



201 North Civic Drive, Suite 230
Walnut Creek, California 94596
Tel: (925) 977-6950
Fax: (925) 977-6955
hfh-consultants.com

Robert D. Hilton, CMC
John W. Farnkopf, PE
Laith B. Ezzet, CMC
Richard J. Simonson, CMC
Marva M. Sheehan, CPA

TECHNICAL MEMORANDUM

Subject: Sewer Rate Allocation Study
Technical Memorandum No. 2: Proposed Rate Structure

To: Craig Justice, General Manager, Sausalito-Marín City Sanitary District
From: John Farnkopf, Sima Mostafaei, HF&H Consultants, LLC
Date: May 28, 2013

I. INTRODUCTION

Overall Study Objectives

The purpose of Technical Memorandum #2 (TM2) is to respond to customer inquiries and evaluate alternatives on how the District currently charges residential customers for sewer service. A goal of the study is to analyze possible sewer rate allocation methods and to maintain revenue neutrality (keep existing level). TM2 identifies potential sewer rate structure alternatives and analyzes the impacts of changing the current rate structure in relationship to the District's financial position and customer bills. Additionally, the study identifies District's administrative resources that might be needed to implement a new rate structure. Overall, each of the alternatives explored targets the need to balance financial stability, revenue neutrality, and rate payer equity, among other objectives.

Recent Studies

Presentations by District Staff and HF&H were made to the District Board on April 30, 2012, January 30, 2013, and February 4, 2013; copies of the presentations can be found on the District's website at www.smcsd.net. At the April 30, 2012 Board meeting, the Board of Directors received a presentation on Technical Memorandum #1 (TM1). TM1 includes important background information such as the District's wastewater flow data

broken down by customer classification as well as the District's revenue, expenses, fixed costs and variable costs. This information is important in developing alternative rate structures and estimating the impact they could have on customer bills. Several members of the public provided comments and input for Board consideration.

At the January 30, 2013 meeting, potential sewer rate structure alternatives were presented. The Board requested the discussion be continued to the next regular Board meeting on February 4, 2013. At this meeting the Board approved Alternative #3 for implementation. Alternative #3 is viewed as an initial modification to the current rate structure that incorporates both a fixed and flow based component to calculate residential sewer service charges. The Board of Directors approval and adoption is currently scheduled for the June 3, 2013 Board meeting.

It is important to note that the Board has requested that additional analyses be completed during FY 2013-14 that could lead to further adjustments in the rate structure. The additional analysis will build on work completed to better understand certain aspects of the study information related to customer service and District finances.

II. BACKGROUND INFORMATION

Historical Flow by Customer Class

Sewer flows from individual SMCSD customers are not metered; therefore winter water use data for residential customers is the closest representation of flows that residential customers discharge to the District's system for conveyance and treatment. The assumption is that minimal unsewered water use occurs during the winter. During the preparation of TM1, HF&H obtained the metered water data from Marin Municipal Water District (MMWD) and summarized the data by customer class. The winter water use was annualized by extrapolating over the whole year for each class. This extrapolation assumes the annualized water use represents the estimated wastewater flow for each of the District's customer classes. The number of dwelling units per class was divided into the annual estimated wastewater for each class to determine the annual wastewater flow per dwelling unit. Figure 1 summarizes the estimated flow and average flow per dwelling unit for each residential customer class for 2011.¹

Based on this period of water use, the average flow per dwelling unit varied among the residential classes. Single family residential water use is the highest. Such dwellings may have more living space, higher average occupancy, and the most inside water using appliances compared with the other residential classes. The multi-family class

¹ Based on MMWD meter readings during one two-month winter billing period in the 2011-2012 winter.

indicates a slightly less water use per dwelling unit and floating homes have the lowest average use per dwelling unit (the floating homes flow data was estimated).

Fig. 1. SMCSD Residential Flows Per Dwelling Unit

	2011 MMWD Winter Data (HCF)	2011 MMWD Winter Annualized (HCF)	2011 Units Billed (Dwelling Unit)	Annual Wastewater Flow per Unit (HCF)
Residential				
Single Family	16,202	97,212	1,436	68
Multi-Family	28,255	169,528	2,713	62
Floating Homes (estimated)	1,894	11,366	437	26
Total - Residential	46,351	278,106	4,587	61

The estimated flow per dwelling unit in **Figure 1** reflects water use in one winter billing period. Water use varies from year to year as a result of climatic, economic, and other reasons. Water use has generally trended slightly downward during the last decade, with a slight increase recently. Although this downward trend has occurred throughout California, the reasons are not completely understood by industry experts. In addition to climatic and economic conditions, improved efficiency due to plumbing code requirements and ingrained conservation behavior by customers may have contributed to the downward trend.

The variations from year to year as well as long-term trends affect the revenue stream from rates that are based on flow. Revenue stability is a critical rate-making objective for the District. In studying alternative rate structures that would increase the amount of revenue generated by volumetric charges, the District wants to minimize any potential revenue instability that could be introduced by fluctuations in flow. To understand the magnitude of water use fluctuations within SMCSD’s service area, recent water use data was reviewed.

Figure 2 presents SMCSD residential winter water use and non-residential average water use² for the most recent three years. **Figure 2** shows the percent change from year to year. 2010 flow was overall 6% less than 2009 and 2011 flow was 3% higher than 2010.

² Based on an average of MMWD meter readings during one two-month winter and one two-month summer billing period. Summer billing periods are used for non-residential customers to reflect any seasonal water use related to business activity that produces wastewater, such as tourism.

Although water use trended down in recent years, water use increased between 2010 and 2011 probably because of climatic differences; 2010 was a wet winter and 2011 was dry. Fluctuations of flow such as occurred recently would affect the revenue stream from volumetric charges. The more revenue generated by volumetric charges, the greater the possible fluctuation.

Fig. 2. SMCSD Recent Water Use Trends (MMWD Data)

	2009 Data (HCF)	2010 Data (HCF)	Change from Prior Year (%)	2011 Data (HCF)	Change from Prior Year (%)
<u>Customer Classes</u>					
Residential (winter flow)					
Single Family	17,500	16,343	-7%	16,202	-1%
Single Family - Attached	9,624	9,507	-1%	10,059	6%
Multi-Family	27,490	26,312	-4%	28,255	7%
Floating Homes [1]	<u>1,882</u>	<u>1,888</u>	<u>0%</u>	<u>1,894</u>	<u>0%</u>
Subtotal - Residential	56,496	54,051	-4%	56,410	4%
Non Residential (average use)	<u>28,204</u>	<u>25,878</u>	<u>-8%</u>	<u>26,255</u>	<u>1%</u>
Total Customer Flow	84,700	79,929	-6%	82,665	3%

[1] The 2010 floating home data was smoothed using the average of 2009 and 2011 houseboat data to account for the anomalously high flow in 2010.

Fixed and Variable Costs

Overall District financial stability can be evaluated by looking at revenue from sewer rate charges relative to the proportion of its expenses that are fixed and variable. For purposes of classifying the expenses, fixed costs are those costs that either do not vary with changes in the number of customers or flow or that the District must incur because of operational costs or regulatory mandates. Variable costs either vary with changes in the number of customers, the amount of flow, or are costs that the District has discretion to increase or decrease independent of flow. **Figure 3** presents SMCSD's FY 2013-14 budgeted costs and classifies each expense as either fixed or variable.

Fig. 3. Fixed and Variable Expenses

	FY 13-14 Budget		
	Fixed	Variable	Total
O&M Expenses			
Power	\$ -	\$ 230,000	\$ 230,000
Chemicals	\$ -	\$ 222,500	\$ 222,500
Personnel	\$ 1,991,022	\$ -	\$ 1,991,022
Supplies	\$ 52,000	\$ -	\$ 52,000
Repairs & Maintenance	\$ 510,660	\$ -	\$ 510,660
Other O&M Expenses	\$ 320,252	\$ -	\$ 320,252
Administration Expenses	\$ 173,580	\$ -	\$ 173,580
Debt Service	\$ 371,535	\$ -	\$ 371,535
Contribution to Cap. Program	\$ 1,422,992	\$ 192,352	\$ 1,615,344
Total Expenses	\$ 4,842,041	\$ 644,852	\$ 5,486,893
	88%	12%	100%

Of the combined operation and maintenance, administration, debt service expenses, and contributions to the capital improvement program, approximately 88% are fixed. Personnel costs necessary to operate and maintain District facilities is the largest single fixed cost. Part of the pay-as-you-go capital improvement program is considered variable in the sense that it can change from year to year based on the District's needs and the availability of rate revenue. Because such a high proportion of costs are fixed, the District's cost structure is highly fixed and constant on an annual basis and from year to year.

A District focus is to ensure its revenue and cost streams are in alignment and do not vary markedly. Variations would lead to demands on its reserves to compensate for revenue shortfalls. This is particularly true as the District continues its 10-year capital improvement program which required significant capital investment to accomplish. Increasing the amount of revenue from volumetric charges could lead to cash flow shortfalls that may result in the District not meeting its debt service revenue to income requirements and reserves falling below District reserve policy levels.

III. RATE STRUCTURE DESIGN

Current Structure

The District currently charges single-family, multi-family, and floating home residential customers a flat, annual sewer service charge of \$647. This rate charge method is a standard and accepted wastewater industry practice. The District completed a comprehensive financial plan and adopted a multi-year sewer rate structure in 2010 that included an increase from \$647 to \$725 in FY 2013-14 per equivalent dwelling unit (EDU) for all customer classes. These fixed charges do not vary in response to wastewater flows for residential customers. The sewer charges for non-residential customers do consider flow and also consider strength since wastewater from business such as restaurants cost more to treat. **Figure 4** summarizes residential rate revenue for FY 2012-13 and FY 2013-14 based on the adopted rates.

Fig. 4. Residential Rate Revenue - Current Rate Structure

	EDUs				
	Reported to	12-13	12-13 Rate	13-14	13-14 Rate
	County	Adopted Rate	Revenue	Adopted Rate	Revenue
<u>Residential</u>					
Single family	1,423	\$647	\$ 920,363	\$725	\$1,031,319
Floating Homes	397	\$647	257,144	\$725	288,144
Multi family	<u>3,685</u>	\$647	<u>2,384,310</u>	\$725	<u>2,671,754</u>
Total Residential	5,505		3,561,817		3,991,217

It is noteworthy that the District has a high proportion of its revenue from multi-family customers. As a result, any rate structure modification that would reduce multi-family bills based on flow has a significant impact on single family customers. Because the District cannot reduce multi-family charges without increasing single family charges, in order to maintain revenue neutrality, the District has preceded cautiously with any rate structure modifications. Such modifications must conform to the District's rate-making objectives, which are intended to balance conflicting interests and the District's administrative capabilities.

Rate Structure Design Objectives

The common rate-making objectives are rate payer equity, financial stability, legal compliance, administrative simplicity, and customer understanding. Of these five

objectives, balancing rate payer equity with financial stability requires the greatest discretion. Rate payer equity can be improved through the flow charge, which reflects differences in flow among customers.

Revenue from flat rates is more stable than revenue from volumetric rates because the annual variation in the number of customers is typically much less than the annual variations in flow. As a result, shifting revenue from flat to volumetric charges will reduce revenue stability. However, flat rates do not recognize flow in the calculation of the service charge; therefore, flat rates do not directly reflect variations in wastewater contributions from each customer.

Sewer rate design can comprise a combination of fixed and volumetric components. The purpose of a fixed component is to recover a minimum amount from each customer so that even customers with little or no flow are funding a baseline portion of fixed costs. Although the fixed costs are the majority of the costs, there is no legal requirement to align fixed *costs* with fixed *charges*. The District has discretion in structuring its rates as long as the resulting bill is consistent with the cost of service attributable to the parcel. In exercising that discretion, the rate design should balance rate-making objectives to achieve a proportionate outcome.

Alternative Structures

Three alternative rate structures were explored and their adherence to rate making objectives were evaluated. The primary objectives are revenue stability and rate payer equity. To address rate payer equity, the District has considered differences in flow among its residential customer classes. However, in view of the fact that the District has limited data from MMWD on its residential customers individual winter water use, the District does not want to make radical structural changes only to find out later that the changes were too extreme. Moreover, to add to the complexity, multi-family and floating home customers typically have a common water meter that is shared between customers, unlike single family residences that have individual water meters.

The general approach in developing the alternatives was to combine a fixed component with a volumetric component. The fixed component was equal for all customers regardless of customer class. The volumetric component was based on flow for either individual customers or for classes of customers (e.g. single family, multi-family and floating homes).

Alternative #1 combined a fixed charge per parcel plus a volumetric charge based on individual customer's winter water use. Because flow varies from customer to

customer and year to year, revenue is less stable and therefore, creates complexity when attempting to balance revenue stability with customer equity. This method of billing requires additional resources for individual customer billing and preparation of the County's tax rolls. The transition from flat to volumetric rates would also require a Proposition 218 process, including mailing notices of the proposed change to each affected property and the opportunity to protest in writing.

Upon review with the Board, Alternative #1 was eliminated from further consideration for now because it leads to uncertain revenue instability that requires further study, exceeds the current staffing capabilities to implement, and would require undergoing a Proposition 218 process that could otherwise be delayed until next year or later.

Alternative #2 was developed to overcome flaws in Alternative #1. Alternative #2 derived the volumetric rate for each residential customer class rather than for individual residential customers. The ratio of multi-family flow and floating home flow to single family flow per EDU was used to reduce the charge per EDU for each respective class of customers. While this alternative reduced the per EDU charge for multi-family and floating home customers, it significantly increased the charge for single family customers in order to recoup the resulting \$630,000 per year revenue reduction, and moreover, would require a Proposition 218 process in order to increase the single family rates.

Alternative #2 has the advantage of being easier to implement because charges are not computed based on individual customer's flow. Instead, the charges are derived for each customer class, which would be easier for the District Staff to implement. However, single family charges would have to significantly increase to offset the revenue reduction caused by the decrease in multi-family and floating home charges, decreases that would be based on a very limited set of water use data from MMWD. The increase in single family charges would also require a Proposition 218 process. Upon review with the Board, Alternative #2 was eliminated from further consideration for now.

Alternative #3 was developed to further overcome the flaws in the previous alternatives. Under Alternative #3, a fixed component per EDU consisting of 88% of the rate revenue was combined with a volumetric component recovering 12% of the revenue from flow based on flow differences among customer classes. Customers in each residential class have the same charge. The single family charge is increased as previously adopted to \$725 in FY 2013-14; hence, no Proposition 218 process will be required. Multi-family and floating home charges will be reduced from the previously adopted charges, resulting in an annual \$100,000 revenue reduction for the District.

Although this alternative creates a \$100,000 revenue reduction per year, the fiscal impact in the short-term is manageable. Alternative #3 will allow the District to recognize differences in flow between the three residential customer classes, while further studying historical residential flows. Alternative #3 will require future rate adjustments with a Proposition 218 notification process to recoup the revenue shortfall caused by the change in rate structure. The recommended charges are summarized in **Figure 5** for FY 2013-14.

Fig. 5. Recommended Residential Rate Structure (FY 2013-14)

Customer Class	Fixed Charge	Flow Charge	Supplemental Charge	Total
Single Family	\$638	\$87	-	\$725
Single family (unincorporated)	\$638	\$87	\$55	\$780
Floating Homes (unincorporated)	\$638	\$34	\$55	\$727
Multi Family	\$638	\$66	-	\$704
Multi Family (unincorporated)	\$638	\$66	\$55	\$759

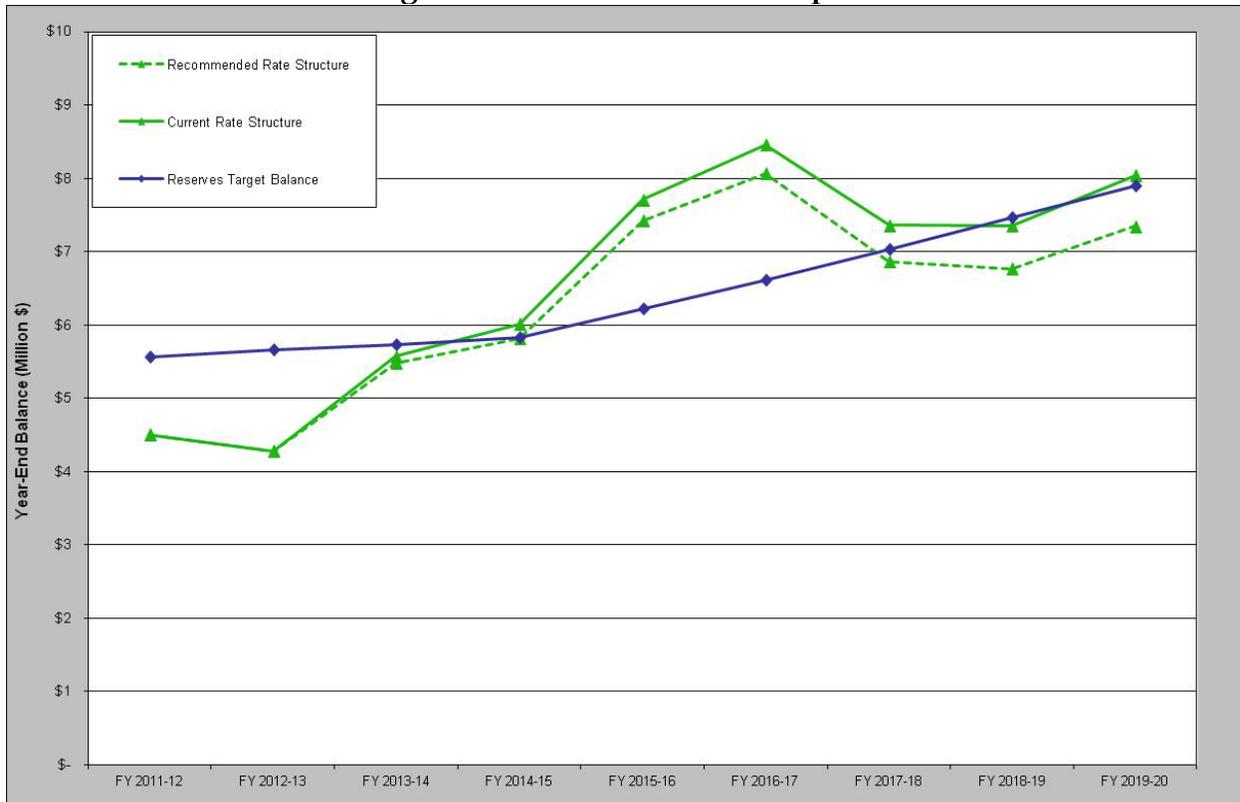
Note that the charges for customers in the unincorporated portions of the District also include a Supplemental Charge that covers the District's costs to provide operation, maintenance and infrastructure renewal services with the associated collection system facilities.

Reserve Fund Balance

The District has an established policy to maintain adequate reserves. **Figure 6** shows the reserve fund balance for the District's combined operating and capital reserves. Each reserve has appropriate criteria for determining its optimum amount, the sum of which is shown as the Target Balance (blue line). The FY 2013-14 year-end fund balance (green line), net of the \$100,000 annual revenue shortfall from the Alternative #3 rate structure change (dotted green line) is projected to be \$5,476,000, which is slightly below the target balance of \$5,736,000.

Figure 6 shows the fund balance climbing above the target balance in FY 2014-15 through FY 2016-17. According to the District financial plan, reserves during this time frame need to grow in order to pay down debt service associated with implementation of the 10-year capital improvement program. The figure shows the reserve balance being drawn down below target levels in FY 2017/18, and through FY 2019/10, as the District pays down the capital infrastructure improvements debt service.

Fig. 6. Fund Balance Fiscal Impact



The gap between the reserve fund balance under the current rate structure, as compared to Alternative #3 grows by \$100,000 per year in lost revenue. Although the gap is not so great that the fund balance is unable to stay above the target balance between FY 2014-15 and FY 2016-17, it occurs at a time when the District is embarking on a \$40,000,000 capital improvement program. The District plans to finance all or a portion of these capital improvements. Meeting its reserve target levels will support a strong credit rating to reduce financing costs.

IV. IMPLEMENTATION

Implementing the proposed rate structure modification calls for several actions. The adoption process for FY 2013-14 charges based on Alternative #3 is possible without undertaking a Proposition 218 process. District Staff have the capability of making the required changes and adding the charges to the tax rolls.

As discussed previously, the consequence of reducing multi-family and floating home charges in FY 2013-14 will be an annual revenue reduction of \$100,000. Rates in

subsequent years should be adjusted to eliminate this shortfall. At the same time, the Board has indicated its continued interest in refining the rate structure to advance rate payer equity in balance with revenue stability. Revenue stability will continue to be a critical rate-making objective as the District secures financing to fund its substantial capital improvement program. Rate payer equity will also continue to be an important objective for the District to address within its current and future capabilities.

V. FUTURE SEWER RATE STUDY ALLOCATION WORK

In addition to revenue stability and rate payer equity, the next phase of rate analysis needs to reflect other key factors:

Public Outreach and Involvement - Going forward with the next phase of rate making, the District has indicated its plan to continue promote and facilitate public involvement in the rate study work.

Winter Water Usage – A larger MMWD data set of 3 to 5 years should be used to estimate customer class winter water usage so they are as accurate as possible and account for fluctuations from year to year.

Public and Private Sewer Systems - Infiltration and Inflow (I&I) of rain and groundwater into the sewer system, caused by damaged sewer pipes, is a significant component of the District's hydraulic load on its collection system and treatment plant. Reducing I&I yields benefits within the District's collection system by relieving surcharging on collection system and treatment capacity. During the work sessions with the District Board, the Board emphasized the importance of developing a program to encourage customers to retrofit their laterals, thereby reducing I&I. A private lateral Ordinance that requires inspection and repair upon home ownership change has been passed for unincorporated areas of the District. In addition, the District has a private lateral loan program available to customers in unincorporated areas. There may be additional programs the District could consider for their customers such as incentives to retrofit their laterals in the form of credits against their charges or through other financial rewards. Funding for financial rewards could in part be provided through savings that are achieved through reduced I&I.

Sewer Charge Hardship Adjustments – The District is concerned about the affordability of its rates in these economic times. The need for adjustments to mitigate hardships may have to be considered as part of the District's rates.

Capital Debt Financing – The District plans to issue debt to financing for capital improvements over the coming decade. In order to get a favorable credit rating that will minimize the District’s financing costs, rate structure modifications will be introduced gradually to avoid unnecessary revenue fluctuations.

Partner Agency Coordination – The City of Sausalito charges its own sewer service charges for operation and maintenance of its collection system. The City is planning to evaluate its sewer rate structure. Coordinating changes between the District and City is advisable since they share customers. In addition, it is important the District also coordinate sewer rate study work with the Tamalpais Community Services District since the agencies operate under a recently re-negotiated 30-year service agreement.