

# CENTRAL CONTRA COSTA SANITARY DISTRICT

## Wastewater Cost of Service Study

Report / May 21, 2015





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May 21, 2015

Mr. Roger Bailey  
General Manager  
Central Contra Costa Sanitary District  
5019 Imhoff Place  
Martinez, CA 94553

**Subject: Wastewater Cost of Service Rate Study Report**

Dear Mr. Bailey:

Raftelis Financial Consultants, Inc. (RFC) is pleased to provide this Wastewater Cost of Service Rate Study Report (Report) for the Central Contra Costa Sanitary District (District) to establish wastewater rates that are equitable and address Proposition 218 requirements.

The major objectives of the study include the following:

1. Review current wastewater rate structure
2. Review the current customer classification
3. Develop a cost of service analysis for wastewater
4. Develop fair and equitable wastewater rates
5. Demonstrate the impacts of the proposed wastewater rates on typical customer bills
6. Develop a user-friendly rate model that may be used for future planning

The study involved a comprehensive review of the District's wastewater rates based on cost of service principles. The District has developed a long range financial plan to determine the revenue needs of the wastewater utility in the next ten years. However, wastewater rates, based on that financial plan, are only calculated for the next two fiscal years beginning July 2015. All assumptions, including all increases in operating and capital costs, were based on the District's long-range financial plan and were factored into the rates. The proposed rates were revised to enhance equity among customer classes and encourage efficient use of services for greater environmental sustainability. The Report summarizes the key findings and recommendations related to the development of the wastewater rates.

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

Sincerely,  
*RAFTELIS FINANCIAL CONSULTANTS, INC.*

A handwritten signature in blue ink, appearing to read 'Sudhir Pardiwala'.

**Sudhir Pardiwala**  
Executive Vice President

A handwritten signature in blue ink, appearing to read 'Hannah Phan'.

**Hannah Phan**  
Senior Consultant

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# TABLE OF CONTENTS

<b>1. EXECUTIVE SUMMARY</b> .....	<b>5</b>
1.1 INTRODUCTION .....	5
1.2 FINANCIAL PLAN.....	5
1.3 COST OF SERVICE PROCESS AND METHODOLOGY .....	6
1.4 COST OF SERVICE ANALYSIS .....	6
1.4.1 Cost of Service Results .....	6
1.5 PROPOSED WASTEWATER RATES .....	7
1.5.1 Customer Impacts .....	9
<b>2. OVERVIEW</b> .....	<b>10</b>
2.1 INTRODUCTION .....	10
2.2 ORGANIZATION OF THE REPORT .....	10
2.3 ACKNOWLEDGEMENTS .....	11
<b>3. FINANCIAL PLAN</b> .....	<b>12</b>
3.1 WASTEWATER SYSTEM INFRASTRUCTURE .....	12
3.2 EXISTING WASTEWATER RATES .....	12
3.3 WASTEWATER ACCOUNTS AND USAGE CHARACTERISTICS .....	14
3.4 WASTEWATER SYSTEM REVENUES .....	16
3.5 WASTEWATER SYSTEM EXPENDITURES.....	17
3.5.1 Operation and Maintenance Expenses.....	17
3.5.2 Capital Improvement Program .....	18
3.5.3 Revenue Adjustments.....	19
3.5.4 Debt Service Requirements .....	19
3.5.5 Debt Service Coverage.....	20
3.5.6 Operating Financial Plan .....	21
3.5.7 Reserves .....	22
<b>4. COST OF SERVICE ANALYSIS</b> .....	<b>26</b>
4.1 PROPOSED CUSTOMER CLASSIFICATIONS .....	26
4.2 PLANT BALANCE .....	28
4.3 ALLOCATION OF REVENUE REQUIREMENTS BY FUNCTION.....	30
4.4 ALLOCATION OF FUNCTIONAL COSTS TO COST COMPONENTS .....	31
4.5 ALLOCATION OF REVENUE REQUIREMENTS.....	34
4.6 DEVELOPMENT OF UNIT COSTS OF SERVICE .....	36
4.7 ALLOCATION OF COSTS TO CUSTOMER CLASS .....	37
<b>5. PROPOSED WASTEWATER RATES</b> .....	<b>39</b>

5.1 RATE DESIGN ..... 39

5.2 PROPOSED RESIDENTIAL CHARGES..... 39

5.3 PROPOSED NON-RESIDENTIAL RATES..... 40

5.4 CUSTOMER IMPACTS ..... 42

**6. APPENDIX.....43**

## LIST OF FIGURES AND TABLES

Table 1-1: Revenue Adjustments Schedule .....	6
Table 1-2: Current and Proposed Wastewater Rates .....	8
Table 1-3: Residential Annual Wastewater Bill Impacts .....	9
Table 1-4: Typical Non-Residential Annual Wastewater Bill Impacts .....	9
Table 3-1: Existing Wastewater Rate Structure .....	13
Table 3-2: Mixed Use Classification .....	14
Table 3-3: Projected Customer Accounts.....	15
Table 3-4: Annual Projected Water Usage (HCF) .....	16
Table 3-5: Revenue Summary under Existing Rates .....	17
Table 3-6: Projected O&M Expenses by Function.....	18
Table 3-7: Projected O&M Expenses by Category .....	18
Table 3-8: Capital Improvement Plan .....	19
Table 3-9: Revenue Adjustments Schedule .....	19
Table 3-10: Existing Debt Schedule.....	19
Table 3-11: Debt Coverage Calculation.....	20
Table 3-12: Operating Financial Plan .....	21
Figure 3-1: Ending Balance – Running Expense and Sewer Construction Funds .....	22
Figure 3-2: Ending Fund Balances .....	23
Table 3-13: Fund Balances .....	24
Table 4-1: Current and Proposed Wastewater Strength .....	27
Table 4-2: Current and Proposed Wastewater Flow for Schools.....	27
Table 4-3: FY 2014 Plant Balance .....	29
Table 4-4: Allocation of Wastewater O&M Expenses by Function .....	30
Table 4-5: Allocation of Wastewater Assets by Function .....	31
Table 4-6: Allocation to Cost Components – O&M.....	32
Table 4-7: Allocation of O&M Expenses to Cost Components.....	32
Table 4-8: Allocation to Cost Components – Treatment Plant .....	33
Table 4-9: Allocation to Cost Components – Capital .....	34
Table 4-10: Allocation of Wastewater Assets to Cost Components .....	34
Table 4-11: Allocation of Revenue Requirements .....	35
Table 4-12: Customer Class Service Units.....	36
Table 4-13: Development of Unit Costs .....	37
Table 4-14: Allocation of Costs to Customer Class .....	38
Table 5-1: Calculated Residential Wastewater Charges – FY 2016.....	39

Table 5-2: Proposed FY 2016 and FY 2017 Residential Wastewater Charges..... 40  
Table 5-3: Proposed FY 2016 and FY 2017 Non-Residential Wastewater Rates..... 41  
Table 5-4: Residential Annual Wastewater Bill Impacts ..... 42  
Table 5-5: Typical Non-Residential Annual Wastewater Bill Impacts ..... 42

# 1. EXECUTIVE SUMMARY

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## 1.1 INTRODUCTION

In June of 2014, the Central Contra Costa Sanitary District (District) engaged Raftelis Financial Consultants, Inc. (RFC) to conduct a comprehensive Cost of Service (COS) study to independently assess and evaluate the District's existing wastewater rates to provide a fair and reasonable rate structure that enhances the equity of rates to ensure that there is a proportionate recovery of costs from the various customer classes. This report documents the study resultant findings, analyses, and proposed changes.

## 1.2 FINANCIAL PLAN

In order to determine wastewater rates, RFC used the revenue requirements, including operations and maintenance (O&M), capital improvement expenses, debt service costs and reserve requirements for a five-year study period from Fiscal Year (FY) 2016 to 2020 provided in the District's financial plan. O&M expenses include the cost of treatment, pumping, and collection facilities, as well as the costs of providing technical services such as laboratory services and other administrative costs of the wastewater system such as customer service and billing. The O&M projections are based on the District's long-range financial plan, which include two additional annual payments of \$2.5 million per year to the Unfunded Actuarial Accrued Liability (UAAL) for FY 2016 and 2017. The projections were based on anticipated revenues and expenses as of March 2015 in order to prepare rates for publication in the Proposition 218 notices which were mailed in April.

In addition to the operating expenses, the District is planning significant capital investment over the next five years to replace portions of its complex infrastructure that has reached the end of its useful life and to remain in compliance with stringent environmental regulations. The District does not intend to bond finance these improvements, but rather intends to fund the entire five-year Capital Improvement Program (CIP) of \$181.7 million from FY 2016 to 2020 primarily through rate revenues, capacity fees and ad valorem tax revenue. Annual payments on existing debt service are \$3.8 million.

The number of wastewater accounts and water usage are projected to increase at 0.1 percent per year in FY 2016 and FY 2017 and 0.6 percent per year thereafter. The model and subsequent rates published in the Proposition 218 notice were developed prior to the Governor's Executive Order on April 1, 2015 mandating a statewide 25 percent reduction in urban water use. The Sewer Service Charge revenue for non-residential customers is billed based on the prior year's water consumption. Therefore, the District will need to monitor water consumption by non-residential customers, who make up approximately twenty percent of Sewer Service Charge revenue, to determine financial impacts of water conservation for Fiscal Year 2017.

The District's financial plan indicates that revenue adjustments of 7.24 percent are required for FY 2016, 7.30 percent in FY 2017, 5.57 percent in FY 2018, 5.35 percent in FY 2019 and 4.97 percent in FY 2020, as shown in Table 1-1. The adjustments are needed to meet the operating and capital expenses as well as meet reserves targets. The District currently has one bond reserve account and four separate funds: Running Expense Fund, Sewer Construction Fund, Self-Insurance/Emergency Fund, and a Debt Service Fund. The current reserve policy is 32 percent of the next year's O&M expenses, 30 percent of the next year's CIP expenses, and 100 percent of the next year's debt service payment. As a result of a review of



the reserves, the District intends to revise its reserve policy to have at least five months, or 41.7 percent of the next year’s O&M expenses, 50 percent of the next year’s CIP expenses, 100 percent of the next year’s debt service payment, \$1.5 million for self-insurance, and \$5 million for emergencies. The goal of the financial plan is to achieve the new reserves targets by FY 2020.

**Table 1-1:  
Revenue Adjustments Schedule**

Fiscal Year	Revenue Adjustments
2016	7.24%
2017	7.30%
2018	5.57%
2019	5.35%
2020	4.97%

### 1.3 COST OF SERVICE PROCESS AND METHODOLOGY

In this study, RFC followed the guidelines for allocating costs detailed in the Water Environment Federation (WEF) Manual of Practice No. 27, Financing and Charges for Wastewater Systems, 2004. The wastewater COS analysis consists of seven major steps, as outlined below:

1. Review customer class and strength characteristics and loadings of the non-residential class.
2. Conduct plant balance to estimate the flows and strength of the residential class.
3. Functionalize O&M expenses and capital costs into functional categories such as Collection, Treatment, and Billing and Customer Service.
4. Allocate each functional category into cost components such as Flow, Biochemical Oxygen Demand (BOD) and Total Suspended Solids (TSS), and Billing and Customer Service.
5. Develop total customer class characteristics by cost component.
6. Calculate the cost component unit rates by dividing the total cost in each cost component in Step 4 by the total customer class characteristics in Step 5.
7. Calculate the cost by customer class by multiplying the unit cost in Step 6 by the individual customer class characteristics in Step 5.

### 1.4 COST OF SERVICE ANALYSIS

The steps described above provide the basis for allocating costs equitably amongst the different customer classes in proportion to the service received. Once costs to serve different customer classes are determined, rates are then designed to recover the costs equitably to address Proposition 218 requirements.

#### 1.4.1 Cost of Service Results

The significant outcomes of the wastewater COS analysis are as follows:

1. The wastewater flow from residential customers is proportional to the number of residents per household. Single Family Residential (SFR) and Multi-family Residential (MFR) customers are separated into two classes with separate charges to account for the difference in residential

density between the two customer classes. This results in more equitable charges to MFR customers.

2. The review of the customer class characteristics results in changes to the loadings of supermarkets and schools to be more consistent with industry standards and the creation of two additional commercial categories: Hotels/Motels and Automotive facilities that typically have higher strengths (BOD/TSS) than the customers in the Standard Commercial category.

In addition to the proposed changes, RFC suggested that the District conduct a comprehensive review of the mixed use and food service categories to ensure that they are categorized and charged correctly and equitably. The District should also consider conducting flow and strength measurements to confirm non-residential customer class characteristics. Such a review could then be used to evaluate and simplify the District's food service and multi-use rate categories.

## 1.5 PROPOSED WASTEWATER RATES

Through our review, RFC recommends that the District retain some elements of its current wastewater rate structure, which includes fixed charges for residential customers and a flow charge per hundred cubic feet (HCF) for all most other non-residential customers. Industrial customers are charged based on a unit rate for flow, BOD, and TSS. Schools are charged a rate per average daily student attendance. Since a large majority of the costs of operating and maintaining the wastewater system are fixed, all non-residential customers are subject to a minimum annual charge equal to the MFR annual charge plus the District's historic \$17 pollution prevention surcharge.

Table 1-2 shows the current and proposed wastewater rates in FY 2016 and FY 2017.

**Table 1-2:  
Current and Proposed Wastewater Rates**

	Current Effective July 1, 2014	Proposed Effective July 1, 2015	Proposed Effective July 1, 2016
<b>Residential Annual Charges</b> (per Residential Unit Equivalent)			
Single Family Dwellings	\$439.00	\$471.00	\$503.00
Condominium, Multi-Family, Mobile Homes	\$439.00	\$463.00	\$487.00
<b>Commercial/Non-Industrial</b> (per hcf)			
Bakeries	\$11.22	\$12.33	\$13.22
Supermarkets	\$4.07	\$8.71	\$9.34
Mortuaries	\$7.99	\$10.70	\$11.47
Restaurants	\$8.32	\$8.71	\$9.34
Hotels/Motels	\$4.07	\$8.06	\$8.64
Automotive	\$4.07	\$5.34	\$5.73
Standard Commercial	\$4.07	\$4.64	\$4.98
<b>Industrial</b>			
Wastewater Flow (per hcf)	\$1.68	\$3.42	\$3.67
BOD (per 1,000 lbs)	\$934	\$1,134	\$1,216
TSS (per 1,000 lbs)	\$667	\$529	\$567
<b>Mixed Use</b> (per hcf)			
Rate Group XA	\$4.46	\$4.96	\$5.32
Rate Group XB	\$4.85	\$5.38	\$5.77
Rate Group XC	\$5.25	\$5.81	\$6.23
Rate Group XD	\$5.64	\$6.22	\$6.67
Rate Group XE	\$6.03	\$6.64	\$7.12
Rate Group XF	\$6.42	\$7.05	\$7.56
Rate Group XG	\$6.81	\$7.47	\$8.01
Rate Group XH	\$7.21	\$7.88	\$8.45
Rate Group XI	\$7.60	\$8.31	\$8.91
Rate Group XJ	\$8.72	\$9.97	\$10.69
Rate Group XK	\$9.08	\$9.62	\$10.32
Rate Group XL	\$9.79	\$10.18	\$10.92
Rate Group XM	\$10.15	\$10.50	\$11.26
Rate Group XN	\$10.51	\$10.76	\$11.54
Rate Group XO	\$10.74	\$10.90	\$11.69
<b>Institutional</b> (per hcf)			
Churches	\$4.07	\$4.64	\$4.98
Schools (Daycare, Preschool, University)	\$4.07	\$4.33	\$4.65
Schools (Elementary) (per student)	\$5.62	\$5.77	\$6.19
Schools (Intermediate) (per student)	\$5.94	\$11.34	\$12.16
Schools (High School) (per student)	\$6.27	\$16.93	\$18.15
Minimum Annual Charge	\$456	\$480	\$504

### 1.5.1 Customer Impacts

Table 1-3 compares the residential bill impacts for FY 2016 and FY 2017 to current rates. SFR customers would experience \$32 annual increases over the next two years and MFR customers would experience \$24 annual increases.

**Table 1-3:  
Residential Annual Wastewater Bill Impacts**

	Current	Proposed Effective July 1, 2015	Proposed Effective July 1, 2016	Proposed July 1, 2015 Increase	Proposed July 1, 2016 Increase
SFR	\$439	\$471	\$503	\$32	\$32
MFR	\$439	\$463	\$487	\$24	\$24

Table 1-4 shows the typical non-residential bill impacts for FY 2016 and FY 2017 by comparing the average bill based on the proposed rates to the average bill based on the current rates. The amounts are calculated based on the average annual water usage for each customer class.

**Table 1-4:  
Typical Non-Residential Annual Wastewater Bill Impacts**

Customer Class	Average Annual Usage (hcf)	July 1, 2014 Average Bill	July 1, 2015 Average Bill	July 1, 2016 Average Bill	July 1, 2015 Difference	July 1, 2016 Difference	July 1, 2015 Difference	July 1, 2016 Difference
Hotels/Motels	5,959	\$24,252	\$48,027	\$51,483	\$23,775	\$3,456	98.0%	7.2%
Supermarkets	2,932	\$11,931	\$25,534	\$27,381	\$13,602	\$1,847	114.0%	7.2%
Standard Commercial	722	\$2,937	\$3,348	\$3,593	\$411	\$245	14.0%	7.3%
Restaurants	799	\$6,647	\$6,958	\$7,462	\$312	\$503	4.7%	7.2%
Automotive	294	\$1,197	\$1,571	\$1,686	\$374	\$115	31.2%	7.3%

## 2. OVERVIEW

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### 2.1 INTRODUCTION

In June 2014, Central Contra Costa Sanitary District (District) engaged Raftelis Financial Consultants, Inc. (RFC) to conduct a cost of service study for the wastewater utility that could be utilized to evaluate and enhance the equity of wastewater rates for the District's wastewater services to ensure that there is a proportionate recovery of costs from the various customer classes. This Report documents the resultant findings, analyses, and proposed changes.

The major objectives of the study include the following:

1. Review current wastewater rate structure
2. Review the current customer classification
3. Develop a cost of service analysis for wastewater
4. Develop fair and equitable wastewater rates
5. Demonstrate the impacts of the proposed wastewater rates on typical customer bills
6. Develop a user-friendly rate model that may be used for future planning

This Report provides an overview of the Study and includes findings and recommendations for wastewater rates.

### 2.2 ORGANIZATION OF THE REPORT

This Report includes four sections in addition to the Executive Summary and this Overview. A brief description of the remaining sections follows.

- **Section 3 – Financial Plan** describes the long-range financial plan for the wastewater utility developed by District staff.
- **Section 4 – Cost of Service Analysis** describes findings and results of the wastewater rate study. It includes a description of the policy issues, the wastewater cost of service methodology, the customer classifications, the determination of annual revenues required from rates, and a detailed discussion on the Cost of Service, which includes allocation of costs to wastewater parameters and the determination of unit costs.
- **Section 5 – Proposed Wastewater Rates** includes a detailed discussion of the proposed wastewater rates and the customer impacts resulting from the proposed rates.
- **Section 6 – Appendix** provides larger, easier to read tables found in the body of the report and show the data and the various calculations conducted to derive the unit costs and rates. The original table number is kept for easy reference.

## 2.3 ACKNOWLEDGEMENTS

This Report was a team effort among the District’s Project Team and the RFC Team. RFC would like to thank the individuals listed below who contributed their time, expertise, and support to make this project a success. Throughout the project the input and direction provided by the District’s Project Team was critical to addressing the numerous issues and topics enumerated in this Report.

- Roger Bailey – General Manager
- David Heath – Director of Administration
- Danae Gemmell – Environmental Services Division Manager
- Thea Vassallo – Finance Manager
- Todd Smithey – Finance Administrator
- Thomas Brightbill – Senior Engineer

## 3. FINANCIAL PLAN

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This section of the Report provides a summary of the projected revenues, operating and maintenance (O&M) and capital expenditures, capital improvement financing plan, debt service requirements, and the revenue adjustments required to ensure the financial stability of the wastewater enterprise as presented in the District's financial plan.

### 3.1 WASTEWATER SYSTEM INFRASTRUCTURE

The District was established in 1946 as a special enterprise district and serves approximately 471,000 residents and 5,000 businesses in 13 cities and towns covering a 144 square mile area. Approximately 35 million gallons per day (MGD) of wastewater is treated on average at the District's Wastewater Treatment Plant, which also produces nearly 580 million gallons of recycled water each year for plant operations, industrial uses, and landscape irrigation. The wastewater utility is also responsible for the operation and maintenance of 19 wastewater pumping stations and 1,500 miles of sewer mains. The District also operates a Household Hazardous Waste facility.

### 3.2 EXISTING WASTEWATER RATES

The current wastewater rate structure consists of fixed charges for residential customers and a flow charge per hundred cubic feet (HCF) for most all other non-residential customers. Schools are charged a rate per average daily student attendance. Industrial customers are charged based on unit rates for flow, biochemical oxygen demand (BOD), and total suspended solids (TSS). All customers are subject to a minimum annual charge. The current rate structure, shown in Table 3-1, generates approximately 82 percent of the total rate revenue from residential fixed charges, with the remaining 18 percent generated by non-residential flow charges.

**Table 3-1:  
Existing Wastewater Rate Structure**

		<b>Current Effective July 1, 2014</b>
<b>Residential Annual Charges</b> (per Residential Unit Equivalent)		
Single Family Dwellings		\$439.00
Condominium, Multi-Family, Mobile Homes		\$439.00
<b>Commercial/Non-Industrial</b> (per hcf)		
Bakeries		\$11.22
Supermarkets		\$4.07
Mortuaries		\$7.99
Restaurants		\$8.32
Hotels/Motels		\$4.07
Automotive		\$4.07
Standard Commercial		\$4.07
<b>Industrial</b>		
Wastewater Flow	(per hcf)	\$1.68
BOD	(per 1,000 lbs)	\$934
TSS	(per 1,000 lbs)	\$667
<b>Mixed Use</b> (per hcf)		
Rate Group XA		\$4.46
Rate Group XB		\$4.85
Rate Group XC		\$5.25
Rate Group XD		\$5.64
Rate Group XE		\$6.03
Rate Group XF		\$6.42
Rate Group XG		\$6.81
Rate Group XH		\$7.21
Rate Group XI		\$7.60
Rate Group XJ		\$8.72
Rate Group XK		\$9.08
Rate Group XL		\$9.79
Rate Group XM		\$10.15
Rate Group XN		\$10.51
Rate Group XO		\$10.74
<b>Institutional</b> (per hcf)		
Churches		\$4.07
Schools (Daycare, Preschool, University)		\$4.07
Schools (Elementary)	(per student)	\$5.62
Schools (Intermediate)	(per student)	\$5.94
Schools (High School)	(per student)	\$6.27
Minimum Annual Charge		\$456



Table 3-2 lists the definition of the mixed use rate codes shown in the current rate structure table.

**Table 3-2:  
Mixed Use Classification**

Code	Definition	Code	Definition
<b>XA</b>	Standard Commercial + 1 to 10 % Restaurant	<b>XI</b>	Standard Commercial + 81 to 90 % Restaurant
<b>XB</b>	Standard Commercial + 11 to 20 % Restaurant	<b>XJ</b>	Standard Commercial + 65 to 69 % Bakery
<b>XC</b>	Standard Commercial + 21 to 30 % Restaurant	<b>XK</b>	Standard Commercial + 70 to 79 % Bakery
<b>XD</b>	Standard Commercial + 31 to 40 % Restaurant	<b>XL</b>	Standard Commercial + 80 to 84 % Bakery
<b>XE</b>	Standard Commercial + 41 to 50 % Restaurant	<b>XM</b>	Standard Commercial + 85 to 89 % Bakery
<b>XF</b>	Standard Commercial + 51 to 60 % Restaurant	<b>XN</b>	Standard Commercial + 90 to 95 % Bakery
<b>XG</b>	Standard Commercial + 61 to 70 % Restaurant	<b>XO</b>	10 to 15% Restaurant + 85 to 90 % Bakery
<b>XH</b>	Standard Commercial + 71 to 80 % Restaurant		

### 3.3 WASTEWATER ACCOUNTS AND USAGE CHARACTERISTICS

Customer accounts and usage information in fiscal year (FY) 2014 are used as the basis for projecting wastewater revenues during the study period, from FY 2016 to FY 2020. The projections are based on the District’s long-range financial plan. The number of wastewater accounts and water usage are projected to increase at approximately 0.1 percent per year in FY 2016 through FY 2017 and approximately 0.6 percent per year thereafter. The model and subsequent rates published in the Proposition 218 notice were developed prior to the Governor’s Executive Order on April 1, 2015 mandating a statewide 25 percent reduction in urban water.

Table 3-3 shows the estimated total customer accounts by customer class for FY 2015 to FY 2020.

**Table 3-3:  
Projected Customer Accounts**

Customer Class	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
<b>Residential</b>						
Single Family Residences	91,779	91,871	91,972	92,533	93,107	93,693
Multi-family Residences	44,008	44,052	44,100	44,369	44,645	44,926
<b>Commercial/Non-Industrial</b>						
Bakeries	4	4	4	4	4	4
Supermarkets	31	31	31	31	31	32
Mortuaries	8	8	8	8	8	8
Restaurants	216	216	217	218	219	221
Standard Commercial	1,926	1,928	1,930	1,942	1,954	1,966
Minimum Annual Charge	477	478	478	481	484	487
<b>Industrial</b>	<b>17</b>	<b>17</b>	<b>17</b>	<b>17</b>	<b>17</b>	<b>17</b>
<b>Mixed Use</b>						
Rate Group XA	8	8	8	8	8	8
Rate Group XB	4	4	4	4	4	4
Rate Group XC	17	17	17	17	17	17
Rate Group XD	15	15	15	15	15	15
Rate Group XE	20	20	20	20	20	20
Rate Group XF	25	25	25	25	25	26
Rate Group XG	23	23	23	23	23	24
Rate Group XH	27	27	27	27	27	28
Rate Group XI	30	30	30	30	30	31
Rate Group XJ	1	1	1	1	1	1
Rate Group XK	2	2	2	2	2	2
Rate Group XL	1	1	1	1	1	1
Rate Group XM	1	1	1	1	1	1
Rate Group XN	1	1	1	1	1	1
Rate Group XO	0	0	0	0	0	0
<b>Institutional</b>						
Churches	113	113	113	114	115	115
Schools (Daycare, Preschool, University)	14	14	14	14	14	14
Fraternal & Service Organizations	0	0	0	0	0	0
Local & State Institutions	0	0	0	0	0	0
Other Tax Exempt (Except Federal)	0	0	0	0	0	0
Federal Institutions	0	0	0	0	0	0
Utilities with Special Tax Status	0	0	0	0	0	0
Independent Living Facilities, Rest Homes	0	0	0	0	0	0
<b>Subtotal Excluding Schools</b>	<b>138,768</b>	<b>138,907</b>	<b>139,059</b>	<b>139,906</b>	<b>140,773</b>	<b>141,662</b>
<b>Schools (billed per-capita)</b>						
Elementary	51	51	51	51	52	52
Intermediate	18	18	18	18	18	18
High School	19	19	19	19	19	19
<b>Subtotal Schools</b>	<b>138,870</b>	<b>139,009</b>	<b>139,161</b>	<b>140,008</b>	<b>140,876</b>	<b>141,765</b>
<b>TOTAL</b>	<b>277,638</b>	<b>277,916</b>	<b>278,220</b>	<b>279,914</b>	<b>281,649</b>	<b>283,427</b>

Table 3-4 shows the projected water usage by customer class for FY 2015 to FY 2020 and wastewater flow and strength from Industrial customers.

**Table 3-4:  
Annual Projected Water Usage (HCF) and Student Enrollment**

Customer Class	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
<b>Commercial/Non-Industrial</b>						
Bakeries	295	296	296	298	300	301
Supermarkets	90,960	91,051	91,151	91,707	92,276	92,857
Mortuaries	4,382	4,386	4,391	4,418	4,445	4,473
Restaurants	172,713	172,886	173,076	174,132	175,212	176,315
Standard Commercial	1,766,065	1,767,831	1,769,776	1,780,571	1,791,611	1,802,898
<b>Industrial</b>						
Wastewater Flow	92,696	92,789	92,891	93,458	94,037	94,630
<b>Mixed Use</b>						
Rate Group XA	30,516	30,547	30,581	30,767	30,958	31,153
Rate Group XB	10,024	10,034	10,045	10,106	10,169	10,233
Rate Group XC	32,678	32,711	32,747	32,947	33,151	33,360
Rate Group XD	30,611	30,641	30,675	30,862	31,053	31,249
Rate Group XE	32,806	32,839	32,875	33,076	33,281	33,491
Rate Group XF	38,700	38,738	38,781	39,018	39,260	39,507
Rate Group XG	32,564	32,597	32,633	32,832	33,035	33,243
Rate Group XH	42,079	42,121	42,167	42,424	42,688	42,956
Rate Group XI	37,321	37,358	37,399	37,627	37,860	38,099
Rate Group XJ	576	576	577	580	584	588
Rate Group XK	2,638	2,641	2,644	2,660	2,677	2,693
Rate Group XL	522	523	524	527	530	533
Rate Group XM	565	565	566	569	573	576
Rate Group XN	2,208	2,210	2,213	2,226	2,240	2,254
Rate Group XO	0	0	0	0	0	0
<b>Institutional</b>						
Churches	62,233	62,295	62,364	62,744	63,133	63,531
Schools (Daycare, Preschool, University)	8,908	8,917	8,927	8,981	9,037	9,094
Fraternal & Service Organizations	0	0	0	0	0	0
Local & State Institutions	0	0	0	0	0	0
Other Tax Exempt (Except Federal)	0	0	0	0	0	0
Federal Institutions	0	0	0	0	0	0
Utilities with Special Tax Status	0	0	0	0	0	0
Independent Living Facilities, Rest Homes	0	0	0	0	0	0
<b>Total Projected Water Usage (Excluding Schools)</b>	<b>2,492,061</b>	<b>2,494,553</b>	<b>2,497,297</b>	<b>2,512,530</b>	<b>2,528,108</b>	<b>2,544,035</b>
<b>Schools (students)</b>						
Elementary	28,109	28,137	28,168	28,340	28,516	28,696
Intermediate	14,832	14,847	14,864	14,954	15,047	15,142
High School	19,957	19,977	19,999	20,121	20,246	20,373
<b>Total Projected School Enrollment</b>	<b>62,899</b>	<b>62,961</b>	<b>63,031</b>	<b>63,415</b>	<b>63,808</b>	<b>64,210</b>

### 3.4 WASTEWATER SYSTEM REVENUES

The District’s wastewater enterprise derives its required annual operating and capital revenues from a number of sources. The principal source of operating revenues is the wastewater service charges from the District’s wastewater customers. Other revenue sources include miscellaneous operating revenues such as permit and inspection fees, lease rental income, stormwater and pollution prevention fees, and interest earnings. Capital revenue sources include property tax revenue, capacity fee revenue, bond proceeds, and grants and loans. Wholesale service charges to the City of Concord provide another significant source of operating and capital revenues.

Table 3-5 presents the details of the operating and capital related revenues. The District separates its revenue streams into a Running Expense Fund, which includes all operating related revenues, and a Sewer Construction Fund, which includes capital related expenses. A portion of the Sewer Service Charge revenue is transferred to the Sewer Construction Fund in order to fund capital expenses.

**Table 3-5:  
Revenue Summary under Current Rate Structure**

Running Expense Revenue <sup>1</sup>	Budgeted FY 2015	Projected FY 2016	Projected FY 2017	Projected FY 2018	Projected FY 2019	Projected FY 2020
Sewer Service Charge <sup>2</sup>	\$69,447,000	\$68,235,881	\$68,310,851	\$68,727,563	\$69,153,753	\$69,589,570
Service Charges - Concord	\$13,500,000	\$13,926,682	\$14,337,387	\$14,311,392	\$14,836,224	\$15,380,349
Permit/Inspection/Right-of-Way Fees	\$1,244,600	\$1,281,938	\$1,320,396	\$1,360,008	\$1,400,808	\$1,442,833
Lease Rental Income	\$566,000	\$582,980	\$600,469	\$618,483	\$637,038	\$656,149
Household Hazardous Waste Reimbursement	\$895,000	\$921,850	\$949,506	\$977,991	\$1,007,330	\$1,037,550
Stormwater/ Pollution Prevention/Pretreatment	\$271,000	\$279,130	\$287,504	\$296,129	\$305,013	\$314,163
Interest Income <sup>3</sup>	\$90,000	\$196,001	\$207,710	\$322,273	\$427,843	\$555,082
Recycled Water	\$103,000	\$106,090	\$109,273	\$112,551	\$115,927	\$119,405
All Other	\$115,000	\$118,450	\$122,004	\$125,664	\$129,434	\$133,317
<b>TOTAL REVENUES</b>	<b>\$86,231,600</b>	<b>\$85,649,002</b>	<b>\$86,245,099</b>	<b>\$86,852,054</b>	<b>\$88,013,371</b>	<b>\$89,228,417</b>

Sewer Construction Fund Revenue <sup>1</sup>	Budgeted FY 2015	Projected FY 2016	Projected FY 2017	Projected FY 2018	Projected FY 2019	Projected FY 2020
Sewer Service Charge <sup>2</sup>	\$3,750,000	\$3,787,675	\$3,791,930	\$3,815,045	\$3,838,620	\$3,862,655
Property Tax Revenue	\$8,160,000	\$10,064,708	\$10,212,767	\$10,406,401	\$10,908,644	\$11,284,728
Capacity Fee Revenue	\$5,890,000	\$6,184,425	\$6,484,415	\$6,788,320	\$7,095,960	\$7,407,155
Pump Zone Revenue	\$528,000	\$554,736	\$581,717	\$609,000	\$497,318	\$186,862
Concord Capital Revenue	\$3,305,000	\$3,602,491	\$5,487,737	\$7,647,624	\$6,884,640	\$4,917,324
Interest Income <sup>3</sup>	\$280,000	\$62,774	\$52,512	\$68,292	\$95,703	\$167,906
Permit and Inspection Fees	\$107,000	\$109,140	\$111,323	\$113,549	\$115,820	\$118,137
Recycled Water	\$260,000	\$267,800	\$275,834	\$284,109	\$292,632	\$301,411
All Other	\$1,000	\$1,030	\$1,061	\$1,093	\$1,126	\$1,159
<b>TOTAL REVENUES</b>	<b>\$22,281,000</b>	<b>\$24,634,778</b>	<b>\$26,999,295</b>	<b>\$29,733,433</b>	<b>\$29,730,463</b>	<b>\$28,247,336</b>

1. Based on budgeted and projected revenues as of March 2015.

2. Current Rate Structure (i.e. does not include proposed rate increase.) Increasing revenues due to projected growth.

3. Interest shift in funds in FY 2016 due to proposed reserve policy allocations.

## 3.5 WASTEWATER SYSTEM EXPENDITURES

For sound financial operation of the District's wastewater system, the revenues generated must be sufficient to meet the revenue requirements or cash obligations of the system. Revenue requirements include O&M expenses, capital improvement program (CIP) expenditures, principal and interest payments on existing debt, and other obligations.

### 3.5.1 Operation and Maintenance Expenses

O&M expenditures include the cost of treatment, pumping, and collection facilities. O&M expenses also include the costs of providing technical services such as laboratory services, engineering, and other administrative costs of the wastewater system such as customer service and billing. These costs are a normal obligation of the system, and are met from operating revenues as they are incurred. The comprehensive forecasted annual O&M expenditures for the study are based upon the District's long-range financial plan, using inflationary factors ranging from two to eight percent per year to project

O&M expenditures. In addition to the O&M expenditures, the District is making two additional \$2.5 million annual payments to the Unfunded Actuarial Accrued Liability (UAAL) in FY 2016 and FY 2017.

Projected O&M expenditures are summarized by function and by category in Tables 3-6 and 3-7, respectively. The additional UAAL payments are included in the Allocated Benefits category.

**Table 3-6:  
Projected O&M Expenses<sup>1</sup> by Function**

	Budgeted FY 2015	Projected FY 2016	Projected FY 2017	Projected FY 2018	Projected FY 2019	Projected FY 2020
Administration	\$24,476,326	\$24,605,598	\$25,372,937	\$24,805,582	\$25,675,372	\$25,785,443
Engineering	\$12,229,549	\$11,662,173	\$11,925,299	\$11,470,088	\$11,851,909	\$12,236,341
Collection System Operations	\$15,617,120	\$14,752,239	\$15,114,151	\$14,845,264	\$15,308,591	\$15,797,147
Plant Operations Department	\$32,523,037	\$31,584,881	\$32,513,761	\$32,351,627	\$33,504,849	\$34,699,324
Pumping Stations	\$3,352,863	\$3,566,604	\$3,676,142	\$3,668,317	\$3,805,223	\$3,935,565
<b>TOTAL EXPENSES</b>	<b>\$88,198,895</b>	<b>\$86,171,496</b>	<b>\$88,602,290</b>	<b>\$87,140,879</b>	<b>\$90,145,944</b>	<b>\$92,453,820</b>

1. Based on anticipated expenses as of March 2015

**Table 3-7:  
Projected O&M Expenses<sup>1</sup> by Category**

	Budgeted FY 2015	Projected FY 2016	Projected FY 2017	Projected FY 2018	Projected FY 2019	Projected FY 2020
Salary & Wages	\$28,618,169	\$30,133,152	\$31,338,478	\$32,284,087	\$33,402,716	\$34,537,213
Capitalized Admin Overhead	(\$3,806,958)	(\$4,355,446)	(\$4,486,109)	(\$4,620,692)	(\$4,759,313)	(\$4,902,093)
Directors Fees & Expenses	\$199,800	\$207,792	\$216,104	\$224,748	\$233,738	\$243,087
Chemicals	\$1,605,000	\$1,685,250	\$1,769,513	\$1,857,988	\$1,950,888	\$2,048,432
Utilities	\$4,861,350	\$5,101,680	\$5,353,943	\$5,618,736	\$5,896,681	\$6,188,433
Repairs & Maintenance	\$4,911,762	\$5,059,115	\$5,210,888	\$5,367,215	\$5,528,231	\$5,694,078
Hauling & Disposal	\$1,040,200	\$1,080,226	\$1,121,894	\$1,165,275	\$1,210,443	\$1,257,477
Professional & Legal Services	\$539,400	\$555,582	\$572,249	\$589,417	\$607,099	\$625,312
Outside Services	\$3,303,021	\$3,402,112	\$3,504,175	\$3,609,300	\$3,717,579	\$3,829,107
Self-Insurance Expense	\$650,000	\$1,300,000	\$1,300,000	\$1,350,000	\$1,350,000	\$1,350,000
Materials & Supplies	\$2,024,315	\$2,085,044	\$2,147,596	\$2,212,024	\$2,278,384	\$2,346,736
Other Expenses	\$2,419,448	\$2,105,781	\$2,555,205	\$2,245,611	\$2,699,229	\$2,393,956
Allocated Benefits	\$41,833,388	\$37,811,208	\$37,998,354	\$35,237,171	\$36,030,268	\$36,842,080
<b>TOTAL O&amp;M EXPENSES</b>	<b>\$88,198,895</b>	<b>\$86,171,496</b>	<b>\$88,602,290</b>	<b>\$87,140,879</b>	<b>\$90,145,944</b>	<b>\$92,453,820</b>

1. Based on anticipated expenses as of March 2015

### 3.5.2 Capital Improvement Program

The District has developed a comprehensive wastewater Capital Improvement Program (CIP) to address current wastewater system needs. As Table 3-8 indicates, the total estimated wastewater CIP for FY 2016 to FY 2020 is \$181.7 million. The District applied an inflation rate of three percent per year, starting in FY 2017. This is a conservative estimate and ensures that the District has adequate resources reserved to complete the necessary projects. The financial plan calls for the District to fund capital costs through rate revenues. Funding the capital costs through rates is especially prudent for the District because the District's capital costs are fairly uniform over the planning period, except for a spike in FY 2018, and rates will provide the necessary cash to fund those projects and save on interest costs. However, issuing debt would spread the costs over a longer term and minimize the revenue adjustments needed in the short term. The proposed rate adjustments for FY 2016 and FY 2017 are primarily used to fund capital in FY 2016 and FY 2017. Future capital expenses have minimal impact on the proposed adjustments.

**Table 3-8:  
Capital Improvement Plan<sup>1</sup>**

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Treatment Plant	\$9,045,000	\$10,410,000	\$12,820,000	\$21,785,000	\$19,429,000	\$13,303,400
Collection System	\$12,217,000	\$15,950,000	\$18,125,000	\$16,840,000	\$17,611,500	\$15,690,000
General Improvements	\$3,265,000	\$3,980,000	\$4,605,000	\$4,203,000	\$1,955,000	\$2,725,000
Recycled Water	\$552,000	\$450,000	\$500,000	\$500,000	\$509,500	\$350,000
<b>TOTAL CIP</b>	<b>\$25,079,000</b>	<b>\$30,790,000</b>	<b>\$36,050,000</b>	<b>\$43,328,000</b>	<b>\$39,505,000</b>	<b>\$32,068,400</b>

1. Based on anticipated revenues and expenses as of March 2015

### 3.5.3 Revenue Adjustments

The District's financial plan projects the following revenue adjustments for the next five years, as shown in Table 3-9. The adjustments are necessary to meet projected expenditures and to maintain sufficient reserve balances.

**Table 3-9:  
Revenue Adjustments Schedule**

Fiscal Year	Revenue Adjustments
2016	7.24%
2017	7.30%
2018	5.57%
2019	5.35%
2020	4.97%

### 3.5.4 Debt Service Requirements

Debt service requirements consist of principal and interest payments on existing debt. The District currently has debt service obligations associated with the outstanding Recycled Water Loan and the 2009 Bonds. Existing debt service payments are approximately \$3.8 million annually. Table 3-10 shows the existing debt service of the wastewater utility.

**Table 3-10:  
Existing Debt Schedule**

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Recycled Water Loan	\$187,000	\$187,000	\$187,000	\$187,000	\$0	\$0
2009 Bonds (Series A & B less Fed Rebate)	\$5,359,218	\$3,604,785	\$3,595,051	\$3,622,926	\$3,603,238	\$3,600,701
<b>TOTAL EXISTING DEBT SERVICE</b>	<b>\$5,546,218</b>	<b>\$3,791,785</b>	<b>\$3,782,051</b>	<b>\$3,809,926</b>	<b>\$3,603,238</b>	<b>\$3,600,701</b>

### 3.5.5 Debt Service Coverage

The District must meet debt service coverage requirements on its outstanding bond issues. Coverage requirements typically vary between 100 percent and 160 percent or higher. The District’s target debt coverage is 200 percent, which means that the District’s Adjusted Net System Revenues shall amount to at least 200 percent of the Annual Debt Service. The system revenues include funds derived from the ownership and operation of the system including wastewater service charges from the District’s customers, miscellaneous service charges, revenues received from contracts, and interest income. Annual Debt Service includes annual principal and interest payments on outstanding debt. Adjusted net revenues equal the net revenues less connection fees revenue and the capital charges from City of Concord. As shown in Table 3-11, the District exceeds the coverage requirement during each year of the study’s planning period, which is one of several critical financial tests of the utility. The other financial tests include cash flow and reserve levels.

**Table 3-11:  
Debt Coverage Calculation**

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
<b>Operating Revenues</b>						
Sewer Service Charges (O&M) <sup>1</sup>	\$70,126,719	\$74,410,069	\$79,840,336	\$84,287,520	\$88,796,277	\$93,207,121
Sewer charges - City of Concord	\$13,500,000	\$13,926,682	\$14,337,387	\$14,311,392	\$14,836,224	\$15,380,349
Permit and Inspection Fees	\$1,244,600	\$1,281,938	\$1,320,396	\$1,360,008	\$1,400,808	\$1,442,833
Interest Income	\$90,000	\$196,001	\$207,710	\$322,273	\$427,843	\$555,082
Other Service Charges	\$1,950,000	\$2,008,500	\$2,068,755	\$2,130,818	\$2,194,742	\$2,260,584
<b>Total Operating Revenues</b>	<b>\$86,911,319</b>	<b>\$91,823,190</b>	<b>\$97,774,584</b>	<b>\$102,412,011</b>	<b>\$107,655,895</b>	<b>\$112,845,969</b>
O&M Costs	\$88,198,895	\$86,171,496	\$88,602,290	\$87,140,879	\$90,145,944	\$92,453,820
<b>Total Operating Income (Loss)</b>	<b>(\$1,287,576)</b>	<b>\$5,651,694</b>	<b>\$9,172,294</b>	<b>\$15,271,132</b>	<b>\$17,509,952</b>	<b>\$20,392,149</b>
<b>Non-Operating Revenue</b>						
Sewer Service Charges (capital) <sup>1</sup>	\$3,750,000	\$4,089,931	\$4,388,512	\$4,632,937	\$4,880,659	\$5,122,892
Capital Charges - City of Concord	\$3,305,000	\$3,602,491	\$5,487,737	\$7,647,624	\$6,884,640	\$4,917,324
Interest Earnings (capital reserve)	\$280,000	\$62,774	\$52,512	\$76,558	\$164,224	\$299,578
Connection fees	\$6,418,000	\$6,739,161	\$7,066,132	\$7,397,320	\$7,593,278	\$7,594,017
Other Income	\$368,000	\$377,970	\$388,218	\$398,751	\$409,578	\$420,707
<b>Total Non-Operating Revenue</b>	<b>\$14,121,000</b>	<b>\$14,872,326</b>	<b>\$17,383,111</b>	<b>\$20,153,190</b>	<b>\$19,932,379</b>	<b>\$18,354,519</b>
Tax Revenues	\$13,695,647	\$13,832,603	\$13,970,930	\$14,180,493	\$14,464,103	\$14,825,706
Debt Service (net of credits)	\$5,546,218	\$3,791,785	\$3,782,051	\$3,809,926	\$3,603,238	\$3,600,701
<b>Debt Coverage Calculations</b>						
Net Revenue + Tax Revenues	\$26,529,071	\$34,356,624	\$40,526,335	\$49,604,815	\$51,906,434	\$53,572,373
Debt Coverage	4.78	9.06	10.72	13.02	14.41	14.88
Adjusted Net Revenue <sup>2</sup> + Tax Revenues	\$16,806,071	\$24,014,972	\$27,972,466	\$34,559,871	\$37,428,516	\$41,061,032
Debt Coverage - Parity	3.03	6.33	7.40	9.07	10.39	11.40
Required Coverage Ratio	2.00	2.00	2.00	2.00	2.00	2.00

Table is based on anticipated revenues and expenses as of March 2015.

1. Includes proposed rate increase

2. Adjusted Net Revenue = Net Revenue less CCCSD Connection Fees and City of Concord Capital Charges

### 3.5.6 Operating Financial Plan

Table 3-12 shows the operating financial plan for FY 2015 through FY 2020 based on the revenue and expenses information presented above. The plan includes the revenue adjustments shown in Table 3-9.

**Table 3-12:  
Operating Financial Plan<sup>1</sup>**

	Budgeted FY 2015	Projected FY 2016	Projected FY 2017	Projected FY 2018	Projected FY 2019	Projected FY 2020
Revenue from Existing Rates - O&M	\$69,447,000	\$68,235,881	\$68,310,851	\$68,727,563	\$69,153,753	\$69,589,570
Revenue from Existing Rates - Capital	\$3,750,000	\$3,787,675	\$3,791,930	\$3,815,045	\$3,838,620	\$3,862,655
Additional Revenue from Rates	\$0	\$5,747,480	\$11,343,905	\$15,552,119	\$19,814,665	\$23,964,681
Subtotal Rate Revenue	\$73,197,000	\$77,771,035	\$83,446,686	\$88,094,727	\$92,807,037	\$97,416,905
Calibration (model to actual) <sup>2</sup>	\$0	\$728,965	\$782,163	\$825,730	\$869,900	\$913,109
Calibrated Rate Revenue	\$73,197,000	\$78,500,000 <sup>4</sup>	\$84,228,849	\$88,920,457	\$93,676,937	\$98,330,013
Service Charges - Concord	\$13,500,000	\$13,926,682	\$14,337,387	\$14,311,392	\$14,836,224	\$15,380,349
Permit/Inspection/Right-of-Way Fees	\$1,244,600	\$1,281,938	\$1,320,396	\$1,360,008	\$1,400,808	\$1,442,833
Lease Rental Income	\$566,000	\$582,980	\$600,469	\$618,483	\$637,038	\$656,149
Household Hazardous Waste Reimbursement	\$895,000	\$921,850	\$949,506	\$977,991	\$1,007,330	\$1,037,550
Stormwater/ Pollution Prevention/Pretreatment	\$271,000	\$279,130	\$287,504	\$296,129	\$305,013	\$314,163
Interest Income <sup>3</sup>	\$90,000	\$196,001	\$207,710	\$322,273	\$427,843	\$555,082
Recycled Water	\$103,000	\$106,090	\$109,273	\$112,551	\$115,927	\$119,405
All Other	\$115,000	\$118,450	\$122,004	\$125,664	\$129,434	\$133,317
<b>TOTAL REVENUES</b>	<b>\$89,981,600</b>	<b>\$95,913,121</b>	<b>\$102,163,096</b>	<b>\$107,044,947</b>	<b>\$112,536,555</b>	<b>\$117,968,861</b>
<b>O&amp;M Expenses</b>						
Administration	\$24,476,326	\$24,605,598	\$25,372,937	\$24,805,582	\$25,675,372	\$25,785,443
Engineering	\$12,229,549	\$11,662,173	\$11,925,299	\$11,470,088	\$11,851,909	\$12,236,341
Collection System Operations	\$15,617,120	\$14,752,239	\$15,114,151	\$14,845,264	\$15,308,591	\$15,797,147
Plant Operations Department	\$32,523,037	\$31,584,881	\$32,513,761	\$32,351,627	\$33,504,849	\$34,699,324
Pumping Stations	\$3,352,863	\$3,566,604	\$3,676,142	\$3,668,317	\$3,805,223	\$3,935,565
<b>TOTAL EXPENSES</b>	<b>\$88,198,895</b>	<b>\$86,171,496</b>	<b>\$88,602,290</b>	<b>\$87,140,879</b>	<b>\$90,145,944</b>	<b>\$92,453,820</b>
Less: Construction Fund SSC Revenue	(\$3,750,000)	(\$4,089,931)	(\$4,388,512)	(\$4,632,937)	(\$4,880,659)	(\$5,122,892)
<b>NET OPERATING INCOME</b>	<b>(\$1,967,295)</b>	<b>\$5,651,694</b>	<b>\$9,172,294</b>	<b>\$15,271,132</b>	<b>\$17,509,952</b>	<b>\$20,392,149</b>

1. Based on anticipated revenues and expenses as of March 2015.
2. Accounts for complexity of CCCSD billing system (e.g. winter quarter adjustments, manual overrides, etc.)
3. Interest shift in funds in FY 2016 due to proposed reserve policy reallocations.
4. Corresponds with proposed FY 2105-16 O&M and Capital Budgets

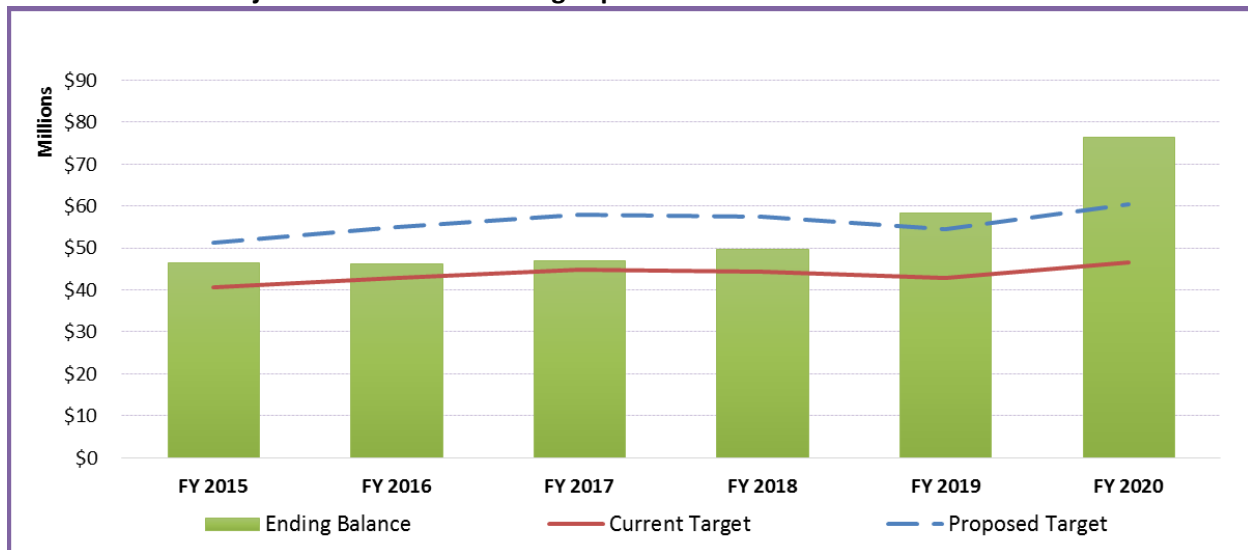


### 3.5.7 Reserves

The District currently has five separate funds/reserves: Running Expense Fund, Sewer Construction Fund, Self-Insurance/Emergency Fund, a Debt Service Fund, and a bond reserve account. The debt service fund is used to pay the annual debt service payments with property tax revenue. This fund does not carry a balance from year to year. The bond reserve account includes funds required to be kept in a restricted reserve by the bondholders. The current reserve policy is set at 32 percent of next year’s O&M expenses, 30 percent of next year’s CIP expenses, and 100 percent of next year’s debt service payment. The bond reserve account is maintained according to the covenants of the outstanding debt and currently includes \$4.8 million. This level of reserves is on the low side to that of comparable agencies, including Dublin San Ramon Services District, Union Sanitary District and Contra Costa Water District. Through a review of the District’s operations, RFC proposed and the District Board agreed to amend its reserve policy to include at least five months, or 41.7 percent, of next year’s O&M expenses, 50 percent of next year’s CIP expenses, 100 percent of next year’s debt service payment, \$1.5 million for self-insurance, and \$5 million for emergencies. The self-insurance reserve is set at \$1.5 million to cover three incidents. The emergency reserve is set at \$5 million to cover the liability insurance deductible for losses resulting from damages to wastewater assets during disasters. The estimated FY 2015 total ending balance for the Running Expense Fund and Sewer Construction Fund is approximately \$46.7 million, as shown in Figure 3-1. These reserves also account for the cash flow needs associated with the District’s receipt of Sewer Service Charge revenue in two lump-sum payments in December and April of each year.

The reserve balance<sup>1</sup> and the current and proposed targets for the running expense fund and sewer construction fund are shown in Figure 3-1. The reserve level is projected to meet the proposed target by FY 2020.

**Figure 3-1:  
Projected Reserves– Running Expense and Sewer Construction Funds**



<sup>1</sup> Excludes \$6.5 million for self-insurance and emergency reserve.

Figure 3-2 shows the total fund balance by the different funds maintained by the District, including the Running Expense, Sewer Construction Fund, and the Self-Insurance Fund, which includes the Emergency Fund.

**Figure 3-2:  
Projected Reserves**

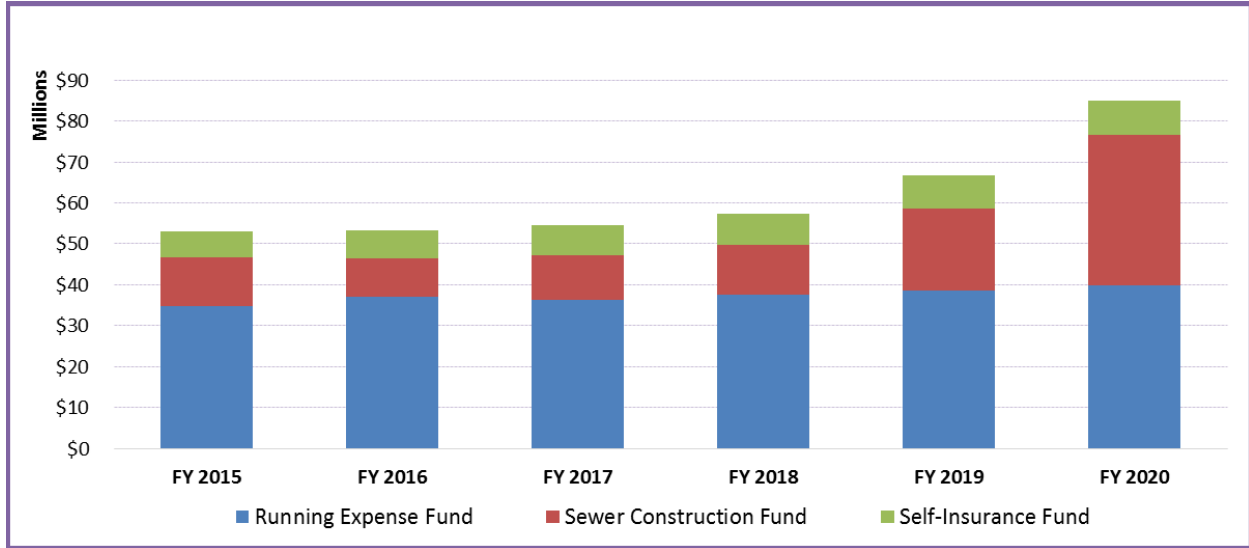


Table 3-13 shows the total fund balances for the different funds within the District, as well as the current and proposed reserve targets.

**Table 3-13:  
Projected Reserves<sup>1</sup>**

		Budgeted FY 2015	Projected FY 2016	Projected FY 2017	Projected FY 2018	Projected FY 2019	Projected FY 2020
<b>RUNNING EXPENSE FUND</b>							
Beginning Balance		\$36,750,000	\$34,782,705	\$36,917,621	\$36,308,699	\$37,560,810	\$38,522,425
Net Income		(\$1,967,295)	\$5,651,694	\$9,172,294	\$15,271,132	\$17,509,952	\$20,392,149
<b>Ending Balance before Transfers</b>		<b>\$34,782,705</b>	<b>\$40,434,400</b>	<b>\$46,089,915</b>	<b>\$51,579,831</b>	<b>\$55,070,762</b>	<b>\$58,914,574</b>
Transfer to Sewer Construction Fund <sup>1</sup>		\$0	(\$3,516,779)	(\$9,781,215)	(\$14,019,021)	(\$16,548,337)	(\$19,144,312)
Transfer to Debt Service Fund		\$0	\$0	\$0	\$0	\$0	\$0
<b>Ending Balance</b>		<b>\$34,782,705</b>	<b>\$36,917,621</b>	<b>\$36,308,699</b>	<b>\$37,560,810</b>	<b>\$38,522,425</b>	<b>\$39,770,262</b>
Under (Over) Target		\$1,122,084	-	-	-	-	-
Proposed O&M Target	42%	\$35,904,790	\$36,917,621	\$36,308,699	\$37,560,810	\$38,522,425	\$39,770,262
<b>SEWER CONSTRUCTION FUND</b>							
Beginning Balance		\$14,673,000	\$11,875,000	\$9,538,813	\$10,869,552	\$15,228,631	\$23,070,280
<b>Revenue</b>							
Sewer Service Charge		\$3,750,000	\$4,089,931	\$4,388,512	\$4,632,937	\$4,880,659	\$5,122,892
Property Tax Revenue		\$8,160,000	\$10,064,708	\$10,212,767	\$10,406,401	\$10,908,644	\$11,284,728
Capacity Fee Revenue		\$5,890,000	\$6,184,425	\$6,484,415	\$6,788,320	\$7,095,960	\$7,407,155
Pump Zone Revenue		\$528,000	\$554,736	\$581,717	\$609,000	\$497,318	\$186,862
Concord Capital Revenue		\$3,305,000	\$3,602,491	\$5,487,737	\$7,647,624	\$6,884,640	\$4,917,324
Interest Income		\$280,000	\$62,774	\$56,157	\$82,025	\$171,513	\$308,690
Permit and Inspection Fees		\$107,000	\$109,140	\$111,323	\$113,549	\$115,820	\$118,137
Recycled Water		\$260,000	\$267,800	\$275,834	\$284,109	\$292,632	\$301,411
All Other		\$1,000	\$1,030	\$1,061	\$1,093	\$1,126	\$1,159
New Bond Proceeds		\$0	\$0	\$0	\$0	\$0	\$0
New SRF Proceeds		\$0	\$0	\$0	\$0	\$0	\$0
Transfer from Running Expense Fund <sup>1</sup>		\$0	\$3,516,779	\$9,781,215	\$14,019,021	\$16,548,337	\$19,144,312
<b>Total Revenue</b>		<b>\$22,281,000</b>	<b>\$28,453,813</b>	<b>\$37,380,739</b>	<b>\$44,584,079</b>	<b>\$47,396,649</b>	<b>\$48,792,670</b>
<b>Expenses</b>							
Capital Projects		\$25,079,000	\$30,790,000	\$36,050,000	\$40,225,000	\$39,555,000	\$33,118,400
<b>Total Expenses</b>		<b>\$25,079,000</b>	<b>\$30,790,000</b>	<b>\$36,050,000</b>	<b>\$40,225,000</b>	<b>\$39,555,000</b>	<b>\$33,118,400</b>
<b>Ending Balance</b>		<b>\$11,875,000</b>	<b>\$9,538,813</b>	<b>\$10,869,552</b>	<b>\$15,228,631</b>	<b>\$23,070,280</b>	<b>\$38,744,550</b>
Under (Over) Target		\$3,520,000	\$8,486,187	\$9,242,948	\$4,548,869	(\$6,511,080)	(\$18,212,908)
Proposed Capital Target	50%	\$15,395,000	\$18,025,000	\$20,112,500	\$19,777,500	\$16,559,200	\$20,531,642

Table is based on anticipated revenues and expenses as of March 2015.

1. Beginning in FY 2016 through 2020 amount Under (Over) Target reserve is shown as a transfer to/from Sewer Construction Fund.

**Table 3-13:  
Projected Reserves<sup>1</sup>  
(cont'd)**

	Budgeted FY 2015	Projected FY 2016	Projected FY 2017	Projected FY 2018	Projected FY 2019	Projected FY 2020
<b>SELF-INSURANCE FUND</b>						
Beginning Balance	\$6,500,000	\$6,417,442	\$6,908,217	\$7,323,131	\$7,746,665	\$8,116,751
<b>Revenue</b>						
SIF Allocation from O&M Fund	\$650,000	\$1,300,000	\$1,300,000	\$1,350,000	\$1,350,000	\$1,350,000
All Other	\$106,942	\$72,975	\$76,624	\$80,455	\$84,478	\$86,590
<b>Total Revenue</b>	<b>\$756,942</b>	<b>\$1,372,975</b>	<b>\$1,376,624</b>	<b>\$1,430,455</b>	<b>\$1,434,478</b>	<b>\$1,436,590</b>
<b>Expenses</b>						
Insurance Premiums	\$437,500	\$480,200	\$504,210	\$529,421	\$555,892	\$583,686
Loss Payments	\$250,000	\$250,000	\$300,000	\$300,000	\$300,000	\$300,000
All Other	\$152,000	\$152,000	\$157,500	\$177,500	\$208,500	\$202,500
<b>Total Expenses</b>	<b>\$839,500</b>	<b>\$882,200</b>	<b>\$961,710</b>	<b>\$1,006,921</b>	<b>\$1,064,392</b>	<b>\$1,086,186</b>
<b>Ending Balance</b>	<b>\$6,417,442</b>	<b>\$6,908,217</b>	<b>\$7,323,131</b>	<b>\$7,746,665</b>	<b>\$8,116,751</b>	<b>\$8,467,155</b>
Proposed SIF Target	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000	\$1,500,000
Proposed Emergency Target	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000
Under (Over) Target	\$82,558	\$408,217	\$823,131	\$1,246,665	\$1,616,751	\$1,967,155
<b>DEBT SERVICE FUND</b>						
Beginning Balance	\$0	\$0	\$0	\$0	\$0	\$0
<b>Revenue</b>						
Sewer Service Charge	\$0	\$0	\$0	\$0	\$0	\$0
Tax Revenue	\$4,949,468	\$3,767,895	\$3,758,162	\$3,774,093	\$3,555,459	\$3,540,978
Transfer to Debt Service Fund	\$556,050	\$0	\$0	\$0	\$0	\$0
Bond Reserve Account Interest	\$40,700	\$23,889	\$23,889	\$35,834	\$47,779	\$59,723
<b>Total Revenue</b>	<b>\$5,546,218</b>	<b>\$3,791,785</b>	<b>\$3,782,051</b>	<b>\$3,809,926</b>	<b>\$3,603,238</b>	<b>\$3,600,701</b>
<b>Debt Service</b>						
Existing Debt Service	\$5,546,218	\$3,791,785	\$3,782,051	\$3,809,926	\$3,603,238	\$3,600,701
Proposed Debt Service	\$0	\$0	\$0	\$0	\$0	\$0
<b>Total Debt Service</b>	<b>\$5,546,218</b>	<b>\$3,791,785</b>	<b>\$3,782,051</b>	<b>\$3,809,926</b>	<b>\$3,603,238</b>	<b>\$3,600,701</b>
<b>Ending Balance</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$0</b>
<b>BOND RESERVE ACCOUNT</b>						
Beginning Balance	\$5,333,900	\$4,777,850	\$4,777,850	\$4,777,850	\$4,777,850	\$4,777,850
Proposed Bond Reserves	\$0	\$0	\$0	\$0	\$0	\$0
Transfer to Debt Service Fund	(\$556,050)	\$0	\$0	\$0	\$0	\$0
<b>Ending Balance</b>	<b>\$4,777,850</b>	<b>\$4,777,850</b>	<b>\$4,777,850</b>	<b>\$4,777,850</b>	<b>\$4,777,850</b>	<b>\$4,777,850</b>
<b>TOTAL ALL FUNDS</b>	<b>\$57,852,997</b>	<b>\$58,142,501</b>	<b>\$59,279,232</b>	<b>\$65,313,956</b>	<b>\$74,487,306</b>	<b>\$91,759,817</b>

Table is based on anticipated revenues and expenses as of March 2015.

1. Beginning in FY 2016 through 2020 amount Under (Over) Target reserve is shown as a transfer to/from Sewer Construction Fund.

## 4. COST OF SERVICE ANALYSIS

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This section of the Report discusses the allocation of O&M expenses and capital costs to the appropriate parameters consistent with industry standards, the determination of unit costs, and calculation of costs by customer class.

To allocate the cost of service among the different customer classes, costs first need to be allocated to the appropriate wastewater parameters. The following sections describe the allocation of the operating and capital costs of service to the appropriate parameters of the wastewater system.

The total cost of wastewater service is analyzed by system function in order to equitably distribute costs of service to the various classes of customers. For this analysis, wastewater utility costs of service are developed consistent with the guidelines for allocating costs detailed in the Water Environment Federation (WEF) Manual of Practice No. 27, Financing and Charges for Wastewater Systems, 2004.

The wastewater COS analysis consists of seven major steps, as outlined below:

1. Determine non-residential customer flow and strength loadings based on water usage.
2. Conduct plant balance to estimate the flow and strength of the residential customer class taking into consideration infiltration and inflow (I&I).
3. Functionalize O&M and capital costs into functional categories such as Collection, Treatment, and Billing and Customer Service, etc.
4. Allocate each functional category into cost components such as Flow, Strength, and Billing and Customer Service, etc.
5. Develop customer class characteristics by cost component.
6. Calculate the cost component rates by dividing the total cost in each cost component in Step 4 by the customer class characteristics in Step 5.
7. Calculate the cost by customer class by multiplying the unit cost in Step 6 by the customer class characteristics in Step 5.

### 4.1 PROPOSED CUSTOMER CLASSIFICATIONS

As part of the Study, RFC reviewed the current customer classifications and found that a significant portion of the non-residential customers is included in the Standard Commercial class. The Standard Commercial class accounts for approximately 71 percent of the total non-residential water usage (refer to Table 3-4). RFC proposed to separate the following customer classes from the Standard Commercial class because industry standards have these classes at higher strength concentration:

- **Automotive** – gas stations, repair and maintenance facilities, auto dealerships, body and painting facilities, similar facilities for aircraft and boats
- **Hotels/ Motels** – with food service
- **Supermarkets** – with one or more of: meat cutting, delicatessens, bakeries and other activities resulting in the discharge of high-strength wastewater

Table 4-1 compares the current defined strength concentrations, which consist of BOD and TSS, with the proposed strength concentrations.

**Table 4-1:  
Current and Proposed Wastewater Strength**

Category	Current		Proposed	
	BOD (mg/L)	TSS (mg/L)	BOD (mg/L)	TSS (mg/L)
Standard Commercial	150	165	150	165
<b>Hotels/Motels</b>	150	165	<b>310</b>	<b>120</b>
<b>Automotive</b>	150	165	<b>180</b>	<b>280</b>
<b>Supermarkets</b>	150	165	<b>700</b>	<b>360</b>

A review of the estimated wastewater flow for schools showed that the current estimates for intermediate and high schools are significantly lower than industry standards. Thus, to increase equity, RFC proposed that the estimated flow for schools be revised to the current standards. The estimated flows used in the Cost of Service calculations are based on 180 school days per calendar year. Table 4-2 compares the current wastewater flow per student per day for the various school types with the proposed wastewater flow per student per day. The higher flows for high schools represent the additional wastewater generated from additional instructional activities as well as extra-curricular activities such as athletics which generate wastewater flows from both student participants and spectators. The actual water consumption for intermediate school and high school flows were reviewed. It is recommended that any school with actual water consumption less than the per-student estimate be billed based on the actual water use.

**Table 4-2:  
Current and Proposed Wastewater Flow for Schools**

SCHOOLS	CURRENT	PROPOSED (Based on Industry Standard)
Elementary Schools	5 gallons per student per school day	5 gallons per student per school day
Intermediate Schools	5.3 gallons per student per school day	10 gallons per student per school day
High Schools	5.6 gallons per student per school day	15 gallons per student per school day

Residential customers currently include both single family residential (SFR) and multi-family residential (MFR) customers. RFC explored whether it is more equitable to differentiate these two residential classes. Based on the 2010 U.S. Census data, the estimated average housing density for SFR within the District’s service area is 2.61 people per household, and for MFR is 2.21 people per household. The estimated wastewater flow is proportional to the number of people per household, therefore MFR flow is estimated at approximately 85 percent (2.21/2.61) of the SFR flow, as shown in Table 4-3. This data provides a basis for categorizing SFR and MFR classes separately.

In addition to the proposed changes, RFC suggested that the District conduct an comprehensive review of the mixed use and food service categories to ensure that they are categorized and charged correctly and equitably. The District should also consider conducting flow and strength measurements to confirm non-residential customer class characteristics. Such a review could then be used to evaluate and simplify the District’s food service and multi-use rate categories.

## 4.2 PLANT BALANCE

The plant balance analysis is used to estimate and validate the wastewater loadings (flow and strength) generated by each customer class. While wastewater discharged into sewers for most customers is not metered when it enters the wastewater system, the total amount of flow and strength entering the treatment plant and treated every day is a known quantity. Additionally, non-residential customer flows and strengths can be estimated based on their water usage; non-residential customer strength concentrations are estimated according to industry accepted standards. Flow from the cities of Concord and Clayton is measured and the strength is assumed to be equal to the District’s strength concentration. The remaining loadings, net of the total less infiltration and inflow (I&I), contract agencies, and non-residential and industrial, are assigned to residential customers. Based on this plant balance, the estimated residential flow is determined to be 55 gallons per capita per day, which is a reasonable estimate of the amount of indoor water usage per person. The estimated residential strength concentration is 200 and 275 milligrams per liter (mg/l) of BOD and TSS, respectively, which is also a reasonable estimate of residential strength concentration.

The estimated loadings by customer class are shown in Table 4-3 including the assumed BOD and TSS loadings.

**Table 4-3:  
FY 2014 Plant Balance**

<b>Influent Data</b>	<b>Flow (hcf)</b>	<b>BOD (lbs/yr)</b>	<b>TSS (lbs/yr)</b>
Total Plant	17,184,225	21,958,201	29,156,029
Less: I&I	343,684	13,098	905,786
<b>Net Wastewater</b>	<b>16,840,540</b>	<b>21,945,104</b>	<b>28,250,243</b>
<b>Concord and Clayton</b>	<b>5,407,167</b>	<b>6,716,946</b>	<b>9,282,212</b>
<b>Non-Residential</b>			
Bakeries	266	1,657	994
Supermarkets	81,790	357,395	183,803
Mortuaries	3,940	19,677	19,677
Restaurants	155,302	678,617	349,003
Industrial	83,352	254,930	280,535
Church	55,959	52,398	57,638
Schools (Daycare, Preschool, University)	8,010	6,500	5,000
Schools (Elementary)	33,791	27,422	21,094
Schools (Intermediate)	35,661	28,939	22,261
Schools (High School)	71,972	58,406	44,928
Rate Group XA	27,440	35,115	31,860
Rate Group XB	9,014	14,629	11,647
Rate Group XC	29,384	57,779	41,821
Rate Group XD	27,525	63,573	42,783
Rate Group XE	29,499	78,262	49,719
Rate Group XF	34,799	104,268	63,212
Rate Group XG	29,282	97,790	57,029
Rate Group XH	37,837	139,353	78,652
Rate Group XI	33,558	135,117	74,157
Rate Group XJ	518	2,647	1,668
Rate Group XK	2,372	11,662	7,275
Rate Group XL	470	2,484	1,530
Rate Group XM	508	2,818	1,722
Rate Group XN	1,985	11,603	7,027
Rate Group XO	0	0	0
Standard Commercial	1,427,531	1,336,674	1,470,342
Hotels/Motels	112,406	350,841	421,009
Automotive	48,092	54,038	84,059
<b>Subtotal Non-Residential</b>	<b>2,382,262</b>	<b>3,984,595</b>	<b>3,430,445</b>
<b>Residential</b>			
SFR	6,117,684	7,599,571	10,501,919
MFR	2,933,427	3,643,992	5,035,667
<b>Subtotal Residential</b>	<b>9,051,111</b>	<b>11,243,562</b>	<b>15,537,586</b>
<b>NET WASTEWATER</b>	<b>16,840,540</b>	<b>21,945,104</b>	<b>28,250,243</b>



### 4.3 ALLOCATION OF REVENUE REQUIREMENTS BY FUNCTION

The wastewater utility is comprised of various facilities each designed and operated to fulfill a given function. In order to provide adequate service to its customers at all times, the utility must be capable of not only collecting the total amount of wastewater generated, but also treating and removing various nutrients from the flow. The separation of costs by function allows allocation of such costs to the functional cost components. Table 4-4 shows the FY 2016 O&M expenses by the different functional categories, as classified by District staff. Administration and Engineering expenses are reclassified into Collection and Treatment portions in proportion to the Flow and Treatment costs.

**Table 4-4:**  
**Allocation of Wastewater O&M Expenses by Function**

O&M Expenses Allocation	TOTAL
Administration - Flow portion	\$7,321,360
Administration - Treatment portion	\$12,623,302
Engineering - Flow portion	\$5,991,947
Engineering - Treatment portion	\$10,331,162
Collection System Operations	\$14,752,239
Plant Operations Department	\$31,584,881
Pumping Stations	\$3,566,604
<b>TOTAL O&amp;M EXPENSES</b>	<b>\$86,171,496</b>

Engineering allocations shown include allocation of a portion of Administration expenses.

Table 4-5 shows the replacement value of the total wastewater assets by the different assets classes, as taken from a 2014 analysis provided by the District Asset Management group.

**Table 4-5:  
Allocation of Wastewater Assets by Function**

	<b>Replacement Cost</b>
<b>Collection System</b>	
Sewer Main	\$2,492,383,782
CS Structures	\$191,436,451
Force Main	\$46,361,275
Pumping Station	\$63,354,161
Equip & Vehicles	\$1,250,000
<b>Total Collection System</b>	<b>\$2,794,785,669</b>
<b>Treatment Plant</b>	
Structures	\$270,126,328
Equipment	\$236,903,194
Piping	\$178,000,000
<b>Total Treatment Plant</b>	<b>\$685,029,522</b>
<b>General Improvements</b>	
General Improvements	\$28,618,237
Pool Vehicles	\$600,000
IT	\$10,000,000
<b>Total General Improvements</b>	<b>\$39,218,237</b>
<b>Recycled Water</b>	
Treatment Facilities	\$58,077,551
Distribution Mains	\$19,531,484
<b>Total Recycled Water</b>	<b>\$77,609,035</b>
<b>TOTAL ASSETS</b>	<b>\$3,596,642,463</b>

#### **4.4 ALLOCATION OF FUNCTIONAL COSTS TO COST COMPONENTS**

In order to allocate costs of service to the different customer classes, unit costs of service are developed. O&M expenses and capital costs are functionalized as collection, treatment, billing, administrative, etc. These total costs are then allocated to the flow, BOD, TSS, and customer parameters based on the design of each facility. Collection system and pump station costs are allocated to flow and customer parameters to recognize that a portion of the collection system cost is fixed and does not vary with the amount of wastewater flow. These allocations were initially determined based on District's staff estimate of the fixed costs of the collection system, which were determined by RFC to be reasonable. Treatment plant costs are allocated to flow, BOD, and TSS since the treatment plant is designed to treat those three components. The treatment allocations were developed by District staff during a comprehensive review of the treatment plant functions in 2008. The District believes that the treatment cost structure has not changed significantly since then.

Operating costs are allocated based on the design criteria of each facility. Collection system costs are allocated entirely to flow since the collection system is designed to handle wastewater flow. However, since these costs are almost entirely fixed, a portion of the flow related operating costs is allocated to customers recognizing that irrespective of the quantity of flow, costs associated with cleaning and maintaining the collection system are incurred and therefore all customers need to share in this cost irrespective of their flow. Since treatment plants are designed to treat flow, BOD and TSS, treatment costs are allocated to those three parameters: based on the design of each component of the treatment system. For example, the equipment in the primary clarifiers is designed to remove suspended solids. Along with suspended solids there is also some removal of BOD; therefore the equipment is allocated to TSS and BOD based on the removal of those two parameters. Additionally, the primary tank structure is designed for flow; therefore the structure is allocated to flow. Similarly other components of the treatment plant are analyzed to determine the appropriate allocation to flow, BOD and TSS.

Capital costs include capital improvements financed from annual revenues, debt service and other sources. Capital costs related to specific facilities will vary significantly from year to year. Allocating these costs based on the functions of these specific facilities could cause the rates to the different customer classes to change from year to year. A reasonable method of assigning capital costs to functional components, widely practiced in the industry, is to allocate such costs on the basis of plant investment recognizing that over a period of time these allocations will provide costs to be passed on to customers equitably.

Table 4-6 shows the different allocations to the Flow, BOD, TSS, and Customer O&M functional cost categories. The allocations are calculated based on the functions of each category, provided by the District.

**Table 4-6:  
Allocation to Cost Components – O&M**

O&M Allocation Factors	Flow	BOD	TSS	Customer	General	TOTAL
Administration - Collection portion	60%			40%		100%
Administration - Treatment portion	40%	38%	22%			100%
Engineering - Collection portion	40%			60%		100%
Engineering - Treatment portion	40%	38%	22%			100%
Collection System Operations	60%			40%		100%
Plant Operations Department	40%	38%	22%			100%
Pumping Stations	60%			40%		100%

Table 4-7 shows the allocation of O&M expenses (shown in Table 4-4) to the different cost components based on the allocation percentages shown in Table 4-6.

**Table 4-7:  
Allocation of O&M Expenses to Cost Components**

O&M Expenses Allocation	Flow	BOD	TSS	Customer	General	TOTAL
Administration - Flow portion	\$4,392,816	\$0	\$0	\$2,928,544	\$0	\$7,321,360
Administration - Treatment portion	\$5,049,321	\$4,796,855	\$2,777,126	\$0	\$0	\$12,623,302
Engineering - Flow portion	\$2,396,779	\$0	\$0	\$3,595,168	\$0	\$5,991,947
Engineering - Treatment portion	\$4,132,465	\$3,925,842	\$2,272,856	\$0	\$0	\$10,331,162
Collection System Operations	\$8,851,344	\$0	\$0	\$5,900,896	\$0	\$14,752,239
Plant Operations Department	\$12,633,952	\$12,002,255	\$6,948,674	\$0	\$0	\$31,584,881
Pumping Stations	\$2,139,962	\$0	\$0	\$1,426,642	\$0	\$3,566,604
<b>TOTAL O&amp;M EXPENSES</b>	<b>\$39,596,639</b>	<b>\$20,724,951</b>	<b>\$11,998,656</b>	<b>\$13,851,250</b>	<b>\$0</b>	<b>\$86,171,496</b>
Allocation %	46%	24%	14%	16%	0%	

Table 4-8 shows the different allocations, provided by the District, to the cost components such as Flow, BOD, TSS, etc. of the treatment plant assets.

**Table 4-8:  
Allocation of Treatment Plant Assets to Cost Components**

Treatment Plant	Replacement Cost	Flow	BOD	TSS	Customer	General
<u>Wet Weather Facilities</u>						
Holding Basins	\$152,500	100%	0%	0%		
Bypass Facilities	\$6,803,307	100%	0%	0%		
<u>Primary Treatment</u>						
Headworks	\$9,954,350	100%	0%	0%		
Pre-Aeration	\$6,472,000	45%	10%	45%		
Primary Sedimentation	\$47,747,805	45%	10%	45%		
Odor Control	\$5,607,500	45%	10%	45%		
<u>Secondary Treatment</u>						
Primary Effluent	\$2,963,900	100%	0%	0%		
Aeration/Nitrification	\$77,580,885	25%	65%	10%		
Secondary Clarifiers	\$40,736,800	25%	65%	10%		
Odor Control	\$10,000	25%	65%	10%		
<u>Disinfection</u>						
UV	\$42,439,793	100%	0%	0%		
Hypochlorite	\$1,635,558	100%	0%	0%		
Chlorine/Dechlorine	\$2,993,400	100%	0%	0%		
<u>Final Effluent</u>						
FE Channel	\$91,100	100%	0%	0%		
FE Pumping	\$2,984,750	100%	0%	0%		
Outfall	\$70,770,040	100%	0%	0%		
<u>Solids Handling</u>						
SCB Building	\$31,217,600	0%	60%	40%		
Sludge Blending Process	\$3,613,500	0%	60%	40%		
Dewatering	\$21,759,734	0%	60%	40%		
Incineration	\$82,790,608	0%	60%	40%		
Odor Control	\$1,944,750	0%	60%	40%		
<u>Utilities</u>						
Steam Generation	\$5,246,292	25%	65%	10%		
Power Distribution	\$30,765,500					100%
Power Generation	\$12,377,450	10%	20%	40%		30%
Control Systems	\$4,191,600					100%
Communication Systems	\$600					100%
Fuel System	\$6,734,698	10%	20%	40%		30%
Service Air	\$1,871,300					100%
Water Systems	\$120,271,682	0%	0%	0%		100%
<u>Support System</u>						
Safety	\$357,400					100%
Shops	\$14,746,025					100%
Misc Facilities	\$14,210,784					100%
Site Work	\$13,986,311					100%
<b>TOTAL</b>	<b>\$685,029,522</b>	<b>\$200,515,694</b>	<b>\$174,923,961</b>	<b>\$103,455,021</b>	<b>\$0</b>	<b>\$206,134,846</b>
Allocation		29%	26%	15%	0%	30%

Table 4-9 shows the different allocations to the cost components such as Flow, BOD, TSS, etc. of each capital asset class.

**Table 4-9:  
Allocation of Capital to Cost Components**

Assets Allocation Factors	Flow	BOD	TSS	Customer	General	TOTAL
Collection System	100%					100%
Treatment Plant	29%	26%	15%	0%	30%	100%
General Improvements					100%	100%
Recycled Water	100%					100%

Table 4-10 shows the allocation of the replacement value of the wastewater assets (shown in Table 4-5) to the different cost components based on the allocation percentages shown in Table 4-9.

**Table 4-10:  
Allocation of Wastewater Assets to Cost Components**

Assets Allocation	Flow	BOD	TSS	Customer	General	TOTAL
Collection System	\$2,794,785,669	\$0	\$0	\$0	\$0	\$2,794,785,669
Treatment Plant	\$200,515,694	\$174,923,961	\$103,455,021	\$0	\$206,134,846	\$685,029,522
General Improvements	\$0	\$0	\$0	\$0	\$39,218,237	\$39,218,237
Recycled Water	\$77,609,035	\$0	\$0	\$0	\$0	\$77,609,035
<b>TOTAL ASSETS</b>	<b>\$3,072,910,398</b>	<b>\$174,923,961</b>	<b>\$103,455,021</b>	<b>\$0</b>	<b>\$245,353,083</b>	<b>\$3,596,642,463</b>
Allocation %	85%	5%	3%	0%	7%	

## 4.5 ALLOCATION OF REVENUE REQUIREMENTS

The total revenue requirements net of revenue credits from miscellaneous sources, is by definition, the net revenue requirements or net cost of providing service as shown in Table 4-11. This cost is then used as the basis to develop unit costs for the wastewater parameters and to allocate costs to the various customer classes in proportion to the services rendered. The concept of proportionate allocation to customer classes requires that allocations should take into consideration not only the volume of wastewater discharge used but also strength loadings associated with the wastewater flow. In this study, wastewater rates were calculated for FY 2016, and accordingly FY 2016 is defined as the Test Year. Test Year revenue requirements are used in the cost allocation process.

The annual revenue requirement or cost of service to be recovered from wastewater charges includes operation and maintenance and capital expenses. O&M expenses include costs directly related to the collection, treatment, and disposal of wastewater and maintenance of system facilities.

The total FY 2016 cost of service to be recovered from the District’s wastewater customers, shown in Table 4-11, is estimated at approximately \$78 million, of which approximately \$69.9 million is operating costs and the remaining \$7.9 million is capital costs, which consists of capital expenditures and existing debt service. The cost of service analysis is based upon the premise that the utility must generate annual revenues adequate to meet the estimated annual revenue requirements. As part of the cost of service analysis, revenues from sources other than wastewater rates and charges (e.g. revenues from miscellaneous services) are deducted from the appropriate cost elements. Additional deductions are made to reflect interest income and other non-operating income during FY 2016. Adjustments are also made to account for cash balances to ensure adequate collection of revenue and to determine annual revenues needed from rates.

Table 4-11 shows the allocation of revenue requirements to operating and capital components to determine the revenue required from rates.

**Table 4-11:  
Allocation of Revenue Requirements<sup>1</sup>**

Revenue Requirements	FY 2016		
	Operating	Capital	Total
<b>Revenue Requirements</b>			
Administration	\$24,605,598		\$24,605,598
Engineering	\$11,662,173		\$11,662,173
Collection System Operations	\$14,752,239		\$14,752,239
Plant Operations Department	\$31,584,881		\$31,584,881
Pumping Stations	\$3,566,604		\$3,566,604
Capital Projects		\$30,790,000	\$30,790,000
<b>Subtotal Revenue Requirements</b>	<b>\$86,171,496</b>	<b>\$30,790,000</b>	<b>\$116,961,496</b>
<b>Less: Revenues from Other Sources</b>			
Service Charges - Concord	\$13,926,682		\$13,926,682
Permit/Inspection/Right-of-Way Fees	\$1,281,938		\$1,281,938
Lease Rental Income	\$582,980		\$582,980
Household Hazardous Waste Reimbursement	\$921,850		\$921,850
Stormwater/ Pollution Prevention/Pretreatment	\$279,130		\$279,130
Interest Income	\$196,001		\$196,001
Recycled Water	\$106,090		\$106,090
All Other	\$118,450		\$118,450
Calibration (model to actual)	\$728,965		\$728,965
Property Tax Revenue		\$10,064,708	\$10,064,708
Capacity Fee Revenue		\$6,184,425	\$6,184,425
Pump Zone Revenue		\$554,736	\$554,736
Concord Capital Revenue		\$3,602,491	\$3,602,491
Interest Income		\$62,774	\$62,774
Permit and Inspection Fees		\$109,140	\$109,140
Recycled Water		\$267,800	\$267,800
All Other		\$1,030	\$1,030
New Bond Proceeds		\$0	\$0
New SRF Proceeds		\$0	\$0
<b>Subtotal Revenues from Other Sources</b>	<b>\$18,142,086</b>	<b>\$20,847,103</b>	<b>\$38,989,189</b>
<b>Less: Adjustments</b>			
Adjustment for Annual Cash Balance	(\$1,851,050)	\$2,052,322	\$201,272
<b>Subtotal Adjustments</b>	<b>(\$1,851,050)</b>	<b>\$2,052,322</b>	<b>\$201,272</b>
<b>Revenue to be Recovered from Rates</b>	<b>\$69,880,459</b>	<b>\$7,890,575</b>	<b>\$77,771,035</b>

1. Existing debt service is paid by property tax revenue. The property tax revenue shown in this table is net of the debt service expenses.

## 4.6 DEVELOPMENT OF UNIT COSTS OF SERVICE

In order to allocate costs of service to the different customer classes, unit costs of service need to be developed for each cost component. The unit costs of service are developed by dividing the total annual costs allocated to each parameter by the total annual service units of the respective component.

The unit costs of service are developed by dividing the total annual costs by the appropriate service units, such as flow, BOD and TSS generated in the system and accounts for billing costs. Table 4-12 shows the service units, such as annual flow, total pounds of BOD and TSS, dwelling units, accounts, etc. for each customer class. These service units are determined from the plant balance shown in Table 4-3 and from the customer data shown in Tables 3-3 and 3-4.

**Table 4-12:  
Projected FY2016 Customer Class Service Units<sup>1</sup>**

Customer Class	Flow	BOD	TSS	Account	Dwelling Units	Students
<b>Residential</b>						
SFR	6,436,719	7,995,886	11,049,591		91,871	
MFR	2,623,444	3,258,921	4,503,534		44,052	
<b>Total Residential</b>	<b>9,060,162</b>	<b>11,254,807</b>	<b>15,553,125</b>	<b>0</b>	<b>135,923</b>	
<b>Non-Residential</b>						
Bakeries	266	1,660	996	4		
Supermarkets	81,946	358,074	184,152	31		
Mortuaries	3,948	19,714	19,714	8		
Restaurants	155,597	679,907	349,666	216		
Industrial	83,510	281,068	255,415	13		
Church	56,066	52,497	57,747	113		
Schools (Daycare, Preschool, University)	8,025	6,513	5,010	14		
Schools (Elementary)	33,855	27,474	21,134	51		28,137
Schools (Intermediate)	35,728	28,994	22,303	18		14,847
Schools (High School)	72,109	58,517	45,013	19		19,977
Rate Group XA	27,492	35,181	31,921	8		
Rate Group XB	9,031	14,657	11,669	4		
Rate Group XC	29,440	57,889	41,901	17		
Rate Group XD	27,577	63,694	42,864	15		
Rate Group XE	29,555	78,411	49,814	20		
Rate Group XF	34,865	104,466	63,333	25		
Rate Group XG	29,337	97,976	57,138	23		
Rate Group XH	37,909	139,618	78,801	27		
Rate Group XI	33,622	135,373	74,298	30		
Rate Group XJ	518	2,652	1,672	1		
Rate Group XK	2,377	11,685	7,289	2		
Rate Group XL	471	2,489	1,533	1		
Rate Group XM	509	2,824	1,725	1		
Rate Group XN	1,989	11,626	7,040	1		
Rate Group XO	0	0	0	0		
Standard Commercial	1,430,244	1,339,215	1,473,137	2,203		
Hotels/Motels	112,620	351,508	421,809	21		
Auto Repair Facilities	48,184	54,141	84,219	182		
<b>Total Non-Residential</b>	<b>2,386,790</b>	<b>4,017,823</b>	<b>3,411,312</b>	<b>3,069</b>		<b>62,961</b>
<b>GRAND TOTAL</b>	<b>11,446,953</b>	<b>15,272,629</b>	<b>18,964,437</b>	<b>3,069</b>	<b>135,923</b>	<b>62,961</b>

<sup>1</sup> Non-residential flow estimates include a 90% reduction factor to account for water usage that does not contribute to wastewater flow.

The total operating and capital revenue requirements (from Table 4-11) are allocated to the different cost components based on the percentages calculated in Tables 4-7 and 4-10, respectively. The General component is allocated proportionally back to the remaining costs components. Table 4-13 shows the calculation of the unit cost for each cost component, using the units of service from Table 4-12.

**Table 4-13:  
Development of Unit Costs**

	Flow	BOD	TSS	Customer	General	TOTAL
Operating Revenue Requirements	\$32,110,750	\$16,806,823	\$9,730,266	\$11,232,620	\$0	\$69,880,459
Capital Revenue Requirements	\$6,741,574	\$383,761	\$226,967	\$0	\$538,273	\$7,890,575
<b>Total Revenue Requirements</b>	<b>\$38,852,324</b>	<b>\$17,190,584</b>	<b>\$9,957,233</b>	<b>\$11,232,620</b>	<b>\$538,273</b>	<b>\$77,771,035</b>
Allocation of General Cost	\$270,781	\$119,810	\$69,397	\$78,286	(\$538,273)	\$0
<b>Total Cost of Service</b>	<b>\$39,123,105</b>	<b>\$17,310,394</b>	<b>\$10,026,630</b>	<b>\$11,310,906</b>	<b>\$0</b>	<b>\$77,771,035</b>
Unit of Service	11,446,953	15,272,629	18,964,437	138,992		
Units	hcf	lbs/yr	lbs/yr	DU/accounts		
Unit Cost	\$3.42	\$1.13	\$0.53	\$81.38		
Units	hcf	lbs/yr	lbs/yr	DU/accounts		

#### 4.7 ALLOCATION OF COSTS TO CUSTOMER CLASS

The unit cost of each of the cost categories shown in Table 4-13 is then applied to the projected FY 2016 service units of each customer class to derive customer class costs. Table 4-14 shows the allocation of costs to each customer class, based on the service units from Table 4-12 and the unit cost from Table 4-13.



**Table 4-14:  
Allocation of Costs to Customer Class**

	Flow	BOD	TSS	Customer	TOTAL
<b>Residential</b>					
SFR	\$21,999,253	\$9,062,744	\$5,841,996	\$7,476,293	\$44,380,286
MFR	\$8,966,339	\$3,693,745	\$2,381,050	\$3,584,880	\$18,626,014
<b>Subtotal Residential</b>	<b>\$30,965,593</b>	<b>\$12,756,489</b>	<b>\$8,223,046</b>	<b>\$11,061,172</b>	<b>\$63,006,300</b>
<b>Non-Residential</b>					
Bakeries	\$909	\$1,882	\$527	\$326	\$3,644
Supermarkets	\$280,072	\$405,851	\$97,363	\$2,528	\$785,813
Mortuaries	\$13,492	\$22,345	\$10,423	\$652	\$46,912
Restaurants	\$531,797	\$770,624	\$184,871	\$17,611	\$1,504,903
Industrial	\$285,419	\$318,570	\$135,039	\$1,058	\$740,086
Church	\$191,620	\$59,502	\$30,531	\$9,213	\$290,866
Schools (Daycare, Preschool, University)	\$27,428	\$7,381	\$2,649	\$1,141	\$38,600
Schools (Elementary)	\$115,709	\$31,139	\$11,173	\$4,158	\$162,180
Schools (Intermediate)	\$122,112	\$32,862	\$11,792	\$1,468	\$168,234
Schools (High School)	\$246,453	\$66,325	\$23,799	\$1,549	\$338,125
Rate Group XA	\$93,962	\$39,876	\$16,877	\$652	\$151,367
Rate Group XB	\$30,865	\$16,612	\$6,170	\$326	\$53,973
Rate Group XC	\$100,619	\$65,613	\$22,153	\$1,386	\$189,771
Rate Group XD	\$94,252	\$72,192	\$22,663	\$1,223	\$190,330
Rate Group XE	\$101,014	\$88,873	\$26,337	\$1,631	\$217,854
Rate Group XF	\$119,160	\$118,405	\$33,484	\$2,038	\$273,087
Rate Group XG	\$100,268	\$111,049	\$30,209	\$1,875	\$243,401
Rate Group XH	\$129,564	\$158,247	\$41,663	\$2,201	\$331,675
Rate Group XI	\$114,913	\$153,436	\$39,282	\$2,446	\$310,076
Rate Group XJ	\$1,772	\$3,006	\$884	\$82	\$5,744
Rate Group XK	\$8,124	\$13,244	\$3,854	\$163	\$25,384
Rate Group XL	\$1,609	\$2,821	\$810	\$82	\$5,321
Rate Group XM	\$1,738	\$3,201	\$912	\$82	\$5,932
Rate Group XN	\$6,799	\$13,177	\$3,722	\$82	\$23,779
Rate Group XO	\$0	\$0	\$0	\$0	\$0
Standard Commercial	\$4,888,252	\$1,517,901	\$778,858	\$179,241	\$7,364,252
Hotels/Motels	\$384,910	\$398,408	\$223,013	\$1,709	\$1,008,040
Automotive	\$164,681	\$61,364	\$44,527	\$14,811	\$285,384
<b>Subtotal Non-Residential</b>	<b>\$8,157,512</b>	<b>\$4,553,904</b>	<b>\$1,803,584</b>	<b>\$249,734</b>	<b>\$14,764,734</b>
<b>TOTAL</b>	<b>\$39,123,105</b>	<b>\$17,310,394</b>	<b>\$10,026,630</b>	<b>\$11,310,906</b>	<b>\$77,771,035</b>

The residential class has the highest assignment of costs at \$63 million and is responsible for 81 percent of the total cost of service. The non-residential classes are responsible for the remaining 19 percent of the annual cost of service.

Once the customer class cost responsibility is determined, the next step is to design customer rate schedules to recover the revenues required from each customer class, which is discussed in the next section. The rate design analysis will illustrate how revenues are collected within each class using the current rate structure and how these revenues compare to the indicated cost of service.

## 5. PROPOSED WASTEWATER RATES

### 5.1 RATE DESIGN

The revenue requirements and cost of service analyses described in the preceding sections of this report provide a basis for the design of a wastewater rate structure. Rate design involves the development of rate schedules for each customer class so as to recover the annual cost of service determined for each customer class. This section of the report discusses the development of a schedule of wastewater rates for the District’s customer classes and analyzes the impact of the proposed changes in cost allocations and rate design on the customer classes.

The primary emphasis in the design of rate structures is ordinarily placed on achieving fairness and equity, with the objective of being able to ensure that each customer class pays its fair share of costs and to comply with regulatory requirements. The following subsections discuss how each rate component is calculated.

### 5.2 PROPOSED RESIDENTIAL CHARGES

The District currently has a fixed charge structure for its residential wastewater customers. Since the District bills on the tax roll and does not have access to all customers’ water usage records, RFC recommends that the District retain the fixed charge structure for residential customers. However, due to the different residential density data between SFR and MFR customers, their charges will be different based on wastewater flow to increase equity in the wastewater charges. Condos, duplexes, mobile homes, and second living units will be treated as MFR.

The proposed residential charges consist of two components: a fixed component to be billed on each dwelling unit, since a significant portion of the wastewater system costs are fixed and therefore do not vary based on the amount of flow entering the wastewater system, and a variable component to be billed on the estimated flow. Based on a review with staff of the District’s cost structure, the estimated total variable costs, include chemicals, utilities, hauling/disposal, and net capital costs, in the system are approximately 20 percent<sup>2</sup>. These costs are applied per unit of wastewater flow. The remaining 80 percent of the total system costs, considered fixed costs, are applied per dwelling unit. Table 5-1 shows the cost of service calculation of wastewater charges for SFR and MFR customers for FY 2016.

**Table 5-1:  
Calculated Residential Wastewater Charges – FY 2016**

	Revenue Required	Dwelling Units	WW Flow (hcf/yr)	Fixed Cost (dwelling unit)	Variable Cost (dwelling unit)	Total Annual Charge
<b>Residential</b>						
SFR	\$44,380,286	91,871	6,436,719	\$368.81	\$99.57	\$468.38
MFR	\$18,626,014	44,052	2,623,444	\$368.81	\$84.63	\$453.44
<b>TOTAL</b>	<b>\$63,006,300</b>	<b>135,923</b>	<b>9,060,162</b>			

<sup>2</sup> The average chemicals, utilities, and hauling/disposal cost is approximately 10 percent of the expenses, as shown in Table 3-8. Net capital cost is approximately 10 percent, as shown in Table 4-11.

According to the financial plan, the total revenue adjustment in FY 2017 is 7.30 percent (refer to Table 3-9). Thus, residential wastewater charges need to increase 7.30 percent in FY 2017 to meet the revenue requirements, meaning that SFR charges would be \$503 per dwelling unit and MFR charges would be \$487 per dwelling unit. The District Board would like to smooth out the increases over the two year period so that impacts to residential customers would be more stable. The total increases over two years for SFR customers are \$64 (\$503-\$439) and for MFR customers are \$48 (\$487-\$439). Thus, the annual increase with the smoothing schedule is \$32 per year for SFR and \$24 per year for MFR customers. Table 5-2 shows the proposed FY 2016 and FY 2017 residential wastewater charges with the smoothing schedule. In FY 2016, the SFR charge would be \$471 instead of \$468.38 and the MFR charge would be \$463 instead of \$453.44.

**Table 5-2:  
Proposed FY 2016 and FY 2017 Residential Wastewater Charges**

	Current	Effective July 1, 2015	Effective July 1, 2016
<b>Residential Annual Charges</b> (per Residential Unit)			
Single Family Dwellings	\$439.00	\$471.00	\$503.00
Condominium, Multi-Family, Mobile Home	\$439.00	\$463.00	\$487.00

### 5.3 PROPOSED NON-RESIDENTIAL RATES

The District currently has a variable rate structure for its non-residential customers, subject to a minimum annual charge. Since non-residential customer use is non-homogeneous, it is more equitable to charge on the basis of flow. Thus, RFC recommends that the District retain the current variable rate structure. Based on the unit rate calculated in the previous section (refer to Table 4-13), a variable rate per HCF is calculated for each customer class based on their estimated loadings into the system. As discussed in the previous section, RFC proposes that the District create two new customer classes: Hotels/Motels and Automotive facilities, as well as redefine the strength for supermarkets and the flow for schools.

Table 5-3 shows the proposed cost of service wastewater rates for non-residential customers. The rates are calculated based on the total revenue requirements per customer class identified in Table 4-14 and the estimated flow by customer class as shown in Table 4-12. Industrial customers will be charged on a unit rate basis. All non-residential customers will be subject to a minimum annual charge equal to the MFR charge plus the District’s historic \$17 pollution prevention surcharge, which includes the inspection and other costs for source control, for these non-residential classes.

**Table 5-3:  
Proposed FY 2016 and FY 2017 Non-Residential Wastewater Rates**

		Current	Effective July 1, 2015	Effective July 1, 2016
<b>Commercial/Non-Industrial</b>	(per hcf)			
Bakeries		\$11.22	\$12.33	\$13.22
Supermarkets		\$4.07	\$8.71	\$9.34
Mortuaries		\$7.99	\$10.70	\$11.47
Restaurants		\$8.32	\$8.71	\$9.34
Hotels/Motels		\$4.07	\$8.06	\$8.64
Automotive		\$4.07	\$5.34	\$5.73
Standard Commercial		\$4.07	\$4.64	\$4.98
<b>Industrial</b>				
Wastewater Flow	(per hcf)	\$1.68	\$3.42	\$3.67
BOD	(per 1,000 lbs)	\$934	\$1,134	\$1,216
SS	(per 1,000 lbs)	\$667	\$529	\$567
Fixed Charge	(per account)		\$81.38	\$87.23
<b>Mixed Use</b>	(per hcf)			
Rate Group XA		\$4.46	\$4.96	\$5.32
Rate Group XB		\$4.85	\$5.38	\$5.77
Rate Group XC		\$5.25	\$5.81	\$6.23
Rate Group XD		\$5.64	\$6.22	\$6.67
Rate Group XE		\$6.03	\$6.64	\$7.12
Rate Group XF		\$6.42	\$7.05	\$7.56
Rate Group XG		\$6.81	\$7.47	\$8.01
Rate Group XH		\$7.21	\$7.88	\$8.45
Rate Group XI		\$7.60	\$8.31	\$8.91
Rate Group XJ		\$8.72	\$9.97	\$10.69
Rate Group XK		\$9.08	\$9.62	\$10.32
Rate Group XL		\$9.79	\$10.18	\$10.92
Rate Group XM		\$10.15	\$10.50	\$11.26
Rate Group XN		\$10.51	\$10.76	\$11.54
Rate Group XO		\$10.74	\$10.90	\$11.69
<b>Institutional</b>	(per hcf)			
Churches		\$4.07	\$4.64	\$4.98
Schools (Daycare, Preschool, University)	(per hcf)	\$4.07	\$4.33	\$4.65
Schools (Elementary)	(per student)	\$5.62	\$5.77	\$6.19
Schools (Intermediate)	(per student)	\$5.94	\$11.34	\$12.16
Schools (High School)	(per student)	\$6.27	\$16.93	\$18.15
Minimum Annual Charge		\$456	\$480	\$504

## 5.4 CUSTOMER IMPACTS

RFC completed an analysis to evaluate the impact of the proposed rate structure on customers with various water usage levels.

Table 5-4 shows the residential bill impacts for FY 2016 and FY 2017. SFR customers would experience a \$32 annual increase, or approximately seven percent per year, over the next two years and MFR customers would experience a \$24 annual increase, or approximately five percent per year, over the next two years.

**Table 5-4:  
Residential Annual Wastewater Bill Impacts**

	Current	July 1, 2015	July 1, 2016	Difference \$	Difference %
SFR	\$439	\$471	\$503	\$32	7.3%
MFR	\$439	\$463	\$487	\$24	5.3%

Table 5-5 shows the typical non-residential bill impacts for FY 2016 and FY 2017. The bills are calculated based on the average annual water usage for each customer class.

**Table 5-5:  
Typical Non-Residential Annual Wastewater Bill Impacts**

Customer Class	Average Annual Usage (hcf)	July 1, 2014 Average Bill	July 1, 2015 Average Bill	July 1, 2016 Average Bill	July 1, 2015 Difference	July 1, 2016 Difference	July 1, 2015 Difference	July 1, 2016 Difference
Hotels/Motels	5,959	\$24,252	\$48,027	\$51,483	\$23,775	\$3,456	98.0%	7.2%
Supermarkets	2,932	\$11,931	\$25,534	\$27,381	\$13,602	\$1,847	114.0%	7.2%
Standard Commercial	722	\$2,937	\$3,348	\$3,593	\$411	\$245	14.0%	7.3%
Restaurants	799	\$6,647	\$6,958	\$7,462	\$312	\$503	4.7%	7.2%
Automotive	294	\$1,197	\$1,571	\$1,686	\$374	\$115	31.2%	7.3%

## 6. APPENDIX

For readability purposes, some of the tables in the text of the report are reproduced in the Appendix. The original table number is kept for easy reference.

**Table 3-5:  
Revenue Summary under Existing Rates**

<b>Running Expense Revenue<sup>1</sup></b>	<b>Budgeted FY 2015</b>	<b>Projected FY 2016</b>	<b>Projected FY 2017</b>	<b>Projected FY 2018</b>	<b>Projected FY 2019</b>	<b>Projected FY 2020</b>
Sewer Service Charge <sup>2</sup>	\$69,447,000	\$68,235,881	\$68,310,851	\$68,727,563	\$69,153,753	\$69,589,570
Service Charges - Concord	\$13,500,000	\$13,926,682	\$14,337,387	\$14,311,392	\$14,836,224	\$15,380,349
Permit/Inspection/Right-of-Way Fees	\$1,244,600	\$1,281,938	\$1,320,396	\$1,360,008	\$1,400,808	\$1,442,833
Lease Rental Income	\$566,000	\$582,980	\$600,469	\$618,483	\$637,038	\$656,149
Household Hazardous Waste Reimbursement	\$895,000	\$921,850	\$949,506	\$977,991	\$1,007,330	\$1,037,550
Stormwater/ Pollution Prevention/Pretreatment	\$271,000	\$279,130	\$287,504	\$296,129	\$305,013	\$314,163
Interest Income <sup>3</sup>	\$90,000	\$196,001	\$207,710	\$322,273	\$427,843	\$555,082
Recycled Water	\$103,000	\$106,090	\$109,273	\$112,551	\$115,927	\$119,405
All Other	\$115,000	\$118,450	\$122,004	\$125,664	\$129,434	\$133,317
<b>TOTAL REVENUES</b>	<b>\$86,231,600</b>	<b>\$85,649,002</b>	<b>\$86,245,099</b>	<b>\$86,852,054</b>	<b>\$88,013,371</b>	<b>\$89,228,417</b>

**Table 3-5:  
Revenue Summary under Existing Rates (cont'd)**

	Budgeted	Projected	Projected	Projected	Projected	Projected
Sewer Construction Fund Revenue <sup>1</sup>	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Sewer Service Charge <sup>2</sup>	\$3,750,000	\$3,787,675	\$3,791,930	\$3,815,045	\$3,838,620	\$3,862,655
Property Tax Revenue	\$8,160,000	\$10,064,708	\$10,212,767	\$10,406,401	\$10,908,644	\$11,284,728
Capacity Fee Revenue	\$5,890,000	\$6,184,425	\$6,484,415	\$6,788,320	\$7,095,960	\$7,407,155
Pump Zone Revenue	\$528,000	\$554,736	\$581,717	\$609,000	\$497,318	\$186,862
Concord Capital Revenue	\$3,305,000	\$3,602,491	\$5,487,737	\$7,647,624	\$6,884,640	\$4,917,324
Interest Income <sup>3</sup>	\$280,000	\$62,774	\$52,512	\$68,292	\$95,703	\$167,906
Permit and Inspection Fees	\$107,000	\$109,140	\$111,323	\$113,549	\$115,820	\$118,137
Recycled Water	\$260,000	\$267,800	\$275,834	\$284,109	\$292,632	\$301,411
All Other	\$1,000	\$1,030	\$1,061	\$1,093	\$1,126	\$1,159
<b>TOTAL REVENUES</b>	<b>\$22,281,000</b>	<b>\$24,634,778</b>	<b>\$26,999,295</b>	<b>\$29,733,433</b>	<b>\$29,730,463</b>	<b>\$28,247,336</b>

1. Based on anticipated expenses as of March 2015

**Table 3-6:  
Projected O&M Expenses by Function**

	Budgeted	Projected	Projected	Projected	Projected	Projected
	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Administration	\$24,476,326	\$24,605,598	\$25,372,937	\$24,805,582	\$25,675,372	\$25,785,443
Engineering	\$12,229,549	\$11,662,173	\$11,925,299	\$11,470,088	\$11,851,909	\$12,236,341
Collection System Operations	\$15,617,120	\$14,752,239	\$15,114,151	\$14,845,264	\$15,308,591	\$15,797,147
Plant Operations Department	\$32,523,037	\$31,584,881	\$32,513,761	\$32,351,627	\$33,504,849	\$34,699,324
Pumping Stations	\$3,352,863	\$3,566,604	\$3,676,142	\$3,668,317	\$3,805,223	\$3,935,565
<b>TOTAL EXPENSES</b>	<b>\$88,198,895</b>	<b>\$86,171,496</b>	<b>\$88,602,290</b>	<b>\$87,140,879</b>	<b>\$90,145,944</b>	<b>\$92,453,820</b>

**Table 3-7:  
Projected O&M Expenses by Category**

	Budgeted FY 2015	Projected FY 2016	Projected FY 2017	Projected FY 2018	Projected FY 2019	Projected FY 2020
Salary & Wages	\$28,618,169	\$30,133,152	\$31,338,478	\$32,284,087	\$33,402,716	\$34,537,213
Capitalized Admin Overhead	(\$3,806,958)	(\$4,355,446)	(\$4,486,109)	(\$4,620,692)	(\$4,759,313)	(\$4,902,093)
Directors Fees & Expenses	\$199,800	\$207,792	\$216,104	\$224,748	\$233,738	\$243,087
Chemicals	\$1,605,000	\$1,685,250	\$1,769,513	\$1,857,988	\$1,950,888	\$2,048,432
Utilities	\$4,861,350	\$5,101,680	\$5,353,943	\$5,618,736	\$5,896,681	\$6,188,433
Repairs & Maintenance	\$4,911,762	\$5,059,115	\$5,210,888	\$5,367,215	\$5,528,231	\$5,694,078
Hauling & Disposal	\$1,040,200	\$1,080,226	\$1,121,894	\$1,165,275	\$1,210,443	\$1,257,477
Professional & Legal Services	\$539,400	\$555,582	\$572,249	\$589,417	\$607,099	\$625,312
Outside Services	\$3,303,021	\$3,402,112	\$3,504,175	\$3,609,300	\$3,717,579	\$3,829,107
Self-Insurance Expense	\$650,000	\$1,300,000	\$1,300,000	\$1,350,000	\$1,350,000	\$1,350,000
Materials & Supplies	\$2,024,315	\$2,085,044	\$2,147,596	\$2,212,024	\$2,278,384	\$2,346,736
Other Expenses	\$2,419,448	\$2,105,781	\$2,555,205	\$2,245,611	\$2,699,229	\$2,393,956
Allocated Benefits	\$41,833,388	\$37,811,208	\$37,998,354	\$35,237,171	\$36,030,268	\$36,842,080
<b>TOTAL O&amp;M EXPENSES</b>	<b>\$88,198,895</b>	<b>\$86,171,496</b>	<b>\$88,602,290</b>	<b>\$87,140,879</b>	<b>\$90,145,944</b>	<b>\$92,453,820</b>

**Table 3-8:  
Capital Improvement Plan**

	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Treatment Plant	\$9,045,000	\$10,410,000	\$12,820,000	\$21,785,000	\$19,429,000	\$13,303,400
Collection System	\$12,217,000	\$15,950,000	\$18,125,000	\$16,840,000	\$17,611,500	\$15,690,000
General Improvements	\$3,265,000	\$3,980,000	\$4,605,000	\$4,203,000	\$1,955,000	\$2,725,000
Recycled Water	\$552,000	\$450,000	\$500,000	\$500,000	\$509,500	\$350,000
<b>TOTAL CIP</b>	<b>\$25,079,000</b>	<b>\$30,790,000</b>	<b>\$36,050,000</b>	<b>\$43,328,000</b>	<b>\$39,505,000</b>	<b>\$32,068,400</b>

Based on anticipated revenues and expenses as of March 2015



**Table 3-12:  
Operating Financial Plan**

	Budgeted FY 2015	Projected FY 2016	Projected FY 2017	Projected FY 2018	Projected FY 2019	Projected FY 2020
Revenue from Existing Rates - O&M	\$69,447,000	\$68,235,881	\$68,310,851	\$68,727,563	\$69,153,753	\$69,589,570
Revenue from Existing Rates - Capital	\$3,750,000	\$3,787,675	\$3,791,930	\$3,815,045	\$3,838,620	\$3,862,655
Additional Revenue from Rates	\$0	\$5,747,480	\$11,343,905	\$15,552,119	\$19,814,665	\$23,964,681
Subtotal Rate Revenue	\$73,197,000	\$77,771,035	\$83,446,686	\$88,094,727	\$92,807,037	\$97,416,905
Calibration (model to actual) <sup>2</sup>	\$0	\$728,965	\$782,163	\$825,730	\$869,900	\$913,109
Calibrated Rate Revenue	\$73,197,000	\$78,500,000 <sup>4</sup>	\$84,228,849	\$88,920,457	\$93,676,937	\$98,330,013
Service Charges - Concord	\$13,500,000	\$13,926,682	\$14,337,387	\$14,311,392	\$14,836,224	\$15,380,349
Permit/Inspection/Right-of-Way Fees	\$1,244,600	\$1,281,938	\$1,320,396	\$1,360,008	\$1,400,808	\$1,442,833
Lease Rental Income	\$566,000	\$582,980	\$600,469	\$618,483	\$637,038	\$656,149
Household Hazardous Waste Reimbursement	\$895,000	\$921,850	\$949,506	\$977,991	\$1,007,330	\$1,037,550
Stormwater/ Pollution Prevention/Pretreatment	\$271,000	\$279,130	\$287,504	\$296,129	\$305,013	\$314,163
Interest Income <sup>3</sup>	\$90,000	\$196,001	\$207,710	\$322,273	\$427,843	\$555,082
Recycled Water	\$103,000	\$106,090	\$109,273	\$112,551	\$115,927	\$119,405
All Other	\$115,000	\$118,450	\$122,004	\$125,664	\$129,434	\$133,317
<b>TOTAL REVENUES</b>	<b>\$89,981,600</b>	<b>\$95,913,121</b>	<b>\$102,163,096</b>	<b>\$107,044,947</b>	<b>\$112,536,555</b>	<b>\$117,968,861</b>
<b>O&amp;M Expenses</b>						
Administration	\$24,476,326	\$24,605,598	\$25,372,937	\$24,805,582	\$25,675,372	\$25,785,443
Engineering	\$12,229,549	\$11,662,173	\$11,925,299	\$11,470,088	\$11,851,909	\$12,236,341
Collection System Operations	\$15,617,120	\$14,752,239	\$15,114,151	\$14,845,264	\$15,308,591	\$15,797,147
Plant Operations Department	\$32,523,037	\$31,584,881	\$32,513,761	\$32,351,627	\$33,504,849	\$34,699,324
Pumping Stations	\$3,352,863	\$3,566,604	\$3,676,142	\$3,668,317	\$3,805,223	\$3,935,565
<b>TOTAL EXPENSES</b>	<b>\$88,198,895</b>	<b>\$86,171,496</b>	<b>\$88,602,290</b>	<b>\$87,140,879</b>	<b>\$90,145,944</b>	<b>\$92,453,820</b>
Less: Construction Fund SSC Revenue	(\$3,750,000)	(\$4,089,931)	(\$4,388,512)	(\$4,632,937)	(\$4,880,659)	(\$5,122,892)
<b>NET OPERATING INCOME</b>	<b>(\$1,967,295)</b>	<b>\$5,651,694</b>	<b>\$9,172,294</b>	<b>\$15,271,132</b>	<b>\$17,509,952</b>	<b>\$20,392,149</b>

**Table 4-6:  
Allocation to Cost Components – O&M**

O&M Allocation Factors	Flow	BOD	TSS	Customer	General	TOTAL
Administration - Collection portion	60%			40%		100%
Administration - Treatment portion	40%	38%	22%			100%
Engineering - Collection portion	40%			60%		100%
Engineering - Treatment portion	40%	38%	22%			100%
Collection System Operations	60%			40%		100%
Plant Operations Department	40%	38%	22%			100%
Pumping Stations	60%			40%		100%

**Table 4-7:  
Allocation of O&M Expenses to Cost Components**

O&M Expenses Allocation	Flow	BOD	TSS	Customer	General	TOTAL
Administration - Flow portion	\$4,392,816	\$0	\$0	\$2,928,544	\$0	\$7,321,360
Administration - Treatment portion	\$5,049,321	\$4,796,855	\$2,777,126	\$0	\$0	\$12,623,302
Engineering - Flow portion	\$2,396,779	\$0	\$0	\$3,595,168	\$0	\$5,991,947
Engineering - Treatment portion	\$4,132,465	\$3,925,842	\$2,272,856	\$0	\$0	\$10,331,162
Collection System Operations	\$8,851,344	\$0	\$0	\$5,900,896	\$0	\$14,752,239
Plant Operations Department	\$12,633,952	\$12,002,255	\$6,948,674	\$0	\$0	\$31,584,881
Pumping Stations	\$2,139,962	\$0	\$0	\$1,426,642	\$0	\$3,566,604
<b>TOTAL O&amp;M EXPENSES</b>	<b>\$39,596,639</b>	<b>\$20,724,951</b>	<b>\$11,998,656</b>	<b>\$13,851,250</b>	<b>\$0</b>	<b>\$86,171,496</b>
Allocation %	46%	24%	14%	16%	0%	

**Table 4-9:  
Allocation to Cost Components – Capital**

<b>Assets Allocation Factors</b>	<b>Flow</b>	<b>BOD</b>	<b>TSS</b>	<b>Customer</b>	<b>General</b>	<b>TOTAL</b>
Collection System	100%					100%
Treatment Plant	29%	26%	15%	0%	30%	100%
General Improvements					100%	100%
Recycled Water	100%					100%

**Table 4-10:  
Allocation of Wastewater Assets to Cost Components**

<b>Assets Allocation</b>	<b>Flow</b>	<b>BOD</b>	<b>TSS</b>	<b>Customer</b>	<b>General</b>	<b>TOTAL</b>
Collection System	\$2,794,785,669	\$0	\$0	\$0	\$0	\$2,794,785,669
Treatment Plant	\$200,515,694	\$174,923,961	\$103,455,021	\$0	\$206,134,846	\$685,029,522
General Improvements	\$0	\$0	\$0	\$0	\$39,218,237	\$39,218,237
Recycled Water	\$77,609,035	\$0	\$0	\$0	\$0	\$77,609,035
<b>TOTAL ASSETS</b>	<b>\$3,072,910,398</b>	<b>\$174,923,961</b>	<b>\$103,455,021</b>	<b>\$0</b>	<b>\$245,353,083</b>	<b>\$3,596,642,463</b>
Allocation %	85%	5%	3%	0%	7%	

**Table 4-13:  
Development of Unit Costs**

	Flow	BOD	TSS	Customer	General	TOTAL
Operating Revenue Requirements	\$32,110,750	\$16,806,823	\$9,730,266	\$11,232,620	\$0	\$69,880,459
Capital Revenue Requirements	\$6,741,574	\$383,761	\$226,967	\$0	\$538,273	\$7,890,575
<b>Total Revenue Requirements</b>	<b>\$38,852,324</b>	<b>\$17,190,584</b>	<b>\$9,957,233</b>	<b>\$11,232,620</b>	<b>\$538,273</b>	<b>\$77,771,035</b>
Allocation of General Cost	\$270,781	\$119,810	\$69,397	\$78,286	(\$538,273)	\$0
<b>Total Cost of Service</b>	<b>\$39,123,105</b>	<b>\$17,310,394</b>	<b>\$10,026,630</b>	<b>\$11,310,906</b>	<b>\$0</b>	<b>\$77,771,035</b>
Unit of Service	11,446,953	15,272,629	18,964,437	138,992		
Units	hcf	lbs/yr	lbs/yr	DU/accounts		
Unit Cost	\$3.42	\$1.13	\$0.53	\$81.38		
Units	hcf	lbs/yr	lbs/yr	DU/accounts		

**Table 5-5:  
Typical Non-Residential Annual Wastewater Bill Impacts**

	Revenue Required	Dwelling Units	WW Flow (hcf/yr)	Fixed Cost (dwelling unit)	Variable Cost (dwelling unit)	Total Annual Charge
<b>Residential</b>						
SFR	\$44,380,286	91,871	6,436,719	\$368.81	\$99.57	\$468.38
MFR	\$18,626,014	44,052	2,623,444	\$368.81	\$84.63	\$453.44
<b>TOTAL</b>	<b>\$63,006,300</b>	<b>135,923</b>	<b>9,060,162</b>			