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CITY OF ORANGE

Comprehensive Sanitation Rate Study

Report / March 23, 2017



March 23, 2017

Mr. Joe DeFrancesco
Director of Public Works
300 East Chapman Avenue
Orange, CA 92866

Subject: Comprehensive Sanitation Rate Study Report

Dear Mr. Tran,

Raftelis Financial Consultants, Inc. (RFC) is pleased to provide this Sanitation Rate Study Report which establishes equitable sanitation rates based on cost of service principles.

The study's major objectives include the following:

- » Develop a financial plan for the sanitation enterprise to ensure financial sufficiency, meet maintenance and operations (M&O) costs and ensure sufficient funding for capital improvement plan needs,
- » Maintain operating reserve funds,
- » Develop rates that are equitable and fair to all customer classes.

The report summarizes our key findings and recommendations related to the development of the financial plan and sanitation rates.

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

Sincerely,

RAFTELIS FINANCIAL CONSULTANTS, INC.



Sanjay Gaur
Vice President



Steve Gagnon
Project Manager

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Lead Consultant

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1. EXECUTIVE SUMMARY

1.1 BACKGROUND

The City's last rate adjustment was effective in June 2008. In 2015, the City contracted with Raftelis Financial Consultants (RFC) to conduct a Sanitation Rate Study (Study). The study included a five-year financial plan and cost of service analysis, as well as development of sanitation rates.

The City wishes to establish fair and equitable rates that:

- » Meet the City's fiscal needs in terms of operational expenses and capital investment to maintain the system;
- » Develop fair and equitable rates for all customer classes;
- » Are easy for customers to understand and easy for City staff to implement and update in the future;
- » Proportionately allocate the costs of providing service in accordance with California Constitution article XIII D, section 6 (commonly referred to as Proposition 218).

1.2 CURRENT RATES

Sanitation Service customers currently pay fees for four services: 1.) Street Tree Maintenance; 2.) Street Sweeping; 3.) Sewer Maintenance; and 4.) Stormwater Management & Environmental Compliance. This study focuses solely on Sewer Maintenance and Stormwater Management & Environmental Compliance). This report does not discuss Street Tree Maintenance and Street Sweeping. The current rates, effective since June 2009, are shown below. Note that Street Tree Maintenance is a bimonthly fixed charge, while the remaining rates are based on water use in hundred cubic feet (hcf).

Table 1-1: Current Sanitation Rates

Customer Class	Street Tree Maintenance (\$/bimonthly bill)	Street Sweeping (\$/hcf)	Sewer Maintenance (\$/hcf)	Stormwater Management/Environmental Compliance (\$/hcf)
Single Family	\$3.20	\$0.142	\$0.112	\$0.128
Multi-Family/Condominium	\$2.88	\$0.142	\$0.112	\$0.128
Commercial	\$3.20	\$0.142	\$0.112	\$0.128

1.3 RESULTS AND RECOMMENDATIONS

1.3.1 Proposed Sanitation Rates

Table 1-2 and Table 1-3 show the recommended rates for FY 2018-2022 for all classes. The Maintenance & Operations (M&O) rates for all classes increase 3.1% annually in line with the increase in the City's M&O costs. The capital rates also increase annually in line with assumed construction inflation of 3.1%. The capital rates and charges shown assume a \$2 million capital program. City Council may choose to implement a lower capital program and the rates would fall in proportion to capital spending.

Table 1-2: FY 2018-2022 Sanitation Service Rates

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Bimonthly Fixed Rates					
Single Family	\$14.04	\$14.47	\$14.92	\$15.38	\$15.85
Multi-Family/ Condominium	\$8.58	\$8.84	\$9.12	\$9.40	\$9.69
Variable Rate (\$/hcf)					
Commercial	\$0.52	\$0.54	\$0.55	\$0.57	\$0.59

Table 1-3: FY 2018-2022 Capital Rates (\$/HCF)

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Bimonthly Fixed Rates					
Single Family	\$6.33	\$6.53	\$6.73	\$6.94	\$7.15
Multi-Family/ Condominium	\$3.87	\$3.99	\$4.11	\$4.24	\$4.37
Variable Rate (\$/hcf)					
Commercial	\$0.24	\$0.24	\$0.25	\$0.26	\$0.27

2. INTRODUCTION

2.1 BACKGROUND

The City of Orange (City) incorporated in 1888 and hosts a population of approximately 140,094 residents. The City is located centrally within Orange County and covers approximately 38 square miles. It provides sanitation services to approximately 32,794 sanitation accounts. The City maintains approximately 312 miles of sewer pipeline to collect and transport sewage to two reclamation plants outside of the City for treatment. The Orange County Sanitation District owns and manages these plants. In addition, the City shares responsibility with the County for managing its storm drain and flood control facilities.

The City's last rate adjustment was effective in June 2008. In 2015, the City contracted with Raftelis Financial Consultants (RFC) to conduct a Sanitation Rate Study (Study). The study included a five-year financial plan and cost of service analysis as well as development of sanitation rates.

The City wishes to establish fair and equitable rates that:

- » Meet the City's fiscal needs in terms of operational expenses and capital investment to maintain the system;
- » Develop fair and equitable rates for all customer classes;
- » Are easy for customers to understand and easy for City staff to implement and update in the future;
- » Proportionately allocate the costs of providing service in accordance with California Constitution article XIII D, section 6 (commonly referred to as Proposition 218).

2.2 LEGAL FRAMEWORK

Proposition 218, reflected in the California Constitution as Article XIII D, was enacted in 1996 to ensure that rates and fees are reasonable and proportional to the cost of providing service. The principal requirements for fairness of rates and fees, as they relate to public sewer service are as follows:

Proposition 218 (California Constitution Article 13D Sec (6)) states that:

1. A property-related charge (such as wastewater rates) imposed by a public agency on a parcel shall not exceed the funds required to provide the property related service.
2. Revenues derived by the charge shall not be used for any other purpose other than that for which the charge was imposed.
3. The amount of the charge imposed upon any parcel shall not exceed the proportional cost of service attributable to the parcel.
4. No charge may be imposed for a service unless that service is used or immediately available to the owner of property.
5. A written notice of the proposed charge shall be mailed to the record owner of each parcel at least 45 days prior to the public hearing, when the agency considers all written protests against the charge.

2.3 CURRENT RATES

Sanitation Service customers currently pay fees for four services: 1.) Street Tree Maintenance; 2.) Street Sweeping; 3.) Sewer Maintenance; and 4.) Stormwater Management & Environmental Compliance. This study focuses solely on Sewer Maintenance and Stormwater Management & Environmental Compliance. This report does not discuss Street Tree Maintenance and Street Sweeping. The current rates, effective since June 2009, are shown below. Note that Street Tree Maintenance is a bimonthly charge, while the remaining rates are based on water use in hundred cubic feet (hcf). The City will no longer charge for Street Sweeping through sanitation rates.

Table 2-1: Current Sanitation Rates

Customer Class	Street Tree Maintenance (\$/bimonthly bill)	Street Sweeping (\$/hcf)	Sewer Maintenance (\$/hcf)	Stormwater Management (\$/hcf)
Single Family	\$3.20	\$0.142	\$0.112	\$0.128
Multi-Family/Condominium	\$2.88	\$0.142	\$0.112	\$0.128
Commercial	\$3.20	\$0.142	\$0.112	\$0.128

3. FINANCIAL PLAN

3.1 INFLATIONARY AND OTHER ASSUMPTIONS

The Study uses Fiscal Year (FY) 2018 as both the budget year and the test year. The test year is a term used to describe the year’s expenses with which we set rates. The Study period is FY 2018-2022. To ensure that the study reasonably projects future costs, RFC makes informed assumptions about inflationary factors for sewer costs. Table 3-1 shows the cost escalation factors utilized to project expenses with FY 2018 as the base year.

Table 3-1: Cost Escalation Factors

Cost Escalation Factor	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
General Inflation	3.0%	3.2%	3.2%	3.2%	3.2%
Personnel	3.0%	3.0%	3.0%	3.0%	3.0%
Energy	5.0%	5.0%	5.0%	5.0%	5.0%
Construction	3.0%	3.1%	3.1%	3.1%	3.1%
Interest Rate on Reserves	0.3%	0.3%	0.3%	0.3%	0.3%

3.2 SEWER ENTERPRISE REVENUE REQUIREMENT

Table 3-2 shows the sewer enterprise revenue requirement to fund sewer operations – shown in line 9. The table also shows the beginning and ending operating reserve balances. The City provided the estimated FY 2018 operating reserve beginning balance shown in line 1. We determine the ending balance, shown in line 10, by subtracting Maintenance & Operation (M&O) expenses from the beginning balance and adding interest revenue. M&O expenses include allocations, in Line 4, which consist of items such as general and administrative overhead allocation, vehicle maintenance allocation and liability & property damage allocation from the City’s General Fund. Line 6 shows expenses associated with using video equipment to assess the condition of sewer lines and repairing sections of the sewer system. We note that the beginning and ending fund balance does not vary overtime – because we are assuming City expenses equal revenue, i.e. rates are based solely on the cost of the sewer and stormwater/environmental compliance enterprises.

Line 9 shows the revenue required to cover sewer and stormwater/environmental compliance costs. This is called the revenue requirement. We subtract interest revenue (line 8) from the Maintenance & Operation (M&O) expenses (line 7) to determine the revenue required from rates. Interest revenue is a non-rate revenue that lowers the revenue required from rates. RFC calculated interest revenue by multiplying the annual beginning fund balance by the assumed interest rate of 0.3%. The M&O expenses are projected by applying the inflation factors in Table 3-1 to the expenses in Lines 3-6. Finally, the City’s *minimum* operating reserve target is 25% and Table 3-2 shows that the City meets its *minimum* reserve target.

Table 3-2: Operating Cash Flow

Line No.	Item	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
1	Operating Reserve Beginning Balance	\$1,712,952	\$1,712,952	\$1,712,952	\$1,712,952	\$1,712,952
2	M&O Expenses					
3	Payroll	\$2,306,901	\$2,376,108	\$2,447,392	\$2,520,813	\$2,596,438
4	Allocations	\$880,825	\$909,011	\$938,099	\$968,118	\$999,098
5	Maintenance and Operations	\$604,898	\$624,255	\$644,231	\$664,847	\$686,122
6	Sewer Video / Hotspot Repair	\$650,000	\$670,150	\$690,925	\$712,343	\$734,426
7	Total M&O Expenses	\$4,442,624	\$4,579,525	\$4,720,647	\$4,866,122	\$5,016,084
8	Less Interest Revenue	\$5,139	\$5,139	\$5,139	\$5,139	\$5,139
9	Revenue Required from Rates	\$4,437,486	\$4,574,386	\$4,715,508	\$4,860,983	\$5,010,945
10	Ending Balance	\$1,712,952	\$1,712,952	\$1,712,952	\$1,712,952	\$1,712,952
11	Funding Target:	\$1,110,656	\$1,144,881	\$1,180,162	\$1,216,531	\$1,254,021

3.3 CAPITAL IMPROVEMENT FUNDING

Sanitation Services proposes to fund capital projects to rehabilitate the sewer system through a new capital charge. The City proposes to fund up to \$2,000,000 in capital improvement projects in FY 2018, inflated every year thereafter by capital inflation as shown in Table 3-3. City Council may elect to fund a lower amount of capital – for instance \$1 million – in which case the proposed capital charge, discussed in Section 5, would be cut in half.

Table 3-3: FY 2018-2022 Capital Improvement Revenue Requirement

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Capital Charge Revenue Requirement	\$2,000,000	\$2,062,000	\$2,125,922	\$2,191,826	\$2,259,772

4. COST OF SERVICE ANALYSIS

4.1 SEWER FLOW ESTIMATE

To properly allocate costs to each customer class, RFC estimated the sewer flow for each class. For Single Family residential customers, RFC assumed that January/February winter water use approximates indoor water use, which returns to the sewer system, since outdoor irrigation is at its lowest during the winter. Table 4-1 shows the calculation of the annualized winter wastewater flow and the return to sewer percentage for the Single Family residential class.

Table 4-1: Single Family Residential Class Sewer Flow Calculation (HCF)

Customer Class	Jan/Feb Flow (A)	Annualized Winter Flow (Estimated Sewer Flow) (B = A*6)	Total Actual Flow (C)	Return to Sewer Percentage (B/C)
Single Family	683,013	4,098,078	5,219,954	79%

RFC assumed that 100% of water use for the Multi-Family Residential, Condominium, and Commercial classes returns to the sewer system. This assumes minimal or no landscape irrigation for these classes. Water use data suggests that outdoor water use for these classes is minimal since annualized winter use for these classes nearly equals their actual yearly use - thus their return to sewer factor is nearly 100%. To summarize, Single Family flow is based on annualized FY 2015 winter water use, while the remaining classes are based on actual annual water use in FY 2015. Table 4-2 shows all classes with their corresponding water use and estimated wastewater flow.

Table 4-2: Flows (HCF) by Class

Customer Class	Water Use (hcf)	Estimated Return to Sewer (%)	Estimated Return to Sewer (hcf)
Single Family	5,219,954	79%	4,098,078
Multi-Family/Condominium	1,890,785	100%	1,890,785
Commercial	2,562,972	100%	2,562,972
Total	9,673,711		8,551,835

4.2 UNIT RATE DERIVATION

Next, RFC calculated the unit rate for Maintenance & Operation and capital, shown in Table 4-3. RFC derived the rates by dividing the revenue requirement for each by the estimated wastewater flow as shown in Table 4-4, column C. As mentioned earlier, City Council may elect to fund a lower amount of capital, which would result in a lower capital rate.

Table 4-3: FY 2018 Unit Rate Calculations

Cost Type	Revenue Requirement (A)	FY 2018 Estimated Sewer Flow (B)	Unit Cost (C = A/B) (\$/ hcf)
M&O	\$4,437,486	8,551,835	\$0.52
Capital	\$2,000,000	8,551,835	\$0.24

The Maintenance & Operation rate in Table 4-3 is the per hcf unit cost to collect and send sewage to the Orange County Sanitation District for treatment. The capital rate is the per hcf cost to fund the capital rehabilitation projects in FY 2018. We apply these unit rates to the flow for each class to derive the cost to serve each class as shown in Table 4-4. Once we know the cost to serve each class, we derive rates to collect these costs – this is described in Section 5. Note that the total cost to serve each class in column C equals the revenue required from rates in Table 3-2 for FY 2018.

Table 4-4: Maintenance & Operation (M&O) Cost to Serve Each Class

	FY 2015 Estimated WW Flow (HCF) [A]	M&O Rate Component (\$/HCF) [B]	Cost to Serve Each Class [C = A*B]
Single Family	4,098,078	\$0.52	\$2,126,463
Multi-Family/ Condominium	1,890,785	\$0.52	\$981,115
Commercial	2,562,972	\$0.52	\$1,329,908
Total	8,551,835		\$4,437,486

5. RATE DERIVATION

5.1 RATE STRUCTURE

The City proposes the following rate structure for Maintenance & Operation (M&O) and capital charges:

Table 5-1: Proposed Rate Structure

Customer Class	M&O Charge/Rate	Capital Charge/Rate
Single Family Residential	Flat Charge	Flat Charge
Multi-Family/ Condominium	Flat Charge	Flat Charge
Commercial	Volumetric Rate	Volumetric Rate

5.2 RATE DERIVATION

5.2.1 Maintenance & Operation (M&O) Rate

We calculate the residential (Single Family, Multi-Family, and Condominium) bimonthly rate by dividing the cost to serve each class, derived in Table 4-4, by the total number of dwelling units (since the City bills each dwelling unit). This calculation is shown in Table 5-2 – note that Multi-Family and Condominium customers have been combined. We propose to combine these customers since they have similar population densities per dwelling unit. For commercial customers, we divide the commercial cost of service, by its estimated sewer flow since we propose a volumetric rate for the commercial class. This calculation is shown in column D of Table 5-2.

Table 5-2: Residential M&O Rate per Dwelling Unit

Customer Class	Cost to Serve Class (A)	Total Dwelling Units (B)	Billing Periods (C)	Proposed Bimonthly Flat Rate (D = A/B/C)
Single Family Residential	\$2,126,463	25,248	6	\$14.04
Multi-Family/ Condominium	\$981,115	19,062	6	\$8.58
		Wastewater Flow (hcf)		Proposed Volumetric Rate (\$/hcf) (D = A/B)
Commercial	\$1,329,908	2,562,972		\$0.52

5.2.2 Capital Rate

RFC similarly derived the capital charge and rate for the residential and commercial classes respectively by multiplying the unit capital rate by the estimated sewer flow for each class. Column C of Table 5-3 shows the capital cost responsibility for each customer class. To derive the capital rate in column F, we divide column C by dwelling units for residential customers and by sewer flow for commercial customers. The rates shown

below are based on \$2 million in capital funding. As previously stated, the City Council may choose to fund \$1 million in capital projects, which would reduce the rates and charges by half.

Table 5-3: Residential Capital Charge per Dwelling Unit

	FY 2015 Estimated Flow (HCF) (A)	Capital Component (\$/HCF)* (B)	Cost to Serve Class (C=A*B)	Dwelling Units (D)	Billing Periods (E)	Proposed Bimonthly Flat Rate (F =C/D/E)
Single Family Residential	4,098,078	\$0.24	\$958,409	25,248	6	\$6.33
Multi-Family/ Condominium	1,890,785	\$0.24	\$442,194	19,062	6	\$3.87
				Estimated Flow		Proposed Volumetric Rate (\$/hcf)
Commercial	2,562,972	\$0.24	\$599,397	2,562,972	N/A	\$0.24

**Rounded in table for presentation purposes.*

5.3 RATE SUMMARY

Table 5-4 and Table 5-5 show the recommended rates for FY 2018-2022 for all classes. The Maintenance & Operation (M&O) rates increase 3.1% annually, which results from the application of the inflation factors in Table 3-1 to the different M&O expenses. The capital rates also increase annually by the construction inflation factor of 3.1%. The capital rates and charges shown assume a \$2 million capital program. City Council may choose to implement a lower capital program and the rates would fall in proportion to capital spending.

Table 5-4: FY 2018-2022 Sanitation Service Rates

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Bimonthly Fixed Rates					
Single Family	\$14.04	\$14.47	\$14.92	\$15.38	\$15.85
Multi-Family/ Condominium	\$8.58	\$8.84	\$9.12	\$9.40	\$9.69
Variable Rate (\$/hcf)					
Commercial	\$0.52	\$0.54	\$0.55	\$0.57	\$0.59

Table 5-5: FY 2018-2022 Capital Rates (\$/HCF)

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022
Bimonthly Fixed Rates					
Single Family	\$6.33	\$6.53	\$6.73	\$6.94	\$7.15
Multi-Family/ Condominium	\$3.87	\$3.99	\$4.11	\$4.24	\$4.37
Variable Rate (\$/hcf)					
Commercial	\$0.24	\$0.24	\$0.25	\$0.26	\$0.27

6. BILL IMPACTS

Section 6 demonstrates the bill impact for each customer class due to the new rates. We compare current customer bills to proposed customer bills under the new rates. Note that current sanitation rates include rates for:

1. Sewer Maintenance,
2. Stormwater Management and Environmental Compliance,
3. Street Sweeping and,
4. Street Tree Maintenance.

The proposed sanitation rates will no longer include the street sweeping rate, and the fixed rate for Street Tree Maintenance remains the same.

The current bills are based on *water* use for the first three items listed above and street tree maintenance is a flat charge by class. We assumed average bimonthly water use for the current bills and average bimonthly estimated sewer use for the commercial class (new residential rates are flat rates) to compare current and proposed bills. Table 6-1 shows the bimonthly average water use for each class.

Table 6-1: Average Bimonthly Water Use by Class

Customer Class	Average Water Use (hcf)
Single Family	34
Multi-Family/Condo	18
Commercial	140

Table 6-2 shows a comparison between current and proposed bills by class assuming average water use for current bills and no capital charge is implemented. The proposed bill for Commercial customers is based on average bimonthly water use. However, as the Commercial charge is entirely volumetric, lower commercial sewer use customers will experience a decrease in their bimonthly bill. Of the residential classes, Condominium customers will see their rates increase approximately 54%, while Single Family customers will see the lowest increase of 6.5%.

Table 6-3 shows bimonthly bill impacts assuming the \$2 million capital improvement plan is implemented. The bill impacts in Table 6-3 will be lower should City Council decide to implement a lower capital improvement plan. The bill under the proposed rates do not include a street sweeping charge while the current bills do.

Table 6-2: Bill Impact by Class without Capital Charge

Customer Class	Current Total Bill	Proposed Total Bill	Difference	%
Single Family (SFR)	\$16.19	\$17.24	\$1.05	6.5%
Multi-Family/ Condominium*	\$9.76	\$11.46	\$1.70	17.5%
Commercial	\$56.68	\$76.00	\$19.32	34.1%

**Impacts may vary based on average use of class*

The total bill includes the Street Tree Maintenance charge of \$3.20/unit for SFR and \$2.88/unit for Multi-Family/Condominium

Table 6-3: Bill Impact by Class with Capital Charge

Customer Class	Current Total Bill	Proposed Total Bill	Difference	%
Single Family	\$16.19	\$23.57	\$7.38	45.6%
Multi-Family/ Condominium*	\$9.76	\$15.33	\$5.57	57.1%
Commercial	\$56.68	\$106.40	\$49.72	87.7%

**Impacts may vary based on average use of class*

The total bill includes the Street Tree Maintenance charge of \$3.20/unit for SFR and \$2.88/unit for Multi-Family/Condominium