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## **TECHNICAL MEMORANDUM**

**Subject: Sewer Rates Study**  
**Technical Memorandum No. 1: Background Information**

**To:** Bob Simmons, General Manager, Sausalito-Marin City Sanitary District  
**From:** John Farnkopf, Sima Mostafaei, HF&H Consultants, LLC  
**Date:** April 25, 2012

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The study is intended to guide the Sausalito-Marin City Sanitary District (District) in setting rates for its incorporated and unincorporated customers located in Sausalito and Marin City. Rates for Tamalpais Community Services District (TCSD) are set by contract. The results of this study do not address TCSD's retail rates, which are not set by the District.

Our scope of services for the subject study calls for the preparation of four Technical Memoranda (TMs):

- TM 1: Background Information
- TM 2: Rate Structure Alternatives
- TM 3: Update Rate/Financial Model
- TM 4: Implementation Plan and Schedule

Each TM will be submitted sequentially to the Board of Directors for review, revised to address the Board's comments, and compiled into a single report at the conclusion of the project. The report will constitute a comprehensive review of the District's sewer rates, including updated revenue requirement projections, cost of service allocations, and rate structure design.

The purpose of TM1 is to provide information about flows, costs, and revenues that will provide context for understanding how the District could be affected by converting its residential flat rates to an alternative rate structure. TM1 covers several topics: customer class revenues, wastewater flows, fixed and variable O&M and capital costs, and a survey of rate structures.



**I. REVENUE BY CLASS AND TYPE**

The District receives rate revenue from several sources as summarized in **Figure 1**. It bills four residential classes and three commercial classes on the tax rolls. In addition, the District directly bills governmental and institutional customers such as State or Federal offices and schools. The District also directly bills TCSD under the terms of a contract. The National Park Service has historically received service at no charge, which is a service relationship that the District is evaluating as part of the NPS facility easement extension agreement. The District also receives non-rate revenue in the form of property taxes, interest earnings, connection fees, and penalties, which are not attributable to a particular customer class.

The District's residential class amounts to 57% of the rate revenue, which makes it the largest customer class. As the District's single largest customer, TCSD pays 20% of the total rate revenue. Nearly an equal amount is paid by the non-residential class.

**Figure 1. Rate Revenues by Customer Class (Tax Roll FY 2011-12)**

Customer Class	EDUs Billed	Current Rate/EDU	Calculated Revenue	% Total Revenue
Residential				
Single-Family	1,436	\$563	\$ 808,733	14%
Single-Family Attached	1,228	\$563	691,099	12%
Houseboats	437	\$563	246,031	4%
Multi-Family Residential	2,713	\$563	1,527,599	27%
Total Residential	5,814		3,273,462	57%
Non-Residential				
Low	858	\$563	483,069	8%
Medium	49	\$563	27,436	0.5%
High	947	\$563	533,123	9%
Total Non-Residential	1,854		1,043,627	18%
Direct Billed	213	\$563	119,806	2%
Marin Housing Authority	240	\$535	137,522	2%
Tamalpais CSD	2,280		1,131,369	20%
National Parks Service	-		-	0%
Grand Total	[1] 10,401		\$5,705,787	100%

[1] Unincorporated customers in Marin City service area are calculated at 1.09 per EDU to include the collection system maintenance and renewal surcharge



**Figure 2** classifies the District's rate and non-rate revenues by whether they are paid based on a fixed characteristic (e.g., per EDU or per parcel) or based on flow. Of the rate revenue from residential and commercial customers, 77% is billed based on fixed characteristics and 23% is billed based on metered water use. 100% of the residential (i.e., SFR, SFR attached, Houseboats, and MFR) rate revenue comes from a fixed charge per EDU. 11% of the commercial revenue comes from a fixed charge (i.e., it is assumed that all customers pay a minimum of at least one EDU). The inclusion of TCSD revenue as all flow-based revenue and property taxes as fixed revenue yields an overall 64%/36% fixed/flow-based relationship. In other words, nearly two-thirds of the District's revenue is independent of flow and one-third is dependent on flow. The relationship between the District's sources of fixed and flow-based revenue is similar to the relationship between the District's fixed costs and variable costs (see below).

**Figure 2. Summary of Fixed and Flow-Based Revenue**

Customer Classes	FY 11-12 Revenue					
	Fixed		Flow-Based		Total	
SFR	\$ 808,733	100%	\$ -	0%	\$ 808,733	100%
SFR Attached	691,099	100%	-	0%	691,099	100%
Houseboats	246,031	100%	-	0%	246,031	100%
MFR	1,527,599	100%	-	0%	1,527,599	100%
Marin Housing Authority	137,522	100%	-	0%	137,522	100%
Commercial - Low*	54,725	11%	428,329	89%	483,054	100%
Commercial - Medium*	3,108	11%	24,327	89%	27,436	100%
Commercial - High*	60,397	11%	472,726	89%	533,123	100%
Direct Billed	13,512	11%	106,294	89%	119,806	100%
Subtotal	3,542,726	77%	1,031,677	23%	4,574,403	100%
National Parks Service	-	0%	-	0%	-	0%
Tamalpais CSD	-	0%	1,131,369	100%	1,131,369	100%
Tax Allocation	500,000	100%	-	0%	500,000	100%
Total Revenue	\$ 4,042,726	65%	\$ 2,163,046	35%	\$ 6,205,772	100%

\* Fixed charge estimates based on percentage of low, medium and high strength commercial parcels billed on FY 11-12 tax roll



## II. WASTEWATER FLOWS AND REVENUE STABILITY

Wastewater flows comprise two major components:

- Domestic wastewater that is discharged to the sanitary sewer system from residential, commercial, and institutional customers. Domestic wastewater amounts to 89% of the total annual wastewater and 20% of the peak wet weather flow.
- Stormwater inflow that enters the sewer system through surface defects in public sewers and private sewer laterals or, in some cases, through illegal connections of exterior drains to the sanitary sewer system; groundwater infiltration through subsurface defects in the sanitary sewers. Collectively, these two sources are referred to as inflow and infiltration (I&I). I&I amounts to 11% of total annual flow and 80% of peak wet weather flow.

Sewer flows from individual residential 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 outside or irrigated water use occurs during the winter period. HF&H obtained the metered water data from Marin Municipal Water District (MMWD) for the previous three years and summarized the data by customer class. **Figure 3** summarizes the estimated flow and average flow per dwelling unit for each residential class for 2011.<sup>1</sup>

**Figure 3. 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
Single Family - Attached	10,059	60,354	1,228	49
Multi-Family	18,196	109,174	2,713	40
Houseboats (estimated)	1,894	11,366	437	26
Total - Residential	46,351	278,106	5,814	48

<sup>1</sup> Based on MMWD meter readings during one two-month winter billing period.



The flow per single family dwelling unit is highest for the residential classes. Single family dwellings tend to be larger and may have higher occupancy. Single family dwellings also have more landscape than the other residential classes, and hence their winter flow could include some irrigation. Because houseboats are the smallest dwelling units and have no irrigation, their flow per dwelling unit is smallest.

For non-residential customers, year-round flow or an average of winter and summer water use can be used because most commercial customers' water use is sewered or, if there is much irrigation, is a separately metered for irrigation.

Revenue from flat rates is more stable than revenue from flow-based rates because the annual variation in the number of customers is typically much less than the annual variations in flow. As a result, converting to a flow-based rate structure will reduce revenue stability. Water use has 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. Improved efficiency due to plumbing code requirements, ingrained conservation behavior by customers, and diminished economic conditions are the most likely reasons.

To understand the magnitude of water use fluctuations within SMCS D's service area, recent water use data was reviewed. **Figure 4** presents SMCS D residential winter water use and non-residential average water use<sup>2</sup> for the most recent three years.

**Figure 4. SMCS D 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	17,866	16,805	-6%	18,196	8%
Houseboats [1]	<u>1,882</u>	<u>1,888</u>	<u>0%</u>	<u>1,894</u>	<u>0%</u>
Subtotal - Residential	46,872	44,544	-5%	46,351	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	75,076	70,422	-6%	72,606	3%

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

<sup>2</sup> Based on an average of MMWD meter readings during one two-month winter and one two-month summer billing period



By comparison, **Figure 5** presents the residential winter water use for the City of Belmont's (Belmont) sewer customers. Because Belmont's residential sewer customers are billed on the tax rolls based on metered water use data from Mid-Peninsula Water District, water use reductions have required revenue-neutral water and sewer rate increases to offset the reduced revenue. Adjustments of this type are inevitable when bills include a flow-based charge. We note that with Belmont's increased flow in the winter of FY 2010-11, Belmont was able to avoid a rate increase because of the surplus revenue that would result simply from higher flow. Hence, it is important to understand that variations in metered water use can result in both deficits as well as surpluses.

**Figure 5. City of Belmont Residential Winter Water Use**

MPWD Winter Data	Total Residential Flow (HCF)	Change from Prior Year (%)
2007-08	91,060	
2008-09	86,859	-4.6%
2009-10	81,390	-6.3%
2010-11	87,969	8.1%

Water use by the District's residential and commercial customers is in line with these trends, with a decline between 2009 and 2010 and an increase between 2010 and 2011. As previously presented in **Figure 2**, 36% of the District's total revenue is based on flow; therefore, the 5% decline in flow from 2009 to 2010 (shown in **Figure 4**) would have reduced revenue by 5% of the 36% flow-based revenue, or \$38,935 (1.80%). With the 2% increase in flow from 2010 to 2011 (shown in **Figure 4**), revenue would have rebounded by 2% of the 36% flow-based revenue, or \$15,574 (0.72%). When 2011 is compared to 2009, total customer flow was down 3.29% and revenue was down \$23,361 (1.18%). This three-year period illustrates the sensitivity of revenues to flow fluctuations when 36% of the rate revenue is derived from flow-based charges. The revenue fluctuations would be greater if more of the rate revenue came from flow charges.

### **III. FIXED AND VARIABLE COSTS**

**Figure 6** presents SMCS D's current fiscal year budgeted costs and classifies each expense as either fixed or 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 regulatory mandates. Variable costs either vary with changes in the number of customers or the amount of flow or are costs that the District has discretion to increase or decrease independent of flow. (Note that



with these simple definitions of fixed and variable, some costs do not fit cleanly within these two categories.)

**Figure 6. Fixed and Variable Expenses**

	FY 11-12		
	Budget	Fixed	Variable
<b>O&amp;M Expenses</b>			
Salary	\$ 1,136,387	x	
Social Security	\$ 84,828	x	
Pension	\$ 306,207	x	
Employee Benefits	\$ 343,657	x	
Workers Comp	\$ 36,900	x	
Chemicals	\$ 222,500		x
Conference/Training	\$ 22,500	x	
Engineer - Spec Consulting	\$ 221,160	x	
Permit	\$ 82,763	x	
Fuel	\$ 9,175	x	
Monitor	\$ 36,000	x	
Power	\$ 230,000		x
Insurance	\$ 34,500	x	
Repairs	\$ 221,000	x	
Solids Disposal	\$ 60,944	x	
Supplies	\$ 52,000	x	
Phone	\$ 17,000	x	
Vehicles	\$ 24,850	x	
Safety	\$ 43,900	x	
Water	\$ 7,500	x	
<b>Administration Expenses</b>			
Accountant	\$ -	x	
Assessor Roll Fees	\$ 14,500	x	
Audit	\$ 10,000	x	
Director	\$ 30,080	x	
Election Expense	\$ 12,000	x	
Legal Notice	\$ 1,000	x	
Legal General	\$ 45,000	x	
Legal Special	\$ 80,000	x	
Office Expense	\$ 6,000	x	
Subtotal - O&M and Admin	\$ 3,392,350		
<b>Debt Service</b>	\$ 360,517	x	
<b>Total Expenses</b>	<u>\$ 3,752,867</u>		
<b>Fixed Costs</b>	\$ 3,300,367	88%	
<b>Variable Costs</b>	\$ 452,500	12%	
	\$ 3,752,867		
<b>Net Reserves Transfer</b>	VARIES	x	x
<b>Capital Improvement Projects</b>	VARIES	x	x



Of the combined O&M, Administration, and Debt Service expenses, approximately 88% are fixed. The Net Reserve Transfers (to the Operations Reserve) and pay-as-you-go Capital Improvement Program are variable in the sense that they can change from year to year based on the District's needs and the availability of rate revenue. Opinions vary as to whether costs such as these should be considered variable costs. Even if Net Reserve Transfers and the pay-as-you-go CIP were considered entirely variable, at least two-thirds, if not more, of the District's expenses would be fixed. It is likely that these costs are both fixed and variable to some extent.

As previously discussed, flat rates produce a predictable amount of revenue. In effect, the flat rate is a fixed charge. By contrast, flow-based rates produce variable charges (i.e., the flow-based rate does not vary, but the resulting charges vary with variations in flow). It can be seen in **Figure 6** that most of the District's costs are fixed. The District's current rates in total generate 64% of the revenue from fixed charges, which is similar to the amount of fixed costs. Alternative rate designs that increase the amount of flow-based revenue will not align as well with the District's current fixed costs, thereby increasing the potential revenue instability. The amount of additional instability will depend on how much the alternative rate structure increases the flow-based revenue. The details will be documented in TM 2.

#### **IV. RATE STRUCTURE SURVEY**

HF&H surveyed the rate structures of a variety of wastewater agencies with practices that represent a cross-section of the industry in California with a focus on the Bay Area. The majority of source data was taken from agency websites as well as our direct experience. The results are presented separately for residential and non-residential customer groups as an attachment to this report. Each table contains specific information about the rate structures and additional information, such as the local water supplier, county, billing cycle, etc. The attachment focuses on the rate structure information.

The residential sewer rates are summarized in **Figures A and B** based on how the customers are billed: either annually on the tax rolls or on utility bills on a monthly or bi-monthly cycle. Five of the agencies shown in **Figure A** bill their residential customers (as well as their non-residential customers, if any) on the tax rolls based on each customer's flow.<sup>3</sup> Non-residential rates are summarized in **Figure C**.

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<sup>3</sup> Novato Sanitary District uses flow to categorize each customer but does not calculate the bill for each customer based on that customer's flow; rather, the flow for the category applies to all customers in the category.





As a practice, it is not common for residential customers that are billed on the tax rolls to be billed on the basis of their individual flows. Detailed comparisons among agencies are made in the Attachment. The following key observations are made:

- The District's current rate structure is relatively simple. Its single family and multi family customers are combined in a single residential class and it has only three non-residential classes.
- Two of the agencies that bill flow-based residential rates on the tax rolls only bill a flow charge and do not have either a minimum charge or a fixed charge that is paid in addition a flow charge.
- Four of the agencies that bill flow-based residential rates combine single and multi family customers into a single residential class.

## Attachment

### WASTEWATER RATE STRUCTURE SURVEY

#### Residential Rate Structures

**Figure A** includes eight agencies that bill on the tax rolls including the District. Of these, five bill their residential customers based at least in part on flow. Belmont is the only agency that also has a fixed charge, which generates about 45% of the total revenue from residential customers. Belmont initially implemented flow-based residential rates with no fixed component and found that the charges were too variable and revenue was less predictable.

The flow charges are based on winter water use, which usually spans at least three months.<sup>4</sup> Because of the lack of time available between the end of the winter period and when sewer charges must be placed on the tax rolls in August, using the most recent winter's water use could be problematic for those agencies that are adding new charges to the tax rolls in compliance with Proposition 218's notification process. As a result agencies have changed their practices by using the prior winter's water use to allow more time for analysis and public participation during the rate study.

Three of the agencies have minimum charges that override low water use. In Half Moon Bay, for example, a customer pays the minimum charge if its winter water use is 48 HCF or less and pays the flow charge for use above 48 HCF.<sup>5</sup> Belmont's minimum charge also applies to undeveloped, developable parcels with adjacent sewer service. None of the agencies that uses flow have an upper limit or cap on the flow or resulting charge. (Two of the agencies have neither fixed nor minimum charges from which it can be assumed that customers that are absent during the winter period and have no winter flow will receive free sewer service.)

Novato Sanitary District (NSD) is a hybrid. Each residential customer's winter flow is used to place it in one of three categories: low, average, and high. All of the customers in each class are then charged the same amount regardless of their individual flows.

None of the agencies provides its own water service. Each is either supplied water by a water district or water company. For those six agencies that use winter flow to determine their sewer charges, they annually combine water billing data with county assessor's parcel numbers to derive and bill each customer's charge.

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<sup>4</sup> The City of Ukiah uses only the month of January to determine winter water use. The City has noticed significantly reduced water sales in January because customers have learned that reduced water use in January will reduce their sewer bills (not to mention their water bills).

<sup>5</sup> Minimum charges are different from fixed charges. Minimum charges are the minimum flow charge that is paid for all flow below a predetermined amount. Fixed charges are paid in addition to the flow charge in which the flow charge is paid for all water.



Finally, we note that SMCSD is smaller than most of the agencies in this figure. Larger agencies typically may have larger staff resources to draw on to implement a flow-based billing program. Larger agencies may also have the ability to absorb downward flow trends with the use of more substantial reserves before making offsetting rate increases.

**Figure B** contains seven agencies that bill either monthly or, more commonly, bi-monthly, rather than on the tax rolls. Although SMCSD is currently planning to continue to bill on the tax rolls even if it were to convert to flow-based residential rates, these agencies are included to provide additional rate structure examples. We note that the agencies in this group are not an exhaustive sample of all industry practices; however, they represent some of the most common practices.<sup>6</sup> All of these agencies also provide water service.

Five of the agencies have a fixed charge per billing period, which varies considerably among the agencies. Their flow charges are uniform for all water that is used as the basis for the charge with some exceptions. Brisbane and Poway have a tiered structure, with a higher uniform charge for use in excess of the average. EBMUD caps its flow charge at 10 hcf. Only two of the agencies have minimum charges.

These agencies vary in size, ranging from Brisbane, which is much smaller than SMCSD to EBMUD, which is a large, regional agency over 36 times larger than SMCSD.

### **Non-Residential Customers**

SMCSD already bills its non-residential customers based on flow, which is nearly a universal standard in the industry. Here the question is not whether flow should be used, but what rate structures are appropriate. **Figure C** contains thirteen agencies including SMCSD, which are grouped into two categories based on how their charges are derived: five using strength factors and eight using flow charges.

SMCSD is one of the agencies whose non-residential charges depend on a formula that computes the number of EDUs for each non-residential customer based on the product of the customer's flow factor and the strength factor for its class. The flow factor is the ratio of its flow divided by the flow per single family residence, which in some case is fixed and in others varies based on recent flow. The strength factor for each class reflects the loading characteristics (i.e., flow and strength concentrations for BOD (biochemical oxygen demand) and SS (suspended solids) for the class. These values

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<sup>6</sup> We have not included the City of Lodi, for example. Lodi's residential sewer bills are based on the number of bedrooms. This less common structure will soon be replaced by flow-based rates when the installation of water meters on all accounts is completed.



were presumably derived based on an engineering analysis of loadings at the plant and industry guidelines.

**Figure C** shows the loading characteristics that are currently in effect at each of the agencies and the resulting strength factors. Note that all of the agencies in the group except SMCSO derive strength factors for numerous customer classes;<sup>7</sup> SMCSO use fewer strength factors that aggregate customer classes into three strength categories (i.e., low, medium, and high).

Only Las Gallinas Valley Sanitary District (LGVSD) has a specific class for mixed uses. For them, it uses a strength factor in the mid-range of its other two strength factors. In most of the other agencies, the strength factors for mixed uses are determined on a case-by-case basis.

**Figure C** also shows eight other agencies that determine their non-residential charges based on flow charges (which is similar to how the residential flow charges are developed). These agencies are shown in order to provide additional context because this method is a common industry practice.<sup>8</sup>

One common method of determining a customer's flow is to use flow during the winter; another is to use annual flow. The City of Poway and EBMUD use on-going flow because they also provide water service that is billed bi-monthly. Sausalito uses the highest flow in the most recent five years.

All of the agencies bill their non-residential customers on the tax rolls with the exception of the City of Poway and EBMUD, which are the only agencies in the group that also provide water service, and therefore have ready access to meter data. Some of the agencies charge using customer classes and others use fewer strength categories.

None of the agencies has a fixed charge in addition to the flow charge except NSD, which bases its fixed charge on square footage. Most of the agencies also have minimum charges. Sausalito has a minimum charge for non-residential customers.

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<sup>7</sup> In some cases, not all of the customer classes are shown.

<sup>8</sup> The residential gallons-per-day flow values are shown for comparison with the agencies that bill using strength factors. The agencies that bill using flow charges do not use an EDU formula and hence do not use flow values for deriving their non-residential EDUs.



**Figure A. Residential Sewer Charge Summary – Tax Roll Billing**

	City of Half Moon Bay	City of Los Altos	City of San Mateo	City of Palos Verdes Estates	City of Belmont	Novato Sanitary District	City of Sausalito	Sausalito-Marín City Sanitary District
<b>Fixed Charge</b>	--	--	--	--	\$272.03 per parcel	\$462 average (1.0 EDU), \$277 low use (0.6 EDU), \$832 high use (1.8 EDU)	\$422 per SFR	\$563 for incorporated; \$616 for unincorporated per EDU
<b>Flow Charge (Per HCF)</b>	\$7.39	\$3.03	\$5.36	\$1.00	\$3.57	None	None	None
<b>Minimum Charge</b>	\$354.88/yr (16 HCF)	--	\$160.80/yr	--		--	--	--
<b>How Flow-Based Charge is Calculated</b>	Four-month wet weather water use (Nov-Feb) for single family homes.	Average winter water use (Jan-March) for all customer classes. Based on actual consumption from the prior year's winter.	Five-month wet weather water use (Nov-March). Minimum charge of \$13.40 per month	Water consumption for the 3 lowest water usage months city-wide from the prior year.	Average winter water use (Dec-March) from the winter two years prior.	Low use = less than 25% of average (Dec-March); Average use = greater than 25% and less than 200% of average; High use = greater than 200% of average.	N/A	N/A
<b>Residential Subclasses</b>	Single family	Single family; MFR separate from SFR; categorized as 3 separate classes (2, 3-4, 5+ dwelling units)	Single family, duplex, and multi-family	Single and multi family	Single and multi family	Single and multi family	Single and multi family	Single and multi family
<b>Agency Providing Flow Data</b>	Coastside County WD	Cal Water Service Company	Cal Water Service Company	Cal Water Service Company	Mid-Peninsula WD	North Marin Water District	Marin Municipal WD	Marin Municipal WD
<b>County</b>	San Mateo	San Mateo	San Mateo	Los Angeles	San Mateo	Marin	Marin	Marin
<b>Billing Cycle</b>	Annually	Annually	Annually	Annually	Annually	Annually	Annually	Annually
<b>Population Served</b>	13,371	28,863	97,535	13,546	26,507	53,357	7,596	18,000
<b>Rate Effective Date</b>	7/1/2010	7/1/2010	7/1/2010	7/1/2010	7/1/2010	7/1/2010	7/1/2011	7/1/2011
<b>Source for Data</b>	Online - 3/2010 Rate Study	Online - 6/2008 Rate Study; Website	Website; Ordinance 2010-10	Website; Resolution R10-06; council agenda	HF&H Rate update Report	Website; Ordinance	Sausalito Rate Study - 4/2009	Website; Ordinance

SFR - Single family residential; MFR - multi family residential; HCF - hundred cubic feet or ccf



**Figure B. Residential Sewer Charge Summary – Direct Utility Bills**

	City of Burlingame	City of Daly City	City of Brisbane	City of Millbrae	City of Petaluma	East Bay MUD	City of Poway
<b>Fixed Charge</b>	--	--	\$61.88 per account	\$41.70 per account	\$14.85 per account	\$5.51 per account and \$5.44 per dwelling unit	\$16.35 per account
<b>Flow Charge (Per HCF)</b>	\$8.01	\$5.27	1-8 units = \$2.53; 9+ units = \$6.88	\$4.91	\$7.04	\$0.59 up to 10 hcf maximum	0-5 units = \$24.98; 6-12 units = \$44.07; 13-19 units = \$66.34; 20-26 units = \$72.70; 27-37 units = \$85.43; 38-50 units = \$98.15; 51+ units = \$107.71
<b>Minimum Charge</b>	--	\$5.27/mo	--	--	--	\$5.48/mo SFR; \$13.60/mo MRF	
<b>How Flow-Based Charge is Calculated</b>	Average metered water use for January-April for the previous three years.	Average water use during January/February. The sewer service charge will be adjusted annually with each September bill based on the Jan-Feb. consumption.	Average metered winter water use during November - February. The bill is fixed until the following April.	The lesser of the actual water consumption or the Average Winter Demand, which is the average the water usage during November - February or December - March, depending on the billing cycle	Average water usage during the winter months (November, December, January, February and March depending on billing cycle). Winter water averages are updated in July, using the average winter water usage from the previous winter.	Service charge (\$5.51) is per account; strength charge (\$5.44) is per dwelling unit. For apartments with 5 or more units, a minimum monthly charge of \$27.20 is applied with only \$5.44 for each additional unit	Average water usage during the winter months (November, December, January, February, March and April). The lowest water consumption winter month is selected from each of the last 3 years and averaged. 85% of the average is used to calculate the flow-based charge for one
<b>Residential Subclasses</b>	Single family, duplex. Separate MFR class; rates per 1,000 gals are lower than SFR	Single family	Single family, duplex, multi-family, and mobilehome units	Single family, multi-family duplex, triplex, multiplex, and condominium	Single family, multi-family	Single family, multi-family under 5 units	Single family
<b>Agency Providing Flow Data</b>	City of Burlingame	City of Daly City	City of Brisbane	City of Millbrae	City of Petaluma	EBMUD	City of Poway
<b>County</b>	San Mateo	San Mateo	San Mateo	San Mateo	Sonoma	Alameda and Contra Costa	San Diego
<b>Billing Cycle</b>	Bi-monthly	Bi-monthly	Bi-monthly	Monthly	Monthly	Bi-monthly	Bi-monthly
<b>Population Served</b>	29,342	108,383	3,993	21,968	58,401	650,000	47,811
<b>Rate Effective Date</b>	1/1/2011	7/1/2007	12/30/2008		1/1/2010	7/1/2010	1/1/2011
<b>Source for Data</b>	HF&H Rate update Report	Prop 218 Notice	Website; Municipal Code	Website	Website; Municipal Code	Website; Resolution 33714-09	Ordinance 709

SFR - Single family residential; MFR - multi family residential; HCF - hundred cubic feet or ccf



**Figure C. Non-Residential Sewer Charges Summary – Tax Roll and Utility Billing**

	Sanitary District No. 5	City of Mill Valley	Las Gallinas Valley SD	Ross Valley SD	Sausalito-Marin City SD	Central Contra Costa SD	City of Half Moon Bay	Novato San Dist	City of Belmont	City of Los Altos	City of Palos Verdes Estates	East Bay MUD	City of Poway
	Charges Based on Strength Factors					Charges Based on Flow							
<b>Loadings</b>													
Flow - gpd per EDU	171 (varies)	varies	250	250	180	200	166	[b]	166 (varies)	307	512 (varies)		[f]
Flow Basis	2/3 of average annual residential	Winter-summer average	Winter-summer average	Winter-summer average	Winter-summer average	Annual Flow	Annual flow	Winter (2 month) average	Winter (4 month) average	3 wet season months	Lowest 3 months city-wide	On-going bi-monthly flow	On-going bi-monthly flow
BOD - mg/l		200	175		200								
TSS - mg/l		200	175		290								
<b>Formula Coefficients</b>													
Flow		0.33	0.54	0.57	0.427								
BOD		0.33	0.23	0.18	0.265								
TSS		0.33	0.23	0.25	0.308								
<b>Strength Factors/Flow Charges [a]</b>													
<i>By Strength Category</i>													
All strengths										\$ 3.03	\$ 1.00		\$ 3.40
Low Strength					1.0			\$ 2.52	\$ 3.57				\$ 3.89
Medium Strength					1.7			\$ 3.53					\$ 4.53
High Strength					2.4			\$ 5.48	\$ 6.95				\$ 6.88
<i>By Customer Class</i>													
Multi-Family	1.0	1.0	1.0	1.0	1.0		\$ 7.39	[d]				\$ 1.40	\$ 3.40
Hotels, Inns with Dining	1.7	2.2	2.0				\$ 4.62	[d]					\$ 2.34
Delicatessens	2.0		2.6					[d]					\$ 3.28
Groceries with Grinders	2.2	3.0	2.6	2.34		\$ 6.00		[d]					\$ 3.28
Restaurants	2.4	3.0	2.6	2.34		\$ 5.66	\$ 5.82	[d]					\$ 3.28
Bakery		3.0	2.6	2.34		\$ 7.95		[d]					\$ 3.28
Laudromat		0.8	1.0	2.34				[d]					\$ 1.44
Mortuary		3.0	2.6	2.34		\$ 5.66		[d]					
Schools					1.0		\$ 2.63						\$ 3.40
Medical							\$ 2.79						
All Other/Miscellaneous	1.0	0.6 - 4.33	1.0	1.0		\$ 5.89	\$ 3.03	[d]					Varies
Mixed Uses			2.0					[b]					
<b>Square Foot Charges [e]</b>	\$0.19-\$0.57												
<b>Minimum Annual Charge [c]</b>						\$ 323.00	None	Varies	\$ 272.03	None	None	\$ 131.40	None
<b>Billing Cycle</b>	Annually	Annually	Annually	Annually	Annually	Annually	Annually	Annually	Annually	Annually	Annually	Bi-monthly	Bi-monthly

**Notes**

- [a] Flow charges in \$/hcf
  - [b] Formula that weights the total flow by square footage, and type of use for each account
  - [c] Applies in cases where there is also a flow-based component.
  - [d] Flow and square foot charges include strength factors (1.0 - 2.2) and flow factors (1.0 - 3.0) respectively.
  - [e] Square foot charges in \$/sq ft
  - [f] Estimated sewer flow based on 90% of customer's bi-monthly water use. Schools calculated based on flow per student per day using march/april water flow.
- All agencies except EBMUD and City of Poway bill on the tax rolls.