



City of Redding

Water, Wastewater and Solid Waste Rate Study

August 20, 2013

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Section 1. Purpose and Overview of the Study

PURPOSE

The City of Redding last performed a cost-of-service study for water, sewer and solid waste utilities in 1999, and the City needed to update that analysis as well as evaluate alternative rate structures along with several other rate-related issues. To address these issues, the City retained an impact fee and rate study consulting team consisting of NBS, PMC, and APlan Services to evaluate utility rates and impact fees for the City's water and wastewater utilities as well as rates for the solid waste utility. This team also prepared impact fees for traffic, fire, and park facilities. This report addresses the rate analyses for the water, wastewater and solid waste utilities.

The consulting team has also prepared a comprehensive impact fee nexus study for traffic, fire and park facilities; however this study only addresses the rate analyses for the water, wastewater and solid waste utilities.

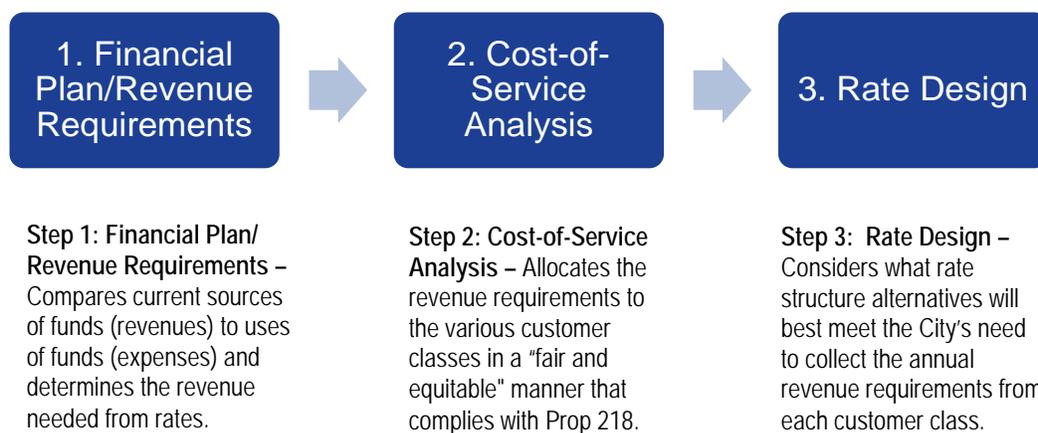
As a part of the water, wastewater and solid waste rate analyses, NBS evaluated projected revenues and expenditures, developed net revenue requirements, and performed cost-of-service and rate design analyses. NBS and The City also worked extensively with a Citizen's Advisory Group to review and evaluate various rate design and impact fee alternatives. Based on input from both the Advisory Group and the City, NBS has recommended new utility rates for the water, wastewater, and solid waste utilities. This report presents an overview of these results. Note that this study is based on data the City provided to the Consultants in 2012, including projected revenues and expenditures for FY2012-2013. The City adopted a new biannual budget effective July 1, 2013 that utilized current information on actual revenues and expenditures. As a result, the financial plans contained in this document may not be directly comparable with the current City budget documents.

OVERVIEW OF THE STUDY

The water and wastewater rate analyses reviewed rate structure alternatives. As a result of these analyses, NBS recommends that the City implement a limited tiered water rate structure as described below, while retaining the current rate structure and customer classes for both the wastewater and solid waste utilities. Rate increases -- or more accurately, increases in total revenue collected from utility rates -- are recommended for all three utilities. This report presents an overview of the methodologies, assumptions, and data used along with the various financial and rate alternatives which have been developed during preparation of the study.

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.

Figure 1. Primary Components of a Rate Study



The water rate analysis provides these three components but also incorporated additional considerations, such as the percentage of total revenue collected from fixed and variable charges. The proposed rate structure for single-family customers consists of a three-tier volumetric rate and a single volumetric rate for all other customer classes. The recommended new rate structure was developed based on industry standards and cost-of-service principles.

The same approach was used to evaluate wastewater rates. A modified approach was applied to solid waste rates; NBS reviewed the cost allocations and basic fairness and equity of rates and believes they are consistent with Prop 218 requirements. Based on this review, NBS recommends that the existing rate structure and customer classes be retained.

The following sections outline broader considerations reflected in the rate study, followed by a summary of the rate analysis for each of the three utilities.

Rate Design Criteria – The information included in the following section covers basic rate design criteria that the City staff and Advisory Committee considered as a part of their review of the rate structure alternatives. After due consideration, and based on input from the Advisory Group, the City will continue using their current solid waste and sewer rate structures.

Several criteria are typically 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*¹ 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 M1². 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.
- Rates 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).
- 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 the rate structure design. In other words, both the amount of revenue collected and the way in which the revenue is collected from 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). The vast majority of rate structures contain a fixed or minimum charge, and a volumetric charge.

The City's concerns about rate design may not necessarily be the same as those typically addressed in other California communities. Capital and operational reserve funding targets utilized in this study have been established with the input of the City of Redding, to meet specific community desires, and may or may not be consistent with industry standard practices. The following discussion is provided for the

¹ 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.

² *Principles of Water Rates, Fees, and Charges*, Manual of Water Supply Practices, M1, AWWA, fifth edition, 2000.

purpose of setting the recommended rates within the context of general industry rate-study practices in California.

Fixed Charges – Fixed charges can be called base charges, minimum monthly charges, customer charges, fixed 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 general, customers prefer to be charged on a volumetric basis, as there is an inherent equity in a “pay-for-what-you-use” philosophy.

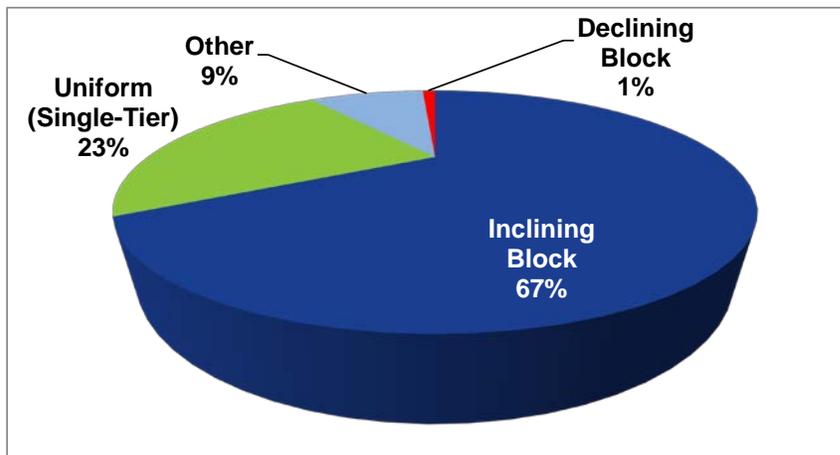
Fixed charges for water utilities typically increase by meter size. For example, a customer with a 2" meter may have a fixed meter charge that is eight times greater than the 5/8" or 3/4" meter charges based on the meter's safe operating capacity.³ Because a large portion of water utilities' costs are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

Variable (Consumption-Based) Charges – In contrast, variable costs such as the cost of electricity used in pumping water and chemicals for treatment tend to change with the quantity of water produced (or in the case of wastewater, the effluent handled). For a water utility, variable charges are generally based on metered consumption and charged on a dollar-per-unit cost (per 100 cubic feet, or hcf, in the City's case).

There are significant variations in the basic philosophy of variable charge rate structure alternatives. Under a uniform (single tier) 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. By contrast, an inclining block rate structure attempts to send a price signal to customers that their consumption costs more as more water is consumed.

Figure 2 provides a comparison of the volumetric rate structures, as surveyed by the California-Nevada AWWA 2011 Water Rate Survey⁴.

Figure 2. Summary of Volumetric Water Rate Structure Survey



This figure indicates that inclining block (or multi-tiered) rate structures are the most predominate, followed by the uniform rate structure. The predominance of inclining block rate structures in California reflects the state's water resource constraints and focus on conservation and efficient use.

Key Financial Assumptions

Following are the key assumptions used in the water, sewer, and solid waste rate analyses:

³ American Water Works Association, *Principles of Water Rates, Fees and Charges* – M1 Manual, p. 202.

⁴ 2011 California-Nevada Water Rate Survey, Raftelis Financial Consultants, Inc./California-Nevada Section, American Water Works Association (AWWA).

- **Funding of Water Utility Capital Projects** – The City will finance capital costs attributable to existing customers within the proposed utility rate structure. Costs attributable to new growth will be financed through the development impact fees program.

- **Funding of Wastewater Utility Capital Projects** – The City plans on financing a portion of the planned capital costs for the Wastewater Utility with State Revolving Fund (SRF) loans. The analysis assumes:
 - All capital projects listed in the financial plans are from City of Redding projections of costs for all future years and the costs are allocated to existing customers (funded by rates and existing reserves) and to future customers (funded by capacity fees) per estimates provided by the City.

- **Reserve Targets for Water and Sewer** – Reserves for operations and capital needs are set at City recommended levels, which are lower than typical industry standards for utility fund management. Reserve targets used in the analysis are as follows:
 - Operating & Maintenance Reserve – 30 days (less than typical industry targets of 90 days)
 - Capital Rehabilitation and Replacement Reserve - \$2.5 million for Water and \$3.5 million for Sewer (based on net asset values and estimated depreciation of utility assets)

- **Reserve Targets for Solid Waste** – Reserves for operations and capital needs are set at City recommended levels:
 - Operating & Maintenance Reserve – Thirty (30) days less Tipping Fees/Utility Expenses and Administrative costs (industry standard is typically 90 days)
 - Capital Rehabilitation and Replacement Reserve - equal to 7% of net assets (based on an average 15-yr expected life of assets)
 - Rolling Stock Fund - average annual rolling stock replacement costs through 2021, per the City's planning period for rolling stock.

- **Solid Waste Rolling Stock Purchases** – All capital improvements and rolling stock purchases for the Solid Waste Utility will be paid from reserves or rates; no debt financing is assumed.

- **Inflation and Growth Projections:**
 - General inflation is 3% annually (2.5% for Solid Waste), per City projections.
 - Customer growth ranges from 0.55% to 1.56% annually, per City projections.
 - Labor cost inflation is 3% annually (3.5% for Solid Waste), per City estimates.

Section 2. Water Rate Study

A. KEY WATER RATE STUDY ISSUES

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

- Generating sufficient additional revenue needed to meet projected funding requirements,
- Providing revenue stability,
- Providing equity among customer classes,
- Implementing a tiered rate structure for Single-Family Residential customers in order to achieve conservation objectives,
- Incorporating projected water consumption and likely water conservation.

NBS developed multiple water rate alternatives as requested by the City of Redding over the course of this study. All rate structure alternatives were developed using industry standards and cost-of-service principles. The rate alternative recommended in this report was selected by the City of Redding. 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 the basic components included in this analysis:

- **Developing 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, number of accounts by meter size, and customer class.
- **Determining 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 belonging to each class. 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. Once the costs are allocated and revenue requirement for each customer class is determined, collecting these revenue requirements from each customer class is addressed in the rate design task.
- **Rate Design and Fixed vs. Variable Costs:** The revenue requirements for each customer class are collected from both 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. This study determined that the City’s fixed costs and variable costs are approximately equivalent. However, California law⁵ and industry practices provide flexibility regarding the actual percentages collected from fixed vs. variable rates. After discussing various rate alternatives, a rate structure that recovered 60% of all revenue from variable charges and 40% from fixed charges was recommended based on input from the Advisory Group and City staff.

B. WATER UTILITY REVENUE REQUIREMENTS

It is important for municipal utilities to maintain reasonable reserves in order to handle emergencies, fund working capital, maintain a good credit rating, and generally follow sound financial management practices. 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 (i.e., total annual expenses plus debt service and rate-funded capital costs, less non-rate revenues) is estimated to be approximately \$16.6 million to \$19.7 million. If no rate increases are implemented in Fiscal Years 2013/14 through 2015/16, deficits of \$2.2, \$6.0 and \$4.8 million, respectively, are projected when comparing the sources and uses of funds. Implementing 7% rate increases results in

⁵ For example, AB 2882 allows a variety of conservation-oriented rate structures, including tiered water rates, and 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, as the City has done in this case.

deficits of \$1.1, \$3.9 and \$1.4 million during these same three years. However, the City plans to offset these deficits using capital reserves and Pump House #1 reserves.

- **Building and Maintaining Reserve Funds:** NBS initially recommended that the City plan to accumulate the following target reserves: three months (i.e., 25 percent) of annual operating expenses, 3% of the value of total water utility net assets for capital repair and replacement needs, and a debt reserve that would sufficiently satisfy existing and anticipated debt reserve requirements, which is generally equal to the annual debt service payment. However, in order to minimize the impact to ratepayers, the City has decided to use lower reserve targets as set forth below:
 - **Operating Reserve** equal to 8% of the Utility’s budgeted annual operating expenses. This reserve target is equal to a one-month (or 30-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** equal to \$2.5 million in current-year (2013) dollars, escalated by 3% annually (to account for inflation), which serves simply as a starting point for addressing long-term needs. If ratepayers can generate revenues at this level and pace, the City 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 Water Refunding Revenue Bonds, 2003 Series A factored into this analysis to fund all planned capital projects.
- **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 Water Refunding Revenue Bonds, 2003 Series A. 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 in turn reduce annual debt service payments. This analysis assumes that the City will not be incurring new debt in order to fund the planned capital expenses. It is projected that the City will meet the 1.20 debt coverage ratio for all existing and anticipated debt beginning in Fiscal Year 2014/15 through 2019/20.

Figure 3 summarizes the sources and uses of funds, including net revenue requirements, for the next five years.

Figure 3. Summary of Water Revenue Requirements

Summary of Sources and Uses of Funds and Net Revenue Requirements	Budget		Projected			
	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17
Sources of Water Funds						
Rate Revenue Under Prevailing Rates	\$ 16,369,534	\$ 16,097,988	\$ 16,216,629	\$ 16,337,209	\$ 16,460,963	\$ 16,607,810
Non-Rate Revenues	892,188	473,436	476,925	480,471	484,111	488,430
Interest Earnings	-	125,894	158,844	124,126	106,331	118,995
Total Sources of Funds	\$ 17,261,722	\$ 16,697,318	\$ 16,852,399	\$ 16,941,807	\$ 17,051,404	\$ 17,215,234
Uses of Water Funds						
Operating Expenses	\$ 11,575,494	\$ 12,791,032	\$ 13,197,960	\$ 13,312,000	\$ 13,813,880	\$ 14,928,296
Debt Service	497,608	498,608	489,138	488,652	490,108	492,153
Rate-Funded Capital Expenses	-	-	3,515,232	7,310,656	5,620,544	5,217,171
Total Use of Funds	\$ 12,073,102	\$ 13,289,640	\$ 17,202,330	\$ 21,111,308	\$ 19,924,532	\$ 20,637,620
Surplus (Deficiency) before Rate Increase	\$ 5,188,621	\$ 3,407,678	\$ (349,931)	\$ (4,169,501)	\$ (2,873,128)	\$ (3,422,386)
Additional Revenue from Rate Increases	-	-	1,135,164	2,367,262	3,704,424	5,161,641
Surplus (Deficiency) after Rate Increase	\$ 5,188,621	\$ 3,407,678	\$ 785,233	\$ (1,802,239)	\$ 831,296	\$ 1,739,255
Projected Annual Rate Increase	0.0%	0.0%	7.0%	7.0%	7.0%	7.0%
Cumulative Rate Increases	0.0%	0.0%	7.0%	14.5%	22.5%	31.1%
Net Revenue Requirement¹	\$ 12,107,490	\$ 13,584,642	\$ 17,530,548	\$ 21,545,848	\$ 20,454,390	\$ 21,239,610

1. Total Use of Funds less non-rate revenues and interest earnings. This is the annual amount needed from water rates.

Figure 4 summarizes the projected reserve fund balances and reserve targets. A summary of the water utility's proposed 10-year financial plan is included in Appendix A – Water Rate Study Summary Tables. These tables include revenue requirements, reserve funds, revenue sources, proposed rate increases, and the City's capital improvement program.

Figure 4. Summary of Water Reserve Funds

Beginning Reserve Fund Balances and Recommended Reserve Targets	Budget		Projected			
	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17
Operating Reserve						
Beginning Balance	\$ 3,500,000	\$ 926,000	\$ 1,023,000	\$ (106,447)	\$ (3,986,961)	\$ (5,396,263)
<i>Recommended Minimum Target</i>	<i>926,000</i>	<i>1,023,000</i>	<i>1,056,000</i>	<i>1,065,000</i>	<i>1,105,000</i>	<i>1,194,000</i>
Capital Rehab & Replacement Reserve						
Beginning Balance	\$ 8,187,410	\$10,243,366	\$ 8,350,605	\$ 2,575,000	\$ 2,575,000	\$ 2,575,000
<i>Plus: Net Debt Proceeds</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>	<i>-</i>
<i>Recommended Minimum Target</i>	<i>2,500,000</i>	<i>2,500,000</i>	<i>2,575,000</i>	<i>2,652,250</i>	<i>2,731,818</i>	<i>2,813,772</i>
Debt Reserve						
Beginning Balance	\$ 1,027,210	\$ 1,027,210	\$ 1,027,210	\$ 1,013,913	\$ 1,013,913	\$ 1,013,913
<i>Recommended Minimum Target</i>	<i>1,027,210</i>	<i>1,027,210</i>	<i>1,013,913</i>	<i>1,013,913</i>	<i>1,013,913</i>	<i>1,013,913</i>
Total Beginning Balance (w/o Debt Proceeds and w/o Pump House #1 Reserves)	\$12,714,620	\$12,196,576	\$10,400,815	\$ 3,482,466	\$ (398,048)	\$ (1,807,350)
Total Recommended Minimum Target	\$ 4,453,210	\$ 4,550,210	\$ 4,644,913	\$ 4,731,163	\$ 4,850,731	\$ 5,021,685
Ending balance, for reference	\$ 12,196,576	\$ 10,400,815	\$ 3,482,466	\$ (398,048)	\$ (1,807,350)	\$ (2,486,924)
Surplus/(Deficit)	\$ 7,743,366	\$ 5,850,605	\$ (1,162,447)	\$ (5,129,211)	\$ (6,658,081)	\$ (7,508,609)

C. CHARACTERISTICS OF WATER CUSTOMERS BY CLASS

Both consumption and the number of accounts by customer class are used in allocating costs as a part of the cost-of-service analysis. The City's most recent consumption data and peaking factors by customer class are summarized in **Figure 5**. **Figure 6** compares the total number of accounts by customer class, while **Figure 7** summarizes the total rate revenue by customer class at current rates.

Figure 5. Water Consumption by Customer Class

Customer Class	FY 2011/12 Volume (ccf) ¹	Percent of Total Volume	Peak Month Factor
Residential	6,210,146	64%	1.86
Multi-Family	487,451	5%	1.52
Commercial	2,968,556	31%	1.67
Total	9,666,153	100%	1.78

1. Consumption from June 2011 through May 2012.

Figure 6. Number of Accounts by Customer Class

Customer Class	No. of Accounts ¹	Percent of Total
Residential	23,257	84.1%
Multi-Family	1,039	3.8%
Commercial	3,364	12.2%
Total	27,660	100%

1. Number of Accounts is as of May 2012.

Figure 7. Revenue from Current Rates by Customer Class

Customer Class	Revenue from Current Rates	% of Total Revenue
Residential	\$ 9,464,771	65%
Multi-Family	\$ 750,078	5%
Commercial	\$ 4,376,222	30%
Total	\$ 14,591,071	100%

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.

At the direction of the City, NBS developed multiple water rate alternatives over the course of this study. The recommended rate alternative presented in this report was ultimately selected by the City of Redding. These proposed rates include a three-tiered, inclining block rate structure for single-family customers and a uniform (single-tier) commodity rate for all other customers. **Figure 8** provides a comparison of the current and proposed rate structure for FY 2013/14 through 2015/16 for each customer class. Projected rates for FY 2013/14 reflect adjustments based on the cost-of-service analysis; 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 8. Current and Consultant Proposed Water Rates Fiscal Year 2013/14 – 2015/16

Water Rate Schedules	Current Rates	Combined Total Rates		
		FY 2013/14	FY 2014/15	FY 2015/16
<i>Project Annual Increases¹:</i>		7.00%	7.00%	7.00%
Fixed Meter Charge				
SFR 5/8- & 3/4-inch	--	\$15.84	\$16.95	\$18.14
5/8 inch	\$10.99	\$15.84	\$16.95	\$18.14
3/4 inch	\$16.49	\$21.41	\$22.91	\$24.52
1 inch	\$27.48	\$32.56	\$34.84	\$37.28
1.5 inch	\$54.94	\$60.43	\$64.66	\$69.19
2 inch	\$87.90	\$93.88	\$100.45	\$107.48
3 inch	\$175.81	\$183.06	\$195.88	\$209.59
4 inch	\$274.70	\$283.39	\$303.23	\$324.46
6 inch	\$549.40	\$562.09	\$601.44	\$643.54
8 inch	\$879.04	\$896.54	\$959.29	\$1,026.44
10 inch	\$1,593.26	\$1,621.16	\$1,734.64	\$1,856.07
12 inch	\$2,362.42	\$2,401.52	\$2,569.63	\$2,749.50
Commodity Charge (per hcf) - Single Family Residential				
Tier 1: 0-11 hcf	\$1.01	\$0.48	\$0.52	\$0.55
Tier 2: 12-36 hcf	\$1.01	\$1.28	\$1.37	\$1.47
Tier 3: 36+ hcf	\$1.01	\$1.58	\$1.69	\$1.81
Commodity Charge (per hcf) - All Other Users				
	\$1.01	\$1.00	\$1.07	\$1.14

1. Increases in total annual revenue requirements. Individual rates in FY 2013/14 were set based on the cost-of-service analysis. After FY 2013/14, rates are adjusted in an "across-the-board" manner.

Design Factors for Single-Family Three-Tier Rates

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

- **Tier 1:** This first tier is typically 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. The average winter water consumption for customers within the single-family residential class with a 5/8 inch meter in Redding is 11 hcf per month. Tier 1 has been set to include consumption up to 11 hcf.
- **Tier 2:** The second tier is typically intended to include usage greater than typical domestic needs up to the average summer-time usage, which would include typical landscape watering. The average summer water consumption for single-family residential customers is 36 hcf per month. Tier 2 has been set to cover 11+ to 36 hcf.
- **Tier 3:** The third tier usually includes all consumption greater than the average summer-time usage, and is typically intended to represent consumption considered to be wasteful or excessive. Therefore, Tier 3 includes all consumption greater than 36 hcf.

E. Comparison of Current and Proposed Single Family Bills

Figure 9 compares monthly water bills for the current and proposed single-family residential rates as a result of the first year rate adjustment. **Figure 10** compares typical single-family monthly water bills to other communities.

Figure 9. Monthly Water Bill Comparison for SFR Customers

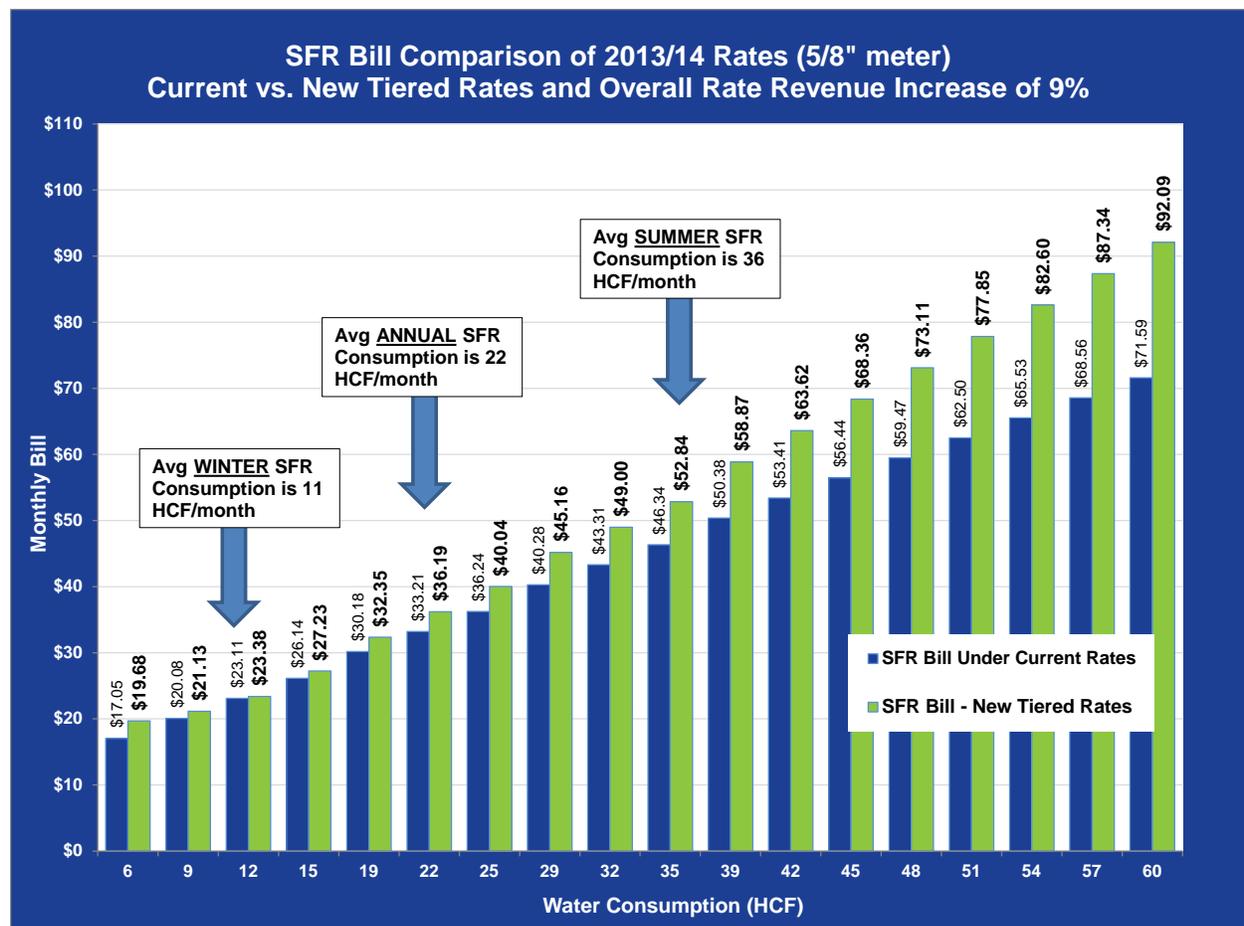
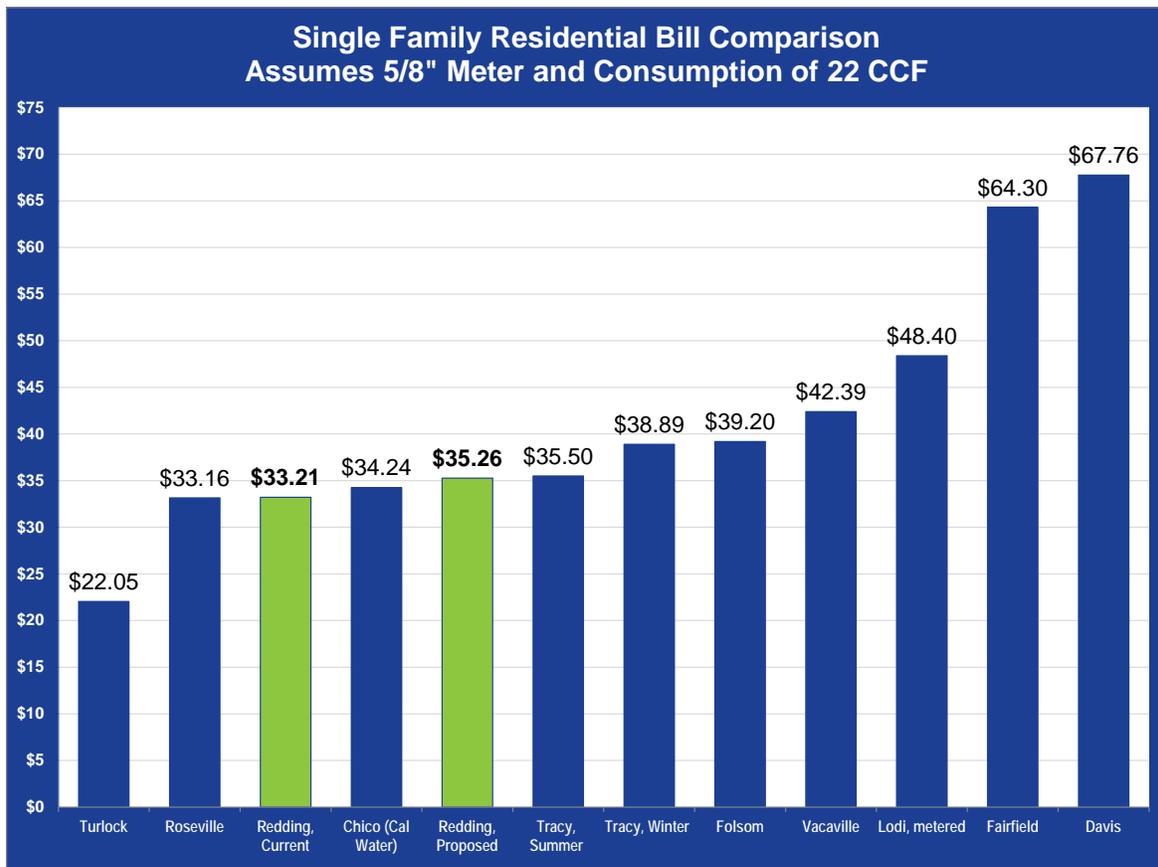


Figure 10. Monthly Water Bill Comparison with Other Communities



Potential Benefits of Three-Tiered Rates

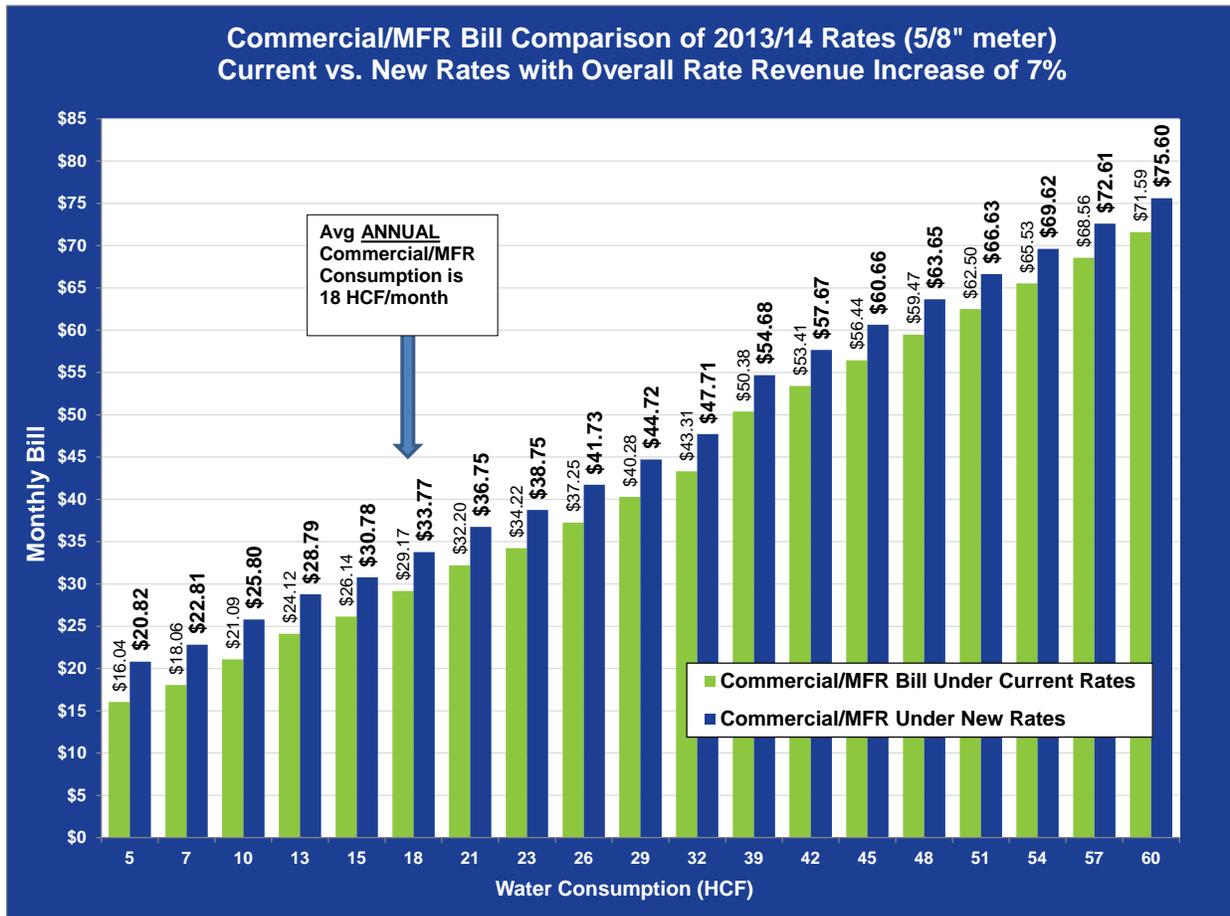
Overall, reducing both peak water consumption and total annual water use may reduce City operating costs by decreasing pumping and replacement costs, and possibly delaying or avoiding capacity-related improvements. In general, NBS would recommend the more conservation-oriented approach imbedded in the 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 mandate on reducing per capita consumption⁶ the City has already shown significant reductions in overall demand, 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 11** compares current and proposed monthly bills for commercial customers with a 5/8-inch meter at varying levels of consumption.

⁶ 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.

Figure 11. Monthly Water Bill Comparison for Commercial & Multi-Family Users



Section 3. Sewer Rate Study

A. KEY SEWER RATE STUDY ISSUES

The most significant issue addressed in the sewer rate analysis was generating the additional revenue needed to fund the planned capital projects for the utility. In general, the sewer rate study addressed the same three comprehensive rate study components (i.e., revenue requirements, cost-of-service, and rate design) that the water rate study addressed. Detailed tables showing the step-by-step development of the analysis are documented in Appendix B – Sewer Rate Study Summary Tables.

B. SEWER UTILITY REVENUE REQUIREMENTS

To identify the City's long-term financial needs, including funding for capital improvement projects, 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 the Citizen's Advisory Group, and related information such as debt service schedules and capital improvement plans.

The City's financial plan addresses four primary components:

- 1. 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 \$19 million. The utility is currently in a healthy financial position. Annual revenues are sufficient to cover current operating expenditures, debt service payments and make contributions towards planned capital improvement costs. However, considering the Utility's planned capital program, minor rate increases are recommended in an effort to not over-burden rate-payers in later years.
- 2. Meeting Capital Improvement Costs:** The sewer utility must also be able to fund necessary capital improvements. The City has identified roughly \$137 million in planned capital improvements for the current fiscal year through the end of Fiscal Year 2021/22.
- 3. 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 Wastewater Refunding Revenue Bonds, 2002 Series A. The City also has several State Revolving Fund Loans outstanding and plans to use more to fund the planned capital expenses of the Utility. It is not assumed that the City is required to maintain a specific coverage ratio for these loans. 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. It is projected that the City will meet the 1.20 debt coverage ratio for all existing and anticipated debt through Fiscal Year 2018/19.
- 4. Building and Maintaining Reserve Funds:** The City should maintain sufficient reserves for the Sewer Utility. Currently, the utility's reserves are sufficient to meet industry standards for prudent utility fund management. It should be noted that a large portion of the surplus that is projected through the end of Fiscal Year 2013/14 is due to bond proceeds that the City has received or is planning on receiving. Without adjustments to rates this position will not be maintained and much larger increases will be needed in later years.

Following are the target reserve levels that have been used in the analysis for the utility, based on direction from the City:

- **Operating Reserve** equal to 8% of the Utility's budgeted annual operating expenses. This reserve target is equal to a one-month (or 30-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.
- **Capital Reserve** equal to \$3.5 million in 2013 dollars, escalated by 3% annually (to account for inflation), 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 established a cash resource that can be applied toward future replacement and rehabilitation needs.

- **Debt Reserve** equal to the reserve requirement for the anticipated State Revolving Fund Loans factored into this analysis to fund planned capital projects. There is no reserve requirement for the outstanding revenue bonds that the utility is obligated to.

Figure 12 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. **Figure 13** shows a summary of the utility’s projected reserve funds and target balances.

Figure 12. Summary of Wastewater Revenue Requirements

Summary of Sources and Uses of Funds and Net Revenue Requirements	Budget		Projected			
	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17
Sources of Sewer Funds						
Rate Revenue Under Prevailing Rates	\$21,093,797	\$20,245,680	\$20,394,889	\$20,546,537	\$20,702,176	\$20,886,859
Non-Rate Revenues	164,655	121,760	120,445	122,989	127,395	130,585
Interest Earnings	-	148,449	102,331	102,110	110,082	129,030
Total Sources of Funds	\$21,258,452	\$20,515,889	\$20,617,665	\$20,771,637	\$20,939,653	\$21,146,474
Uses of Sewer Funds						
Operating Expenses	\$10,276,895	\$12,300,543	\$12,638,391	\$12,952,910	\$13,485,694	\$14,002,816
Debt Service	4,206,375	5,455,120	6,526,920	6,416,253	6,047,671	6,050,246
Rate-Funded Capital Expenses	-	-	733,465	3,932,914	5,059,920	7,122,812
Total Use of Funds	\$14,483,270	\$17,755,663	\$19,898,776	\$23,302,077	\$24,593,285	\$27,175,874
Surplus (Deficiency) before Rate Increase	\$ 6,775,183	\$ 2,760,226	\$ 718,889	\$ (2,530,441)	\$ (3,653,632)	\$ (6,029,400)
Additional Revenue from Rate Increases	\$ -	\$ -	\$ 1,223,693	\$ 2,539,552	\$ 3,954,447	\$ 5,482,319
Surplus (Deficiency) after Rate Increase	\$ 6,775,183	\$ 2,760,226	\$ 1,942,583	\$ 9,111	\$ 300,815	\$ (547,081)
Projected Annual Rate Increase	0.0%	0.0%	6.0%	6.0%	6.0%	6.0%
Cumulative Rate Increases	0.0%	0.0%	6.0%	12.4%	19.1%	26.2%
Net Revenue Requirement¹	\$14,318,614	\$17,485,454	\$19,676,000	\$23,076,978	\$24,355,808	\$26,916,259

1. Total Use of Funds less non-rate revenues and interest earnings. This is the annual amount needed from sewer rates.

Figure 13. Summary of Wastewater Reserve Funds

Beginning Reserve Fund Balances and Recommended Reserve Targets	Budget		Projected			
	FY 2011/12	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17
Operating Reserve						
Beginning Balance	\$ 7,361,806	\$ 856,000	\$ 1,025,000	\$ 1,053,000	\$ 695,689	\$ 996,504
<i>Recommended Minimum Target</i>	<i>856,000</i>	<i>1,025,000</i>	<i>1,053,000</i>	<i>1,079,000</i>	<i>1,124,000</i>	<i>1,167,000</i>
Capital Rehab & Replacement Reserve						
Beginning Balance	\$ -	\$18,937,174	\$ 7,830,872	\$ 4,424,278	\$ 3,463,012	\$ 3,196,576
<i>Recommended Minimum Target</i>	<i>3,500,000</i>	<i>3,500,000</i>	<i>3,605,000</i>	<i>3,713,150</i>	<i>3,824,545</i>	<i>3,939,281</i>
Debt Reserve						
Beginning Balance	\$ -	\$ -	\$ 1,377,273	\$ 2,691,523	\$ 3,180,086	\$ 3,180,086
<i>Recommended Minimum Target</i>	<i>567,387</i>	<i>1,377,273</i>	<i>2,691,523</i>	<i>3,180,086</i>	<i>3,180,086</i>	<i>3,180,086</i>
Total Beginning Balance	\$ 7,361,806	\$19,793,174	\$10,233,145	\$ 8,168,802	\$ 7,338,787	\$ 7,373,166
<i>Total Recommended Minimum Target</i>	<i>\$ 4,923,387</i>	<i>\$ 5,902,273</i>	<i>\$ 7,349,523</i>	<i>\$ 7,972,236</i>	<i>\$ 8,128,631</i>	<i>\$ 8,286,367</i>
Capacity Fee - Restricted Reserve						
Beginning Balance	\$14,195,874	\$16,741,855	\$12,432,347	\$11,103,007	\$7,800,660	\$4,292,620
State Revolving Fund Loan Proceeds	\$12,069,747	\$10,390,219	\$337,500	\$0	\$0	\$0
Uses of Funds and Add'l. Revenues	(\$9,523,766)	(\$13,946,067)	(\$1,199,401)	(\$3,180,207)	(\$3,508,040)	(\$88,310)
Ending Balance (Capacity Fees & SRF Loans)	\$16,741,855	\$13,186,007	\$11,570,446	\$7,922,800	\$4,292,620	\$4,204,310

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.

C. CURRENT VS. PROPOSED SEWER RATES

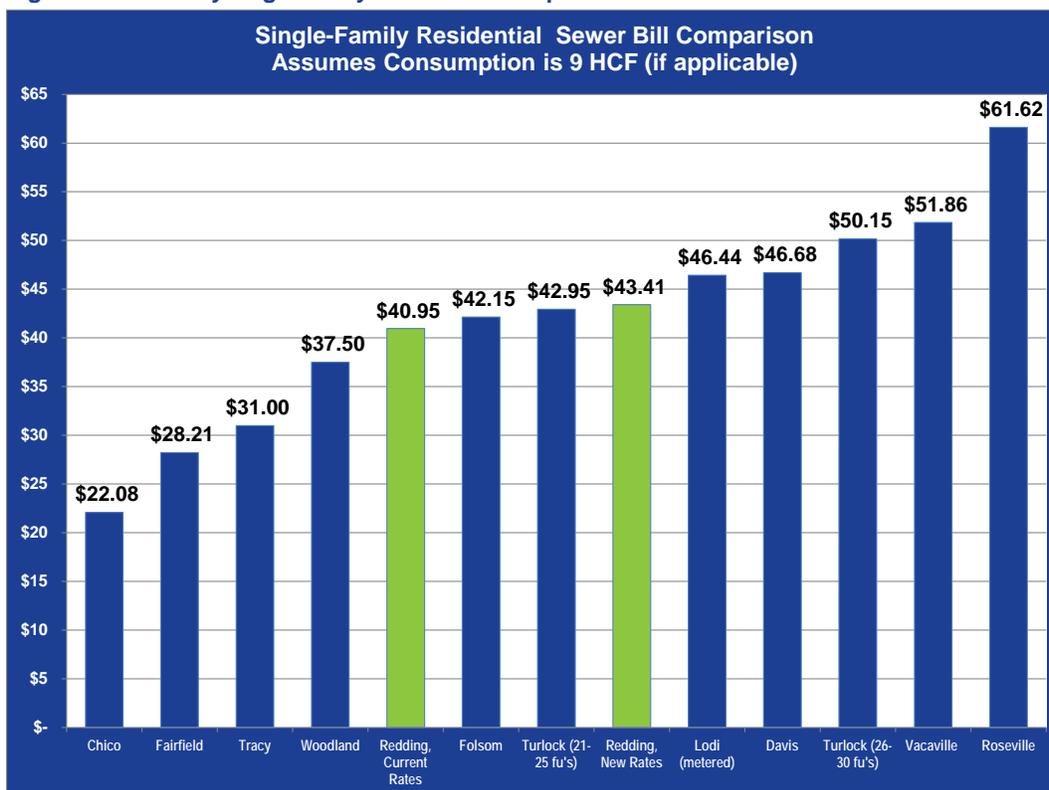
Currently, the City’s sewer rates consist of a fixed monthly charge per residence for single-family dwellings and a fixed monthly charge per unit for multi-family dwellings. Commercial and commercial food preparation customers are billed in two different ways; standard commercial customers are charged either a volumetric (\$/hcf) rate based on water consumption, or a fixed charge per month based on the number of equivalent housing units per location/account. The commercial food preparation rate is twice that of the residential and commercial rate to account for the higher conveyance and treatment costs associated with elevated biochemical oxygen demand and total suspended solids of food preparation effluent.

As mentioned earlier, the City decided to continue using the existing schedule of rates rather than implement a new rate structure. The projected new rates rely on across-the-board rate increases tied to the changes in revenue requirements each year. **Figure 14** shows the current and proposed sewer rates through FY 2015/16. **Figure 15** compares typical single-family monthly sewer bills with other communities.

Figure 14. Current and Proposed Sewer Rates

SEWER RATE SCHEDULE	Current Rates	Projected		
		FY 2013/14	FY 2014/15	FY 2015/16
Proposed Annual Rate Increases		6.00%	6.00%	6.00%
Monthly Service Charges:				
Single Family Dwelling (\$/residence)	\$ 40.95	\$ 43.41	\$ 46.01	\$ 48.77
Multi Family Dwelling (\$/unit)	\$ 30.30	\$ 32.12	\$ 34.05	\$ 36.09
Standard Commercial billed monthly (\$/ccf)	\$ 4.21	\$ 4.46	\$ 4.73	\$ 5.01
Standard Commercial calculated annually (\$/# HE)	\$ 40.95	\$ 43.41	\$ 46.01	\$ 48.77
Commercial Food Preparation billed monthly (\$/ccf)	\$ 8.42	\$ 8.93	\$ 9.46	\$ 10.03
Commercial Food Preparation calculated annually (\$/# HE)	\$ 81.90	\$ 86.81	\$ 92.02	\$ 97.54

Figure 15. Monthly Single-Family Sewer Bill Comparison with Other Communities



Section 4. Solid Waste Rate Study

A. KEY SOLID WASTE RATE STUDY ISSUES

In evaluating solid waste rates, the City's main concern is how to generate the additional revenue needed to meet projected funding requirements, particularly the planned capital projects and rolling stock vehicle replacements. The following sections summarize the results from the solid waste rate analysis. More detailed tables showing the step-by-step development of the analysis are documented in Appendix C – Solid Waste Rate Study Summary Tables.

Rate Study Methodology and Assumptions

Similar to the water and sewer rate studies, the three comprehensive rate study components (revenue requirements, cost-of-service, and rate design) previously noted in Figure 1 were addressed in the solid waste rate study. However, the cost-of-service analysis was limited to determining whether the current rates collect an appropriate amount of revenue from each customer class. That is, do current rates appear to collect revenue from customers in a cost-of-service manner? NBS' analysis concluded that no adjustments to the current rate structure were needed. The City has chosen to continue using the existing schedule of rates, with annual across-the-board increases tied to the revenue requirements.

The basic steps in a solid waste 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, solid waste rates are typically related to the level of service provided to individual accounts or customer. That is, they reflect the number and size of containers and the number of pickups per week.

B. SOLID WASTE UTILITY REVENUE REQUIREMENTS

To identify the solid waste utility's long-term financial needs, NBS developed a 10-year financial plan that forecasts operating expenses, planned capital improvements, rolling stock replacements and reserves, and determines the amount of revenue needed in order to meet all obligations. This plan is based on the utility's current operating budget, discussions with the City and the Citizen's Advisory Group, and related information such as capital improvement and rolling stock needs.

The City's financial plan addresses three primary objectives:

- 1. Meeting Operations Costs:** The solid waste utility must generate enough revenue to cover the expenses of solid waste operations, including transfer station and street sweeping services. For FY 2013/14, the net revenue requirement (total annual expenses, less non-rate revenues) is approximately \$17.6 million.
- 2. Meeting Capital Costs:** The solid waste utility will need to fund approximately \$9.9 million in capital improvements over the next five years, and another \$9 million in years 5-10.
- 3. Building and Maintaining Reserve Funds:** The City should maintain sufficient reserves for the Utility. NBS' analysis indicates that four-percent rate increases will be needed in order to maintain adequate reserves and avoid much larger increases in later years.

As with the water and sewer utilities, NBS recommended a higher target operating reserve than was ultimately in use the analysis. However, based on direction from the City, the following reserve targets have been factored into the solid waste utility financial plan:

- **Operating Reserve** equal to 8% of the Utility's budgeted annual operating expenses. This reserve target is equal to a one-month (or 30 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.
- **Capital Reserve** equal to 7% of net assets, which assumes an average 15-year expected life of assets. 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. If the City adopts the rate increases proposed in the financial plan, the Utility will be able to maintain this level of reserve.

- **Rolling Stock Reserve** equal to the average annual rolling stock replacement costs through 2021, per the City's planning period for rolling stock.
- **Debt Reserve** equal to the reserve requirement for the 2004 Lease Revenue Bonds, which is assumed to be equal to the annual payment.

Figure 16 summarizes the next five years of the financial plan, showing the “sources and uses” of funds, along with the estimated annual surplus or deficiency. **Figure 17** shows a summary of the projected Reserves for the solid waste utility.

Figure 16. Summary of the Revenue Requirements for the Solid Waste Utility

Summary of Sources and Uses of Funds and Net Revenue Requirements	Projected				
	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18
Sources of Solid Waste Funds					
Rate Revenue Under Prevailing Rates	\$ 14,870,000	\$ 14,870,000	\$ 15,241,750	\$ 15,622,794	\$ 16,013,364
Non-Rate Revenues	1,470,940	1,470,950	1,507,307	1,544,572	1,582,770
Interest Earnings	88,727	64,852	58,285	47,035	60,343
Total Sources of Funds	\$ 16,429,667	\$ 16,405,802	\$ 16,807,342	\$ 17,214,401	\$ 17,656,476
Uses of Solid Waste Funds					
Operating Expenses	\$ 17,157,717	\$ 17,375,896	\$ 18,050,384	\$ 18,589,199	\$ 19,236,834
Debt Service	902,950	135,200	-	-	-
Rate-Funded Capital Expenses	1,097,808	1,347,181	1,324,003	797,691	1,140,140
Total Uses of Funds	\$ 19,158,475	\$ 18,858,277	\$ 19,374,387	\$ 19,386,890	\$ 20,376,974
Surplus (Deficiency) before Rate Increase	\$ (2,728,808)	\$ (2,452,474)	\$ (2,567,046)	\$ (2,172,489)	\$ (2,720,498)
Additional Revenue from Rate Increases	446,100	1,062,194	1,722,719	2,432,523	3,193,452
Surplus (Deficiency) after Rate Increase	\$ (2,282,708)	\$ (1,390,281)	\$ (844,326)	\$ 260,034	\$ 472,954
Projected Annual Rate Increase	3.00%	4.00%	4.00%	4.00%	4.00%
Cumulative Rate Increases	3.00%	7.12%	11.40%	15.86%	20.50%
Net Revenue Requirement¹	\$ 17,598,808	\$ 17,322,474	\$ 17,808,796	\$ 17,795,282	\$ 18,733,862

1. Total Use of Funds less non-rate revenues and interest earnings (annual amount needed from rates).

Figure 17. Summary of the Reserve Funds for the Solid Waste Utility

Ending Reserve Fund Balances and Recommended Reserve Targets	Projected				
	FY 2013/14	FY 2014/15	FY 2015/16	FY 2016/17	FY 2017/18
Operating Reserve					
Ending Balance	\$ 939,000	\$ 322,224	\$ (386,902)	\$ (126,868)	\$ 346,086
<i>Recommended Minimum Target</i>	<i>939,000</i>	<i>948,000</i>	<i>982,000</i>	<i>1,006,000</i>	<i>1,037,000</i>
Capital Rehab & Replacement Reserve					
Ending Balance	\$ 4,349,292	\$ 3,871,064	\$ 2,649,706	\$ 2,649,706	\$ 1,994,900
<i>Recommended Minimum Target</i>	<i>571,000</i>	<i>545,000</i>	<i>541,000</i>	<i>503,000</i>	<i>486,000</i>
Rolling Stock Reserve¹					
Ending Balance	\$ 2,450,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000	\$ 1,500,000
<i>Recommended Minimum Target</i>	<i>1,450,000</i>	<i>1,500,000</i>	<i>1,550,000</i>	<i>1,610,000</i>	<i>1,670,000</i>
Total Ending Balance	\$ 6,196,997	\$ 4,328,489	\$ 2,262,804	\$ 2,522,839	\$ 2,340,986
<i>Total Recommended Minimum Target</i>	<i>\$ 2,418,705</i>	<i>\$ 1,628,200</i>	<i>\$ 1,523,000</i>	<i>\$ 1,509,000</i>	<i>\$ 1,523,000</i>
Capacity Fee - Restricted Reserve					
Ending Balance	\$ 908,705	\$ 135,200	\$ -	\$ -	\$ -
<i>Recommended Minimum Target</i>	<i>908,705</i>	<i>135,200</i>	<i>-</i>	<i>-</i>	<i>-</i>

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 and rolling stock replacements is also presented in Appendix C.

D. PROPOSED SOLID WASTE RATES

As mentioned earlier, the cost-of-service analysis indicates that no change to the existing rate structure is needed. NBS recommends across-the-board increases to existing rates of 3% in FY 2013/14 and 4% in FY 2014/15 and 2015/16. These increases are consistent with the overall increase in the utility's revenue requirements. The recommended solid waste rates for the next five years are provided in **Figure 18**.

Figure 18. Proposed Solid Waste Rates

SOLID WASTE RATE SCHEDULE	Prevailing Rates	Projected		
	FY 2012/13	FY 2013/14	FY 2014/15	FY 2015/16
Proposed Annual Rate Increases	--	3.00%	4.00%	4.00%
Residential Wheeled Cart Monthly Rate				
64-gallon	\$ 19.85	\$ 20.45	\$ 21.27	\$ 22.12
Additional 64-gallon	\$ 18.85	\$ 19.45	\$ 20.27	\$ 21.12
96 gallon	\$ 20.85	\$ 21.45	\$ 22.27	\$ 23.12
Additional 96-gallon	\$ 19.85	\$ 20.45	\$ 21.27	\$ 22.12
Landfill Monitoring	\$ 0.22	\$ 0.22	\$ 0.22	\$ 0.22
Automated Cart Special Collection Rate (per cart)				
64-gallon				
Same Day (50% of monthly fee)	\$ 9.93	\$ 10.23	\$ 10.64	\$ 11.06
Not Same Day (65% of monthly fee)	\$ 12.90	\$ 13.29	\$ 13.83	\$ 14.38
96-gallon				
Same Day (50% of monthly fee)	\$ 10.43	\$ 10.73	\$ 11.14	\$ 11.56
Not Same Day (65% of monthly fee)	\$ 13.55	\$ 13.94	\$ 14.48	\$ 15.03
Commercial Wheeled Cart Monthly Rate				
64-gallon	\$ 20.14	\$ 20.74	\$ 21.57	\$ 22.43
Landfill Monitoring**	\$ 0.27	\$ 0.28	\$ 0.29	\$ 0.31
Additional 64-gallon	\$ 19.14	\$ 19.74	\$ 20.57	\$ 21.43
96 gallon	\$ 21.40	\$ 22.04	\$ 22.92	\$ 23.84
Landfill Monitoring**	\$ 0.29	\$ 0.30	\$ 0.31	\$ 0.32
Additional 96-gallon	\$ 20.40	\$ 21.04	\$ 21.92	\$ 22.84
Automated Cart Special Collection Rate (per cart)				
64-gallon				
Same Day (50% of monthly fee)	\$ 10.07	\$ 10.37	\$ 10.79	\$ 11.22
Not Same Day (65% of monthly fee)	\$ 13.09	\$ 13.48	\$ 14.02	\$ 14.58
96-gallon				
Same Day (50% of monthly fee)	\$ 10.70	\$ 11.02	\$ 11.46	\$ 11.92
Not Same Day (65% of monthly fee)	\$ 13.91	\$ 14.33	\$ 14.90	\$ 15.50

**Landfill Monitoring fees are calculated at 1.36% of the total solid waste charge.

Section 5. Recommendations and Next Steps

CONSULTANT RECOMMENDATIONS

As a result of this rate and fee study and input from the City, The City of Redding has completed its Proposition 218 public hearing and protest balloting requirements. NBS recommends the City take the following actions:

- **Approve and Accept This Study Report:** NBS recommends the City Council formally approve and adopt this report and its recommendations. This will provide documentation of the rate study analyses underlying the City's actions and provide a basis for analyzing potential changes to future rates.
- **Implement Recommended Levels of Rate Increases and Proposed Rates:** Based on successfully meeting the Proposition 218 requirements, the City Council should proceed with implementing the rate increases and rate structures recommended in this report for each utility for the next three years⁷ (see Figures 8, 14 and 18). These rate increases are necessary to ensure the continued financial health of the City's water, wastewater and solid waste utilities.

While no rate structure changes are recommended for sewer and solid waste, the water rate structure would change from a single-tier commodity charge for all customers to a three-tiered commodity rate for single-family residential users, but retain a single-tier commodity rate for all other customers.

- **Adopt Reserve Fund Targets:** NBS recommends the City council adopt the consultant proposed reserve fund targets described in this report, for each utility. While these reserve targets are lower than NBS would typically recommend, they serve as a starting point for building and maintaining these reserve funds. The City should periodically evaluate reserve fund levels and make it a long-term goal to achieve the following levels for the Operating and Capital Reserves:
 - **Operating Reserve** – 90-days (i.e., 25%) of operating expenses for the water, sewer and solid waste utilities.
 - **Capital Reserve** – 3% of net assets for water and sewer. This equates to 33-year life-expectancy of water and sewer assets and provides a reasonable target for future planning purposes.

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.

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

⁷ The City prepared alternative rate increase scenarios for the water utility by making changes to NBS' rate model. NBS assumes no responsibility for the accuracy of the financial plan and water rate increases proposed under this City-staff generated alternative.

PRINCIPAL ASSUMPTIONS AND CONSIDERATIONS

In preparing this report and the 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. The City has also made adjustments to various reserve fund balances and capital improvement expenditures during this analysis. Additionally, the City has co-authored this report and has, at their sole discretion, included statements that should not be considered as the opinions of NBS. This information and various assumptions were assumed to be 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 and its recommendations, 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.