

MEMO

To: Danae Gemmell, Planning and Development Services Division Manager

From: Sudhir Pardiwala/Hannah Phan

Date: May 22, 2019

Re: Updated Wastewater Cost of Service Analysis

Central Contra Costa Sanitary District (District) engaged Raftelis Financial Consultants, Inc. (Raftelis) to update the cost of service (COS) methodology and wastewater rate structure described in our 2015 COS rate study¹ to ensure its continued compliance with Proposition 218. The District also wanted to review its non-residential rate classes including mix-use rate classes and review the strength classification of some customers to ensure they are categorized correctly. This memo summarizes the methodology and development of the proposed wastewater rate methodology and proposed rate structure.

Proposed Wastewater Rates

The following subsections detail the methodology and calculation related to the proposed wastewater rates for fiscal years (FY) 2020 through 2023.

Cost of Service Analysis Adjustments

At the District's request, RFC reviewed the COS analysis methodology used in its 2015 rate update study, to ensure its continued compliance with Proposition 218's substantive requirements for wastewater rates. The methodology and rate structure described in the 2015 COS update study remains fundamentally sound. Upon review, we have refined our analysis and recommend that the following adjustments be made to ensure that the rates proposed continue to equitably recover the District's costs of providing service:

1. Raftelis updated the revenue requirements using FY 2019 budget data, customer data, and calendar year 2016² actual plant influent data. Flow and strength costs are used to differentiate rates amongst different classes of customers since different customers impose different demands on the system. As discussed below, flow and strength factors for some customers have been revised to better reflect the strength of their wastewater. The new flow and strength factors will be reflected in the proposed rates.
2. At the District's request, Raftelis reviewed the non-residential rate structure, including the current mixed-use classifications. Since wastewater cannot be metered and

¹ Report titled "Wastewater Cost of Service Study" dated May 21, 2015

² Due to the timing of receiving non-residential water consumption data from water purveyors for billing, water data from the previous calendar year is used to calculate sewer service charges. In this case, calendar year 2016 water consumption data was used for FY 2017-18 cost of service and rate calculations.

measured accurately, customer strengths are an estimate based on industry standards. The current rate structure gives a sense of accuracy that doesn't match the variability in the underlying assumptions and, in the case of the current multi-use categories, requires significant time for ongoing administration. The proposed rate structure classifies each non-residential customer into one of five strength categories (Low, Medium-Low, Medium, Medium-High, and High) based on their combined strength factor, both biochemical oxygen demand (BOD) and total suspended solids (TSS). The proposed non-residential rate classifications are reduced from 28 to 9. As part of this task, Raftelis also reviewed the current customer classifications of delis, yogurt, ice cream, bars, and coffee shops which are currently included in the Standard Commercial class. Since these establishments do prepare and serve some food, which typically results in much higher strength wastewater than the standard, non-food customers, we propose that these customers be moved out of the Standard Commercial category (or the new Low category) and into the Medium-Low category.

These adjustments were made to the model used to calculate the District's existing rates, which has been updated to reflect FY 2019 budget requirements. The COS analysis was done for FY 2019 since customer accounts and revenue requirements are reasonably certain. The resultant FY 2019 COS rates are then escalated to reflect the required revenue adjustments for FY 2020 through 2023.

Adjustment 1: Revenue Requirements, Customer Data, and Plant Influent Data Update

Raftelis updated the estimated actual FY 2019 revenues and expenses, as well as the customer data and plant influent data, as part of the COS analysis. Table 1 shows the changes in the plant influent, and the resultant changes to both non-residential and residential classes, compared to the previous study, which uses calendar year 2013 plant influent data. As Table 1 shows, the total net plant flow and TSS decreased slightly from 2013 with a small increase in BOD. However, residential customers showed a significant reduction in their flows and strength compared to non-residential customers. The resultant cost allocations, using the same COS methodology detailed in the 2015 COS report, are shown in Table 3 and will cause non-residential rates to correspondingly increase more than residential rates.

**Table 1
Plant Balance Changes**

	CY 2013			CY 2017		
	Flow (hcf)	BOD (lbs/yr)	TSS (lbs/yr)	Flow (hcf)	BOD (lbs/yr)	TSS (lbs/yr)
Total Plant	17,184,225	21,958,201	29,156,029	17,330,201	23,367,181	31,372,604
Less: I&I	343,684	13,098	905,786	1,164,831	935,371	5,863,390
Net Plant	16,840,541	21,945,103	28,250,243	16,165,369	22,431,810	25,509,214
Concord and Clayton	5,407,167	6,716,946	9,282,212	5,660,428	7,596,905	9,186,955
Non-Residential	2,382,262	3,984,595	3,430,445	2,263,236	3,773,648	2,945,855
Residential	9,051,111	11,243,562	15,537,586	8,241,705	11,061,257	13,376,404

Table 2 shows the changes in the unit rates due to the change in the flow and strength data and the changes in the costs structure. In the 2015 COS study, operating costs account for approximately 90% of the total revenue requirement and capital costs account for the remaining 10%. In FY 2019, operating costs decreased to approximately 82% of the total revenue

requirement and capital costs increased to approximately 18%. Capital cost allocation, as detailed in the 2015 COS study report, is allocated more to the Flow component. Thus, given the changes in costs structure and the plant influent, the flow unit cost is considerably higher than previously calculated. The adjustments for strength are done in a similar manner.

Table 2
Unit Rates Changes – FY 2019

FY 2019	Current Unit Rates	COS Unit Rates	Difference
Unit Cost			
WW Flow (\$/hcf of WW)	\$4.14	\$4.81	16%
BOD (\$/lb)	\$1.37	\$1.274	-7%
TSS (\$/lb)	\$0.64	\$0.666	4%

Based on the unit rates from Table 2 and the updated customer class flow and strength calculations, Raftelis calculated the total cost allocation to each customer class and category, shown in Table 3 for FY 2019. Due to the changes in the unit rates, residential class will see a reduction in their total cost allocation and non-residential class will see an increase. Since the analysis was done for FY 2019, the revenue collected under the COS and current structure are the same (except for rounding errors) since there was no revenue adjustment.

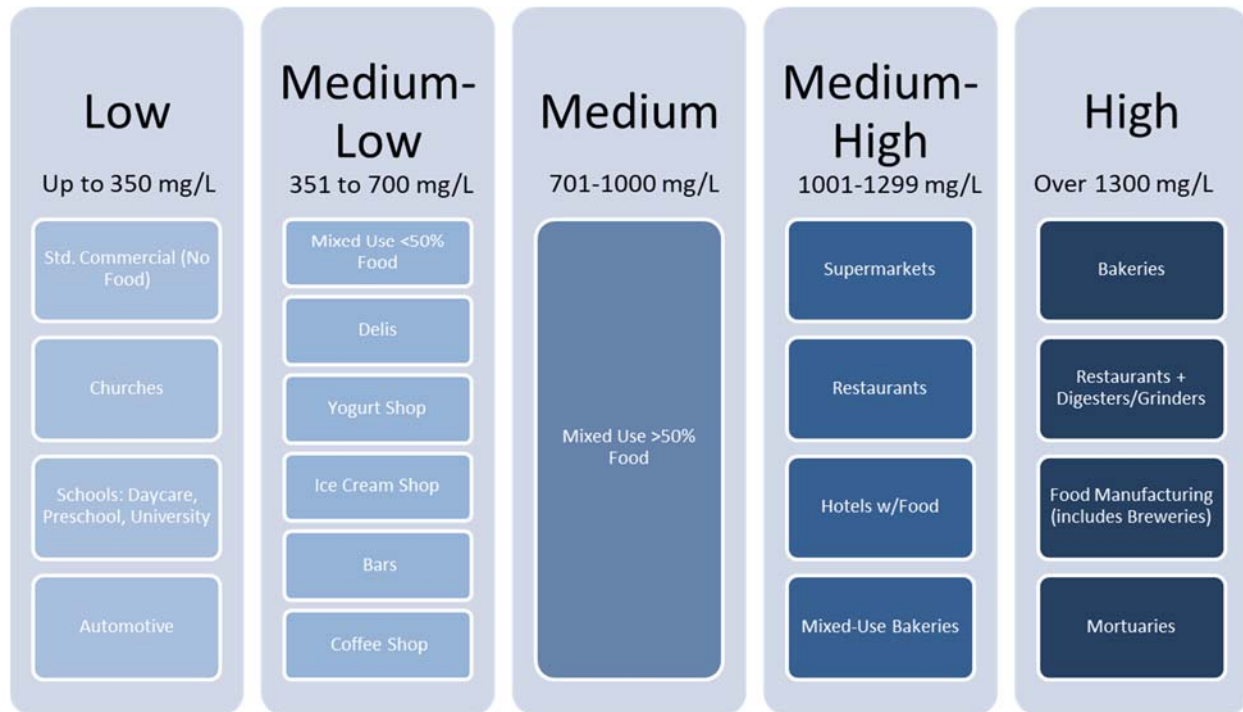
Table 3
Customer Cost Allocation – FY 2019

FY 2019	COS Structure	Current Structure	Difference
Residential			
SFR	\$56,984,191	\$55,030,752	3.5%
MFR	\$20,425,163	\$22,756,599	-10.2%
Total Residential	\$77,409,354	\$77,787,351	-0.5%
Non-Residential			
Low	\$8,815,489	\$8,564,177	2.9%
Medium Low	\$757,971	\$739,818	2.5%
Medium	\$1,598,712	\$1,329,971	20.2%
Medium High	\$4,530,751	\$4,530,643	0.0%
High	\$20,037	\$88,880	-77.5%
Industrial	\$1,247,881	\$1,280,664	-2.6%
Schools (Elementary)	\$172,533	\$170,752	1.0%
Schools (Intermediate)	\$222,862	\$219,278	1.6%
Schools (High School)	\$224,411	\$220,429	1.8%
Total Non-Residential	\$17,590,646	\$17,144,612	2.6%
GRAND TOTAL	\$95,000,000	\$94,931,963	0.1%

Adjustment 2: Proposed Non-Residential Rate Structure

Per the District’s request, Raftelis proposed a simplified non-residential rate structure that would classify non-residential customers into one of five categories based on their combined strength factors. Table 4 shows the proposed new structure and the classification of different types of customers. The new structure will simplify the current 15 mixed use categories into two categories. Mixed use customer with less than 50% of flow generated from food-related establishments will fall under the Medium-Low category while mixed use customer with more than 50% of flow generated from food-related establishments will fall under the Medium category. Regular restaurants are in the Medium-High category. Restaurants that have food digesters (or concentrators or grinders) are in the High category, since they are expected to generate higher strength wastewater. For mixed use customers, if a restaurant with food digesters is served by a shared meter, then the customer will be moved up to the next higher strength category to account for the increased strength loadings.

**Table 4
Proposed Non-Residential Customer Classes – Based on Combined Strength**



*Restaurant with equipment will move Mixed Use Meters up to the next highest strength category

** 50% by flow

Based on the results of the COS analysis, Tables 5 and 6 show the FY 2019 wastewater rates and charges for residential and non-residential customers, respectively, compared to the current rates and charges. The same amount of revenue is collected under the proposed and current rates, meaning the difference in rates is based on the change in cost allocations only.

Table 5 shows that the single family residential (SFR) customers’ FY 2019 charge would be \$1 higher per year than the current charge and the multifamily residential (MFR) customers’ FY 2019 charge would be \$11 lower per year than the current charge.

Table 5
Proposed Residential Wastewater Rates and Charges – FY 2019

	Total Annual Charge	Current Charge	Difference (%)	Difference (\$)
Residential				
SFR	\$568.00	\$567.00	0.2%	\$1.00
MFR	\$538.00	\$549.00	-2.0%	(\$11.00)

Table 6 shows the difference between the proposed rates and the current rates for each non-residential class. Due to the change in the unit costs, high strength customers would see a slight reduction in their rates while lower strength customers would see an increase.

Table 6
Proposed Non-Residential Wastewater Rates and Charges – FY 2019

	Proposed Rate (\$/hcf of water)	Current Rate (\$/hcf of water)	Difference
Non-Residential*			
Low	\$5.92	\$5.61	5.5%
Medium Low	\$7.27	\$6.46	12.5%
Medium	\$9.11	\$9.22	-1.2%
Medium High	\$10.17	\$10.29	-1.2%
High	\$13.47	\$13.49	-0.2%
Industrial	\$7.15		
Schools (Elementary)	\$7.06	\$6.98	1.1%
Schools (Intermediate/High School)	\$13.95	\$13.71	1.8%
Schools (High School)	\$13.95	\$13.71	1.8%

*Subject to a minimum charge equal to the MFR charge.

Table 7 shows the proposed wastewater rates and charges for FY 2020-2023. These rates incorporate the required revenue adjustments, determined by the District, necessary to meet the projected operating and capital expenses in these years. The proposed revenue adjustments are 5.25% each year for FY 2020 and 2021 and 4.75% each year for FY 2022 and 2023. For the 89 customers whose bill impacts would be 25% or higher, the District is proposing a 2-year phase in to mitigate the bill shock to those customers. For these customers, the rate increases will be spread over two years and averaged with the second year rate.

Table 7
Proposed Wastewater Rates and Charges – FY 2020-2023

User Group	Fiscal Year 2019-20	Fiscal Year 2020-21	Fiscal Year 2021-22	Fiscal Year 2022-23
Residential (rate per residential unit)				
Single Family Homes	\$598.00	\$629.00	\$660.00	\$690.00
Apartments, Condominiums, Second Living Units, Mobile Homes	\$566.00	\$596.00	\$625.00	\$654.00
Non-residential (rate per Hundred Cubic Feet [HCF] of water consumption other otherwise noted)				
Low (Standard Commercial)	\$6.23	\$6.56	\$6.87	\$7.20
Low (Automotive)	\$6.23	\$6.56	\$6.87	\$7.20
Medium-Low (Delicatessens, Yogurt Shops, Ice Cream Shops, Coffee Shops, Bars, and Mixed-Use Rate XA)	\$6.72	\$8.05	\$8.43	\$8.83
Medium-Low	\$7.65	\$8.05	\$8.43	\$8.83
Medium	\$9.59	\$10.09	\$10.57	\$11.07
Medium-High (Hotels and Motels)	\$10.70	\$11.26	\$11.79	\$12.35
Medium-High (Restaurants, Supermarkets)	\$10.70	\$11.26	\$11.79	\$12.35
Medium-High (shared meter with bakeries or high-strength food service)	\$10.70	\$11.26	\$11.79	\$12.35
High (Mortuaries)	\$14.18	\$14.92	\$15.63	\$16.37
High (Bakeries)	\$14.18	\$14.92	\$15.63	\$16.37
High (Restaurants with Grinders or Emulsifiers, Brewing with BMP permit)	\$14.18	\$14.92	\$15.63	\$16.37
Minimum Annual Charge	\$566.00	\$596.00	\$625.00	\$654.00

Schools				
Daycare, Preschool, University (per HCF)	\$6.23	\$6.56	\$6.87	\$7.20
Elementary (per student)	\$7.43	\$7.82	\$8.19	\$8.58
Intermediate, High Schools (per student)	\$14.68	\$15.45	\$16.18	\$16.95
Industrial Formula (including food processing)				
Wastewater Flow (per HCF)	\$4.82	\$5.08	\$5.32	\$5.57
Biochemical Oxygen Demand (per 1,000 pounds)	\$1,275.00	\$1,342.00	\$1,406.00	\$1,473.00
Suspended Solids (per 1,000 pounds)	\$666.00	\$701.00	\$734.00	\$769.00
Fixed charge	\$93.69	\$98.61	\$103.29	\$108.20
Special Discharge Permits & Contractual Agreements:	determined individually	determined individually	determined individually	determined individually