



# NapaSan

## CAROLLO ENGINEERS - TASK ORDER No. 23 SSC RESIDENTIAL RATE METHODOLOGY STUDY

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Date: September 21, 2017

Issued under Professional Services Agreement dated August 9, 2017.

**To:** Carollo Engineers

**Project Description:**

Evaluate existing methodologies for Sewer Service Charges & Capacity Charges for residential customers.

**Description of Scope of Services to be performed by Consultant under this Task Order:**

See Attachment 'A' – Scope of Services

**Description of Services to be Provided by District:** See Attachment 'A' – Scope of Services

**Deliverables:** See Attachment 'A' – Scope of Services

**Consultant Project Manager:** Jennifer Ivey, PE

**Schedule to Perform Services:** See Attachment 'B' – Project Schedule

**Time & Materials Not-to-Exceed Cost Limit:** \$102,486.00

See Attachment 'C' – Budget Summary

**APPROVALS:**

**CAROLLO ENGINEERS**

By: \_\_\_\_\_  
Authorized Representative

\_\_\_\_\_  
Date

**NAPA SANITATION DISTRICT**

By: \_\_\_\_\_  
Purchasing Agent

\_\_\_\_\_  
Date

NSD Account No.: 7800000 / 52310



Attachment "A"

## **SCOPE OF WORK**

### **SEWER SERVICE CHARGE RESIDENTIAL RATE METHODOLOGY AND CAPACITY CHARGE CALCULATION AND RATE METHODOLOGY STUDY**

The Napa Sanitation District (“NapaSan”) is seeking qualified consultant to conduct a study and make recommendations regarding its sewer service charge rate methodology and its capacity charge methodology for residential customers, and to update its capacity charge calculation. The purposes of the study are to provide the following:

1. Evaluate NapaSan’s existing methodology and formulae for assessing sewer service charges for residential customers and provide recommendations to the Board for updated sewer service charge rate methodology and rate policies. The study will provide background information and analysis regarding a number of policy options to assist and inform policy makers and the public of the financial and other impacts associated with methodology options. The intent is to establish a rate setting methodology that is fair to multiple types of residents and has a strong nexus between the cost of service and the rates paid.
2. Evaluate NapaSan’s existing methodology for assessing capacity charges for residential customers and provide recommendations to the Board for a new capacity charge rate methodology and rate policies.
3. Update the capacity charge amount.

The study will necessitate a comprehensive review of the District Code for sewer service charge rate setting, a comparison to other sewer service providers in Northern California, an evaluation of potential costs of administration, and estimates of the impacts of recommended changes on specific customer classes.

## SCOPE OF WORK

### A. POLICY QUESTIONS AND STUDY OBJECTIVES

#### 1. Sewer Service Charge Methodology

NapaSan is interested in exploring the financial, administrative, and customer impacts of certain policy decisions regarding its sewer service charge methodology. There have been several incidents recently that have caused the board to question whether it is in NapaSan’s best interest to continue to base its residential sewer service charges on a fixed rate (with adjustments based on residential type) or to include a variable rate component based on water usage. These policy options have significant ramifications to existing rate payers, the full impact of which need to be understood.

The first question that must be answered is whether NapaSan should bill residential customers a flat fee, or whether there should be a component of the bill based on consumption (a variable component). Once that decision is made, there are other questions that need to be evaluated, as noted in the table below:

<b>100% Fixed</b>	<b>Fixed and Variable Components</b>
Should NapaSan update its water usage assumptions, by residential customer class (e.g., SFR, condos, apartments, ADUs, mobile homes, etc.), and make adjustments to the annual fee based on the customer class?	What costs are fixed and not dependent on the amount of water or solids discharged to the sewer system? What costs are variable?
Should NapaSan use the updated water consumption assumptions for residential customers to update the EDU calculations for commercial and industrial customers?	Should NapaSan continue to collect SSC on the property tax roll, or should it convert to monthly/bimonthly billing?
	<p><b><u>If monthly/bimonthly billing:</u></b></p> <p>What additional administrative cost is there to bill based on water usage and collect on property taxes?</p> <p>What additional costs would be associated with monthly invoicing done by the District?</p> <p>What additional costs would be associated with invoicing through the cities? What other administrative issues exist with invoicing through cities?</p>

	Adding in a variable component increases the risk of rate instability. How large of a “rate stabilization reserve” should be established to manage this risk and decrease the risk of deficits based on consumption lower than estimated?
	Should commercial accounts be assessed for both fixed and variable costs, or should NapaSan continue to assess commercial properties based 100% variable?

## 2. Capacity Charge Methodology for Residential Development

Recently, NapaSan changed its formula for the assessment of capacity charges on commercial properties to be based on the estimated strength of the business and its square footage. For most residential properties, NapaSan charges 1 EDU capacity charge, regardless of the type of facility (SFR, condo, apartment, etc.), regardless of the size of the residence. Recent changes by NapaSan to its capacity charges for Accessory Dwelling Units are partially based on the size of the unit. It has been suggested that the size of the building may be a better methodology for assessing this fee, as size may be a better indicator of the potential system capacity used by the owners or tenants in the residence than a flat fee. The study should evaluate different methodologies for setting residential capacity charges, and make recommendations.

## 3. Capacity Charge Calculation

The NapaSan capacity charge was last calculated in a study in 2009. The study recognized that the charge at the time (\$5,660 per EDU) was significantly lower than the actual cost. The study recommended increasing the fee, then adjusting the fee annually to keep up with construction inflation. NapaSan increased the fee over several years to \$8,300 in July 2013, and has increased it annually since. Over the course of the last 8 years, NapaSan has made considerable investments in the treatment plant and collection system that warrants a recalculation of the fee.

## B. STUDY AND REPORT ELEMENTS

1. Estimate Water Usage for Different Residential Customer Classes.
  - a) Receive monthly water usage data for calendar years 2015, 2016, and 2017 from NapaSan for water customers in the City of Napa and the City of American Canyon, in electronic or machine-readable format, as available.
  - b) Using water data, calculate the amount of water used by a “typical” or average single and multi-family residence (SFR, condos, apartments, duplexes, triplexes, etc.). Evaluate data from winter months to determine average indoor water usage. Use this analysis to estimate the amount of indoor water use by each customer classes. Compare these estimates, on a system-wide basis, to actual summer influent flow by month to validate the estimates.
  - c) Evaluate data provided by NapaSan on residential flow from flow meters places in various neighborhoods, and compare to the analysis conducted in (a) and (b) above. Compare data to other known data from other California cities for validity, if possible.
  - d) Using water consumption data, NapaSan influent data, and data on inflow and infiltration (I&I) from NapaSan studies, determine the amount of water that must be treated that comes from I&I.
  - e) Using NapaSan’s 2016 SSC rate study, FY 17/18 budget and 10-year plan data, and water data derived above, reconstruct what sewer rates would have been for single family residences, multi-family residences, “typical” restaurants, retail spaces, warehouses and other commercial facilities, and specific industrial customers, if water consumption data were used to develop updated flow data for different residential types, for NapaSan’s current rate setting methodology.
2. Calculate the percentage of costs that are variable, based on the volume of water and solids that are conveyed to and treated at the plant, and develop new rate structure.
  - a) Review the FY 17/18 line item budget and identify costs that are variable. Interview staff and use other data to make determinations.
  - b) Develop sewer service charge rate structure for residential, commercial and industrial customers that incorporates both fixed and variable components.
3. Estimate the cost to NapaSan and identify the barriers to billing SSCs through property taxes with a fixed and variable component, based on winter water consumption.
4. Estimate the cost to NapaSan to bill SSCs monthly or bimonthly, directly by NapaSan.

- a) Identify possible approaches to direct billing, including hiring additional staff or contracting to third party processors.
  - b) Estimate the staffing impacts and direct costs associated with each approach identified. Express the costs both in total dollars and in their “rate equivalent.”
5. Estimate the cost to NapaSan to bill SSCs monthly or bimonthly, through the Napa and American Canyon’s water departments.
- a) Contact Fairfield-Suisun Sewer District (FSSD) and find out how much they are charged by the City of Fairfield to do FSSD’s sewer billing.
  - b) Work through NapaSan’s CFO to determine the willingness of the cities of Napa American Canyon water departments (or city department responsible for water billing) to contract for this responsibility.
  - c) Identify challenges with this approach, and potential solutions or costs associated with these challenges.
6. Calculate the impact of direct billing on NapaSan’s reserve policies.
- a) Does a “rate stabilization reserve” need to be created if a variable component is introduced to the rate? Calculate the sensitivity of the new rates to fluctuation in water usage, growth, recession, etc., and recommend a reserve policy for rate stabilization.
  - b) How does billing monthly or bimonthly change the sizing of the cash flow reserve? Develop a new monthly cash flow model and a new reserve policy for cash flow requirements, if monthly or bimonthly billing were to be introduced.
7. Update the calculations for capacity charges.
- a) Research and evaluate the methodology used to calculate capacity charges in 2009.
  - b) Work with NapaSan staff to develop the financial model (system buy-in method, incremental cost method, or a hybrid) and assumptions for calculating the rate, consistent with requirements in California Government Code § 66013 and related requirements.
8. Develop options for rate design for residential capacity charges.
- a) Identify different options for rate design for residential capacity charges, including square footage. Identify the pros and cons associated with different policy options.
  - c) Calculate and provide fee schedules for different rate design options, based on the new capacity charge calculations (see #7 above).

## **C. OUTREACH AND STAKEHOLDER ENGAGEMENT**

NapaSan is interested in the opinions and feedback of its customers and key stakeholders regarding the methodology of residential sewer service charges and capacity charges. To obtain information from the ratepayers and to solicit feedback and buying from stakeholders, NapaSan is requesting the Consultant provide analytic and logistical support for the following:

### **1. Stakeholder Committee Meeting**

NapaSan staff would compile a group of interested stakeholders to review technical reports and recommendations. It is anticipated that there would be one meeting, approximately 3 hours long, on a weekday evening. Consultant would develop PowerPoint and other materials for the stakeholder meeting. Meeting would be facilitated by NapaSan staff. Consultant would make presentation to Stakeholders and answer technical questions.

### **2. Public / Ratepayer Meeting**

NapaSan staff would advertise and in other ways promote ratepayer attendance at a public meeting. It is anticipated that there would be one meeting, approximately 3 hours long, on a weekday evening. Consultant would develop PowerPoint and other materials for the public meeting. Meeting would be facilitated by NapaSan staff. Consultant would make presentation to Stakeholders and answer technical questions.

### **3. Public Hearing**

Consultant will make its recommendations to the NapaSan Board of Directors at a regular meeting of the Board of Directors (typically on either the first or third Wednesday of the month, from 4pm-6pm). The Board will accept public comment at this meeting, to hear from members of the public on the Consultant's recommendations.

#### **D. SERVICES TO BE PROVIDED BY CONSULTANT**

1. Conduct a review of the existing SSC and capacity charge rates studies and District Code regarding rates.
2. Meet or confer with NapaSan staff as needed. Anticipated 2 meetings in person, with others by telephone or web conference.
3. Attend up to six public meetings, in person:
  - Kick-off meeting with NapaSan Board of Directors
  - Update NapaSan Board, prior to stakeholder and public meetings
  - Stakeholder committee meeting
  - Public/Ratepayer meeting
  - Public hearing with NapaSan Board
  - Possible – one additional NapaSan Board meeting
4. Conduct analyses as required to address the scope of work, and produce the analysis as a series of Technical Memoranda that address specific policy questions or areas.
5. Final Report:
  - Prepare a report that includes the analysis identified earlier in the Scope of Work and any recommendations.
  - Submit PDF of the draft final report.
  - Submit PDF and 5 hard copies of the final report.
  - Provide any calculation worksheets in Microsoft Excel format, including a listing of all assumptions used in calculations.

#### **E. SERVICES TO BE PROVIDED BY NAPASAN**

1. Furnish all reasonably available records and information, including previous fee studies, financial reports, budgets, cost data and user data.
2. Review work products completed by Consultant, and provide upper management support and input regarding project direction.
3. Provide staff support and assistance as required and agreed to in advance of study.

Attachment "B"

**Napa Sanitation District SSC and Capacity Charge Study**

Task	October	November	December	January	February	March	April
<b>Task 1 - Financial Plan Review</b>							
<b>Task 2 - Customer Data Analysis</b>							
<b>Task 3 - Cost of Service Analysis</b>							
<b>Task 4 - Billing Procedures Review</b>							
<b>Task 5 - Capacity Charge Analysis</b>							
<b>Task 6 - Sewer Service Charge Analysis</b>							
<b>Task 7 - Meetings</b>							
<i>Meeting #1 - Kick-off Meeting with staff and management</i>	★						
<i>Meeting #2 - Progress Meeting with Board</i>			★				
<i>Meetings #3 &amp; #4 - Stakeholder Committee Meeting and staff workshop</i>				★			
<i>Meeting #5 - Public/Ratepayer Meeting - Sewer Service Charges</i>						★	
<i>Meeting #6 - Public/Ratepayer Meeting - Capacity Charges</i>						★	
Deliverable	October	November	December	January	February	March	April
<b>TM #1 - Financial Plan Review</b>		★					
<b>TM #2 - Customer Data Analysis</b>			★				
<b>TM #3 - Cost of Service Analysis</b>				★			
<b>TM #4 - Billing Procedures Review</b>					★		
<b>TM #5 - Capacity Charge Analysis</b>						★	
<b>TM #6 - Sewer Service Charge Analysis</b>						★	
<b>Draft Report</b>							★
<b>Final Report</b>							★

## Attachment "C"

Napa Sanitation District SSC and Capacity Charge Study		Jennifer Ivey Project Manager	Mark Panny Lead Analyst	Bri Bennett Analyst	Labor Cost	PECE	Expenses	Total
		\$ 265	\$ 194	\$ 164				
Task								
<b>Task 1 - Financial Plan Review</b>								
<i>Gather and review the District's financial forecast and pro forma inputs</i>		1	4	2	\$ 1,369	\$ 81		\$ 1,450
<i>Develop rate model with the District's financial data and assumptions</i>		-	2	16	\$ 3,012	\$ 210		\$ 3,222
<i>Review model outputs with staff and confirm financial forecast</i>		2	2	2	\$ 1,246	\$ 70		\$ 1,316
<b>Deliverable:</b> Financial Forecast and Revenue Requirement Technical Memorandum		2	4	4	\$ 1,962	\$ 117		\$ 2,079
<b>Task 1 Total</b>		<b>5</b>	<b>12</b>	<b>24</b>	<b>\$ 7,589</b>	<b>\$ 478</b>	<b>\$ -</b>	<b>\$ 8,067</b>
<b>Task 2 - Customer Data Analysis</b>								
<i>Process and analyze available customer data from retail water agencies</i>		-	4	8	\$ 2,088	\$ 140		\$ 2,228
<i>Estimate water usage for different residential and commercial classes</i>		-	8	12	\$ 3,520	\$ 234		\$ 3,754
<i>Compare NapaSan flow monitoring data with SFR estimates from retail water data</i>		-	2	4	\$ 1,044	\$ 70		\$ 1,114
<i>Analyze system flow data and estimate I&amp;I impact on NapaSan's system</i>		1	4	8	\$ 2,353	\$ 152		\$ 2,505
<i>Review usage data for peak demand profile, and analyze the revenue impact of a potential volumetric rate</i>		1	6	16	\$ 4,053	\$ 269		\$ 4,322
<i>Calculate revenue scenarios under current and alternative class factors and review alternatives with staff</i>		2	8	8	\$ 3,394	\$ 210		\$ 3,604
<b>Deliverable:</b> Customer and System Profile Technical Memo (outlines results of Task 2 analyses)		2	4	8	\$ 2,618	\$ 163		\$ 2,781
<b>Task 2 Total</b>		<b>6</b>	<b>36</b>	<b>64</b>	<b>\$ 19,070</b>	<b>\$ 1,238</b>	<b>\$ -</b>	<b>\$ 20,308</b>
<b>Task 3 - Cost of Service Analysis</b>								
<i>Review cost drivers and cost allocation data through staff interviews and correspondence</i>		2	8	4	\$ 2,738	\$ 163		\$ 2,901
<i>Identify fixed vs. variable budget items</i>		1	4	2	\$ 1,237	\$ 76		\$ 1,313
<i>Allocate budget line items to functional categories as appropriate</i>		1	4	8	\$ 2,221	\$ 146		\$ 2,367
<i>Develop financial allocation within rate model</i>		-	8	16	\$ 4,176	\$ 280		\$ 4,456
<i>Review model outputs with staff</i>		2	4	2	\$ 1,634	\$ 93		\$ 1,727
<b>Deliverable:</b> Cost of Service Technical Memo		2	4	4	\$ 1,962	\$ 117		\$ 2,079
<b>Task 3 Total</b>		<b>7</b>	<b>32</b>	<b>36</b>	<b>\$ 13,967</b>	<b>\$ 875</b>	<b>\$ -</b>	<b>\$ 14,842</b>
<b>Task 4 - Billing Procedures Review</b>								
<i>Survey peer agencies for data on direct billing cost per account (including billing systems, customer service, and other cost drivers)</i>		1	2	4	\$ 1,177	\$ 76		\$ 1,253
<i>Estimate cost range for direct billing for NapaSan based on available staff, resources, and customer profile</i>		1	2	4	\$ 1,177	\$ 76		\$ 1,253
<i>Compare financial impacts of billing alternatives, and evaluate reserve policies and cash flow timing effects</i>		1	2	6	\$ 1,505	\$ 99		\$ 1,604

## Napa Sanitation District SSC and Capacity Charge Study

Task	Jennifer Ivey Project Manager	Mark Panny Lead Analyst	Bri Bennett Analyst	Labor Cost	PECE	Expenses	Total
	\$ 265	\$ 194	\$ 164				
<b>Deliverable:</b> Cost-Benefit Analysis Technical Memorandum	2	4	4	\$ 1,962	\$ 117		\$ 2,079
<b>Task 4 Total</b>	<b>4</b>	<b>10</b>	<b>18</b>	<b>\$ 5,820</b>	<b>\$ 368</b>	<b>\$ -</b>	<b>\$ 6,188</b>
<b>Task 5 - Capacity Charge Analysis</b>							
Research and evaluate the methodology from past capacity charges	-	2	2	\$ 716	\$ 46		\$ 762
Work with NapaSan staff to determine the appropriate allocation method (buy-in, incremental, or hybrid)	2	4	-	\$ 1,306	\$ 70		\$ 1,376
Collect CIP and growth projections, and reserve and system valuation data if using buy-in or hybrid approaches	-	4	2	\$ 1,104	\$ 70		\$ 1,174
Identify alternative assessment options for residential capacity charges (square footage, room or fixture counts, and other commonly used criteria) and collect necessary data	2	8	4	\$ 2,738	\$ 163		\$ 2,901
Calculate capacity charges under each alternative option and review with staff	8	12	24	\$ 8,384	\$ 514		\$ 8,898
<b>Deliverable:</b> Capacity Charge Technical Memorandum	2	4	4	\$ 1,962	\$ 117		\$ 2,079
<b>Task 5 Total</b>	<b>14</b>	<b>34</b>	<b>36</b>	<b>\$ 16,210</b>	<b>\$ 980</b>	<b>\$ -</b>	<b>\$ 17,190</b>
<b>Task 6 - Sewer Rate Analysis</b>							
Calculate sewer service charges under current rate structure, and calculate alternative structures (fixed/variable hybrid approaches)	2	8	16	\$ 4,706	\$ 304		\$ 5,010
Review alternatives with staff, and develop rate forecast	2	4	2	\$ 1,634	\$ 93		\$ 1,727
<b>Deliverable:</b> Sewer Service Charge Technical Memorandum	2	4	4	\$ 1,962	\$ 117		\$ 2,079
<b>Task 6 Total</b>	<b>6</b>	<b>16</b>	<b>22</b>	<b>\$ 8,302</b>	<b>\$ 514</b>	<b>\$ -</b>	<b>\$ 8,816</b>
<b>Task 7 - Meetings &amp; Deliverables</b>							
<b>Meeting #1</b> - Kick-off Meeting with staff and management	4	4	2	\$ 2,164	\$ 117	\$ 1,250	\$ 3,531
<b>Meeting #2</b> - Progress Meeting with Board of Directors	4	4	2	\$ 2,164	\$ 117	\$ 1,250	\$ 3,531
<b>Meeting #3</b> - Stakeholder Committee Meeting	4	4	2	\$ 2,164	\$ 117	\$ 1,250	\$ 3,531
<b>Meeting #4</b> - Workshop with NapaSan staff and management (concurrent with meeting #3)	4	4	2	\$ 2,164	\$ 117		\$ 2,281
<b>Meeting #5</b> - Public/Ratepayer Meeting for Sewer Service Charges	6	6	2	\$ 3,082	\$ 163	\$ 1,250	\$ 4,495
<b>Meeting #6</b> - Public/Ratepayer Meeting for Capacity Charges	6	6	2	\$ 3,082	\$ 163	\$ 1,250	\$ 4,495
<b>Deliverable</b> - Draft Report (compilation of TMs and executive summary)	2	4	8	\$ 2,618	\$ 163		\$ 2,781
<b>Deliverable</b> - Final Report (integrate feedback from staff and public ratepayer meetings)	2	4	6	\$ 2,290	\$ 140		\$ 2,430
<b>Task 7 Total</b>	<b>32</b>	<b>36</b>	<b>26</b>	<b>\$ 19,728</b>	<b>\$ 1,097</b>	<b>\$ 6,250</b>	<b>\$ 27,075</b>
<b>Project Total</b>	<b>74</b>	<b>176</b>	<b>226</b>	<b>\$ 90,686</b>	<b>\$ 5,550</b>	<b>\$ 6,250</b>	<b>\$ 102,486</b>

\* Number of meetings can be increased at a rate of \$4,500 per meeting.