed in Section 4.3.1, the revised units of service including revised flows are re-calculated for FY 2016 for each customer connection class and summarized in Table 4-11 below. The recommendations included reducing the estimated GPCD to 55 for indoor usage and using a wastewater return factor of 83%. To estimate the base use for SFR customer connections, the GPCD of 55 for indoor usage is multiplied by the average number of persons per dwelling (3.04), multiplied by 30 to determine monthly usage, and finally divided by 748 to convert the flow from gallons to hcf, yielding

a total of 7 hcf. A similar methodology is followed to determine the base use for MFR customer connections, but the persons per dwelling is reduced to 2.5.

To determine the overage billed sewer flows for Commercial customer connections, the total water usage for the customer connection class is multiplied by the return factor of 83%. The 7 units of flow per month that is included in the Commercial customer connections' monthly base fee is then deducted from the total. The remaining flow beyond 7 units is charged at the proposed volumetric rate.

Table 4-11: Units of Sewer Service for FY 2016

Sewer Flows Estimates	Revised Bill Flows (hcf)	# of Accounts	Base Use per Acct ¹⁶	Overage Billed Sewer Flows ¹⁷
SFR-District	1,312,668	15,627	7 hcf ¹⁸	
MFR-District	101,808	1,414	6 hcf ¹⁹	
SFR-YLC	468,888	5,582	7 hcf	
MFR-YLC	157,824	2,192	6 hcf	
CII-Regular	251,088	377	7 hcf	219,420
CII-YLC	219,708	201	7 hcf	202,824
Total	2,511,985	25,393		422,245

RFC worked closely with District staff to allocate individual line items of the O&M expenses, Sewer asset list, and each revenue requirement line item for FY 2016 to functional cost components: Flow and Administration (see Section 6.5 in the Appendix for steps by steps allocations). Table 4-12 shows the unit costs for each of the cost components for sewer.

¹⁶ Included in Sewer Maintenance Charges

¹⁷ Overage billed flows = 83% * Total Annual Water Usage – 7 hcf / account * # of accounts * 12 months

¹⁸ 7 hcf = 55 gpcd * 3.04 people per household * 30 days / 748 gallons per hcf

¹⁹ 6 hcf = 55 gpcd * 2.50 people per household * 30 days / 748 gallons per hcf

Table 4-12: Sewer Unit Cost of Service Development (FY 2016)

	Flow	General	FY 2016 <i>(From Table 4-10)</i>
REVENUE REQUIREMENTS			
O&M Expenses	\$505,057	\$1,329,513	\$1,834,569
Other Non-Operating Expenses		\$0	\$0
OPEB Payment		\$7,500	\$7,500
Rate Funded CIP	\$642,933	\$45,488	\$688,421
Reserve Funding	-\$305,789	-\$368,256	-\$674,046
SUBTOTAL REVENUE REQUIREMENTS	\$842,200	\$1,014,245	\$1,856,445
LESS: OTHER REVENUES			
Other Operating Revenue		-\$36,291	-\$36,291
Interest Income		-\$8,000	-\$8,000
Other Non-Operating Revenue		-\$11,925	-\$11,925
SUBTOTAL OTHER REVENUES	\$0	-\$56,216	-\$56,216
NET REVENUE REQUIREMENT FROM CURRENT RATES	\$842,200	\$958,029	\$1,800,229
			8%
Proposed Revenue Adjustments	\$67,376	\$76,642	\$144,018
NET REVENUE REQUIREMENT FROM PROPOSED RATES	\$909,576	\$1,034,671	\$1,944,247
Units of Service	2,511,985	25,393	
<i>(from Table 4-11)</i>	hcf	# of Accounts	
Unit Cost of Service	\$0.36	\$40.75	
	per hcf	per acct per yr	

These various cost components for sewer service are then allocated to each customer connection class based on its projected sewer flows and number of accounts. Table 4-13 shows the same costs components from Table 4-12 above with the allocations to each customer connection class. The revenues for each customer connection class are shown under the current and proposed rates. While the change in revenues from \$1.8M to \$1.94M represents an 8% increase, it is not evenly distributed across all customer connection classes. For example, the revenues from CII-Regular customer connections are proposed to decrease by 20% and the revenues from CII-YLC customer connections are proposed to increase by 52%. These changes are the result of the recommendations from the COS analysis and the proposed revenue adjustments. The proposed adjustments better aligns the rate charged to each customer connection class with the cost of providing service to that same customer connection class. The current rates were established several years ago and the District has not conducted a COS analysis for approximately 10 years, as required by Government Code 54999.

Table 4-13: Sewer COS Allocation to Customer Connection Classes

	Flow Costs ²⁰ (\$0.36 / hcf)	General Costs (\$40.75/acct)	(Proposed) Total	Current	% Change
SFR-District	\$475,310	\$636,743	\$1,112,052	\$1,031,382	8%
MFR-District	\$36,864	\$57,615	\$94,479	\$65,327	45%
SFR-YLC	\$169,782	\$227,446	\$397,228	\$368,412	8%
MFR-YLC	\$57,147	\$89,316	\$146,463	\$144,672	1%
CII-Regular	\$90,918	\$15,361	\$106,279	\$132,667	-20%
CII-YLC	\$79,555	\$8,190	\$87,745	\$57,768	52%
Total	\$909,576	\$1,034,671	\$1,944,247	\$1,800,229	8%

Combining the data from Table 4-12 and Table 4-13 above, the fixed and variable components for each account in each customer connection class can be determined. The fixed and variable components are described below:

- Fixed – General costs of service are assessed uniformly to each sewer account to recover the fixed costs and overhead costs of operating sewer systems. These costs do not vary with sewer system use. Flows costs are best captured on the volumetric (variable charge). To that end, the fixed monthly charge is the same for each customer connection class. Dividing the general costs by the number of accounts for each customer connection class provides the fixed charge amount.
- Variable - Flow costs of service for each customer connection class is divided by the projected sewage flows generated by each customer connection class. The variable rate is comprised of the costs to collect the sewer flows, divided by the total flow.

Table 4-14 below shows the proposed Sewer Rates for FY 2016. Both fixed and variable charges are detailed in Table 4-14 below.

Table 4-14: Proposed Sewer Rates for FY 2016

	Rate Structure	Flow	General	Proposed	Current	Notes
Sewer Maintenance Charges						
SFR-District	Flat	\$2.54	\$3.40	\$5.94	\$5.50	7 unit allowance
MFR-District	Flat	\$2.18	\$3.40	\$5.58	\$3.85	6 unit allowance
SFR-YLC	Flat	\$2.54	\$3.40	\$5.94	\$5.50	7 unit allowance
MFR-YLC	Flat	\$2.18	\$3.40	\$5.58	\$5.50	6 unit allowance
CII-Regular	Flat + Vol	\$2.54	\$3.40	\$5.94	\$5.50	7 unit allowance
CII-YLC	Flat + Vol	\$2.54	\$3.40	\$5.94	Varies	7 unit allowance
Commodity Rates						
CII				\$0.36 / hcf		Estimated return factor is 83%

²⁰ Flows Costs to Customer Connection Class = \$0.36 / hcf * Revised Bill Flows (hcf) (\$0.36/hcf from Table 4-12)
Example: SFR-District = \$0.36/hcf * 1,312,668 hcf (from Table 4-11)

Table 4-15 shows the 5-year Sewer Rates using the proposed 8% revenue adjustment listed in Table 4-8 of the proposed Sewer Financial Plan in Section 4.2.2. Note that the proposed rates also include a uniform volumetric rate for both the CII-Regular and CII-YLC customer connection classes.

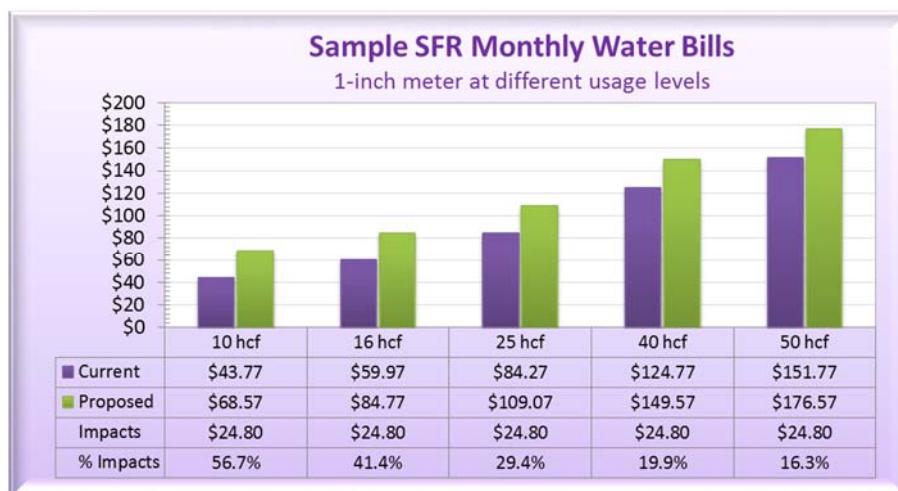
Table 4-15: 5-year Proposed Sewer Rates

	Est. Sewer Flows	Return Factors	Current	FY 2016	FY 2017 8%	FY 2018 8%	FY 2019 8%	FY 2020 8%
Sewer Maintenance Charges								
SFR-District	7 hcf		\$5.50	\$5.94	\$6.42	\$6.94	\$7.50	\$8.10
MFR-District	6 hcf		\$3.85	\$5.58	\$6.03	\$6.52	\$7.05	\$7.62
SFR-YLC	7 hcf		\$5.50	\$5.94	\$6.42	\$6.94	\$7.50	\$8.10
MFR-YLC	6 hcf		\$5.50	\$5.58	\$6.03	\$6.52	\$7.05	\$7.62
CII-Regular	7 hcf		\$5.50	\$5.94	\$6.42	\$6.94	\$7.50	\$8.10
CII-YLC	7 hcf		Varies	\$5.94	\$6.42	\$6.94	\$7.50	\$8.10
Commodity Rates (\$ / hcf)								
CII Regular	above 7 hcf	83%	\$0.46	\$0.36	\$0.40	\$0.44	\$0.48	\$0.52
CII - YLC	above 7 hcf	83%	\$0.18	\$0.36	\$0.40	\$0.44	\$0.48	\$0.52

5 CUSTOMER CONNECTION IMPACT ANALYSIS

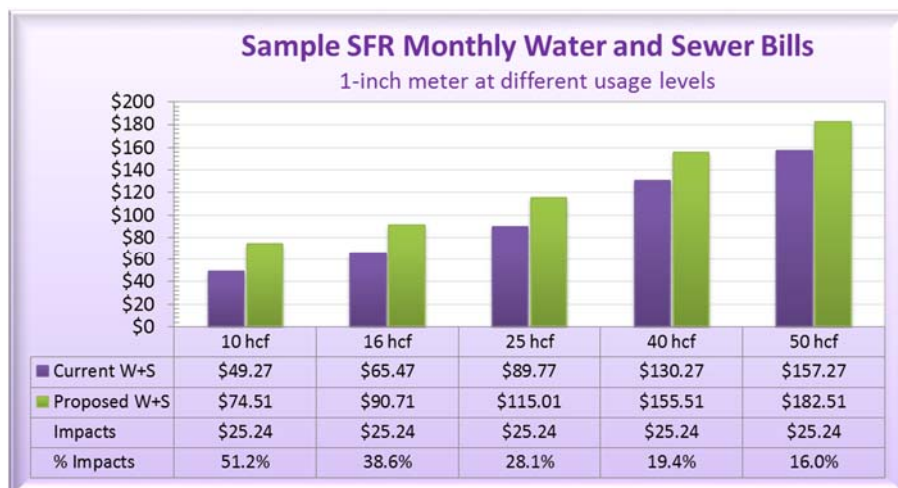
Figure 5-1 shows the customer impact of the proposed revenue adjustments versus the current rates for a single family residential home with a 1" water meter – the most common size of residential meter in the District's service area. Since the entirety of the revenue adjustment was placed on the monthly base fee, the dollar impact of the proposed rate does not change with usage. The total water bill for various levels of usage is presented in Figure 5-1 below. For all usage levels, each account will experience an increase of \$24.80.

Figure 5-1: Sample Single Family Water Bills at Different Usage Levels



For the same single family residence with a 1" water meter, the monthly charge for sewer service is proposed to increase by \$0.44. Figure 5-2 summarizes the total bill for water and sewer at various usage levels, which includes the proposed bill total from Figure 5-1 plus the monthly sewer service charge of \$5.94.

Figure 5-2: Sample Single Family Water and Sewer Bills at Different Usage Levels



6 APPENDICES

6.1 APPENDIX 1: CURRENT RESERVE POLICY (ADOPTED JUNE 11, 2014)

RESERVE POLICY

A. GENERAL POLICY:

Maintaining adequate reserves is an essential part of sound financial management. The Yorba Linda Water District Board of Directors realizes the importance of reserves in providing reliable service to its customers, financing of long-term capital projects and funding availability for emergencies should the need arise. Interest derived from reserve balances shall be credited to the reserve account from which it was earned.

B. CATEGORIES:

YLWD shall accumulate, maintain and segregate its reserve funds into the following categories: Restricted and Designated Reserves

1. Board Designated Reserves; and
2. Contractually Restricted Reserves.

C. SCOPE:

This policy will assist the Board of Directors in establishing:

1. Target levels for reserve funds;
2. Requirements for the use of reserve funds; and
3. Periodic review requirements for each reserve.

D. PERIODIC REVIEW:

Staff and the YLWD Board shall review the reserve balances and targets annually as a part of the annual budget process. The Finance Staff will continue to review all reserve and investment balances on a monthly basis, with a quarterly report going to the full Board to receive and file.

E. RESTRICTED AND DESIGNATED RESERVES:

1. Board Designated Reserves:

These are reserve funds earmarked for the purpose of funding such items as new capital facilities, repair or replacement of existing facilities and general operating reserves designated for a specific purpose and use by the Board of Directors.

1.0 *Operating Reserve*

- A. Definition and Purpose – Established to cover temporary cash flow deficiencies that occur as a result of timing differences between the receipt of operating revenue and expenditure requirements and unexpected expenditures occurring as a result of doing business.
- B. Target Level – The Government Finance Officers Association (GFOA) recommends that funding should be no less than one to two months (or 8% - 17%) of the District's annual operating budget. The District's current target will be a minimum of 8% and a maximum of 17% of the annual operating budget for both the water and sewer funds.
- C. Events or Conditions Prompting the Use of the Operating Reserve – This reserve may be utilized as needed to pay outstanding operating expenditures prior to the receipt of anticipated operating revenues.

1.1 *Emergency Reserve*

- A. Definition and Purpose – Established to provide protection recovery to the District and its customers for losses arising from an unplanned event or circumstance. The reserve level combined with YLWD's existing insurance policies should adequately protect YLWD and its customers in the event of a loss.
- B. Target Level – Established at a minimum level equal to \$1,000,000 for the water fund and shall accumulate interest and annual contributions as determined by the District's annual operation to a maximum level of \$4,000,000. The target for sewer will be a minimum of \$250,000 and a maximum of \$1,000,000.
- C. Events or Conditions Prompting the Use of the Emergency Reserve – This reserve shall be utilized to cover unexpected losses experienced by the District as a result of a disaster or other unexpected loss. Any reimbursement received by the District from insurance companies as a result of a submitted claim shall be deposited back into the reserve as replenishment for the loss.

1.2 *Capital Replacement Reserve*

- A. Definition and Purpose – Established to provide capital repair and replacement funding as the District's infrastructure deteriorates over its expected useful life.
- B. Target Level – The Board-approved 2010 Asset Management Plan recommended that the annual contribution to this reserve be at a minimum level of \$1,820,000 for the water fund and \$345,000 for the sewer fund, less money set aside for the Maintenance Reserve. Funding with available funds based on the District's operations shall be allocated quarterly.
- C. Events or Conditions Prompting the Use of the Capital Replacement Reserve – Through the annual budget process, staff shall recommend anticipated asset replacement projects. The

Board of Directors shall take action to approve recommended project appropriations from the capital replacement reserve. Should unplanned replacement be necessary during any fiscal year, the Board of Directors may take action to amend the budget and appropriate needed funds as required.

1.3 *Maintenance Reserve*

- A. Definition and Purpose – Established to provide funding for non-scheduled capital asset repair and replacement.
- B. Target Level – \$200,000 subject to an annual review.
- C. Events or Conditions Prompting the Use of the Maintenance Replacement Reserve – Unplanned failure of assets including but not limited to pumps, motors and major facility repairs.

1.4 *Debt Service Reserve*

- A. Definition and Purpose – Established to provide funding for semi-annually scheduled debt service payments.
- B. Target Level – The District's highest annual debt service payment – currently \$2,723,509.
- C. Events or Conditions Prompting the Use of the Debt Service Reserve – Semi-annual debt service payments will be made out of this fund, with funding on the water rate replenishing the fund annually.

1.5 *Employee Liabilities Reserve*

- A. Definition and Purpose – The purpose is to cover employees' accrued vacation and other compensatory time and to ensure the complete funding associated with the liability incurred for employees whom have met the requirements necessary for district paid health benefits at retirement.
- B. Target Level – The annual contribution will be \$100,000 (\$93,000 for water and \$7,000 for sewer) to be evaluated and/or adjusted annually thereafter based on an analysis of current employees' vacation and sick time accrued and actuarial determinations of future retiree costs. As of July 1, 2013, an actuary determined that the District's Other Post Employment Benefit (OPEB) liability was \$1,896,791. When combined with a liability on the District's books for vacation, compensatory and sick time of \$1,047,342 at June 30, 2014, the target is projected to be approximately \$2,944,133 for the combined water and sewer enterprises.
- C. Events or Conditions Prompting the Use of the Employee Liabilities Reserve – This reserve may be used in the event that operating funds are not adequate to meet vacation, compensatory and sick time paid out or retiree medical cost obligations within the current year.

2. Contractually Restricted Reserves:

These are funds held to satisfy limitations set by external requirements established by creditors, grant agencies or law. Examples include stipulated bond covenants and reserves held with a fiscal agent.

2.0 *US Bank 2008 COP Reserve*

- A. Definition and Purpose – Established to cover reserve requirements held with a designated fiscal agent (US Bank) for the 2008 Certificates of Participation.
- B. Target Level – Funding shall be held in an amount equal to \$2,147,096.
- C. Events or Conditions Prompting the Use of the Contractually Restricted Reserve – This reserve may be utilized as needed by the fiscal agent to pay any outstanding debt service payments not covered by the District within the specified billing and due dates.

End of Policy Document

6.2 APPENDIX 2: CAPITAL IMPROVEMENT PLAN

Table 6-1: Water CIP (Uninflated)

Description		FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Capital Improvement Plan (Uninflated)								
S & W Well Project (Well No. 21)	Water			\$1,194,603	\$0	\$0	\$0	\$0
S & W Well Project (Well No. 22)	Water			\$211,320	\$950,000	\$1,040,000	\$257,360	\$0
Fairmont BPS Upgrade	Water			\$1,000,000	\$4,000,000	\$602,299	\$0	\$0
Richfield Road Pipeline	Water			\$1,340,000	\$31,627	\$0	\$0	\$0
Fairmont BPS Phase 2	Water			\$0	\$0	\$0	\$0	\$0
Lakeview Grade Separation	Water			\$260,000				
	Water							
	Water							
Rehabilitation & Restoration								
Future Pipeline Project	Water			\$760,000	\$458,128	\$0	\$0	
Timber Ridge BPS Rehabilitation	Water			\$240,000	\$10,000	\$0	\$0	
Lakeview Booster Piping	Water			\$94,000	\$0	\$0	\$0	
PRS Rehabilitation Phase 2	Water			\$153,310	\$528,000	\$90,000	\$627,000	
Annual Routine Capital R&R	Water			\$0	\$0	\$1,520,000	\$2,211,034	\$2,500,000
	Water							
	Water							
	Water							
Others								
Vehicle & Capital Equipment Replacement	Water		\$399,000	\$540,000	\$187,000	\$165,000	\$177,000	\$180,000
Other Projects Completed in FY 14/15	Water		\$987,302					
	Water							
	Water							
	Water							
	Water							
Total CIP		\$0	\$1,386,302	\$5,793,233	\$6,164,755	\$3,417,299	\$3,272,394	\$2,680,000

Table 6-2: Water CIP (Inflated)

Description		FY 2015 Estimated	FY 2016 Budgeted	FY 2017 Projected	FY 2018 Projected	FY 2019 Projected	FY 2020 Projected
Capital Improvement Plan							
S & W Well Project (Well No. 21)	Water		\$1,194,603	\$0	\$0	\$0	\$0
S & W Well Project (Well No. 22)	Water		\$211,320	\$988,000	\$1,124,864	\$286,711	\$0
Fairmont BPS Upgrade	Water		\$1,000,000	\$4,160,000	\$651,447	\$0	\$0
Richfield Road Pipeline	Water		\$1,340,000	\$32,892	\$0	\$0	\$0
Fairmont BPS Phase 2	Water		\$0	\$0	\$0	\$0	\$0
Lakeview Grade Separation	Water		\$260,000				
	Water						
	Water						
Rehabilitation & Restoration							
Future Pipeline Project	Water		\$760,000	\$476,453	\$0	\$0	
Timber Ridge BPS Rehabilitation	Water		\$240,000	\$10,400	\$0	\$0	
Lakeview Booster Piping	Water		\$94,000	\$0	\$0	\$0	
PRS Rehabilitation Phase 2	Water		\$153,310	\$549,120	\$97,344	\$698,508	
Annual Routine Capital R&R	Water		\$0	\$0	\$1,644,032	\$2,463,198	\$2,868,674
	Water						
	Water						
	Water						
Others							
Vehicle & Capital Equipment Replacement	Water	\$399,000	\$540,000	\$194,480	\$178,464	\$197,186	\$206,544
Other Projects Completed in FY 14/15	Water	\$987,302					
	Water						
	Water						
	Water						
	Water						
Total CIP		\$1,386,302	\$5,793,233	\$6,411,345	\$3,696,151	\$3,645,604	\$3,075,218

Table 6-3: Sewer CIP (Inflated)

Project Number	Description	FY 2014 Actual	FY 2015 Estimated Actual	FY 2016 Budgeted	FY 2017 Projected	FY 2018 Projected	FY 2019 Projected	FY 2020 Projected
	Vehicle & Capital Equipment Replac	\$0	\$72,000	\$688,421	\$200,000	\$200,000	\$200,000	\$200,000
Total CIP		\$0	\$72,000	\$688,421	\$200,000	\$200,000	\$200,000	\$200,000
Total CIP (Inflated)		\$0	\$0	\$688,421	\$208,000	\$216,320	\$222,810	\$229,494

6.3 APPENDIX 3: ASSET LIST & ALLOCATION FACTORS

Table 6-4: Asset Allocations to Water Function Costs

Water Assets	Replacement Costs	Water Supply	Power	Base Fixed	Max Day	Max Hour	B&CS	Meter	General	Total
Source of Supply	\$10,459,451			67%	33%	0%			0%	100%
Pumping Plant	\$32,420,946			67%	33%	0%			0%	100%
Water Treatment Plant	\$4,039,595			67%	33%	0%			0%	100%
Transmission & Distribution	\$281,797,179			39%	20%	41%			0%	100%
General Plant	\$23,682,761								100%	100%
Total	\$352,399,932	\$0	\$0	\$141,788,692	\$70,894,346	\$116,034,133	\$0	\$0	\$23,682,761	\$352,399,932
Capital Allocation		0%	0%	40%	20%	33%	0%	0%	7%	

Table 6-5: Asset Allocations to Sewer Function Costs

Capital Expenses	Flow	General	Total	Assets Value by RC
Pumping and Lift	100%	0%	100%	\$671,491
Sewer Mains	100%	0%	100%	\$87,251,507
Sewer Services	0%	100%	100%	\$6,068,490
GIS	0%	100%	100%	\$259,292
Vactor	100%	0%	100%	\$1,514,140
O&M Expenses	\$89,437,138	\$6,327,782	\$95,764,920	\$95,764,920
Capital Allocation	93%	7%	100%	

6.4 APPENDIX 4: WATER COST ALLOCATION FACTORS

Table 6-6: Water O&M Cost Allocation Factors

	FY 2016	Water Supply	Power	Base Fixed	Max Day	Max Hour	B&CS	Meter	General
Variable Water Costs									
Power	\$1,403,404		100%						0%
OCWD (Pumping)	\$3,541,410	100%							0%
MWDOC	\$7,135,596	100%							0%
Salary Related Expenses	\$7,906,784								100%
Supplies & Services									
Communications	\$280,232						100%		0%
Contractual Services	\$545,124								100%
Data Processing	\$217,461						100%		0%
Dues & Memberships	\$106,773								100%
Fees & Permits	\$18,822								100%
Board Election	\$0								100%
Insurance	\$275,596								100%
Materials	\$690,479								100%
District Activities and Events	\$27,072								100%
Maintenance	\$415,101							100%	0%
Non-Capital Equipment	\$138,338								100%
Office Expense	\$39,851						100%		0%
Professional Services	\$544,350								100%
Travel & Conferences	\$67,718								100%
Training	\$103,518								100%
Uncollectible Accounts	\$37,200						100%		0%
Utilities	\$83,700			53%	26%	21%			0%
Vehicle Expenses	\$300,328	0%	0%	40%	20%	33%	0%	0%	7%
Subtotal Supplies & Services	\$3,891,663								
Total	\$23,878,858	\$10,677,006	\$1,403,404	\$165,149	\$82,575	\$116,121	\$574,744	\$415,101	\$10,444,759

Table 6-7: Revenue Requirement to Water Functional Cost Components

Current Revenue Requirements from Rates	FY 2016	Water Supply	Power	Base Fixed	Max Day	Max Hour	B&CS	Meter	General	Total
REVENUE REQUIREMENTS										
O&M Expenses	\$23,878,858	\$10,677,006	\$1,403,404	\$165,149	\$82,575	\$116,121	\$574,744	\$415,101	\$10,444,759	\$23,878,858
Other Non-Operating Expenses	\$22,000								\$22,000	\$22,000
LOC Interest Expenses	\$70,000	\$0	\$0	\$28,165	\$14,082	\$23,049	\$0	\$0	\$4,704	\$70,000
OPEB Payment	\$100,000								\$100,000	\$100,000
Debt Service	\$2,721,559	\$0	\$0	\$1,095,024	\$547,512	\$896,123	\$0	\$0	\$182,900	\$2,721,559
Rate Funded CIP	\$5,793,233	\$0	\$0	\$2,330,917	\$1,165,458	\$1,907,528	\$0	\$0	\$389,330	\$5,793,233
Reserve Funding	-\$7,910,337	\$0	\$0	-\$1,396,205	-\$698,103	-\$1,135,256	-\$221,720	-\$160,134	-\$4,298,919	-\$7,910,337
SUBTOTAL REVENUE REQUIREMENTS	\$24,675,312	\$10,677,006	\$1,403,404	\$2,223,049	\$1,111,524	\$1,807,564	\$353,024	\$254,967	\$6,844,773	\$24,675,312
LESS: OTHER REVENUES										
Property Tax	-\$1,395,000								-\$1,395,000	-\$1,395,000
Other Revenues	-\$1,295,310								-\$1,295,310	-\$1,295,310
Debt Proceeds for CIP	-\$1,200,000	\$0	\$0	-\$211,805	-\$105,902	-\$172,219	-\$33,635	-\$24,292	-\$652,147	-\$1,200,000
SUBTOTAL OTHER REVENUES	-\$3,890,310	\$0	\$0	-\$211,805	-\$105,902	-\$172,219	-\$33,635	-\$24,292	-\$3,342,457	-\$3,890,310
NET REVENUE REQUIREMENT FROM CURRENT RATES	\$20,785,002	\$10,677,006	\$1,403,404	\$2,011,244	\$1,005,622	\$1,635,346	\$319,389	\$230,674	\$3,502,317	\$20,785,002
Reallocation of General Costs				39%	19%	31%	6%	4%	-100%	
Reallocated General Costs				\$1,354,026	\$677,013	\$1,100,960	\$215,022	\$155,296	-\$3,502,317	
REVISED NET REVENUE REQUIREMENTS FROM CURRENT RATES	\$20,785,002	\$10,677,006	\$1,403,404	\$3,365,270	\$1,682,635	\$2,736,306	\$534,411	\$385,971	\$0	\$20,785,002

Revenue Requirements	FY 2016	Rev Adj	Rev Req after Rev Adjustments
Water Supply	\$10,677,006		\$10,677,006
Power	\$1,403,404		\$1,403,404
Base Fixed	\$3,365,270	\$2,892,838	\$6,258,108
Peaking	\$4,418,941	\$3,798,589	\$8,217,530
B&CS	\$534,411	\$459,388	\$993,798
Meter	\$385,971	\$331,786	\$717,757
Total	\$20,785,002	\$7,482,601	\$28,267,603
Revenue Adjustments	36%	\$7,482,601	

6.5 APPENDIX 5: SEWER COST ALLOCATION FACTORS

Table 6-8: Sewer O&M Cost Allocation Factors

	Flow	General	Total	FY 2016
O&M Expenses				
Salary Related Expenses		100%	100%	\$845,865
Communications	0%	100%	100%	\$21,293
Contractual Services	0%	100%	100%	\$41,031
Data Processing	0%	100%	100%	\$16,368
Dues & Memberships	0%	100%	100%	\$8,337
Fees & Permits	0%	100%	100%	\$207,843
Board Election	0%	100%	100%	\$0
Insurance	0%	100%	100%	\$20,744
Materials	100%	0%	100%	\$105,472
District Activities, Emp Reco	0%	100%	100%	\$2,038
Maintenance	100%	0%	100%	\$332,244
Non-Capital Equipment	0%	100%	100%	\$29,413
Office Expense	0%	100%	100%	\$3,000
Professional Services	0%	100%	100%	\$100,360
Training	0%	100%	100%	\$7,297
Travel & Conferences	0%	100%	100%	\$11,212
Uncollectible Accounts	0%	100%	100%	\$2,800
Utilities	0%	100%	100%	\$7,150
Vehicle Expenses	93%	7%	100%	\$72,105
O&M Expenses	\$505,057	\$1,329,513	\$1,834,569	\$1,834,569
	28%	72%	100%	

Table 6-9: Revenue Requirement Allocations to Sewer Functional Cost Components

Current Rev Req from Rates	Flow	General	Total	FY 2016
REVENUE REQUIREMENTS				
O&M Expenses	\$505,057	\$1,329,513	\$1,834,569	\$1,834,569
Other Non-Operating Expenses		\$0	\$0	\$0
OPEB Payment		\$7,500	\$7,500	\$7,500
Debt Service		\$0	\$0	\$0
Rate Funded CIP	\$642,933	\$45,488	\$688,421	\$688,421
Reserve Funding	-\$305,789	-\$368,256	-\$674,046	-\$674,046
SUBTOTAL REVENUE REQUIREMENTS	\$842,200	\$1,014,245	\$1,856,445	\$1,856,445
LESS: OTHER REVENUES				
Other Operating Revenue		-\$36,291	-\$36,291	-\$36,291
Interest Income		-\$8,000	-\$8,000	-\$8,000
Other Non-Operating Revenue		-\$11,925	-\$11,925	-\$11,925
Debt Proceeds for CIP	\$0	\$0	\$0	\$0
SUBTOTAL OTHER REVENUES	\$0	-\$56,216	-\$56,216	-\$56,216
NET REVENUE REQUIREMENT FROM CURRENT RATES	\$842,200	\$958,029	\$1,800,229	\$1,800,229
	47%	53%	100%	8%
Revenue Adjustments	\$67,376	\$76,642	\$144,018	\$144,018
NET REVENUE REQUIREMENT FROM PROPOSED RATES	\$909,576	\$1,034,671	\$1,944,247	\$1,944,247
Units of Service	2,511,985 hcf	25,393 # of Accounts		
Unit Cost of Service	\$0.36 per hcf	\$40.75 per account per yr		