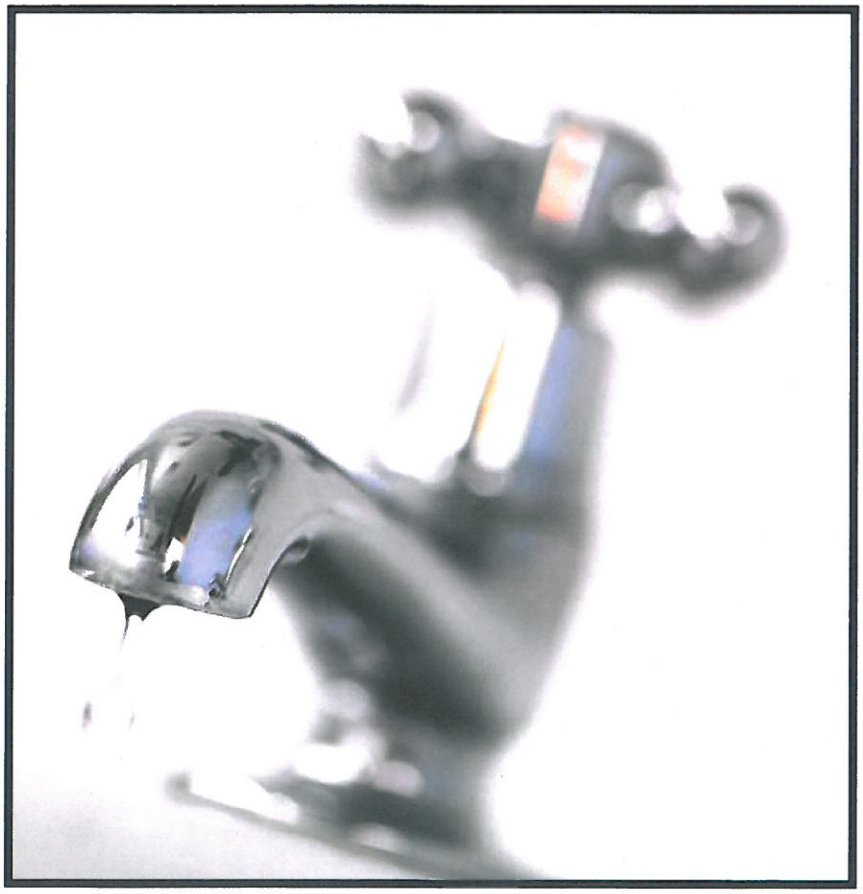
Costa Mesa Sanitary District

Sewer Rate Study



HF&H Consultants, LLC

December 7, 2012 – Final Report

COSTA MESA SANITARY DISTRICT
628 W 19th Street
Costa Mesa, CA 92627

SEWER RATE STUDY

December 7, 2012

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December 7, 2012

Mr. Scott Carroll
General Manager
Costa Mesa Sanitary District
628 W 19th Street
Costa Mesa, CA 92627

Subject: Sewer Rate Study – Final Report

Dear Mr. Carroll:

HF&H Consultants, LLC, is pleased to submit this Sewer Rate Study. The report summarizes the analysis that was conducted to develop the necessary rates for the five-year projection period, FY 2013-14 through FY 2017-18.

It has been a privilege to assist the District with this important study.

Very truly yours,

HF&H CONSULTANTS, LLC

John W. Farnkopf, P.E.
Senior Vice President

TABLE OF CONTENTS

1. EXECUTIVE SUMMARY 1

Findings and Recommmendations 1

2. BACKGROUND 5

Study Purpose and Objectives 5
Methodology 5
Existing Sewer Rate Structure 6

3. PROJECTED REVENUE REQUIREMENTS 7

Revenue Requirement Components 8
Salaries and Benefit Expenses 8
Maintenance and Operations Expenses 8
Capital Improvement Expenses 8
Contributions To Reserves 8
Projected Revenue Increases 9

4. COST OF SERVICE ANALYSIS 11

Allocation of Costs to Functions 11
Units of Service 15
Allocation of Inflow & Infiltration 18
Unit Costs of Service 19
Revenue Requirement Allocations 20

5. RATES AND CUSTOMER BILLS 21

Rate Structure Adjustments 21
FY 2013-14 Customer Bill Impacts 21
Comparison of Rate Structures 23
Five-Year Rate Projections 25

TABLE OF FIGURES

Figure 1-1. Revenue Requirement Increases 2
Figure 1-2. FY 2013-14 Revenue Requirement Comparison 2
Figure 1-3. Comparison of Current and Cost-of-Service Rates 3
Figure 1-4. Five-Year Rate Projections 4
Figure 3-1. Projected Revenue Requirements and Annual Revenue Increases 7
Figure 3-2. Annual CIP Budget 8
Figure 3-3. Fund Balance With and Without Rate Increases 10
Figure 4-1. Functional Allocation Factors – Direct Allocations 12
Figure 4-2. Direct Functional Allocations 13
Figure 4-3. Composite Functional Allocations 14
Figure 4-4. Summary of Functional Allocations 15
Figure 4-5. Summary of Customer Class Units of Service (before allocating I&I) 16
Figure 4-6. Estimated Residential Flow 17
Figure 4-7. Estimated Non-Residential Flow 17
Figure 4-8. Allocation of Inflow & Infiltration to Customer Classes 18
Figure 4-9. Summary of Units of Service (after allocating I&I) 19
Figure 4-10. Unit Costs of Service 19
Figure 4-11. Revenue Requirement Allocations 20
Figure 4-12. Cost of Service Allocations Compared With Current Payments 20
Figure 5-1. FY 2013-14 Cost of Service Rates Compared With Current Rates 21
Figure 5-2. FY 2013-14 Bill Comparison For Various District Businesses 22
Figure 5-3. Comparison of Residential Bills Among Neighboring Agencies 23
Figure 5-4. Comparison of Monthly Residential Bills 24
Figure 5-5. Five-Year Rate Projections 25

ACRONYMS

BOD	Biochemical Oxygen Demand; a component of wastewater strength
CIP	Capital Improvement Plan
COS	Cost of service
DU	Dwelling unit
EDU	Equivalent Dwelling Unit; an average single-family residential customer
EPA	Environmental Protection Agency
FY	Fiscal Year
GCD	Gallons per Capita per Day
GPD	Gallons Per Day
HCF or CCF	Hundred (100) Cubic Feet of metered water; 748 gallons; a cube of water 4.6 feet on edge
I&I	Inflow and Infiltration; stormwater runoff that enters collection systems as inflow through surface openings or as infiltration through subsurface cracks or other openings
Mg/l	Milligrams per Liter
OCSD	Orange County Sanitation District
O&M	Operations and Maintenance
PAYGo	Pay-As-You-Go financing, as opposed to debt financing
TSS	Total Suspended Solids; an inorganic component of wastewater strength

ACKNOWLEDGEMENTS

Board of Directors
- Bob Ooten, President
- Jim Ferryman, Vice President
- Mike Scheafer, Secretary
- Jim Fitzpatrick, Assistant Secretary
- Art Perry, Director

District Staff
- Scott Carroll, General Manager
- Teresa Gonzalez, Accounting Manager
- Rob Hamers, District Engineer
- Marc Davis, District Treasurer/Acting Accounting Manager

HF&H Consultants, LLC
- John Farnkopf, Sr. Vice President
- Rick Simonson, Vice President
- Sima Mostafaei, Senior Associate

SEWER RATE STUDY

1. EXECUTIVE SUMMARY

This report summarizes the analysis of the Costa Mesa Sanitary District's sewer service charges. The analysis represents a collaborative effort with the District's Staff and consulting team. HF&H prepared the financial plan and cost of service analysis model using the District Staff's recent five-year budget covering FY 2013-14 through FY 2017-18.

A presentation was made to the Board of Directors on April 16, 2012 to introduce the subject and to review and discuss alternatives. Subsequent refinements were made to address comments received from the Board.

FINDINGS AND RECOMMMENDATIONS

1. **Current Rates.** Current rates were adopted in 2010. The District charges residents a flat annual fee per dwelling unit and charges commercial/industrial properties an annual fee based on the square footage of the property. Current annual sewer service charges are as follows:

    a. **Single-Family Residences**: $66.23 plus a $2.77 FOG charge per dwelling unit;

    b. **Multi-Family Residences**: $51.00 plus a $2.77 FOG charge per dwelling unit;

    c. **Commercial Properties**: $38.52 per square foot, plus either (1) $2.77 per year FOG charge for customers without food service, (2) $72.00 per year FOG charge for customers with cold food service, or (3) $180.00 per year for customers with hot food service;

    d. **Industrial Properties**: $113.50 per square foot plus a $2.77 per year FOG charge.

2. **Revenue Requirement Projections.** Figure 1-1 indicates the projected revenue requirements for the five-year period beginning with FY 2013-14. The District's existing rates could be increased by the annual percentages to generate the required revenue if no modifications are made to the rate structure. The revenue requirement for FY 2013-14 is virtually the same as the current FY 2012-13 budget. In subsequent years, overall rate revenue must be increased as the revenue requirement increases to fund the "pay-as-you-go" capital improvement projects, staffing, and reserve contributions that are planned:

Figure 1-1. Revenue Requirement Increases

	Revenue Requirement	Annual Increase
FY 2013-14	$5,110,130	0.0%
FY 2014-15	$5,212,332	2.0%
FY 2015-16	$5,316,579	2.0%
FY 2016-17	$5,422,910	2.0%
FY 2017-18	$5,531,369	2.0%

3. **Cost of Service Allocations.** As part of developing rate structure alternatives, a cost of service analysis was performed to allocate the revenue requirement to each customer class in proportion to each class' loading on the system. This is an essential step particularly in view of the fact that there is limited documentation for the current rates. The results of the cost of service allocations are summarized in Figure 1-2.

Figure 1-2. FY 2013-14 Revenue Requirement Comparison

Customer Class	FY 2013-14 Revenue Requirement Allocation	Current Payments	COS vs Current	
			$	%
Residential				
Single-Family	$ 1,566,726	$ 1,266,702	$ 300,024	23.7%
Multi-Family	1,328,077	1,425,658	(97,580)	-6.8%
Total Residential	2,894,804	2,692,360	202,444	
Non-Residential				
Commercial - Average Strength	711,837	725,523	(13,686)	-1.9%
Commercial - High Strength	553,748	583,922	(30,175)	-5.2%
Industrial	949,635	1,108,325	(158,689)	-14.3%
Total Non-Residential	2,215,220	2,417,770	(202,550)	
Total Revenue Requirement	$ 5,110,024	$ 5,110,130	$ (106)	

Overall, single-family residential customers are paying less than their collective revenue requirement and all other customers have been paying more than their collective revenue requirement.

Within the residential class, there is a reduction in costs to the multi-family customers because (1) the average flow from multi-family dwelling units was re-evaluated and determined to be slightly less than previous estimates and (2) the allocation of I&I is weighted in part based on the number of laterals (rather than

dwelling units), which shifts costs to the single-family class. Within the commercial class, the strength concentrations were re-evaluated, which reduced the costs allocated to industrial customers.

4. **Alternative Rate Structure.** Figure 1-3 compares the annual charges for each class. The rates under the existing structure are the same in FY 2013-14 as FY 2012-13; no increase is required. The cost-of-service rate structure is compared with the existing rate structure. The cost-of-service rates were calculated to produce the cost of service for each class as shown in Figure 1-2. Note that the FOG charge is not shown separately for the cost-of-service structure because it is built into the charge per unit. Also note that the three existing commercial classes are combined into two classes in which the commercial without food service is considered commercial average strength and the commercial with cold and hot food services are considered commercial high strength.

Figure 1-3. Comparison of Current and Cost-of-Service Rates

		Existing Rate Structure		COS		
		FY 2012-13	FY 2013-14	FY 2013-14	COS Minus FY 2013-14	
Customer Class	Billing Unit	Rates	Rates	Rates	$	%
Residential						
Single family						
Base charge	Per DU	$ 66.23	$ 66.23	$ 85.34	$ 19.11	28.9%
FOG charge	Per DU	$ 2.77	$ 2.77	Incl in Base	$ (2.77)	-100.0%
Multi family						
Base charge	Per DU	$ 51.00	$ 51.00	$ 50.09	$ (0.91)	-1.8%
FOG charge	Per DU	$ 2.77	$ 2.77	Incl in Base	$ (2.77)	-100.0%
Commercial						
Without food service/Average strength						
Base charge	Per 1,000 sq ft	$ 38.52	$ 38.52	$ 37.96	$ (0.56)	-1.5%
FOG charge	Per unit	$ 2.77	$ 2.77	Incl in Base	$ (2.77)	-100.0%
With cold food/High strength						
Base charge	Per 1,000 sq ft	$ 38.52	$ 38.52	$ 41.40	$ 2.88	7.5%
FOG charge	Per unit	$ 72.00	$ 72.00	Incl in Base	$ (72.00)	-100.0%
With hot food/High strength						
Base charge	Per 1,000 sq ft	$ 38.52	$ 38.52	$ 41.40	$ 2.88	7.5%
FOG charge	Per unit	$ 180.00	$ 180.00	Incl in Base	$ (180.00)	-100.0%
Industrial						
Base charge	Per 1,000 sq ft	$ 113.50	$ 113.50	$ 97.44	$ (16.06)	-14.1%
FOG charge	Per unit	$ 2.77	$ 2.77	Incl in Base	$ (2.77)	-100.0%
Other Base charge	Per 1,000 sq ft	$ 34.14	$ 34.14		$ (34.14)	-100.0%
FOG charge	Per unit	$ 2.77	$ 2.77		$ (2.77)	-100.0%

5. **Implementation Recommendation.** The District has certain options from which to choose in implementing the results of this study. We recommend that the District adopt the cost-of-service rates effective with FY 2013-14 and subsequent years' rates should increase by the annual projected change in the District's revenue requirement (as shown in Figure 1-1). Accordingly, the recommended rates for FY 2013-14 through FY 2017-18 are shown in Figure 1-4.

Figure 1-4. Five-Year Rate Projections

Customer Class	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18
Residential (Per Dwelling Unit)					
Single family	$85.34	$87.05	$88.79	$90.57	$92.38
Multi family	$50.09	$51.09	$52.11	$53.15	$54.21
Non-Residential (Per 1,000 sq. ft.)					
Commercial - Average Strength	$37.96	$38.72	$39.49	$40.28	$41.09
Commercial - High Strength	$41.40	$42.23	$43.07	$43.93	$44.81
Industrial	$97.44	$99.39	$101.38	$103.41	$105.48

Each year, prior to implementing the sewer service charge increases, District staff should confirm the need for the rate increase. The District can implement a lower rate increase, if possible, without going through the Proposition 218 notification process. If the District chooses to increase the rates or change the structure, the Proposition 218 notification process will need to be followed.

2. BACKGROUND

STUDY PURPOSE AND OBJECTIVES

The District last increased its rates in 2010. Documentation from the time that the existing rate structure was originally developed is limited. Alternatives to the existing rate structure were evaluated but the rates that were adopted were based on the existing rate structure. Rates were increased to generate sufficient revenue to cover the projected O&M and capital expenses of the District's collection system.

The purpose of this study is to conduct a comprehensive analysis of the District's rates, including documentation of the analysis, underlying assumptions, and the rationale for the recommended rates. This study has several key objectives:

- Determine how much revenue is required to meet the District's requirements, including O&M, capital improvement, and reserve funds.
- Evaluate the District's existing customer classes.
- Determine the cost of service for each customer class.
- Evaluate alternative rate structures that will ensure that each customer class is paying its proportionate share of the revenue requirements.
- Compare the District's rates and customer bills with those of its neighboring wastewater agencies.

These objectives should be met by applying industry standards and so that all applicable laws are complied with.

METHODOLOGY

This rate study describes three analytic stages:

- Revenue requirement projections – The District's expenses and revenues are projected based on expected cost escalation factors and growth rates. The difference between expenses and revenues must be offset by annual revenue increases.
- Cost of service analysis – The revenue requirement for the coming rate year is allocated to each customer class based on the cost of service.
- Rate design and bill analysis – Rates are designed for each customer class to recover its share of the cost of service. The reasonableness of the rate design is evaluated by comparing customer bills to ensure that proportionality is maintained.

EXISTING SEWER RATE STRUCTURE

The District's service area includes a population of 116,700 residents and businesses located in the Cities of Cost Mesa and Newport Beach as well as a small amount of customers located in unincorporated areas of Orange County. The District's collection system comprises 224 miles of collection system pipelines that serve 17,788 single-family, 5,922 multi-family, and 2,366 commercial and industrial customers. Wastewater treatment is provided by Orange County Sanitation District.

Residential customers (i.e., single-family and multi-family) are charged different fixed amounts per equivalent dwelling unit (EDU) per year to reflect the fact that, on average, multi-family dwelling units tend to discharge less than the amount of wastewater that is discharged by an average single-family dwelling unit. The current annual sewer service charge is $69.00 per EDU for single-family residences (including $2.77 per year to fund the District's Fats, Oils, and Grease (FOG) program) and $53.77 per EDU for multi-family residences (including $2.77 per year for the FOG program).

Non-residential customers are charged a fixed amount of $38.52 per 1,000 square feet for commercial customers and $113.50 per 1,000 square feet for industrial customers. Commercial and industrial customers without food preparation on-site are charged an additional $2.77 per year to fund the FOG program. Units with on-site *cold* food preparation are charged an additional $72.00 per year and units with on-site *hot* food preparation are charged an additional $180.00 per year to fund the FOG program.

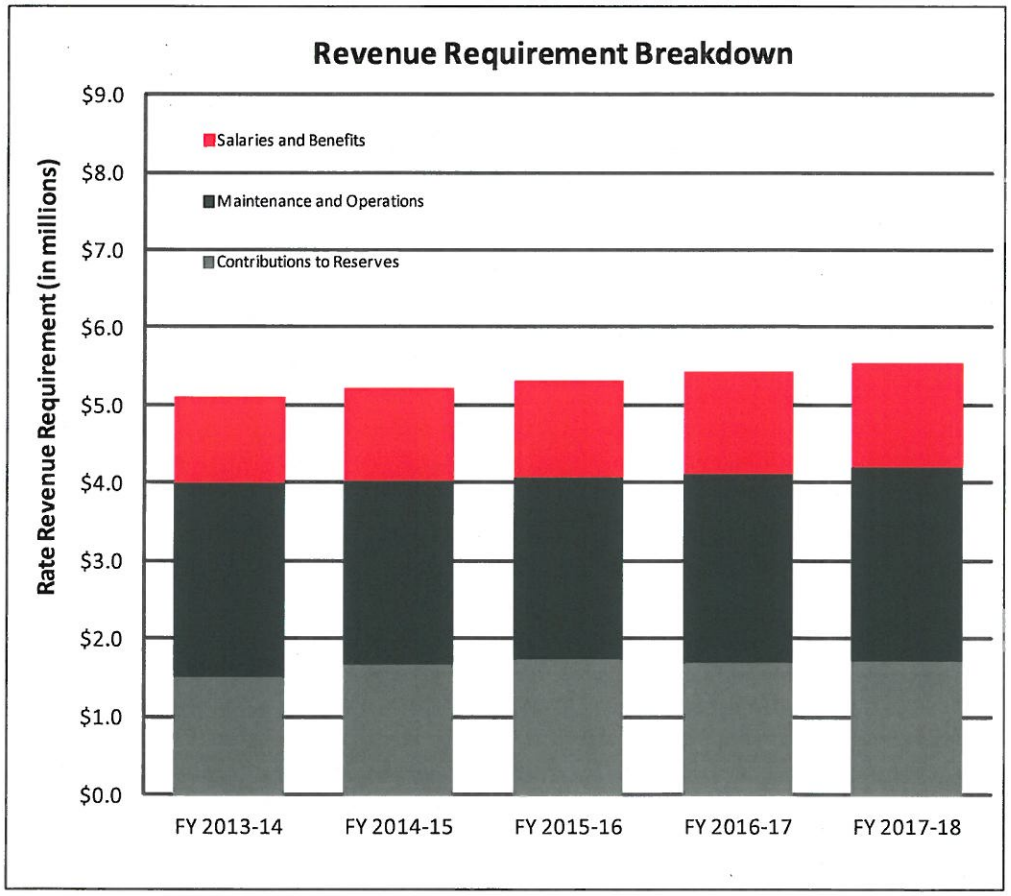
The District bills these rates on the Orange County tax rolls. Customers receive separate bills on their tax rolls for wastewater treatment from OCSD. The District is not involved in setting OCSD's rates.

3. PROJECTED REVENUE REQUIREMENTS

Rate analysis begins by determining the revenue requirements that must be met by rates. For purposes of this study, a five-year rate projection period was developed using a spreadsheet model. With this model, revenue requirements were projected for FY 2013-14 through FY 2017-18. Figure 3-1 summarizes the major categories comprised in the revenue requirements, indicating the annual revenue increase. Each of these categories is discussed below.

Figure 3-1. Projected Revenue Requirements and Annual Revenue Increases

Annual Revenue Requirement	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18
Salaries and Benefits	$ 1,123,350	$ 1,194,950	$ 1,252,250	$ 1,312,450	$ 1,334,050
Maintenance and Operations	2,469,286	2,336,988	2,334,313	2,405,933	2,479,701
Contributions to Reserves	1,517,494	1,680,394	1,730,015	1,704,528	1,717,618
	$ 5,110,130	$ 5,212,332	$ 5,316,579	$ 5,422,910	$ 5,531,369
Annual increase		*2.0%*	*2.0%*	*2.0%*	*2.0%*



REVENUE REQUIREMENT COMPONENTS

The operating and capital components of the revenue requirements are based on projections prepared by the District.

Salaries and Benefit Expenses

The District's budget for existing personnel as of FY 2012-13 served as the starting point for projecting operating and administrative wage and benefit expenses. Salaries and benefits were assumed to increase 4.8% - 6.4% per year due to significant increases in PERS contributions, workers' compensation insurance rates, and salaries. No significant staffing changes are anticipated.

Maintenance and Operations Expenses

The District's Other Operating Expenses budget for FY 2012-13 served as the starting point for projecting Maintenance and Operations Expenses. Generally, on-going maintenance and operations expenses were increase 3.0% per year to approximate assumed inflationary increases.

Capital Improvement Expenses

The capital improvement program was developed by the District and is summarized in Figure 3-2 for FY 2013-2014 through FY 2017-18. The District plans to fund all of these capital improvements on a "pay-as-you-go" (PAYGo) basis using a portion of annual rate revenue and available reserves in the Asset Management Fund.

Figure 3-2. Annual CIP Budget

	Annual Budget				
Project Description	FY2013-14	FY2014-15	FY2015-16	FY2016-17	FY2017-18
Force Mains	$ 995,758	$ -	$ 322,456	$ -	$ 871,824
Westside Abandonement	400,000	400,000	400,000	-	-
Grade 5 - Phase III	215,000	-	-	-	-
454' Gravity DIP	58,629	-	-	-	-
PS Electrical Panels	62,014	37,208	50,000	50,000	-
PS Mechanical Replacements	260,000	85,000	-	-	50,000
Grade 4 - Phase I	-	568,032	-	-	-
Grade 4 - Phase II	-	-	585,073	-	-
Grade 4 - Phase III	-	-	-	602,625	
Grade 4 - Phase IV	-	-	-	-	620,704
Generator @ Harbor	-	178,464	-	-	-
Manhole Rehabilitation	-	300,416	309,429	382,454	328,272
Total	$1,991,401	$1,569,120	$1,666,958	$1,035,079	$1,870,800

Contributions To Reserves

In addition to funding operating and capital expenses, sewer service charges need to generate revenue to maintain adequate operation and capital reserves. These reserves were established for the purpose of segregating and accumulating funds for monthly operations and for the periodic purchase and replacement of equipment and capital

improvement projects. It has been the District practice to maintain the lowest possible reserves that are consistent with prudent fiscal policies.

In determining the appropriate balances for the District's reserves, a key consideration is the fact that the District's cash flow is not evenly spread throughout the year. The District does not bill monthly or bi-monthly; the District bills annually on the tax rolls, which results in only two payments from the County when taxes are paid. Because of this uneven cash flow, the District must retain higher reserves than a utility that bills more frequently.

Another factor that leads to the need to carry higher reserves is that, by billing on the tax rolls, the District has no flexibility on when it can adjust rates. Annual adjustments are all that the District can make, which means that the District's reserves need to be able to fund emergency expenditures during the year.

Operations Reserve Minimum Balance. The Operations Reserve provides working capital for monthly O&M expenses. The District has established a target of 10% of annual O&M expenses, approximately $350,000. This target amounts to slightly over one month's O&M cash flow. In view of the fact that there is a five-month period between payments from the County, additional cash is required to cover cash flow during this period. The District manages this cash flow by making temporary use of unexpended funds that have been earmarked for construction, which amounts to an additional 40% of O&M.

Asset Management Fund Target Balance. The Asset Management Fund provides liquidity to pay contractors for capital projects (summarized in Figure 3-2 above) on a PAYGo basis. The target balance for the Asset Management Fund is currently $5,000,000. The fund is drawn down and replenished from year to year.

PROJECTED REVENUE INCREASES

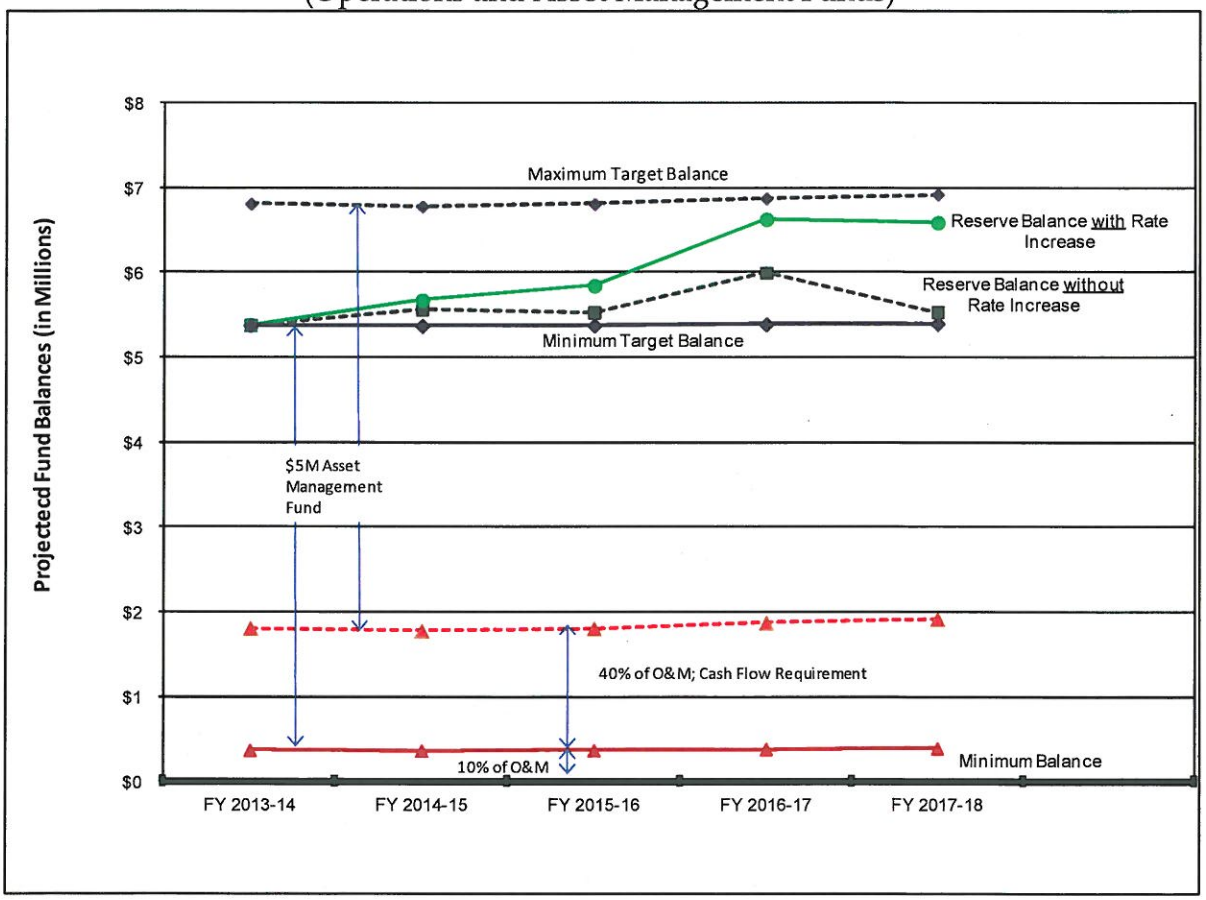
The preceding modeling assumptions lead to the projected fund balances shown in Figure 3-3.

1. **Solid red line** – 10% reserve for O&M based on Board policy.
2. **Dashed red line** – 40% of O&M expenses, which is borrowed from the construction work account to cover cash flow between payments from the County. Without the use of these funds, the cash flow requirement would need to be met from another unrestricted source or from the Asset Management Fund.
3. **Solid blue line** – An additional $5 million for the Asset Management Fund plus the reserve for O&M (line 1).
4. **Dashed green line** – The sum of the Operations and Asset Management Fund balance *if there were no rate increases.*

5. **Solid green line** – The sum of the Operations and Asset Management Fund balance *if there were rate increases* as shown in Figure 3-1.
6. **Dashed blue line** – An additional 40% of O&M expenses on top of the solid blue line. In other words, the dashed blue line includes additional funds, which if achieved, would eliminate the need to borrow from the construction work account to cover cash flow

No revenue increase is projected in FY 2013-14. In subsequent years, rates are gradually increased so that the fund balance climbs toward the dashed blue line. In this way, the District strengthens its financial position by relying less on the construction work account to temporarily meet its cash flow needs between payments from the County.

Figure 3-3. Fund Balance With and Without Rate Increases
(Operations and Asset Management Funds)



4. COST OF SERVICE ANALYSIS

Cost-of-service analysis is a rate-making technique that is used to derive reasonable rates. Reasonable rates are defined by the courts as not being capricious, arbitrary, or discriminatory. Rates are not capricious if there is a clear rationale supporting the analysis. Rates are not arbitrary if there is a sound basis for choosing among alternatives Rates are not discriminatory if they allocate costs proportionately to customers.

The District's current rates determine how much of the total revenue requirement is paid by each customer class (i.e., single-family residents, multi-family residents, commercial accounts with on-site food preparation, commercial accounts without on-site food preparation, industrial accounts). A cost of service analysis determines how much each class should pay based on its respective share of flow and wastewater strength (i.e., biochemical oxygen demand and total suspended solids, the standard measures of wastewater strength).

A cost of service analysis should be conducted periodically to account for any material changes in the loadings from each class.

ALLOCATION OF COSTS TO FUNCTIONS

The cost of service analysis is a process by which expenses (i.e., the District's FY 2013-14 revenue requirement) are allocated to the four functions that represent the services the District provides to customers. Three of the functions are related to the "loading" on the collection system produced by the volume and strength of wastewater; the fourth function is related to customer accounts.

The revenue requirement is allocated to functional categories that represent the functions performed by the District's facilities: customer accounts (i.e., customer service activities, which includes billing), flow, biochemical oxygen demand (BOD), and total suspended solids (TSS). Because the District's facilities comprise a collection system, most of the costs are allocated to the flow function. Although wastewater treatment is provided by OCSD, the strength of wastewater in the District's collection system also has a minor influence of the District's activities because the concentrations of BOD and TSS affect how much cleaning the sewers require.

Figure 4-1 shows the allocation factors that were applied to each line item of the District's direct expenses related to the maintenance, replacement, and repair of the District's sewer lines. Allocation factors were directly assigned in Figure 4-1 to as many expenses as possible based on the associated function.

Figure 4-1. Functional Allocation Factors – Direct Allocations

	FY 2013/14 Revenue Requirement (per District Budget)	*Allocation Method*	Allocation Factors				
			Accounts	Flow	BOD	TSS	Total
Direct Expenses							
Salaries Full-Time - Maintenance	$ 269,800	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Overtime - Maintenance	$ 29,200	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Compensated Absences - Maintenance	$ 3,000	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Cafeteria Plan - Maintenance	$ 45,300	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Medicare - Maintenance	$ 4,700	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
FICA - Maintenance	$ 1,778	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
PERS - Employer - Maintenance	$ 37,000	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
PERS - Employee - Maintenance	$ 16,900	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
RHS - Maintenance	$ 2,700	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Workers' Comp - Maintenance	$ 18,300	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Water Pump Maintenance	$ 2,060	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Electric Pump Maintenance	$ 82,400	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Small Tools/Equip	$ 371	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Small Tools/Equip	$ 7,725	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Maint Material/Supplies	$ 25,647	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
EOC Equip & Supplies	$ 10,197	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Plan Ck/Insp Inside	$ 92,597	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Plan Ck/Insp Outside	$ 27,604	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Plan Ck/Insp Sewer Lateral	$ 24,463	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Pump Stn Maint Contract	$ 77,250	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Sewer Line Maintenance	$ 197,760	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Sewer Maint - GIS	$ 20,600	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Equip Maintenance	$ 31,312	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Televising Sewer Lines	$ 10,300	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Misc Sewer Work	$ 200,850	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Inflow Reduction Program	$ 26,780	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Liability Insurance	$ 10,300	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Engineering/Archit Serv	$ 103,000	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
County Collection Fee	$ 15,759	*2*	*100%*	*0%*	*0%*	*0%*	*100%*
Postage	$ 24,772	*2*	*100%*	*0%*	*0%*	*0%*	*100%*
Community Outreach	$ 24,741	*2*	*100%*	*0%*	*0%*	*0%*	*100%*
FOG Program	$ 111,240	*3*	*0%*	*0%*	*50%*	*50%*	*100%*
Sewer Lateral Program	$ 206,000	*2*	*100%*	*0%*	*0%*	*0%*	*100%*
Non-Operating Revenue	$ (103,000)	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Operating Fund Contingency	$ 216,300	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Asset Replacement	$ 136,681	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Equipment	$ 376,077	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Asset Management Fund	$ 1,496,494	*1*	*0%*	*90%*	*5%*	*5%*	*100%*
Direct Expenses	**$ 3,884,956**						

Allocation Methods:

1 Collection System O&M - Direct attribution with HF&H estimate of flow, BOD, and TSS

2 Customer Account Allocations - Direct attribution

3 FOG Program Allocations - Direct attribution

The product of multiplying the direct allocation factors (from Figure 4-1) times the corresponding direct expenses is shown in Figure 4-2.

Figure 4-2. Direct Functional Allocations

	FY 2013/14 Revenue Requirement (per District Budget)	Allocated Costs				
		Accounts	Flow	BOD	TSS	Total
Direct Expenses						
Salaries Full-Time - Maintenance	$ 269,800	$ -	$ 242,820	$ 13,490	$ 13,490	$ 269,800
Overtime - Maintenance	$ 29,200	$ -	$ 26,280	$ 1,460	$ 1,460	$ 29,200
Compensated Absences - Maintenance	$ 3,000	$ -	$ 2,700	$ 150	$ 150	$ 3,000
Cafeteria Plan - Maintenance	$ 45,300	$ -	$ 40,770	$ 2,265	$ 2,265	$ 45,300
Medicare - Maintenance	$ 4,700	$ -	$ 4,230	$ 235	$ 235	$ 4,700
FICA - Maintenance	$ 1,778	$ -	$ 1,600	$ 89	$ 89	$ 1,778
PERS - Employer - Maintenance	$ 37,000	$ -	$ 33,300	$ 1,850	$ 1,850	$ 37,000
PERS - Employee - Maintenance	$ 16,900	$ -	$ 15,210	$ 845	$ 845	$ 16,900
RHS - Maintenance	$ 2,700	$ -	$ 2,430	$ 135	$ 135	$ 2,700
Workers' Comp - Maintenance	$ 18,300	$ -	$ 16,470	$ 915	$ 915	$ 18,300
Water Pump Maintenance	$ 2,060	$ -	$ 1,854	$ 103	$ 103	$ 2,060
Electric Pump Maintenance	$ 82,400	$ -	$ 74,160	$ 4,120	$ 4,120	$ 82,400
Small Tools/Equip	$ 371	$ -	$ 334	$ 19	$ 19	$ 371
Small Tools/Equip	$ 7,725	$ -	$ 6,953	$ 386	$ 386	$ 7,725
Maint Material/Supplies	$ 25,647	$ -	$ 23,082	$ 1,282	$ 1,282	$ 25,647
EOC Equip & Supplies	$ 10,197	$ -	$ 9,177	$ 510	$ 510	$ 10,197
Plan Ck/Insp Inside	$ 92,597	$ -	$ 83,337	$ 4,630	$ 4,630	$ 92,597
Plan Ck/Insp Outside	$ 27,604	$ -	$ 24,844	$ 1,380	$ 1,380	$ 27,604
Plan Ck/Insp Sewer Lateral	$ 24,463	$ -	$ 22,016	$ 1,223	$ 1,223	$ 24,463
Pump Stn Maint Contract	$ 77,250	$ -	$ 69,525	$ 3,863	$ 3,863	$ 77,250
Sewer Line Maintenance	$ 197,760	$ -	$ 177,984	$ 9,888	$ 9,888	$ 197,760
Sewer Maint - GIS	$ 20,600	$ -	$ 18,540	$ 1,030	$ 1,030	$ 20,600
Equip Maintenance	$ 31,312	$ -	$ 28,181	$ 1,566	$ 1,566	$ 31,312
Televising Sewer Lines	$ 10,300	$ -	$ 9,270	$ 515	$ 515	$ 10,300
Misc Sewer Work	$ 200,850	$ -	$ 180,765	$ 10,043	$ 10,043	$ 200,850
Inflow Reduction Program	$ 26,780	$ -	$ 24,102	$ 1,339	$ 1,339	$ 26,780
Liability Insurance	$ 10,300	$ -	$ 9,270	$ 515	$ 515	$ 10,300
Engineering/Archit Serv	$ 103,000	$ -	$ 92,700	$ 5,150	$ 5,150	$ 103,000
County Collection Fee	$ 15,759	$ 15,759	$ -	$ -	$ -	$ 15,759
Postage	$ 24,772	$ 24,772	$ -	$ -	$ -	$ 24,772
Community Outreach	$ 24,741	$ 24,741	$ -	$ -	$ -	$ 24,741
FOG Program	$ 111,240	$ -	$ -	$ 55,620	$ 55,620	$ 111,240
Sewer Lateral Program	$ 206,000	$ 206,000	$ -	$ -	$ -	$ 206,000
Non-Operating Revenue	$ (103,000)	$ -	$ (92,700)	$ (5,150)	$ (5,150)	$ (103,000)
Operating Fund Contingency	$ 216,300	$ -	$ 194,670	$ 10,815	$ 10,815	$ 216,300
Asset Replacement	$ 136,681	$ -	$ 123,013	$ 6,834	$ 6,834	$ 136,681
Equipment	$ 376,077	$ -	$ 338,469	$ 18,804	$ 18,804	$ 376,077
Asset Management Fund	$ 1,496,494	$ -	$ 1,346,844	$ 74,825	$ 74,825	$ 1,496,494
Direct Expenses	**$ 3,884,956**	**$ 271,271**	**$ 3,152,201**	**$ 230,742**	**$ 230,742**	**$ 3,884,956**

From those direct allocations, a composite was derived and assigned to the remaining portion of the revenue requirements that are more general in nature. Figure 4-3 shows the resulting product of multiplying the line items times the composite allocation factors (from Figure 4-2).

Figure 4-3. Composite Functional Allocations

	FY 2013/14 Revenue Requirement (per District Budget)	Allocated Costs				
		Accounts	Flow	BOD	TSS	Total
Direct Expenses (from Figure 4-2)	**$ 3,884,956**	**$ 271,271**	**$3,152,201**	**$ 230,742**	**$ 230,742**	**$ 3,884,956**
% of Total Direct Expenses (used to allocate the following		*7.0%*	*81.1%*	*5.9%*	*5.9%*	*100.0%*
Composite Expenses						
Salaries Full-Time - Admin	$ 428,200	$ 29,900	$ 347,436	$ 25,432	$ 25,432	$ 428,200
Salaries Part-Time - Admin	$ 9,900	$ 691	$ 8,033	$ 588	$ 588	$ 9,900
Salaries Board - Admin	$ 63,650	$ 4,444	$ 51,645	$ 3,780	$ 3,780	$ 63,650
Overtime - Admin	$ 1,100	$ 77	$ 893	$ 65	$ 65	$ 1,100
Auto Allowance - Admin	$ 2,400	$ 168	$ 1,947	$ 143	$ 143	$ 2,400
Cell Phone Allowance - Admin	$ 5,500	$ 384	$ 4,463	$ 327	$ 327	$ 5,500
Incentive Pay - Admin	$ 5,000	$ 349	$ 4,057	$ 297	$ 297	$ 5,000
Tuition Reimbursement - Admin	$ 5,000	$ 349	$ 4,057	$ 297	$ 297	$ 5,000
Compensated Absences - Admin	$ 5,600	$ 391	$ 4,544	$ 333	$ 333	$ 5,600
Cafeteria Plan - Admin	$ 64,700	$ 4,518	$ 52,497	$ 3,843	$ 3,843	$ 64,700
Medicare - Admin	$ 7,700	$ 538	$ 6,248	$ 457	$ 457	$ 7,700
FICA - Admin	$ 2,822	$ 197	$ 2,290	$ 168	$ 168	$ 2,822
PERS - Employer - Admin	$ 56,900	$ 3,973	$ 46,168	$ 3,380	$ 3,380	$ 56,900
PERS - Employee - Admin	$ 20,200	$ 1,410	$ 16,390	$ 1,200	$ 1,200	$ 20,200
RHS - Admin	$ 4,300	$ 300	$ 3,489	$ 255	$ 255	$ 4,300
Benefits Admin Costs - Admin	$ 8,500	$ 594	$ 6,897	$ 505	$ 505	$ 8,500
Workers' Comp - Admin	$ 3,200	$ 223	$ 2,596	$ 190	$ 190	$ 3,200
Professional Services	$ 105,905	$ 7,395	$ 85,930	$ 6,290	$ 6,290	$ 105,905
Legal Services	$ 90,383	$ 6,311	$ 73,335	$ 5,368	$ 5,368	$ 90,383
Office Supplies	$ 9,940	$ 694	$ 8,065	$ 590	$ 590	$ 9,940
Mult Media/Blueprint/Copies	$ 3,245	$ 227	$ 2,633	$ 193	$ 193	$ 3,245
Fiscal Services	$ 25,441	$ 1,776	$ 20,642	$ 1,511	$ 1,511	$ 25,441
Medical/Employ Services	$ 464	$ 32	$ 376	$ 28	$ 28	$ 464
Contract Services	$ 2,575	$ 180	$ 2,089	$ 153	$ 153	$ 2,575
Elections	$ 30,900	$ 2,158	$ 25,072	$ 1,835	$ 1,835	$ 30,900
Bldg Maintenance	$ 13,987	$ 977	$ 11,349	$ 831	$ 831	$ 13,987
Equip Maintenance	$ 45,093	$ 3,149	$ 36,588	$ 2,678	$ 2,678	$ 45,093
Prof Membership/Dues	$ 42,848	$ 2,992	$ 34,766	$ 2,545	$ 2,545	$ 42,848
Staff Development	$ 29,829	$ 2,083	$ 24,203	$ 1,772	$ 1,772	$ 29,829
Travel/Meals/Lodging	$ 35,010	$ 2,445	$ 28,406	$ 2,079	$ 2,079	$ 35,010
Mileage Reimbursement	$ 2,596	$ 181	$ 2,106	$ 154	$ 154	$ 2,596
Liability Insurance	$ 60,255	$ 4,207	$ 48,890	$ 3,579	$ 3,579	$ 60,255
Telephone	$ 11,691	$ 816	$ 9,486	$ 694	$ 694	$ 11,691
Gas - Bldg	$ 876	$ 61	$ 710	$ 52	$ 52	$ 876
Water - Bldg	$ 2,936	$ 205	$ 2,382	$ 174	$ 174	$ 2,936
Electric - Bldg	$ 16,532	$ 1,154	$ 13,413	$ 982	$ 982	$ 16,532
Composite Expenses	**$ 1,225,173**	**$ 85,549**	**$ 994,089**	**$ 72,768**	**$ 72,768**	**$ 1,225,173**

The total allocations for each of the four functional categories are summed up at the bottom of Figure 4-4. These amounts indicate how much of the District's revenue requirements are associated with each of the four functions. Over 80% of the District's total costs are allocated to the flow category, which is consistent with the fact that the District's primary function as a collection system is to transport waste in the form of flow.

Figure 4-4. Summary of Functional Allocations

	FY 2013/14 Revenue Requirement (per District Budget)	Allocated Costs				
		Accounts	Flow	BOD	TSS	Total
Direct Expenses (from Figure 4-2)	$ 3,884,956	$ 271,271	$ 3,152,201	$ 230,742	$ 230,742	$ 3,884,956
Composite Expenses (From Figure 4-3)	$ 1,225,173	$ 85,549	$ 994,089	$ 72,768	$ 72,768	$ 1,225,173
Total Direct and Composite Expenses	**$ 5,110,130**	**$ 356,820**	**$ 4,146,290**	**$ 303,510**	**$ 303,510**	**$ 5,110,130**

UNITS OF SERVICE

The units of service provided by the District to its customers are the sum of the services provided to each of the District's customer classes:

- Single-Family
- Multi-Family
- Commercial – Average Strength (businesses *without* on-site food preparation)
- Commercial – High Strength (businesses *with* on-site food preparation)
- Industrial

Estimates of customer accounts, flow, BOD, and TSS associated with each customer class are summarized in Figure 4-5.

Figure 4-5. Summary of Customer Class Units of Service (before allocating I&I)

			Mass Balance			
Customer Class	Accounts	Flow[1]	BOD	TSS	BOD	TSS
	Parcels	HCF	mg/l[2]	mg/l[2]	lbs	lbs
Residential						
Single-Family	17,788	1,320,349	175	250	1,442,398	2,060,568
Multi-Family	5,922	1,317,422	175	250	1,439,200	2,055,999
Total Residential	23,710	2,637,771			2,881,597	4,116,568
Non-Residential						
Commercial - Average Strength	1,133	765,924	175	250	836,723	1,195,319
Commercial - High Strength	444	546,288	500	400	1,705,101	1,364,081
Industrial	789	918,549	500	500	2,867,017	2,867,017
Total Non-Residential	2,366	2,230,761			5,408,841	5,426,417
Inflow & Infiltration (I & I)	0	540,948	65	239	219,796	807,035
Total	26,076	5,409,480	252	306	8,510,234	10,350,019

HCF = hundred cubic feet = 748.052 gallons
[1] Estimated annual flow by customer class is calculated in Figures 4-6 and 4-7 below
[2] mg/l (milligrams per liter) by customer class as prescribed by the State's Water Resources Guidelines

In addition to the loading from the customer classes, there is loading from inflow & infiltration (I&I). I&I is determined by subtracting the total loading from the District's customers from the loading attributed to the District by OCSD. The District's total loading to OCSD is greater than the loading from customers by the amount of I&I that enters the collection system between the customers and the OCSD treatment facilities.

The number of customer accounts (i.e., parcels) was based on the District's tax roll data. The strength concentrations in milligrams per liter (MGL) of each customer class' wastewater were based on the State's guidelines.[1] Values for BOD and TSS concentrations were assumed for each class. The product of these concentrations multiplied times each class' estimated flow yielded the class' pounds of BOD and TSS. As a check, the total loading for all classes was compared with the concentration of BOD and TSS for the District based on OCSD data. Adjustments were made to the concentrations to achieve a mass balance in Figure 4-5.

The residential flow was derived as shown in Figure 4-6 based on assumptions about occupancy and per capita flow for single-family and multi-family customers. It was assumed that occupancy is slightly lower in multi-family residences and that the water use per capita is lower. The resulting estimate indicated that multi-family dwelling units produce 69.1% of single-family dwelling units, which is consistent with experience with other agencies.

[1] State Water Resources Control Board. *Revenue Program Guidelines.* Appendix G.

Figure 4-6. Estimated Residential Flow

Customer Class	Dwelling Units	Persons per Household	Water Usage[1] (gpd per person)	Total Usage (gpd)	Est. Population	Est. Flow per DU (gpd)
	A	B	C	D = A*B*C	E = A*B	F = D÷A
Single-Family (SF)	18,358	2.68	55	2,706,000	49,200	147
Multi-Family (MF)	26,514	2.55	40	2,700,000	67,500	102
MF compared to SF		*95%*	*73%*		*116,700*	*69.1%*
		Total Gallons per Day (gpd)		5,406,000		
		gpd * 365 days ÷ 748.052 = HCF =		2,637,771	to figure 4-5	

gpd = gallons per day
[1] Water usage based on U.S. Public Health Service, 1962, Manual of Individual Water Supply Systems, Table 5-27.

Non-residential flow was derived as shown in Figure 4-7 by subtracting the residential flow from the total District flow. The total District flow was estimated based on a flow of 95 gallons per capita per day (GCD) used by OCSD. Multiplying 95 GCD times the District's population of 116,700 yields a total flow of 11,086,500 gallons per day (gpd). Subtracting the residential flow and I&I estimate from the total yields a non-residential flow of 4,571,850 gpd. The non-residential flow was weighted between commercial (average and high strength combined) and industrial customers based on the District's design standards of 3,500 gallons per acre for industrial development and 5,000 gallons per acre for commercial development. The combined commercial flow was further apportioned 58% to average strength customers and 42% to high strength customers based on each classes proportionate share of the total square footage of development within the District.

Figure 4-7. Estimated Non-Residential Flow

Annual Non-residential Flow Calculation			Notes:
District-wide Total Flow (gpd)	11,086,500	gpd	Population x 95 gpd
Less: Residential	(5,406,000)	gpd	Figure 4-6
Less: Inflow & Infiltration (I&I)	(1,108,650)	gpd	10% of Total Flow
Total Non-residential Flow	4,571,850	gpd	
Total Non-residential Flow	2,230,761	hcf	Converted total non-residential flow from above from gpd to hcf
Commercial - Average Strength	765,924	hcf	Developed Commercial Acres x District's Land Use Flow
Commercial - High Strength	546,288	hcf	Coefficients; Apportioned between average and high strength customers based on square footage
Industrial	918,549	hcf	Developed Industrial Acres x District's Land Use Flow Coefficients
	2,230,761	hcf	

Allocation of Inflow & Infiltration

I&I was subdivided into two portions: private laterals and public sewers. The subdivision was based on the relative length of laterals compared to public sewers. Assuming an average length of 50 feet per lateral, it was estimated that lateral length equals 54% of the combined lengths of laterals and public sewers. Figure 4-8 shows the allocation of the lateral and public sewer portions of I&I to the functional categories for each customer class.

I&I was allocated to each customer class based on each class' proportionate share of laterals for the lateral portion and their proportionate share of flow (from Figure 4-5) for the public sewer portion. Single family accounts are assumed to have 1 equivalent lateral per account. All non-single family accounts are assumed to have 1.5 equivalent laterals per account[2].

Figure 4-8. Allocation of Inflow & Infiltration to Customer Classes

Inflow & Infiltration (I&I) Allocation to Customer Classes	Accounts Laterals	Flow HCF	BOD lbs	TSS lbs
Inflow & Infiltration (to be Allocated) = 540,948 HCF (from Figure 4-5)				
Lateral portion	56%	303,317	123,243	452,516
Public sewer portion	44%	237,631	96,553	354,519
		540,948	219,796	807,035
Step 1: Allocate lateral portion based on assumed equivalent laterals				
Residential				
SFR	17,788	178,538	72,543	266,359
MFR[2]	8,883	89,158	36,226	133,015
Total Residential	26,671	267,696	108,769	399,373
Non-Residential				
Commercial - Average Strength[2]	1,700	17,058	6,931	25,448
Commercial - High Strength[2]	666	6,685	2,716	9,973
Industrial[2]	1,184	11,879	4,827	17,722
Total Non-Residential	3,549	35,621	14,473	53,143
Subtotal Laterial Portion	**30,220**	**303,317**	**123,243**	**452,516**
Step 2: Allocate public sewer portion based on flow				
Residential				
SFR	17,788	64,446	16,799	76,549
MFR[2]	8,883	64,303	16,761	76,380
Total Residential	26,671	128,748	33,560	152,929
Non-Residential				
Commercial - Average Strength[2]	1,700	37,384	9,745	44,406
Commercial - High Strength[2]	666	26,664	19,858	50,675
Industrial[2]	1,184	44,834	33,390	106,509
Total Non-Residential	3,549	108,882	62,993	201,590
Subtotal Public Sewer Portion	**30,220**	**237,631**	**96,553**	**354,519**
Total I&I Allocated		540,948	219,796	807,035

[2] Equivalent laterals for non-single family accounts assumed at 1.5 laterals per account to reflect the average circumference of non-single family laterals being 1.5 times greater than single family laterals.

Estimates of customer accounts, flow, BOD, and TSS associated with each customer class are summarized in Figure 4-9, after allocating inflow & infiltration (I&I). The totals agree with Figure 4-5 before I&I was distributed among customer classes. The total units of service are used for determining the unit costs of service as described below.

Figure 4-9. Summary of Units of Service (after allocating I&I)

	Units (by Customer Class)			
	Accounts	Flow[1]	BOD[1]	TSS[1]
Customer Class	Parcels	HCF	lbs	lbs
	(from Figure 4-5)			
Residential				
Single-Family	17,788	1,563,333	1,531,739	2,403,476
Multi-Family	5,922	1,470,883	1,492,187	2,265,394
Total Residential	23,710	3,034,216	3,023,926	4,668,870
Non-Residential				
Commercial - Average Strength	1,133	820,366	853,399	1,265,173
Commercial - High Strength	444	579,637	1,727,675	1,424,729
Industrial	789	975,261	2,905,234	2,991,248
Total Non-Residential	2,366	2,375,265	5,486,308	5,681,149
Total	26,076	5,409,480	8,510,234	10,350,019

HCF = hundred cubic feet = 748.052 gallons
[1] Flow, BOD, and TSS by Customer Class are the summation of Figures 4-5 and 4-8.

UNIT COSTS OF SERVICE

The units of service for customer accounts, flow, BOD, and TSS for each customer class in Figure 4-9 are combined with the functionalized costs in Figure 4-4 to determine the unit costs in Figure 4-10. These unit costs are the costs of providing the units of service to all customer classes without exception, thereby ensuring that all customer classes pay their share in proportion to their respective units of service.

Figure 4-10. Unit Costs of Service

	FY 2013/14 Revenue Requirement (per District Budget)	Allocated Costs				
		Accounts	Flow	BOD	TSS	Total
Direct Expenses (from Figure 4-2)	$ 3,884,956	$ 271,271	$ 3,152,201	$ 230,742	$ 230,742	$ 3,884,956
Composite Expenses (From Figure 4-3)	$ 1,225,173	$ 85,549	$ 994,089	$ 72,768	$ 72,768	$ 1,225,173
Total Direct and Composite Expenses A	**$ 5,110,130**	**$ 356,820**	**$ 4,146,290**	**$ 303,510**	**$ 303,510**	**$ 5,110,130**
		Unit Cost Calculations				
Units of Service B		26,076	5,409,480	8,510,234	10,350,019	from Figure 4-9
Unit Type		Parcels	HCF	1,000 lbs	1,000 lbs	
Unit Costs (A ÷ B) =		**$13.68**	**$0.76650**	**$35.66**	**$29.32**	
		$/Parcel	*$/HCF*	*$/1,000 lbs*	*$/1,000 lbs*	

REVENUE REQUIREMENT ALLOCATIONS

The unit costs (calculated in Figure 4-10) are applied to the units of service for each customer class (calculated in Figure 4-9) to determine each class' share of the revenue requirement. Figure 4-11 shows the District's FY 2013-14 revenue requirement allocations for each class for each functional category.

Figure 4-11. Revenue Requirement Allocations

	FY 2013-14 Revenue Requirement Allocation				
Customer Class	Accounts	Flow	BOD	TSS	Total
Residential					
Single-Family	$ 243,340	$ 1,198,295	$ 54,622	$ 70,470	$ 1,566,726
Multi-Family	81,013	1,127,432	53,211	66,421	1,328,077
Total Residential	324,353	2,325,726	107,833	136,891	2,894,804
Non-Residential					
Commercial - Average Strength	15,499	628,811	30,432	37,095	711,837
Commercial - High Strength	6,074	444,292	61,609	41,773	553,748
Industrial	10,794	747,538	103,601	87,703	949,635
Total Non-Residential	32,367	1,820,640	195,642	166,571	2,215,220
Total Revenue Requirement	$ 356,720	$ 4,146,367	$ 303,475	$ 303,463	$ 5,110,024

The revenue requirement allocations are compared with the current payments in Figure 4-12. The difference indicates whether a class is paying more or less than its share of the cost of service. The analysis indicates that the single-family customers are paying less than their share of the cost of service and that all other customer classes are paying more than their share.

Figure 4-12. Cost of Service Allocations Compared With Current Payments

Customer Class	FY 2013-14 Revenue Requirement Allocation (from Figure 4-11)	Current Payments	COS vs Current $	COS vs Current %
Residential				
Single-Family	$ 1,566,726	$ 1,266,702	$ 300,024	23.7%
Multi-Family	1,328,077	1,425,658	(97,580)	-6.8%
Total Residential	2,894,804	2,692,360	202,444	
Non-Residential				
Commercial - Average Strength	711,837	725,523	(13,686)	-1.9%
Commercial - High Strength	553,748	583,922	(30,175)	-5.2%
Industrial	949,635	1,108,325	(158,689)	-14.3%
Total Non-Residential	2,215,220	2,417,770	(202,550)	
Total Revenue Requirement	$ 5,110,024	$ 5,110,130	$ (106)	

5. RATES AND CUSTOMER BILLS

RATE STRUCTURE ADJUSTMENTS

The revenue requirement allocations (from Figure 4-11) are used for calculating the rates for each customer class, which are shown in Figure 5-1. For single-family residential customers, the current annual bill combining the base charge and FOG charge is $69.00. This bill would need to increase 23.7% to $85.34 to conform with the cost of service analysis. All other customer classes would experience reductions of various amounts.

Figure 5-1. FY 2013-14 Cost of Service Rates Compared With Current Rates

Customer Class	FY 2013-14 Revenue Requirement Allocation	Billing Units	Cost-of-Service Rate Calculation	Current Rates			Cost-of-Service Rates vs Current Rates	
	(from Figure 4-11)			Base Charge	FOG Charge	Total	$	%
	A	B	A ÷ B = C			D	C - D = E	E ÷ D
Residential		Dwelling Units	$/Unit	($/Unit)	($/Unit)	($/Unit)		
Single-Family	$ 1,566,726	18,358	**$85.34**	$66.23	$2.77	**$69.00**	**$16.34**	**23.7%**
Multi-Family	1,328,077	26,514	**$50.09**	$51.00	$2.77	**$53.77**	**-$3.68**	**-6.8%**
Total Residential	2,894,804							
Non-Residential		Square Feet	$/ 1000 Sq. Ft.	($/1,000 Sq. Ft.)	($/Unit)	Avg/1,000 sq.		
Commercial - Average Strength	711,837	18,753,490	**$37.96**	$38.52	$2.77	**$38.69**	**-$0.73**	**-1.9%**
Commercial - High Strength	553,748	13,375,760	**$41.40**	$38.52	$180.00	**$43.66**	**-$2.26**	**-5.2%**
Industrial	949,635	9,745,720	**$97.44**	$113.50	$2.77	**$113.72**	**-$16.28**	**-14.3%**
Total Non-Residential	2,215,220							
Total Revenue Requirement	$ 5,110,024							

Note that the cost of service analysis obviates the need to itemize the FOG charge. The costs associated with the FOG program are allocated based on the proportionate strength of each class' wastewater. Classes with higher strength discharges receive a proportionately larger allocation of the FOG program costs.

FY 2013-14 CUSTOMER BILL IMPACTS

Figure 5-2 compares the bills for a sample of typical commercial/industrial customers based on the current and cost of service rates.

Figure 5-2. FY 2013-14 Bill Comparison For Various District Businesses
(Current vs. cost-of-service)

APN	Customer Name	Sq. Ft.	Current Rate	Cost-of-Service Rate	Variance	
Commercial Customers					$	%
13903141	Abraxis Bioscience LLC	176,460	$6,800	$6,698	($102)	-1.5%
14004181	Emulex Design & Mfg Corp	180,300	$6,948	$6,844	($104)	-1.5%
41052104	Marriot Suites Lmited	242,470	$9,520	$10,038	$518	5.4%
14004196	Ikea Property Inc	307,820	$12,037	$12,744	$706	5.9%
41250106	Sears, Roebuck & Co	326,720	$12,765	$13,526	$761	6.0%
14136132	Coast Community College District	664,500	$25,777	$27,510	$1,733	6.7%
14004149	Interinsurance Exchange Auto Club	705,210	$27,168	$26,768	($399)	-1.5%
Industrial Customers						
42716118	Sumo Holding Costa Mesa LLC	42,290	$4,803	$4,121	($682)	-14.2%
13965127	Mori Haysuyo Tr, Revocable Trust	48,510	$5,508	$4,727	($782)	-14.2%
14120231	Rishard Heritage LLC	65,130	$7,395	$6,346	($1,049)	-14.2%
42406107	Delco Company	90,190	$10,239	$8,788	($1,451)	-14.2%
42407107	Griswold Industries	91,090	$10,341	$8,876	($1,466)	-14.2%
42433105	Orange Grove Properties	109,870	$12,473	$10,706	($1,767)	-14.2%
42407106	CLA Val Co	252,480	$28,660	$24,602	($4,058)	-14.2%

COMPARISON OF RATE STRUCTURES

Figure 5-3 compares single-family bills for the District with a number of neighboring agencies that also bill fixed annual charges.

Figure 5-3. Comparison of Residential Bills Among Neighboring Agencies

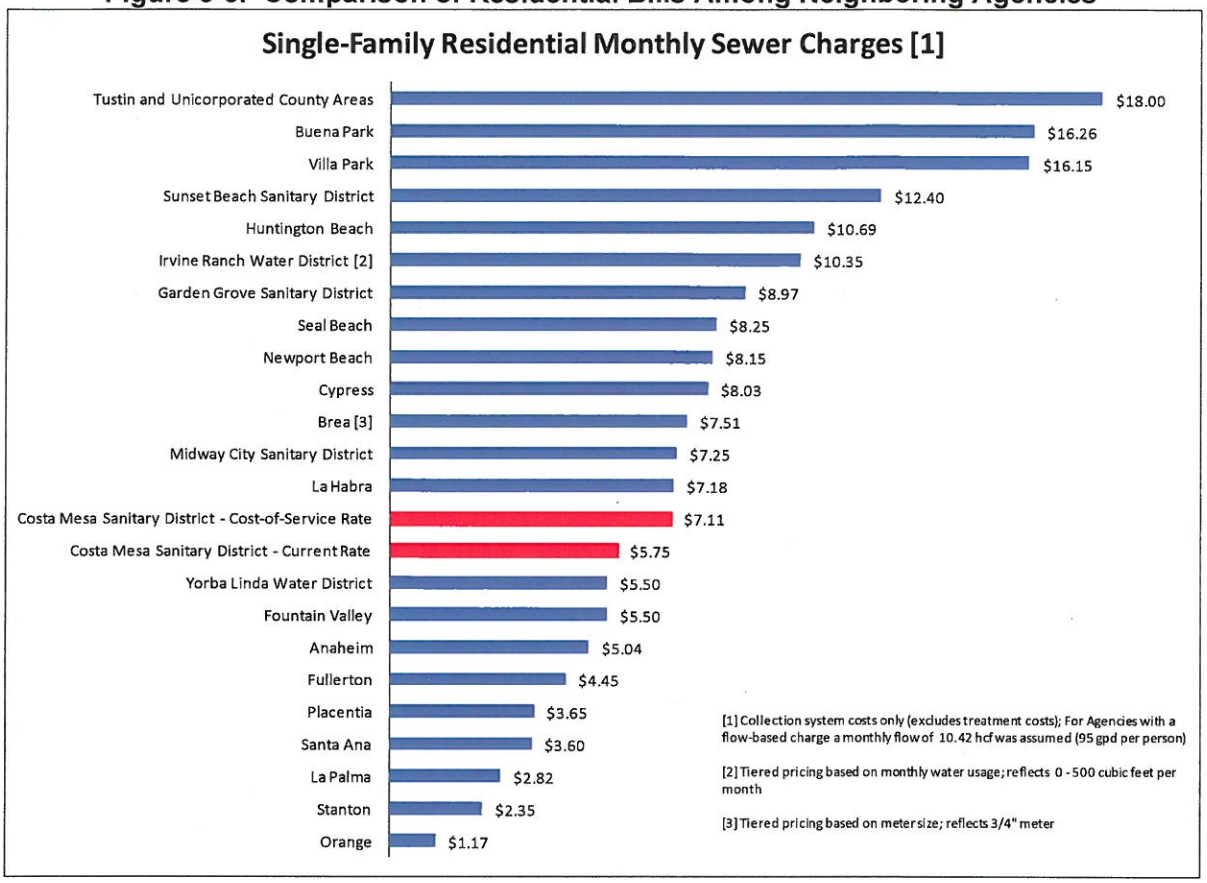
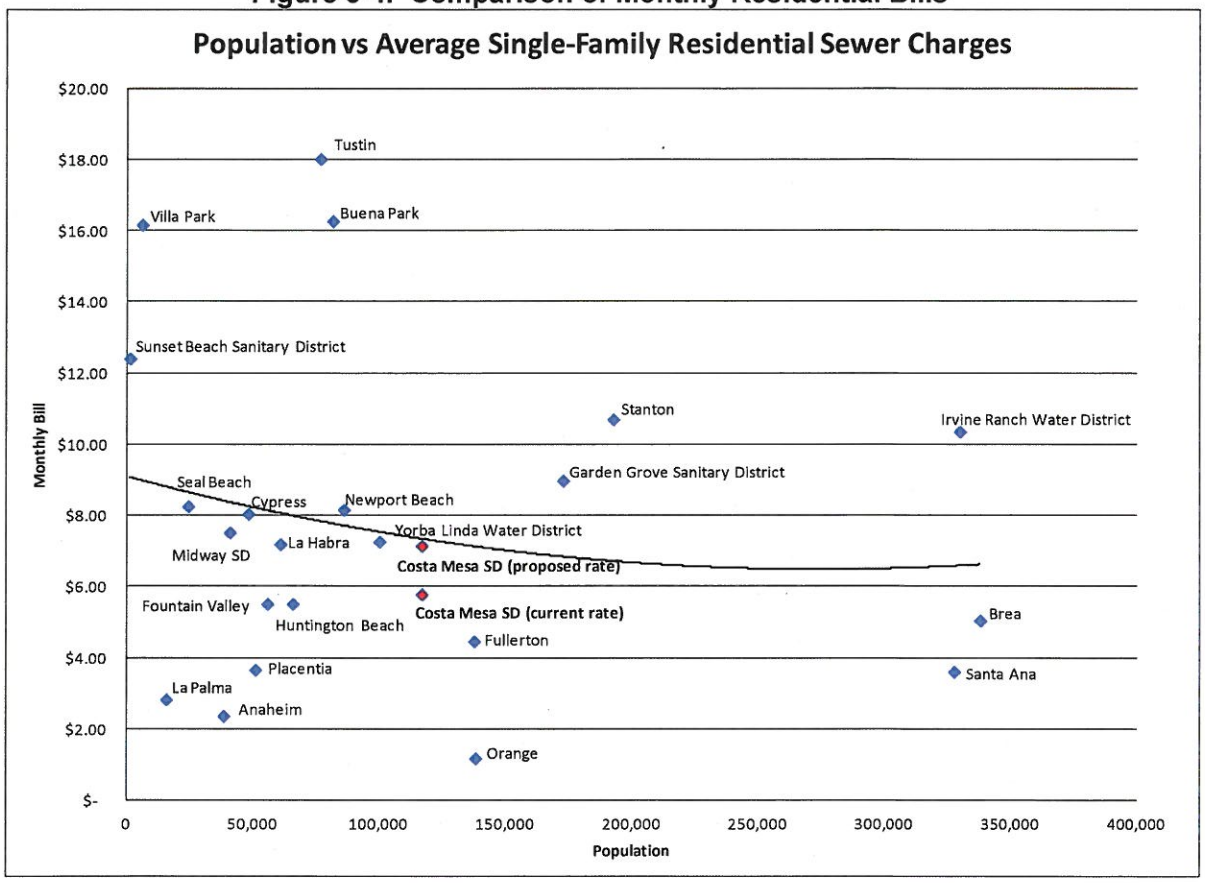


Figure 5-4 plots the average monthly bills against the population in the respective agency, which illustrates the correlation between the amount of bills and the size of the utility. Larger utilities typically have lower bills because of economies of scale. The District's current and cost-of-service based residential bills fall below the trend line.

Figure 5-4. Comparison of Monthly Residential Bills



FIVE-YEAR RATE PROJECTIONS

A five-year rate projection was prepared based on the FY 2013-14 through FY 2017-18 revenue requirements. Those rates reflect the cost of service analysis, which establishes the allocation of the revenue requirement among the user classes based on their relative loadings. It is assumed that during the five-year planning period, the loadings remain fairly stable. Hence, the rates in the remaining four years can be calculated by multiplying the FY 2013-14 rates times the annual increases in the revenue requirement summarized in Figure 1-1. The rate projections are shown in Figure 5-5.

Figure 5-5. Five-Year Rate Projections

Customer Class	FY 2013-14	FY 2014-15	FY 2015-16	FY 2016-17	FY 2017-18
Residential (Per Dwelling Unit)					
Single family	$85.34	$87.05	$88.79	$90.57	$92.38
Multi family	$50.09	$51.09	$52.11	$53.15	$54.21
Non-Residential (Per 1,000 sq. ft.)					
Commercial - Average Strength	$37.96	$38.72	$39.49	$40.28	$41.09
Commercial - High Strength	$41.40	$42.23	$43.07	$43.93	$44.81
Industrial	$97.44	$99.39	$101.38	$103.41	$105.48