



**CITY OF FORT BRAGG**

**WATER, WASTEWATER AND STORM DRAIN RATE STUDY**

**January 2012**

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### A. WATER UTILITY

1. FINANCIAL ANALYSIS AND REVENUE REQUIREMENTS
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3. RATE DESIGN ANALYSIS

**B. SEWER UTILITY**

1. FINANCIAL ANALYSIS AND REVENUE REQUIREMENTS
2. COST-OF-SERVICE ANALYSIS
3. RATE DESIGN ANALYSIS

**C. STORM DRAIN UTILITY**

1. FINANCIAL ANALYSIS AND REVENUE REQUIREMENTS
2. COST-OF-SERVICE ANALYSIS
3. RATE DESIGN ANALYSIS

## SECTION 1. SUMMARY OF FINDINGS AND RECOMMENDATIONS

This rate study has prepared detailed analyses of financial projections, cost-of-service based cost allocations, and rate design alternatives under the direction of City staff and the financial advisory committee. The methodologies, assumptions, and results are presented in Sections 2 through 6, while more detailed tables and figures are provided in Appendices A, B and C. The key findings and recommendations are summarized below.

### A. WATER UTILITY

#### Findings –

- The utility is currently running a structural deficit, meaning annual revenues are not sufficient to cover current operating expenditures, debt service, or make contributions towards capital improvement costs. For FY 2012/13 the amount of the deficit is \$760,000 and in FY 2013/14 the deficit is projected to be \$152,000.
- The reserves are insufficient to meet industry standards for prudent utility fund management.
- The cost of service analysis indicates that more revenue should be collected from multi-family, mobile home parks and non-residential customers.

#### Recommendations –

- Adopt Rate Alternative 2, which includes a three-tiered volumetric rate structure for single-family customers, and larger fixed monthly charges for commercial customers better reflecting their capacity demands on the water system.
- Adopt the proposed annual rate increases of 5% for the next three years, followed by two years of 10% rate increases.
- Adopt target reserve levels as follows: Operating Reserves equal to 90 days of O&M expenses, Capital Reserve equal to 3% of net assets, and a Debt Reserve equal to one year of debt service payments for all outstanding debt.
- Proceed with Prop 218 public hearings and noticing in order to adopt the recommended new water rates for the 2013-14 fiscal year. Most utilities today find that adopting three years of rates is preferable, but the City could adopt up to five years of the proposed/recommended rates.

### B. SEWER UTILITY

#### Findings –

- The annual rate revenue is currently sufficient to cover annual operating expenditures and debt service. However, it does not allow for funding of necessary capital improvement costs; without implementing rate increases, the annual rate revenue is resulting in a structural deficit.
- Independent of rate increases, the sewer utility can only fund approximately \$100,000 of the \$664,000 in planned capital expenditures for FY 2013/14.
- The utility is not holding sufficient reserves and needs to build up reserves to a level that is consistent with prudent utility fund management.
- The cost of service analysis indicates that, in terms of the percentage of total revenue, more revenue should be collected from commercial customers and less from residential customers, particularly multi-family and mobile home customers.
- The seven commercial customer classes are somewhat inefficient and may not represent the best rate structure for commercial customers. This could be reduced to fewer commercial classes in order to make these rates simpler to understand, administer, and are probably more equitable.

#### Recommendations –

- Reduce the commercial customer classes from seven down to three, based on more commonly used customer classes of low-, medium- and high-strength.

- Adopt Rate Alternative 3, which phases-in the changes between customer classes over a two-year period, maintains the current percentage of rate revenue from fixed charges, and uses the same base charge for all customers.
- Adopt annual rate increases of 8% for the next three years and 6% for years four and five.
- Proceed with Prop 218 public hearings and noticing in order to adopt the recommended new water rates for the 2013-14 fiscal year, following the same procedures as for the water utility.
- Adopt the same target reserve levels as recommended for the water utility.

### **Storm Drain Utility**

#### **Findings –**

- The City has approximately \$200,000 in annual operating costs, repairs and maintenance expenses for the Storm Drain system that is currently being funded through the City's general fund, and is more appropriately funded directly by user fees.
- There are over \$6.75 million in capital projects needed for the storm drain system according to the master plan, for which the City currently has no specific revenue source.
- Most cities in California have adopted or are considering adopting some form of user charges to cover storm drain system costs, and this appears to be a reasonable and advisable approach for the City to use to fund future storm drain costs.

#### **Recommendations –**

- Adopt new storm drain user fees, using one of two basic funding approaches (NBS is indifferent to which approach is used – both meet the basic financial objectives):
  - A monthly user fee of \$5.45 per single-family and commercial customer; this fee would remain the same (no increases) over the next 5 years, or
  - Adopt initial monthly user fees of \$4.21 per single-family and commercial customer; this fee would increase each year in proportion to annual revenue requirements, ending with fees of \$5.96 in the last year of a five-year period.
- Proceed with Prop 218 public hearings and noticing in order to adopt the selected new storm drain rates, beginning in the 2013-14 fiscal year, following the same procedures as for the water and sewer utilities.

### **Fats, Oils and Grease (FOG) and Backflow Programs**

#### **Findings –**

- The City incurs minimal costs to annually monitor compliance of approximately 70 commercial customers with grease traps. The annual costs of the backflow program are even smaller.
- The FOG program monitoring costs could easily be collected from existing program participants.
- Most cities do not have rates or fees for monitoring backflow devices.

#### **Recommendations –**

- Adopt new annual FOG user fee of \$102 per location in order to cover City staff time and related costs for this program.
- Take no action related to the City's current backflow monitoring program, as the costs are minimal and this is a service that protects the potable water quality on a City-wide basis, providing benefits to all customers.

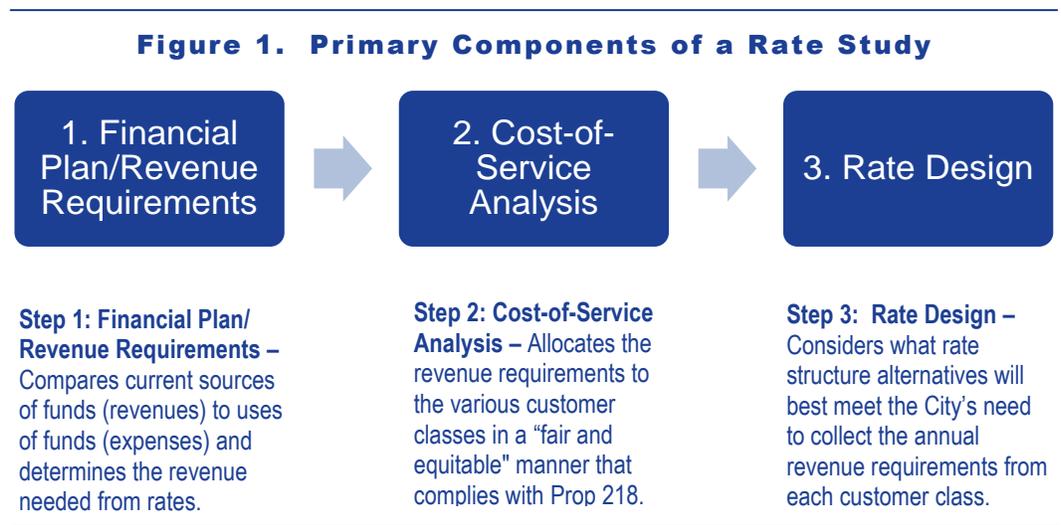
## SECTION 2. INTRODUCTION TO THE STUDY

### A. OVERVIEW OF THE RATE STUDY

**Background** – The last analysis performed for Fort Bragg’s water and sewer rates was in 2008, and the City needed to update that analysis as well as evaluate alternative rate structures along with several other rate-related issues. To accomplish these objectives, the City retained NBS in April 2012 to begin preparing a comprehensive rate study addressing water, wastewater, and storm drainage rates, plus various other charges<sup>1</sup>.

As a part of this study, NBS evaluated projected revenues and expenditures, net revenue requirements, cost-of-service analyses, and projected new rates for the water, wastewater and storm drainage utilities based on well-accepted industry practices. The water and wastewater rate analyses reviewed rate structure alternatives; the current sewer customer classes were also evaluated with the intent of improving the overall efficiency and equity of the rates. This report presents an overview of the methodologies and data used and the various financial and rate alternatives developed.

**Rate Study Components** – A comprehensive utility rate study typically analyzes three components: the utility’s overall revenue requirements, the cost-of-service for each customer class, and the appropriateness of the rate structure design. These components are summarized in Figure 1.



The water rate analysis provides these three components but also incorporated additional considerations, such as revenue stability, minimizing “rate-shock” (e.g., a phased-in approach is recommended to minimize changes from year-to-year), and concerns about the perceived equity among different types of customers. The proposed inclining block rate structure for single-family customers consists of three consumption tiers, and a single commodity rate for all other customer classes. The adjusted rate structure was determined based on industry standards and cost-of-service principles. The following are some of the basic components included in this analysis:

### B. KEY OBJECTIVES

The City’s over-riding mandates for providing water, wastewater, and storm drainage services are to: (1) provide its customers with a safe and reliable water supply, (2) protect public health through effective

<sup>1</sup> References to the City of Fort Bragg include the City’s Municipal Improvement District No. 1, which is the wastewater entity for all sewer related issues addressed in this study.

collection, treatment, and disposal of wastewater effluent, and (3) protect public safety by providing storm drainage protection. However, other important objectives with respect to this rate study include:

- Providing these services at a fair and cost-effective price,
- Providing revenues that are sufficient and stable,
- Developing rates that are equitable and fair to customers,
- Adequately funding repair and replacement (R&R) and capital improvement projects,
- Maintaining adequate financial health, including sufficient reserves, meeting debt service coverage ratios, and observing appropriate financial management policies.

NBS believes this study and our recommendations meet these key objectives.

### C. RATE DESIGN CRITERIA, TERMINOLOGY AND CONSIDERATIONS

#### Rate Design Criteria

Several criteria should be considered in setting rates and developing sound rate structures. The fundamentals of this process have been documented in a number of rate-setting manuals. For example, the foundation for evaluating rate structures is generally credited to James C. Bonbright in the *Principles of Public Utility Rates*<sup>2</sup> which outlines pricing policies, theories, and economic concepts along with various rate designs. The other common industry standard is the American Water Works Association's (AWWA) Manual M1<sup>3</sup>. A simplified list of the attributes of a sound rate structure, which apply to both water and sewer rates, is provided below:

- Rates should be easy to understand from the customer's perspective,
- Rates should be easy to administer from the utility's perspective,
- Rates should promote the efficient allocation of the resource,
- Rate should be equitable and non-discriminating (i.e., cost based),
- There should be continuity in the rate making philosophy over time,
- Other utility policies should be considered (e.g., encouraging conservation, economic development, etc.),
- Rates should consider the customer's ability to pay,
- Rates should provide month to month and year to year revenue stability.

It is important for the water utility to send proper price signals to its customers about the actual cost of their water usage, and the same is true for sewer utilities. This objective is typically addressed through both the magnitude of the rates and design of the rate structure. In other words, both the amount of revenue collected and the way in which the revenue is collected from the customers are important.

#### Rate Structure Terminology

The starting point in considering rate structures is the relationship between fixed costs and variable costs. Fixed costs typically do not vary with the amount of water produced or the amount of effluent handled by a sewer system. Debt service is an example of a fixed cost. In contrast, variable costs such as the cost of chemicals and electricity tend to change with the quantity of water produced (or effluent handled). Most rate structures contain a fixed or minimum charge, and a volumetric charge.

The City's rate issues are not necessarily the same as those typically addressed in California (particularly those in, say Southern California or the Central Valley). For example, the priority for reducing peak

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<sup>2</sup> James C. Bonbright; Albert L. Danielsen and David R. Kamerschen, *Principles of Public Utility Rates*, (Arlington, VA: Public Utilities Report, Inc., Second Edition, 1988), p. 383-384.

<sup>3</sup> *Principles of Water Rates, Fees, and Charges*, Manual of Water Supply Practices, M1, AWWA, fifth edition, 2000.

summer consumption is far less important in Fort Bragg, given its minimal difference between winter- and summer-time average residential usages. However, the following discussion is provided for the purpose of setting the City’s rate within the context of general industry rate-study practices in California.

**Fixed Charges** – Fixed charges can be called base charges, minimum charges, customer charges, meter charges, etc. Although fixed charges are typically a significant percentage of the utility’s overall cost structure, utilities rarely collect 100% of their fixed costs through fixed charges. In addition, customers generally prefer to be charged on a volumetric basis.

Fixed charges for water utilities typically increase by meter size. For example, a customer with a 2" meter may have a fixed meter charge that is eight times greater than the 5/8" or 3/4" meter charges based on the meter’s safe operating capacity.<sup>4</sup> Because a large portion of water utilities’ costs are typically related to meeting capacity requirements, reflecting individual demands for capacity are important in establishing rates for customers.

**Variable (Consumption) Charges** – In contrast, variable costs such as the cost of chemicals and electricity tend to change with the quantity of water produced (or effluent handled). For a water utility, variable charges are generally based on metered consumption and charged on a dollar-per-unit cost (100 cubic feet, or HCF, in the City’s case). They most commonly take the form of three basic rate structures: a uniform charge, inverted (increasing) block charge, and seasonal charges, as seen in Figure 2.

**Figure 2. Overview of Variable Charge Water Rate Structures**

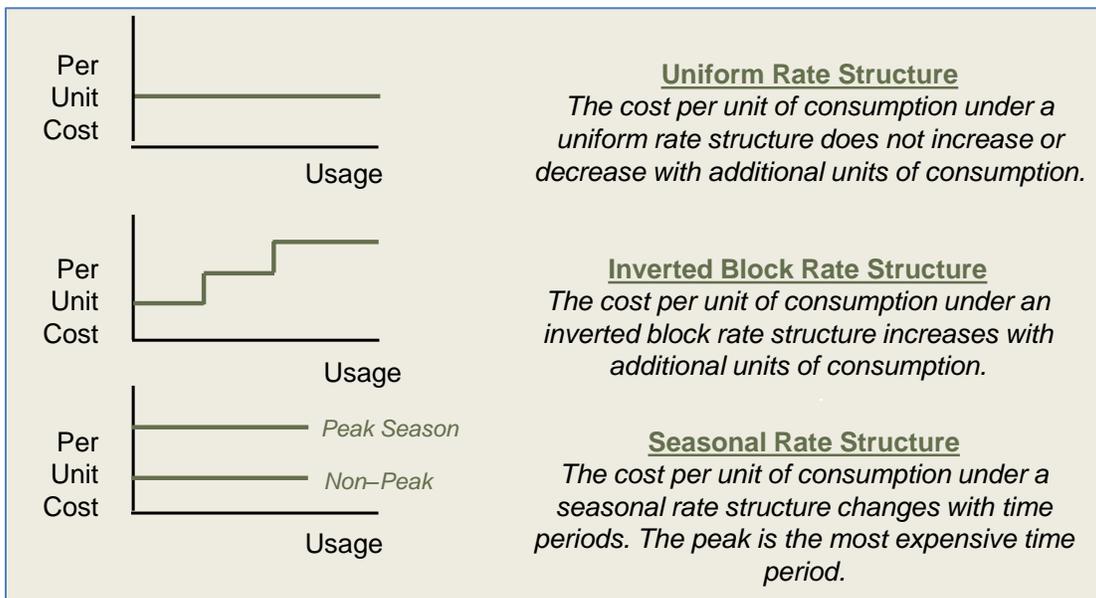


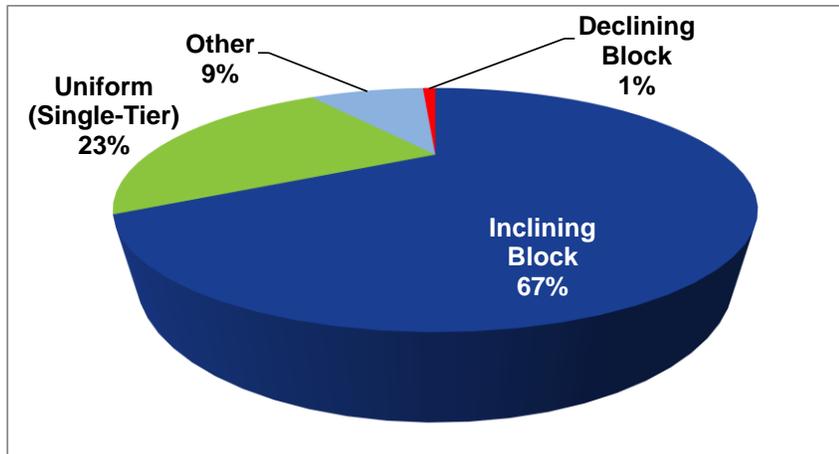
Figure 2 also illustrates the significant variation in the basic philosophy of each of these variable charge rate structures. Under a uniform rate structure, the cost per unit does not change with consumption, and provides a simple and straightforward approach from the perspective of customer understanding and rate administration/billing.

In contrast, an inverted (increasing or tiered) block rate structure attempts to send a price signal to consumers that their consumption costs more as more water is consumed. Finally, a seasonal rate structure is a form of a time-differentiated rate structure in which water consumed in the summer is priced higher than winter water consumption. This structure typically reflects the higher costs associated with peak period usage when water supplies may be constrained.

<sup>4</sup> American Water Works Association, Principles of Water Rates, Fees and Charges – M1 Manual, p. 202.

Figure 3 provides a comparison of the volumetric rate structures, as surveyed by the California-Nevada AWWA 2011 Water Rate Survey<sup>5</sup>.

**Figure 3. Summary of Volumetric Water Rate Structure Survey**



This figure indicates that inclining (inverted/tiered) rate structures are the most predominate, followed by the uniform rate structure. However, across the U.S., volumetric rate structures are split more equally among inclining, declining, and uniform rate structures. The predominance of inclining block rate structures in California reflects the state's water resource constraints and focus on conservation and efficient use.

**Current Trends in Rate Design** – The follow is a brief summary of the current trends in water and sewer rates in California and the industry in general.

*Trends in Water Rates* - The California Urban Water Conservation Council (CUWCC) was created to promote more efficient water use across California. CUWCC's goal is to integrate urban water conservation Best Management Practices (BMPs) into the planning and management of California's water agencies/utilities.

CUWCC notes that there currently is no industry benchmark to determine whether or not a water utility's rate structure is conservation-oriented. However, CUWCC's best management practices on pricing (BMP #4) define a conservation-based rate structure as one that, "...provides economic incentives (a price signal) to customers to use water efficiently." It also notes the following volumetric rate designs are potentially consistent with this definition:

- Uniform rates – the volumetric rate is constant, regardless of the quantity consumed
- Seasonal rates – the volumetric rate reflects seasonal variation in water delivery costs
- Tiered rates – the volumetric rate increases as the quantity used increases
- Allocation-based (water budget) rates – consumption-based tiers and respective volumetric rates are based on water use norms and water delivery costs established by the utility

In essence, the CUWCC recommends using "A quantifiable performance target of 70% that defines a minimum percentage of water sales revenue from volumetric rates."<sup>6</sup> However, this recommendation and BMP #4, are currently under review, and it is often noted that this "one-size fits all" approach to water rate

<sup>5</sup> 2011 California-Nevada Water Rate Survey, Raftelis Financial Consultants, Inc./California-Nevada Section, American Water Works Association (AWWA).

<sup>6</sup> *Revising BMP 11 (Conservation Pricing)*, Memo to All Signatories to the MOU, from CUWCC Executive Director, April 9, 2007.

design in California is inappropriate, given the great variations between the specific needs and characteristics of different regions within California. This is particularly true of Northern Coastal communities compared to Central and Southern California communities.

*Trends in Sewer Rates* – As recently as 10 to 20 years ago, sewer rate structures were largely all fixed charges, meaning they included no variable charges. This is been rapidly changing in California, with many communities switching to rate structures that include a volumetric charge for both residential and commercial customers. In particular, there is a strong trend towards single-family residential rates that incorporate a volumetric rate based on winter-average water consumption, as are Fort Bragg’s current sewer rates.

**PROPOSITION 218** – Proposition 218, which was adopted in 1996 and dubbed the “citizen’s right to vote on new taxes,” provides the opportunity for the public to vote on changes to any “property-related fees.” Following passage of this law, various court decisions have defined water and sewer service charges to be property-related fees.<sup>7</sup> Even if proposed service charges are revenue-neutral (i.e., not intended to increase the overall amount of revenue collected), a change in the rate structure (e.g., from a uniform rate to a multi-tiered rate for single family residential customers) is subject to compliance with Proposition 218 mandates.

Proposition 218 essentially requires a utility to provide public notification of proposed rate changes, inform property owners/customers of the protest mechanism and the time frame for response, and provide a public hearing on the proposed rates. The public hearing must be held “not less than 45 days after the mailing of the notice.” The City should consult their legal counsel regarding the details of their notification, protest ballots, and public hearing process.

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<sup>7</sup> For example, *Bighorn-Desert View Water Agency v. Verjil* (2006), *Richmond v. Shasta Community Services District* (2004), and *Apartment Association of Los Angeles County, Inc. v. City of Los Angeles* (2001).

## SECTION 3. WATER RATE STUDY

### A. KEY WATER RATE STUDY ISSUES

The water rate analysis was undertaken with a few specific objectives, including:

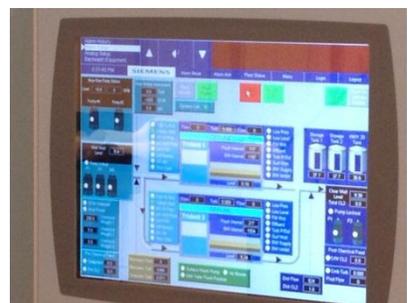
- Generating additional revenue needed to meet projected funding requirements,
- Provide revenue stability,
- Ensure equity among customer classes,
- Reflect projected water consumption and likely water conservation.

NBS has developed two water rate alternatives, plus the continued use of the current rate structure. All rate structure alternatives were developed using industry standards and cost-of-service principles. The fixed and volume-based charges were calculated based on the net revenue requirements, number of customer accounts, water consumption, and other City-provided information. The following are some of the basic components included in this analysis:

- **Unit Costs:** The water revenue requirements were “functionalized” into three categories: (1) customer service costs; (2) fixed capacity costs; and (3) variable (or volume-based) costs. Unit costs for each of these functions were determined based on allocations to functional areas, water consumption, peaking factors and number of accounts by meter size and customer class.<sup>8</sup>
- **Revenue Requirements by Customer Class:** The total revenue that should be collected from each customer class was determined using the unit costs and the total units that each class uses. For example, customer costs are allocated based on number of accounts, while volume-related costs are allocated based on the water consumption for each class by meter size.
- **Fixed vs. Variable Costs and Rates:** The revenue requirements for each customer class are collected through a combination of fixed monthly charges and variable rates. Fixed costs, such as customer service, billing, and general administrative costs, are typically collected through a fixed monthly charge, while variable costs such as pumping costs and water supply are typically collected through volumetric charges.

### B. REVENUE REQUIREMENTS – WATER UTILITY

The City’s water utility’s revenue requirements consist of the various costs necessary for operating, maintaining, and improving the water supply, treatment, and distribution facilities. The three photos shown below are representative of the City’s water treatment facilities.



<sup>8</sup> The California Urban Water Conservation Council recommends recovering 70 percent of rate revenue through volume-based rates. However, water utilities generally develop their own policy and conservation objectives.

### Three Recent Photos of the City’s Water Treatment Facilities

It is important for the City to follow sound financial management practices. This includes maintaining reasonable reserves in order to handle emergencies, fund working capital, and maintain a good credit rating. NBS recommends that the City accumulate reserves in order to meet the following targets: about three months (or 25 percent) of annual operating expenses, 3% of total net assets of the utility for capital repair and replacement needs, and reserve that would sufficiently satisfy debt reserve requirement for existing and anticipated debt, which is generally equal to the annual debt service payment due on outstanding bonds.

As described earlier, rate increases are governed by the need to meet operating and capital costs, maintain adequate debt coverage, and build reserve funds. The current state of the City’s water utility, with regard to these objectives is as follows:

- **Meeting Operating Costs:** For Fiscal Years 2013/14 through 2017/18, the net revenue requirement (total annual expenses plus debt service and rate-funded capital costs, less non-rate revenues) is estimated to be approximately \$2.4 million to \$2.9 million.
- **Maintaining Adequate Debt-Service Coverage:** The City is legally required to maintain a debt service coverage ratio of at least 1.2 for the outstanding 2003 Series B Revenue Bonds for the water utility. This analysis also assumes that the City will incur new debt in order to fund all planned capital expenses, and that the City will be required to maintain a debt service coverage rate of 1.25 for the new issue(s). Under the proposed financial plan and rate adjustments, it is estimated that the City will meet the 1.25 debt coverage ratio by the end of FY 2017/18. The benefit of maintaining a higher coverage ratio is that it strengthens the City’s credit rating, which can help lower the interest rates for debt-funded capital projects and reduce annual debt service payments. Neglecting to implement appropriate rate increases in the next three years will result in a ratio that is significantly less than 1.20.
- **Building and Maintaining Reserve Funds:** The City should build and maintain sufficient reserves for the Utility. This study has recommended the following reserve targets:
  - **Operating Reserve** equal to 25% of the Utility’s budgeted annual operating expenses. This reserve target is equal to a two-month (or 90 day) cash cushion for normal operations. An Operating Reserve is intended to promote financial viability in the event of any short-term fluctuation in revenues and/or expenditures. Fluctuations might be caused by weather patterns, the natural inflow and outflow of cash during billing cycles, natural variability in demand-based revenue streams (e.g., variable charges), and – particularly in periods of economic distress – changes or trends in age of receivables.
  - **Capital Reserves** should meet at least 3% of net assets for the utility, which serves simply as a starting point for addressing long-term needs. If ratepayers can generate revenues at this level and pace, they will have reserved a partial cash resource that can be applied toward the future replacement and rehabilitation needs.
  - **Debt Reserve** equal to the reserve requirement for the outstanding 2003 Series B Revenue Bonds and anticipated debt issues factored into this analysis to fund all planned capital projects.

Figure 4 summarizes the sources and uses of funds, including net revenue requirements, for the next five years. A summary of the proposed water utility 10-year financial plan, including revenue requirements, reserve funds, revenue sources, proposed rate increases, and the City’s capital improvement program, is included in Appendix A – Water Rate Study Summary Tables.

Figure 4. Summary of the Revenue Requirements for the Water Utility

SOURCES & USES OF FUNDS - WATER UTILI	Budget	Current	Projected				
	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18
<b>Sources of Water Funds</b>							
Rate Revenue Under Prevailing Rates (1)	\$ 2,147,939	\$ 2,191,100	\$ 2,191,100	\$ 2,191,100	\$ 2,191,100	\$ 2,191,100	\$ 2,191,100
Non-Rate Revenues	40,512	35,600	35,600	35,600	35,600	35,600	35,600
Interest Earnings (from Reserves)	18,165	14,409	4,465	5,050	5,508	6,676	10,479
<b>Total Sources of Funds</b>	<b>\$ 2,206,616</b>	<b>\$ 2,241,109</b>	<b>\$ 2,231,165</b>	<b>\$ 2,231,750</b>	<b>\$ 2,232,208</b>	<b>\$ 2,233,376</b>	<b>\$ 2,237,179</b>
<b>Uses of Water Funds</b>							
Operating Expenses:							
Administration	\$ 1,212,546	\$ 1,249,451	\$ 1,286,665	\$ 1,324,994	\$ 1,364,474	\$ 1,405,139	\$ 1,447,023
Maintenance	75,350	35,350	36,411	37,503	38,628	39,787	40,980
Treatment	347,301	358,260	369,008	380,078	391,480	403,225	415,322
Non-Routine Repairs and Maintenance	235,000	753,500	90,000	92,700	95,481	98,345	101,296
Subtotal: Operating Expenses	\$ 1,870,197	\$ 2,396,561	\$ 1,782,083	\$ 1,835,275	\$ 1,890,064	\$ 1,946,495	\$ 2,004,620
Other Expenditures:							
Existing Debt Service	\$ 602,162	\$ 604,297	\$ 600,678	\$ 596,975	\$ 601,978	\$ 601,238	\$ 473,880
New Debt Service	-	-	60,107	192,025	192,025	252,434	282,638
Rate-Funded Capital Expenses	-	-	-	-	-	-	164,148
Subtotal: Other Expenditures	\$ 602,162	\$ 604,297	\$ 660,785	\$ 789,000	\$ 794,003	\$ 853,672	\$ 920,666
<b>Total Uses of Water Funds</b>	<b>\$ 2,472,359</b>	<b>\$ 3,000,858</b>	<b>\$ 2,442,868</b>	<b>\$ 2,624,275</b>	<b>\$ 2,684,067</b>	<b>\$ 2,800,167</b>	<b>\$ 2,925,287</b>
plus: Revenue from Rate Increases	-	-	109,555	224,588	466,157	731,882	1,024,180
<b>Annual Surplus/(Deficit)</b>	<b>\$ (265,743)</b>	<b>\$ (759,749)</b>	<b>\$ (102,148)</b>	<b>\$ (167,938)</b>	<b>\$ 14,298</b>	<b>\$ 165,091</b>	<b>\$ 336,073</b>
<b>Net Revenue Req. (Total Uses less Non-Rate R</b>	<b>\$ 2,413,682</b>	<b>\$ 2,950,849</b>	<b>\$ 2,402,803</b>	<b>\$ 2,583,625</b>	<b>\$ 2,642,959</b>	<b>\$ 2,757,892</b>	<b>\$ 2,879,207</b>
<b>Total Rate Revenue After Rate Increases</b>	<b>\$ 2,147,939</b>	<b>\$ 2,191,100</b>	<b>\$ 2,300,655</b>	<b>\$ 2,415,688</b>	<b>\$ 2,657,257</b>	<b>\$ 2,922,982</b>	<b>\$ 3,215,280</b>
<b>Projected Annual Rate Increase</b>	<b>(2)</b>	<b>(3)</b>	<b>5.00%</b>	<b>5.00%</b>	<b>10.00%</b>	<b>10.00%</b>	<b>10.00%</b>
Cumulative Increase from Annual Rate Increases	0.00%	0.00%	5.00%	10.25%	21.28%	33.40%	46.74%
Coverage After Rate Increase	0.56	(0.26)	0.85	0.79	1.02	1.19	1.44

- (1) Rate revenue for FY 2011/12 and 2012/13 is per the City's 2012/13 Adopted Budget.  
 (2) The City adopted a rate increase of 4% for Fiscal Year 2011/12 and projected revenue (per the City's adopted budget) under those rates is \$2,147,939.

Figure 5. Summary of the Reserve Funds for the Water Utility

SUMMARY OF CASH ACTIVITY	Budget	Current	Projected				
	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18
<b>Total Beginning Cash (1)</b>	<b>\$ 2,421,988</b>						
<b>Fund #610 Water Works O&amp;M Reserve</b>							
Beginning Reserve Balance (2)	\$ 408,799	\$ 143,056	\$ (616,693)	\$ (718,841)	\$ (886,778)	\$ (872,481)	\$ (707,390)
Plus: Net Cash Flow (After Rate Increases)	(265,743)	(759,749)	(102,148)	(167,938)	14,298	165,091	336,073
Plus: Transfer of Debt Reserve Surplus	-	-	-	-	-	-	-
Less: Transfers Out to Capital Replacement Reserve	-	-	-	-	-	-	-
<b>Ending Operating Reserve Balance</b>	<b>\$ 143,056</b>	<b>\$ (616,693)</b>	<b>\$ (718,841)</b>	<b>\$ (886,778)</b>	<b>\$ (872,481)</b>	<b>\$ (707,390)</b>	<b>\$ (371,317)</b>
Target Ending Balance (25% or 90 days of O&M)	\$ 468,000	\$ 599,000	\$ 446,000	\$ 459,000	\$ 473,000	\$ 487,000	\$ 501,000
<b>Fund #614 Water Fund Capital Reserve</b>							
Beginning Reserve Balance (2)	\$ 1,635,847	\$ 1,400,847	\$ 685,847	\$ 685,375	\$ 684,591	\$ 684,591	\$ 601,589
Plus: Grant Proceeds	-	550,000	-	-	-	-	-
Plus: Net Debt Proceeds	-	-	796,000	1,747,000	-	800,000	400,000
Plus: Transfer of Operating Reserve Surplus	-	-	-	-	-	-	-
Less: Use of Reserves for Capital Projects	(235,000)	(1,265,000)	(796,472)	(1,747,784)	-	(883,002)	(625,589)
<b>Ending Repair &amp; Replacement Balance</b>	<b>\$ 1,400,847</b>	<b>\$ 685,847</b>	<b>\$ 685,375</b>	<b>\$ 684,591</b>	<b>\$ 684,591</b>	<b>\$ 601,589</b>	<b>\$ 376,000</b>
Target Ending Balance (3% of Assets) (3)	\$ 260,000	\$ 297,000	\$ 312,000	\$ 358,000	\$ 348,000	\$ 363,000	\$ 376,000
<b>Debt Reserve (currently held in Fund #610)</b>							
Beginning Reserve Balance (2)	\$ 377,342	\$ 377,342	\$ 377,342	\$ 437,449	\$ 569,367	\$ 569,367	\$ 629,776
Plus: Reserve Funding from New Debt Obligations	-	-	60,107	131,918	-	60,409	30,204
Less: Transfer of Surplus to Operating Reserve	-	-	-	-	-	-	-
<b>Ending Debt Reserve Balance</b>	<b>\$ 377,342</b>	<b>\$ 377,342</b>	<b>\$ 437,449</b>	<b>\$ 569,367</b>	<b>\$ 569,367</b>	<b>\$ 629,776</b>	<b>\$ 659,980</b>
Target Ending Balance	\$ 377,342	\$ 377,342	\$ 437,449	\$ 569,367	\$ 569,367	\$ 629,776	\$ 659,981
<b>Ending Balance - All Reserves</b>	<b>\$ 1,921,245</b>	<b>\$ 446,496</b>	<b>\$ 403,983</b>	<b>\$ 367,179</b>	<b>\$ 381,477</b>	<b>\$ 523,975</b>	<b>\$ 664,664</b>
Recommended Target Ending Balance - All Reserves	\$ 1,105,342	\$ 1,273,342	\$ 1,195,449	\$ 1,386,367	\$ 1,390,367	\$ 1,479,776	\$ 1,536,981
<b>Ending Surplus/(Deficit) Compared to Reserve Targets</b>	<b>\$ 815,902</b>	<b>\$ (826,846)</b>	<b>\$ (791,466)</b>	<b>\$ (1,019,188)</b>	<b>\$ (1,008,890)</b>	<b>\$ (955,802)</b>	<b>\$ (872,317)</b>
<b>Annual Interest Earnings Rate (4)</b>	<b>0.75%</b>	<b>0.75%</b>	<b>1.00%</b>	<b>1.25%</b>	<b>1.50%</b>	<b>1.75%</b>	<b>2.00%</b>

- (1) The beginning cash balance and fund activity for the Connection Fee Reserve fund is shown in Exhibit 2.  
 (2) NBS assumes that the City is holding sufficient funds within the O&M Fund to meet the debt reserve requirement and fund all planned capital projects. For purposes of this analysis, it is assumed that available cash can be deposited into distinct Capital and Debt Reserve funds. Accordingly, the total beginning cash balance of \$2,421,988 in all three funds has been segregated as follows: \$408,799 in the O&M Fund, \$1,635,847 in the Capital Reserve Fund and \$377,342 in the Debt Reserve Fund.  
 (3) The target Capital Reserve balance is 3% of Net Capital Assets (value of capital assets less accumulated depreciation).  
 (4) Historical interest earning rates were referenced on the California Treasurer's Office website for funds invested in LAIF. Future years earnings were conservatively estimated through FY 2016/17 and phase into the historical 10 year average interest earnings rate.

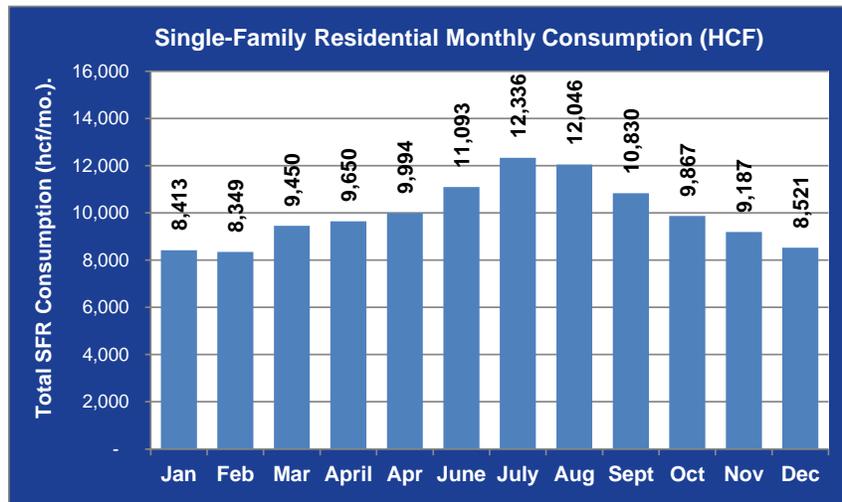
**C. CHARACTERISTICS OF WATER CUSTOMERS BY CLASS**

The most recent consumption data for the City by customer class is summarized in Figure 6, and single-family water use by month is shown in Figure 7. Figure 8 compares the total number of accounts by customer class, and Figure 9 summarizes the total rate revenue by customer class at current rates.

**Figure 6. Water Consumption by Customer Class**

Customer Class	2009 Volume (hcf)	2010 Volume (hcf)	2011 Volume		
			(hcf)	% of Total	Peaking Factor
Single Family - Inside City	128,876	128,683	119,736	41%	1.24
Single Family - Outside City	3,207	3,016	2,666	1%	1.24
Multi Family - Inside City	42,197	40,850	40,482	14%	1.15
Multi Family - Outside City	201	183	147	0%	1.15
Mobile Home Park - Inside City	9,088	7,914	7,735	3%	1.32
Mobile Home Park - Outside City	152	357	966	0%	1.32
Non-Residential - Inside City	112,948	106,782	105,366	36%	1.47
Non-Residential - Outside City	14,539	13,457	13,226	5%	1.47
<b>Total</b>	<b>311,208</b>	<b>301,242</b>	<b>290,324</b>	<b>100%</b>	<b>--</b>

**Figure 7. Single-Family Water Use by Month**



**Figure 8. Number of Accounts by Customer Class**

Customer Class	No. of Accounts (2011)	Percent of Total
Single Family - Inside City	2,042	72.9%
Single Family - Outside City	48	1.7%
Multi Family - Inside City	204	7.3%
Multi Family - Outside City	2	0.1%
Mobile Home Park - Inside City	8	0.3%
Mobile Home Park - Outside City	1	0.0%
Non-Residential - Inside City	459	16.4%
Non-Residential - Outside City	39	1.4%
<b>Total</b>	<b>2,803</b>	<b>100%</b>

**Figure 9. Revenue from Current Rates by Customer Class**

Customer Class	2011			
	Fixed	Variable	Total Revenue	% Total Revenue
Single Family - Inside City	\$ 558,080	\$ 507,313	\$ 1,065,393	49%
Single Family - Outside City	\$ 13,318	\$ 11,248	\$ 24,566	1%
Multi Family - Inside City	\$ 71,399	\$ 170,983	\$ 242,382	11%
Multi Family - Outside City	\$ 554	\$ 621	\$ 1,176	0%
Mobile Home Park - Inside City	\$ 11,030	\$ 32,688	\$ 43,718	2%
Mobile Home Park - Outside City	\$ 499	\$ 4,132	\$ 4,631	0%
Non-Residential - Inside City	\$ 235,758	\$ 434,680	\$ 670,438	31%
Non-Residential - Outside City	\$ 44,869	\$ 55,976	\$ 100,845	5%
<b>Total Revenue</b>	<b>\$ 935,506</b>	<b>\$ 1,217,643</b>	<b>\$ 2,153,149</b>	<b>100%</b>
<i>Fixed and Variable % of Total Revenue</i>	43%	57%	100%	

These figures illustrate importance of both the City's single-family residential (SFR) customers, in terms of total number of customers, and the local brewery included in the non-residential customer class, which contributes significantly to both total water consumption and revenues. They also illustrate that non-residential customers have significant summer-time peaking requirements compared to the single-family and other customer classes.

The City has some system-wide limitations on meeting summer-time peaking demands, such as limited storage capacity, which indicate the need to reduce and/or encourage restraints of those peak summer demands. NBS has reflected these factors in the water rate analysis, particularly in developing the alternative three-tiered rate structure for single-family customers. In particular, a multi-tiered residential rate would promote additional conservation. Multi-tiered volumetric rates are generally not advisable for non-residential customers because the usage patterns and characteristics of individual accounts tend to vary significantly, and tiers would need to be individually tailored for each customer.

#### **D. CURRENT VS. PROPOSED WATER RATE STRUCTURES**

The process of designing water rates provides the opportunity to incorporate a number of rate-design objectives and policies, including revenue stability, equity among customer classes, and water conservation. All metered accounts, regardless of customer class, are charged a fixed rate based on meter size, plus a variable rate based on water consumption. However, the rate structure design process should also consider and reflect the water consumption patterns of each customer class.

NBS has developed two water rate alternatives, in addition to the option of continuing to use the current rate structure. The two alternatives both include a three-tiered, inclining block rate structure for single-

family customers and a uniform (single-tier) commodity rate for all other customers. Differences in these two alternatives are summarized in Figure 10 below.

**Figure 10. Water Rate Structure Alternatives**

Description of Water Rate Alternatives:	
<b>Alternative 1</b>	Rates are determined according to the Cost of Service Analysis results.
<b>Alternative 2</b>	Same as Alternative 1 (Rates according to Cost of Service Analysis) except there are different fixed charges for Residential vs. Non-Residential customers.

Figure 11 presents a comparison of the current and alternative rate structures for FY 2013/14 for each customer class. Projected rates after FY 2013/14 assume an across-the-board rate increase based on the recommended percent increases each year. More detailed tables on the development of the proposed water rates are documented in Appendix A.

**Figure 11. Current and Alternative Water Rate Structures**

Current and Alternative Water Rates in FY 2013/14			
Comparison Factor	Current Rates	Rate Alt. #1	Rate Alt. #2
<i>Fixed Charges For Residential Customers:</i>			
5/8 inch	\$24.49	\$37.64	\$27.17
3/4 inch	\$24.49	\$37.64	\$27.17
1 inch	\$34.28	\$54.85	\$38.11
1.5 inch	\$44.06	\$66.32	\$45.39
2 inch	\$74.02	\$123.69	\$81.83
3 inch	\$269.38	\$181.06	\$118.26
4 inch	\$342.85	\$238.43	\$154.70
6 inch	\$514.27	\$582.63	\$373.31
<i>Fixed Charges For Non-Residential Customers:</i>			
5/8 inch	Same as Res.	Same as Res.	\$54.78
3/4 inch	Same as Res.	Same as Res.	\$54.78
1 inch	Same as Res.	Same as Res.	\$82.28
1.5 inch	Same as Res.	Same as Res.	\$100.61
2 inch	Same as Res.	Same as Res.	\$192.26
3 inch	Same as Res.	Same as Res.	\$283.92
4 inch	Same as Res.	Same as Res.	\$375.57
6 inch	Same as Res.	Same as Res.	\$925.48
<i>Variable Charges</i>			
Single Family Residential Rates per HCF			
Tier 1: 0-5 HCF	\$4.48	\$2.60	\$2.60
Tier 2: 6-10 HCF	\$4.48	\$3.90	\$3.90
Tier 3: 11+ HCF	\$4.48	\$5.85	\$5.85
Non-Single Family Residential			
Rate Per HCF	\$4.48	\$3.10	\$3.10

### Single Family Residential (SFR)

The City currently charges single-family customers a monthly fixed charge of \$24.49.<sup>9</sup> Current volume charges are a uniform rate of \$4.48/hundred cubic feet (hcf). The major difference in the two alternative rate structures is the introduction of three-tiered volumetric rates, which is discussed below.

#### ***Design Factors for Three-Tier Rates***

The three-tiered rates for single-family customers require “break-points” in order to delineate the three levels of residential consumption. These levels are based on the following rationale:

- **Tier 1:** This first tier is intended to include average domestic (indoor) water use, and, therefore, normally excludes landscape and other outside uses. Indoor usage is best represented by the average winter usage, since winter is when landscape watering is typically at its lowest. Water consumption within the single-family residential customer class in Fort Bragg, on average is very low; the winter average is 4.3 hcf and the annual average is 4.9 hcf per month. Since these two consumption thresholds are so close, Tier 1 has been set to cover 0 to 5 hcf.
- **Tier 2:** The second tier is intended to include usage greater than typical domestic needs up to the average summer-time usage, which would include typical landscape watering. However, average summer-time usage is only 5.7 hcf. Therefore, we have extended the Tier 2 breakpoint beyond 5.7 hcf to include 5-10 hcf.
- **Tier 3:** The third tier includes all consumption greater than 10 hcf, and is typically intended to represent consumption considered to be wasteful or excessive.

#### ***Comparison of Current and Alternative Single-Family Bills***

Figure 12 compares monthly water bills for the current and alternative single-family residential rates. Figure 13 compares typical single-family monthly water bills to other communities.

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<sup>9</sup> \$24.49 is for a 5/8 or 3/4-inch meter. There are a small number of SFR customers using 1-inch meters (meter charge of \$34.28/month) and 1.5-inch meters (\$44.08/month).

Figure 12. Monthly Water Bill Comparison for SFR Customers (3/4" meter)

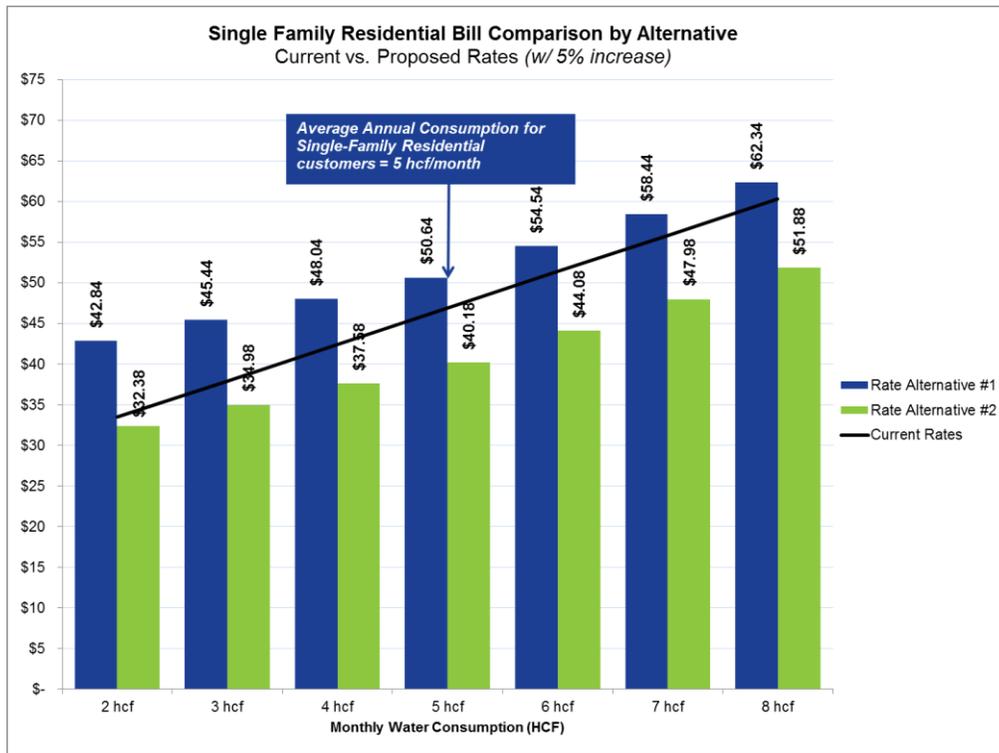
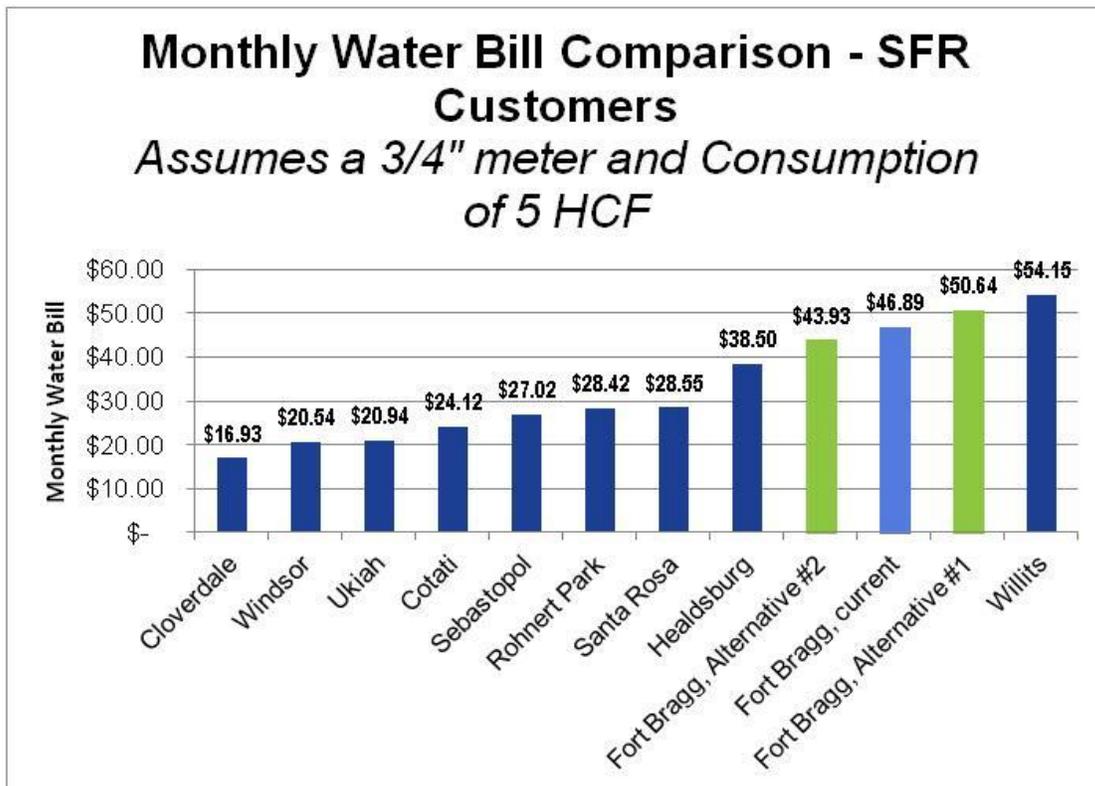


Figure 13. Monthly Water Bill Comparison with Other Communities



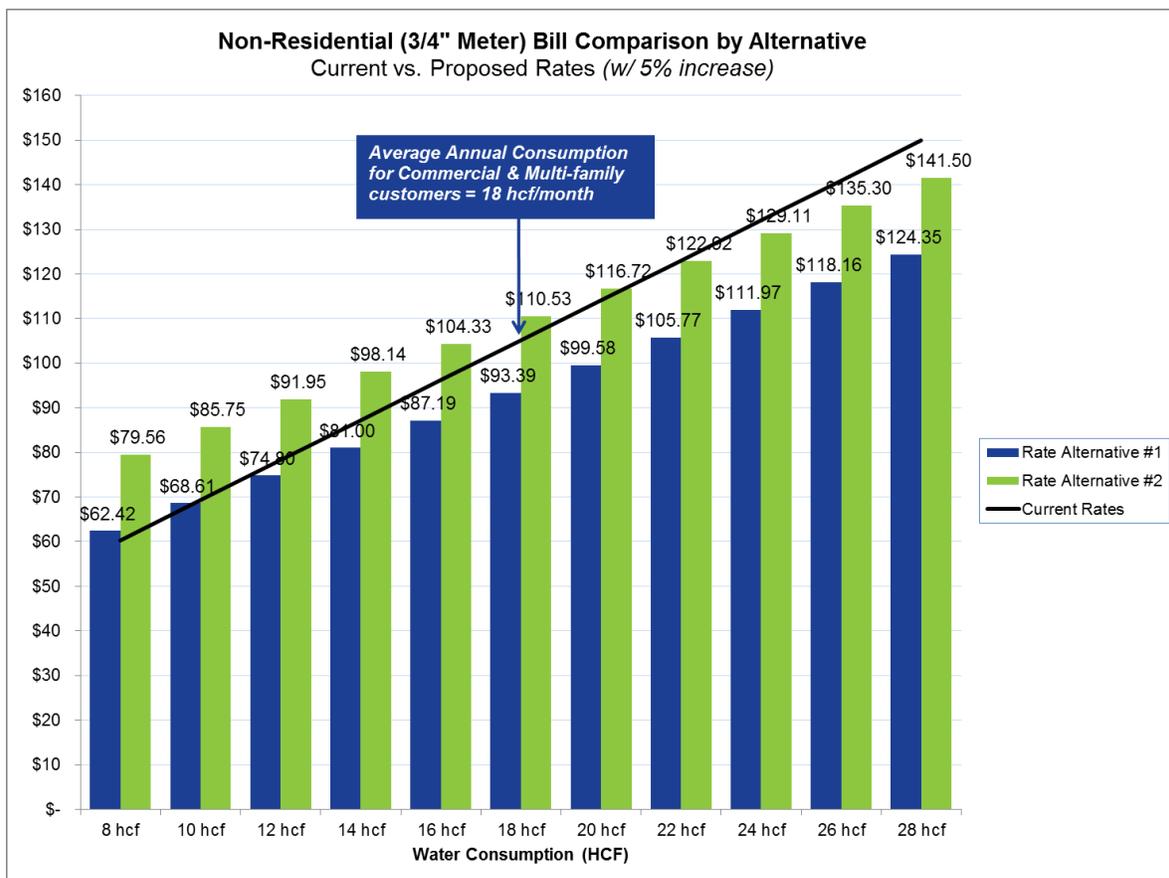
**Potential Benefits of Three-Tier Rates**

Overall, reducing both peak water consumption and total annual water use may reduce City operating costs by decreasing pumping and replacement costs, and delaying or avoiding capacity-related improvements. In general, NBS would recommend the more conservation-oriented approach imbedded in the three-tier inclining block rate structure in order for the City to better manage its summer-time peak demands. Although there is a State-wide emphasis on reducing per capita consumption<sup>10</sup> the City has already shown significant reductions in overall demands, primarily related to general economic conditions.

**Commercial Water Customers**

Commercial customers currently use the same fixed monthly charges and volume-based rates as single-family customers. However, commercial customers vary significantly by type and level of consumption, and their monthly bills will vary based on their actual consumption as well as their meter size. Figure 14 compares current and proposed monthly bills for a “typical commercial” customer with a 3/4-inch meter and an average of use of 7 hcf/month.

**Figure 14. Monthly Water Bill Comparison for a Typical Commercial User (3/4” meter)**



<sup>10</sup> The Water Conservation Act of 2009 (SB 7) requires urban water agencies to reduce average per capita consumption by 20 percent by January 31, 2020.

## SECTION 4. SEWER RATE STUDY

### A. KEY SEWER RATE STUDY ISSUES

Similar to the water rate study, the three comprehensive rate study components (revenue requirements, cost-of-service, and rate design) previously noted in Figure 1 are also addressed in the sewer rate study. Currently, the City's sewer rates consist of a fixed monthly charge per unit that is the same for all customer classes and a variable charge (\$/hcf) of estimated sewer discharge that varies by customer class. Single-family residential and mobile home customers pay the same variable charge and there are seven classes of commercial customers, and therefore seven different variable charge rates.

In the sewer rates analysis, a number of key issues were specifically addressed, including:

- Generating additional revenue needed to meet projected funding requirements,
- Meeting the State's revenue program guidelines,
- Evaluating the percentage of revenue derived from fixed vs. variable (volumetric) charges,
- Determining whether the same base/fixed monthly charges should be applied to all customer classes,
- Evaluating commercial customer classes,
- Ensuring equity among customer classes.

More detailed tables showing the step-by-step development of the analysis are documented in Appendix B – Sewer Rate Study Summary Tables.

### Rate Study Methodology and Assumptions

Although the basic steps in a sewer rate analysis are similar for water and sewer utilities, whereas water rates focus more on volume-related charges for consumption levels, sewer rates incorporate unit costs related to treatment of wastewater effluent. These are generally referred to as strength factors, and include the following three components:

- Flow (or volume of effluent)
- Biological oxygen demand (BOD)
- Total suspended solids (or TSS)

In this analysis, NBS relied on the City's data for the total amount of effluent treated at the wastewater treatment plant, along with estimated water consumption from City records. That is, in allocating effluent costs to City customers, NBS calibrated flows from customer classes to match wastewater treatment plant flow records (i.e., the estimated effluent received at the City's plant). In calculating volume-based sewer rates, NBS used estimated water consumption from City records but assumed a five-percent reduction in consumption for each customer class. This was assumed in order to reflect normal customer responses to higher rates and general economic stresses that have prompted many customers throughout California to reduce their water use.

### B. REVENUE REQUIREMENTS – SEWER UTILITY

To identify the City's long-term financial needs, NBS developed a 10-year financial plan that forecasts sewer revenues and expenditures, including reserves. This plan is based on the City's current operating budget for the utility, discussions with City staff, and related information such as debt service schedules and capital improvement plans.

The City's financial plan addresses four primary components:

- **Meeting Operations Costs:** The sewer utility must generate enough revenue to cover the expenses of sewer operations, including administration, maintenance, collection operations,

and the wastewater treatment plant costs. For FY 2013/14, the net revenue requirement (total annual expenses, including debt service, less non-rate revenues) is approximately \$2.7 million.

- **Meeting Capital Improvement Costs:** The sewer utility must also be able to fund necessary capital improvements. The City has identified roughly \$9.5 million in planned capital improvements over the next five years. Approximately 80% of this is for wastewater treatment plant improvements.
- **Maintaining Adequate Bond Coverage:** The City is required by its bond covenant to maintain a debt service coverage ratio of at least 1.2 for the outstanding 1998 Wastewater Revenue Bonds. The benefit of maintaining a higher coverage ratio is that it strengthens the City's credit rating, which can help lower the interest rates for debt-funded capital projects and reduce annual debt service payments. This analysis assumes that the City will incur new debt in order to fund the planned capital expenses, and that the City will be required to maintain a debt service coverage rate of 1.20 for the future issues. Unfortunately, the City will not meet the 1.20 debt coverage ratio until after the second rate adjustment in FY 2014/15; neglecting to implement the proposed rate increases in the next several years will result in a ratio that is significantly less than 1.20.
- **Building and Maintaining Reserve Funds:** The City should build and maintain sufficient reserves for the Utility. This study has recommended the following reserve targets:
  - **Operating Reserve** equal to 25% of the Utility's budgeted annual operating expenses. This reserve target is equal to a two-month (or 90 day) cash cushion for normal operations.
  - **Capital Reserves** should meet roughly 3% of net assets for the utility. However, this serves simply as a starting point for addressing long-term needs. If ratepayers can generate revenues at this level and pace, they will have reserved a partial cash resource that can be applied toward the future replacement and rehabilitation needs.
  - **Debt Reserve** equal to the reserve requirement for outstanding debt, including the 1998 Wastewater Revenue Bonds and the anticipated debt issues required to fund all planned capital projects.

In 2007, the City completed a Facility Study for the wastewater system that indicated the system will need significant repairs and replacement in the near future. The three photos shown below indicate the current condition of some of the treatment facilities. The current estimate for the needed improvements is approximately \$23.8 million in total, of which approximately \$21.2 million is for the treatment plant, and \$2.6 million for the collection system. However, only about \$9 million will be spent over the next five years (2013 through 2017).

Figure 15 summarizes the next five years of the financial plan, showing a more traditional “sources and uses” of funds, along with the estimated annual surplus or deficiency. A summary of the entire 10-year financial plan, showing revenue requirements, revenue sources (including rate revenue), and necessary rate increases is presented in Appendix B. A summary of the City's capital improvement program is also presented in Appendix B.



Recent Photos of Fort Bragg’s Wastewater Treatment Plant Facilities

Figure 15. Summary of the Revenue Requirements for the Wastewater Utility

SOURCES & USES OF FUNDS - SEWER UTILITY	Budget	Current	Projected				
	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18
<b>Sources of Wastewater Funds</b>							
Rate Revenue Under Prevailing Rates (1)	\$ 2,717,300	\$ 2,766,700	\$ 2,766,700	\$ 2,766,700	\$ 2,766,700	\$ 2,766,700	\$ 2,766,700
Non-Rate Revenues	271,529	191,123	180,623	180,623	180,623	180,623	180,623
Interest Earnings (from Reserves)	2,635	6,456	3,046	83	6,645	16,470	26,804
<b>Total Sources of Funds</b>	<b>\$ 2,991,464</b>	<b>\$ 2,964,279</b>	<b>\$ 2,950,369</b>	<b>\$ 2,947,406</b>	<b>\$ 2,953,968</b>	<b>\$ 2,963,793</b>	<b>\$ 2,974,127</b>
<b>Uses of Wastewater Funds</b>							
Operating Expenses:							
Administration	\$ 1,097,705	\$ 1,262,092	\$ 1,299,622	\$ 1,338,277	\$ 1,378,093	\$ 1,419,103	\$ 1,453,743
Maintenance	14,100	14,100	14,523	14,959	15,407	15,870	16,346
Treatment	1,098,421	1,375,150	1,416,357	1,458,799	1,502,515	1,547,543	1,593,921
Subtotal: Operating Expenses	\$ 2,210,226	\$ 2,651,342	\$ 2,730,501	\$ 2,812,035	\$ 2,896,015	\$ 2,982,515	\$ 3,064,009
Other Expenditures:							
Existing Debt Service	\$ 97,078	\$ 72,547	\$ 75,295	\$ 72,910	\$ 59,805	\$ 57,155	\$ 59,373
New Debt Service	-	-	-	211,431	406,250	600,314	683,376
Rate-Funded Capital Expenses	174,664	796,590	663,849	86,438	7,162	46,438	33,100
Subtotal: Other Expenditures	\$ 271,742	\$ 869,137	\$ 739,144	\$ 370,780	\$ 473,217	\$ 703,907	\$ 775,850
<b>Total Uses of Wastewater Funds</b>	<b>\$ 2,481,968</b>	<b>\$ 3,520,479</b>	<b>\$ 3,469,645</b>	<b>\$ 3,182,815</b>	<b>\$ 3,369,232</b>	<b>\$ 3,686,422</b>	<b>\$ 3,839,859</b>
plus: Revenue from Rate Increases	-	-	221,336	460,379	718,545	927,660	1,149,321
<b>Annual Surplus/(Deficit)</b>	<b>\$ 509,497</b>	<b>\$ (556,199)</b>	<b>\$ (297,941)</b>	<b>\$ 224,970</b>	<b>\$ 303,281</b>	<b>\$ 205,031</b>	<b>\$ 283,590</b>
<b>Net Revenue Requirements (2)</b>	<b>\$ 2,207,803</b>	<b>\$ 3,322,899</b>	<b>\$ 3,285,977</b>	<b>\$ 3,002,109</b>	<b>\$ 3,181,964</b>	<b>\$ 3,489,329</b>	<b>\$ 3,632,432</b>
<b>Total Rate Revenue After Rate Increases</b>	<b>\$ 2,717,300</b>	<b>\$ 2,766,700</b>	<b>\$ 2,988,036</b>	<b>\$ 3,227,079</b>	<b>\$ 3,485,245</b>	<b>\$ 3,694,360</b>	<b>\$ 3,916,021</b>
<b>Projected Annual Rate Increase</b>	<b>(3)</b>	<b>(4)</b>	<b>8.00%</b>	<b>8.00%</b>	<b>8.00%</b>	<b>6.00%</b>	<b>6.00%</b>
Cumulative Increase from Annual Rate Increases	0.00%	0.00%	8.00%	16.64%	25.97%	33.53%	41.54%
Coverage After Rate Increase	6.25	(6.67)	(2.96)	1.79	1.65	1.31	1.38

(1) Rate revenue for FY 2011/12 and 2012/13 is per the City's 2012/13 Adopted Budget.  
 (2) Total Uses less Non-Rate Revenue.  
 (3) The City adopted a rate increase of 10% for Fiscal Year 2011/12 and projected revenue (per the City's adopted budget) under those rates is \$2,717,300.  
 (4) The City adopted a rate increase of 4% for Fiscal Year 2012/13 and projected revenue (per the City's adopted budget) under those rates is \$2,766,700.

Based on the forecasts from the 10-year financial plan, the City needs rate increases of approximately 8% annually for the next three years, followed by 6% increases for another two years in order to fund operating expenses, debt service, capital costs and to build and maintain reserves.

**C. CURRENT VS. PROPOSED SEWER RATE STRUCTURES**

As mentioned earlier, the City’s existing sewer rates consist of a fixed monthly charge per unit that is the same for all customer classes and a variable charge, per hcf of estimated sewer discharge that varies by customer class. Single-family residential and mobile home customers pay the same variable charge and there are seven classes of commercial customers, and therefore seven different variable charge rates.

NBS has expanded the residential class to three types of users: single-family, multi-family and mobile homes. Additionally, the commercial customer classes were condensed from seven types of users to three: low, medium and high strength. NBS also evaluated several rate structure alternatives; the key differences in these alternatives are summarized in Figure 16 below.

**Figure 16. Comparison of Rate Structure Alternatives**

Comparison Factor	Current Rates	Rate Alt. #1	Rate Alt. #2	Rate Alt. #3	Rate Alt. #4
Maintains Current % of Rate Revenue from Base Charges?	Yes	Yes	No	<i>Recommended</i> Yes	No
% of Revenue From Fixed Charges	37%	37%	27%	37%	27%
% of Revenue From Variable Charges	63%	63%	73%	63%	73%
Same Base Charge for all Classes?	Yes	Yes	No	Yes	No
Phased-In New Rate Structure?	No	No	No	Yes	No

A summary of the preliminary recommended sewer rates resulting from the cost of service rate analysis is provided in Figure 17 and Figure 18.

**Figure 17. Summary of Current and Proposed Sewer Rates**

Customer Class	Proposed Rates in FY 2013/14				
	Current Rates	Rate Alt. #1	Rate Alt. #2	Rate Alt. #3	Rate Alt. #4
<b>Fixed Charges:</b>				<i>Recommended</i>	
<i>Residential</i>					
Single Family Residential	\$22.90	\$22.47	\$17.36	\$22.47	\$16.86
Multi-Family Residential	\$22.90	\$22.47	\$11.15	\$22.47	\$12.52
Mobile Home Parks	\$22.90	\$22.47	\$8.48	\$22.47	\$7.72
<i>Commercial</i>					
Low Strength	\$22.90	\$22.47	\$24.73	\$22.47	\$24.73
Medium Strength	\$22.90	\$22.47	\$24.73	\$22.47	\$24.73
High Strength	\$22.90	\$22.47	\$24.73	\$22.47	\$24.73
<b>Variable Charges:</b>					
<i>Residential</i>					
Single Family Residential	\$6.53	\$5.78	\$6.99	\$6.20	\$7.53
Multi-Family Residential	\$6.53	\$2.65	\$6.47	\$4.66	\$8.02
Mobile Home Parks	\$6.53	\$0.27	\$6.32	\$3.50	\$9.88
<i>Commercial</i>					
Low Strength	\$5.57	\$7.78	\$7.71	\$6.58	\$6.51
Medium Strength	\$6.53	\$8.02	\$7.78	\$7.43	\$7.19
High Strength	\$13.87	\$19.94	\$19.85	\$16.84	\$16.75

**Figure . Proposed Sewer Rates through FY 2017/18**

Customer Class	Proposed Rate Alternative #3 in FY 2013/14 through FY 2017-18					
	Current Rates	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18
<b>Fixed Charges:</b>						
<i>Residential</i>						
Single Family Residential	\$22.90	\$22.47	\$24.50	\$26.46	\$28.05	\$29.73
Multi-Family Residential	\$22.90	\$22.47	\$24.50	\$26.46	\$28.05	\$29.73
Mobile Home Parks	\$22.90	\$22.47	\$24.50	\$26.46	\$28.05	\$29.73
<i>Commercial</i>						
Low Strength	\$22.90	\$22.47	\$24.50	\$26.46	\$28.05	\$29.73
Medium Strength	\$22.90	\$22.47	\$24.50	\$26.46	\$28.05	\$29.73
High Strength	\$22.90	\$22.47	\$24.50	\$26.46	\$28.05	\$29.73
<b>Variable Charges<sup>1</sup>:</b>						
<i>Residential</i>						
Single Family Residential	\$6.53	\$6.20	\$6.19	\$6.69	\$7.09	\$7.52
Multi-Family Residential	\$6.53	\$4.66	\$2.78	\$3.00	\$3.18	\$3.38
Mobile Home Parks	\$6.53	\$3.50	\$0.20	\$0.21	\$0.22	\$0.24
<i>Commercial</i>						
Low Strength	\$5.57	\$6.58	\$8.40	\$9.07	\$9.61	\$10.19
Medium Strength	\$6.53	\$7.43	\$8.63	\$9.33	\$9.89	\$10.48
High Strength	\$13.87	\$16.84	\$21.52	\$23.24	\$24.64	\$26.12
<i>Percent annual rate increases</i>		8.0%	8.0%	8.0%	6.0%	6.0%

1. Due to the "phasing-in" of the cost-of-service results, FY 2014-15 rates reflect significant reductions in Mobile Home Parks.

These figures compare the current and proposed rate structures for each customer class (single-family, multi-family, mobile homes and commercial customers). Projected rates in FY 2014/15 reflect the second year of the two-year phasing-in of the cost-of-service adjustments; after FY 2014-15 the rates assume across-the-board rate increases based on the recommended increases each year, as presented in Appendix B.

**Single Family Residential Sewer Customers**

The City currently charges a monthly flat rate of \$22.90 per unit for all customers, including single-family residential users, plus a variable charge of \$6.53 per hcf of estimated discharge (based on winter average consumption for each customer). Each single-family residential customers is billed a minimum of 2 hcf, for sewer service charges.

NBS recommends that the City keep rate structure similar to the existing one for single-family residential users - a fixed monthly sewer charge of \$22.47, and a variable charge of \$6.20 per hcf of estimated discharge. Figure 19 shows a chart of the projected single-family residential monthly bills. Figure 20 compares typical single-family monthly sewer bills with other communities.

Figure 19. Monthly Sewer Bill Comparison for Single-Family Customers

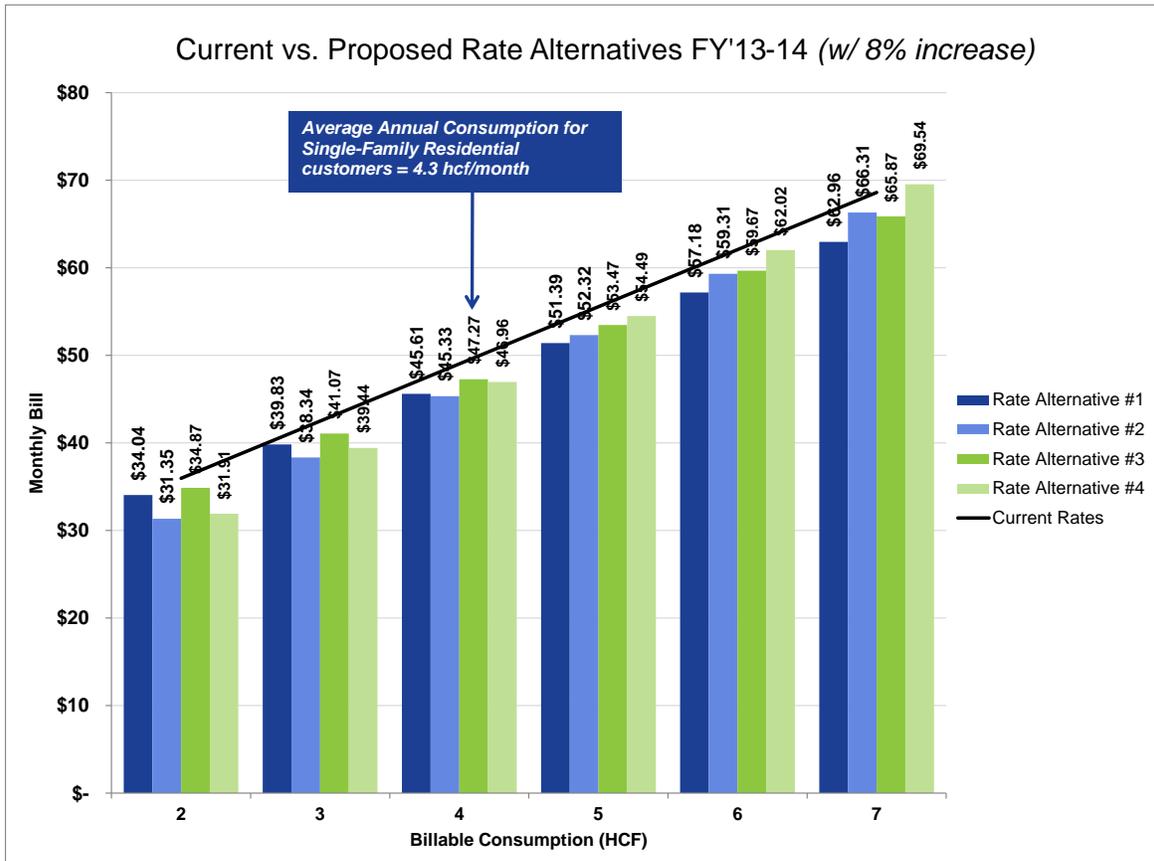
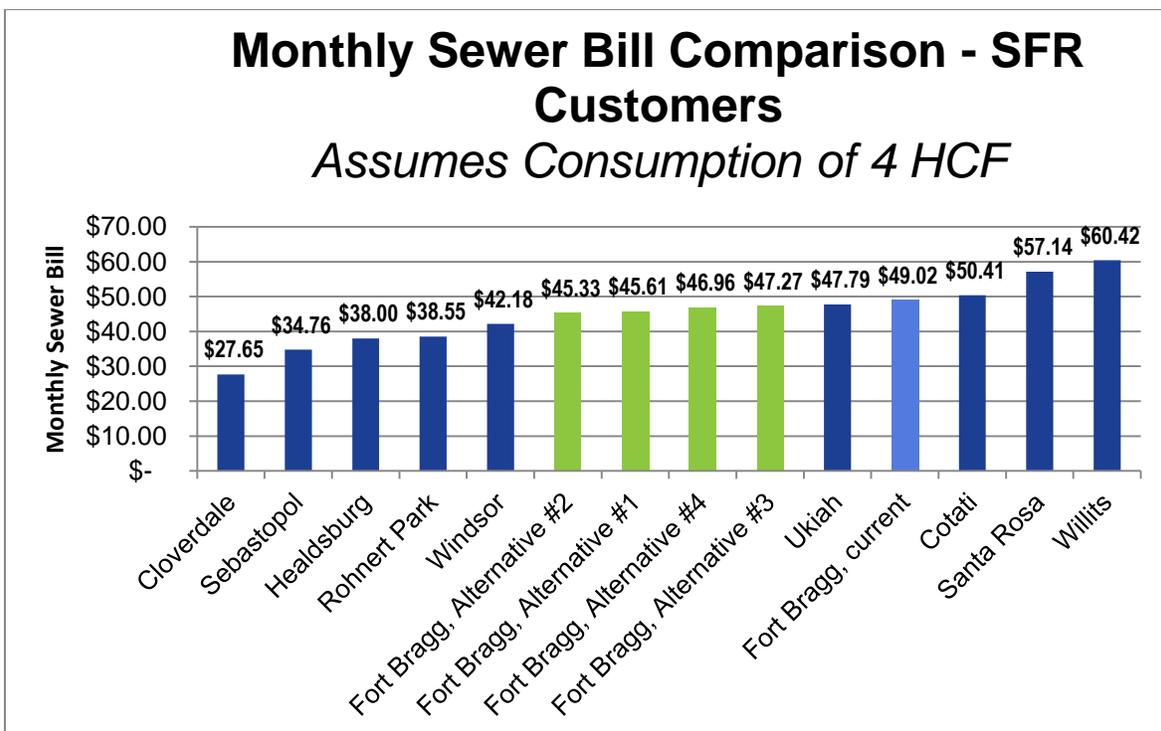


Figure 20. Monthly Sewer Bill Comparison with Other Communities



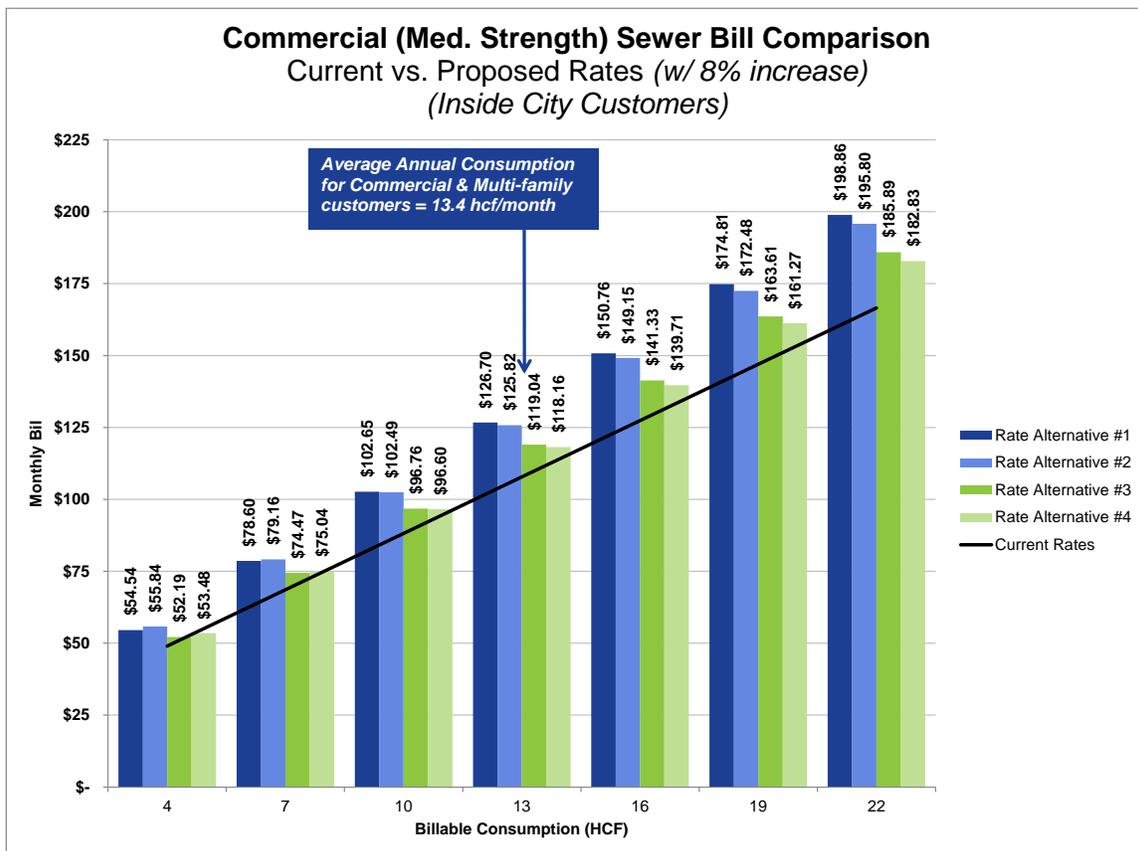
### Multi-Family Residential and Mobile Home Customers

The City currently charges its Multi-Family and mobile home users a flat charge of \$22.90 per unit and a volumetric charge of \$6.53 per hcf of estimated discharge. NBS recommends that the City keep the current structure – a fixed charge and a volumetric charge, but they will differ between the two user groups. The proposed rates for multi-family residential users include a fixed monthly charge of \$22.47 per unit and \$4.66 per hcf of estimated discharge. For mobile home customers, the proposed fixed rate per unit is the same \$22.47 and a volumetric rate of \$3.50 per hcf of estimated discharge.

### Commercial Sewer Customers

The City currently bills commercial customers a fixed monthly charge of \$22.90 per account plus a volume-based charge ranging from \$5.20 to \$13.87 per hcf. NBS proposes to charge a fixed customer cost of \$22.47 per month plus a variable charge ranging from \$7.78 to \$19.94 per hcf, and condensing the existing seven commercial customer classes down to three based on estimated strength (low, medium and high). Current and projected monthly sewer bills for commercial customers are shown in Figure 21.

Figure 21 – Monthly Sewer Bill Comparison for Commercial Customers



## SECTION 5. STORM DRAIN RATE STUDY

### A. KEY STORM DRAIN RATE STUDY ISSUES

Currently, the City does not have a monthly or annual rate or fee that is charged to utility customers for maintaining the City's storm drain system. Most cities in California have adopted or are considering adopting some form of user charges to cover storm drain system costs; this appears to be a reasonable and advisable approach for the City to use in order to fund future storm drain costs.

Proposed storm drain rates were developed to meet specific objectives and adequately fund annual operating and capital improvement costs, including:

- **Total Revenue Requirements:** The total revenue needed over at least the next five years to fund normal operating and maintenance costs and planned capital improvements.
- **Revenue Requirements by Customer Class:** The revenue allocated to, and collected from each customer class was determined using total costs divided by the total number of "units" in each class. Due to data limitations (e.g., lots sizes, percentage of impervious surface area, and run-off/slope factors), all residential and commercial customers were charged the same monthly user charge, with the exception of multi-family customers. These customers were charged one-half the single-family/commercial customer rate.
- **Fixed Monthly Charge:** The revenue requirements are collected through a fixed monthly charge per unit.

The following sections summarize the results from the storm drain rate analysis. More detailed tables showing the step-by-step development of the analysis are documented in Appendix C – Storm Drain Rate Study Summary Tables.

### Rate Study Methodology and Assumptions

The basic steps in a storm drain rate analysis are similar for water and sewer utilities. However, whereas water rates focus more on volume-related charges for consumption levels, and sewer rates incorporate unit costs related to treatment of wastewater effluent, storm drain rates are most commonly charged on a per-account or per-customer basis, or by the number of equivalent dwelling units, or the amount of impervious surface area of each customer. However, more complicated methodologies and rate structure require significant amounts of GIS data specific to each customer. This data was not available for Fort Bragg, and would be prohibitively expensive to develop.

Because of these constraints, NBS relied on the City's sewer utility data, specifically the number of units by customer class from City billing records. That is, in allocating total system costs to City customers, NBS spread those costs by unit to each customer class in the sewer utility.

### B. REVENUE REQUIREMENTS – STORM DRAIN SYSTEM

To identify the City's long-term financial needs, NBS has developed a 10-year financial plan that forecasts storm drain expenditures, including reserves and determines the amount of revenue needed in order to meet all obligations. This plan is based on the City's current operating budget for the utility, discussions with City staff, and related information such as capital improvement needs.

The City's financial plan addresses three primary components:

- **Meeting Operations Costs:** The storm drain utility must generate enough revenue to cover the expenses of storm drain operations, including administration, maintenance, materials and services. For FY 2013/14, the net revenue requirement (total annual expenses, less non-rate revenues) is approximately \$154,000.

- **Meeting Capital Costs:** The storm drain utility will need to fund approximately \$2.2 million in capital improvements over the next five years, and approximately \$5.5 million of capital improvements over the next 10 years.
- **Reserve Funds:** Although the normal practice for municipal utilities is to build and maintain adequate reserves, the City might consider using a pay-as-you-go approach for funding future costs. This will minimize new monthly user fees and the proposed rates should be sufficient to fund both operating and capital costs.

The three photos below show selected components of the City’s storm drain system. In 2004, the City completed a Master Plan for the storm drain system and is aware that the system needs significant repairs and infrastructure upgrades in the near future. The current estimate for the needed improvements is approximately \$6.8 million in total, covering a period of longer than 10 years.



Three Recent Photos of the City’s Storm Drain Facilities

Figure 22 summarizes the next five years of the financial plan, showing a more traditional “sources and uses” of funds, along with the estimated annual surplus or deficiency. A summary of the entire 10-year financial plan, showing revenue requirements, revenue sources (including rate revenue), and necessary rate increases is presented in Appendix C. A summary of the City’s capital improvement program is presented in Appendix C.

Figure 22. Summary of the Revenue Requirements for the Storm Drain Utility

RATE REVENUE REQUIREMENTS SUMMARY	Budget	Current	Projected				
	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18
<b>Sources of Storm Drain Funds</b>							
Rate Revenue Under Prevailing Rates	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Interest Earnings (from Reserves)	-	-	-	0	0	0	0
<b>Total Sources of Funds</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>
<b>Uses of Storm Drain Funds</b>							
Operating Expenses:							
Personnel Costs	\$ -	\$ -	\$ 30,000	\$ 30,900	\$ 31,827	\$ 32,782	\$ 33,765
Materials and Services	16,700	15,900	16,377	16,868	17,374	17,896	18,432
Allocation Transfers	9,299	6,370	6,561	6,758	6,961	7,169	7,385
Repairs & Maintenance	-	-	100,000	125,000	150,000	154,500	159,135
Subtotal: Operating Expenses	\$ 25,999	\$ 22,270	\$ 152,938	\$ 179,526	\$ 206,162	\$ 212,347	\$ 218,717
Other Expenditures:							
Existing Debt Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Debt Service	-	-	-	-	-	-	-
Rate-Funded Capital Expenses	-	-	-	-	-	-	-
Subtotal: Other Expenditures	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total Uses of Storm Drain Funds</b>	<b>\$ 25,999</b>	<b>\$ 22,270</b>	<b>\$ 152,938</b>	<b>\$ 179,526</b>	<b>\$ 206,162</b>	<b>\$ 212,347</b>	<b>\$ 218,717</b>
<b>Surplus/(Deficit) Before Rate Increases</b>	<b>\$ (25,999)</b>	<b>\$ (22,270)</b>	<b>\$ (152,938)</b>	<b>\$ (179,526)</b>	<b>\$ (206,162)</b>	<b>\$ (212,347)</b>	<b>\$ (218,717)</b>
<b>Net Revenue Req. (Total Uses less Non-Rate Rev.)</b>	<b>\$ 25,999</b>	<b>\$ 22,270</b>	<b>\$ 152,938</b>	<b>\$ 179,526</b>	<b>\$ 206,162</b>	<b>\$ 212,347</b>	<b>\$ 218,717</b>
<b>Total Rate Revenue After Rate Increases</b>	<b>NA</b>	<b>NA</b>	<b>\$ 152,938</b>	<b>\$ 179,526</b>	<b>\$ 206,162</b>	<b>\$ 212,347</b>	<b>\$ 218,717</b>
<b>Annual Surplus/(Deficit) After Rate Increases</b>	<b>NA</b>	<b>NA</b>	<b>\$ 0</b>				

**C. PROPOSED STORM DRAIN RATE STRUCTURE**

As mentioned earlier, the City currently does not have a storm drain rate or fee. NBS' analysis proposes a single user charge for all customer classes except multi-family customers, which will be charged 50% of what a single-family customer is charged. The recommended storm drain rates are provided in Figure 23. Projected rates after FY 2013/14 assume across-the-board rate increases based on the recommended increases each year, as presented in Appendix C.

**Figure 23. Proposed Storm Drain Rates through FY 2017/18**

Sewer/Storm Drain Customer Classes	Adjusted Units Billed/Yr.	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18
		Storm Drain Charge (\$/Unit/Mo.)				
<i>Residential:</i>						
Single Family Residential	24,384	\$4.19	\$4.92	\$5.64	\$5.81	\$5.99
Multiple Residential	8,274	\$2.09	\$2.46	\$2.82	\$2.91	\$2.99
<i>Commercial:</i>						
Multiple Commercial	420	\$4.19	\$4.92	\$5.64	\$5.81	\$5.99
Very Low Strength	36	\$4.19	\$4.92	\$5.64	\$5.81	\$5.99
Low Strength	228	\$4.19	\$4.92	\$5.64	\$5.81	\$5.99
Medium Low Strength	120	\$4.19	\$4.92	\$5.64	\$5.81	\$5.99
Domestic Strength	5,844	\$4.19	\$4.92	\$5.64	\$5.81	\$5.99
Medium Strength	204	\$4.19	\$4.92	\$5.64	\$5.81	\$5.99
High Strength	1,116	\$4.19	\$4.92	\$5.64	\$5.81	\$5.99
Commercial - No SS Factor	36	\$4.19	\$4.92	\$5.64	\$5.81	\$5.99
<b>Total</b>	<b>40,662</b>	--	--	--	--	--

## SECTION 6. FOG AND BACKFLOW PROGRAM RATES

### A. FATS, OILS AND GREASE (FOG) PROGRAM

The City’s FOG program is an annual inspection program, required by City code, for those customers who have grease traps. City staff performs annual inspections of each grease trap and has administrative duties associated with the inspections such as contacting the customer and completing paperwork during/after the inspection.

Currently, there is only a one-time permitting fee for those customers who participate in the FOG program. The fee is a \$100 permit application fee, paid at the time the permit is applied for, but there is no annual fee for these customers. Currently there are 70 grease traps in the City that are inspected annually. According to City staff, an inspection typically takes about 30 minutes per location and an additional hour per inspection for administrative type duties, such as paperwork, notifying customers, etc.

Total annual costs for the FOG program, considering all staff time involved, is approximately \$7,177. If the total annual costs are spread across the 70 locations in the City that have grease traps, the total annual fee per customer is \$102; Figure 24 below shows the detail of how the fee is determined.

**Figure 24. FOG Annual Program Fee Calculation**

<b>No. Grease Traps Inspected Annually</b>	<b>70</b>
Inspection Time	0.5 hour
Administrative/Paperwork	1.0 hour
<b>Total Staff Time Per Location Annually</b>	<b>1.5 hours</b>
Labor Cost	\$68.35 per hour
Total Annual Program Costs	\$7,177
<b>Recommended Annual Fee</b>	<b>\$102.00 per location</b>

### B. BACKFLOW PROGRAM

Certain entities in the City are required to have a backflow assembly so that contaminated water does not flow back into the City’s water supply. Users are required to install the device and have it inspected annually by a certified tester. The user pays for the test and the tester sends the documentation to the City for the inspection. There is minimal staff time involved with this program and NBS recommends that any internal costs associated with administering the program be allocated to the water utility since they are costs related to maintaining the integrity of the City’s water supply, which benefits all users of the system.

## SECTION 7. RECOMMENDATIONS AND NEXT STEPS

### A. CONSULTANT RECOMMENDATIONS

NBS recommends the City take the following actions:

- **City Council Presentation and Review:** The proposed water, sewer, storm drain, and other rates and fees evaluated as a part of this rate study should be reviewed by the City Council as a part of a public meeting.
- **Adopt Recommended Levels of Rate Increases:** Regardless of the rate structure alternative selected, NBS recommends the City Council adopt the proposed rate increases projected for the next five years. These rate increases are based on a detailed review and projection of future operating and capital improvement costs, and are necessary to ensure the continued financial health of the City's utilities.
- **Select a Water Rate Alternative:** For the water rate study, the Council needs to review and understand the differences in the three-tier rate alternatives and choose between these alternatives. NBS recommends the Council select Rate Alternative 2 because (1) it minimizes rate impacts on single-family customers with less than average consumption levels, and (2) it better reflects the cost-of-service differences related to demands on the water system capacity between residential and commercial customers. However, either alternative would meet the City's overall objectives and provide sufficient revenue.
- **Select a Sewer Rate Alternative:** The sewer rate study evaluated four rate alternatives, each with different attributes. However, NBS recommends the Council choose Rate Alternative 3 because (1) it maintains the current level of revenue from fixed and variable charges, (2) it slightly reduces fixed monthly charges, and (3) it phases-in the cost-of-service differences identified during the analysis, thereby minimizing "rate-shock" that can occur in response to these kinds of changes. However, all four rate alternative would be considered fair and equitable according to industry standards, would provide sufficient revenue, and would reflect cost-of-service principals.
- **Adopt Recommended Storm Drain Rates:** The storm drain rates are necessary to continue a reasonable level of operation and maintenance of the City's storm drain system. They are also essential in order to complete necessary capital improvements, which will help the City avoid undesirable regulatory compliance problems. Since these new rates are relatively small compared to water and sewer rates, NBS recommends the City consider collecting these charges by including them in county property tax bills if possible.
- **Approve Recommended Rates and Study Report:** Based on the water, sewer, and storm drain rate analysis presented in this report, NBS recommends the City Council formally approve and adopt this report and its recommendations, as it proceeds with the necessary actions to implement the recommended rate structures.
- **Complete Public Hearing and Proposition 218 Noticing:** To proceed with adoption and implementation of the recommended rates, the City will need to comply with Proposition 218 requirements, which include reviewing and directing City staff to send out Prop 218-compliant public notices, followed by public hearing no less than 45-days after sending out those notices.

## **B. NEXT STEPS**

**Annually Review Rates and Revenue** – Any time a City adopts new utility rates or rate structures, those new rates should be closely monitored over the next several years to ensure the revenue generated is sufficient to meet the annual revenue requirements. Changing economic and water consumption patterns underscore the need for this review, as well as potential and unseen changing revenue requirements, particularly those related to environmental regulations that can significantly affect capital improvements and repair and replacement costs.

## **C. PRINCIPAL ASSUMPTIONS AND CONSIDERATIONS**

In preparing this report and opinions and recommendations included herein, NBS has relied on a number of principal assumptions and considerations with regard to financial matters, conditions and events that may occur in the future. This information and assumptions, including the City's budgets and information from City staff, were provided by sources we believe to be reliable.

While we believe NBS' use of such information and assumptions is reasonable for the purpose of this report, some assumptions will invariably not materialize as stated herein and may vary significantly due to unanticipated events and circumstances. Therefore, the actual results can be expected to vary from those projected to the extent that actual future conditions differ from those assumed by us or provided to us by others.

*Note: The attached Technical Appendices provide more detailed information on the analysis of the water, sewer and storm drain revenue requirements, cost-of-service analysis and cost allocations, and the rate design analyses that have been summarized in this report.*

# **WATER RATE STUDY – APPENDIX A**

**SELECTED TABLES FROM THE FINANCIAL PLAN,  
COST OF SERVICE ANALYSIS AND RATE DESIGN**

TABLE 1  
FINANCIAL PLAN AND SUMMARY OF REVENUE REQUIREMENTS

SOURCES & USES OF FUNDS - WATER UTILITY	Budget	Current	Projected							
	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
<b>Sources of Water Funds</b>										
Rate Revenue Under Prevailing Rates (1)	\$ 2,147,939	\$ 2,191,100	\$ 2,191,100	\$ 2,191,100	\$ 2,191,100	\$ 2,191,100	\$ 2,191,100	\$ 2,191,100	\$ 2,191,100	\$ 2,191,100
Non-Rate Revenues	40,512	35,600	35,600	35,600	35,600	35,600	35,600	35,600	35,600	35,600
Interest Earnings (from Reserves)	18,165	14,409	4,465	5,050	5,508	6,676	10,479	14,955	29,211	41,136
<b>Total Sources of Funds</b>	<b>\$ 2,206,616</b>	<b>\$ 2,241,109</b>	<b>\$ 2,231,165</b>	<b>\$ 2,231,750</b>	<b>\$ 2,232,208</b>	<b>\$ 2,233,376</b>	<b>\$ 2,237,179</b>	<b>\$ 2,241,655</b>	<b>\$ 2,255,911</b>	<b>\$ 2,267,836</b>
<b>Uses of Water Funds</b>										
Operating Expenses:										
Administration	\$ 1,212,546	\$ 1,249,451	\$ 1,286,665	\$ 1,324,994	\$ 1,364,474	\$ 1,405,139	\$ 1,447,023	\$ 1,490,163	\$ 1,534,598	\$ 1,580,366
Maintenance	75,350	35,350	36,411	37,503	38,628	39,787	40,980	42,210	43,476	44,780
Treatment	347,301	358,260	369,008	380,078	391,480	403,225	415,322	427,781	440,615	453,833
Non-Routine Repairs and Maintenance	235,000	753,500	90,000	92,700	95,481	98,345	101,296	104,335	107,465	110,689
Subtotal: Operating Expenses	\$ 1,870,197	\$ 2,396,561	\$ 1,782,083	\$ 1,835,275	\$ 1,890,064	\$ 1,946,495	\$ 2,004,620	\$ 2,064,489	\$ 2,126,154	\$ 2,189,668
Other Expenditures:										
Existing Debt Service	\$ 602,162	\$ 604,297	\$ 600,678	\$ 596,975	\$ 601,978	\$ 601,238	\$ 473,880	\$ 471,440	\$ 472,315	\$ 467,190
New Debt Service	-	-	60,107	192,025	192,025	252,434	282,638	388,354	388,354	388,354
Rate-Funded Capital Expenses	-	-	-	-	-	-	164,148	39,937	-	-
Subtotal: Other Expenditures	\$ 602,162	\$ 604,297	\$ 660,785	\$ 789,000	\$ 794,003	\$ 853,672	\$ 920,666	\$ 899,731	\$ 860,669	\$ 855,544
<b>Total Uses of Water Funds</b>	<b>\$ 2,472,359</b>	<b>\$ 3,000,858</b>	<b>\$ 2,442,868</b>	<b>\$ 2,624,275</b>	<b>\$ 2,684,067</b>	<b>\$ 2,800,167</b>	<b>\$ 2,925,287</b>	<b>\$ 2,964,220</b>	<b>\$ 2,986,823</b>	<b>\$ 3,045,212</b>
plus: Revenue from Rate Increases	-	-	109,555	224,588	466,157	731,882	1,024,180	1,120,639	1,120,639	1,120,639
<b>Annual Surplus/(Deficit)</b>	<b>\$ (265,743)</b>	<b>\$ (759,749)</b>	<b>\$ (102,148)</b>	<b>\$ (167,938)</b>	<b>\$ 14,298</b>	<b>\$ 165,091</b>	<b>\$ 336,073</b>	<b>\$ 398,074</b>	<b>\$ 389,727</b>	<b>\$ 343,262</b>
<b>Net Revenue Req. (Total Uses less Non-Rate Revenue)</b>	<b>\$ 2,413,682</b>	<b>\$ 2,950,849</b>	<b>\$ 2,402,803</b>	<b>\$ 2,583,625</b>	<b>\$ 2,642,959</b>	<b>\$ 2,757,892</b>	<b>\$ 2,879,207</b>	<b>\$ 2,913,665</b>	<b>\$ 2,922,011</b>	<b>\$ 2,968,476</b>
<b>Total Rate Revenue After Rate Increases</b>	<b>\$ 2,147,939</b>	<b>\$ 2,191,100</b>	<b>\$ 2,300,655</b>	<b>\$ 2,415,688</b>	<b>\$ 2,657,257</b>	<b>\$ 2,922,982</b>	<b>\$ 3,215,280</b>	<b>\$ 3,311,739</b>	<b>\$ 3,311,739</b>	<b>\$ 3,311,739</b>
<b>Projected Annual Rate Increase</b>	<b>(2)</b>	<b>(3)</b>	<b>5.00%</b>	<b>5.00%</b>	<b>10.00%</b>	<b>10.00%</b>	<b>10.00%</b>	<b>3.00%</b>	<b>0.00%</b>	<b>0.00%</b>
Cumulative Increase from Annual Rate Increases	0.00%	0.00%	5.00%	10.25%	21.28%	33.40%	46.74%	51.15%	51.15%	51.15%
Coverage After Rate Increase	0.56	(0.26)	0.85	0.79	1.02	1.19	1.44	1.46	1.45	1.40

- (1) Rate revenue for FY 2011/12 and 2012/13 is per the City's 2012/13 Adopted Budget.  
(2) The City adopted a rate increase of 4% for Fiscal Year 2011/12 and projected revenue (per the City's adopted budget) under those rates is \$2,147,939.  
(3) The City adopted a rate increase of 4% for Fiscal Year 2012/13 and projected revenue (per the City's adopted budget) under those rates is \$2,191,100.

TABLE 2  
RESERVE FUND SUMMARY

SUMMARY OF CASH ACTIVITY	Budget	Current	Projected							
	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
<b>Total Beginning Cash (1)</b>	<b>\$ 2,421,988</b>									
<b>Fund #610 Water Works O&amp;M Reserve</b>										
Beginning Reserve Balance (2)	\$ 408,799	\$ 143,056	\$ (616,693)	\$ (718,841)	\$ (886,778)	\$ (872,481)	\$ (707,390)	\$ (371,317)	\$ 26,757	\$ 416,484
Plus: Net Cash Flow (After Rate Increases)	(265,743)	(759,749)	(102,148)	(167,938)	14,298	165,091	336,073	398,074	389,727	343,262
Plus: Transfer of Debt Reserve Surplus	-	-	-	-	-	-	-	-	-	-
Less: Transfers Out to Capital Replacement Reserve	-	-	-	-	-	-	-	-	-	(212,747)
<b>Ending Operating Reserve Balance</b>	<b>\$ 143,056</b>	<b>\$ (616,693)</b>	<b>\$ (718,841)</b>	<b>\$ (886,778)</b>	<b>\$ (872,481)</b>	<b>\$ (707,390)</b>	<b>\$ (371,317)</b>	<b>\$ 26,757</b>	<b>\$ 416,484</b>	<b>\$ 547,000</b>
<b>Target Ending Balance (25% or 90 days of O&amp;M)</b>	<b>\$ 468,000</b>	<b>\$ 599,000</b>	<b>\$ 446,000</b>	<b>\$ 459,000</b>	<b>\$ 473,000</b>	<b>\$ 487,000</b>	<b>\$ 501,000</b>	<b>\$ 516,000</b>	<b>\$ 532,000</b>	<b>\$ 547,000</b>
<b>Fund #614 Water Fund Capital Reserve</b>										
Beginning Reserve Balance (2)	\$ 1,635,847	\$ 1,400,847	\$ 685,847	\$ 685,375	\$ 684,591	\$ 684,591	\$ 601,589	\$ 376,000	\$ 376,000	\$ 376,000
Plus: Grant Proceeds	-	550,000	-	-	-	-	-	-	-	-
<b>Plus: Net Debt Proceeds</b>	<b>-</b>	<b>-</b>	<b>796,000</b>	<b>1,747,000</b>	<b>-</b>	<b>800,000</b>	<b>400,000</b>	<b>1,400,000</b>	<b>-</b>	<b>-</b>
Plus: Transfer of Operating Reserve Surplus	-	-	-	-	-	-	-	-	-	212,747
Less: Use of Reserves for Capital Projects	(235,000)	(1,265,000)	(796,472)	(1,747,784)	-	(883,002)	(625,589)	(1,400,000)	-	-
<b>Ending Repair &amp; Replacement Balance</b>	<b>\$ 1,400,847</b>	<b>\$ 685,847</b>	<b>\$ 685,375</b>	<b>\$ 684,591</b>	<b>\$ 684,591</b>	<b>\$ 601,589</b>	<b>\$ 376,000</b>	<b>\$ 376,000</b>	<b>\$ 376,000</b>	<b>\$ 588,747</b>
<b>Target Ending Balance (3% of Assets) (3)</b>	<b>\$ 260,000</b>	<b>\$ 297,000</b>	<b>\$ 312,000</b>	<b>\$ 358,000</b>	<b>\$ 348,000</b>	<b>\$ 363,000</b>	<b>\$ 376,000</b>	<b>\$ 407,000</b>	<b>\$ 395,000</b>	<b>\$ 383,000</b>
<b>Debt Reserve (currently held in Fund #610)</b>										
Beginning Reserve Balance (2)	\$ 377,342	\$ 377,342	\$ 377,342	\$ 437,449	\$ 569,367	\$ 569,367	\$ 629,776	\$ 659,980	\$ 765,696	\$ 765,696
Plus: Reserve Funding from New Debt Obligations	-	-	60,107	131,918	-	60,409	30,204	105,716	-	-
Less: Transfer of Surplus to Operating Reserve	-	-	-	-	-	-	-	-	-	-
<b>Ending Debt Reserve Balance</b>	<b>\$ 377,342</b>	<b>\$ 377,342</b>	<b>\$ 437,449</b>	<b>\$ 569,367</b>	<b>\$ 569,367</b>	<b>\$ 629,776</b>	<b>\$ 659,980</b>	<b>\$ 765,696</b>	<b>\$ 765,696</b>	<b>\$ 765,696</b>
<b>Target Ending Balance</b>	<b>\$ 377,342</b>	<b>\$ 377,342</b>	<b>\$ 437,449</b>	<b>\$ 569,367</b>	<b>\$ 569,367</b>	<b>\$ 629,776</b>	<b>\$ 659,981</b>	<b>\$ 765,696</b>	<b>\$ 765,696</b>	<b>\$ 765,696</b>
<b>Ending Balance - All Reserves</b>	<b>\$ 1,921,245</b>	<b>\$ 446,496</b>	<b>\$ 403,983</b>	<b>\$ 367,179</b>	<b>\$ 381,477</b>	<b>\$ 523,975</b>	<b>\$ 664,664</b>	<b>\$ 1,168,453</b>	<b>\$ 1,558,180</b>	<b>\$ 1,901,443</b>
<b>Recommended Target Ending Balance - All Reserves</b>	<b>\$ 1,105,342</b>	<b>\$ 1,273,342</b>	<b>\$ 1,195,449</b>	<b>\$ 1,386,367</b>	<b>\$ 1,390,367</b>	<b>\$ 1,479,776</b>	<b>\$ 1,536,981</b>	<b>\$ 1,688,696</b>	<b>\$ 1,692,696</b>	<b>\$ 1,695,696</b>
<b>Ending Surplus/(Deficit) Compared to Reserve Targets</b>	<b>\$ 815,902</b>	<b>\$ (826,846)</b>	<b>\$ (791,466)</b>	<b>\$ (1,019,188)</b>	<b>\$ (1,008,890)</b>	<b>\$ (955,802)</b>	<b>\$ (872,317)</b>	<b>\$ (520,243)</b>	<b>\$ (134,516)</b>	<b>\$ 205,746</b>
<b>Annual Interest Earnings Rate (4)</b>	<b>0.75%</b>	<b>0.75%</b>	<b>1.00%</b>	<b>1.25%</b>	<b>1.50%</b>	<b>1.75%</b>	<b>2.00%</b>	<b>2.25%</b>	<b>2.50%</b>	<b>2.64%</b>

- (1) The beginning cash balance and fund activity for the Connection Fee Reserve fund is shown in Exhibit 2.
- (2) NBS assumes that the City is holding sufficient funds within the O&M Fund to meet the debt reserve requirement and fund all planned capital projects. For purposes of this analysis, it is assumed that available cash can be deposited into distinct Capital and Debt Reserve funds. Accordingly, the total beginning cash balance of \$2,421,988 in all three funds has been segregated as follows: \$408,799 in the O&M Fund, \$1,635,847 in the Capital Reserve Fund and \$377,342 in the Debt Reserve Fund.
- (3) The target Capital Reserve balance is 3% of Net Capital Assets (value of capital assets less accumulated depreciation).
- (4) Historical interest earning rates were referenced on the California Treasurer's Office website for funds invested in LAIF. Future years earnings were conservatively estimated through FY 2016/17 and phase into the historical 10 year average interest earnings rate.

CITY OF FORT BRAGG  
WATER RATE STUDY  
FINANCIAL TABLES/REVENUE REQUIREMENTS  
Capital Improvement Plan Expenditures

EXHIBIT 2

CAPITAL FUNDING SUMMARY

CAPITAL FUNDING FORECAST	Budget		Projected							
	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
<b>Funding Sources:</b>										
Grants (1)	\$ -	\$ 550,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Use of Connection Fee Reserves	-	249,722	18,984	182,284	-	-	43,654	-	-	-
State Revolving Fund Loan	-	-	-	-	-	-	-	-	-	-
<i>Revenue Bond</i>	-	-	796,000	1,747,000	-	800,000	400,000	1,400,000	-	-
Use of Capital Reserves	235,000	715,000	472	784	-	83,002	225,589	-	-	-
Rate Revenue	-	-	-	-	-	-	164,148	39,937	-	-
<b>Total Sources of Capital Funds</b>	<b>\$ 235,000</b>	<b>\$ 1,514,722</b>	<b>\$ 815,456</b>	<b>\$ 1,930,068</b>	<b>\$ -</b>	<b>\$ 883,002</b>	<b>\$ 833,391</b>	<b>\$ 1,439,937</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Uses of Capital Funds:</b>										
Effective Annual Funding of Capital Expenditures	\$ 235,000	\$ 1,514,722	\$ 815,456	\$ 1,930,068	\$ -	\$ 883,002	\$ 833,391	\$ 1,439,937	\$ -	\$ -
<b>Capital Funding Surplus (Deficiency)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>CONNECTION FEE RESERVE FUND - Fund #640 Water Connection Fee Reserve</b>										
Beginning Reserve Balance	\$ 553,628	\$ 557,780	\$ 339,242	\$ 350,650	\$ 199,749	\$ 229,745	\$ 260,766	\$ 249,327	\$ 281,937	\$ 315,985
Plus: Interest Earnings	4,152	4,183	3,392	4,383	2,996	4,021	5,215	5,610	7,048	8,342
Plus: Connection Fee Revenue	-	27,000	27,000	27,000	27,000	27,000	27,000	27,000	27,000	27,000
Less: Use of Reserves for Capital Projects (Future Needs)	-	(249,722)	(18,984)	(182,284)	-	-	(43,654)	-	-	-
<b>Ending Connection Fee Fund Balance</b>	<b>\$ 557,780</b>	<b>\$ 339,242</b>	<b>\$ 350,650</b>	<b>\$ 199,749</b>	<b>\$ 229,745</b>	<b>\$ 260,766</b>	<b>\$ 249,327</b>	<b>\$ 281,937</b>	<b>\$ 315,985</b>	<b>\$ 351,327</b>

**CITY OF FORT BRAGG  
WATER RATE STUDY  
COST OF SERVICE ANALYSIS**

Development of the Commodity Allocation Factor						
Customer Class	2009 Volume (ccf) <sup>1</sup>	2010 Volume (ccf) <sup>1</sup>	2011 Volume (ccf) <sup>1</sup>	% Adjustment for Conservation	Estimated Volume Adjusted for Conservation	Percent of Adjusted Volume
Single Family - Inside City	128,876	128,683	119,736	5%	113,749	41%
Single Family - Outside City	3,207	3,016	2,666	5%	2,533	1%
Multi Family - Inside City	42,197	40,850	40,482	5%	38,458	14%
Multi Family - Outside City	201	183	147	5%	140	0%
Mobile Home Park - Inside City	9,088	7,914	7,735	5%	7,348	3%
Mobile Home Park - Outside City	152	357	966	5%	918	0%
Non-Residential - Inside City	112,948	106,782	105,366	5%	100,098	36%
Non-Residential - Outside City	14,539	13,457	13,226	5%	12,565	5%
<b>Total</b>	<b>311,208</b>	<b>301,242</b>	<b>290,324</b>	<b>--</b>	<b>275,808</b>	<b>100%</b>

1. Consumption data source: City of Fort Bragg utility billing system data extraction files.

2. Assumed conservation due to rate increase is estimated at 5%.

**Commodity Related Costs:** These costs are associated with the total consumption (flow) of water over a specified period of time (e.g. annual).

Development of the Capacity Allocation Factor				
Customer Class	Average Day Use (MGD)	Peaking Factor	Total Peak Day Use	Allocation Factor (% of Use)
Single Family - Inside City	0.233	1.24	0.29	38.6%
Single Family - Outside City <sup>a</sup>	0.005	1.24	0.01	0.9%
Multi Family - Inside City	0.079	1.15	0.09	12.1%
Multi Family - Outside City <sup>a</sup>	0.000	1.15	0.00	0.0%
Mobile Home Park - Inside City	0.015	1.32	0.02	2.7%
Mobile Home Park - Outside City <sup>a</sup>	0.002	1.32	0.00	0.3%
Non-Residential - Inside City	0.205	1.47	0.30	40.3%
Non-Residential - Outside City <sup>a</sup>	0.026	1.47	0.04	5.1%
<b>Total</b>	<b>0.565</b>		<b>0.75</b>	<b>100.0%</b>

a. Due to the small sample sizes, outside peaking factors are assumed to be the same as inside.

**Capacity Related Costs:** Costs associated with the maximum demand required at one point in time or the maximum size of facilities required to meet this demand.

**CITY OF FORT BRAGG  
WATER RATE STUDY  
COST OF SERVICE ANALYSIS**

**DEVELOPMENT OF THE CUSTOMER ALLOCATION FACTOR**

<b>Customer Class</b>	<b>No. of Accounts (2011)</b>	<b>Percent of Total</b>
Single Family - Inside City	2,042	72.9%
Single Family - Outside City	48	1.7%
Multi Family - Inside City	204	7.3%
Multi Family - Outside City	2	0.1%
Mobile Home Park - Inside City	8	0.3%
Mobile Home Park - Outside City	1	0.0%
Non-Residential - Inside City	459	16.4%
Non-Residential - Outside City	39	1.4%
<b>Total</b>	<b>2,803</b>	<b>100%</b>

**Customer Related Costs:** Costs associated with having a customer on the water system. These costs vary with the addition or deletion of customers on the system. Examples: Meter-reading, Postage and billing.

ALLOCATION OF WATER REVENUE REQUIREMENTS:

Classification Components	Net Revenue Requirements (2013-14)	Customer Classes							
		Single Family Inside City	Single Family Outside City	Multi Family - Inside City	Multi Family - Outside City	Mobile Home Park - Inside City	Mobile Home Park - Outside City	Non-Residential - Inside City	Non-Residential - Outside City
Commodity (COM)	\$ 854,150	\$ 352,270	\$ 7,844	\$ 119,100	\$ 432	\$ 22,757	\$ 2,842	\$ 309,993	\$ 38,912
Capacity (CAP)	\$ 1,167,126	\$ 450,239	\$ 10,025	\$ 141,649	\$ 514	\$ 30,950	\$ 3,865	\$ 470,788	\$ 59,095
Customer (CUS)	\$ 301,290	\$ 219,491	\$ 5,159	\$ 21,928	\$ 215	\$ 860	\$ 107	\$ 49,337	\$ 4,192
<b>Net Revenue Requirement</b>	<b>\$ 2,322,566</b>	<b>\$ 1,022,001</b>	<b>\$ 23,028</b>	<b>\$ 282,677</b>	<b>\$ 1,162</b>	<b>\$ 54,567</b>	<b>\$ 6,815</b>	<b>\$ 830,118</b>	<b>\$ 102,199</b>

COST OF SERVICE: SUMMARY OF ALLOCATION OF REVENUE REQUIREMENTS:

Customer Class	Cost of Service Allocated Costs - 2014					vs. Current Rates	
	(COM)	(CAP)	(CUS)	COS Rev. Req't	% of COS Rev. Req't.	at Present Rates (2013) (1)	Percent Difference (COS vs Current)
Single Family - Inside City	\$ 352,270	\$ 450,239	\$ 219,491	\$ 1,022,001	44%	\$ 1,084,171	-6%
Single Family - Outside City	\$ 7,844	\$ 10,025	\$ 5,159	\$ 23,028	1%	\$ 24,999	-8%
Multi Family - Inside City	\$ 119,100	\$ 141,649	\$ 21,928	\$ 282,677	12%	\$ 246,654	15%
Multi Family - Outside City	\$ 432	\$ 514	\$ 215	\$ 1,162	0%	\$ 1,196	-3%
Mobile Home Park - Inside City	\$ 22,757	\$ 30,950	\$ 860	\$ 54,567	2%	\$ 44,489	23%
Mobile Home Park - Outside City	\$ 2,842	\$ 3,865	\$ 107	\$ 6,815	0%	\$ 4,713	45%
Non-Residential - Inside City	\$ 309,993	\$ 470,788	\$ 49,337	\$ 830,118	36%	\$ 682,255	22%
Non-Residential - Outside City	\$ 38,912	\$ 59,095	\$ 4,192	\$ 102,199	4%	\$ 102,622	0%
<b>Total</b>	<b>\$ 854,150</b>	<b>\$ 1,167,126</b>	<b>\$ 301,290</b>	<b>\$ 2,322,566</b>	<b>100%</b>	<b>\$ 2,191,100</b>	<b>6%</b>

(1) Revenue at present rates is adjusted to reflect the rate increase adopted July 1, 2012.

CALCULATION OF PROPOSED MONTHLY FIXED METER SERVICE CHARGES FOR 2013/14:

Number of Meters by Class and Size	2011								Total Meters
	5/8 - 3/4 inch	0.75 inch	1 inch	1.5 inch	2 inch	3 inch	4 inch	6 inch	
Single Family - Inside City	1,276	744	19	3	-	-	-	-	2,042
Single Family - Outside City	46	1	-	1	-	-	-	-	48
Multi Family - Inside City	70	85	20	17	12	-	-	-	204
Multi Family - Outside City	1	1	-	-	-	-	-	-	2
Mobile Home Park - Inside City	-	1	1	-	2	2	2	-	8
Mobile Home Park - Outside City	-	-	-	1	-	-	-	-	1
Non-Residential - Inside City	111	155	50	53	70	11	8	1	459
Non-Residential - Outside City	16	1	8	5	3	4	2	-	39
<b>Total Meters/Accounts</b>	<b>1,520</b>	<b>988</b>	<b>98</b>	<b>80</b>	<b>87</b>	<b>17</b>	<b>12</b>	<b>1</b>	<b>2,803</b>
Hydraulic Capacity Factor (1)	1.0	1.0	1.6	2.0	4.0	6.0	8.0	20.0	
Total Equivalent Meters	1,520	988	157	160	348	102	96	20	3,391
<b>Monthly Fixed Service Charges</b>									
Customer Costs (\$/Acct/bi-mo.) (2)	\$ 8.96	\$ 8.96	\$ 8.96	\$ 8.96	\$ 8.96	\$ 8.96	\$ 8.96	\$ 8.96	
Capacity Costs (\$/Acct/bi-mo.) (3)	\$ 28.68	\$ 28.68	\$ 45.89	\$ 57.37	\$ 114.73	\$ 172.10	\$ 229.47	\$ 573.67	
<b>Total Monthly Meter Charge</b>	<b>\$ 37.64</b>	<b>\$ 37.64</b>	<b>\$ 54.85</b>	<b>\$ 66.32</b>	<b>\$ 123.69</b>	<b>\$ 181.06</b>	<b>\$ 238.43</b>	<b>\$ 582.63</b>	
<b>Annual Fixed Costs Allocated to Monthly Meter Charges</b>									
Customer Costs	\$ 301,290								
Capacity Costs	\$ 1,167,126								
<b>Total Fixed Meter Costs</b>	<b>\$ 1,468,416</b>								
<b>Annual Revenue from Monthly Meter Charges</b>									
Customer Costs	\$ 163,382	\$ 106,199	\$ 10,534	\$ 8,599	\$ 9,351	\$ 1,827	\$ 1,290	\$ 107	\$ 301,290
Capacity Costs	\$ 523,189	\$ 340,073	\$ 53,971	\$ 55,073	\$ 119,783	\$ 35,109	\$ 33,044	\$ 6,884	\$ 1,167,126
<b>Total Revenue</b>	<b>\$ 686,572</b>	<b>\$ 446,272</b>	<b>\$ 64,505</b>	<b>\$ 63,672</b>	<b>\$ 129,134</b>	<b>\$ 36,936</b>	<b>\$ 34,333</b>	<b>\$ 6,992</b>	<b>\$ 1,468,416</b>

(1) Source: AWWA Manual M6, Table 5-3 (Displacement meters).

(2) Customer costs are allocated to each customer by dividing the total customer costs by the total number of customers.

(3) Capacity costs are allocated by meter size and the hydraulic capacity of the meter.

PROPOSED CONSUMPTIVE UNIFORM & SFR TIERED RATES FOR 2013/14:

Customer Classes	Number of Accounts	Water Consumption (ccf/yr) (1)	Assumed Water Conservation	Adjusted Water Consumption (2)	Target Rev. Req't	Uniform Commodity Rates (\$/ccf)	Intended Rate Structure
Single Family	2,090	122,402	5%	116,282	\$ 360,114	\$3.097	Tiered
Multi Family - Inside City	204	40,482	5%	38,458	\$ 119,100	\$3.097	Uniform
Multi Family - Outside City	2	147	5%	140	\$ 432	\$3.097	Uniform
Mobile Home Park - Inside City	8	7,735	5%	7,348	\$ 22,757	\$3.097	Uniform
Mobile Home Park - Outside City	1	966	5%	918	\$ 2,842	\$3.097	Uniform
Non-Residential - Inside City	459	105,366	5%	100,098	\$ 309,993	\$3.097	Uniform
Non-Residential - Outside City	39	13,226	5%	12,565	\$ 38,912	\$3.097	Uniform
<b>Total</b>	<b>2,803</b>	<b>290,324</b>	<b>--</b>	<b>275,808</b>	<b>\$ 854,150</b>	<b>--</b>	

(1) Consumption for 2011 calendar year.

PROPOSED RESIDENTIAL TIERED RATES FOR 2013/14:

Water Customer Class	Upper Tier Breakpoint (1)	Tier Rate Increase Factor	Water Consumption (ccf/yr) (2)	Adjusted Water Consumption (3)	Proposed Commodity Rates (\$/ccf)	Target Rev. Req't
Single Family Residential	Tier 1	5.0 hcf/mo.	88,847	84,405	\$2.600	\$219,465
	Tier 2	10.0 hcf/mo.	24,745	23,508	\$3.900	\$91,685
	Tier 3	-	8,810	8,369	\$5.850	\$48,964
<b>Total</b>	<b>--</b>	<b>--</b>	<b>122,402</b>	<b>116,282</b>	<b>--</b>	<b>\$360,114</b>

(1) Adjust tier breakpoints reflect average winter consumption (Tier 1) and twice the average winter consumption (Tier 2).

(2) Water Consumption is per 2011 Single Family Residential (both inside and outside City) water usage data.

(3) Assumes water conservation of 5%.

ALLOCATION OF WATER REVENUE REQUIREMENTS:

Classification Components	Net Revenue Requirements (2013-14)	Customer Classes							
		Single Family - Inside City	Single Family - Outside City	Multi Family - Inside City	Multi Family - Outside City	Mobile Home Park - Inside City	Mobile Home Park - Outside City	Non-Residential - Inside City	Non-Residential - Outside City
Commodity (COM)	\$ 854,150	\$ 352,270	\$ 7,844	\$ 119,100	\$ 432	\$ 22,757	\$ 2,842	\$ 309,993	\$ 38,912
Capacity (CAP)	\$ 1,167,126	\$ 450,239	\$ 10,025	\$ 141,649	\$ 514	\$ 30,950	\$ 3,865	\$ 470,788	\$ 59,095
Customer (CUS)	\$ 301,290	\$ 219,491	\$ 5,159	\$ 21,928	\$ 215	\$ 860	\$ 107	\$ 49,337	\$ 4,192
<b>Net Revenue Requirement</b>	<b>\$ 2,322,566</b>	<b>\$ 1,022,001</b>	<b>\$ 23,028</b>	<b>\$ 282,677</b>	<b>\$ 1,162</b>	<b>\$ 54,567</b>	<b>\$ 6,815</b>	<b>\$ 830,118</b>	<b>\$ 102,199</b>

COST OF SERVICE: SUMMARY OF ALLOCATION OF REVENUE REQUIREMENTS:

Customer Class	Cost of Service Allocated Costs - 2014					vs. Current Rates	
	(COM)	(CAP)	(CUS)	COS Rev. Req't	% of COS Rev. Req't	at Present Rates (2013) (1)	Percent Difference
Single Family - Inside City	\$ 352,270	\$ 450,239	\$ 219,491	\$ 1,022,001	44%	\$ 1,084,171	-6%
Single Family - Outside City	\$ 7,844	\$ 10,025	\$ 5,159	\$ 23,028	1%	\$ 24,999	-8%
Multi Family - Inside City	\$ 119,100	\$ 141,649	\$ 21,928	\$ 282,677	12%	\$ 246,654	15%
Multi Family - Outside City	\$ 432	\$ 514	\$ 215	\$ 1,162	0%	\$ 1,196	-3%
Mobile Home Park - Inside City	\$ 22,757	\$ 30,950	\$ 860	\$ 54,567	2%	\$ 44,489	23%
Mobile Home Park - Outside City	\$ 2,842	\$ 3,865	\$ 107	\$ 6,815	0%	\$ 4,713	45%
Non-Residential - Inside City	\$ 309,993	\$ 470,788	\$ 49,337	\$ 830,118	36%	\$ 682,255	22%
Non-Residential - Outside City	\$ 38,912	\$ 59,095	\$ 4,192	\$ 102,199	4%	\$ 102,622	0%
<b>Total</b>	<b>\$ 854,150</b>	<b>\$ 1,167,126</b>	<b>\$ 301,290</b>	<b>\$ 2,322,566</b>	<b>100%</b>	<b>\$ 2,191,100</b>	<b>6%</b>

(1) Revenue at present rates is adjusted to reflect the rate increase adopted July 1, 2012.

CALCULATION OF PROPOSED MONTHLY FIXED METER SERVICE CHARGES FOR 2013/14, FOR RESIDENTIAL CUSTOMERS:

Number of Meters by Class and Size	2011								Total Meters
	5/8 - 3/4 inch	0.75 inch	1 inch	1.5 inch	2 inch	3 inch	4 inch	6 inch	
Single Family - Inside City	1,276	744	19	3	-	-	-	-	2,042
Single Family - Outside City	46	1	-	1	-	-	-	-	48
<b>Total Meters/Accounts</b>	<b>1,322</b>	<b>745</b>	<b>19</b>	<b>4</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>2,090</b>
Hydraulic Capacity Factor (1)	1.0	1.0	1.6	2.0	4.0	6.0	8.0	20.0	
Total Equivalent Meters	1,322	745	30	8	-	-	-	-	2,105
<b>Monthly Fixed Service Charges</b>									
Customer Costs (\$/Acct/bi-mo.) (2)	\$ 8.96	\$ 8.96	\$ 8.96	\$ 8.96	\$ 8.96	\$ 8.96	\$ 8.96	\$ 8.96	\$ 8.96
Capacity Costs (\$/Acct/bi-mo.) (3)	\$ 18.22	\$ 18.22	\$ 29.15	\$ 36.44	\$ 72.87	\$ 109.31	\$ 145.74	\$ 364.35	
<b>Total Monthly Meter Charge</b>	<b>\$ 27.17</b>	<b>\$ 27.17</b>	<b>\$ 38.11</b>	<b>\$ 45.39</b>	<b>\$ 81.83</b>	<b>\$ 118.26</b>	<b>\$ 154.70</b>	<b>\$ 373.31</b>	
<b>Annual Fixed Costs Allocated to Monthly Meter Charges</b>									
Customer Costs	\$ 224,651								
Capacity Costs	\$ 460,264	18.22							
<b>Total Fixed Meter Costs</b>	<b>\$ 684,915</b>								
<b>Annual Revenue from Monthly Meter Charges</b>									
Customer Costs	\$ 142,100	\$ 80,079	\$ 2,042	\$ 430	\$ -	\$ -	\$ -	\$ -	\$ 224,651
Capacity Costs	\$ 289,004	\$ 162,865	\$ 6,646	\$ 1,749	\$ -	\$ -	\$ -	\$ -	\$ 460,264
<b>Total Revenue</b>	<b>\$ 431,104</b>	<b>\$ 242,944</b>	<b>\$ 8,688</b>	<b>\$ 2,179</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 684,915</b>

(1) Source: AWWA Manual M6, Table 5-3 (Displacement meters).

(2) Customer costs are allocated to each customer by dividing the total customer costs by the total number of customers.

(3) Capacity costs are allocated by meter size and the hydraulic capacity of the meter.

CALCULATION OF PROPOSED MONTHLY FIXED METER SERVICE CHARGES FOR 2013/14, FOR NON-RESIDENTIAL CUSTOMERS:

Number of Meters by Class and Size	2011									Total Meters
	5/8 - 3/4 inch	0.75 inch	1 inch	1.5 inch	2 inch	3 inch	4 inch	6 inch		
Multi Family - Inside City	70	85	20	17	12	-	-	-	-	204
Multi Family - Outside City	1	1	-	-	-	-	-	-	-	2
Mobile Home Park - Inside City	-	1	1	-	2	2	2	-	-	8
Mobile Home Park - Outside City	-	-	-	1	-	-	-	-	-	1
Non-Residential - Inside City	111	155	50	53	70	11	8	1		459
Non-Residential - Outside City	16	1	8	5	3	4	2	-		39
<b>Total Meters/Accounts</b>	<b>198</b>	<b>243</b>	<b>79</b>	<b>76</b>	<b>87</b>	<b>17</b>	<b>12</b>	<b>1</b>		<b>713</b>
<i>Hydraulic Capacity Factor (1)</i>	1.0	1.0	1.6	2.0	4.0	6.0	8.0	20.0		
Total Equivalent Meters	198	243	126	152	348	102	96	20		1,285
<b>Monthly Fixed Service Charges</b>										
Customer Costs (\$/Acct/bi-mo.) (2)	\$ 8.96	\$ 8.96	\$ 8.96	\$ 8.96	\$ 8.96	\$ 8.96	\$ 8.96	\$ 8.96	\$ 8.96	
Capacity Costs (\$/Acct/bi-mo.) (3)	\$ 45.83	\$ 45.83	\$ 73.32	\$ 91.65	\$ 183.31	\$ 274.96	\$ 366.61	\$ 916.53		
<b>Total Monthly Meter Charge</b>	<b>\$ 54.78</b>	<b>\$ 54.78</b>	<b>\$ 82.28</b>	<b>\$ 100.61</b>	<b>\$ 192.26</b>	<b>\$ 283.92</b>	<b>\$ 375.57</b>	<b>\$ 925.48</b>		
<b>Annual Fixed Costs Allocated to Monthly Meter Charges</b>										
Customer Costs	\$ 76,639									
Capacity Costs	\$ 706,862									
<b>Total Fixed Meter Costs</b>	<b>\$ 783,501</b>									
<b>Annual Revenue from Monthly Meter Charges</b>										
Customer Costs	\$ 21,283	\$ 26,120	\$ 8,492	\$ 8,169	\$ 9,351	\$ 1,827	\$ 1,290	\$ 107	\$	\$ 76,639
Capacity Costs	\$ 108,883	\$ 133,629	\$ 69,509	\$ 83,587	\$ 191,371	\$ 56,091	\$ 52,792	\$ 10,998	\$	\$ 706,862
<b>Total Revenue</b>	<b>\$ 130,166</b>	<b>\$ 159,749</b>	<b>\$ 78,001</b>	<b>\$ 91,756</b>	<b>\$ 200,722</b>	<b>\$ 57,919</b>	<b>\$ 54,082</b>	<b>\$ 11,106</b>	<b>\$</b>	<b>\$ 783,501</b>

(1) Source: AWWA Manual M6, Table 5-3 (Displacement meters).

(2) Customer costs are allocated to each customer by dividing the total customer costs by the total number of customers.

(3) Capacity costs are allocated by meter size and the hydraulic capacity of the meter.

PROPOSED CONSUMPTIVE UNIFORM & SFR TIERED RATES FOR 2013/14:

Customer Classes	Number of Accounts	Water Consumption (ccf/yr) (1)	Assumed Water Conservation	Adjusted Water Consumption (2)	Target Rev. Req't	Uniform Commodity Rates (\$/ccf)	Intended Rate Structure
Single Family	2,090	122,402	5%	116,282	\$ 360,114	\$3.097	Tiered
Multi Family - Inside City	204	40,482	5%	38,458	\$ 119,100	\$3.097	Uniform
Multi Family - Outside City	2	147	5%	140	\$ 432	\$3.097	Uniform
Mobile Home Park - Inside City	8	7,735	5%	7,348	\$ 22,757	\$3.097	Uniform
Mobile Home Park - Outside City	1	966	5%	918	\$ 2,842	\$3.097	Uniform
Non-Residential - Inside City	459	105,366	5%	100,098	\$ 309,993	\$3.097	Uniform
Non-Residential - Outside City	39	13,226	5%	12,565	\$ 38,912	\$3.097	Uniform
<b>Total</b>	<b>2,803</b>	<b>290,324</b>		<b>275,808</b>	<b>\$ 854,150</b>		

(1) Consumption for 2011 calendar year.

PROPOSED RESIDENTIAL TIERED RATES FOR 2013/14:

Water Customer Class		Upper Tier Breakpoint (1)	Tier Rate Increase Factor	Water Consumption (ccf/yr) (2)	Adjusted Water Consumption (3)	Proposed Commodity Rates (\$/ccf)	Target Rev. Req't
Single Family Residential	Tier 1	5.0 hcf/mo.	--	88,847	84,405	\$2.600	\$219,465
	Tier 2	10.0 hcf/mo.	50%	24,745	23,508	\$3.900	\$91,685
	Tier 3	-	50%	8,810	8,369	\$5.850	\$48,964
<b>Total</b>		<b>--</b>	<b>--</b>	<b>122,402</b>	<b>116,282</b>	<b>--</b>	<b>\$360,114</b>

(1) Adjust tier breakpoints reflect average winter consumption (Tier 1) and twice the average winter consumption (Tier 2).

(2) Water Consumption is per 2011 Single Family Residential (both inside and outside City) water usage data.

(3) Assumes water conservation of 5%.

**CITY OF FORT BRAGG**  
**WATER RATE STUDY**  
**RATE DESIGN**  
**Comparison of Rate Alternatives**

**Comparison of Rate Alternatives:**

<b>Current and Alternative Water Rates in FY 2013/14</b>			
<b>Comparison Factor</b>	<b>Current Rates</b>	<b>Rate Alt. #1</b>	<b>Rate Alt. #2</b>
<i>Fixed Charges For Residential Customers:</i>			
5/8 inch	\$24.49	\$37.64	\$27.17
3/4 inch	\$24.49	\$37.64	\$27.17
1 inch	\$34.28	\$54.85	\$38.11
1.5 inch	\$44.06	\$66.32	\$45.39
2 inch	\$74.02	\$123.69	\$81.83
3 inch	\$269.38	\$181.06	\$118.26
4 inch	\$342.85	\$238.43	\$154.70
6 inch	\$514.27	\$582.63	\$373.31
<i>Fixed Charges For Non-Residential Customers:</i>			
5/8 inch	Same as Res.	Same as Res.	\$54.78
3/4 inch	Same as Res.	Same as Res.	\$54.78
1 inch	Same as Res.	Same as Res.	\$82.28
1.5 inch	Same as Res.	Same as Res.	\$100.61
2 inch	Same as Res.	Same as Res.	\$192.26
3 inch	Same as Res.	Same as Res.	\$283.92
4 inch	Same as Res.	Same as Res.	\$375.57
6 inch	Same as Res.	Same as Res.	\$925.48
<i>Variable Charges</i>			
Single Family Residential Rates per HCF			
Tier 1: 0-5 HCF	\$4.48	\$2.60	\$2.60
Tier 2: 6-10 HCF	\$4.48	\$3.90	\$3.90
Tier 3: 11+ HCF	\$4.48	\$5.85	\$5.85
Non-Single Family Residential Rate Per HCF	\$4.48	\$3.10	\$3.10
Maintains Current % of Rate Revenue from Base Charges?	N/A	No	No
% of Revenue From Fixed Charges	43%	63%	63%
% of Revenue From Variable Charges	57%	37%	37%

**CITY OF FORT BRAGG**  
**WATER RATE STUDY**  
**RATE DESIGN**  
**Comparison of Rate Alternatives**

**Single-Family Residential Bill Comparison:**

Rate Alternative	Water Consumption (HCF)						
	2	3	4	5	6	7	8
Current Rates	\$33.45	\$37.93	\$42.41	\$46.89	\$51.37	\$55.85	\$60.33
Rate Alternative #1	\$42.84	\$45.44	\$48.04	\$50.64	\$54.54	\$58.44	\$62.34
Rate Alternative #2	<b>\$32.38</b>	<b>\$34.98</b>	<b>\$37.58</b>	<b>\$40.18</b>	<b>\$44.08</b>	<b>\$47.98</b>	<b>\$51.88</b>

**<= Lowest Bill**

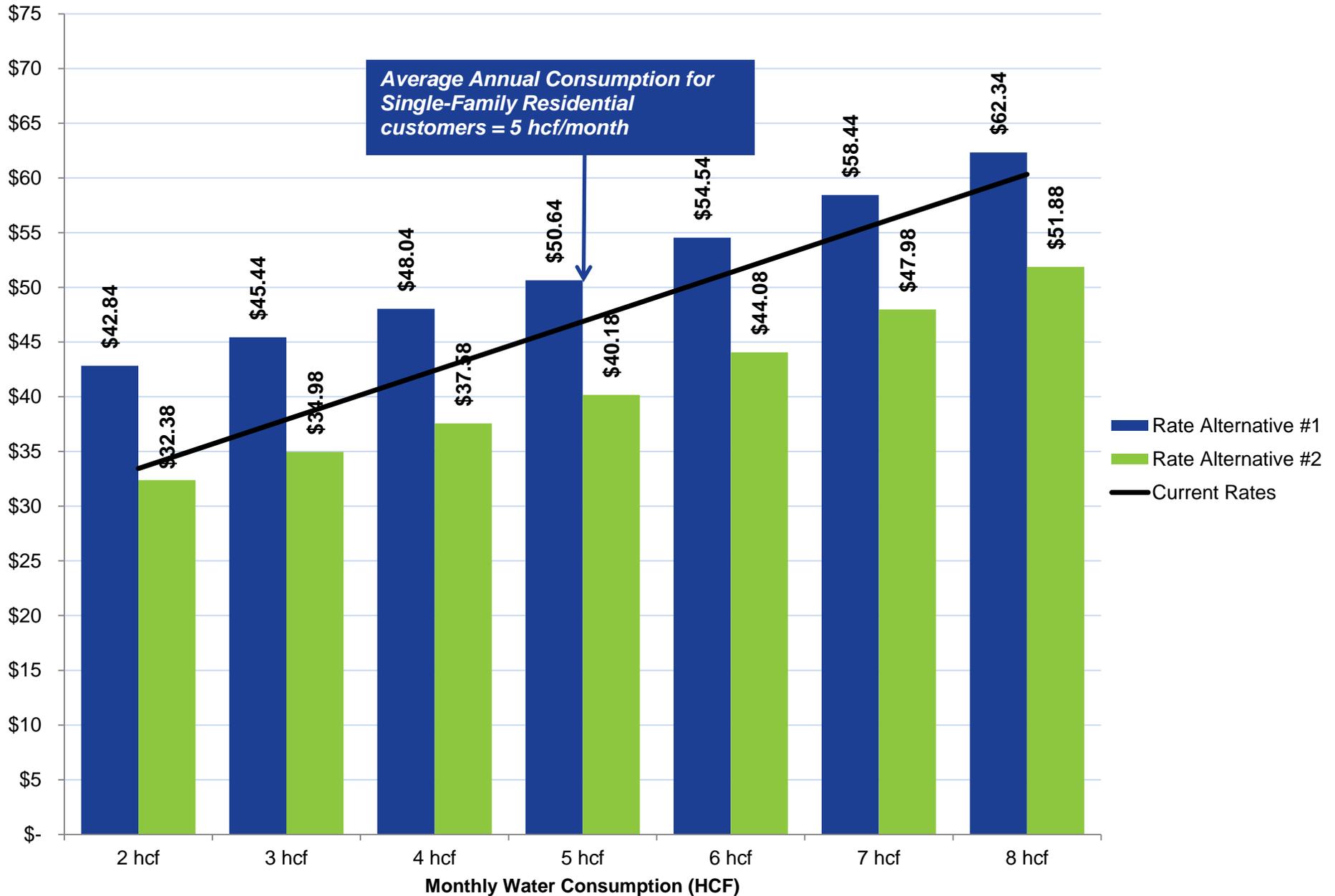
**Non-Residential Bill Comparison:**

Rate Alternative	Water Consumption (HCF)						
	12	14	16	18	20	22	24
Current Rates	\$78.25	\$87.21	\$96.17	\$105.13	\$114.09	\$123.05	\$132.01
Rate Alternative #1	<b>\$74.80</b>	<b>\$81.00</b>	<b>\$87.19</b>	<b>\$93.39</b>	<b>\$99.58</b>	<b>\$105.77</b>	<b>\$111.97</b>
Rate Alternative #2	\$91.95	\$98.14	\$104.33	\$110.53	\$116.72	\$122.92	\$129.11

**<= Lowest Bill**

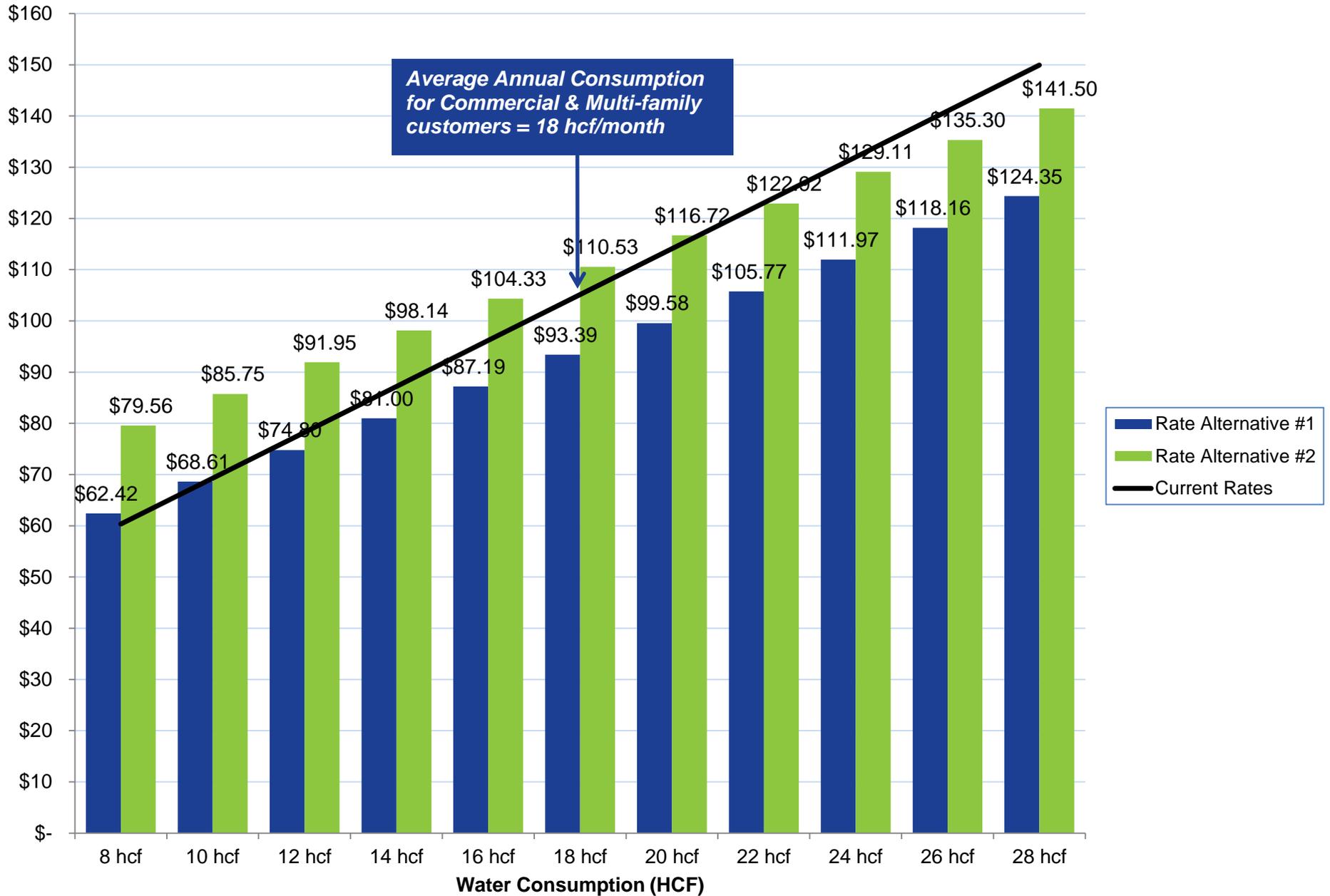
## Single Family Residential Bill Comparison by Alternative

Current vs. Proposed Rates (w/ 5% increase)



## Non-Residential (3/4" Meter) Bill Comparison by Alternative

Current vs. Proposed Rates (w/ 5% increase)



**CITY OF FORT BRAGG  
 WATER RATE STUDY  
 FATS, OILS AND GREASE (FOG) PROGRAM**

**Fats, Oils and Grease (FOG) Program Information:**

No. Grease Traps in City/Inspected Annually	70
Staff Time Spent Per Location Annually:	
Inspection Time	0.5 hour
Administrative/Paperwork	<u>1.0</u> hour
<b>Total Staff Time Per Location Annually</b>	<b>1.5 hours</b>
Labor Cost <sup>1</sup>	\$68.35 per hour
Total Annual Program Costs	\$7,177
<b>Annual Cost and Recommended Annual Fee per Site/Business</b>	<b>\$102.00 per year</b>
<i>Current and Recommended Fee:</i> Permit Application <sup>2</sup>	\$100 One-time fee

1. Labor rate includes benefits and allocated overhead costs.

2. NBS recommends the City continue this fee for new FOG program applicants.

# **SEWER RATE STUDY – APPENDIX B**

**SELECTED TABLES FROM THE FINANCIAL PLAN,  
COST OF SERVICE ANALYSIS AND RATE DESIGN**

TABLE 1  
FINANCIAL PLAN AND SUMMARY OF REVENUE REQUIREMENTS

SOURCES & USES OF FUNDS - SEWER UTILITY	Budget	Current	Projected							
	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
<b>Sources of Wastewater Funds</b>										
Rate Revenue Under Prevailing Rates (1)	\$ 2,717,300	\$ 2,766,700	\$ 2,766,700	\$ 2,766,700	\$ 2,766,700	\$ 2,766,700	\$ 2,766,700	\$ 2,766,700	\$ 2,766,700	\$ 2,766,700
Non-Rate Revenues	271,529	191,123	180,623	180,623	180,623	180,623	180,623	180,623	180,623	180,623
Interest Earnings (from Reserves)	2,635	6,456	3,046	83	6,645	16,470	26,804	38,405	50,616	63,266
<b>Total Sources of Funds</b>	<b>\$ 2,991,464</b>	<b>\$ 2,964,279</b>	<b>\$ 2,950,369</b>	<b>\$ 2,947,406</b>	<b>\$ 2,953,968</b>	<b>\$ 2,963,793</b>	<b>\$ 2,974,127</b>	<b>\$ 2,985,728</b>	<b>\$ 2,997,939</b>	<b>\$ 3,010,589</b>
<b>Uses of Wastewater Funds</b>										
Operating Expenses:										
Administration	\$ 1,097,705	\$ 1,262,092	\$ 1,299,622	\$ 1,338,277	\$ 1,378,093	\$ 1,419,103	\$ 1,453,743	\$ 1,497,250	\$ 1,542,062	\$ 1,588,219
Maintenance	14,100	14,100	14,523	14,959	15,407	15,870	16,346	16,836	17,341	17,861
Treatment	1,098,421	1,375,150	1,416,357	1,458,799	1,502,515	1,547,543	1,593,921	1,641,691	1,690,893	1,741,572
Subtotal: Operating Expenses	\$ 2,210,226	\$ 2,651,342	\$ 2,730,501	\$ 2,812,035	\$ 2,896,015	\$ 2,982,515	\$ 3,064,009	\$ 3,155,777	\$ 3,250,297	\$ 3,347,653
Other Expenditures:										
Existing Debt Service	\$ 97,078	\$ 72,547	\$ 75,295	\$ 72,910	\$ 59,805	\$ 57,155	\$ 59,373	\$ 56,458	\$ -	\$ -
New Debt Service	-	-	-	211,431	406,250	600,314	683,376	683,376	683,376	683,376
Rate-Funded Capital Expenses	174,664	796,590	663,849	86,438	7,162	46,438	33,100	-	-	-
Subtotal: Other Expenditures	\$ 271,742	\$ 869,137	\$ 739,144	\$ 370,780	\$ 473,217	\$ 703,907	\$ 775,850	\$ 739,834	\$ 683,376	\$ 683,376
<b>Total Uses of Wastewater Funds</b>	<b>\$ 2,481,968</b>	<b>\$ 3,520,479</b>	<b>\$ 3,469,645</b>	<b>\$ 3,182,815</b>	<b>\$ 3,369,232</b>	<b>\$ 3,686,422</b>	<b>\$ 3,839,859</b>	<b>\$ 3,895,611</b>	<b>\$ 3,933,673</b>	<b>\$ 4,031,029</b>
plus: Revenue from Rate Increases	-	-	221,336	460,379	718,545	927,660	1,149,321	1,227,642	1,307,529	1,389,013
<b>Annual Surplus/(Deficit)</b>	<b>\$ 509,497</b>	<b>\$ (556,199)</b>	<b>\$ (297,941)</b>	<b>\$ 224,970</b>	<b>\$ 303,281</b>	<b>\$ 205,031</b>	<b>\$ 283,590</b>	<b>\$ 317,759</b>	<b>\$ 371,794</b>	<b>\$ 368,573</b>
<b>Net Revenue Requirements (2)</b>	<b>\$ 2,207,803</b>	<b>\$ 3,322,899</b>	<b>\$ 3,285,977</b>	<b>\$ 3,002,109</b>	<b>\$ 3,181,964</b>	<b>\$ 3,489,329</b>	<b>\$ 3,632,432</b>	<b>\$ 3,676,583</b>	<b>\$ 3,702,434</b>	<b>\$ 3,787,140</b>
<b>Total Rate Revenue After Rate Increases</b>	<b>\$ 2,717,300</b>	<b>\$ 2,766,700</b>	<b>\$ 2,988,036</b>	<b>\$ 3,227,079</b>	<b>\$ 3,485,245</b>	<b>\$ 3,694,360</b>	<b>\$ 3,916,021</b>	<b>\$ 3,994,342</b>	<b>\$ 4,074,229</b>	<b>\$ 4,155,713</b>
<b>Projected Annual Rate Increase</b>	<b>(3)</b>	<b>(4)</b>	<b>8.00%</b>	<b>8.00%</b>	<b>8.00%</b>	<b>6.00%</b>	<b>6.00%</b>	<b>2.00%</b>	<b>2.00%</b>	<b>2.00%</b>
Cumulative Increase from Annual Rate Increases	0.00%	0.00%	8.00%	16.64%	25.97%	33.53%	41.54%	44.37%	47.26%	50.20%
Coverage After Rate Increase	6.25	(6.67)	(2.96)	1.79	1.65	1.31	1.38	1.43	1.54	1.54

(1) Rate revenue for FY 2011/12 and 2012/13 is per the City's 2012/13 Adopted Budget.  
(2) Total Uses less Non-Rate Revenue.  
(3) The City adopted a rate increase of 10% for Fiscal Year 2011/12 and projected revenue (per the City's adopted budget) under those rates is \$2,717,300.  
(4) The City adopted a rate increase of 4% for Fiscal Year 2012/13 and projected revenue (per the City's adopted budget) under those rates is \$2,766,700.

TABLE 2  
RESERVE FUND SUMMARY

SUMMARY OF RESERVE FUND ACTIVITY	Budget	Projected								
	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
<b>Total Beginning Cash (1)</b>	<b>\$ 360,761</b>									
<b>Fund # 710 Wastewater O&amp;M Reserve</b>										
Beginning Reserve Balance (2)	\$ 100,000	\$ 553,000	\$ (3,199)	\$ (301,140)	\$ (76,170)	\$ 227,111	\$ 432,142	\$ 715,732	\$ 789,000	\$ 813,000
Plus: Net Cash Flow (After Rate Increases)	509,497	(556,199)	(297,941)	224,970	303,281	205,031	283,590	317,759	371,794	368,573
Plus: Transfer of Debt Reserve Surplus	-	-	-	-	0	-	-	-	62,760	0
Less: Transfers Out to the Capital Reserve	(56,497)	-	-	-	-	-	-	(244,490)	(410,554)	(344,573)
<b>Ending O&amp;M Reserve Balance</b>	<b>\$ 553,000</b>	<b>\$ (3,199)</b>	<b>\$ (301,140)</b>	<b>\$ (76,170)</b>	<b>\$ 227,111</b>	<b>\$ 432,142</b>	<b>\$ 715,732</b>	<b>\$ 789,000</b>	<b>\$ 813,000</b>	<b>\$ 837,000</b>
<i>Target Ending Balance (25% or 90 days of O&amp;M)</i>	<i>\$ 553,000</i>	<i>\$ 663,000</i>	<i>\$ 683,000</i>	<i>\$ 703,000</i>	<i>\$ 724,000</i>	<i>\$ 746,000</i>	<i>\$ 766,000</i>	<i>\$ 789,000</i>	<i>\$ 813,000</i>	<i>\$ 837,000</i>
<b>Fund # 714 Wastewater Capital R&amp;R Reserve</b>										
Beginning Reserve Balance (2)	\$ 188,606	\$ 245,103	\$ 245,000	\$ 245,000	\$ 245,000	\$ 245,000	\$ 245,000	\$ 245,000	\$ 489,490	\$ 900,045
Plus: Net Debt Proceeds	-	-	-	2,800,000	2,580,000	2,570,000	1,100,000	-	-	-
Plus: Transfer of Operating Reserve Surplus	56,497	-	-	-	-	-	-	244,490	410,554	344,573
Less: Use of Reserves for Capital Projects	-	(103)	-	(2,800,000)	(2,580,000)	(2,570,000)	(1,100,000)	-	-	-
<b>Ending Repair &amp; Replacement Balance</b>	<b>\$ 245,103</b>	<b>\$ 245,000</b>	<b>\$ 489,490</b>	<b>\$ 900,045</b>	<b>\$ 1,244,618</b>					
<i>Target Ending Balance (3% of Assets)</i>	<i>\$ 228,000</i>	<i>\$ 245,000</i>	<i>\$ 257,000</i>	<i>\$ 334,000</i>	<i>\$ 400,000</i>	<i>\$ 465,000</i>	<i>\$ 484,000</i>	<i>\$ 469,000</i>	<i>\$ 455,000</i>	<i>\$ 442,000</i>
<b>Debt Reserve (currently held in Fund #710)</b>										
Beginning Reserve Balance (2)	\$ 62,760	\$ 62,760	\$ 62,760	\$ 62,760	\$ 274,191	\$ 469,010	\$ 663,074	\$ 746,136	\$ 746,136	\$ 683,376
Plus: Reserve Funding from New Debt Obl	-	-	-	211,431	194,819	194,064	83,062	-	-	-
Less: Transfer of Surplus to Operating Res	-	-	-	-	(0)	-	-	-	(62,760)	(0)
<b>Ending Debt Reserve Balance</b>	<b>\$ 62,760</b>	<b>\$ 62,760</b>	<b>\$ 62,760</b>	<b>\$ 274,191</b>	<b>\$ 469,010</b>	<b>\$ 663,074</b>	<b>\$ 746,136</b>	<b>\$ 746,136</b>	<b>\$ 683,376</b>	<b>\$ 683,376</b>
<i>Target Ending Balance (3)</i>	<i>\$ 62,760</i>	<i>\$ 62,760</i>	<i>\$ 62,760</i>	<i>\$ 274,191</i>	<i>\$ 469,010</i>	<i>\$ 663,074</i>	<i>\$ 746,136</i>	<i>\$ 746,136</i>	<i>\$ 683,376</i>	<i>\$ 683,376</i>
<b>Fund # 720 Clean Water Education Reserve</b>										
Beginning Reserve Balance	\$ 9,395	\$ 9,465	\$ 9,536	\$ 9,632	\$ 9,752	\$ 9,898	\$ 10,072	\$ 10,273	\$ 10,504	\$ 10,767
Plus: Interest Earnings (4)	70	71	95	120	146	173	201	231	263	284
Less: Use of Reserve for Educational Program	-	-	-	-	-	-	-	-	-	-
<b>Ending Clean Water Education Reserve Balance</b>	<b>\$ 9,465</b>	<b>\$ 9,536</b>	<b>\$ 9,632</b>	<b>\$ 9,752</b>	<b>\$ 9,898</b>	<b>\$ 10,072</b>	<b>\$ 10,273</b>	<b>\$ 10,504</b>	<b>\$ 10,767</b>	<b>\$ 11,051</b>
<i>Target Ending Balance</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>	<i>\$ -</i>
<b>Ending Balance - All Reserves</b>	<b>\$ 870,328</b>	<b>\$ 314,097</b>	<b>\$ 16,252</b>	<b>\$ 452,774</b>	<b>\$ 951,020</b>	<b>\$ 1,350,288</b>	<b>\$ 1,717,141</b>	<b>\$ 2,035,131</b>	<b>\$ 2,407,188</b>	<b>\$ 2,776,045</b>
<b>Recommended Target Ending Balance - All Reserves</b>	<b>\$ 843,760</b>	<b>\$ 970,760</b>	<b>\$ 1,002,760</b>	<b>\$ 1,311,191</b>	<b>\$ 1,593,010</b>	<b>\$ 1,874,074</b>	<b>\$ 1,996,136</b>	<b>\$ 2,004,136</b>	<b>\$ 1,951,376</b>	<b>\$ 1,962,376</b>
<b>Ending Surplus/(Deficit)</b>	<b>\$ 26,568</b>	<b>\$ (656,663)</b>	<b>\$ (986,508)</b>	<b>\$ (858,418)</b>	<b>\$ (641,990)</b>	<b>\$ (523,786)</b>	<b>\$ (278,995)</b>	<b>\$ 30,995</b>	<b>\$ 455,812</b>	<b>\$ 813,669</b>
<i>Annual Interest Earnings Rate (4)</i>	<i>0.75%</i>	<i>0.75%</i>	<i>1.00%</i>	<i>1.25%</i>	<i>1.50%</i>	<i>1.75%</i>	<i>2.00%</i>	<i>2.25%</i>	<i>2.50%</i>	<i>2.64%</i>

- (1) The beginning cash balance and fund activity for the Connection Fee Reserve fund is shown in Exhibit 2.
- (2) NBS assumes that the City is holding sufficient funds within the O&M Fund to meet the debt reserve requirement, so for purposes of this analysis, it is assumed that available cash can be deposited into distinct Operating, Capital and Debt. Accordingly, the total beginning cash balance from the Trial Balance report of \$351,366 has been segregated as follows: \$100,000 in the O&M Fund, \$188,606 in the Capital R&R Reserve and \$62,760 in the Debt Reserve Fund.
- (3) Refer to Exhibit 3 for the reserve requirement for each bond issue.
- (4) Historical interest earning rates were referenced on the California Treasurer's Office website for funds invested in LAIF. Future years earnings were conservatively estimated through FY 2016/17 and phase into the historical 10 year average interest earnings rate.

CITY OF FORT BRAGG  
WASTEWATER RATE STUDY  
FINANCIAL TABLES/REVENUE REQUIREMENTS  
Capital Improvement Plan Expenditures

EXHIBIT 2

CAPITAL FUNDING FORECAST Funding Sources:	Budget	Projected								
	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
Grant	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Surplus Impact Fee Fund Balance	174,336	1,308	20,010	20,200	20,253	20,304	-	-	-	-
State Revolving Fund Loan	-	-	-	-	-	-	-	-	-	-
<b>Revenue Bond</b>	-	-	-	<b>2,800,000</b>	<b>2,580,000</b>	<b>2,570,000</b>	<b>1,100,000</b>	-	-	-
Surplus Capital Reserve	-	103	-	-	-	-	-	-	-	-
Rate Revenue	174,664	796,590	663,849	86,438	7,162	46,438	33,100	-	-	-
<b>Grand Total: Capital Funding Sources</b>	<b>\$ 349,000</b>	<b>\$ 798,000</b>	<b>\$ 683,859</b>	<b>\$ 2,906,638</b>	<b>\$ 2,607,414</b>	<b>\$ 2,636,742</b>	<b>\$ 1,133,100</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Uses of Capital Funds:</b>										
Effective Annual Funding of Capital Expenditures	\$ 349,000	\$ 798,000	\$ 683,859	\$ 2,906,638	\$ 2,607,414	\$ 2,636,742	\$ 1,133,100	\$ -	\$ -	\$ -
<b>Capital Funding Surplus (Deficiency)</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>CAPACITY FEE RESERVE FUND - Fund #740 Wastewater Connection Fee Reserve</b>										
Beginning Reserve Balance	\$ 174,336	\$ 1,308	\$ 20,010	\$ 20,200	\$ 20,253	\$ 20,304	\$ 20,355	\$ 40,762	\$ 61,680	\$ 83,222
Plus: Interest Earnings	1,308	10	200	253	304	355	407	917	1,542	2,197
Plus: Capacity Fee Revenue	-	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000	20,000
Less: Use of Reserves for Capital Projects (Future Needs)	(174,336)	(1,308)	(20,010)	(20,200)	(20,253)	(20,304)	-	-	-	-
<b>Ending Connection Fee Fund Balance</b>	<b>\$ 1,308</b>	<b>\$ 20,010</b>	<b>\$ 20,200</b>	<b>\$ 20,253</b>	<b>\$ 20,304</b>	<b>\$ 20,355</b>	<b>\$ 40,762</b>	<b>\$ 61,680</b>	<b>\$ 83,222</b>	<b>\$ 105,419</b>

**CITY OF FORT BRAGG  
WASTEWATER RATE STUDY  
COST OF SERVICE ANALYSIS**

<b>Development of the Volume Allocation Factor - New Customer Classes</b>					
<b>Customer Class</b>	<b>2011 Volume<sup>1</sup> (ccf)</b>	<b>2011 Volume (MGD)</b>	<b>% of 2011 Volume (Unadjusted)</b>	<b>Adjusted Vol. Total (ccf)</b>	<b>Percent of Adjusted Vol.</b>
<i>Residential</i>					
Single Family Residential	104,226	0.214	40.2%	103,143	40.2%
Multi-Family Residential	41,034	0.084	15.8%	40,608	15.8%
Mobile Home Parks	6,663	0.014	2.6%	6,594	2.6%
<i>Commercial</i>					
Low Strength	21,089	0.043	8.1%	20,870	8.1%
Medium Strength	58,176	0.119	22.4%	57,572	22.4%
High Strength	28,371	0.058	10.9%	28,076	10.9%
<b>Total</b>	<b>259,559</b>	<b>0.532</b>	<b>100.0%</b>	<b>256,863</b>	<b>100.0%</b>
<i>Target Total<sup>2</sup> (ccf):</i>					<i>256,863</i>

1. City-provided sewer billing data for 2009-2011.

2. Total effluent from City of Fort Bragg wastewater treatment plant records.

<b>Development of the Strength Allocation Factor - New Customer Classes</b>									
<b>Customer Class</b>	<b>Adjusted Annual Flow (ccf)</b>	<b>Biochemical Oxygen Demand (BOD)</b>				<b>Total Suspended Solids (TSS)</b>			
		<b>Avg Strength Factor (mg/l)</b>	<b>Calculated BOD (lb/yr)</b>	<b>Adjusted BOD (lb/yr)</b>	<b>Percent of Total</b>	<b>Avg Strength Factor (mg/l)</b>	<b>Calculated TSS (lb/yr)</b>	<b>Adjusted TSS (lb/yr)</b>	<b>Percent of Total</b>
<i>Residential</i>									
Single Family Residential	103,143	200	128,688	135,334	28.60%	200	128,688	116,339	31.76%
Multi-Family Residential	40,608	200	50,665	53,281	11.26%	200	50,665	45,803	12.50%
Mobile Home Parks	6,594	200	8,227	8,652	1.83%	200	8,227	7,437	2.03%
<i>Commercial</i>									
Low Strength	20,870	110	14,321	16,096	3.40%	100	13,019	11,945	3.26%
Medium Strength	57,572	200	71,830	80,731	17.06%	200	71,830	65,903	17.99%
High Strength	28,076	910	159,386	179,135	37.85%	740	129,610	118,915	32.46%
<b>Total</b>	<b>256,863</b>	<b>--</b>	<b>433,117</b>	<b>473,228</b>	<b>100.00%</b>	<b>--</b>	<b>402,040</b>	<b>366,342</b>	<b>100.00%</b>

*Target, from Plant Data*

*256,863*

*473,228 (BOD)*

*366,342 (TSS)*

**CITY OF FORT BRAGG  
WASTEWATER RATE STUDY  
COST OF SERVICE ANALYSIS**

<b>Development of the Customer Allocation Factor</b>		
<i>New Customer Classes</i>		
<b>Customer Class</b>	<b>Number of Accounts (2011)</b>	<b>Percent of Total</b>
<i>Residential:</i>		
Single Family Residential	2,031	74.8%
Multi-Family Residential	212	7.8%
Mobile Home Parks	7	0.3%
<i>Commercial:</i>		
Low Strength	32	1.2%
Medium Strength	362	13.3%
High Strength	72	2.7%
<b>Total</b>	<b>2,716</b>	<b>100.0%</b>

CITY OF FORT BRAGG  
WASTEWATER RATE STUDY  
COST OF SERVICE ANALYSIS/RATE DESIGN

Allocation of Revenue Requirements - New Customer Classes							
Classification Components	Net Revenue Requirements <sup>1</sup>	Customer Classes					
		Single-Family Residential	Multi-Family Residential	Mobile Home Parks	Low Strength Commercial	Medium Strength Commercial	High Strength Commercial
<b>Volume Treatment</b>	<b>\$ 1,704,004</b>	\$ 684,243	\$ 269,388	\$ 43,743	\$ 138,449	\$ 381,925	\$ 186,256
- BOD	\$ 560,747	\$ 160,362	\$ 63,135	\$ 10,252	\$ 19,073	\$ 95,661	\$ 212,264
- TSS	\$ 560,747	\$ 178,076	\$ 70,109	\$ 11,384	\$ 18,284	\$ 100,875	\$ 182,019
<b>Customer-Related</b>	<b>\$ 162,538</b>	\$ 121,538	\$ 12,689	\$ 419	\$ 1,915	\$ 21,662	\$ 4,314
<b>Net Revenue Requirement</b>	<b>\$ 2,988,036</b>	<b>\$ 1,144,220</b>	<b>\$ 415,321</b>	<b>\$ 65,797</b>	<b>\$ 177,721</b>	<b>\$ 600,123</b>	<b>\$ 584,853</b>

1. These revenue requirements have been adjusted to meet the City's current revenue collected from sewer rates.

Phase-In of Cost-of-Service Revenue Requirements - (2-Year Phase-In)									
Customer Class	Net Revenue Requirement by Class								% Difference (Adjusted COS vs. Present)
	Revenue at Present Rates		Adjusted Revenue at Present Rates <sup>1</sup>		COS Rev. Req't		Adjusted (Phased-In) COS Rev. Req't <sup>2</sup>		
	(1)	% of Total	(2)	% of Total	(3)	% of Total	(4)	% of Total	
<i>Residential</i>									
Single Family Residential	\$ 1,138,407	41.2%	\$ 1,229,846	41.2%	\$ 1,144,220	38.3%	\$ 1,187,033	39.7%	4%
Multi-Family Residential	\$ 535,903	19.4%	\$ 578,948	19.4%	\$ 415,321	13.9%	\$ 497,135	16.6%	-7%
Mobile Home Parks	\$ 100,364	3.6%	\$ 108,425	3.6%	\$ 65,797	2.2%	\$ 87,111	2.9%	-13%
<i>Commercial</i>									
Low Strength	\$ 118,013	4.3%	\$ 127,493	4.3%	\$ 177,721	5.9%	\$ 152,607	5.1%	29%
Medium Strength	\$ 492,671	17.8%	\$ 532,244	17.8%	\$ 600,123	20.1%	\$ 566,184	18.9%	15%
High Strength	\$ 380,515	13.8%	\$ 411,079	13.8%	\$ 584,853	19.6%	\$ 497,966	16.7%	31%
<b>Total</b>	<b>\$2,765,874</b>	<b>--</b>	<b>\$2,988,036</b>	<b>--</b>	<b>\$2,988,036</b>	<b>100%</b>	<b>\$2,988,036</b>	<b>--</b>	<b>0%</b>

1. Adjusted to collect the 2013-14 revenue requirement.

2. Average of columns (2) and (3).

Adjusted Cost-of-Service Allocation of Revenue Requirements						
Customer Class	Adjusted COS Allocated Costs - 2014				Adjusted (Phased-In) COS Rev. Req't <sup>2</sup>	
	(VOL) 59%	(BOD) 17%	(TSS) 17%	(CA) 7%		% of Total
<i>Residential</i>						
Single Family Residential	\$ 709,846	\$ 166,363	\$ 184,739	\$ 126,086	\$ 1,187,033	39.7%
Multi-Family Residential	\$ 322,455	\$ 75,572	\$ 83,920	\$ 15,189	\$ 497,135	16.6%
Mobile Home Parks	\$ 57,912	\$ 13,573	\$ 15,072	\$ 555	\$ 87,111	2.9%
<i>Commercial</i>						
Low Strength	\$ 118,885	\$ 16,377	\$ 15,700	\$ 1,645	\$ 152,607	5.1%
Medium Strength	\$ 360,326	\$ 90,251	\$ 95,170	\$ 20,437	\$ 566,184	18.9%
High Strength	\$ 158,585	\$ 180,730	\$ 154,978	\$ 3,673	\$ 497,966	16.7%
<b>Total</b>	<b>\$1,728,008</b>	<b>\$542,865</b>	<b>\$549,579</b>	<b>\$167,584</b>	<b>\$2,988,036</b>	<b>100%</b>

1. Estimated revenue at present rates is based on City's estimated 2014/13 revenue shown in the financial plan.

Annual COS Revenue Requirements by Customer Class - New Customer Classes						
Customer Class	Effluent Flow			BOD		
	ccf/yr	\$/ccf	Annual Rev. Req't	Load (lb/yr)	\$/lb	Annual Rev. Req't
<i>Residential</i>						
Single Family Residential	103,143	\$ 6.634	\$ 684,243	135,334	\$ 1.185	\$ 160,362
Multi-Family Residential	40,608	\$ 6.634	\$ 269,388	53,281	\$ 1.185	\$ 63,135
Mobile Home Parks	6,594	\$ 6.634	\$ 43,743	8,652	\$ 1.185	\$ 10,252
<i>Commercial</i>						
Low Strength	20,870	\$ 6.634	\$ 138,449	16,096	\$ 1.185	\$ 19,073
Medium Strength	57,572	\$ 6.634	\$ 381,925	80,731	\$ 1.185	\$ 95,661
High Strength	28,076	\$ 6.634	\$ 186,256	179,135	\$ 1.185	\$ 212,264
<b>Total</b>	<b>256,863</b>	<b>--</b>	<b>\$ 1,704,004</b>	<b>473,228</b>	<b>--</b>	<b>\$ 560,747</b>

CITY OF FORT BRAGG  
WASTEWATER RATE STUDY  
COST OF SERVICE ANALYSIS/RATE DESIGN

Annual COS Revenue Requirements by Customer Class - New Customer Classes <i>(continued)</i>						
Customer Class	TSS			Customer Costs		
	Load (lb/yr)	\$/lb	Annual Rev. Req't	No. of Accts	\$/Acct/mo	Annual Rev. Req't
<i>Residential</i>						
Single Family Residential	116,339	\$ 1.531	\$ 178,076	2,031	\$ 4.99	\$ 121,538
Multi-Family Residential	45,803	\$ 1.531	\$ 70,109	212	\$ 4.99	\$ 12,689
Mobile Home Parks	7,437	\$ 1.531	\$ 11,384	7	\$ 4.99	\$ 419
<i>Commercial</i>						
Low Strength	11,945	\$ 1.531	\$ 18,284	32	\$ 4.99	\$ 1,915
Medium Strength	65,903	\$ 1.531	\$ 100,875	362	\$ 4.99	\$ 21,662
High Strength	118,915	\$ 1.531	\$ 182,019	72	\$ 4.99	\$ 4,314
<b>Total</b>	<b>366,342</b>	<b>--</b>	<b>\$ 560,747</b>	<b>2,716</b>	<b>--</b>	<b>\$ 162,538</b>

CITY OF FORT BRAGG  
WASTEWATER RATE STUDY  
COST OF SERVICE ANALYSIS/RATE DESIGN

Rate Alternative #1											
Adjusted COS Sewer Charges - Using Current % of Revenue from Base Charges (with Same Base Charges for All Classes)											
Customer Class	Base Charge (\$/mo.) (Current Rate + Increase)	Volume-Based Rate (\$/ccf)	Rate Calculations							Total Revenue by Class	Target Rev. Req.
			Fixed Charges (Base Charges)			Volume-Based Rate (\$/ccf)					
			No. of Accts or Units <sup>1</sup>	New Base Charge	Base Charge Revenue	ccf/yr	New Rate (\$/ccf)	Volume-Based Revenue			
<i>Residential</i>											
Single Family Residential	\$22.47	\$5.78	2,031	\$22.47	\$ 547,611	103,143	\$5.78	\$ 596,609	\$ 1,144,220	\$ 1,144,220	
Multi-Family Residential	\$22.47	\$2.65	1,142	\$22.47	\$ 307,842	40,608	\$2.65	\$ 107,479	\$ 415,321	\$ 415,321	
Mobile Home Parks	\$22.47	\$0.27	237	\$22.47	\$ 64,004	6,594	\$0.27	\$ 1,793	\$ 65,797	\$ 65,797	
<i>Commercial</i>											
Low Strength	\$22.47	\$7.78	680	\$22.47	\$ 15,282	20,870	\$7.78	\$ 162,439	\$ 177,721	\$ 177,721	
Medium Strength <sup>2</sup>	\$22.47	\$8.02	6,164	\$22.47	\$ 138,527	57,572	\$8.02	\$ 461,597	\$ 600,123	\$ 600,123	
High Strength	\$22.47	\$19.94	1,117	\$22.47	\$ 25,103	28,076	\$19.94	\$ 559,750	\$ 584,853	\$ 584,853	
<b>Total</b>	--	--	--	--	<b>\$ 1,098,369</b>	<b>256,863</b>	--	<b>\$ 1,889,667</b>	<b>\$ 2,988,036</b>	<b>\$ 2,988,036</b>	
<i>Percent of Rate Revenue</i>			37%			63%					

1. Single-family residential accounts vs. number of units billed in 2011 for Multi-family, Mobile Home and Commercial customers.  
2. Includes "Commercial - No SS Factor" accounts.

Rate Alternative #2											
Adjusted COS Sewer Charges - Using Current % of Residential Base Charge Revenue, Commercial Base Charges Similar to Current											
Customer Class	Base Charge (\$/mo.) (Current Rate + Increase)	Volume-Based Rate (\$/ccf)	Rate Calculations							Total Revenue by Class	Target Rev. Req.
			Fixed Charges (Base Charges)			Volume-Based Rate (\$/ccf)					
			No. of Accts or Units <sup>1</sup>	New Base Charge	Base Charge Revenue	ccf/yr	New Rate (\$/ccf)	Volume-Based Revenue			
<i>Residential</i>											
Single Family Residential	\$17.36	\$6.99	2,031	\$17.36	\$ 423,041	103,143	\$6.99	\$ 721,179	\$ 1,144,220	\$ 1,144,220	
Multi-Family Residential	\$11.15	\$6.47	1,142	\$11.15	\$ 152,710	40,608	\$6.47	\$ 262,611	\$ 415,321	\$ 415,321	
Mobile Home Parks	\$8.48	\$6.32	237	\$8.48	\$ 24,150	6,594	\$6.32	\$ 41,647	\$ 65,797	\$ 65,797	
<i>Commercial</i>											
Low Strength	\$24.73	\$7.71	680	\$24.73	\$ 16,818	20,870	\$7.71	\$ 160,903	\$ 177,721	\$ 177,721	
Medium Strength <sup>2</sup>	\$24.73	\$7.78	6,164	\$24.73	\$ 152,448	57,572	\$7.78	\$ 447,675	\$ 600,123	\$ 600,123	
High Strength	\$24.73	\$19.85	1,117	\$24.73	\$ 27,626	28,076	\$19.85	\$ 557,227	\$ 584,853	\$ 584,853	
<b>Total</b>	--	--	--	--	<b>\$ 796,792</b>	<b>256,863</b>	--	<b>\$ 2,191,244</b>	<b>\$ 2,988,036</b>	<b>\$ 2,988,036</b>	
<i>Percent of Rate Revenue</i>			27%			73%					

1. Single-family residential accounts vs. number of units billed in 2011 for Multi-family and commercial customers.  
2. Includes "Commercial - No SS Factor" accounts.

CITY OF FORT BRAGG  
WASTEWATER RATE STUDY  
COST OF SERVICE ANALYSIS/RATE DESIGN - PHASED IN REVENUE REQUIREMENTS

Rate Alternative #3											
Adjusted COS Sewer Charges - Using Current % of Revenue from Base Charges (with Same Base Charges for All Classes)											
Customer Class	Base Charge (\$/mo.) (Current Rate + Increase)	Volume-Based Rate (\$/ccf)	Rate Calculations							Total Revenue by Class	Target Rev. Req.
			Fixed Charges (Base Charges)			Volume-Based Rate (\$/ccf)			Total Revenue by Class		
			No. of Accts or Units <sup>1</sup>	New Base Charge	Base Charge Revenue	ccf/yr	New Rate (\$/ccf)	Volume-Based Revenue			
<i>Residential</i>											
Single Family Residential	\$22.47	\$6.20	2,031	\$22.47	\$ 547,611	103,143	\$6.20	\$ 639,422	\$ 1,187,033	\$ 1,187,033	
Multi-Family Residential	\$22.47	\$4.66	1,142	\$22.47	\$ 307,842	40,608	\$4.66	\$ 189,293	\$ 497,135	\$ 497,135	
Mobile Home Parks	\$22.47	\$3.50	237	\$22.47	\$ 64,004	6,594	\$3.50	\$ 23,107	\$ 87,111	\$ 87,111	
<i>Commercial</i>											
Low Strength	\$22.47	\$6.58	680	\$22.47	\$ 15,282	20,870	\$6.58	\$ 137,325	\$ 152,607	\$ 152,607	
Medium Strength <sup>2</sup>	\$22.47	\$7.43	6,164	\$22.47	\$ 138,527	57,572	\$7.43	\$ 427,657	\$ 566,184	\$ 566,184	
High Strength	\$22.47	\$16.84	1,117	\$22.47	\$ 25,103	28,076	\$16.84	\$ 472,863	\$ 497,966	\$ 497,966	
<b>Total</b>	--	--	--	--	<b>\$ 1,098,369</b>	<b>256,863</b>	--	<b>\$ 1,889,667</b>	<b>\$ 2,988,036</b>	<b>\$ 2,988,036</b>	
<i>Percent of Rate Revenue</i>						37%	<i>63%</i>				

1. Single-family residential accounts vs. number of units billed in 2011 for Multi-family, Mobile Home and Commercial customers.

2. Includes "Commercial - No SS Factor" accounts.

Rate Alternative #4											
Adjusted COS Sewer Charges - Using Current % of Residential Base Charge Revenue, Commercial Base Charges Similar to Current											
Customer Class	Base Charge (\$/mo.) (Current Rate + Increase)	Volume-Based Rate (\$/ccf)	Rate Calculations							Total Revenue by Class	Target Rev. Req.
			Fixed Charges (Base Charges)			Volume-Based Rate (\$/ccf)			Total Revenue by Class		
			No. of Accts or Units <sup>1</sup>	New Base Charge	Base Charge Revenue	ccf/yr	New Rate (\$/ccf)	Volume-Based Revenue			
<i>Residential</i>											
Single Family Residential	\$16.86	\$7.53	2,031	\$16.86	\$ 410,708	103,143	\$7.53	\$ 776,325	\$ 1,187,033	\$ 1,187,033	
Multi-Family Residential	\$12.52	\$8.02	1,142	\$12.52	\$ 171,547	40,608	\$8.02	\$ 325,588	\$ 497,135	\$ 497,135	
Mobile Home Parks	\$7.72	\$9.88	237	\$7.72	\$ 21,976	6,594	\$9.88	\$ 65,135	\$ 87,111	\$ 87,111	
<i>Commercial</i>											
Low Strength	\$24.73	\$6.51	680	\$24.73	\$ 16,818	20,870	\$6.51	\$ 135,789	\$ 152,607	\$ 152,607	
Medium Strength <sup>2</sup>	\$24.73	\$7.19	6,164	\$24.73	\$ 152,448	57,572	\$7.19	\$ 413,736	\$ 566,184	\$ 566,184	
High Strength	\$24.73	\$16.75	1,117	\$24.73	\$ 27,626	28,076	\$16.75	\$ 470,340	\$ 497,966	\$ 497,966	
<b>Total</b>	--	--	--	--	<b>\$ 801,123</b>	<b>256,863</b>	--	<b>\$ 2,186,913</b>	<b>\$ 2,988,036</b>	<b>\$ 2,988,036</b>	
<i>Percent of Rate Revenue</i>						27%	<i>73%</i>				

1. Single-family residential accounts vs. number of units billed in 2011 for Multi-family and commercial customers.

2. Includes "Commercial - No SS Factor" accounts.

**CITY OF FORT BRAGG**  
**WASTEWATER RATE STUDY**  
**RATE DESIGN**  
**Comparison of Rate Alternatives**

Comparison Factor	Current Rates	Rate Alt. #1	Rate Alt. #2	Rate Alt. #3	Rate Alt. #4
Maintains Current % of Rate Revenue from Base Charges?	Yes	Yes	No	<i>Recommended</i> Yes	No
% of Revenue From Fixed Charges	37%	37%	27%	37%	27%
% of Revenue From Variable Charges	63%	63%	73%	63%	73%
Same Base Charge for all Classes?	Yes	Yes	No	Yes	No
Phased-In New Rate Structure?	No	No	No	Yes	No

Customer Class	Proposed Rates in FY 2013/14				
	Current Rates	Rate Alt. #1	Rate Alt. #2	Rate Alt. #3	Rate Alt. #4
<b>Fixed Charges:</b>				<i>Recommended</i>	
<i>Residential</i>					
Single Family Residential	\$22.90	\$22.47	\$17.36	\$22.47	\$16.86
Multi-Family Residential	\$22.90	\$22.47	\$11.15	\$22.47	\$12.52
Mobile Home Parks	\$22.90	\$22.47	\$8.48	\$22.47	\$7.72
<i>Commercial</i>					
Low Strength	\$22.90	\$22.47	\$24.73	\$22.47	\$24.73
Medium Strength	\$22.90	\$22.47	\$24.73	\$22.47	\$24.73
High Strength	\$22.90	\$22.47	\$24.73	\$22.47	\$24.73
<b>Variable Charges:</b>					
<i>Residential</i>					
Single Family Residential	\$6.53	\$5.78	\$6.99	\$6.20	\$7.53
Multi-Family Residential	\$6.53	\$2.65	\$6.47	\$4.66	\$8.02
Mobile Home Parks	\$6.53	\$0.27	\$6.32	\$3.50	\$9.88
<i>Commercial</i>					
Low Strength	\$5.57	\$7.78	\$7.71	\$6.58	\$6.51
Medium Strength	\$6.53	\$8.02	\$7.78	\$7.43	\$7.19
High Strength	\$13.87	\$19.94	\$19.85	\$16.84	\$16.75

**CITY OF FORT BRAGG  
WASTEWATER RATE STUDY  
RATE DESIGN  
Comparison of Rate Alternatives**

Comparison Factor	Current Rates	Rate Alt. #1	Rate Alt. #2	Rate Alt. #3	Rate Alt. #4
Maintains Current % of Rate Revenue from Base Charges?	Yes	Yes	No	<i>Recommended</i> Yes	No
% of Revenue From Fixed Charges	37%	37%	27%	37%	27%
% of Revenue From Variable Charges	63%	63%	73%	63%	73%
Same Base Charge for all Classes?	Yes	Yes	No	Yes	No
Phased-In New Rate Structure?	No	No	No	Yes	No

Customer Class	Proposed Rate Alternative #3 in FY 2013/14 through FY 2017-18					
	Current Rates	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18
<b>Fixed Charges:</b>						
<i>Residential</i>						
Single Family Residential	\$22.90	\$22.47	\$24.50	\$26.46	\$28.05	\$29.73
Multi-Family Residential	\$22.90	\$22.47	\$24.50	\$26.46	\$28.05	\$29.73
Mobile Home Parks	\$22.90	\$22.47	\$24.50	\$26.46	\$28.05	\$29.73
<i>Commercial</i>						
Low Strength	\$22.90	\$22.47	\$24.50	\$26.46	\$28.05	\$29.73
Medium Strength	\$22.90	\$22.47	\$24.50	\$26.46	\$28.05	\$29.73
High Strength	\$22.90	\$22.47	\$24.50	\$26.46	\$28.05	\$29.73
<b>Variable Charges<sup>1</sup>:</b>						
<i>Residential</i>						
Single Family Residential	\$6.53	\$6.20	\$6.19	\$6.69	\$7.09	\$7.52
Multi-Family Residential	\$6.53	\$4.66	\$2.78	\$3.00	\$3.18	\$3.38
Mobile Home Parks	\$6.53	\$3.50	\$0.20	\$0.21	\$0.22	\$0.24
<i>Commercial</i>						
Low Strength	\$5.57	\$6.58	\$8.40	\$9.07	\$9.61	\$10.19
Medium Strength	\$6.53	\$7.43	\$8.63	\$9.33	\$9.89	\$10.48
High Strength	\$13.87	\$16.84	\$21.52	\$23.24	\$24.64	\$26.12
<i>Percent annual rate increases</i>		8.0%	8.0%	8.0%	6.0%	6.0%

1. Due to the "phasing-in" of the cost-of-service results, FY 2014-15 rates reflect significant reductions in Mobile Home Parks.

**CITY OF FORT BRAGG**  
**WASTEWATER RATE STUDY**  
**RATE DESIGN**  
**Comparison of Rate Alternatives**

Comparison Factor	Current Rates	Rate Alt. #1	Rate Alt. #2	Rate Alt. #3	Rate Alt. #4
Maintains Current % of Rate Revenue from Base Charges?	Yes	Yes	No	<i>Recommended</i> Yes	No
% of Revenue From Fixed Charges	37%	37%	27%	37%	27%
% of Revenue From Variable Charges	63%	63%	73%	63%	73%
Same Base Charge for all Classes?	Yes	Yes	No	Yes	No
Phased-In New Rate Structure?	No	No	No	Yes	No

**Single-Family Residential Bill Comparison:**

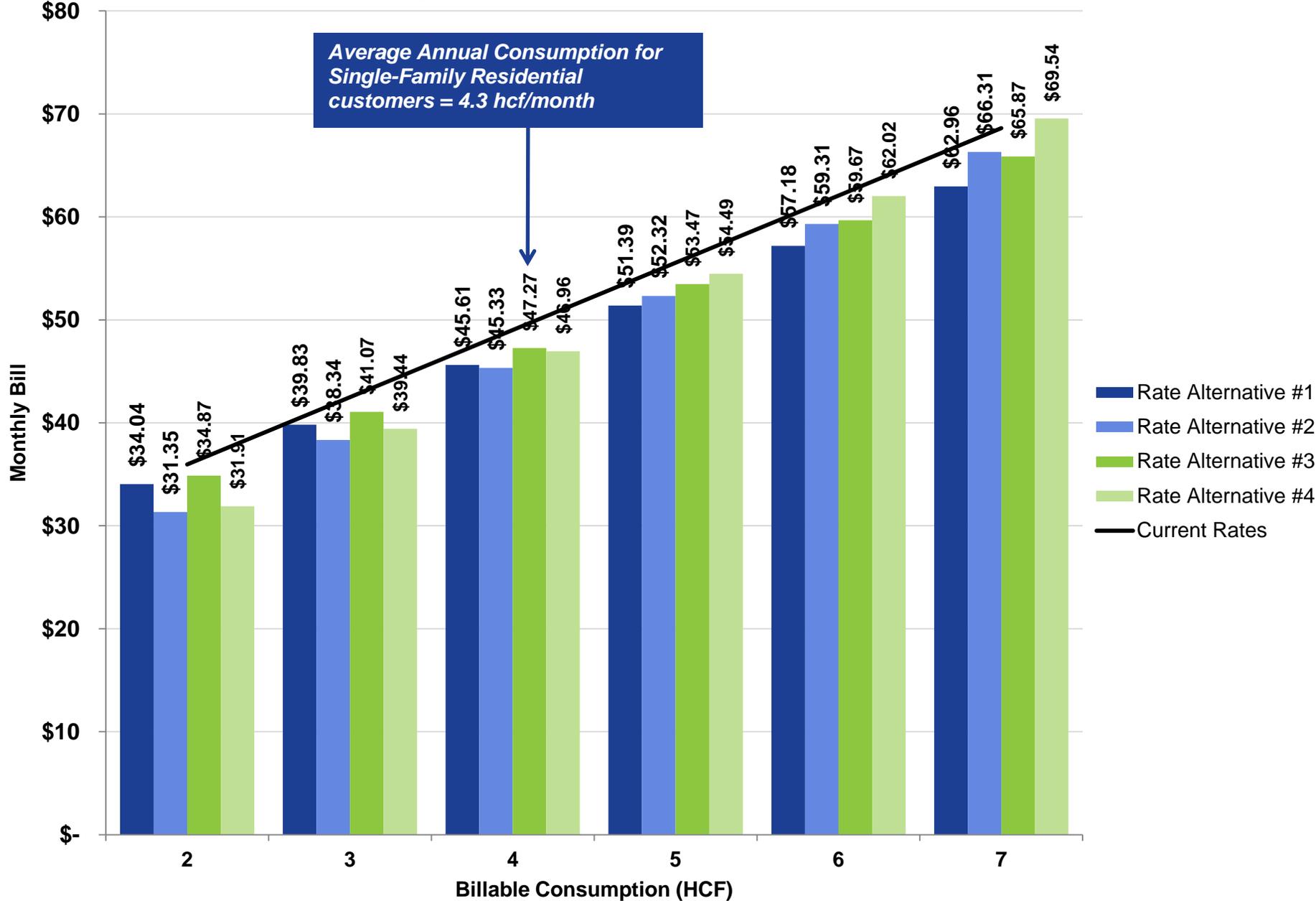
Rate Alternative	% Rate Increase	Billable Consumption (HCF)							
		2	3	4	5	6	7	8	
Current Rates		\$ 35.96	\$ 42.49	\$ 49.02	\$ 55.55	\$ 62.08	\$ 68.61	\$ 75.14	
Rate Alternative #1	8.00%	\$ 34.04	\$ 39.83	\$ 45.61	<b>\$ 51.39</b>	<b>\$ 57.18</b>	<b>\$ 62.96</b>	<b>\$ 68.75</b>	<b>&lt;= Lowest Bill</b>
Rate Alternative #2	8.00%	<b>\$ 31.35</b>	<b>\$ 38.34</b>	<b>\$ 45.33</b>	\$ 52.32	\$ 59.31	\$ 66.31	\$ 73.30	<b>&lt;= Lowest Bill</b>
Rate Alternative #3	8.00%	\$ 34.87	\$ 41.07	\$ 47.27	\$ 53.47	\$ 59.67	\$ 65.87	\$ 72.07	
Rate Alternative #4	8.00%	\$ 31.91	\$ 39.44	\$ 46.96	\$ 54.49	\$ 62.02	\$ 69.54	\$ 77.07	
<i>Lowest Bill (new alternatives)</i>		\$ 31.35	\$ 38.34	\$ 45.33	\$ 51.39	\$ 57.18	\$ 62.96	\$ 68.75	

**Commercial Medium Strength Bill Comparison:**

Rate Alternative	% Rate Increase	Billable Consumption (HCF)							
		4	7	10	13	16	19	22	
Current Rates		\$ 49.02	\$ 68.61	\$ 88.20	\$ 107.79	\$ 127.38	\$ 146.97	\$ 166.56	
Rate Alternative #1	8.00%	\$ 54.54	\$ 78.60	\$ 102.65	\$ 126.70	\$ 150.76	\$ 174.81	\$ 198.86	
Rate Alternative #2	8.00%	\$ 55.84	\$ 79.16	\$ 102.49	\$ 125.82	\$ 149.15	\$ 172.48	\$ 195.80	
Rate Alternative #3	8.00%	<b>\$ 52.19</b>	<b>\$ 74.47</b>	\$ 96.76	\$ 119.04	\$ 141.33	\$ 163.61	\$ 185.89	<b>&lt;= Lowest Bill</b>
Rate Alternative #4	8.00%	\$ 53.48	\$ 75.04	<b>\$ 96.60</b>	<b>\$ 118.16</b>	<b>\$ 139.71</b>	<b>\$ 161.27</b>	<b>\$ 182.83</b>	<b>&lt;= Lowest Bill</b>
<i>Lowest Bill (new alternatives)</i>		\$ 52.19	\$ 74.47	\$ 96.60	\$ 118.16	\$ 139.71	\$ 161.27	\$ 182.83	

# Single-Family Residential Sewer Bill Comparison

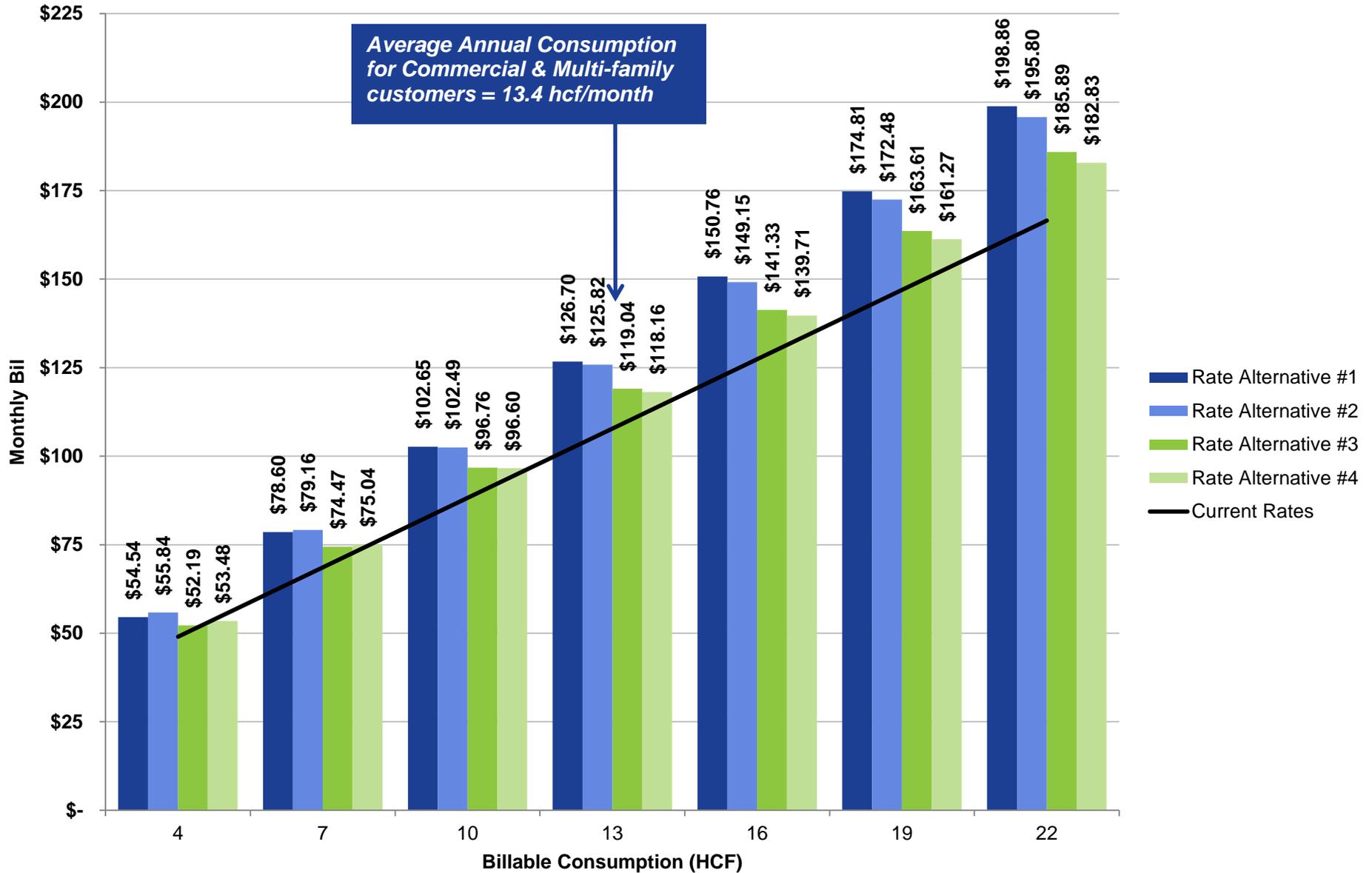
Current vs. Proposed Rates in FY'13-14 (w/ 8% increase)



# Commercial (Med. Strength) Sewer Bill Comparison

## Current vs. Proposed Rates (w/ 8% increase)

### (Inside City Customers)



# **STORM DRAIN RATE STUDY – APPENDIX C**

**SELECTED TABLES FROM THE FINANCIAL PLAN,  
COST OF SERVICE ANALYSIS AND RATE DESIGN**

TABLE 1  
 FINANCIAL PLAN AND SUMMARY OF REVENUE REQUIREMENTS

RATE REVENUE REQUIREMENTS SUMMARY	Budget	Current	Projected							
	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
<b>Sources of Storm Drain Funds</b>										
Rate Revenue Under Prevailing Rates	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Interest Earnings (from Reserves)	-	-	-	0	0	0	0	0	0	0
<b>Total Sources of Funds</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>	<b>\$ 0</b>
<b>Uses of Storm Drain Funds</b>										
Operating Expenses:										
Personnel Costs	\$ -	\$ -	\$ 30,000	\$ 30,900	\$ 31,827	\$ 32,782	\$ 33,765	\$ 34,778	\$ 35,822	\$ 36,896
Materials and Services	16,700	15,900	16,377	16,868	17,374	17,896	18,432	18,985	19,555	20,142
Allocation Transfers	9,299	6,370	6,561	6,758	6,961	7,169	7,385	7,606	7,834	8,069
Repairs & Maintenance	-	-	100,000	125,000	150,000	154,500	159,135	163,909	168,826	173,891
Subtotal: Operating Expenses	\$ 25,999	\$ 22,270	\$ 152,938	\$ 179,526	\$ 206,162	\$ 212,347	\$ 218,717	\$ 225,279	\$ 232,037	\$ 238,998
Other Expenditures:										
Existing Debt Service	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
New Debt Service	-	-	-	-	-	-	-	-	-	-
Rate-Funded Capital Expenses	-	-	-	-	-	-	-	-	-	-
Subtotal: Other Expenditures	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total Uses of Storm Drain Funds</b>	<b>\$ 25,999</b>	<b>\$ 22,270</b>	<b>\$ 152,938</b>	<b>\$ 179,526</b>	<b>\$ 206,162</b>	<b>\$ 212,347</b>	<b>\$ 218,717</b>	<b>\$ 225,279</b>	<b>\$ 232,037</b>	<b>\$ 238,998</b>
<b>Surplus/(Deficit) Before Rate Increases</b>	<b>\$ (25,999)</b>	<b>\$ (22,270)</b>	<b>\$ (152,938)</b>	<b>\$ (179,526)</b>	<b>\$ (206,162)</b>	<b>\$ (212,347)</b>	<b>\$ (218,717)</b>	<b>\$ (225,279)</b>	<b>\$ (232,037)</b>	<b>\$ (238,998)</b>
<b>Net Revenue Reqtd. (Total Uses less Non-Rate Rev.)</b>	<b>\$ 25,999</b>	<b>\$ 22,270</b>	<b>\$ 152,938</b>	<b>\$ 179,526</b>	<b>\$ 206,162</b>	<b>\$ 212,347</b>	<b>\$ 218,717</b>	<b>\$ 225,279</b>	<b>\$ 232,037</b>	<b>\$ 238,998</b>
<b>Total Rate Revenue After Rate Increases</b>	<b>NA</b>	<b>NA</b>	<b>\$ 152,938</b>	<b>\$ 179,526</b>	<b>\$ 206,162</b>	<b>\$ 212,347</b>	<b>\$ 218,717</b>	<b>\$ 225,279</b>	<b>\$ 232,037</b>	<b>\$ 238,998</b>
<b>Annual Surplus/(Deficit) After Rate Increases</b>	<b>NA</b>	<b>NA</b>	<b>\$ 0</b>							

CITY OF FORT BRAGG  
 STORM DRAIN RATE STUDY  
 FINANCIAL TABLES/REVENUE REQUIREMENTS

TABLE 2  
 RESERVE FUND SUMMARY

SUMMARY OF CASH ACTIVITY	Budget	Projected								
	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18	FY 2018/19	FY 2019/20	FY 2020/21
<b>Total Beginning Cash</b>	\$ -									
<b>Storm Drain O&amp;M Reserve Fund</b>										
Beginning Reserve Balance	\$ -	\$ -	\$ -	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Plus: Net Cash Flow (After Rate Increases)	NA	NA	0	0	0	0	0	0	0	0
Plus: Transfer of Debt Reserve Surplus	-	-	-	-	-	-	-	-	-	-
Less: Transfers Out to the Capital Reserve	-	-	-	-	-	-	-	-	-	-
<b>Ending O&amp;M Reserve Balance</b>	\$ -	\$ -	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
Target Ending Balance (25% or 90 days of O&M)	NA	NA	\$ 38,000	\$ 45,000	\$ 52,000	\$ 53,000	\$ 55,000	\$ 56,000	\$ 58,000	\$ 60,000
<b>Storm Drain Capital R&amp;R Reserve Fund</b>										
Beginning Reserve Balance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Plus: Net Debt Proceeds	-	-	-	-	-	-	-	-	-	-
Plus: Transfer of Operating Reserve Surplus	-	-	-	-	-	-	-	-	-	-
Less: Use of Reserves for Capital Projects	-	-	-	-	-	-	-	-	-	-
<b>Ending Repair &amp; Replacement Balance</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Target Ending Balance (3% of Assets)	\$ -	\$ -	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000	\$ 1,000
<b>Storm Drain Debt Reserve Fund</b>										
Beginning Reserve Balance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Plus: Reserve Funding from New Debt Obligations	-	-	-	-	-	-	-	-	-	-
Less: Transfer of Surplus to Operating Reserve	-	-	-	-	-	-	-	-	-	-
<b>Ending Debt Reserve Balance</b>	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Target Ending Balance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Ending Balance - All Reserves</b>	\$ -	\$ -	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
<b>Recommended Target Ending Balance - All Reserves</b>	NA	NA	\$ 39,000	\$ 46,000	\$ 53,000	\$ 54,000	\$ 56,000	\$ 57,000	\$ 59,000	\$ 61,000
<b>Ending Reserve Surplus/(Deficit)</b>	NA	NA	\$ (39,000)	\$ (46,000)	\$ (53,000)	\$ (54,000)	\$ (56,000)	\$ (57,000)	\$ (59,000)	\$ (61,000)
<b>Annual Interest Earnings Rate (1)</b>	0.75%	0.75%	1.00%	1.25%	1.50%	1.75%	2.00%	2.25%	2.50%	2.64%

(1) Historical interest earning rates were referenced on the California Treasurer's Office website for funds invested in LAIF. Future years earnings were conservatively estimated through FY 2016/17 and phase into the historical 10 year average interest earnings rate.

CITY OF FORT BRAGG  
 STORM DRAIN RATE STUDY  
 COST OF SERVICE ANALYSIS/RATE DESIGN  
 Customer Data and Proposed Rates

Water Customer Classes	No. of Accounts (2011)	Percent of Total
Single Family - Inside City	2,042	75.3%
Multi Family - Inside City	204	7.5%
Mobile Home Park - Inside City	8	0.3%
Non-Residential - Inside City	459	16.9%
<b>Total</b>	<b>2,713</b>	<b>100%</b>

Sewer Customer Classes	Avg. No. of Accounts (2011)	Avg. No. of Units (2011)	Percent of Total
<i>Residential:</i>			
Single Family Residential	2,031	2,032	49.8%
Multiple Residential	219	1,379	33.8%
<i>Commercial:</i>			
Multiple Commercial	17	35	0.9%
Very Low Strength	3	3	0.1%
Low Strength	19	19	0.5%
Medium Low Strength	10	10	0.2%
Domestic Strength	329	487	11.9%
Medium Strength	16	17	0.4%
High Strength	72	93	2.3%
Commercial - No SS Factor	2	3	0.1%
<b>Total</b>	<b>2,717</b>	<b>4,077</b>	<b>100%</b>

Sewer Customer Classes	Avg. No. of Units (2011)	EDU Factor	Adjusted Units	Adjusted Units Billed/Yr.
<i>Residential:</i>				
Single Family Residential	2,032	100.0%	2,032	24,384
Multiple Residential	1,379	50.0%	690	8,274
<i>Commercial:</i>				
Multiple Commercial	35	100.0%	35	420
Very Low Strength	3	100.0%	3	36
Low Strength	19	100.0%	19	228
Medium Low Strength	10	100.0%	10	120
Domestic Strength	487	100.0%	487	5,844
Medium Strength	17	100.0%	17	204
High Strength	93	100.0%	93	1,116
Commercial - No SS Factor	3	100.0%	3	36
<b>Total</b>	<b>4,078</b>	<b>--</b>	<b>3,389</b>	<b>40,662</b>

**CITY OF FORT BRAGG**  
**STORM DRAIN RATE STUDY**  
**COST OF SERVICE ANALYSIS/RATE DESIGN**  
**Customer Data and Proposed Rates**

**Rate Alternative #1 - Rates Set to Collect the Annual Net Revenue Requirement**

Sewer/Storm Drain Customer Classes	Adjusted Units Billed/Yr.	FY 2013/14		FY 2014/15		FY 2015/16		FY 2016/17		FY 2017/18
		Storm Drain Charge (\$/Unit/Mo.)	Annual Storm Drain Charges (\$/Yr.)	Storm Drain Charge (\$/Unit/Mo.)	Annual Storm Drain Charges (\$/Yr.)	Storm Drain Charge (\$/Unit/Mo.)	Annual Storm Drain Charges (\$/Yr.)	Storm Drain Charge (\$/Unit/Mo.)	Annual Storm Drain Charges (\$/Yr.)	Storm Drain Charge (\$/Unit/Mo.)
<i>Residential:</i>										
Single Family Residential	24,384	\$4.19	\$ 102,101	\$4.92	\$ 119,851	\$5.64	\$ 137,633	\$5.81	\$ 141,762	\$5.99
Multiple Residential	8,274	\$2.09	\$ 17,323	\$2.46	\$ 20,334	\$2.82	\$ 23,351	\$2.91	\$ 24,051	\$2.99
<i>Commercial:</i>										
Multiple Commercial	420	\$4.19	\$ 1,759	\$4.92	\$ 2,064	\$5.64	\$ 2,371	\$5.81	\$ 2,442	\$5.99
Very Low Strength	36	\$4.19	\$ 151	\$4.92	\$ 177	\$5.64	\$ 203	\$5.81	\$ 209	\$5.99
Low Strength	228	\$4.19	\$ 955	\$4.92	\$ 1,121	\$5.64	\$ 1,287	\$5.81	\$ 1,326	\$5.99
Medium Low Strength	120	\$4.19	\$ 502	\$4.92	\$ 590	\$5.64	\$ 677	\$5.81	\$ 698	\$5.99
Domestic Strength	5,844	\$4.19	\$ 24,470	\$4.92	\$ 28,724	\$5.64	\$ 32,986	\$5.81	\$ 33,976	\$5.99
Medium Strength	204	\$4.19	\$ 854	\$4.92	\$ 1,003	\$5.64	\$ 1,151	\$5.81	\$ 1,186	\$5.99
High Strength	1,116	\$4.19	\$ 4,673	\$4.92	\$ 5,485	\$5.64	\$ 6,299	\$5.81	\$ 6,488	\$5.99
Commercial - No SS Factor	36	\$4.19	\$ 151	\$4.92	\$ 177	\$5.64	\$ 203	\$5.81	\$ 209	\$5.99
<b>Total</b>	<b>40,662</b>	<b>--</b>	<b>\$ 152,938</b>	<b>--</b>	<b>\$ 179,526</b>	<b>--</b>	<b>\$ 206,162</b>	<b>--</b>	<b>\$ 212,347</b>	<b>--</b>
<i>Net Revenue Requirement</i>			\$ 152,938		\$ 179,526		\$ 206,162		\$ 212,347	

**Rate Alternative #1 - Sample Single Family Residential Monthly Bill**

RATE COMPONENTS	Current Rate	Initial Year	Projected			
	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18
Monthly Storm Drain Charge for SFR Customer	\$ -	\$ 4.19	\$ 4.92	\$ 5.64	\$ 5.81	\$ 5.99
Annual Storm Drain Charge for SFR Customer	\$ -	\$ 50.25	\$ 58.98	\$ 67.73	\$ 69.76	\$ 71.86
<i>Annual Percent Increase</i>			17%	15%	3%	3%

CITY OF FORT BRAGG  
 STORM DRAIN RATE STUDY  
 COST OF SERVICE ANALYSIS/RATE DESIGN  
 Customer Data and Proposed Rates

Rate Alternative #2 - Rates Set to Collect the 5-Year Average Net Revenue Requirement (Levelized)

Sewer Customer Classes	Adjusted Units Billed/Yr.	FY 2013/14 - FY 2017/18	
		Storm Drain Charge (\$/Unit/Mo.)	Annual Storm Drain Charges (\$/Yr.)
<i>Residential:</i>			
Single Family Residential	24,384	\$5.45	\$ 132,969
Multiple Residential	8,274	\$2.09	\$ 17,323
<i>Commercial:</i>			
Multiple Commercial	420	\$5.45	\$ 2,290
Very Low Strength	36	\$5.45	\$ 196
Low Strength	228	\$5.45	\$ 1,243
Medium Low Strength	120	\$5.45	\$ 654
Domestic Strength	5,844	\$5.45	\$ 31,868
Medium Strength	204	\$5.45	\$ 1,112
High Strength	1,116	\$5.45	\$ 6,086
Commercial - No SS Factor	36	\$5.45	\$ 196
<b>Total</b>	<b>40,662</b>	<b>--</b>	<b>\$ 193,938</b>
<i>5-Year Average Net Revenue Requirement</i>			\$ 193,938

Rate Alternative #2 - Sample Single Family Residential Monthly Bill		
RATE COMPONENTS	Current Rate	Initial Rate
	FY 2012/13	FY 2013/14 - FY 2017/18
<b>Projected Annual Rate Increase</b>	--	--
Monthly Storm Drain Charge for SFR Customer	\$ -	\$5.45
Annual Storm Drain Charge for SFR Customer	\$ -	\$65.44

# **WATER RATE STUDY – APPENDIX D**

## **CAPITAL PROJECT LIST**

CITY OF FORT BRAGG  
WATER RATE STUDY  
Capital Improvement Plan Expenditures

CAPITAL IMPROVEMENT PROGRAM

Capital Improvement Program Costs (in Current-Year Dollars) (1):

Project Description	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
WA-02 Treatment Building Replacement	\$ -	\$ -	\$ 350,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WA-03 Waterfall Gulch Raw Water Transmission Line Replacement - 3 Sections	\$ -	\$ -	\$ 350,000	\$ -	\$ -	\$ -	\$ 700,000	\$ -	\$ -	\$ -
WA-04 Newman Raw Water Line Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 608,000	\$ -	\$ -
WA-05 Cedar Street Water Distribution Line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 420,000	\$ -	\$ -
WA-08 Newman Gulch Reservoir	\$ -	\$ -	\$ -	\$ 1,800,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WA-09 Waterfall Gulch Raw Water Transmission Line & Trestle Replacement - Hwy	\$ -	\$ 762,222	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WA-10 Waterfall Gulch Diversion Structure Imp.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 140,000	\$ -	\$ -
WA-11 Newman Raw Water Line Replacement - Res to Noyo	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 768,000	\$ -	\$ -	\$ -	\$ -
-- Water Master Plan Update	\$ -	\$ 37,500	\$ 87,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-- Buildings	\$ -	\$ 55,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-- Machinery and Equipment	\$ -	\$ 160,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-- Repair and Paint Tank 1	\$ -	\$ 500,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-- Capital Project	\$ 235,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total: Current Cost Estimate Per Year</b>	<b>\$ 235,000</b>	<b>\$ 1,514,722</b>	<b>\$ 787,500</b>	<b>\$ 1,800,000</b>	<b>\$ -</b>	<b>\$ 768,000</b>	<b>\$ 700,000</b>	<b>\$ 1,168,000</b>	<b>\$ -</b>	<b>\$ -</b>

Capital Improvement Program Costs (in Future-Year Dollars) (2):

Project Description	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
WA-02 Treatment Building Replacement	\$ -	\$ -	\$ 362,425	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WA-03 Waterfall Gulch Raw Water Transmission Line Replacement - 3 Sections	\$ -	\$ -	\$ 362,425	\$ -	\$ -	\$ -	\$ 833,391	\$ -	\$ -	\$ -
WA-04 Newman Raw Water Line Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 749,556	\$ -	\$ -
WA-05 Cedar Street Water Distribution Line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 517,786	\$ -	\$ -
WA-08 Newman Gulch Reservoir	\$ -	\$ -	\$ -	\$ 1,930,068	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WA-09 Waterfall Gulch Raw Water Transmission Line & Trestle Replacement - Hwy	\$ -	\$ 762,222	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WA-10 Waterfall Gulch Diversion Structure Imp.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 172,595	\$ -	\$ -
WA-11 Newman Raw Water Line Replacement - Res to Noyo	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 883,002	\$ -	\$ -	\$ -	\$ -
-- Water Master Plan Update	\$ -	\$ 37,500	\$ 90,606	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-- Buildings	\$ -	\$ 55,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-- Machinery and Equipment	\$ -	\$ 160,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-- Repair and Paint Tank 1	\$ -	\$ 500,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-- Capital Project	\$ 235,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total: Future Cost Estimate Per Year</b>	<b>\$ 235,000</b>	<b>\$ 1,514,722</b>	<b>\$ 815,456</b>	<b>\$ 1,930,068</b>	<b>\$ -</b>	<b>\$ 883,002</b>	<b>\$ 833,391</b>	<b>\$ 1,439,937</b>	<b>\$ -</b>	<b>\$ -</b>

FORECASTING ASSUMPTIONS:

Economic Variables	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Annual Construction Cost Inflation (3)	0.00%	0.00%	3.55%	3.55%	3.55%	3.55%	3.55%	3.55%	3.55%	3.55%
Cumulative Construction Cost Multiplier from 2012	1.00	1.00	1.04	1.07	1.11	1.15	1.19	1.23	1.28	1.32

**CITY OF FORT BRAGG**  
**WATER RATE STUDY**  
**Capital Improvement Plan Expenditures**

**CAPITAL PROJECT DATA:**

Project Description	Future Cost Estimate	For Capacity Fee/Impact Fee Calculation and Reserve Segregation Only		
		For Existing Needs (%)	For Future Needs (%)	Basis / Note
WA-02 Treatment Building Replacement	\$ 362,425	100%	0%	Per City Staff Estimate
WA-03 Waterfall Gulch Raw Water Transmission Line Replacement - 3 Sections	\$ 1,195,816	95%	5%	Per City Staff Estimate
WA-04 Newman Raw Water Line Replacement	\$ 749,556	100%	0%	Per City Staff Estimate
WA-05 Cedar Street Water Distribution Line	\$ 517,786	100%	0%	Per City Staff Estimate
WA-08 Newman Gulch Reservoir	\$ 1,930,068	91%	9%	Per City Staff Estimate
WA-09 Waterfall Gulch Raw Water Transmission Line & Trestle Replacement - Hwy 2	\$ 762,222	67%	33%	Per City Staff Estimate, net of grant revenue
WA-10 Waterfall Gulch Diversion Structure Imp.	\$ 172,595	100%	0%	Per City Staff Estimate
WA-11 Newman Raw Water Line Replacement - Res to Noyo	\$ 883,002	100%	0%	Per City Staff Estimate
-- Water Master Plan Update	\$ 128,106	100%	0%	Per City Staff Estimate
-- Buildings	\$ 55,000	100%	0%	Per City Staff Estimate
-- Machinery and Equipment	\$ 160,000	100%	0%	Per City Staff Estimate
-- Repair and Paint Tank 1	\$ 500,000	100%	0%	Per City Staff Estimate
-- Capital Project	\$ 235,000	100%	0%	Per City Staff Estimate
<b>Grand Total: Project Costs</b>	<b>\$ 7,651,576</b>			

**SUMMARY OF CAPITAL EXPENDITURES**

*Expenditures to Meet Existing Needs (Repair/Replace):*

Project Description	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
WA-02 Treatment Building Replacement	\$ -	\$ -	\$ 362,425	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WA-03 Waterfall Gulch Raw Water Transmission Line Replacement - 3 Sections	\$ -	\$ -	\$ 343,441	\$ -	\$ -	\$ -	\$ 789,737	\$ -	\$ -	\$ -
WA-04 Newman Raw Water Line Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 749,556	\$ -	\$ -
WA-05 Cedar Street Water Distribution Line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 517,786	\$ -	\$ -
WA-08 Newman Gulch Reservoir	\$ -	\$ -	\$ -	\$ 1,747,784	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WA-09 Waterfall Gulch Raw Water Transmission Line & Trestle Replacement - Hwy 2	\$ -	\$ 512,500	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WA-10 Waterfall Gulch Diversion Structure Imp.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 172,595	\$ -	\$ -
WA-11 Newman Raw Water Line Replacement - Res to Noyo	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 883,002	\$ -	\$ -	\$ -	\$ -
-- Water Master Plan Update	\$ -	\$ 37,500	\$ 90,606	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-- Buildings	\$ -	\$ 55,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-- Machinery and Equipment	\$ -	\$ 160,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-- Repair and Paint Tank 1	\$ -	\$ 500,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-- Capital Project	\$ 235,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal: Expenditures for Existing Needs</b>	<b>\$ 235,000</b>	<b>\$ 1,265,000</b>	<b>\$ 796,472</b>	<b>\$ 1,747,784</b>	<b>\$ -</b>	<b>\$ 883,002</b>	<b>\$ 789,737</b>	<b>\$ 1,439,937</b>	<b>\$ -</b>	<b>\$ -</b>

*Expenditures to Meet Future Needs (For Growth):*

Project Description	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
WA-02 Treatment Building Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WA-03 Waterfall Gulch Raw Water Transmission Line Replacement - 3 Sections	\$ -	\$ -	\$ 18,984	\$ -	\$ -	\$ -	\$ 43,654	\$ -	\$ -	\$ -
WA-04 Newman Raw Water Line Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WA-05 Cedar Street Water Distribution Line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WA-08 Newman Gulch Reservoir	\$ -	\$ -	\$ -	\$ 182,284	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WA-09 Waterfall Gulch Raw Water Transmission Line & Trestle Replacement - Hwy 2	\$ -	\$ 249,722	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WA-10 Waterfall Gulch Diversion Structure Imp.	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
WA-11 Newman Raw Water Line Replacement - Res to Noyo	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-- Water Master Plan Update	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-- Buildings	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-- Machinery and Equipment	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-- Repair and Paint Tank 1	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
-- Capital Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Subtotal: Expenditures for Future Needs</b>	<b>\$ -</b>	<b>\$ 249,722</b>	<b>\$ 18,984</b>	<b>\$ 182,284</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ 43,654</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Grand Total: Capital Expenditures for Existing and Future Needs</b>	<b>\$ 235,000</b>	<b>\$ 1,514,722</b>	<b>\$ 815,456</b>	<b>\$ 1,930,068</b>	<b>\$ -</b>	<b>\$ 883,002</b>	<b>\$ 833,391</b>	<b>\$ 1,439,937</b>	<b>\$ -</b>	<b>\$ -</b>

- (1) Capital Improvement Program project and cost data are from the City's updated Capital Project list provided by City staff on 10/11/2012. Project costs were provided in current year dollars (FY 2011/12).
- (2) Project costs are inflated by the inflation index described in footnote 1.
- (3) Annual Construction Cost Inflation % is calculated by averaging the annual change in the Construction Cost Index for 2002 through July 2012, from the Engineering News Record. No inflation is applied to projects in FY 2011/12 and 2012/13 because they are listed in current year dollars.

# **SEWER RATE STUDY – APPENDIX E**

## **CAPITAL PROJECT LIST**

**CITY OF FORT BRAGG  
WASTEWATER RATE STUDY  
Capital Improvement Plan Expenditures**

**CAPITAL IMPROVEMENT PROGRAM**

Capital Improvement Program Costs (in Current-Year Dollars) (1):

Projects from Current CIP	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Equipment Garage	\$ -	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6 Lift Station soft Starts	\$ 80,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Flow Meters for Influent and Effluent	\$ -	\$ 15,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
P3 and P4 Pump Replacement	\$ 12,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Influent/Effluent Sampler	\$ 6,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Primary Digester Maintenance	\$ 80,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sewer Manhole Installations	\$ -	\$ 33,000	\$ 84,911	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Replace Asphalt	\$ 16,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Repair Dry Beds	\$ 10,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Grease Lagoon Rehabilitation	\$ -	\$ -	\$ 160,503	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Replacement of Treatment Plant Fencing	\$ -	\$ 85,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Variable Drives for #2 Water System	\$ -	\$ 8,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Aluminum Hand Rail	\$ -	\$ 10,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Wireless Lift Station	\$ -	\$ 12,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Valve Replacement Project	\$ -	\$ 15,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Exterior Lighting	\$ -	\$ 20,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SCADA System	\$ -	\$ 25,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Native Lift Station	\$ -	\$ 30,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Influent Flow Meter	\$ -	\$ 45,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Plant Security System	\$ -	\$ 50,000	\$ -	\$ 362,425	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Slip Line	\$ -	\$ -	\$ 60,000	\$ 60,000	\$ 60,000	\$ 60,000	\$ -	\$ -	\$ -	\$ -
Grit Classifier	\$ -	\$ 85,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Stair Screen	\$ -	\$ 115,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Trickling Filter	\$ -	\$ 150,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Primary Digester Rehabilitation	\$ 80,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
N. Sanderson Sewer Main Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 951,739	\$ -	\$ -	\$ -
Additional Prior Repairs/Maintenance	\$ 65,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3 Lift Stations	\$ -	\$ -	\$ 55,000	\$ 55,000	\$ 55,000	\$ -	\$ -	\$ -	\$ -	\$ -
Wastewater Treatment Facility Improvements (2)	\$ -	\$ -	\$ 300,000	\$ 2,233,333	\$ 2,233,333	\$ 2,233,333	\$ -	\$ -	\$ -	\$ -
<b>Total: Current Cost Estimate Per Year</b>	<b>\$ 349,000</b>	<b>\$ 798,000</b>	<b>\$ 660,414</b>	<b>\$ 2,710,758</b>	<b>\$ 2,348,333</b>	<b>\$ 2,293,333</b>	<b>\$ 951,739</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

**CITY OF FORT BRAGG  
WASTEWATER RATE STUDY  
Capital Improvement Plan Expenditures**

Capital Improvement Program Costs (in Future-Year Dollars) (3):

Projects from Current CIP	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Equipment Garage	\$ -	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6 Lift Station soft Starts	\$ 80,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Flow Meters for Influent and Effluent	\$ -	\$ 15,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
P3 and P4 Pump Replacement	\$ 12,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Influent/Effluent Sampler	\$ 6,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Primary Digester Maintenance	\$ 80,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sewer Manhole Installations	\$ -	\$ 33,000	\$ 87,925	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Replace Asphalt	\$ 16,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Repair Dry Beds	\$ 10,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Grease Lagoon Rehabilitation	\$ -	\$ -	\$ 166,201	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Replacement of Treatment Plant Fencing	\$ -	\$ 85,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Variable Drives for #2 Water System	\$ -	\$ 8,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Aluminum Hand Rail	\$ -	\$ 10,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Wireless Lift Station	\$ -	\$ 12,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Valve Replacement Project	\$ -	\$ 15,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Exterior Lighting	\$ -	\$ 20,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SCADA System	\$ -	\$ 25,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Native Lift Station	\$ -	\$ 30,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Influent Flow Meter	\$ -	\$ 45,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Plant Security System	\$ -	\$ 50,000	\$ -	\$ 388,614	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Slip Line	\$ -	\$ -	\$ 62,130	\$ 64,336	\$ 66,620	\$ 68,985	\$ -	\$ -	\$ -	\$ -
Grit Classifier	\$ -	\$ 85,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Stair Screen	\$ -	\$ 115,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Trickling Filter	\$ -	\$ 150,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Primary Digester Rehabilitation	\$ 80,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
N. Sanderson Sewer Main Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,133,100	\$ -	\$ -	\$ -
Additional Prior Repairs/Maintenance	\$ 65,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3 Lift Stations	\$ -	\$ -	\$ 56,953	\$ 58,974	\$ 61,068	\$ -	\$ -	\$ -	\$ -	\$ -
Wastewater Treatment Facility Improvements (2)	\$ -	\$ -	\$ 310,650	\$ 2,394,715	\$ 2,479,727	\$ 2,567,757	\$ -	\$ -	\$ -	\$ -
<b>Total: Future Cost Estimate Per Year</b>	<b>\$ 349,000</b>	<b>\$ 798,000</b>	<b>\$ 683,859</b>	<b>\$ 2,906,638</b>	<b>\$ 2,607,414</b>	<b>\$ 2,636,742</b>	<b>\$ 1,133,100</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

**FORECASTING ASSUMPTIONS:**

Economic Variables	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Annual Construction Cost Inflation (4)	0.00%	0.00%	3.55%	3.55%	3.55%	3.55%	3.55%	3.55%	3.55%	3.55%
Cumulative Construction Cost Multiplier from 2012	1.00	1.00	1.04	1.07	1.11	1.15	1.19	1.23	1.28	1.32
Annual General Cost Inflation	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%	3.00%

**CITY OF FORT BRAGG  
WASTEWATER RATE STUDY  
Capital Improvement Plan Expenditures**

CAPITAL PROJECT DATA:		For Capacity Fee/Impact Fee Calculation and Reserve Segregation Only		
Projects from Current CIP	Future Cost Estimate	For Existing Needs (%)	For Future Needs (%)	Basis / Note
Equipment Garage	\$ 100,000	100%	0%	Per City Staff Estimate
6 Lift Station soft Starts	\$ 80,000	0%	100%	Per City Staff Estimate
Flow Meters for Influent and Effluent	\$ 15,000	0%	100%	Per City Staff Estimate
P3 and P4 Pump Replacement	\$ 12,000	0%	100%	Per City Staff Estimate
Influent/Effluent Sampler	\$ 6,000	0%	100%	Per City Staff Estimate
Primary Digester Maintenance	\$ 80,000	0%	100%	Per City Staff Estimate
Sewer Manhole Installations	\$ 120,925	0%	100%	Per City Staff Estimate
Replace Asphalt	\$ 16,000	0%	100%	Per City Staff Estimate
Repair Dry Beds	\$ 10,000	0%	100%	Per City Staff Estimate
Grease Lagoon Rehabilitation	\$ 166,201	100%	0%	Per City Staff Estimate
Replacement of Treatment Plant Fencing	\$ 85,000	100%	0%	Per City Staff Estimate
Variable Drives for #2 Water System	\$ 8,000	0%	100%	Per City Staff Estimate
Aluminum Hand Rail	\$ 10,000	0%	100%	Per City Staff Estimate
Wireless Lift Station	\$ 12,000	0%	100%	Per City Staff Estimate
Valve Replacement Project	\$ 15,000	0%	100%	Per City Staff Estimate
Exterior Lighting	\$ 20,000	0%	100%	Per City Staff Estimate
SCADA System	\$ 25,000	0%	100%	Per City Staff Estimate
Native Lift Station	\$ 30,000	0%	100%	Per City Staff Estimate
Influent Flow Meter	\$ 45,000	0%	100%	Per City Staff Estimate
Plant Security System	\$ 438,614	0%	100%	Per City Staff Estimate
Slip Line	\$ 262,070	0%	100%	Per City Staff Estimate
Grit Classifier	\$ 85,000	0%	100%	Per City Staff Estimate
Stair Screen	\$ 115,000	0%	100%	Per City Staff Estimate
Trickling Filter	\$ 150,000	0%	100%	Per City Staff Estimate
Primary Digester Rehabilitation	\$ 80,000	0%	100%	Per City Staff Estimate
N. Sanderson Sewer Main Replacement	\$ 1,133,100	100%	0%	Per City Staff Estimate
Additional Prior Repairs/Maintenance	\$ 65,000	0%	100%	Per City Staff Estimate
3 Lift Stations	\$ 176,995	100%	0%	Per City Staff Estimate
Wastewater Treatment Facility Improvements (2)	\$ 7,752,849	100%	0%	Per City Staff Estimate
<b>Total Project Costs</b>	<b>\$ 11,114,754</b>			

CITY OF FORT BRAGG  
WASTEWATER RATE STUDY  
Capital Improvement Plan Expenditures

SUMMARY OF CAPITAL EXPENDITURES

Expenditures to Meet Existing Needs (Repair/Replace):

Projects from Current CIP	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021
Equipment Garage	\$ -	\$ 100,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6 Lift Station soft Starts	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Flow Meters for Influent and Effluent	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
P3 and P4 Pump Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Influent/Effluent Sampler	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Primary Digester Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sewer Manhole Installations	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Replace Asphalt	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Repair Dry Beds	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Grease Lagoon Rehabilitation	\$ -	\$ -	\$ 166,201	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Replacement of Treatment Plant Fencing	\$ -	\$ 85,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Variable Drives for #2 Water System	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Aluminum Hand Rail	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Wireless Lift Station	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Valve Replacement Project	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Exterior Lighting	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SCADA System	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Native Lift Station	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Influent Flow Meter	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Plant Security System	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Slip Line	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Grit Classifier	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Stair Screen	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Trickling Filter	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Primary Digester Rehabilitation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
N. Sanderson Sewer Main Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 1,133,100	\$ -	\$ -	\$ -
Additional Prior Repairs/Maintenance	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3 Lift Stations	\$ -	\$ -	\$ 56,953	\$ 58,974	\$ 61,068	\$ -	\$ -	\$ -	\$ -	\$ -
Wastewater Treatment Facility Improvements (2)	\$ -	\$ -	\$ 310,650	\$ 2,394,715	\$ 2,479,727	\$ 2,567,757	\$ -	\$ -	\$ -	\$ -
<b>Total: Expenditures for Existing Needs</b>	<b>\$ -</b>	<b>\$ 185,000</b>	<b>\$ 533,803</b>	<b>\$ 2,453,689</b>	<b>\$ 2,540,795</b>	<b>\$ 2,567,757</b>	<b>\$ 1,133,100</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

**CITY OF FORT BRAGG  
WASTEWATER RATE STUDY  
Capital Improvement Plan Expenditures**

**SUMMARY OF CAPITAL EXPENDITURES, continued**

**Expenditures to Meet Future Needs (For Growth):**

<b>Projects from Current CIP</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>2018</b>	<b>2019</b>	<b>2020</b>	<b>2021</b>
Equipment Garage	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
6 Lift Station soft Starts	\$ 80,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Flow Meters for Influent and Effluent	\$ -	\$ 15,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
P3 and P4 Pump Replacement	\$ 12,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Influent/Effluent Sampler	\$ 6,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Primary Digester Maintenance	\$ 80,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Sewer Manhole Installations	\$ -	\$ 33,000	\$ 87,925	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Replace Asphalt	\$ 16,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Repair Dry Beds	\$ 10,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Grease Lagoon Rehabilitation	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Replacement of Treatment Plant Fencing	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Variable Drives for #2 Water System	\$ -	\$ 8,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Aluminum Hand Rail	\$ -	\$ 10,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Wireless Lift Station	\$ -	\$ 12,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Valve Replacement Project	\$ -	\$ 15,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Exterior Lighting	\$ -	\$ 20,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
SCADA System	\$ -	\$ 25,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Native Lift Station	\$ -	\$ 30,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Influent Flow Meter	\$ -	\$ 45,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Plant Security System	\$ -	\$ 50,000	\$ -	\$ 388,614	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Slip Line	\$ -	\$ -	\$ 62,130	\$ 64,336	\$ 66,620	\$ 68,985	\$ -	\$ -	\$ -	\$ -
Grit Classifier	\$ -	\$ 85,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Stair Screen	\$ -	\$ 115,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Trickling Filter	\$ -	\$ 150,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Primary Digester Rehabilitation	\$ 80,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
N. Sanderson Sewer Main Replacement	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Additional Prior Repairs/Maintenance	\$ 65,000	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
3 Lift Stations	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Wastewater Treatment Facility Improvements (2)	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
<b>Total: Expenditures for Future Needs</b>	<b>\$ 349,000</b>	<b>\$ 613,000</b>	<b>\$ 150,055</b>	<b>\$ 452,950</b>	<b>\$ 66,620</b>	<b>\$ 68,985</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>
<b>Total: Capital Expenditures - Existing &amp; Future</b>	<b>\$ 349,000</b>	<b>\$ 798,000</b>	<b>\$ 683,859</b>	<b>\$ 2,906,638</b>	<b>\$ 2,607,414</b>	<b>\$ 2,636,742</b>	<b>\$ 1,133,100</b>	<b>\$ -</b>	<b>\$ -</b>	<b>\$ -</b>

- (1) Capital Improvement Program project and cost data are from the City's updated Capital Project list provided by City staff on 10/11/2012 and subsequent updates provided by City Staff via email on 11/14/2012. Project costs were provided in current year dollars (FY 2011/12).
- (2) The total cost of the Wastewater Treatment Facility improvements is \$7 million (current value) and were spread over FY 2013/14 - 2016/17 based on general direction from City Staff.
- (3) Project costs are inflated by the inflation index described in footnote 4.
- (4) Annual Construction Cost Inflation % is calculated by averaging the annual change in the Construction Cost Index for 2002 through July 2012, from the Engineering News Record. No inflation is applied to projects in FY 2011/12 and 2012/13 because they are listed in current year dollars.