

Twain Harte Community Services District



WATER & SEWER RATE STUDY

February 11, 2016

Twain Harte Community Services District
Water and Sewer Rate Study

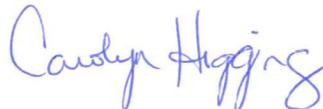
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1.0 Introduction

1.1 Purpose

In 2015, the Board Members of Twain Harte Community Services District (District) directed staff to complete a water and sewer rate study that identified costs of providing services to each customer class, projected five-year revenues and expenses, analyzed rate structures and recommended a financial plan for the next five years. The intent of this study is twofold: (1) short term and long term financial health and stability and (2) equitable cost of service rates.

1.2 Background

The District was formed on August 1, 1996, to provide water, sewer, park and recreation, fire protection, and hydroelectric services to the Twain Harte community. Its formation resulted in the consolidation of three districts whose service to the community dates as far back as 1935 – Twain Harte Fire Protection District, Tuolumne County Water District No. 1 and Twain Harte Recreation and Park District. The District has a population of approximately 2,226 full-time residents and an additional unknown number of seasonal/vacation residents, who primarily reside in other water/sewer districts.

This rate study focuses only on the District’s water and sewer services, which are generally described as follows:

- **Water:** The District provides treated water to approximately 1,600 customers. Raw water stored in Lyons Reservoir is transported to the District via an open ditch system and is purchased from the Tuolumne Utilities District. The water is treated at the District’s water treatment plant (one million gallons per day capacity), pumped through two pump stations, distributed through approximately 27 miles of pipeline and stored in six storage tanks (totaling 2.5 million gallons of storage). The District



also owns and operates two groundwater wells (capable of producing 125 gallons per minute) and an emergency water supply reservoir (capacity of 15 acre-feet).

- **Sewer:** The District owns and operates a wastewater collection system consisting of approximately 25 miles of sewer mains and three sewer lift stations. All wastewater collected by the District is conveyed to Tuolumne Utilities District for treatment. The Sherwood Forest subdivision is the only area within the District that utilizes individual septic systems to treat wastewater.

In Fiscal Year 2014-15, the District generated approximately \$1.375 million in water service revenue and \$830,000 in sewer service revenue. Revenues for water and sewer services are primarily generated from service fees and are used to fund the costs of each respective service, including but not limited to, operations and maintenance, debt, capital improvements and adequate reserves. All such revenues are used only to fund the type of service for which they are collected and only for service within that service's respective service area.

1.3 Initial Findings

Revenues collected from water and sewer rates must be sufficient enough to completely cover operating and capital expenses. If sufficient revenues are not collected, the water or sewer system cannot be adequately maintained and will eventually fall into disrepair, resulting in service disruptions or lack of service altogether.

Initial analysis of the District's water fund revealed that it does not currently collect enough revenue to fund its existing operating and capital expenses and has had to use reserves and property tax revenues to cover its costs. This revenue shortfall primarily results from a significant increase in wholesale water costs recently levied by the District's wholesale supplier, Tuolumne Utilities District (TUD); increased capital improvement needs, such as replacement of aging and deteriorated infrastructure; and decreased revenues resulting from water shortages. The gap between collected water revenue and water expenses is projected to increase over the next five years as water infrastructure continues to degrade and TUD implements its adopted annual wholesale water rates increases.

Unlike the water fund, the District's sewer fund currently collects enough revenue to fund existing operations and maintenance expenditures. However, its revenues are not sufficient to fully fund sewer capital improvement needs and has recently had to use reserves to cover those costs. The revenue shortfall primarily results from substantial increases in wastewater treatment costs imposed by TUD, who provides wastewater treatment services to the District. The sewer fund has also experienced higher costs due to increasing need to replace aging and deteriorated sewer infrastructure. The gap between collected sewer revenue and sewer expenses is projected to increase over the next five years

as sewer infrastructure continues to degrade and TUD implements its adopted annual wastewater treatment rate increases.

Over the past two years, the District has negated or minimized water and sewer revenue shortfalls by reducing operations and maintenance costs by making creative operational efficiency improvements, weeding out excess maintenance costs and negotiating a new contract with the District's employee labor union. These changes have reduced annual water expenses by an average of \$161,000 and annual sewer expenses by an average of \$81,000. The District also obtained \$1,145,000 in grants to offset water capital improvement costs.

Even with the District's cost reduction measures, current and projected revenues are not sufficient to cover operating and capital improvement costs and the District will need to generate more revenue to continue to provide adequate water and sewer services. This rate study identifies the District's revenue needs over the next five years, thoroughly analyzes costs to ensure they are shared equitably among customer classes and presents a five year financial plan that will generate sufficient revenue to cover all water and sewer expenses.

2.0 Rate Design Principles and Goals

2.1 Overview of Rate Design Principles

The rate design method used in this study incorporates a combination of generally-accepted and District-specific principles and goals. These principles and goals work together to establish rates that generate sufficient revenues, equitably recover costs and meet the unique needs of the District.

2.2 General Principles

While no water or sewer agency uses the exact same rate design approach, water and sewer rate design methods should be consistent with the general principles accepted and practiced industry-wide. In general, the industry-accepted rate design methods implement and maintain a reasonable balance between the following principles:

- Rates must generate revenues that are sufficient to cover operating and capital expenses.
- Rates must collect revenue from each customer class in an equitable manner that is reasonably proportionate to the cost of service provided to each customer class.
- Rate structures should be simple for customers to understand and for agencies to administer.
- Rates should promote sustainable use of resources.
- Rates should be levied in a manner that reasonably minimizes customer impacts.

2.3 District-Specific Principles

Every water and sewer agency operates under unique circumstances that require their rate structures to vary according to their individual needs. For example, many water agencies have a relatively steady population base year round and can generate a steady revenue stream with a rate structure that collects most of its revenue through volumetric charges (\$/gallon). The District cannot generate steady revenues with that rate structure model because its customer base more than doubles in the summer due to tourism. In order to account for the District's unique needs and makeup, the District's Board of Directors adopted the following principles to guide the rate design carried out in this study:

General Rate Principles

- Equitable distribution of costs to each customer class based on real costs of services in compliance with the requirements of Proposition 218.
- Simplified administration.
- Easy-to-understand rate structures.
- District fiscal responsibility and stability.

- Continued efficient provision of professional, reliable and quality services.
- Reasonable rate adjustments through balancing the need for increased revenues and customer cost impacts over a 5-year rate adjustment period.

Water Rate Principles

- Promote efficient and conservative use of the District’s limited water supply.
- Provide a stable revenue stream with an irregular seasonal population base.
- Plan for reasonable future water demands by projecting a use that is based on averaging the past three fiscal years (18 months regular use and 18 months conservation).
- Prevent excessive revenue loss during water shortage emergencies through an option to implement a drought surcharge based on levels of mandatory conservation requirements.

Sewer Rate Principles

- Equitably distribute costs based on equivalent single family resident (ESFR) units, developed through average winter water use for each customer type.

2.4 District-Specific Goals

In addition to setting District-specific principles to guide the rate design process, the District board adopted financial goals to identify the costs that rate revenues should cover. Some of the goals are already set forth in District policy, such as minimum levels of Operating Reserves and the “pay as you go” method of funding capital improvements (paying for capital improvements with cash instead of with loans). Other goals are specific to the rate design undertaken in this study. Those goals seek to improve the District’s mission of providing services in a reliable and fiscally responsible manner, such as making accelerated unfunded liability payments and funding depreciation. The District desires to fund the following financial goals through the rate design accomplished in this study:

District Financial Goals

- 100% of operations and maintenance costs every year.
- 100% of capital costs in the 5-year Capital Improvement Plan.
- 100% of depreciation costs.
- Accelerated payment toward unfunded liability.
- A minimum \$300,000 Capital Reserves Account balance at the end of five years.
- Operating and Rate Stabilization Reserve Account levels required by the District Reserves Policy.
- Pass-through of wholesale water and sewer services costs to avoid negative future financial impacts resulting from increased costs imposed by wholesale water and sewer service providers.

2.5 Meeting Principles and Goals

While a perfect rate design would completely incorporate all rate principles and goals, successful rate designs usually cannot due to competing principles and goals. A successful rate design must delicately balance and prioritize all principles and goals to attain rates that are sufficient, fair and reasonable. For example, the District must balance the principle of implementing rates that reasonably impact customers with their goal to make accelerated payments toward unfunded retirement liability, which increases customer impacts. Some principles and goals must be met due to law or basic, sound fiscal management, while others carry some flexibility. The balancing and prioritizing undertaken in this rate study resulted in a recommended rate structure that did not accomplish or only partially accomplished the following District goals and principles:

- Drought Surcharge. The District opted to not incorporate a drought surcharge into its rates to prevent revenue loss when conservation is required. This decision keeps the rate structure simpler for both customers and District administrators. It also reduces unreasonable customer impacts during drought. The District chose to minimize drought revenue loss impacts through a rate design that promotes normal “wet year” conservative water use and accounts for sufficient revenue collection with increasingly conservative future water use. The rate design also accounts for maintaining a Rate Stabilization Reserve per the District’s Reserves Policy that can be used to buffer revenue losses in droughts.
- 100% Funding of Depreciation. While funding depreciation (funding the cost of replacing infrastructure as it ages) is important, the District found that rate increases to fully fund both capital improvements and depreciation within five years would result in unreasonable customer impacts. The District reasoned that developing a rate design that fully funds its five-year capital improvement needs, which includes replacement of aging infrastructure, was a reasonable step toward funding future infrastructure replacement costs.
- Accelerated Unfunded Liability Payments. The District is currently required to make annual payments to the California Public Employees Retirement System (CalPERS) to pay off its projected water and sewer related unfunded liability (the projected shortfall of current retirement investments to meet future retirement payments) over thirty years. In order to reduce customer rate impacts, the District opted not to increase payments beyond those required to pay off its projected unfunded liability (less than \$150,000) over thirty years.
- Minimum \$300,000 Capital Reserve Levels. In order to keep rate adjustments at a reasonable level over five years, the District opted to use its existing capital reserves to absorb capital expenses that exceed collected revenues for the first few years. In the final two years, the capital reserves begin to recover, but remain at levels that will not fully recover to the \$300,000 level until year seven. The minimum sewer Capital Reserves level was adjusted to \$250,000.

3.0 Rate Design Process

3.1 General Process

The rate design process in this study is based on an industry-accepted process, which consists of conducting a comprehensive analysis to develop cost-based water and sewer user charges. The process develops rates that generate sufficient revenues to cover water and sewer expenses, recover costs from customer classes in a manner that is proportional to the service provided and incorporate the District's rate design principles and goals. The rate design process is comprised of the following three main components:

1. Revenue Requirements Analysis
2. Cost of Services Analysis
3. Rate Design Analysis

3.2 Revenue Requirements Analysis

The revenue requirements analysis identifies the amount of annual revenue that is needed to provide reliable and efficient water and sewer services to customers. The analysis thoroughly evaluates present and anticipated future water and sewer expenses to determine whether or not current rate revenues are sufficient to cover expenses over the coming five years. The analysis serves as the basis for accomplishing the fundamental goal of rate design – generating sufficient revenue to cover expenses.

The revenue requirements analysis involves identifying all water and sewer expenses, including operating, maintenance, debt service (principal and interest) and capital improvements. It also identifies revenues needed to fund adequate reserve balances set forth in the District's Reserves Policy. These expenses and revenue needs are combined, quantified and projected annually over five years using known cost increases, a five-year capital improvement plan and inflation. The final annual costs are compared with existing rate and other revenue sources to quantify the annual revenue required to completely meet the water and sewer fund needs.

3.3 Cost of Service Analysis

The cost of service analysis provides the framework for collecting the rate revenue needs identified in the revenue requirements analysis in a manner that is proportionate to the service provided to each water and sewer customer class. The analysis equitably allocates water and sewer expenses to individual customer classes through the following three steps:

1. Allocate Revenue Requirements to Functional Cost Categories. Revenue requirements, represented as costs, are broken down into categories that lump similar costs together based

on the type of system function each cost supports. For example, water costs related to water treatment are lumped into one category and water costs related to pumping are lumped into another category. This process simplifies cost allocations undertaken in the next step.

2. Allocate Functional Costs to Demand Cost Categories. The total costs in each functional cost category are allocated to demand categories based on the types of demand that function places on the system. For example, a portion of water treatment costs are related to both average water use and peak water use. Allocating costs to these demand categories is necessary to equitably allocate costs to each customer class based on each class's demand characteristics.
3. Allocate Demand Costs to Customer Classes. The total costs in each demand cost category are allocated to individual customer classes based on the level of demand each class places on the system. For example, residential and non-residential customer classes differ in their historical average and peak water use. That difference is used to equitably divide and assign costs related to average demand and peak demand to each class.

3.4 Rate Design Analysis

After water and sewer revenue needs have been identified through the revenue requirements analysis and equitable collection of those revenues has been determined through the cost of service analysis, the rate design analysis can take place. The rate design analysis involves development of a rate structure that successfully balances equitable collection of sufficient revenues with the District's unique principles and goals to achieve rates and charges that meet the unique needs of the District and its customers. The rate design analysis generally consists of the following steps:

1. Existing Rate Structure Analysis. The existing rate structure is analyzed to determine how well it meets the District's specific objectives and the general principles of rate design. This analysis results in identification of strengths and deficiencies in the existing rate structure.
2. Rate Structure Development. A new rate structure is developed or the existing rate structure is modified so that it best accommodates the District's unique needs and accomplishes the equitable collection of revenue determined in the cost of service analysis.
3. Rate Level Setting. Five-year rate levels are set for the new rate structure using present and projected system demands and revenue needs identified in the rate requirement analysis. Although the water and sewer revenue needs drive rate levels, the levels may be adjusted over the five year period to minimize customer impacts.

4.0 Water Rate Analysis

4.1 Revenue Requirements Analysis

4.1.1 General Methodology

The first step of rate design is performance of a revenue requirements analysis. This assessment of the District's water fund financial health involves a detailed analysis of existing expenses and revenues along with reasonable projections of future expenses to determine current and future revenue needs over a five year span. The analysis then compares revenue needs with collected revenues to determine whether or not rates must be adjusted to continue adequate water services.

4.1.2 Data Input

The following data items were reviewed and incorporated in this analysis:

- District rate design principles and goals
- Fiscal Year 2014-15 water fund actuals
- Fiscal Year 2015-16 water fund budget
- 5-year capital outlay plan
- District Reserves Policy
- Adopted Tuolumne Utilities District wholesale water rate increase schedule
- Debt service data from existing loans

4.1.3 Existing Water Revenues

The water fund receives revenue primarily from rates and service charges and collects only a limited amount from property taxes. From time to time, the district also receives grants to improve water supply or complete specific capital projects. These grants are not granted on a continuous basis and, therefore, are not considered regular operational revenue. Over the past three years, the District received approximately 83% of its revenue from rates and service charges, 9% from property taxes, and 8% from other one-time, non-continuous revenue sources such as grants.

In Fiscal Year 2014-15, the District collected \$1,374,278 in water revenues, consisting of the following:

- Rate Revenue: \$964,429
- Fees and miscellaneous revenue: \$33,191
- Property Taxes & Assessments: \$123,821
- One-Time Grant Revenue: \$252,837

The District’s last water rate increase was in 2011. After that increase, revenues remained fairly steady through 2013, varying slightly based on water use. In 2014, with the arrival of historic drought, water shortages and mandatory conservation requirements, the District’s water consumption significantly dropped, causing a drop in rate revenue of approximately 6% or about \$65,000. As the drought continues, many water customers have made permanent water use changes that have resulted in water consumption reductions of more than 40% and consistent, lower revenue collection.

4.1.4 Existing Water Expenses

District revenue requirements are determined by combining all expenses, including all operational and maintenance costs, capital improvement costs, and payments on debt. Figure 4-1 depicts a breakdown of the District’s average water fund expenses into each of these cost categories.

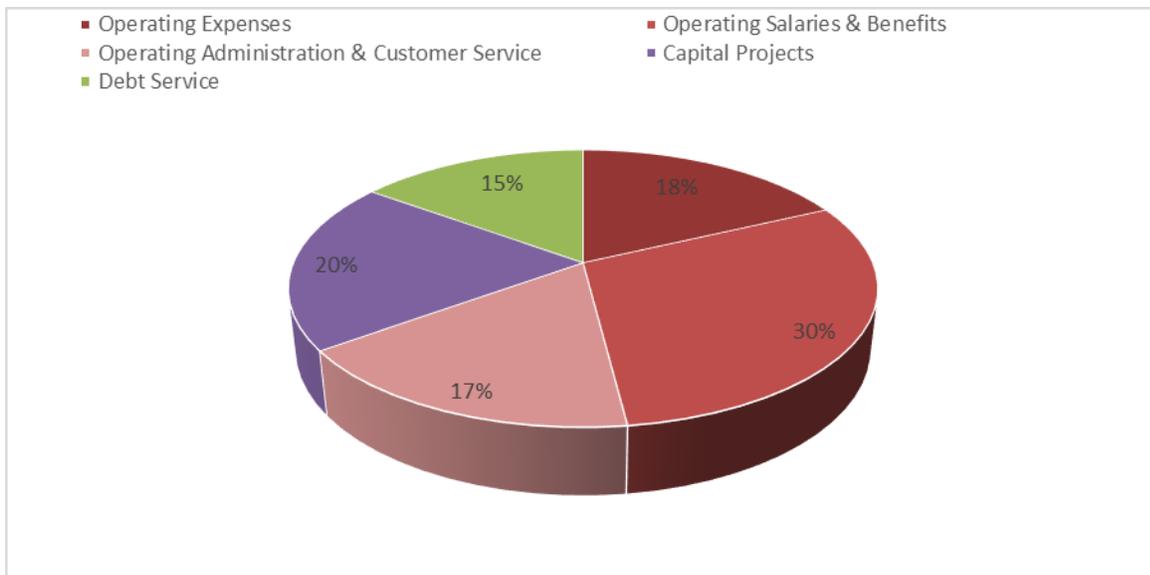


Figure 4-1. Breakdown of Average Water Expenses

As evidenced in Figure 4-1, the majority (65%) of water fund expenses are related to operating costs – 18% Operating Expenses (i.e. repairs, electricity, treatment chemicals, maintenance, etc.), 30% Operating Salaries & Benefits (i.e. water treatment personnel, distribution personnel, etc.) and 17% Operating Administration & Customer Service. Capital projects (pipeline and facility replacement and upgrades) make up 20% of costs and debt service payments to pay for previously constructed capital projects make up 15% of costs.

4.1.5 Projected Water Revenues and Expenses

In order to assess short term and long term water fund financial health, existing revenues and expenses were projected out over five years. For the purposes of this analysis, it is assumed that the Fiscal Year (FY) 2015-16 water fund budget accurately represents existing revenues and expenses. The only

exception is that one-time revenues and expenses related to grant-funded projects were removed to accurately represent re-occurring revenues and expenses.

Operating and maintenance costs are projected to increase annually over the five year period. Projected increases are generally based on the following:

- Cost of water is based on a rate increase schedule adopted by Tuolumne Utilities District.
- Salaries and benefits are based on provisions of the existing Collective Bargaining Agreement (labor union contract) and the career development path of existing employees.
- Most of the other operating and maintenance costs (i.e. electricity, repair materials, treatment chemicals, etc.) are projected to increase by 3% per year due to inflation. Although this percentage is slightly higher than inflation rates over the past few years, it is in line with the historical inflation pattern and is an industry-accepted value for projecting costs.

Capital improvement costs are projected based on the District’s 5-Year Capital Outlay Plan (Table 4-1). Debt service costs were projected based on existing loan schedules with no new debt scheduled.

Table 4-1. 5-Year Capital Outlay Plan (Water Fund)

	Budgeted FY 14-15	Requested FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20	Out Years 6 to 10	TOTAL
Well #2 - Shadybrook	\$450,000	ROLLOVER						\$ 450,000
Well #3 - Treatment Plant	\$250,000	ROLLOVER						\$ 250,000
Laurel Pump Station Upgrade	\$ 15,000	ROLLOVER	\$ 225,000					\$ 240,000
Vantage Pt. Office/Train/Decon	\$ 35,946	\$ 69,600						\$ 105,546
FH Improvements	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 12,000	\$ 60,000	\$ 132,000
Vantage Pt. Storage Yard		\$ 12,000						\$ 12,000
Million Gallon Tank Recoat		\$ 85,000	\$ 88,000	\$ 186,000	\$ 192,000			\$ 551,000
Leak Detection Equipment		\$ 14,000						\$ 14,000
Black Oak Service Line Replace		\$ 42,000						\$ 42,000
Forklift (50% Sewer)			\$ 13,000					\$ 13,000
Golf Club Dr. Line Extension				\$ 69,000				\$ 69,000
Emergency Response Trailer				\$ 5,000				\$ 5,000
Truck #4 Replace (35% Sewer)				\$ 32,500				\$ 32,500
Cedar Drive Main Extension					\$ 28,000			\$ 28,000
Vantage Pt. Storage Building					\$ 53,000			\$ 53,000
Truck #5 Replace (35% Sewer)						\$ 34,450		\$ 34,450
SCADA Upgrade						\$ 145,000		\$ 145,000
Sherwood Forest Water System						\$ 80,200	\$ 1,719,800	\$ 1,800,000
Vehicle/Equipment Replace							\$ 89,370	\$ 89,370
Rebed Treatment Filters							\$ 85,000	\$ 85,000
Shadybrook Dredging/Bypass							\$ 300,000	\$ 300,000
Sierra Pines Storage Project							\$ 2,930,000	\$ 2,930,000
Recoat Black Oak Tank							\$ 65,000	\$ 65,000
Recoat Sherwood Tank							\$ 65,000	\$ 65,000
TOTAL CAPITAL OUTLAY	\$762,946	\$ 234,600	\$ 338,000	\$304,500	\$ 285,000	\$ 271,650	\$ 5,314,170	\$ 7,510,866

In addition to expenses, revenue requirements must include the cost of maintaining adequate reserve levels. Among other reserve accounts, the District's Reserves Policy requires maintaining an Operating Reserve balance of 25% of budgeted operating expenses (approximately \$290,000 for FY 2015-16), a Rate/Revenue Stabilization Reserve balance of 10% of total budgeted operating revenue (approximately \$110,000 for FY 2015-16) and a Capital Reserve balance capable of funding 100% of capital projects. Since all reserve account balances currently meet the minimum levels, additional revenues (above operating, capital and debt expenses) to fund adequate reserve levels are not required at this time.

Since no rate adjustments are currently scheduled in the next five years, projected revenues remain almost unchanged over the five year period. Revenue generated from rates, fees and miscellaneous sources is not projected to change. The slight year-to-year variation resulting from water consumption and the number of late fees is considered inconsequential for this analysis. The \$992,730 in rate revenue is based on a continued 25% conservation level. Although this reduction level is lower than conservation levels experienced over the past two years, recent water consumption analysis reveals that permanent customer water use changes will result in an approximate 25% reduction in overall future water use, even after drought and mandatory water conservation requirements are lifted. Property taxes, the only projected revenue increase over the next five years, are projected to increase by 2% per year.

4.1.6 Revenue Requirements Results

Table 4-2 compares the projected water revenues and expenses over the next five years to show total revenue required each year. The analysis reveals that projected revenues are not sufficient to meet operating, capital and debt service needs in any of the five years if rates remain at current levels. Specifically, projected revenues falls short of project expenses as follows:

- FY 15-16: \$234,987 shortfall
- FY 16-17: \$356,624 shortfall
- FY 17-18: \$341,362 shortfall
- FY 18-19: \$352,179 shortfall
- FY 19-20: \$353,311 shortfall

The revenue requirements analysis reveals that existing revenues cannot provide for sustainable water service over the next five years. Current revenues cover operating and debt service payments, but are not sufficient to cover any capital expenses. This shortfall is currently covered with Capital Reserves, but that practice is not sustainable.

Table 4-2. Revenue Requirements Results

Twain Harte Community Services District WATER PROJECTIONS 5 Year Revenue Requirement Analysis					
	15/16 Budget	16/17 Budget	17/18 Budget	18/19 Budget	19/20 Budget
Operating Expenses					
Salaries	\$ 277,257	\$ 273,358	\$ 273,368	\$ 280,601	\$ 297,924
Benefits	142,748	151,970	155,372	161,746	170,519
Equip, Auto, Maint, & Repairs	85,290	87,850	90,484	93,200	95,995
Materials & Supplies	23,500	24,205	24,931	25,680	26,450
Outside Services	8,300	8,549	8,806	9,070	9,342
Other (Purchased Water, Utilities, Regulatory Fee)	117,149	122,067	127,818	133,200	138,670
Total Program Expenses	\$ 654,244	\$ 667,999	\$ 680,779	\$ 703,497	\$ 738,901
Administrative Cost Allocation	236,742	244,018	250,105	258,242	268,011
TOTAL OPERATING EXPENSES	\$ 890,986	\$ 912,017	\$ 930,884	\$ 961,739	\$ 1,006,912
Capital and Debt Service					
Debt Service	224,643	224,643	224,643	224,643	194,502
Capital Outlay	234,600	338,000	304,500	285,000	271,650
Total Capital & Debt Service	459,243	562,643	529,143	509,643	466,152
TOTAL REVENUE REQUIRED	\$ 1,350,229	\$ 1,474,660	\$ 1,460,027	\$ 1,471,382	\$ 1,473,064
Current Revenue					
Service Charges	\$ 992,730	\$ 992,730	\$ 992,730	\$ 992,730	\$ 992,730
Fees	13,320	13,440	13,440	13,440	13,440
Taxes & Assessments	103,846	104,363	104,892	105,430	105,980
Other Revenue	2,000	4,257	4,257	4,257	4,257
Total Program Revenue	\$ 1,111,896	\$ 1,114,790	\$ 1,115,319	\$ 1,115,857	\$ 1,116,407
Administrative Cost Allocation	3,346	3,346	3,346	3,346	3,346
GRAND TOTAL CURRENT REVENUE	\$ 1,115,242	\$ 1,118,136	\$ 1,118,665	\$ 1,119,203	\$ 1,119,753
Additional Rate Revenue Required	\$ 234,987	\$ 356,524	\$ 341,362	\$ 352,179	\$ 353,311

If rates remain unchanged, reserve levels required by the District’s Reserves Policy will no longer be met in FY 2016-17 and recovered revenue would no longer completely fund operating and debt service payments. Reserves would continue to deplete until all reserve accounts are completely exhausted sometime in FY 2017-18. This phenomenon is depicted in Figure 4-2.

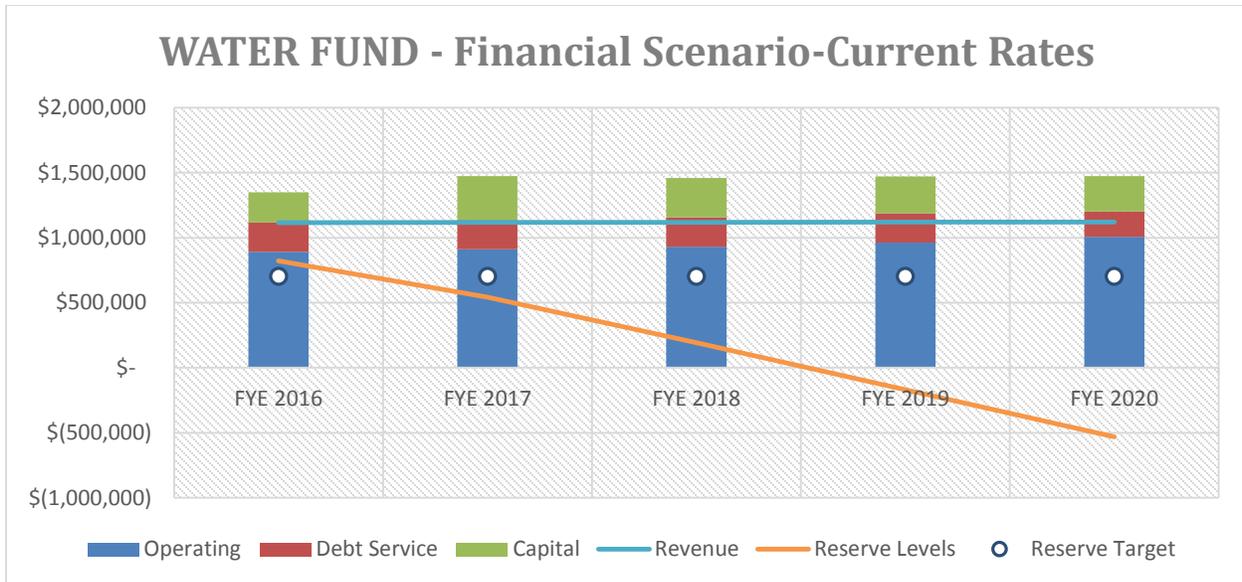


Figure 4-2. Projected Revenue, Expenses and Reserve Impacts

In order to meet the District’s revenue requirements over the next five years and achieve the District’s rate design principles and goals (excluding those discussed in Section 2.5, *Meeting Principles and Goals*), the District would need to increase rates at the beginning of each fiscal year as follows:

- FY 15-16: 24%
- FY 16-17: 10%
- FY 17-18: 0%
- FY 18-19: 0%
- FY 19-20: 0%

4.2 Cost of Services Analysis

4.2.1 General Methodology

The cost of service analysis provides the framework for collecting the rate revenue needs identified in the revenue requirements analysis in a manner that is proportionate to the service provided to each water customer class. The systematic process used in this study to equitably allocate water expenses to individual customer classes is detailed in the industry-accepted American Water Works Association (AWWA) M-1 Manual, *Principles of Water Rates, Fees and Charges*. Specifically, this analysis uses the M-1 Manual’s Base-Extra Capacity Method, which generally involves the following three steps:

1. Identify water costs by functional category (i.e. water treatment, pumping, etc.).
2. Allocate each functional cost category to base-extra capacity categories (defined in Section 4.2.2).

3. Allocate base-extra capacity costs to each water customer class based on water use and other class characteristics of each class.

4.2.2 Cost Allocation by Function

The total annual cost of service was first broken down into categories classified by “utility function”. A utility function refers to the type of operational activity for which a particular cost is expended. For example, electrical and maintenance costs related to a pump station are classified as “pumping” costs. All District water costs were broken down into the following functional cost categories in accordance with the AWWA M-1 Manual:

- Source of Supply
- Pumping
- Treatment
- Transmission and Distribution
- Customer Accounts
- General and Administrative

4.2.3 Allocation of Functional Costs to Base-Extra Capacity Components

The functional cost categories were further allocated to base-extra capacity components. These components identify either the level of demand each functional category places on the water system or how functional categories relate to customer classes. The components are driven by annual volume of water consumed, the peak water demands incurred, the number of customers in the system, and the number of fire services required to maintain adequate fire protection. The following capacity components were used in this cost of service analysis:

- Base Costs – Operating and capital costs directly related to the average quantity of water used, including costs associated with service to customers under average load conditions.
- Extra Capacity Costs (max day & max hour) – Operating costs associated with meeting peak demand water use, or water in excess of average (base) use, including any capital costs that will provide excess capacity.
- Customer Costs – Customer costs are fixed costs, irrespective of the amount of water use. They are equal for all customers and include meter reading, billing, accounting, and administration.
- Meter Service Costs – Meter costs are fixed costs specific to the size of meter utilized by the customer and include maintenance and capital costs directly attributable to meters.

- Fire Protection Costs – Costs directly related to public fire hydrants and associated branch pipelines and valves.

The water fund's budget was analyzed line-by-line and expenditures were distributed to functional cost categories and then allocated to each capacity component. Table 4-3 provides the resulting breakdown of this process. As seen in Table 4-3, functional cost categories were allocated to capacity components differently based on function. For example, 100% of Customer Account category costs were allocated to the Customer Cost component because they are not dependent upon the volume of water used or the number of connections in a system. These costs would be the same if the entire District used five gallons or one million gallons of water. Also, Transmission and Distribution category costs are allocated to Base, and Extra Capacity (both Max Day and Peak Hour) components because the different parts of the transmission and distribution system are used to meet various types of water use demands. For example, distribution pipelines are mainly used to meet average water flows but they are sized larger than is needed for average flows so that they are capable of meeting much greater flows such as maximum day flows (normally experienced on hot August days) and maximum hour flows (normally experienced in the morning when most take their daily showers).

Table 4-3. Expenses by Functional Cost Category and Capacity Component

Description	Total Water Expenses	Base	Max Day	Max Hour	Meters & Services	Customer Accounts	Fire
<i>% Allocation</i>		20.40%	8.31%	11.01%	4.10%	54.28%	1.90%
<i>Total Allocation</i>	1,350,840	275,585	112,287	148,713	55,351	733,260	25,644
SALARIES & BENEFITS	417,852	72,212	34,032	25,813	19,439	264,424	1,932
EQUIP, AUTO, MAINT, & REPAIR							
EQUIP MAINTENANCE & RE	3,900	1,715	1,071	1,114	-	-	-
FACILITIES MAINT/REPAI-SOS	7,840	7,840	-	-	-	-	-
FACILITIES MAINT/REPAI-Pump	1,000	-	1,000	-	-	-	-
FACILITIES MAINT/REPAI-W.T.	17,750	10,924	6,826	-	-	-	-
FACILITIES MAINT/REPAI-T.&D.	28,500	12,528	7,829	8,143	-	-	-
FACILITIES MAINT/REPAI-G. & A.	1,599	302	142	108	81	958	8
VEHICLE MAINTENANCE	8,000	-	-	-	-	8,000	-
FUEL	10,500	-	-	-	-	10,500	-
EQUIP UNDER \$5K - Pumping	2,500	-	2,500	-	-	-	-
EQUIP UNDER \$5K - W.T.	450	277	173	-	-	-	-
EQUIP UNDER \$5K - T&D	1,250	550	343	357	-	-	-
PERSONAL PROTECTIVE EQUIP	500	-	-	-	-	500	-
MATERIALS & SUPPLIES							
OFFICE SUPPLIES	1,100	-	-	-	-	1,100	-
OFFICE SUPPLIES-CUSTOM	-	-	-	-	-	-	-
POSTAGE	-	-	-	-	-	-	-
POSTAGE - CUSTOMER ACC	3,200	-	-	-	-	3,200	-
EMERG. RESPONSE FOOD SUPPLY	400	-	-	-	-	400	-
CHEMICAL & TESTING SUP	18,400	18,400	-	-	-	-	-
JANITORIAL SUPPLIES	400	176	110	114	-	-	-
OUTSIDE SERVICES							
LEGAL FEES	3,000					3,000	
IT SERVICES	1,000					1,000	
ENGINEERING SERVICES	3,001	567	267	203	153	1,796	15
MEDICAL EXAMS	300					300	
OTHER PROFESSIONAL SER	1,001	189	89	68	51	599	5
OTHER PROFESSIONAL SER							
UTILITIES - SOS	750	750					
UTILITIES - PUMPING	9,300	9,300					
UTILITIES - WATER TREATMENT	7,300	4,493	2,807				
UTILITIES - GEN & ADMIN	2,700	510	241	182	137	1,616	14
PHONE/COMMUNICATIONS	4,300					4,300	
COMPUTER LIC./MAINT. AGREE.	4,500					4,500	
PROPERTY/LIABILITY INSURANCE	8,600					8,600	
PROPERTY TAX	1,850					1,850	
MEMBERSHIPS/PUBS/SUBSC	11,500					11,500	
LICENSES & CERTIFICATIONS	335					335	
TRAINING/CONFERENCES/TRAVEL	2,500					2,500	
UNCOLLECTABLE ACCOUNTS	250					250	
ADVERTISING & PUBLIC EDUCATION	6,000					6,000	
LABORATORY FEES	21,140				21,140		
REGULATORY FEES	14,350				14,350		-
PURCHASED WATER	21,774	21,774					
ADMIN COST ALLOCATION	239,506					239,506	
DEBT SERVICE							
Total Debt Service	226,142	70,815	39,474	37,400		74,926	3,527
Capital Projects - Rate Funded	234,600	42,263	15,383	75,211	-	81,600	20,143

Key:

Source of Supply
Pumping
Water Treatment
Transmission & Distribution
Customer Accounts
General & Administrative
Multiple Categories Above

4.2.4 Allocation of Base-Extra Capacity Costs to Customer Classes

The final cost allocation step is to allocate the base-extra capacity costs to specific customer classes. This becomes the basis by which the rates, by customer class, are developed consistent with the cost of providing service to those customer classes.

The District's existing water customer classes are based on meter size, irrespective of type of use or the unique customer characteristics. Analysis of water consumption characteristics performed during this study revealed that there is a better correlation of water consumption and other unique customer characteristics between Residential and Non-Residential customer classes than between meter sizes. Thus, the District's water customer classes are Residential and Non-Residential.

Table 4-4 presents the allocation of capacity component costs to customer classes. Base-extra capacity cost components were allocated to each class based on their respective annual water use statistics over the past five years. This data was used to determine the percentage of Base, Max Day and Max Hour component costs attributable to each class. Meter Service component costs were allocated to each class based on their respective number of meters. Meter Service costs are normally split by equivalent meter sizes, but after analysis it was determined that the expenses associated with this cost component would not increase for larger meters and were, therefore, split evenly between every meter. Customer component costs were allocated to each class based on their respective number of customer accounts since the functional costs in each of those components benefits every customer equally without respect to water usage. Fire component costs were allocated to each class based on their respective number of meters because the same level of benefit is provided to each customer's meter without respect to meter size or water usage.

The resulting allocation of these costs provides a road map for equitable rates that will collect the appropriate revenue from Residential and Non-Residential customer classes in proportion to the amount of service and demand they place on the water system. According to the cost of service analysis, the Residential customer class is responsible for 89% of total revenue requirements and the Non-Residential customer class is responsible for 11% of total revenue requirements.

Table 4-4. Allocation of Base-Extra Capacity Costs to Customer Classes

Summary of Expenses by Base / Extra Capacity Components									
Functional Cost Component	Base		Extra Capacity			Meter Services	Customer Costs	Fire	Total
	Average Day	Max Day	Max Hour						
Total Costs	\$ 253,132	\$ 101,707	\$ 140,686	\$ 49,307	\$ 662,107	\$ 25,042	\$ 1,231,981		

Allocation of Base / Extra Capacity Cost to Customer Classes:

Calculation of Unit Cost for Base, Max Day and Max Hour Cost Components								Meter Services	Customer Costs	Fire
Customer Class	Total Annual Flow	Average Daily Flow	Max Day Peaking Factor	Max Day Flow Above the Average Day Flow	Max Hour Peaking Factor	Max Hour Flow Above the Max Day Flow	Number of Meters			
Residential	50,844,072	139,299	166%	231,460	206%	287,180	1531	1467.5	1531	
Non-Residential	11,760,519	32,221	142%	45,785	182%	58,673	140	95.5	140	
Total	62,604,591	171,520		277,245		345,853	1,671	1,563	1,671	
<i>Unit Cost</i>		<i>\$ 1.4758</i>		<i>\$ 0.3668</i>		<i>\$ 0.4068</i>	<i>\$ 29.5075</i>	<i>\$ 423.6129</i>	<i>\$ 14.9862</i>	

Allocation of Base / Extra Capacity Costs to Customer Classes										
Customer Class	Base		Extra Capacity			Meter Services	Customer Costs	Fire	Total	% Cost Distribution
	Average Day	Max Day	Max Hour							
Residential	205580.00	\$ 84,911.09	\$ 116,819.06	\$ 45,176.00	\$ 621,651.59	\$ 22,943.93	1097081.67	89%		
Non-Residential	47551.81	16796.24	23867.15	4131.05	40455.01	2098.07	134899.33	11%		
Total	\$ 253,131.81	\$ 101,707.33	\$ 140,686.21	\$ 49,307.05	\$ 662,106.60	\$ 25,042.01	\$ 1,231,981.00	100%		

4.3 Rate Design Analysis

4.3.1 General Methodology

The rate design analysis involves development of a rate structure that successfully balances equitable collection of sufficient revenues with the District’s unique principles and goals to achieve rates and charges that meet the unique needs of the District and its customers. The rate design analysis generally consists of the following steps:

1. Existing Rate Structure Analysis
2. Rate Structure Development
3. Rate Level Setting

4.3.2 Existing Rate Structure Analysis

The District currently collects revenue from its water customers with a monthly, three-tiered rate structure. The District’s customer classes are solely based on meter size – 5/8”, 3/4”, 1”, 1-1/2”, 2” and 3”. The rate structure is comprised of two components:

- Base Charge: A fixed monthly charge based on the size of the customer’s water meter. This charge is designed to cover a large portion of fixed operations and maintenance costs, such as facilities and equipment maintenance and service operator salaries, as well as debt service and capital improvements. It also includes an allotment of 2,000 gallons of water per month.
- Commodity Charge: A charge based on the monthly amount of water consumed in units of 1,000 gallons. The charge begins after the 2,000 gallon allotment is expended and consists of three tiers – first four units is \$1.95 per unit, next five units is \$2.00 per unit, any consumption beyond the second tier is \$2.50 per unit. These charges are designed to cover a portion of fixed maintenance and operations, debt service and capital improvement costs and all operations costs that vary with amount of water usage (i.e. electricity, treatment chemicals, purchased water, etc.).

On average, the base charge component accounts for approximately 90% of rate revenue collected and the commodity charge component accounts for approximately 10% of rate revenue collected. As revealed in the revenue requirements analysis, neither component collects sufficient revenue to completely cover operating, capital and debt service costs.

Analysis of the existing rate structure revealed one major strength that should be incorporated in development of a new rate structure. The base charge collects a large portion of water fund fixed costs (costs required to operate and maintain the system that exist even with little water use). This provides a steady revenue stream, which is critically important in a District where nearly half the homes are used as vacation rentals and tourism either causes the District’s population and water use to more than double or, in poor tourism years, to only increase slightly more than normal. If the District covered most of its fixed costs based on water use, sufficient revenues would not be collected to support operations and maintenance throughout the year. This structure also provides more revenue stability during times of drought and severe conservation without implementation of drought surcharges.

Existing rate structure analysis revealed the following weaknesses and deficiencies that should be remedied with design of a new rate structure:

- Collection of revenue is not currently proportionate to services provided to each customer class as determined in the cost of service analysis.
- Collecting only 10% of revenue through commodity charges does not strongly promote water conservation.
- The current tiered commodity charge is not justified according to recent court rulings, which require water providers to show that it costs more to provide the amounts of water in higher tiers than in lower tiers.

- Inclusion of a 2,000 gallon water allotment requires customers who use less than 2,000 gallons per month to pay for the water in their base charge, making the rate less proportionate to service provided. This is especially true with District’s large percentage of vacation home owners. The allotment also does not promote water conservation.

4.3.3 Rate Structure Development

Analysis of the existing rate structure revealed that a new, modified rate structure needed to be developed to better accomplish the results of this study. In addition to maintaining the strengths of the existing rate structure, the modified rate structure must:

- Collect revenue from Residential and Non-Residential customers in the proportions set forth in the cost of service analysis.
- Promote efficient water use in a cost-justified manner without significantly impacting consistent revenue collection.
- Minimize rate structure changes to maintain consistency and to attain an easily understood and administered rate structure.
- Incorporate the maximum number of District-specific and general principles.

For customer consistency and understanding, the District decided to modify the existing rate structure, comprised of a base and commodity charge, instead of creating a new one. To maintain a steady revenue stream and to further promote conservative water use, the District chose to modify the commodity charge so that it accounts for 13% of the collected rate revenue instead of 10%, leaving the base charge to account for 87% of revenue collected through rates. To ensure that revenues are collected in the proportions set forth in the cost of service analysis, the capacity component costs from the cost of service analysis were used to make up each rate structure component.

Commodity Component Design. The modified commodity charge for each customer class consists primarily of the Base capacity cost component, which includes costs associated with average system use. Since the costs associated with the Base capacity component were determined by average Residential and Non-Residential water use, it is appropriate to recover these costs from each customer class through a charge based on actual water usage. Assuming that the ratio of Residential and Non-Residential water use remains consistent, this ensures proportionate collection of future revenue between customer classes. In order to provide consistent revenue streams, however, the commodity charge is designed to only cover 13% of required revenues (the Base capacity component makes up 20.55% of total revenue requirements). The remaining 7.55% of Base capacity costs are collected through the base charge.

While the District desires to design a rate structure that promotes conservation, justification to prove variation in the cost to provide water at specific intervals proved too difficult to maintain the existing

tiered system. Instead, the modified rate structure incorporates the following changes to promote water use efficiency:

- The base charge component no longer includes a 2,000 gallon allotment and all water use will be charged for through the commodity charge. This promotes efficient water use and ensures every customer pays their proportional share.
- Commodity charges are collected through two tiers based on 1,000 gallon units. The cost to deliver each unit of water is the same no matter the how much is consumed; however, the District board chose to subsidize the first tier by using \$25,000 in property tax revenue, which can be used at the District's discretion instead of in proportion to service provided. By doing this, commodity charges are collected in two tiers – the first two units at a subsidized charge in the first tier and the second tier at cost for any units consumed above 2 units. This both promotes conservation and minimizes the impact to customers that are used to having a 2,000 gallon allotment included in the base charge.

Base Charge Design. The modified base charge collects revenue for each capacity component cost in the proportions allocated to each customer class in the cost of services analysis. This manner of collection ensures that present and future rate revenues are collected in proportion to the cost of services provided to each customer class. The base charge consists of the following capacity components:

- *Base-Extra Capacity Components* – All costs related to Max Day capacity, Max Hour capacity and the portion of Base capacity components (the 7.55% of overall rate revenue not collected through commodity charges) are included in the base charge. These costs, in the proportions attributed to each customer class in the cost of services analysis, are distributed to each customer based on equivalent 5/8-inch meter size, as determined in the AWWA M-1 Manual. Meter size is used to represent a customer's potential capacity, which directly relates to system costs associated with average, max hour and max flow demands. For example, a 1-inch meter can accommodate 2.5 times greater flows than a 5/8-inch meter and, therefore, customers with 1" meters are responsible for 2.5 times more of these costs than customers with 5/8" meters. This method was applied to all Non-Residential Customers. However, analysis of District Residential customers revealed that water use did not depend on meter size and some customers were supplied with a 1-inch to provide higher pressures. To accommodate this, all Residential customers are considered to have a 5/8-inch meter.
- *Meter Service, Customer and Fire Components* – All costs related to Meter Service, Customer and Fire cost components are included in the base charge in the proportions attributed to each customer class in the cost of services analysis. These costs are distributed to each customer based on number of meters, irrespective of meter size. Since these costs benefit all customers equally, they are shared equally as fixed costs by all customers and are not dependent on customer capacity of water use.

4.3.4 Rate Level Setting

The primary goal of rate level setting is to ensure collection of sufficient revenues to meet District revenue requirements. This must also be balanced with the District’s adopted principle of minimizing customer impacts. The revenue requirements analysis shows that two large rate increases are needed in the first two years of the five year analysis period; however, the resulting customer impacts are too significant and the District had to create a more reasonable method of proposed rate levels that both generated sufficient revenues and minimized customer impacts.

The District chose to recommend initial water rate increases that kept the annual base charge increase to approximately five dollars and continue to taper increases down each year over the five year period. This method of rate level setting does not generate sufficient rate revenues to cover all operating, debt service and capital costs in the first few years and Capital Reserves will have to be used to make up the difference. In year five, however, collected rate revenues exceed these costs. This means that Capital Reserves will fall below the minimum \$300,000 goal adopted by the District, but will begin to replenish at the end of the five year period and will return to minimum levels by year seven or eight. The District deemed this to be an appropriate compromise to keep increases reasonable for its customers. The result of this rate level setting method is illustrated in Figure 4-3.

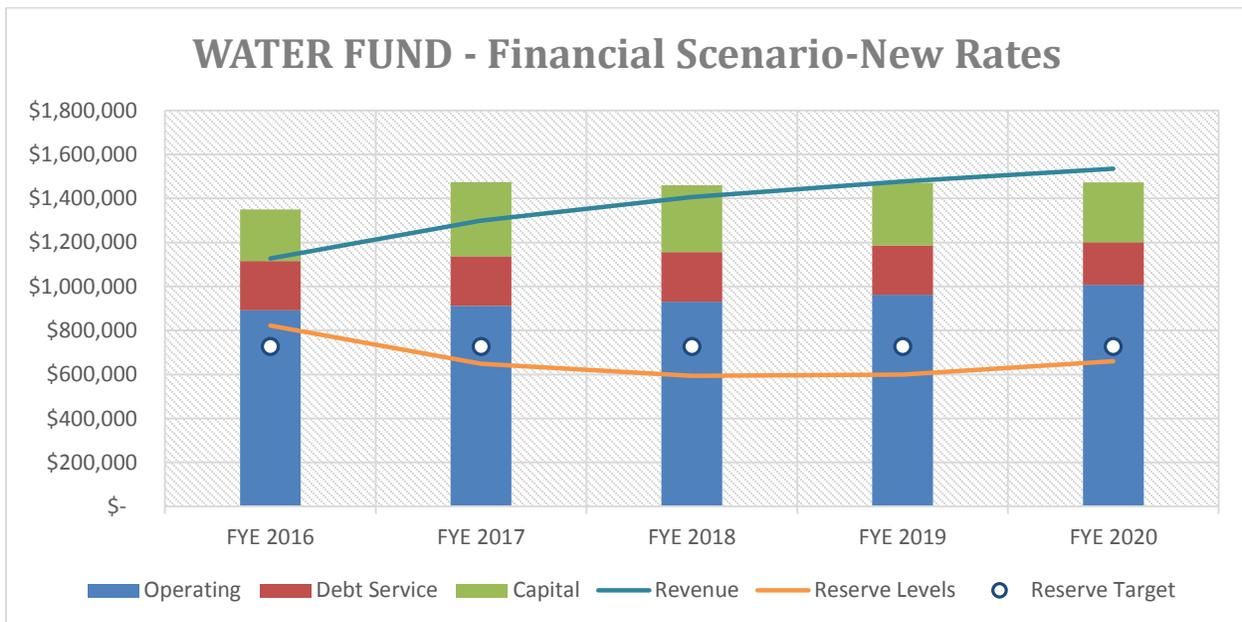


Figure 4-3. Projected Water Revenue, Expenses and Reserves Impacts after Rate Increases

4.4 Recommended Water Rates

Table 4-5 presents recommended water rates, based on the rate level setting method in the previous section, for the five year analysis period. Although these rates account for scheduled cost increases

from the District’s wholesale water provider and inflation of other utility costs, it is recommended that a pass-through clause be adopted with the recommended rates so that the District can pass through any such expense increases that are beyond those anticipated in the revenue requirements analysis.

Table 4-5. Recommended Water Rates

BASE CHARGE						
USER CLASS (by meter size)		FY 15-16 4/15/16	FY 16-17 7/15/16	FY 17-18 7/15/17	FY 18-19 7/15/18	FY 19-20 7/15/19
Residential	ALL	\$ 49.50	\$ 51.50	\$ 56.00	\$ 59.00	\$ 61.50
Non-Residential	3/4"	\$ 49.50	\$ 51.50	\$ 56.00	\$ 59.00	\$ 61.50
	1"	\$ 65.07	\$ 67.70	\$ 73.62	\$ 77.56	\$ 80.85
	1.5"	\$ 104.01	\$ 108.21	\$ 117.67	\$ 123.97	\$ 129.23
	2"	\$ 150.73	\$ 156.82	\$ 170.53	\$ 179.66	\$ 187.29
	3"	\$ 275.32	\$ 286.44	\$ 311.49	\$ 328.17	\$ 342.09
COMMODITY CHARGE						
ALL USER CLASSES (per 1,000 gallons)		FY 15-16 4/15/16	FY 16-17 7/15/16	FY 17-18 7/15/17	FY 18-19 7/15/18	FY 19-20 7/15/19
0-2,000	Gal	\$ 1.65	\$ 1.78	\$ 2.05	\$ 2.23	\$ 2.38
2,001+	Gal	\$ 3.01	\$ 3.13	\$ 3.40	\$ 3.58	\$ 3.74

Table 4-6 presents the projected revenue that will be generated if the recommended rates are implemented. The table also shows the amount in which collected revenues are insufficient to meet revenue requirements in the first three years and the amount of surplus generated in years four and five, which begin replenishing Capital Reserve levels. At the end of FY 2019-20 the projected water Capital Reserve balance will be \$206,814. With the surplus rate revenues collected in year five, the Capital Reserve levels should be restored to the minimum \$300,000 level by year seven (FY 2021-22).

Table 4-6. Revenue Generated by Recommended Water Rates

Twain Harte Community Services District WATER PROJECTIONS WITH RECOMMENDED RATES 5 Year Revenue Requirement Analysis					
	15/16 Budget	16/17 Budget	17/18 Budget	18/19 Budget	19/20 Budget
Operating Expenses					
Salaries	\$ 277,257	\$ 273,358	\$ 273,368	\$ 280,601	\$ 297,924
Benefits	142,748	151,970	155,372	161,746	170,519
Equip, Auto, Maint, & Repairs	85,290	87,850	90,484	93,200	95,995
Materials & Supplies	23,500	24,205	24,931	25,680	26,450
Outside Services	8,300	8,549	8,806	9,070	9,342
Other (Purchased Water, Utilities, Regulatory Fee)	117,149	122,067	127,818	133,200	138,670
Total Program Expenses	\$ 654,244	\$ 667,999	\$ 680,779	\$ 703,497	\$ 738,901
Administrative Cost Allocation	236,742	244,018	250,105	258,242	268,011
TOTAL OPERATING EXPENSES	\$ 890,986	\$ 912,017	\$ 930,884	\$ 961,739	\$ 1,006,912
Capital and Debt Service					
Debt Service	224,643	224,643	224,643	224,643	194,502
Capital Outlay	234,600	338,000	304,500	285,000	271,650
Total Capital & Debt Service	459,243	562,643	529,143	509,643	466,152
TOTAL REVENUE REQUIRED	\$ 1,350,229	\$ 1,474,660	\$ 1,460,027	\$ 1,471,382	\$ 1,473,064
Revenue after Rate Increase					
Service Charges	\$ 1,005,060	\$ 1,174,471	\$ 1,279,842	\$ 1,350,004	\$ 1,408,054
Fees	13,320	13,440	13,440	13,440	13,440
Taxes & Assessments	103,846	104,363	104,892	105,430	105,980
Other Revenue	2,000	4,257	4,257	4,257	4,257
Total Program Revenue	\$ 1,124,226	\$ 1,296,531	\$ 1,402,431	\$ 1,473,131	\$ 1,531,731
Administrative Cost Allocation	3,346	3,346	3,346	3,346	3,346
GRAND TOTAL REVENUE	\$ 1,127,572	\$ 1,299,877	\$ 1,405,777	\$ 1,476,477	\$ 1,535,077
Revenue Requirement (Shortage)/Surplus	\$ (222,657)	\$ (174,783)	\$ (54,250)	\$ 5,095	\$ 62,013

4.5 Customer Impacts

As noted throughout this study, many rate design measures were undertaken to minimize customer rate impacts, including depleting Capital Reserves below minimum levels. Table 4-7 displays the recommended impacts with a comparison of existing rates and recommended rates.

Table 4-7. Existing vs. Recommended Rates

USER CLASS		CURRENT	FY 15-16 4/15/16	FY 16-17 7/15/16	FY 17-18 7/15/17	FY 18-19 7/15/18	FY 19-20 7/15/19
Residential	5/8"	\$ 44.22	\$ 49.50	\$ 51.50	\$ 56.00	\$ 59.00	\$ 61.50
Non-Residential	3/4"	\$ 46.73	\$ 49.50	\$ 51.50	\$ 56.00	\$ 59.00	\$ 61.50
	1"	\$ 64.76	\$ 65.07	\$ 67.70	\$ 73.62	\$ 77.56	\$ 80.85
	1.5"	\$ 121.14	\$ 104.01	\$ 108.21	\$ 117.67	\$ 123.97	\$ 129.23
	2"	\$ 186.38	\$ 150.73	\$ 156.82	\$ 170.53	\$ 179.66	\$ 187.29
	3"	\$ 251.61	\$ 275.32	\$ 286.44	\$ 311.49	\$ 328.17	\$ 342.09
0-2,000	Gal	\$ -	\$ 1.65	\$ 1.78	\$ 2.05	\$ 2.23	\$ 2.38
2,001-6,000	Gal	\$ 1.95	\$ 3.01	\$ 3.13	\$ 3.40	\$ 3.58	\$ 3.74
6,001-11,000	Gal	\$ 2.00					
11,001+	Gal	\$ 2.50					
Residential Base Increase			\$ 5.28	\$ 2.00	\$ 4.50	\$ 3.00	\$ 2.50
Average Residential Increase ¹			\$ 8.81	\$ 2.27	\$ 5.11	\$ 3.40	\$ 2.84
Average Non-Residential Increase ²			\$ 9.88	\$ 2.68	\$ 6.04	\$ 4.02	\$ 3.36

¹ Based on an average monthly residential water consumption of 2,215 gallons.

² Based on an average monthly non-residential consumption of 5,600 gallons.

When considering customer impacts, the District also looked at neighboring water agencies to determine if District customers were being asked to pay much more than similar areas for water services. As illustrated in Figure 4-4, the recommended rates are comparable to water rates levied in other nearby Sierra Nevada foothill communities like Twain Harte.

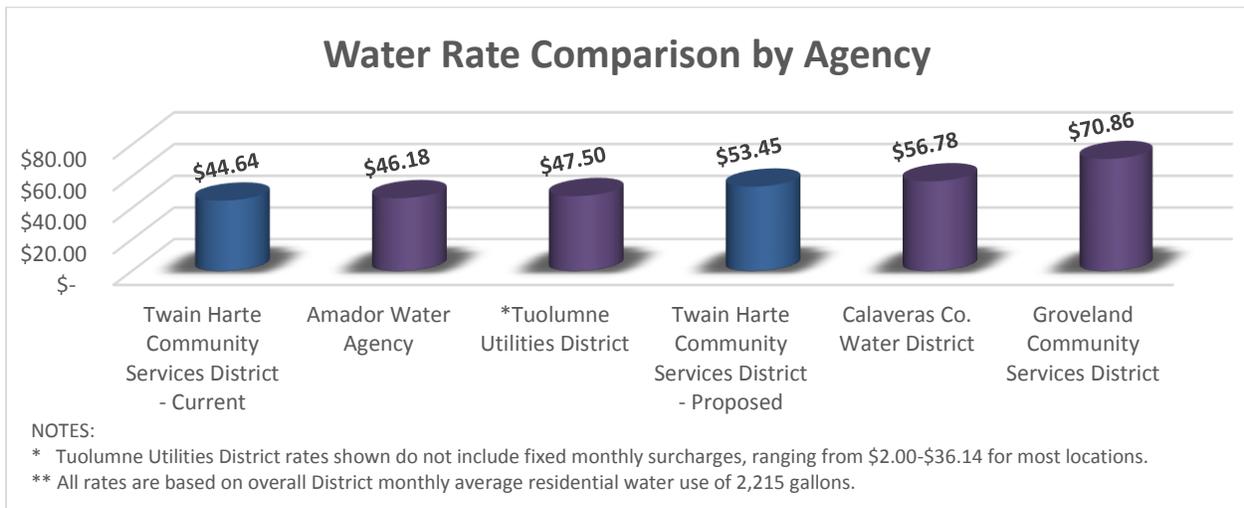


Figure 4-4. Recommended Rate Comparison to Similar Water Agencies

5.0 Sewer Rate Analysis

5.1 Revenue Requirements Analysis

5.1.1 General Methodology

The first step of rate design is performance of a revenue requirements analysis. This assessment of the District's sewer fund financial health involves a detailed analysis of existing expenses and revenues along with reasonable projections of future expenses to determine current and future revenue needs over a five year span. The analysis then compares revenue needs with collected revenues to determine whether or not rates must be adjusted to continue adequate sewer services.

5.1.2 Data Input

The following data items were reviewed and incorporated in this analysis:

- District rate design principles and goals
- Fiscal Year 2014-15 sewer fund actuals
- Fiscal Year 2015-16 sewer fund budget
- 5-year capital outlay plan
- District Reserves Policy
- Adopted Tuolumne Utilities District sewer rate increase schedule
- Debt service data from existing loans

5.1.3 Existing Sewer Revenues

The sewer fund receives revenue almost completely from rates and service charges. Over the past three years, the District received approximately 99% of its revenue from rates and service charges and 1% from other one-time, non-continuous revenue sources.

In Fiscal Year 2014-15, the District collected \$830,828 in sewer revenues, consisting of the following:

- Rate Revenue: \$813,893
- Fee revenue: \$10,345
- Other One-Time Revenue: \$6,590

The District's last sewer rate increase was in 2013. After that increase, collected sewer revenue was sufficient to meet operational and some capital sewer expenses. However, projections show that a

revenue shortfall will exist in the fiscal year ending 2016 primarily due to substantial increases in wastewater treatment costs imposed by TUD, who provides wastewater treatment services to the District. The gap between collected sewer revenue and sewer expenses is projected to increase over the next five years as sewer infrastructure continues to degrade and TUD implements its adopted annual tiered wastewater treatment rate increases.

5.1.4 Existing Sewer Expenses

District revenue requirements are determined by combining all expenses, including all operational and maintenance costs, capital improvement costs, and payments on debt. Figure 5-1 depicts a breakdown of the District’s average sewer fund expenses into each of these cost categories.

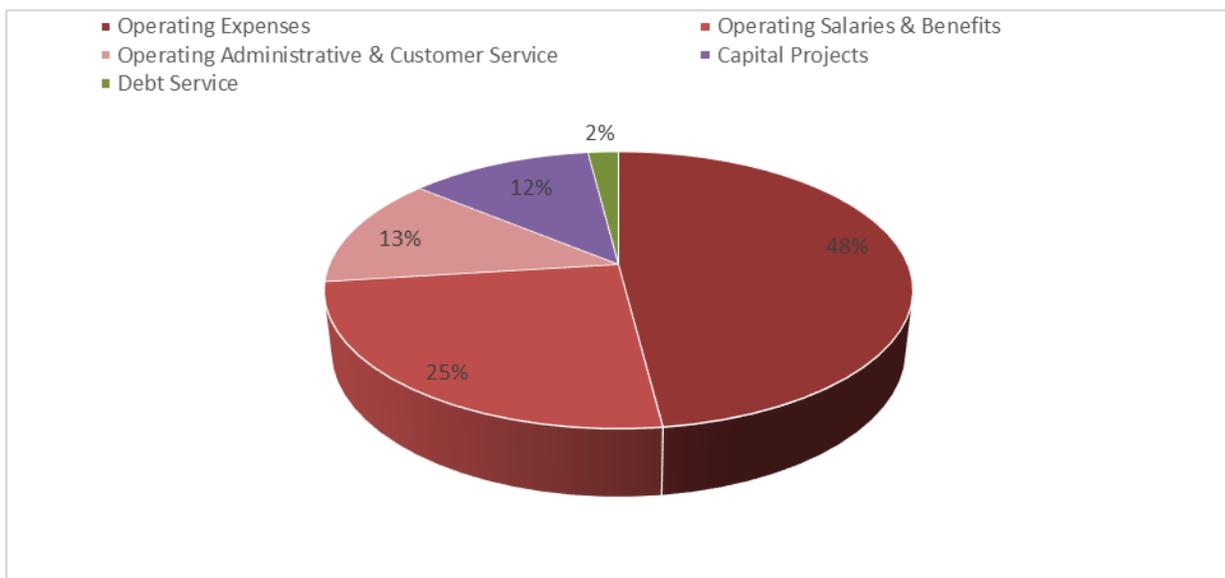


Figure 5-1. Breakdown of Average Sewer Expenses

As evidenced in Figure 5-1, the majority (86%) of sewer fund expenses are related to operating costs – 48% Operating Expenses (i.e. repairs, electricity, TUD treatment services, maintenance, etc.), 25% Operating Salaries & Benefits (i.e. collections personnel) and 13% Operating Administration & Customer Service. Capital projects (pipeline and facility replacement and upgrades) make up 12% of costs and debt service payments to pay for previously constructed capital projects make up 2% of costs.

5.1.5 Projected Sewer Revenues and Expenses

In order to assess short term and long term sewer fund financial health, existing revenues and expenses were projected out over five years. For the purposes of this analysis, it is assumed that the Fiscal Year (FY) 2015-16 sewer fund budget accurately represents existing revenues and expenses.

Operating and maintenance costs were projected to increase annually over the five year period. Projected increases are generally based on the following:

- Cost of sewer treatment and disposal is based on a rate increase schedule adopted by Tuolumne Utilities District.
- Salaries and benefits are based on provisions of the existing Collective Bargaining Agreement (labor union contract) and the career development path of existing employees.
- Most of the other operating and maintenance costs (i.e. electricity, repair materials, etc.) are projected to increase by 3% per year due to inflation. Although this percentage is slightly higher than inflation rates over the past few years, it is in line with the historical inflation pattern and is an industry-accepted value for projecting costs.

Capital improvement costs were projected based on the District’s 5-Year Capital Outlay Plan (Table 5-1). Debt service costs were projected based on existing loan schedules with no new debt scheduled.

Table 5-1. 5-Year Capital Outlay Plan (Sewer Fund)

	Budgeted FY 14-15	Budgeted FY 15-16	FY 16-17	FY 17-18	FY 18-19	FY 19-20	Out Years 6 to 10	TOTAL
Lake Sewer Stabilization	\$ 150,000	ROLLOVER						\$ 150,000
Vantage Pt. Storage Yard	\$ 1,088	\$ 23,000						\$ 24,088
Vantage Pt. Office/Training/Decon.		\$ 60,200						\$ 60,200
Vac Trailer		\$ 145,000						\$ 145,000
Forklift (50% Water)			\$ 13,000					\$ 13,000
Sewer Main Re-Lining			\$ 75,000	\$ 75,000				\$ 150,000
Emergency Response Trailer				\$ 5,000				\$ 5,000
Truck #4 Replace (65% Water)				\$ 17,500				\$ 17,500
Vantage Point Storage Facility					\$ 167,000			\$ 167,000
Truck #5 Replace (65% Water)						\$ 18,550		\$ 18,550
SCADA Upgrade						\$ 87,000		\$ 87,000
Vehicle/Equipment Replace							\$ 147,150	\$ 147,150
Sherwood Forest Sewer						\$ 50,000	\$ 3,250,000	\$ 3,300,000
TOTAL CAPITAL OUTLAY	\$ 151,088	\$ 228,200	\$ 88,000	\$ 97,500	\$ 167,000	\$ 155,550	\$ 3,397,150	\$ 4,284,488

In addition to expenses, revenue requirements must include the cost of maintaining adequate reserve levels. Among other reserve accounts, the District’s Reserves Policy requires maintaining an Operating Reserve balance of 25% of budgeted operating expenses (approximately \$204,000 for FY 2015-16), a Rate/Revenue Stabilization Reserve balance of 10% of total budgeted operating revenue (approximately \$83,000 for FY 2015-16) and a Capital Reserve balance capable of funding 100% of capital projects.

Since no rate adjustments are currently scheduled in the next five years, projected revenues remain almost unchanged over the five year period. Revenue generated from rates, fees and miscellaneous sources is not projected to change.

5.1.6 Recommended Revenue Requirements

Table 5-2 compares the projected sewer revenues and expenses over the next five years to show total revenue required each year. The analysis reveals that projected revenues are not sufficient to meet operating, capital and debt service needs in any of the five years if rates remain at current levels. Specifically, projected revenues falls short of project expenses as follows:

- FY 15-16: \$96,012 shortfall
- FY 16-17: \$123,852 shortfall
- FY 17-18: \$170,364 shortfall
- FY 18-19: \$278,196 shortfall
- FY 19-20: \$302,601 shortfall

The revenue requirements analysis reveals that existing revenues cannot provide for sustainable sewer service over the next five years. In fiscal year 15/16 current revenues cover operating and debt service payments, but are not sufficient to cover all capital expenses. This shortfall is currently covered with Capital Reserves, but that practice is not sustainable. Due to a substantial TUD rate increase, the revenue in every subsequent year is not sufficient to fully cover operating or capital expenses.

Table 5-2. Revenue Requirements Results

Twain Harte Community Services District SEWER PROJECTIONS Revenue Requirements Analysis					
	15/16	16/17	17/18	18/19	19/20
	Budget	Budget	Budget	Budget	Budget
Expenses					
Salaries	\$ 162,462	\$ 161,386	\$ 161,396	\$ 165,416	\$ 175,088
Benefits	81,232	86,461	88,388	91,966	96,889
Equip, Auto, Maint, & Repairs	35,950	37,029	38,140	39,285	40,465
Materials & Supplies	4,600	4,738	4,880	5,026	5,177
Outside Services	5,015	5,166	5,321	5,482	5,647
Other (TUD Treatment & Disposal, Utilities, Regulatory Fees etc.)	370,650	409,841	439,081	458,938	478,824
Total Program Expenses	\$ 659,909	\$ 704,621	\$ 737,206	\$ 766,113	\$ 802,090
Administrative Cost Allocation	125,926	129,797	133,034	137,363	142,559
TOTAL OPERATING EXPENSES	\$ 785,835	\$ 834,418	\$ 870,240	\$ 903,476	\$ 944,649
Capital and Debt Service					
Capital Outlay	85,200	88,000	97,500	167,000	155,550
Debt Service	31,728	17,478	17,478	17,478	17,478
Total Capital & Debt Service	116,928	105,478	114,978	184,478	173,028
Reserve Funding	21,590	12,297	13,488	18,583	13,265
TOTAL REVENUE REQUIRED	\$ 924,353	\$ 952,193	\$ 998,705	\$ 1,106,537	\$ 1,130,942
Current Revenue					
Service Charges	\$ 814,360	\$ 814,360	\$ 814,360	\$ 814,360	\$ 814,360
Fees	11,290	11,290	11,290	11,290	11,290
Other Revenue	911	911	911	911	911
Total Program Revenue	\$ 826,561	\$ 826,561	\$ 826,561	\$ 826,561	\$ 826,561
Administrative Cost Allocation	1,780	1,780	1,780	1,780	1,780
GRAND TOTAL CURRENT REVENUE	\$ 828,341	\$ 828,341	\$ 828,341	\$ 828,341	\$ 828,341
ADDITIONAL RATE REVENUE REQUIRED	\$ 96,012	\$ 123,852	\$ 170,364	\$ 278,196	\$ 302,601

If rates remain unchanged, recovered revenue would no longer completely fund operating and debt service payments. Reserves would continue to deplete until all reserve accounts are completely exhausted sometime in FY 2018-19. This phenomenon is depicted in Figure 5-2.

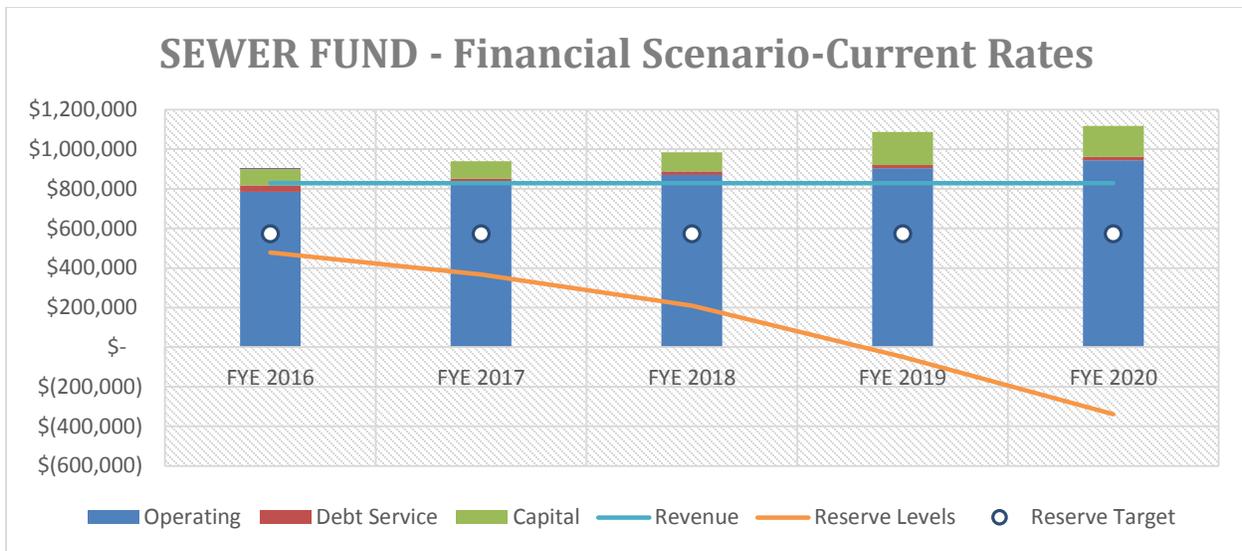


Figure 5-2. Projected Revenue, Expenses and Reserve Impacts

In order to meet the District’s revenue requirements over the next five years and achieve the District’s rate design principles and goals (excluding those discussed in Section 2.5, *Meeting Principles and Goals*), the District would need to increase rates at the beginning of each fiscal year as follows:

- FY 15-16: 12%
- FY 16-17: 3%
- FY 17-18: 5%
- FY 18-19: 11%
- FY 19-20: 2.5%

5.2 Cost of Services Analysis

5.2.1 Methodology

The cost of service analysis provides the framework for collecting the rate revenue needs identified in the revenue requirements analysis in a manner that is proportionate to the service provided to each sewer customer class. The method used to allocate sewer expenses equitably to each individual customer class is detailed in District Sewer Ordinance No. 29, Chapter 4, *Classification of Users, Demand Flow, Charges and Fees*. The method required in Ordinance No. 26 is generally-accepted industrywide method in which user classifications are determined by the principal activity conducted on the user’s premises and the typical quantity of wastewater demand flows (volume of wastewater discharged into the sewer system). Since flow meters are not feasible in sewer mains, demand flow is considered to be the same for every user within a given classification. For example, all single family dwellings are

considered to have similar sewer discharges because they all exhibit the same type of sewer discharges (showers, toilet flushing, dishwasher, laundry, etc.) for a similar number of people.

Without flow meters, demand flows for each user classification are difficult to establish. District Ordinance No. 26 uses a generally-accepted method of estimating wastewater discharge volumes for typical users within each user classification – determining average winter water use for typical users within a given user classification. This estimate is considered an equitable and reasonable method of determining demand flows because there is virtually no outdoor watering in the winter and so it is reasonable to assume that nearly all winter water use is discharged to the sewer system.

Once demand flows are determined, users are grouped by principal activity conducted on their premises to form user classification. User demand flows within each classification are analyzed and averaged to generate a typical demand flow for each user classification.

Determination of user classifications and demand flows was performed in 2015 as part of the District's update of Ordinance No. 26. Demand flows were determined by taking the average winter water usage for five years for all sewer users. Winter water usage was considered to be water usage between October 15th and March 15th, which falls within the District's wettest winter period and the State of California's documented rainy season (October 1st to April 1st). Unreasonably high and low consumption values were removed as outliers. High water use was assumed to be caused by leaks, often resulting from winter freezes within the District. Low water usage was assumed to result from vacancy, which does not accurately represent typical use for the premises. The analysis also assumed that every user classification has an equal strength of wastewater discharge, which accounts for discharge of substances that are difficult to treat (i.e. grease, industrial waste, etc.). Although restaurants often account for stronger discharges than residences, the District is not charged based on strength by its treatment service provider (TUD), and, therefore, cannot associate any measurable costs to strength of discharge.

5.2.2 Cost Allocation to Customer Classes

With the user classifications and demand flows set forth in District Ordinance No. 29, sewer revenue requirements can be allocated to each customer class in an equitable manner based on the demand each customer class places on the sewer system. In other words, sewer costs for each user classification are based on the actual amount of use that classification places on the sewer system in proportion to all other users.

Demand flows for each user classification are expressed in Equivalent Single Family Residence (ESFR) Units. District Ordinance No. 29 defines this as a monthly demand flow or wastewater discharge of 3,675 gallons. Total sewer revenue requirements are divided by the total number of ESFR units in the District (1,603) to obtain a unit charge for each ESFR. Costs are then allocated to each user class based

on its demand flow in ESFR units, or its proportional use of the sewer system. Table 5-3 presents the demand flows established for each user classification in Exhibit A of District Ordinance No. 29.

Table 5-3. Wastewater Demand Flow by User Classification

User Classification	Demand Flow (ESFR Units)
Residential Single family dwelling, multi-family dwelling, condominiums, apartments, fire stations and other residential living quarters.	1.0 per living unit
General Commercial Offices, retail stores, service stations, barbers, salons, post offices, banks, chiropractic, recreation and other general commercial uses.	0.7 per commercial unit
Lodging Hotels, motels, bed and breakfast, rooming houses, cottages and other commercial lodging.	0.3 per room
Restaurant - Small Restaurants, cafes, coffee shops, ice cream shops and other food services. Indoor Dining Area < 500 SF or Average 5-year Winter Water Use < 5,000 gallons/month	1.4 per facility
Restaurant - Large All restaurants and other food services exceeding the requirements of the "Restaurant - Small" classification.	3.6 per facility
Medical Doctor offices, veterinarians, dentists and other medical facilities.	2.0 per facility
Super Market Grocery, butcher, produce and other food products.	By Calculation
Laundromat	0.5 per washer
Car Wash	2.4 per stall
Schools	10.1 per campus
Church	1.1 per facility
Public Restrooms	1.3 per facility
Multi-Use Demand flow for wastewater connections serving combinations of the above user classifications. Demand flow will be calculated based on demand flow units for each type of use.	By Calculation

This method of allocation bases all cost allocation on system demand. An argument can be made that a portion of sewer costs should be shared equally by each user, such as billing costs. The District chose not to allocate these types of costs by customer for the following reasons:

1. The overall sum of these costs is minor and would create a negligible difference in allocation of costs to each user class.
2. Allocating this minor cost to each customer class would complicate a simple rate structure based on ESFR units, making the rate structure more difficult for customers to understand.
3. The District sewer treatment costs, which make up a large percentage of the District's overall sewer costs, are levied by TUD based on ESFR units.

5.3 Rate Design Analysis

5.3.1 General Methodology

The rate design analysis involves development of a rate structure that successfully balances equitable collection of sufficient revenues with the District's unique principles and goals to achieve rates and charges that meet the unique needs of the District and its customers. The rate design analysis generally consists of the following steps:

1. Existing Rate Structure Analysis
2. Rate Structure Development
3. Rate Level Setting

5.3.2 Existing Rate Structure

The existing sewer rate structure is made up of a fixed monthly charge based on each customer's typical type of use. This is a common type of sewer charge that provides a consistent stream of revenue even with population variation and varied levels of system use. The charge is designed to meet all operating, debt service and capital improvement costs. Overall, the rate structure is appropriate for the District's unique characteristics and needs.

Analysis of the existing rate structure revealed only one major weakness. An existing sewer customer is charged based on a complex list of use types that often seem to overlap. The charges for many of the uses are based on things that can change at any given time. For example, restaurants are based on number of seats in the restaurant and number of employees. Tracking these items to ensure customers are charged appropriately is nearly impossible for administration staff and, therefore, customers' charges are often based on past analysis that is no longer accurate. Outdated and complicated charges and user classifications make it very difficult for a customer to determine his or her charges and to understand how charges are applied.

5.3.3 Proposed Rate Structure

The District remedied the major weakness in the existing rate structure with its update of District Sewer Ordinance No. 29 in 2015. The ordinance requires all sewer charges to be based on wastewater demand flows expressed in ESFR units in accordance with Exhibit A of the ordinance (see Table 5-3, above). By continuing to use a fixed monthly sewer charge based on demand flows, the sewer rate structure will:

- Collect revenue reasonably and equitably in proportion to the service provided to each customer class.
- Provide a consistent revenue stream.
- Be easily understood by customer and easily administered by staff.

5.3.4 Rate Level Setting

The primary goal of rate level setting is to ensure collection of sufficient revenues to meet District revenue requirements. This must also be balanced with the District's adopted principle of minimizing customer impacts. The revenue requirements analysis shows that two small and large increases are needed throughout the five year period. The resulting customer impacts in some of those years are too significant, especially when combined with concurrent water rate increases, so the District created a more reasonable method of proposed rate levels to both generate sufficient revenues and minimize customer impacts.

The District chose to recommend initial sewer rate increases that kept the annual base charge increase to approximately five dollars or less over the five year period. This method of rate level setting does not generate sufficient rate revenues to cover all operating, debt service, capital and adequate reserve funding costs in the first two years and Capital Reserves will have to be used to make up the difference. In years three through five, however, collected rate revenues exceed operating, capital and debt service costs. This means that Capital Reserves will remain below the \$250,000 goal adopted by the District, but will begin to replenish in year three and will return to minimum levels by year seven or eight. The District deemed this to be an appropriate compromise to keep increases reasonable for its customers. The result of this rate level setting method is illustrated in Figure 5-3.

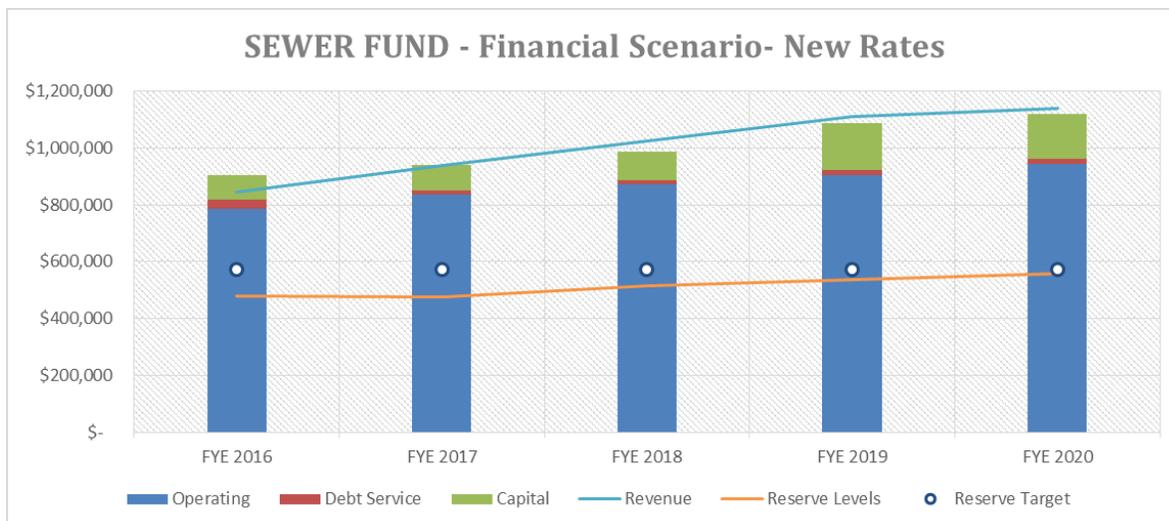


Figure 5-3. Projected Sewer Revenue, Expenses and Reserves Impacts after Rate Increases

5.4 Recommended Sewer Rates

Table 5-4 presents recommended sewer rates, based on the rate level setting method in the previous section, for the five year analysis period. For simplicity, the recommended rate schedule only shows increases in the ESFR unit charge since all sewer customer class rates are directly related to the ESFR charge. Although these rates account for scheduled cost increases from the District’s sewer treatment service provider and inflation of other utility costs, it is recommended that a pass-through clause be adopted with the recommended rates so that the District can pass through any such expense increases that are beyond those anticipated in the revenue requirements analysis.

Table 5-4. Recommended Sewer Rates

DEMAND FLOW CHARGE					
DEMAND FLOW	FY 15-16 4/15/16	FY 16-17 7/15/16	FY 17-18 7/15/17	FY 18-19 7/15/18	FY 19-20 7/15/19
Per ESFR Unit	\$ 46.00	\$ 48.00	\$ 52.50	\$ 57.00	\$ 58.50

Table 5-5 presents the projected revenue that will be generated if the recommended rates are implemented. The table also shows the amount in which collected revenues are insufficient to meet revenue requirements in the first four years and the amount of surplus generated in year five to begin replenishing Capital Reserve levels. At the end of FY 2019-20 the projected water Capital Reserve balance will be \$204,088. With the surplus rate revenues collected in year five, the Capital Reserve levels should be restored to the minimum \$250,000 level by year seven (FY 2021-22).

Table 5-5. Revenue Generated by Recommended Sewer Rates

Twain Harte Community Services District SEWER PROJECTIONS WITH RATE INCREASE 5 Revenue Requirements Analysis					
	15/16	16/17	17/18	18/19	19/20
	Budget	Budget	Budget	Budget	Budget
Expenses					
Salaries	\$ 162,462	\$ 161,386	\$ 161,396	\$ 165,416	\$ 175,088
Benefits	81,232	86,461	88,388	91,966	96,889
Equip, Auto, Maint, & Repairs	35,950	37,029	38,140	39,285	40,465
Materials & Supplies	4,600	4,738	4,880	5,026	5,177
Outside Services	5,015	5,166	5,321	5,482	5,647
Other (TUD Treatment & Disposal, Utilities, Regulatory Fees etc.)	370,650	409,841	439,081	458,938	478,824
Total Program Expenses	\$ 659,909	\$ 704,621	\$ 737,206	\$ 766,113	\$ 802,090
Administrative Cost Allocation	125,926	129,797	133,034	137,363	142,559
TOTAL OPERATING EXPENSES	\$ 785,835	\$ 834,418	\$ 870,240	\$ 903,476	\$ 944,649
Capital and Debt Service					
Capital Outlay	85,200	88,000	97,500	167,000	155,550
Debt Service	31,728	17,478	17,478	17,478	17,478
Total Capital & Debt Service	116,928	105,478	114,978	184,478	173,028
Reserve Funding	21,590	12,297	13,488	18,583	13,265
TOTAL REVENUE REQUIRED	\$ 924,353	\$ 952,193	\$ 998,705	\$ 1,106,537	\$ 1,130,942
Current Revenue					
Service Charges	\$ 830,156	\$ 923,320	\$ 1,009,890	\$ 1,096,452	\$ 1,125,300
Fees	11,290	11,290	11,290	11,290	11,290
Other Revenue	911	911	911	911	911
Total Program Revenue	\$ 842,357	\$ 935,521	\$ 1,022,091	\$ 1,108,653	\$ 1,137,501
Administrative Cost Allocation	1,780	1,780	1,780	1,780	1,780
GRAND TOTAL CURRENT REVENUE	\$ 844,137	\$ 937,301	\$ 1,023,871	\$ 1,110,433	\$ 1,139,281
Revenue Requirement (Shortage)/Surplus	\$ (80,216)	\$ (14,892)	\$ 25,166	\$ 3,896	\$ 8,339

5.5 Customer Impacts

As noted throughout this study, many rate design measures were undertaken to minimize customer rate impacts, including depleting Capital Reserves below minimum levels. Table 5-6 displays the recommended impacts with a comparison of existing rates and recommended rates.

Table 5-6. Existing vs. Recommended Sewer Rates

DEMAND FLOW CHARGE						
DEMAND FLOW	CURRENT	FY 15-16 4/15/16	FY 16-17 7/15/16	FY 17-18 7/15/17	FY 18-19 7/15/18	FY 19-20 7/15/19
Per ESFR Unit	\$ 41.59	\$ 46.00	\$ 48.00	\$ 52.50	\$ 57.00	\$ 58.50
ESFR Unit Increase		\$ 4.41	\$ 2.00	\$ 4.50	\$ 4.50	\$ 1.50

When considering customer impacts, the District also looked at neighboring sewer agencies to determine if District customers were being asked to pay much more than similar areas for sewer

services. As illustrated in Figure 5-4, the recommended rates are comparable and much lower than most sewer rates levied in other nearby Sierra Nevada foothill communities like Twain Harte.

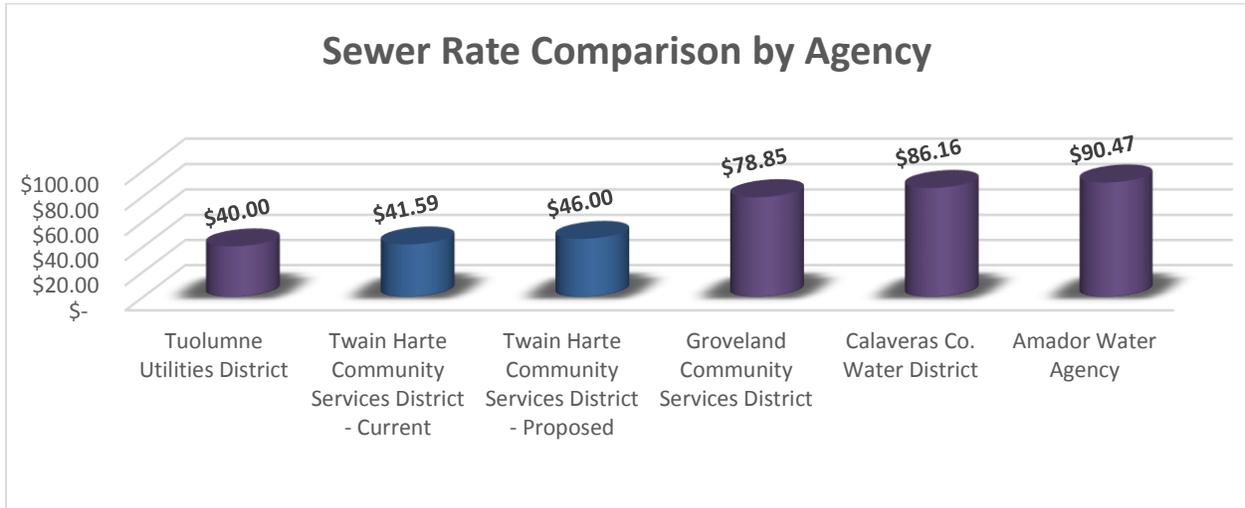


Figure 4-4. Recommended Rate Comparison to Similar Sewer Agencies

6.0 Conclusions

6.1 Study Conclusions

After conducting a detailed revenue requirements analysis, cost of service analysis and rate design for the District’s water and sewer funds, the District concluded the following:

- Current rate revenues are not sufficient to support water and sewer operating, debt service, capital and adequate reserves level costs over the next five years.
- Existing water and sewer rate structures need to be adjusted to:
 - Equitably collect revenue from customer classes in a manner that is proportional to the cost of service provided to that customer class.
 - Promote conservation of the District’s limited water supply.
 - Make rate structures easier to understand for customers.
 - Simplify administration.
- Rate levels must be adjusted to generate revenues that sufficiently cover water and sewer revenue requirements.

6.2 Rate Recommendations

In order to generate sufficient sewer revenues over the next five years, the sewer rates in Table 6-1 are recommended for implementation. Note that to minimize customer impacts, the recommended rates involve use of sewer Capital Reserves to lessen rate impacts. Sewer Capital Reserves do not return to the minimum \$250,000 level during the five year period, but are anticipated to do so by FY 2021-22.

Table 6-1. Recommended Sewer Rates

DEMAND FLOW CHARGE					
DEMAND FLOW	FY 15-16 4/15/16	FY 16-17 7/15/16	FY 17-18 7/15/17	FY 18-19 7/15/18	FY 19-20 7/15/19
Per ESFR Unit	\$ 46.00	\$ 48.00	\$ 52.50	\$ 57.00	\$ 58.50

In order to generate sufficient water revenues over the next five years, the water rates in Table 6-2 are recommended for implementation. Note that to minimize customer impacts, the recommended rates involve use of water Capital Reserves to lessen rate impacts. Water Capital Reserves do not return to the minimum \$300,000 level during the five year period, but are anticipated to do so by FY 2021-22.

Table 6-2. Recommended Water Rates

BASE CHARGE						
USER CLASS (by meter size)		FY 15-16 4/15/16	FY 16-17 7/15/16	FY 17-18 7/15/17	FY 18-19 7/15/18	FY 19-20 7/15/19
Residential	ALL	\$ 49.50	\$ 51.50	\$ 56.00	\$ 59.00	\$ 61.50
Non-Residential	3/4"	\$ 49.50	\$ 51.50	\$ 56.00	\$ 59.00	\$ 61.50
	1"	\$ 65.07	\$ 67.70	\$ 73.62	\$ 77.56	\$ 80.85
	1.5"	\$ 104.01	\$ 108.21	\$ 117.67	\$ 123.97	\$ 129.23
	2"	\$ 150.73	\$ 156.82	\$ 170.53	\$ 179.66	\$ 187.29
	3"	\$ 275.32	\$ 286.44	\$ 311.49	\$ 328.17	\$ 342.09
COMMODITY CHARGE						
ALL USER CLASSES (per 1,000 gallons)		FY 15-16 4/15/16	FY 16-17 7/15/16	FY 17-18 7/15/17	FY 18-19 7/15/18	FY 19-20 7/15/19
0-2,000	Gal	\$ 1.65	\$ 1.78	\$ 2.05	\$ 2.23	\$ 2.38
2,001+	Gal	\$ 3.01	\$ 3.13	\$ 3.40	\$ 3.58	\$ 3.74

6.3 Overall Customer Impacts

Rate structures and rate level setting for the recommended water and sewer rates incorporated several measures to minimize rate impacts. The District used Capital Reserves to spread out recommended rate increases so that the monthly base charge related to water or sewer did not increase by more than approximately five dollars each fiscal year.

Recommended rates were also compared with neighboring Sierra Nevada foothill water and sewer agencies to ensure recommended water and sewer rates are not excessively more than other like agencies. Figure 6-1 illustrates that recommended combined District water and sewer rates are much less than most like agencies.

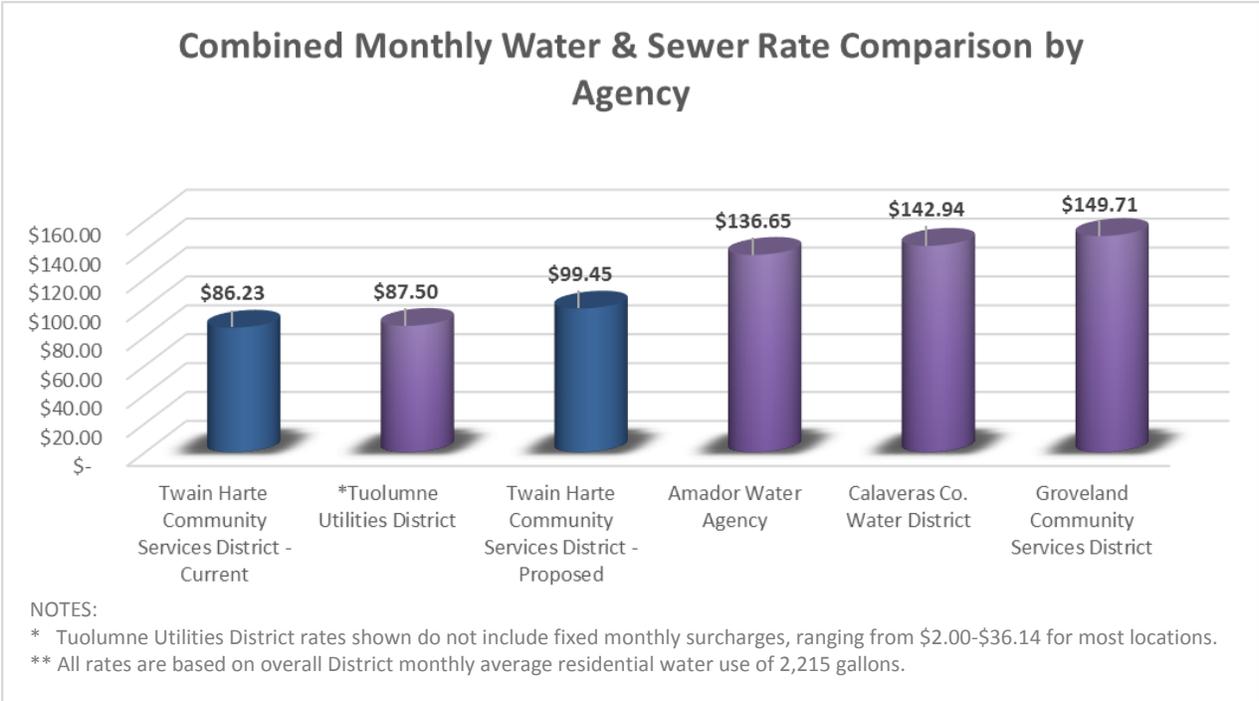


Figure 6-1. Comparison of Combined Average Water and Sewer Rates