

City of Fort Bragg Revised Wastewater Rate Study



RCAC

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September 2016

The wastewater rate study was prepared using funds under Agreement 13-409-550 with the California State Water Resources Control Board; the total Agreement is for \$498,000 and will produce multiple documents.

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**City of Fort Bragg
415 North Franklin Street
Fort Bragg, CA 95437
Wastewater Rate Analysis**

Date: September 26, 2016

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Purpose and Objective: RCAC conducted a wastewater rate study for the City of Fort Bragg (CFB) in January, 2016. Later CFB discovered the cost allocations upon which the rate study was conducted were erroneous. This rate study reflects the updated (lower) costs provided by CFB.

DISCLAIMER

The recommendations contained in these rate analyses are based on financial information provided to RCAC by CFB. Although every effort was made to assure the reliability of this information, no warranty is expressed or implied as to the correctness, accuracy or completeness of the information contained herein.

Financial Planning: The objective of developing a financial plan for water and wastewater systems is to determine cash needs, revenue requirements and anticipated timing of utility costs to ensure that adequate funds are available to meet operational and maintenance needs as they occur. Financial planning for a small water/wastewater system normally includes an examination of:

- Operating revenues,
- Operation and maintenance (O&M) expenses,
- Debt service (principal and interest payments) on borrowed funds, and
- Reserve requirements.

The financial plan calculates the minimum revenues necessary to maintain viable and self-sustaining enterprises.

Operating Revenues: Revenues are the main sources of income to a utility and are typically thought of as operating and non-operating. Operating revenue is the stable and reliable income that comes from customer rates or user charges. Non-operating revenue such as interest on checking and reserve accounts, meter deposits, connection fees, and late

payments, penalties and reconnection fees may also be considered operating revenue if they are stable and dependable revenue sources. For example, a utility with consistent growth that is expected to continue may consider connection fees as an operating revenue source. Pursuant to the City of Fort Bragg FY 2016 -2017 Budget, Wastewater Enterprise Fund operating revenues are projected to total \$3.2 million. Most of the Fund's revenue is from charges for services, with a minor amount received for capacity fees. For purposes of this analysis, the FY 2014/2015 usage and number of active connections information was used.

Operating Expenses: This is the first cost category that is considered when developing a financial plan. Operating and maintenance costs include the day-to-day expenses of providing drinking water and wastewater disposal to customers. Expenses include labor, insurance, materials, electricity and chemicals. The operating costs for FY 2016-2017 were projected at \$2,106,854. Additionally, debt service was projected at \$59,355, for a total of \$2,166,209 before reserve funding transfers and capital expenditures.

Wastewater System Reserves: Reserves are an accepted way to stabilize and support utility financial management. Small systems usually fund the operating expenses but don't often consider putting money aside for a specific upcoming financial need or project, or for an amount that can be used to provide rate stabilization in years when revenues are unusually low or expenditures are unusually high. The rationale for maintaining adequate reserve levels is two-fold. First, it helps to assure that the utility will have adequate funds available to meet its financial obligations in times of varying needs. Secondly, it provides a framework around which financial decisions can be made to determine when reserve balances are inadequate or excessive and what specific actions need to be taken to remedy the situation.

Utility reserve levels can be thought of as a savings account. Reserve balances are funds that are set aside for a specific cash flow requirement, financial need, project, task, or legal covenant. Common reserve balances are established around the following four areas: operating reserve, capital improvement, emergency, and debt service reserve. These balances are maintained in order to meet short-term cash flow requirements, and at the same time, minimize the risk associated with meeting financial obligations and continued operational needs under adverse conditions.

Debt Service Reserve: Wastewater utilities that have issued debt to pay for capital assets will often have required reserves that are specifically defined to meet the legal covenants of the debt. Normally, debt service reserve represents an amount equal to one full annual loan payment and can be accumulated to this level over a period of five to ten years. Debt reserves have been funded for this note.

In 1998, CFB entered into an agreement with the Association of Bay Area Governments (ABAG) whereby ABAG issued \$770,000 in revenue bonds to provide resources for the district to acquire and construct capital improvements to the wastewater system. Annual interest on the bond accrues at varying rates between 3.75 percent and 5.30 percent. Interest payments are due semi-annually and principal payments annually. At June 30,

2015, the balance on the bond was \$210,000. This analysis assumes any required debt reserve has already been funded. This debt will be paid in full FY 2018/2019.

Operating Reserve: Operating reserves are established to provide the utility with the ability to withstand short term cash-flow fluctuations. There can be a significant length of time between when a system provides a service and when a customer pays for that service. In addition, a system's cash flow can be affected by weather and seasonal demand patterns. A 45-day operating reserve is a frequently used industry norm. Because of potential delays in collecting payment many utilities attempt to keep an amount of cash equal to at least 45 days or one-eighth of their annual cash operating and maintenance (O&M) expenses in an operating reserve to mitigate potential cash flow problems.

CFB's budget for fiscal year ending June 30, 2017, projected operating costs of \$2,106,854 plus debt service. According to The Statement of Net Position on June 30, 2015, the Wastewater Enterprise had cash in bank balance of \$1,429,065. The operating reserve is funded each year at 25 percent of the prior year's operating costs.

Emergency Reserve: In addition to operating reserves, emergency reserves are an important tool for financial sustainability. Emergency reserves are intended to help utilities deal with short-term emergencies which arise from time to time, such as main breaks or pump failures. The appropriate amount of emergency reserves will vary greatly with the size of the utilities and should depend on major infrastructure assets. An emergency reserve is intended to fund the immediate replacement or reconstruction of the system's single most critical asset; an asset whose failure will result in an immediate water outage or threat to public safety. This analysis assumes an emergency reserve of \$100,000 has already been established.

Capital Improvement Reserve: A capital improvement reserve (also called a repair and replacement reserve) is intended to be used for replacing system assets that have become worn out or obsolete. Annual depreciation is frequently used to estimate the minimum level of funding for this capital reserve, but it is important to understand that depreciation expense is an accounting concept for estimating the decline in useful life of an asset and does not represent the current replacement cost of that asset. As an example, a brand new system with a construction cost of \$1 million and a service life of 100 years should (in theory) be setting aside \$10,000 per year to fully capitalize the replacement cost of the infrastructure as it wears out. Many smaller systems find this to be impossible because of the effect on rates, which explains the large number of small systems that are falling into disrepair.

To initiate a capital improvement plan (CIP), a small water or sewer system will start with a list of assets that includes the remaining service life, theoretical replacement costs in today's dollars and the remaining service life. It then calculates the monthly and annual reserve that must be collected from each customer to fully capitalize the replacement cost of each asset. In reality, the assets will fail and be replaced gradually, but the replacement cost of water system assets is often a shock to small systems who are struggling to keep rates reasonable.

One alternative method is to set-aside an annual amount equal to one-to-two percent of the total original cost asset value of the utility's property. Larger systems often have sufficient non-operating revenue to fund these reserve levels without affecting rates, but smaller systems often do not, leaving them to fund their CIP reserves from rates alone. An alternative method is to set-aside sufficient reserve funds to cover 100 percent of the cost of replacing short-lived assets, such as well pumps, electronic controls, vehicles, etc.

CFB's FY 2015 -2016 budget report states, "Each year, all unrestricted fund balance in the Wastewater Enterprise Fund in excess of 25 percent of the prior year's operating expenditures is transferred to the Capital Reserve. The Improvement District Board periodically reviews and updates its reserve policy and budgeted reserve amounts to ensure that the Wastewater Enterprise has sufficient resources to adequately provide for capital projects and unforeseen emergencies." The equipment schedule indicates total purchase costs of \$14,050,207 for the sewer plant, collection system, disposal facilities, subsurface lines and other equipment. To fund 35 percent of the equipment replacement costs over the life of the equipment, assuming a two (2) percent past inflationary factor and a three (3) percent future inflationary factor, a CIP reserve amount of \$1,018,733 should be funded annually.

**Affordability
Index:**

The affordability index measures the burden of costs passed from the utility to the users against the median household income (MHI) for the area and is used by funding agencies to determine grant and low interest loan eligibility. Many funding organizations look for an affordability ratio of 1.5 percent before approving grant money to low income communities. According to 2014 ACS data, CFB had an MHI of \$34,057. CFB's current base wastewater rate is \$26.46 monthly plus \$6.69 per 100 cubic feet of water usage. Assuming an average single family residential usage of 300 cubic feet per month, the average single family residential bill will be \$46.53 per month, or 1.64 percent of the MHI.

Affordability Index = average annual residential bill for wastewater/annual MHI.

**Wastewater
Rate Analysis:**

Rate Structures

The following are types of rates structures common to wastewater systems:

- **Uniform Flat Rate:** All customers pay the same amount. This type of rate is easiest to administer; however, it may not be fair to those producing less waste.
- **Equivalent Unit (EU):** In this type of structure, customers are charged by the number of EUs determined by the type or size of the specific class of connection. An equivalent unit is established, usually based on a single family dwelling, such as one kitchen and one bathroom. The fee for one equivalent unit is determined. Each customer is charged based on the number of EU's have been assigned to his or her connection. For example a single family residence may be assigned one EU while a laundromat which, by the nature of its business, may be assigned four EU's.
- **Biochemical Oxygen Demand (BOD):** BOD is the amount of dissolved oxygen needed by aerobic biological organisms in a body of water to break down organic

material present. In this type of rate structure the rate is based on waste strength commonly associated with a particular type of connection and the necessary effort to break down the waste.

- **Water Usage:** Wastewater rates are often based on water usage. The assumption in this case is that the more water that is used by a connection, the more wastewater that connection will produce. With this type of rate a base rate is established and a commodity rate is charged base on water usage.

CFB's current rate structure is a flat base rate plus a commodity rate based on water usage. One unit is charged for every 100 cubic of water used. All connections are charged a base rate of \$26.46 per month and a unit charge for water usage. The per unit commodity charge is based on the user classification. Table 1 on the next page illustrates CFB's current wastewater rate projected annual revenue and projected costs, assuming a four (4) percent annual inflation rate over a five year period with no change in the number of connections. The analysis also assumes water usage consistent with the 2014/2015 amounts.

CFB implemented a rate schedule on September 1, 2014, that includes annual increases in both the base rate and the per unit rate through FYE 2018. Because an error in cost allocations calculations was discovered in 2016, the 2016/2017 rate increase was not implemented. Based on the information provided, the 2015/2016 rate structure should provide adequate revenue for the utility to cover the true costs of providing service until FY 2017/2018 and then again until 2019/2020. For those fiscal years the previously calculated rate schedule should be followed. It is suggested the excess revenues be utilized as additional CIP reserve funding. Additional construction is planned and expected to be completed after FY 2018. When the new structures have been completed, it is expected a rate adjustment will be necessary, possibly instead of the 2019/2020 rate recommended in this analysis.

Additional Rate Structure Information:

Fixed charges are billed monthly per dwelling and/or commercial unit. The number of dwellings per account is based on the City of Fort Bragg's building records. Variable charges are billed monthly based on monthly water consumption for all accounts except Single Family Residences. Variable charges for Single Family Residences are billed monthly based on a winter average that is calculated once annually in July, based on water usage between November and February. The average water usage determines how many sewer units each single family residence is billed per month for the year. All new customers are billed the minimum variable sewer charge of two (2) units until a winter average can be established. Winter averages calculated below the minimum variable charge of two (2) units (200 cubic feet) are billed for the minimum two (2) unit variable sewer charges.

Table 1: Current Rate Structure

Adopted Water Rates as of September 1, 2014				
Customer Class	FY 2014/2015	FY 2015/2016	FY 2016/2017	FY 2017/2018
Fixed Charges:				
Residential:				
Single Family Residential	\$ 24.50	\$ 26.46	\$ 28.05	\$ 29.73
Multi-Family Residential	\$ 24.50	\$ 26.46	\$ 28.05	\$ 29.73
Mobile Home Parks	\$ 24.50	\$ 26.46	\$ 28.05	\$ 29.73
Commercial:				
Low Strength	\$ 24.50	\$ 26.46	\$ 28.05	\$ 29.73
Medium Strength	\$ 24.50	\$ 26.46	\$ 28.05	\$ 29.73
High Strength	\$ 24.50	\$ 26.46	\$ 28.05	\$ 29.73
Variable Charges (per 100 CF):				
Residential:				
Single Family Residential	\$ 6.19	\$ 6.69	\$ 7.09	\$ 7.52
Multi-Family Residential	\$ 2.78	\$ 3.00	\$ 3.18	\$ 3.38
Mobile Home Parks	\$ 0.20	\$ 0.21	\$ 0.22	\$ 0.24
Commercial:				
Low Strength	\$ 8.40	\$ 9.07	\$ 9.61	\$ 10.19
Medium Strength	\$ 8.63	\$ 9.33	\$ 9.89	\$ 10.48
High Strength	\$ 21.52	\$ 23.24	\$ 24.64	\$ 26.12

Table 2: Recommended Revised Rate Structure

Waste Water Rates						
Recommended Revised Rate Structure						
Customer Class	2015/2016	2016/2017	2017/2018	2018/2019	2019/2020	
Fixed Charges: Billed Monthly Per Dwelling and/or Commercial Unit						
Residential:						
Single Family Residential	\$ 26.46	\$ 26.46	\$ 28.05	\$ 28.05	\$ 29.73	
Multi-Family Residential	\$ 26.46	\$ 26.46	\$ 28.05	\$ 28.05	\$ 29.73	
Mobile Home Parks	\$ 26.46	\$ 26.46	\$ 28.05	\$ 28.05	\$ 29.73	
Commercial:						
Low Strength	\$ 26.46	\$ 26.46	\$ 28.05	\$ 28.05	\$ 29.73	
Medium Strength	\$ 26.46	\$ 26.46	\$ 28.05	\$ 28.05	\$ 29.73	
High Strength	\$ 26.46	\$ 26.46	\$ 28.05	\$ 28.05	\$ 29.73	
July. New Customers pay minimum variable sewer charge of 2 units until winter						
Residential:						
Single Family Residential	\$ 6.69	\$ 6.69	\$ 7.09	\$ 7.09	\$ 7.52	
Multi-Family Residential	\$ 3.00	\$ 3.00	\$ 3.18	\$ 3.18	\$ 3.38	
Mobile Home Parks	\$ 0.21	\$ 0.21	\$ 0.22	\$ 0.22	\$ 0.24	
Commercial:						
Low Strength	\$ 9.07	\$ 9.07	\$ 9.61	\$ 9.61	\$ 10.19	
Medium Strength	\$ 9.33	\$ 9.33	\$ 9.89	\$ 9.89	\$ 10.48	
High Strength	\$ 23.24	\$ 23.24	\$ 24.64	\$ 24.64	\$ 26.12	

Table 3: Current Budget

City of Fort Bragg Sewer System	Sewer Projected FYE 6/30/2017
Total Personnel Services	\$ 1,206,454
Auditing/Accounting	\$ 9,450
Laboratory	\$ 28,400
Professional Services	\$ 121,000
Dues/Memberships	\$ 2,300
Chemicals	\$ 60,000
Equipment Repair/Maintenance	\$ 73,000
Building Repair/Maintenance	\$ 5,000
Laundry/Cleaning/Janitorial	\$ 2,000
Liability Deductible	\$ 1,000
Property Premiums	\$ 18,000
Property Deductible	\$ 1,000
Telephone/Communications	\$ 750
Training/Travel Reimbursement	\$ 7,500
Postage	\$ 10,000
Licenses/Permits	\$ 14,700
General Supplies	\$ 10,500
Medical/Safety Supplies	\$ 5,500
Boot Expense	\$ 1,800
Small Tools/Equipment	\$ 10,500
Utilities	\$ 120,000
Books/Subscriptions	\$ 300
Bad Debt Sent to Collections	\$ 3,000
Total Operating Expenses	\$ 1,712,154
Plus Allocations:	
Fleet Services	\$ 43,166
IT Int. Service Fund	\$ 68,655
Facilities Maintenance	\$ 81,025
Administrative Costs	\$ 201,854
Total Allocations	\$ 394,700
Total Operating Budget	\$ 2,106,854
Plus Debt Service:	
Principal	\$ 50,000
Interest	\$ 7,155
Fees	\$ 2,200
Total Debt Service	\$ 59,355
Total Operating Budget Plus Debt Service	\$ 2,166,209
Annual CIP Reserve	\$ 1,018,733
Total Annual Budget	\$ 3,184,942

Table 4: Projected Revenues and Budgeted Costs

City of Fort Bragg Sewer Services							
Customer Class	Average # of Connections (2014/2015)	Monthly Rate 2016/17	Annual Revenue 2016/2017	Monthly Rate 2017/2018 & 2018/2019	Annual Revenue 2017/2018 & 2018/2019	Monthly Rate 2019/2020	Annual Revenue 2019/2020
Residential:							
Single Family Residential (Winter Average)	2,093	\$ 26.46	\$ 664,569.36	\$ 28.05	\$ 704,503.80	\$ 29.73	\$ 746,698.68
Single Family Residential - Outside City Limits (Winter Average)	51	\$ 26.46	\$ 16,193.52	\$ 28.05	\$ 17,166.60	\$ 29.73	\$ 18,194.76
Multi-Family Residential	186	\$ 26.46	\$ 59,058.72	\$ 28.05	\$ 62,607.60	\$ 29.73	\$ 66,357.36
Multi-Family Residential - Outside City Limits	2	\$ 26.46	\$ 635.04	\$ 28.05	\$ 673.20	\$ 29.73	\$ 713.52
Mobile Home Parks	5	\$ 26.46	\$ 1,587.60	\$ 28.05	\$ 1,683.00	\$ 29.73	\$ 1,783.80
Mobile Home Parks - Outside City Limits	1	\$ 26.46	\$ 317.52	\$ 28.05	\$ 336.60	\$ 29.73	\$ 356.76
Fairgrounds							
Little League Park							
Public Use:							
Low Strength - Inside City Limits	11	\$ 26.46	\$ 3,492.72	\$ 28.05	\$ 3,702.60	\$ 29.73	\$ 3,924.36
Medium Strength - Inside City Limits	39	\$ 26.46	\$ 12,383.28	\$ 28.05	\$ 13,127.40	\$ 29.73	\$ 13,913.64
Commercial:							
Low Strength - Inside City Limits	11	\$ 26.46	\$ 3,492.72	\$ 28.05	\$ 3,702.60	\$ 29.73	\$ 3,924.36
Medium Strength - Commercial Inside City Limits	318	\$ 26.46	\$ 100,971.36	\$ 28.05	\$ 107,038.80	\$ 29.73	\$ 113,449.68
Medium Strength Commercial - Outside City Limits	23	\$ 26.46	\$ 7,302.96	\$ 28.05	\$ 7,741.80	\$ 29.73	\$ 8,205.48
High Strength - Inside City Limits	57	\$ 26.46	\$ 18,098.64	\$ 28.05	\$ 19,186.20	\$ 29.73	\$ 20,335.32
High Strength - Outside City Limits	12	\$ 26.46	\$ 3,836.59	\$ 28.05	\$ 4,067.14	\$ 29.73	\$ 4,310.73
Total Connections & Base Rate Revenue	2,809		\$ 891,940		\$ 945,537		\$ 1,002,168
	# Annual Units (CF) 2014/2015	Rate Per Unit (100 CF) 2016/2017	Annual Revenue 2016/2017	Rate Per Unit (100 CF) 2017/2018	Annual Revenue 2017/2018	Rate Per Unit (100 Cubic Feet) 2018/2019	Annual Revenue 2018/2019
Commodity Charges							
Residential:							
Single Family Residential (Winter Average)	100,614	6.69	\$ 673,108	\$ 7.09	\$ 713,353	\$ 7.52	\$ 756,617
Single Family Residential - Outside City Limits Winter Average)	2,448	6.69	\$ 16,377	\$ 7.09	\$ 17,356	\$ 7.52	\$ 18,409
Multi-Family Residential	33,168	3.00	\$ 99,504	\$ 3.18	\$ 105,474	\$ 3.38	\$ 112,108
Multi-Family Residential - Outside City Limits	182	3.00	\$ 546	\$ 3.18	\$ 579	\$ 3.38	\$ 615
Mobile Home Parks	6,649	0.21	\$ 1,396	\$ 0.22	\$ 1,463	\$ 0.24	\$ 1,596
Mobile Home Parks - Outside City Limits	646	0.21	\$ 136	\$ 0.22	\$ 142	\$ 0.24	\$ 155
Fairgrounds	-						
Little League Park	-						
Public Use:							
Low Strength - Inside City Limits	3,070	\$ 9.07	\$ 27,845	\$ 9.61	\$ 29,503	\$ 10.19	\$ 31,283
Medium Strength - Inside City Limits	4,549	\$ 9.33	\$ 42,442	\$ 9.89	\$ 44,990	\$ 10.48	\$ 47,674
Commercial:							
Low Strength - Inside City Limits	16,053	\$ 9.07	\$ 145,601	\$ 9.61	\$ 154,269	\$ 10.19	\$ 163,580
Medium Strength - Commercial Inside City Limits	47,996	\$ 9.33	\$ 447,803	\$ 9.89	\$ 474,680	\$ 10.48	\$ 502,998
Medium Strength Commercial - Outside City Limits	5,209	\$ 9.33	\$ 48,600	\$ 9.89	\$ 51,517	\$ 10.48	\$ 54,590
High Strength - Inside City Limits	27,516	\$ 23.24	\$ 639,472	\$ 24.64	\$ 677,994	\$ 26.12	\$ 718,718
High Strength - Outside City Limits	6,230	\$ 23.24	\$ 144,785	\$ 24.64	\$ 153,507	\$ 26.12	\$ 162,728
Total Billed Usage and Revenue from Commodity Charges	254,330		\$ 2,287,614		\$ 2,424,828		\$ 2,571,071
	FYE 6/30/2017	FYE 6/30/2018	FYE 6/30/2019	FYE 6/30/2020	FYE 6/30/2021		
Revenue From Base Rate	\$ 891,940	\$ 945,537	\$ 945,537	\$ 1,002,168	\$ 1,002,168		
Revenue From Commodity Charges	\$ 2,287,614	\$ 2,424,828	\$ 2,424,828	\$ 2,571,071	\$ 2,571,071		
Total Revenue	\$ 3,179,554	\$ 3,370,365	\$ 3,370,365	\$ 3,573,239	\$ 3,573,239		
Less:							
Total yearly required reserve fund	\$ 1,018,733	\$ 1,018,733	\$ 1,018,733	\$ 1,018,733	\$ 1,018,733		
Operating Budget (assumes 3% Annual Inflation)	\$ 2,106,854	\$ 2,191,128	\$ 2,278,773	\$ 2,369,924	\$ 2,464,721		
Debt Service	\$ 59,355	\$ 59,355	\$ 59,355	\$ -	\$ -		
Total Costs	\$ 3,184,942	\$ 3,269,216	\$ 3,356,861	\$ 3,388,657	\$ 3,483,454		
Net Revenue Over/(Under) Costs	\$ (5,388)	\$ 101,149	\$ 13,504	\$ 184,582	\$ 89,785		

**Conclusion
and Key
Points:**

- Successful utilities are those that strive to be transparent. In day-to-day operations, CFB should strive to promote its services (highlights and the low points), and continuously educate its customers on why it is necessary to raise and adjust rates.
- The ability of the current rate structure to generate adequate revenue will depend on maintaining a vigorous collection and shut-off policy to keep delinquent accounts at a minimum.
- In order to achieve and maintain long term viability, water and wastewater systems should review rates annually or no less than a minimum of every two years. Keeping track of customer seasonal and annual water demands will help determine operation needs, budget forecasts and rate adjustments.
- CFB is encouraged to establish policies for reserve accounts as recommended above and distribute existing unrestricted reserves accordingly. CIP reserves should be moved to and maintained in the highest interest bearing accounts available to offset inflation.
- CFB should review the rates when the construction has been completed and the new equipment has been put into service to assure adequate CIP reserves are being maintained.

LOCATION MAP

