

# OLIVENHAIN MUNICIPAL WATER DISTRICT

Wastewater Rate Study, Capacity Fee  
and Annexation Fee Report

March 2016





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March 16, 2016

Board of Directors and  
Rainy Selamat  
Finance Manager  
Olivenhain Municipal Water District  
1966 Olivenhain Road  
Encinitas, CA 92024

**Subject: Wastewater Rate, Capacity Fee and Annexation Fee Study Report**

Dear Members of the Board and Ms. Selamat,

Raftelis Financial Consultants, Inc. (RFC) is pleased to provide this 2016 Wastewater Rate, Capacity Fee and Annexation Fee Study Report (Report) to the Olivenhain Municipal Water District (District).

The major objectives of the study include the following:

1. Develop a financial plan for the District Wastewater (WW) utility to ensure financial sufficiency, meet operation and maintenance (O&M) costs, and help ensure sufficient funding for capital refurbishment and replacement needs;
2. Conduct a cost-of-service (COS) analysis;
3. Develop fair and equitable 5-year WW rates which conform to Proposition 218 requirements based on the analysis and methodology set out in this Report; and
4. Develop wastewater capacity fees and annexation fees for 4S Ranch and Rancho Cielo service areas.

This Report summarizes our key findings and recommendations. It has been a pleasure working with you and we appreciate your help and support as well as that provided by your staff.

Sincerely,

*RAFTELIS FINANCIAL CONSULTANTS, INC.*

**Sudhir Pardiwala, PE**  
Executive Vice President

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# 1 INTRODUCTION

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## 1.1 STUDY/REPORT BACKGROUND

In the fall of 2015, Olivenhain Municipal Water District (District) engaged Raftelis Financial Consultants (RFC) to conduct a Wastewater Rate Study and update its Capacity fees and Annexation fees (Study). The District has not increased its rates since 2009, during which time the price index for water/wastewater/trash has increased by 39%. This Study included the preparation of a ten-year financial plan, a cost of service analysis, wastewater rates and Capacity and Annexation fees.

This Report summarizes the key findings and recommendations of the Study. For purposes of the analysis set out in this Report, the terms “Rate(s)” and “Charge(s)” may be used interchangeably.

The District’s Wastewater System is comprised of two sub-districts but is an interconnected system:

- Cielo Sanitation District – This includes the Rancho Cielo Estates development and adjacent areas. It is located just east of the covenant area of Rancho Santa Fe and north of Del Dios Highway. The District provides sewer service to approximately 285 homes in the Cielo Sanitation District.
- 4S Ranch Sanitation District – This area consists of the 4S Ranch master planned community and other minor surrounding areas in the City of San Diego. It is located just west of Rancho Bernardo. The District provides sewer service to approximately 3,430 homes in the 4S Ranch Sanitation District.

Wastewater from both the Cielo Sanitation District and 4S Ranch Sanitation District is collected through 65 miles of gravity sewers and pumping stations, and is ultimately pumped to the 4S Ranch Water Reclamation Plant.

The principal objectives of the Study include:

1. Develop a financial plan for the Wastewater (WW) utility to ensure financial sufficiency, meet operation and maintenance (O&M) costs, and help ensure sufficient funding for capital refurbishment and replacement needs;
2. Conduct a cost-of-service (COS) analysis;
3. Develop fair and equitable 5-year WW rates which conform with Proposition 218 requirements based on the analysis and methodology set out in this Report; and
4. Update the Capacity fees and Annexation fees for the 4S Ranch and Rancho Cielo areas.

## 1.2 LEGAL REQUIREMENTS AND RATE SETTING METHODOLOGY

### Legal Requirements

In November 1996, California voters approved Proposition 218, which amended the California Constitution by adding Articles XIII C and Article XIII D. Article XIII D placed certain limitations on the use of revenue collected from property-related fees and charges and on the amount of the fee or charge that may be imposed on each

parcel by governmental agencies. Additionally, it established procedural requirements for imposing new, or increasing existing, property-related fees and charges.

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

### **1.2.1 Rate Setting Methodology**

The wastewater rates were prepared using the principles established by the Water Environment Federation's (WEF) *Financing and Charges for Wastewater Systems* (Manual of Practice No. 27) which establishes commonly accepted professional standards for wastewater cost of service (COS) studies. The WEF Manual's general principles and the objectives of the Report are described below.

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

After determining a utility's revenue requirement, the next step is a cost of service (COS) analysis. Utilizing a public agency's approved expense and revenue budgets and capital improvement plans, the rate analyst first functionalizes a utility's costs and assets among major operating functions (collection, treatment, etc.). After cost functionalization, the rate analyst allocates the "functionalized costs" to cost causation components. For wastewater these cost components include wastewater flow, strength and general admin costs. Wastewater strength is further defined as the Biochemical Oxygen Demand (BOD) and Total Suspended Solid (TSS) loads contributed by each class. The analyst further distributes these cost causation components to each customer class (e.g., single-family residential, multi-family residential and commercial) by determining the loadings of flow and strength of each class.

Once the cost of service analysis is complete, the rate analyst designs rates to collect the cost to serve each customer class calculated as part of the cost of service analysis.

## 2 GENERAL ASSUMPTIONS

The principal assumptions utilized in the Study are set out in this Section. Unless otherwise stated herein, the described assumptions are used consistently in the Study.

### 2.1 INFLATION

The study period for this Report is Fiscal Years (FY) 2017<sup>1</sup> to FY 2025. The inflationary assumptions used are based on input from District staff and/or long term averages. The inflationary assumptions are presented in **Error! Reference source not found.** Note that the Study incorporates the District’s FY 2016 budget and projections for future years are based on these inflationary factors.

- General inflation is based on the average annual change in the 15-year Consumer Price Index for San Diego region for FY 2000 - FY 2015.
- Capital inflation approximates the average annual change in the Engineering News Record Construction Cost Index over the last 15 years.
- The other inflationary factors were based on discussions with District staff. Benefits tend to outpace general inflation and this is reflected in the benefit inflationary factor. Long term power costs have tended to outpace general inflation as well and this is reflected in the utility inflationary factor.

The reserve interest rate, shown at the bottom of Table 2-1 is used to project the District’s interest revenue.

**Table 2-1: Inflationary Assumptions**

Category	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
General	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%	3.0%
Salaries	4.5%	4.5%	4.5%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Benefits	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%	5.0%
Capital Inflation	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%	4.0%
Utilities	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%	8.0%
Reserve Interest Rates	1.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%	2.0%

<sup>1</sup> Fiscal Year ending 2017: Fiscal Year 2016/2017 (From July 1, 2016 to June 30, 2017)

## 2.2 PROJECTED ACCOUNT AND EDU GROWTH AND WASTEWATER USE

Table 2-2 shows account growth assumptions that were developed in cooperation with District staff. Single family customer accounts are expected to increase while no increase in multi-family or commercial customers are expected. These include the projected number of customer accounts, annual wastewater use growth rates for different customer classes and inflation factors. Commercial Group I customers include office buildings, small retail stores, schools, etc. Commercial Group II customers represent shopping centers, strip malls, medical office buildings and/or restaurants. Commercial Group III customers include large buildings that may have manufacturing facilities.

**Table 2-2: Projected Account Growth Rate**

Customer Class	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
<b>Residential</b>									
Single Family - 4S Ranch & SL <sup>1</sup>	2.5%	2.4%	2.3%	0.0%	1.0%	0.0%	0.0%	0.0%	0.0%
Single Family - Rancho Cielo	3.0%	3.0%	3.0%	3.0%	2.0%	2.0%	2.0%	2.0%	2.0%
<b>Non-residential</b>									
Multi-Family	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Commercial - Group I	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Commercial - Group II	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Commercial - Group III	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%

<sup>1</sup> Santa Luz

Table 2-3 shows the Equivalent Dwelling Units (EDUs) reflecting the anticipated additional customers due to the Black Mountain Ranch new residential development in the 4S Ranch area.

**Table 2-3: Projected EDUs**

Customer Class	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
<b>Residential</b>										
Single Family - 4S Ranch & SL	3,512	3,600	3,686	3,771	3,771	3,809	3,809	3,809	3,809	3,809
Single Family - Rancho Cielo	304	313	322	332	342	349	356	363	370	377
<b>Non-residential</b>										
Multi-Family	1,520	1,520	1,520	1,520	1,520	1,520	1,520	1,520	1,520	1,520
Commercial - Group I	1,398	1,398	1,398	1,398	1,398	1,398	1,398	1,398	1,398	1,398
Commercial - Group II	273	273	273	273	273	273	273	273	273	273
Commercial - Group III	38	38	38	38	38	38	38	38	38	38

Table 2-4 shows the projected wastewater flow– which is a function of the account growth factors shown in Table 2-2 and the wastewater flow factor shown at the top of the table. The wastewater flow factor accounts for decreased water use – and therefore wastewater flow per EDU. As shown no change in wastewater flow per EDU (aside from FY 2106) is assumed and therefore wastewater flow grows in accordance with the growth in EDUs.

**Table 2-4: Projected Wastewater Flow**

	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	FY 2025
Wastewater Flow Factor	95.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%
<b>Residential Flow (hcf)</b>										
Single Family - 4S Ranch & SL	285,301	292,434	299,452	306,339	306,339	309,402	309,402	309,402	309,402	309,402
Single Family - Rancho Cielo	24,054	24,776	25,519	26,285	27,074	27,615	28,167	28,730	29,305	29,891
<b>Non-residential Flow (hcf)</b>										
Multi-Family	85,346	85,346	85,346	85,346	85,346	85,346	85,346	85,346	85,346	85,346
Commercial - Group I	78,073	78,073	78,073	78,073	78,073	78,073	78,073	78,073	78,073	78,073
Commercial - Group II	51,601	51,601	51,601	51,601	51,601	51,601	51,601	51,601	51,601	51,601
Commercial - Group III	377	377	377	377	377	377	377	377	377	377
<b>Sewer Flow (hcf)</b>	<b>524,752</b>	<b>532,607</b>	<b>540,368</b>	<b>548,021</b>	<b>548,810</b>	<b>552,414</b>	<b>552,966</b>	<b>553,529</b>	<b>554,104</b>	<b>554,690</b>

## 2.3 RESERVE ASSUMPTIONS

### Reserve Policy Background

A reserve policy is a written document that provides a basis for a public agency’s financial reserves. The Board has adopted a Reserve Policy for the District, which was used to develop the financial plan (see discussion under Current Reserves and Reserve Policies below). Wastewater reserves enable the District to meet working capital requirements, address revenue shortfalls due to economic recessions, and provide funds in case of an asset failure and/or natural disaster. Reserve policies also provide guidelines for sound financial management with an overall long-range perspective to maintain financial solvency. Reserves also set aside funds for capital asset replacement as they age (and need to be replaced) and for new capital projects. Additionally, adopting and adhering to a sustainable reserve policy enhances financial management transparency and helps achieve or maintain favorable credit rating(s) for future District debt issues.

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

**Operating Reserve** – The purpose of an operating reserve is to provide working capital to support the operation, maintenance and administration. From a risk management perspective, the operating reserve supports the District’s cash flow needs during normal operations and ensures that operations can continue should there be significant events that impact cash flows. As it is unlikely for a utility to precisely predict the revenues and revenue requirements for each billing period, a reserve set aside to hedge the risk of monthly negative cash positions is part of prudent financial planning and fiscal management.

**Rate Stabilization** – Rate stabilization reserves are used to minimize the need for abrupt rate increases that may be needed during times of decreased wastewater flow, economic recessions or emergencies. The rate stabilization reserve would be used to offset the District’s fixed costs. A rate stabilization reserve acts as a buffer to protect customers from experiencing large rate increases.

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

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

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

**Current Reserves and Reserve Policies**

The District’s current reserve policy is as follows:

1. The operating reserve minimum is 180 days (50 percent = 180/365) of the next fiscal year’s operating budget. The maximum is 365 days (100 percent = 365/365) of next year’s operating budget.
2. The rate stabilization reserve minimum is 25 percent of the current fiscal year’s operating budget and the maximum is 100 percent of the average of the next four year’s Board approved operating budget.
3. The capital reserve minimum is two years’ of the average present value of the approved ten year capital improvement plan. The maximum is five years’ of the average present value of the ten year approved capital improvement plan.

Table 2-5 shows the District’s FY 2016 beginning fund balances.

**Table 2-5: FY 2016 Beginning Fund Balances**

Reserve	FY 2016
Operating Reserve	\$3,135,485
Rate Stabilization Reserve	\$2,429,625
Capital Reserve	\$8,039,133
<b>Total Reserves</b>	<b>\$13,604,243</b>

The financial plan discussed in Section 3 maintains the reserve balances between the minimum and maximum targets discussed above.

**2.4 DISTRICT PROVIDED INFORMATION**

The study utilized the following files provided by District staff:

1. The FY 2016 Wastewater Budget provided in a file titled "Data for RFC 2015 Wastewater.xls" in a worksheet called 1a. WW\_Budget\_Dept.
2. The September 2015 5-year CIP prepared by Dudek.
3. An asset list for WW assets utilities as of 6/30/2015 found in the file titled "Data for RFC 2015 Wastewater.xls" and "2015 Sewer Asset List – 4S Ranch and Rancho Cielo"
4. Reserve fund balances as of June 30, 2015 shown in the file titled "Data for RFC 20156 Wastewater.xls". The reserve balances are shown in Table 2-7.
5. An EDU and usage database titled "SRVCED 15 (FY 14-15)" and "SRVCED 14 (FY 13-14)."

### 3 WASTEWATER FINANCIAL PLAN

As the first step in the rate study process, RFC reviewed the District’s revenue requirements. RFC analyzed the District’s WW annual operating revenues, operation and maintenance (O&M) expenses, transfers between funds, and reserve requirements. This Section of the Report discusses projected revenues, O&M expenses, other reserve funding and revenue adjustments needed to ensure the Wastewater Utility’s fiscal sustainability and solvency.

#### 3.1 REVENUES FROM CURRENT WW RATES

Table 3-1 shows the current (FY 2016) WW Annual System Access charge and Commodity Rates for each customer class. The annual Single Family Residential (SFR) customer charge is the sum of the annual system access charge plus a commodity charge based on the customer’s annualized minimum prior year winter water use with a maximum (known as a cap) of 10 hundred cubic feet (hcf). For example, a customer using 7 hcf of water during the winter months would be charged:

$$Total\ SFR\ Bill = Annual\ System\ Access\ Charge + 7\ hcf \times 12 \times \frac{\$6.00}{hcf} = \$651$$

SFR customers using more than 10 hcf are charged a maximum of 10 hcf to reflect outdoor irrigation water use. Non-Residential customers are charged similarly except the commodity portion of their charge is based on their actual water use.

**Table 3-1: Current WW Monthly Rates and Charges**

Customer Class	Annual System Access Charge per EDU	Commodity Rate (\$ / hcf)
<b>Single Family</b>		
4S Ranch and Santa Luz	\$147.00	\$6.00
Rancho Cielo	\$147.00	\$6.00
<b>Non-Residential</b>		
Multi-Family	\$147.00	\$6.00
Commercial - Group I	\$147.00	\$6.00
Commercial - Group II	\$147.00	\$9.29
Commercial - Group III	\$147.00	\$15.86

RFC calculated projected revenue under existing rates by multiplying the number of EDUs for each user class by the existing annual system access charge and added to that the revenue from the commodity rate which is the wastewater use for each class multiplied by the commodity rates shown in Table 3-1. The resulting revenue under existing rates is shown in line 2 of Table 3-4.

### 3.2 WW O&M EXPENSES

Using the District’s FY 2016 Operation and Maintenance (O&M) budgeted values, future expenses were projected by using the inflation factors described in Section 2.1. Table 3-2 summarizes budgeted and projected O&M expenses. Please refer to the District’s budget document for a breakdown of the line items shown.

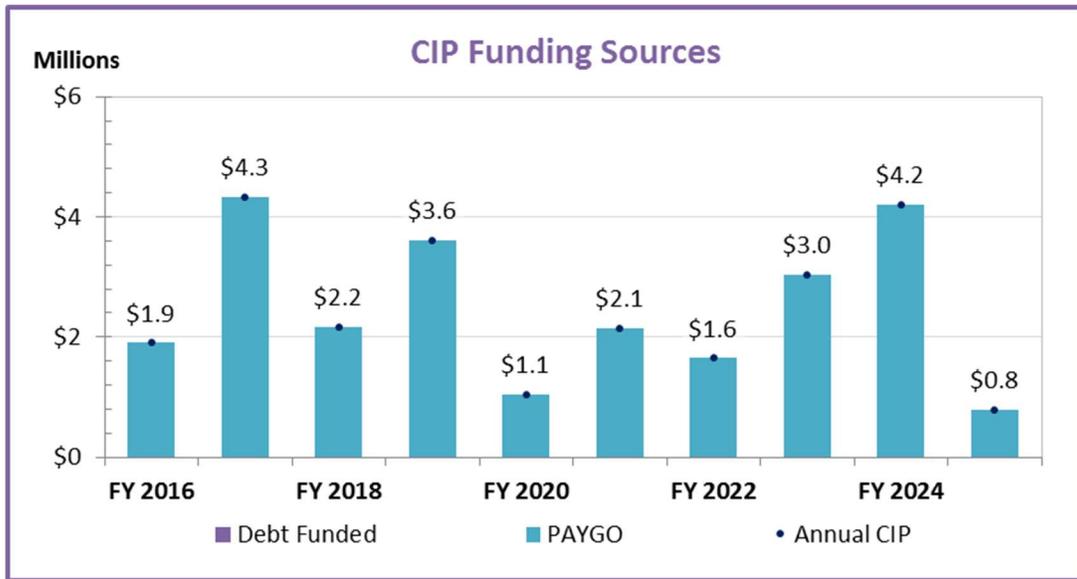
**Table 3-2: Projected WW O&M Expenses**

Budget Item	FY 2016 Proposed	FY 2017 Projected	FY 2018 Projected	FY 2019 Projected	FY 2020 Projected	FY 2021 Projected	FY 2022 Projected	FY 2023 Projected	FY 2024 Projected	FY 2025 Projected
Personnel	\$1,005,000	\$1,052,450	\$1,102,147	\$1,154,196	\$1,205,515	\$1,259,145	\$1,315,190	\$1,373,761	\$1,434,973	\$1,498,947
Operations	\$1,318,000	\$1,389,494	\$1,465,936	\$1,547,924	\$1,626,016	\$1,713,437	\$1,801,697	\$1,895,599	\$1,995,556	\$2,102,013
Support Allocation	\$327,000	\$311,000	\$323,440	\$336,378	\$349,833	\$363,826	\$378,379	\$393,514	\$409,255	\$425,625
<b>Total</b>	<b>\$2,650,000</b>	<b>\$2,752,944</b>	<b>\$2,891,522</b>	<b>\$3,038,498</b>	<b>\$3,181,364</b>	<b>\$3,336,408</b>	<b>\$3,495,266</b>	<b>\$3,662,875</b>	<b>\$3,839,785</b>	<b>\$4,026,585</b>

### 3.3 PROJECTED CAPITAL REPLACEMENT PROJECTS

The District plans to execute approximately \$25 M (in today’s dollars) in WW capital expenditures during the study period, as shown in Figure 3-1. CIP costs shown in Figure 3-1 are inflated in future years by using the capital cost inflation factor shown in Table 2-1. Note that the District fund all CIP via rate revenue (PAYGO) as show by the light blue bars in Figure 3-1 below.

**Figure 3-1: Projected WW Replacement CIP and Funding Sources**



### 3.4 PROPOSED WW FINANCIAL PLAN

The District's WW utility needs revenue adjustments to meet target reserves, cover O&M expenses and to fund capital improvement projects. The proposed WW revenue adjustments for the next five years are shown in Table 3-3. Note that the District has not increase rates since 2009 and the revenue adjustments proposed below are relatively small especially when compared to the increase in the price index for water/wastewater/trash which has gone up by 39 percent during this time period.

**Table 3-3: Proposed WW Revenue Adjustments**

Fiscal Year	Effective Date	Revenue Adjustment
FY 2017	July 1, 2016	3.0%
FY 2018	July 1, 2017	3.0%
FY 2019	July 1, 2018	3.0%
FY 2020	July 1, 2019	3.0%
FY 2021	July 1, 2020	3.0%

Table 3-4 shows the operating fund cash flow assuming the proposed WW revenue adjustments shown in Table 3-3. As shown in Table 3-4 by the net cash changes line, with the proposed revenue adjustment, revenues are sufficient to meet O&M expenses and capital investment. Capital investment is shown in line 25.

**Table 3-4: Proposed WW Financial Plan**

Line No.		FY 2016 Budgeted	FY 2017 Projected	FY 2018 Projected	FY 2019 Projected	FY 2020 Projected	FY 2021 Projected	FY 2022 Projected	FY 2023 Projected	FY 2024 Projected	FY 2025 Projected
1	<b>Operating Revenues</b>										
2	Revenues from Current Rates	\$4,357,612	\$4,419,001	\$4,479,532	\$4,539,415	\$4,545,619	\$4,573,858	\$4,578,199	\$4,582,606	\$4,587,085	\$4,591,630
3	Proposed Revenue Adjustments										
4	FY										
5	Adjustment										
6	Effective										
7	Months										
8	FY 2016	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
9	FY 2017		\$132,570	\$134,386	\$136,182	\$136,369	\$137,216	\$137,346	\$137,478	\$137,613	\$137,749
10	FY 2018			\$138,418	\$140,268	\$140,460	\$141,332	\$141,466	\$141,603	\$141,741	\$141,881
11	FY 2019				\$144,476	\$144,673	\$145,572	\$145,710	\$145,851	\$145,993	\$146,138
12	FY 2020					\$149,014	\$149,939	\$150,082	\$150,226	\$150,373	\$150,522
13	FY 2021						\$154,438	\$154,584	\$154,733	\$154,884	\$155,038
14	Subtotal Proposed Revenue Adjustments	\$0	\$132,570	\$272,803	\$420,926	\$570,515	\$728,497	\$888,410	\$1,053,421	\$1,223,697	\$1,399,406
15	<b>Total Operating Revenues</b>	<b>\$4,357,612</b>	<b>\$4,551,571</b>	<b>\$4,752,335</b>	<b>\$4,960,341</b>	<b>\$5,116,134</b>	<b>\$5,302,354</b>	<b>\$5,466,608</b>	<b>\$5,636,027</b>	<b>\$5,810,781</b>	<b>\$5,991,035</b>
16	<b>Non-Operating Revenues</b>										
17	Investment Income	\$8,000	\$29,636	\$55,241	\$49,111	\$51,691	\$54,768	\$55,241	\$55,797	\$56,360	\$56,846
18	Other Non-Operating Revenues	\$0	\$1,352,610	\$0	\$0	\$300,580	\$0	\$0	\$0	\$0	\$0
19	<b>TOTAL REVENUES</b>	<b>\$4,365,612</b>	<b>\$5,933,816</b>	<b>\$4,807,576</b>	<b>\$5,009,452</b>	<b>\$5,468,404</b>	<b>\$5,357,123</b>	<b>\$5,521,850</b>	<b>\$5,691,823</b>	<b>\$5,867,141</b>	<b>\$6,047,881</b>
20	<b>REVENUE REQUIREMENTS</b>										
21	<b>Operating Expenses</b>										
22	Personnel	\$1,005,000	\$1,052,450	\$1,102,147	\$1,154,196	\$1,205,515	\$1,259,145	\$1,315,190	\$1,373,761	\$1,434,973	\$1,498,947
23	Operations	\$1,318,000	\$1,389,494	\$1,465,936	\$1,547,924	\$1,626,016	\$1,713,437	\$1,801,697	\$1,895,599	\$1,995,556	\$2,102,013
24	Other	\$327,000	\$311,000	\$323,440	\$336,378	\$349,833	\$363,826	\$378,379	\$393,514	\$409,255	\$425,625
25	Subtotal Operating Expenses	\$2,650,000	\$2,752,944	\$2,891,522	\$3,038,498	\$3,181,364	\$3,336,408	\$3,495,266	\$3,662,875	\$3,839,785	\$4,026,585
26	Transfers (from) / to										
27	Capital & Equipment Fund	\$2,000,000	\$3,000,000	\$2,500,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000	\$2,000,000
28	<b>TOTAL REVENUE REQUIREMENTS</b>	<b>\$4,650,000</b>	<b>\$5,752,944</b>	<b>\$5,391,522</b>	<b>\$5,038,498</b>	<b>\$5,181,364</b>	<b>\$5,336,408</b>	<b>\$5,495,266</b>	<b>\$5,662,875</b>	<b>\$5,839,785</b>	<b>\$6,026,585</b>
29	<b>NET CASH FLOWS</b>	<b>-\$284,388</b>	<b>\$180,872</b>	<b>-\$583,947</b>	<b>-\$29,046</b>	<b>\$287,041</b>	<b>\$20,715</b>	<b>\$26,583</b>	<b>\$28,949</b>	<b>\$27,357</b>	<b>\$21,296</b>

As shown in Figure 3-2, the proposed revenue under proposed rates (shown by the green line) is sufficient to fund O&M expenses (blue bars) including capital investment shown by the red portion of the bar. The increase in total proposed and current revenue in FY 2017 and FY 2020 is due to annexation and capacity fee revenue from the Black Mountain Ranch development under the current fees.

**Figure 3-2: WW Operating Financial Plan**

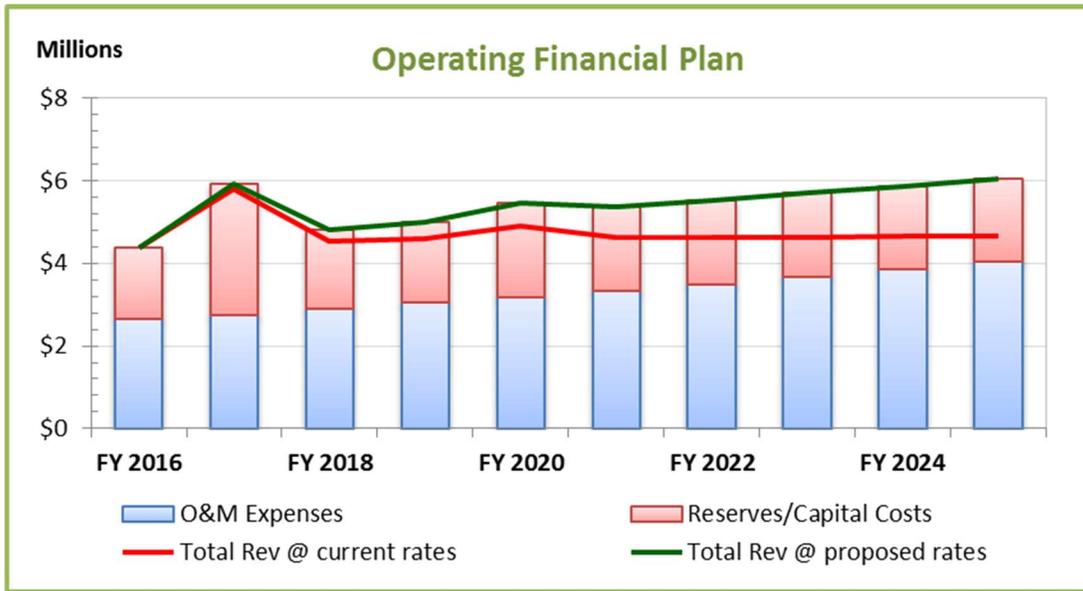
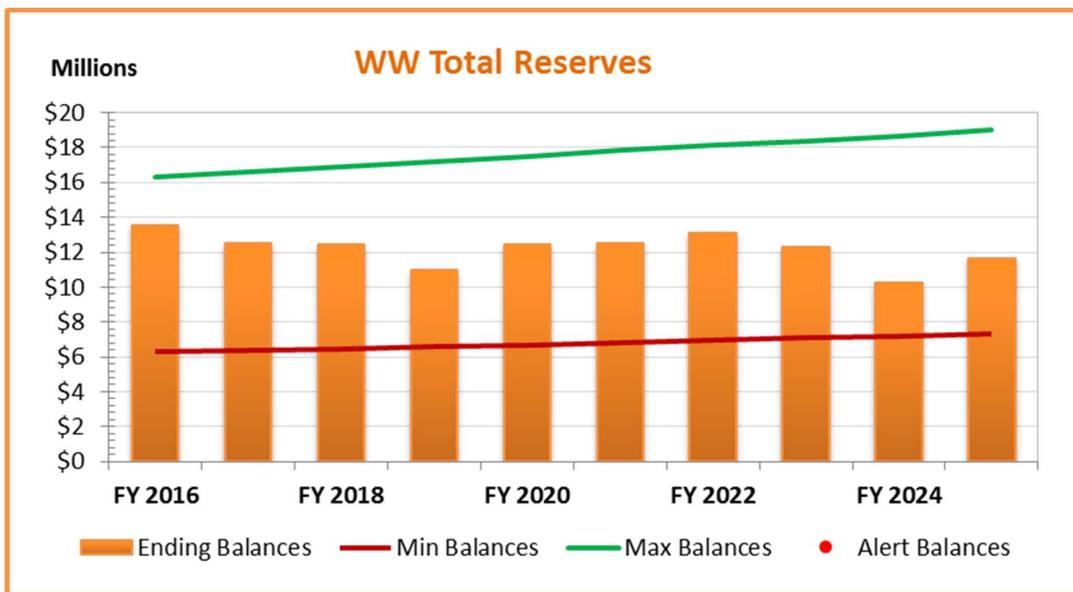


Figure 3-3 shows the total ending reserve balances (including operating reserve, rate stabilization reserve, and capital reserve) assuming the proposed WW revenue adjustments. The District is setting rates for five years and will reevaluate total reserve balances at the end of this five year period.

**Figure 3-3: Projected WW Fund Ending Balances**



# 4 WASTEWATER COST OF SERVICE ANALYSIS & RATE DESIGN

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## 4.1 WASTEWATER COST OF SERVICE ANALYSIS

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

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

A summary of the COS analysis RFC performed is as follows:

1. First, RFC used residential and non-residential wastewater strengths consistent with industry standards. Strengths are defined as the concentration of biochemical oxygen demand (BOD<sup>2</sup>) and total suspended solids (TSS) in milligrams per liter (mg/L) in wastewater.
2. Next RFC incorporated the estimated flows from each customer class. These were obtained from District provided billed sewer data.
3. The District functionalized the O&M and capital costs into functions: Collection, Treatment, Disposal, Billing and Customer Service and General (Administration).
4. RFC allocated O&M costs in each function (from step 3) to cost causation components: Flow, BOD, TSS, Administrative and General. This was subsequently used to allocate the total revenue requirement to each cost causation component.
5. RFC calculated unit cost causation component rates by dividing the total cost allocated to each cost causation component in step 4 by the total flow and strength loadings (in pounds of BOD or SS) from the customers.
6. Lastly, RFC calculated the cost by customer class by multiplying the unit cost components in step 5 by the flow and strength loading from each class.

### 4.1.1 Class Wastewater Strengths

The class strengths are shown in Table 4-1. The strengths are representative of typical strengths from each class based on industry standards and the strengths used in the prior rate study. To simplify rates and minimize impacts, customers are grouped into three classes based on their strength: residential, low strength commercial and medium-high strength commercial. Residential and commercial Group I customers include office buildings (including medical offices), small retail stores, schools, etc., which have the lowest strength since their sewage is similar to household wastewater. Commercial Group II customers represent shopping

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<sup>2</sup> BOD is a measure of oxygen utilization by the microorganisms in wastewater. The more waste matter in a wastewater stream the higher the BOD which in turn incurs higher treatment costs since the wastewater treatment plant must oxygenate the wastewater. A similar argument is made for TSS which incurs higher solids removal costs.

centers, strip malls, supermarkets and/or restaurants which typically have a higher strength sewage due to the BOD associated with food wastes. Commercial Group III customers are industrial customers with the highest assumed strength. The District had one customer in this category that has closed operations.

**Table 4-1: Wastewater Classes of Service and Strength Concentrations**

Class	BOD (mg/L)	TSS (mg/L)
<b>Single Family</b>		
4S Ranch and Santa Luz	200	200
Rancho Cielo	200	200
<b>Non-Residential</b>		
Multi-Family	200	200
Commercial - Group I	200	200
Commercial - Group II	650	650
Commercial - Group III	1,000	600

**4.1.2 Flow and Strength Loadings**

RFC estimated the sewer flow, BOD and TSS plant loadings generated by each customer class as shown in Table 4-2. The flow and loadings from each class were used to develop unit costs to distribute the total revenue requirement to each customer class so that each customer class is assigned costs in proportion to its flow and strength loadings.

**Table 4-2: FY 2015 Flow and Strength Loading Determination**

FY 2015	FY 2015			FY 2015		
	Flow (MG / yr) (1)	BOD (lbs / yr) (2)	TSS (lbs / yr) (3)	Flow (hcf / yr) (4)	BOD (mg / L) (5)	TSS (mg / L) (6)
<b>Non-Residential</b>						
Multi-Family	67.2	112,160	112,160	89,838	200	200
Group I	61.5	102,602	102,602	82,182	200	200
Group II	40.6	220,393	220,393	54,317	650	650
Group III	0.3	2,478	1,487	397	1,000	600
<b>Total Non-Residential</b>	<b>169.6</b>	<b>437,634</b>	<b>436,642</b>	<b>226,734</b>	<b>309</b>	<b>309</b>
<b>Residential</b>						
SFR - 4S &SL	219.2	365,792	365,792	292,992	200	200
SFR - RC	17.7	29,544	29,544	23,664	200	200
<b>Residential</b>	<b>236.9</b>	<b>395,336</b>	<b>395,336</b>	<b>316,656</b>	<b>200</b>	<b>200</b>
<b>Total</b>	<b>406.5</b>	<b>832,970</b>	<b>831,979</b>	<b>543,390</b>	<b>246</b>	<b>245</b>

### 4.1.3 Allocation of O&M and Capital Cost to Cost Causation Components

In the Cost of Service analysis, our goal is to allocate the District’s revenue requirement to each cost causation component. To do so we first functionalize and then allocate each line item in the District’s FY 2017 O&M budget. The overall budget expenses (shown in line 10, column 5 of Table 4-3) to each cost causation component as shown in Table 4-3. The allocation for each O&M category is calculated by multiplying the total in column 5 by the respective percentages for each cost causation component shown in lines 1 through 3. Line 11 of Table 4-3 shows the resulting allocation of O&M costs to each cost causation component. As shown in Table 4-3, approximately 36 percent of O&M costs are associated with flow. Note that the general cost causation component is reallocated to the other cost components in a later step. The resulting allocation (line 11) is calculated by dividing the total amount allocated to each cost causation component by the total O&M budget in line 10, column 5. The resulting allocation in line 11 is used in a subsequent step in Table 4-7.

**Table 4-3: Functionalization and Allocation of O&M Expenses**

Line No.	O&M Category	Flow (1)	BOD (2)	TSS (3)	Customer / General (4)	TOTAL (5)
1	Personnel	36.3%	10.6%	10.6%	42.5%	100.0%
2	Operations	36.3%	10.6%	10.6%	42.5%	100.0%
3	Other	36.3%	10.6%	10.6%	42.5%	100.0%
4						
5	O&M Category	Flow	BOD	TSS	Customer / General	Total
6	Personnel	\$381,784	\$111,894	\$111,894	\$446,878	\$1,052,450
7	Operations	\$504,049	\$147,728	\$147,728	\$589,989	\$1,389,494
8	Other	\$112,818	\$33,065	\$33,065	\$132,053	\$311,000
9						
10	<b>TOTAL O&amp;M EXPENSES</b>	<b>\$998,651</b>	<b>\$292,687</b>	<b>\$292,687</b>	<b>\$1,168,920</b>	<b>\$2,752,944</b>
11	<b>% allocation</b>	<b>36.3%</b>	<b>10.6%</b>	<b>10.6%</b>	<b>42.5%</b>	<b>100.0%</b>

Similar to the District’s O&M expenses, RFC functionalized District assets and then allocated the functionalized asset value to the cost causation components. Table 4-4 shows the functionalization and allocation of assets to cost causation components. The allocation of assets is developed in the same manner as the allocation of O&M costs in Table 4-3. According to industry standards, collection assets are allocated 100 percent to flow and treatment is allocated to both flow and BOD/TSS to reflect the fact that higher strength sewage is more costly to treat. Line 12 of Table 4-4 shows the resulting overall wastewater asset allocation to the cost causation components. The overall asset allocation, in line 12, is used in subsequent step, in Table 4-7, to allocate capital related expenses to the cost components. Since capital expense projects can vary from year to year, it is standard industry practice to use the basis for asset allocation to allocate capital costs to preclude sharp changes to rates from year to year because over the long term all assets need to be replaced and using the total asset allocation serves the purpose of assigning capital costs to the appropriate cost causation centers.

**Table 4-4: Functionalization and Allocation of Wastewater Assets**

Line No.	Assets Categories	Flow (1)	BOD (2)	TSS (3)	Customer / General (4)	TOTAL (5)
1	Land				100%	100.0%
2	Treatment	50.0%	25.0%	25.0%		100.0%
3	Collection	100.0%				100.0%
4	General				100%	100.0%
5						
6	Assets Categories	Flow	BOD	TSS	Customer / General	TOTAL RCLD
7	Land	\$0	\$0	\$0	\$637,710	\$637,710
8	Treatment	\$12,230,763	\$6,115,382	\$6,115,382	\$0	\$24,461,526
9	Collection	\$42,465,365	\$0	\$0	\$0	\$42,465,365
10	General	\$0	\$0	\$0	\$899,467	\$899,467
11	<b>TOTAL ASSETS</b>	<b>\$54,696,128</b>	<b>\$6,115,382</b>	<b>\$6,115,382</b>	<b>\$1,537,177</b>	<b>\$68,464,068</b>
12	<b>% allocation</b>	<b>79.9%</b>	<b>8.9%</b>	<b>8.9%</b>	<b>2.2%</b>	<b>100.0%</b>

**Revenue Requirement Determination**

Next RFC determined the wastewater revenue requirement, which includes funds to cover yearly operating expenses, capital expenses and reserve funding. Table 4-5 shows the determination of the rate revenue requirement. To determine the current revenue requirement, RFC added operating and capital expenses as shown in line 5 column 3, subtracted other non-rate revenues as shown in line 9, and subtracted the annual cash balance (drawdown of the reserves, in this case) to yield the net revenue requirement shown in line 15, column 3. This is the total amount of revenue to be recovered from rates. This is also known as the test year rate revenue requirement.

**Table 4-5: Determination of the Rate Revenue Requirement**

Line No.	FY 2017		
	(1)	(2)	(3)
1	<b>Operating</b>	<b>Capital</b>	<b>Total</b>
2	<b>Revenue Requirement</b>		
3	Operating Expenses		\$2,752,944
4	Rate Funded Capital Projects	\$2,500,000	\$2,500,000
5	<b>Total Revenue Requirement</b>	<b>\$2,752,944</b>	<b>\$5,252,944</b>
6			
7	<b>Revenue Offsets</b>		
8	Investment Income		\$25,351
9	<b>Total Revenue Offsets</b>	<b>\$25,351</b>	<b>\$25,351</b>
10			
11	<b>Adjustments</b>		
12	Annual Cash Balance	\$676,022	\$676,022
13	<b>Total Adjustments</b>	<b>\$0</b>	<b>\$676,022</b>
14			
15	<b>Rate Revenue Requirement</b>	<b>\$2,727,593</b>	<b>\$4,551,571</b>

**Determine Units of Service**

To develop unit costs by cost causation component, RFC first determined the units of service for each cost causation component. The units of service by cost causation component and by class are shown in Table 4-6. Line 9 shows the total units of service for each cost causation component in hcf, pounds per year for BOD<sup>3</sup> and TSS<sup>4</sup> or equivalent dwelling units (EDUs) respectively. The flows and loadings represent FY 2017 figures.

<sup>3</sup> For BOD: Yearly load in lbs. = flow (hcf)\*748 gal\*1,000,000\* strength (mg/L)\* 8.34

<sup>4</sup> For TSS: Same as BOD

8.34 is a conversion factor to convert MGD\*mg/L into lbs. per day

**Table 4-6: FY 2017 - Determination of Units of Service**

Line No.	Customer Class	FY 2017			
		Billed Sewer Use (hcf) (1)	BOD (lbs / yr) (2)	TSS (lbs / yr) (3)	EDUs (4)
1	<b>Residential</b>				
2	4S Ranch and Santa Luz	292,434	365,792	365,792	3,600
3	Rancho Cielo	24,776	29,544	29,544	313
4	<b>Non-Residential</b>				
5	Multi-Family	85,346	112,160	112,160	1,520
6	Group I	78,073	102,602	102,602	1,398
7	Group II	51,601	220,393	220,393	273
8	Group III	377	2,478	1,487	38
9	<b>TOTAL</b>	<b>532,607</b>	<b>832,970</b>	<b>831,979</b>	<b>7,142</b>

**Determine Unit Costs by Cost Component**

To determine the unit cost causation components RFC first allocated the revenue requirement in lines 1 and 2 in column 6 to each cost causation component as shown in Table 4-7. Note that the total revenue requirement in line 3 is equal to the revenue requirement derived in column 3 of Table 4-5. The operating expenses were allocated using the resulting allocation from line 11 in Table 4-3. The capital expenses were allocated using the resulting allocation from line 12 in Table 4-4. Line 4 reallocates general costs in proportion to the resulting allocation of the other cost components. Line 6 makes an adjustment so that the District can maintain 26 percent fixed revenue collection similar to its prior rate structure. Fixed revenue is independent of a customer’s sewer flow. The resulting allocation of the revenue requirement to cost components is shown on line 8. To determine the unit cost (by cost causation component) RFC divided the revenue requirement (by cost causation component) in line 8 by the units of service in line 10 (which were derived in Table 4-6) to yield the unit costs shown in line 13.

**Table 4-7: Determination of Unit Costs by Cost Component**

Line No.		Flow (1)	BOD (2)	TSS (3)	Customer/ Capacity (4)	General (5)	TOTAL (6)
1	Operating Expenses	\$989,455	\$289,991	\$289,991	\$1,158,155	\$0	\$2,727,593
2	Capital Expenses	\$1,457,181	\$162,922	\$162,922	\$0	\$40,953	\$1,823,978
3	<b>Total</b>	<b>\$2,446,636</b>	<b>\$452,914</b>	<b>\$452,914</b>	<b>\$1,158,155</b>	<b>\$40,953</b>	<b>\$4,551,571</b>
4	Allocation of General Cost	\$22,213	\$4,112	\$4,112	\$10,515	(\$40,953)	\$0
5	<b>Allocated Revenue Requirement</b>	<b>\$2,468,849</b>	<b>\$457,026</b>	<b>\$457,026</b>	<b>\$1,168,670</b>	<b>\$0</b>	<b>\$4,551,571</b>
6	Adjustments to Fixed Charges	(\$10,756)	(\$1,991)	(\$1,991)	\$14,738		\$0
7							
8	<b>Adjusted Revenue Requirement</b>	<b>\$2,458,093</b>	<b>\$455,035</b>	<b>\$455,035</b>	<b>\$1,183,408</b>	<b>\$0</b>	<b>\$4,551,571</b>
9							
10	Unit of Service	532,607	832,970	831,979	7,142		
11	Units	hcf	lbs/yr	lbs/yr	EDUs		
12							
13	<b>Unit Cost</b>	<b>\$4.62</b>	<b>\$0.55</b>	<b>\$0.55</b>	<b>\$165.70</b>		

**Derivation of the Cost of Service**

The final and ultimate step is to determine the cost of service for each customer class. RFC derived the cost to serve each user class as shown in Table 4-8. RFC calculated the cost to serve each class by multiplying the unit costs by causation component in Table 4-7 by the units of service (by class and by causation component) shown in Table 4-6. For example, for each class RFC multiplied the flow unit rate (line 13, Table 4-7) by the yearly sewer use for each class (in column 1, Table 4-6) to yield the cost of service associated with flow (column 2 in Table 4-8). RFC performed similar calculations for the remaining cost components to yield the total cost to serve each class shown in column 7 of Table 4-8. Note that the total cost of service shown in line 10, column 7 equals the net revenue requirement shown in Table 4-5. This is the amount of revenue that needs to be collected from each class through a fixed and volumetric rate structure.

**Table 4-8: Cost of Service Derivation**

Line No.	Customer Class (1)	Flow (2)	BOD (3)	TSS (4)	Customer/ Capacity (5)	Volumetric (\$ / hcf) (6)	TOTAL (7)
1	<b>Residential</b>						
2	4S Ranch and Santa Luz	\$1,349,644	\$199,825	\$200,063	\$596,509	\$1,749,532	<b>\$2,346,042</b>
3	Rancho Cielo	\$114,346	\$16,139	\$16,158	\$51,863	\$146,644	<b>\$198,507</b>
4	<b>Non-Residential</b>						
5	Multi-Family	\$393,890	\$61,271	\$61,344	\$251,860	\$516,504	<b>\$768,364</b>
6	Group I	\$360,323	\$56,049	\$56,116	\$231,644	\$472,489	<b>\$704,133</b>
7	Group II	\$238,149	\$120,396	\$120,540	\$45,235	\$479,086	<b>\$524,321</b>
8	Group III	\$1,740	\$1,354	\$813	\$6,296	\$3,907	<b>\$10,203</b>
9							
10	<b>TOTAL COST</b>	<b>\$2,458,093</b>	<b>\$455,035</b>	<b>\$455,035</b>	<b>\$1,183,408</b>	<b>\$3,368,162</b>	<b>\$4,551,571</b>

## 4.2 DERIVATION OF WASTEWATER RATES

RFC then derived the wastewater rates and charges based on the cost to serve each class. Table 4-9 shows the derivation of the wastewater rates and charge. Column 3 shows the derivation of the annual system access charge. The annual system access charge is calculated by dividing the customer/capacity costs in column 1 by the EDUs for each class in column 2. Column 6 shows the derivation of commodity/volumetric rate. The commodity rate for residential and Multi-family and Group 1 Commercial customers is derived by dividing the commodity rate revenue requirement subtotal in line 6, column 4, by the sewer use subtotal, line 6, column 5 to yield the rates shown in column 6 for each class. The Groups I, II and III customer commodity rates are their respective commodity rate revenue requirement in column 4, divided by their respective wastewater flow. The charges derived in this table are designed to collect the revenue requirement shown in Table 4-5.

**Table 4-9: Derivation of Wastewater Rates**

Line No.	Customer Class	Customer/ Capacity (1)	EDUs (2)	System Access Charge (\$ / Yr) (3)	Commodity Rate Revenue Requirement (4)	Sewer Use (hcf) (5)	Volumetric Rate (\$ / hcf) (6)
<b>Residential</b>							
1	4S Ranch and Santa Luz	\$596,509	3,600	\$165.70	\$1,749,532	292,434	\$6.01
2	Rancho Cielo	\$51,863	313	\$165.70	\$146,644	24,776	\$6.01
3	<b>Non-Residential</b>						
4	Multi-Family	\$251,860	1,520	\$165.70	\$516,504	85,346	\$6.01
5	Group I	\$231,644	1,398	\$165.70	\$472,489	78,073	\$6.01
6	Subtotal				\$2,885,170	480,629	
7	Group II	\$45,235	273	\$165.70	\$479,086	51,601	\$9.29
8	Group III	\$6,296	38	\$165.70	\$3,907	377	\$10.37
9		\$1,183,408	7,142		\$3,368,162	532,607	

### Current Wastewater Rates

Table 4-10 shows the current wastewater rates that were effective since 2009.

**Table 4-10: Current Wastewater Rates**

User Class	Annual System Access Charge (per EDU)	Commodity Rate (\$/hcf)
<b>Residential Single Family</b>		
4S Ranch and Santa Luz	\$147.00	\$6.00
Rancho Cielo	\$147.00	\$6.00
<b>Non-Residential</b>		
Multi-Family	\$147.00	\$6.00
Commercial - Group I	\$147.00	\$6.00
Commercial - Group II	\$147.00	\$9.29
Commercial - Group III	\$147.00	\$15.86

**Proposed Wastewater Rates**

To calculate the five year proposed rates, RFC multiplied the rates derived in Table 4-9 for FY 2017, by the annual revenue adjustments proposed in Section 3.4 in Table 3-3.

**Table 4-11: Proposed 5-year Wastewater Rates**

User Class	July 1, 2016		July 1, 2017		July 1, 2018		July 1, 2019		July 1, 2020	
	Annual System Access Charge (per EDU)	Commodity Rate (\$/hcf)	Annual System Access Charge (per EDU)	Commodity Rate (\$/hcf)	Annual System Access Charge (per EDU)	Commodity Rate (\$/hcf)	Annual System Access Charge (per EDU)	Commodity Rate (\$/hcf)	Annual System Access Charge (per EDU)	Commodity Rate (\$/hcf)
<b>Residential Single Family</b>										
4S Ranch and Santa Luz	\$165.70	\$6.01	\$170.68	\$6.20	\$175.81	\$6.39	\$181.09	\$6.59	\$186.53	\$6.79
Rancho Cielo	\$165.70	\$6.01	\$170.68	\$6.20	\$175.81	\$6.39	\$181.09	\$6.59	\$186.53	\$6.79
<b>Non-Residential</b>										
Multi-Family	\$165.70	\$6.01	\$170.68	\$6.20	\$175.81	\$6.39	\$181.09	\$6.59	\$186.53	\$6.79
Commercial - Group I	\$165.70	\$6.01	\$170.68	\$6.20	\$175.81	\$6.39	\$181.09	\$6.59	\$186.53	\$6.79
Commercial - Group II	\$165.70	\$9.29	\$170.68	\$9.57	\$175.81	\$9.86	\$181.09	\$10.16	\$186.53	\$10.47
Commercial - Group III	\$165.70	\$10.37	\$170.68	\$10.69	\$175.81	\$11.02	\$181.09	\$11.36	\$186.53	\$11.71

## 5 CUSTOMER BILL IMPACT ANALYSIS

Table 5-1 shows the customer bill impacts for Single Family customers assuming different water use points. Single Family customers are billed based on their minimum winter monthly (prior year) usage up to a cap of 10 hcf. Table 5-1 shows that the average Single Family using 7 hcf of water the monthly bill will increase approximately \$1.63 for FY 2017.

**Table 5-1: Single Family Customer Impacts**

Single Family Customer Impacts	Monthly Usage (hcf)	Current Annual Bill	Proposed Annual Bill	Monthly Difference	Difference (%)
	2	\$291.00	\$309.94	\$1.58	7%
	4	\$435.00	\$454.18	\$1.60	4%
	6	\$579.00	\$598.42	\$1.62	3%
	7	\$651.00	\$670.54	\$1.63	3%
	8	\$723.00	\$742.66	\$1.64	3%
Single Family Cap	10	\$867.00	\$886.90	\$1.66	2%

Multi-family customer impacts per dwelling unit are similar except that Multi-family (MF) customers are billed based on actual water use without a cap of 10 hcf. The average use per MF dwelling unit is 5 hcf. Similar to Single Family customers, each dwelling unit is assessed the annual system access charge shown in Table 4-10 plus their share of water use for the dwelling unit complex. For example, assuming a condo with 4 dwelling units, the charge per dwelling unit would be \$165.70 plus  $\frac{1}{4}$  of the water use for the complex multiplied by the commodity rate of \$6.01/hcf.

Table 5-2 shows the bill impacts for Group I commercial customers. The average monthly use per account for Group I commercial customers is 100 hcf. Each commercial account is assessed a charge which is the sum of the number of EDUs times the annual system access charge and actual water use multiplied by the commodity rate.

**Table 5-2: Group I Commercial Customer Impacts**

Monthly Usage (hcf)	Current Annual Bill	Proposed Annual Bill	Monthly Difference	Difference (%)
25	\$1,947.00	\$1,968.70	\$1.81	1.1%
50	\$3,747.00	\$3,771.70	\$2.06	0.7%
75	\$5,547.00	\$5,574.70	\$2.31	0.5%
100	\$7,347.00	\$7,377.70	\$2.56	0.4%
125	\$9,147.00	\$9,180.70	\$2.81	0.4%
150	\$10,947.00	\$10,983.70	\$3.06	0.3%

Table 5-3 shows the bill impacts for Group II commercial customers. The average use for Group II customers is approximate 225 hcf per account.

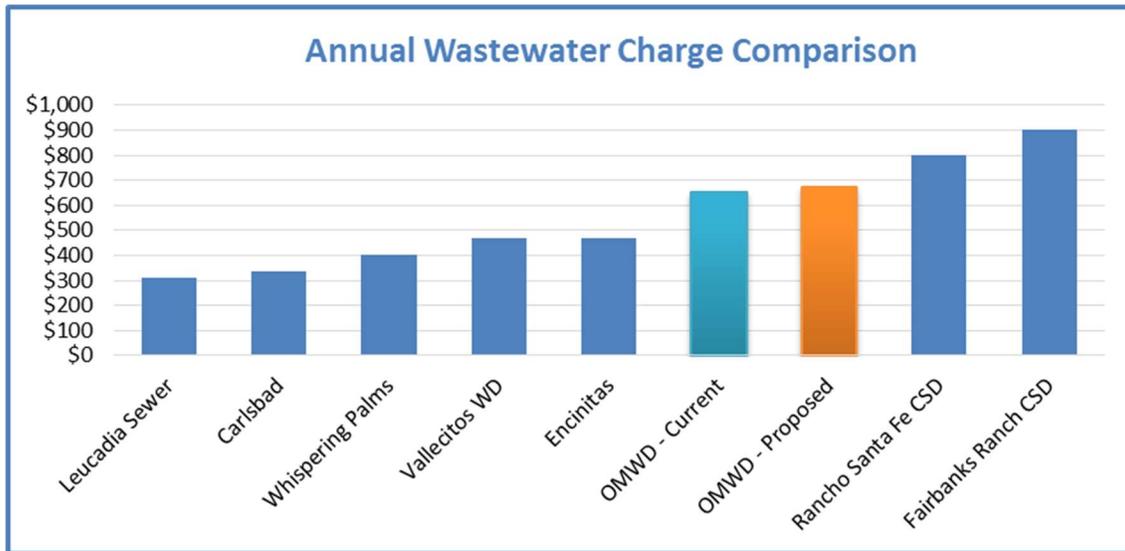
**Table 5-3: Group II Commercial Customer Impacts**

Monthly Usage (hcf)	Current Annual Bill	Proposed Annual Bill	Monthly Difference	Difference (%)
50	\$5,721.00	\$5,739.70	\$1.56	0.3%
100	\$11,295.00	\$11,313.70	\$1.56	0.2%
150	\$16,869.00	\$16,887.70	\$1.56	0.1%
225	\$25,230.00	\$25,248.70	\$1.56	0.1%
250	\$28,017.00	\$28,035.70	\$1.56	0.1%
300	\$33,591.00	\$33,609.70	\$1.56	0.1%

At the time of this report, the District no longer has Group III customers.

## 6 WASTEWATER BILL COMPARISON

Section 6 shows a comparison of annual Single Family wastewater charges for agencies surrounding the District. Most charges for the agencies shown are fixed annual charges that are independent of wastewater flow. However for the District and Encinitas, whose Single Family charge includes a component that is based on wastewater use, we assumed a monthly wastewater use of 7 hcf – which is the average use for District customers.



## 7 ANNEXATION FEES

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The purpose of the wastewater annexation fee is to place the annexed parcels on an equal basis, or on par with, parcels within District sewer boundaries. The parity is based on charges previously paid by those parcels already within District boundaries. The District adopted its first wastewater annexation fee in 2005. RFC reviewed this fee calculation and does not recommend changes to the current methodology.

The District assumed ownership of the sewer system from San Diego County in 1998. The annexation fee calculation includes (1) the present value of standby charges since 1999 (2) the contributed cost of sewer system assets. Contributed assets are assets, such as pipelines and manholes that were donated, or contributed, to the District by real estate developers. Parcels within the District would then have reimbursed the developer through their purchase of their property.

$$\text{Annexation Fee} = \text{Present Value of Yearly Standby Fee} + \text{Contributed Asset Value per EDU}$$

Table 7-1 shows the derivation of the standby charges for 4S Ranch and Rancho Cielo service areas. RFC derived the standby charge for each sub-district (4S and Rancho Cielo) by adjusting the standby fee for each year by the inflationary adjustment shown in column 5. The inflationary adjustments are calculated by dividing the Consumer Price Index (CPI) for the San Diego area for a given year by the CPI for FY 2015 (100 percent). In other words, column 6 is derived by multiplying column 2 or 3 by column 5. The total present value for each sub-district is the sum of columns 6 or 7.

**Table 7-1: Present Value of Standby Charges**

Year (1)	4S Ranch Standby Fee per EDU (2)	RC Standby Fee per EDU (3)	San Diego CPI Index (4)	Inflation Adjustment (5)	4S Ranch - Inflation Adjusted Standby Fee per EDU (6)	RC - Inflation Adjusted Standby Fee per EDU (7)
FY 2015	\$0	\$0	266.2	100%	\$0	\$0
FY 2014	\$0	\$100	263.5	101%	\$0	\$101
FY 2013	\$0	\$100	258.1	103%	\$0	\$103
FY 2012	\$0	\$100	255.0	104%	\$0	\$104
FY 2011	\$100	\$100	249.6	107%	\$107	\$107
FY 2010	\$100	\$100	243.9	109%	\$109	\$109
FY 2009	\$100	\$100	241.5	110%	\$110	\$110
FY 2008	\$100	\$100	238.6	112%	\$112	\$112
FY 2007	\$100	\$100	230.7	115%	\$115	\$115
FY 2006	\$100	\$100	224.8	118%	\$118	\$118
FY 2005	\$100	\$100	216.3	123%	\$123	\$123
FY 2004	\$100	\$100	209.1	127%	\$127	\$127
FY 2003	\$100	\$100	201.9	132%	\$132	\$132
FY 2002	\$100	\$100	194.1	137%	\$137	\$137
FY 2001	\$100	\$100	188.0	142%	\$142	\$142
FY 2000	\$210	\$0	176.9	151%	\$316	\$0
FY 1999	\$210	\$0	169.8	157%	\$329	\$0
<b>TOTAL</b>					<b>\$1,978</b>	<b>\$1,641</b>

The County collected standby charges for the District at an annual rate of \$210 per EDU from FY 1999 to 2000. In FY 2001, the District lowered the annual standby charge to \$100 per EDU. The standby charge was discontinued in FY 2011 for 4S Ranch and in FY 2014 for Rancho Cielo.

The second component of the annexation fee is the contributed asset value per EDU. The derivation of this component is shown in Table 7-2. The District provided contributed asset data and RFC valued the assets using Replacement Cost Less Depreciation (RCLD) – the results are shown in line 1 of Table 7-2. The RCLD is divided by the service EDUs (line 2) to yield the contributed asset component of the Annexation Fee in line 3.

**Table 7-2: Derivation of the Contributed Asset Value per EDU**

Line No.	2017 (1)	4S Ranch (2)	Rancho Cielo (3)
1	Contributed Assets - RCLD	\$44,658,993	\$12,119,609
2	Service EDUs	6,778	605
<b>3</b>	<b>Contributed Assets - per EDU</b>	<b>\$6,589</b>	<b>\$20,032</b>

The annexation fee assumes that the cost of developer contributed assets was passed through to or recovered from property owners within District boundaries in the sales price of the land and/or home. In other words, the cost of contributed assets is incorporated in home/land prices. The recommended annexation fee includes the value of the contributed assets, providing equity in that newly annexed properties pay an amount proportionate to the amount that existing properties already within District boundaries have paid for these sewer system assets.

Adding the two components of the annexation fee for each sub-district yields the total annexation fee for 4S Ranch and Rancho Cielo as shown in Table 7-3.

**Table 7-3: Derivation of the Total Annexation Fee**

Line No.		Standby Charge (per EDU) (1)		Contributed Assets (per EDU) (2)		Proposed Annexation Fee (per EDU) (3)		Current Annexation Fee (per EDU) (4)
1	4S Ranch	\$1,978	+	\$6,589	=	<b>\$8,560</b>		\$6,610
2	Rancho Cielo	\$1,641	+	\$20,032	=	<b>\$21,670</b>		\$11,700

## 8 WASTEWATER CAPACITY FEE

The District calculated their first capacity fee in 2005 after assuming the 4S Future Urban Development Area (4S Ranch) from the County of San Diego. RFC updated the District's capacity fees using the System Buy-in methodology which is consistent with the prior capacity fee methodology. Table 8-1 shows the derivation of the 4S Ranch and Rancho Cielo Capacity fees.

First, RFC valued wastewater system assets, not including contributed assets since the value of those assets is part of the annexation fee, using RCLD. The valuation of wastewater system assets for 4S Ranch and Rancho Cielo is shown in line 1 through 3 in Table 8-1. The valuation is broken down into distribution system assets and treatment plant assets. In line 3 we add the value of facilities that will become part of the District's assets in the near future since the District does not update its capacity fee on a yearly basis. By doing so this fee is more representative of system value over the next 5 years. RFC assigned the value of treatment plant assets to 4S Ranch and Rancho Cielo in proportion to the service EDUs in each sub-district shown in line 5.

To derive the capacity fee, RFC divided the system valuations in lines 1 through 3 by the service EDUs shown in line 5 to calculate the capacity fees shown in lines 7, 8 and 9. The total capacity fee is the summation of lines 7 through 9 and is shown in line 10. Line 12 shows the District's current capacity fees.

**Table 8-1: Wastewater Capacity Fee Derivation**

Line No.	FY 2017 (1)		4S Ranch (3)	Rancho Cielo (4)
1	OMWD Distribution System Assets	A	\$3,741,997	\$412,291
2	Treatment Plant Assets	B	\$6,914,035	\$617,142
3	CIP - 5-year average	C	\$5,202,081	\$1,438,454
4				
5	Service EDU	D	6,778	605
6				
7	Capacity Fee - Assets, per EDU	A/D	\$552	\$681
8	Capacity Fee - Treatment, per EDU	B/D	\$1,020	\$1,020
9	Capacity Fee - CIP, per EDU	C/D	\$767	\$2,378
<b>10</b>	<b>Total Capacity Fee, per EDU</b>		<b>\$2,330</b>	<b>\$4,070</b>
11				
12	Current Fees		\$1,300	\$500

As mentioned earlier, contributed assets (either paid by developers or the County) are not included in the capacity fee since these assets are incorporated in the annexation fee calculation. Therefore, the capacity fee reflects the value system assets paid for by the District's existing ratepayers.

## 9 CAPACITY FEE COMPARISON

Section 9 compares the District Capacity Fees for SFR customers in the 4S Ranch service area to those of surrounding agencies as shown in Figure 9-1. The capacity fee survey was conducted in February of 2016.

**Figure 9-1: Comparison of Surrounding Agency Capacity Fees**

