

McKinleyville Community Services District

March 23, 2015



Sewer Rate Analysis

Draft Report



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March 23, 2015

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Mr. Orsini,

Willdan Financial Services (Willdan) is pleased to present this report on the Sewer Rate Analysis conducted for the McKinleyville Community Services District (MCSO).

This analysis was undertaken as part of MCSO's continued financial policy and fiscal review. The purpose of the analysis is to update and provide revenue and rate recommendations related to MCSO's sewer operations, specifically given currently available costs associated with the planned Wastewater Management Facility (WWMF). Since the last rate analyses was completed in June 2012, financial, operational, and growth assumptions have changed. The focus of this study is to ensure MCSO will have sufficient sewer revenues to meet its short and long-term operational, capital, and debt service obligations, and that sewer rates are set proportionate to the costs of providing service to each customer class. This report provides a summary of our findings.

This analysis has been prepared using generally accepted rate setting techniques. MCSO's accounting, budgeting, billing records, and capital improvement lists were the primary sources of data used in the study. The conclusions enclosed within this report provide MCSO with a set of recommendations to provide funding for continued operations. The rates developed are based on cost of service analysis and result in fair and equitable rates to MCSO customers.

It was a pleasure working with you and other staff members at MCSO. Thank you for the support and cooperation extended throughout the study.

Sincerely,

Willdan Financial Services

Robert P. Ryall
Principal Consultant

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Introduction

In 2014, McKinleyville Community Services District (“MCSO” or “District”) requested that Willdan Financial Services perform an updated Sewer Rate Analysis. This request was made largely due to the need to ensure sufficient funding for the planned Wastewater Management Facility (WWMF); both to repay debt that is anticipated to finance its construction, and the projected increased costs of ongoing operation. Construction of this facility is anticipated to start in the summer of 2015. In order to secure a low interest loan from the California State Water Resource Control Board (CSWRCB), an updated Sewer Rate Analysis was needed. Building on the previously completed Water and Sewer Rate Study, Connection Fee Analysis and Designated Reserve Policy review and update, this analysis continues to provide financial recommendations that focus on two key objectives: short and long-run financial health and stability for MCSO wastewater operations; and, equitable cost-of-service rates that reflect the benefit provided.

The initial review of the District’s existing sewer funding levels suggested that existing sewer revenue levels would not be sufficient to provide for the planned capital, operating and reserve funding of the sewer system, largely due to the need to construct and operate the WWMF. However, the sewer rate structure does provide equitable rates that reasonably reflect the proportionate cost of providing sewer services to MCSO customers. The existing rate structure and methodology is maintained as part of this analysis.

All sewage for MCSO’s customers is treated at the Wastewater Management Facility at Hiller Park. MCSO maintains approximately 65 miles of sewer mains, and recycles treated wastewater for agricultural irrigation at the Fischer Irrigation Site and at Hiller Park. MCSO is committed to maintaining its sewage collection, treatment and disposal systems as a model for other communities.

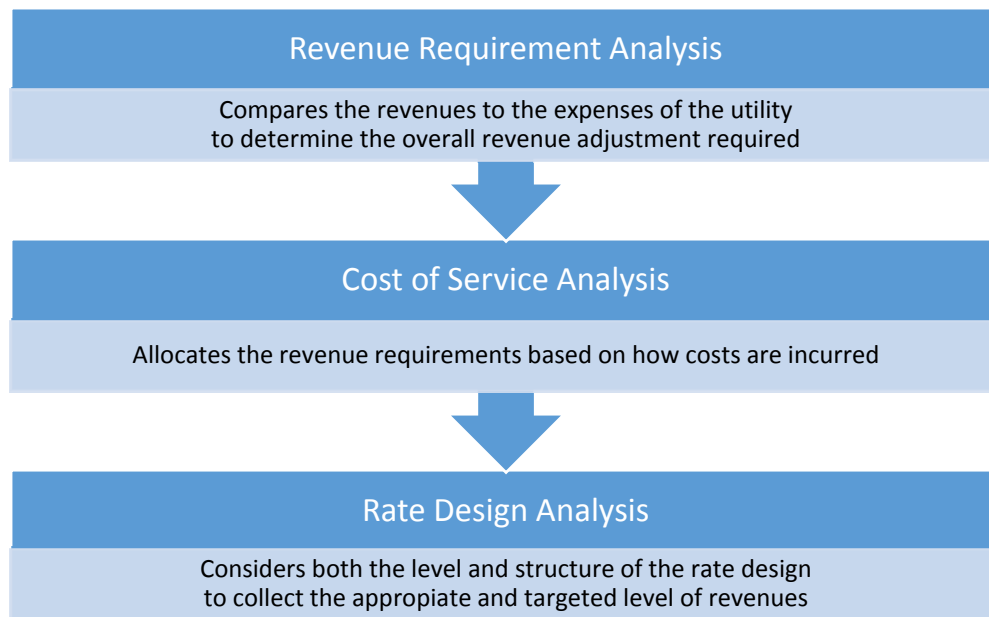
This report details the methodology, approach, and results of this analysis. Based on discussion with MCSO staff, guidance and direction from the District Board throughout the process, this report presents the recommended sewer revenue adjustments and the corresponding sewer rate impacts.

In the preparation of this analysis, Willdan Financial Services relied upon financial, statistical, and operating data regarding MCSO’s sewer system which was taken from the books of record and accounts prepared by or for MCSO, information provided by the management and staff of MCSO and others, and certified statements of the independent auditors for MCSO. While Willdan believes such sources to be reliable, it does not verify the accuracy of any of the information furnished by and obtained from such sources as part of this engagement.

Overview of the Rate Setting Process

The scope of this study included the development of cost-based sewer user charges through a comprehensive cost of service and rate design analysis. Utility rates must be set at a level where a utility’s operating and capital expenses are met with the revenues received from customers. This is a significant point, as failure to achieve this level could lead to a situation where insufficient funds are available to adequately maintain the system. A comprehensive rate study typically consists of following three interrelated analyses:

- I. *Financial Planning/Revenue Requirements Analysis*: Creation of a multi-year plan to support an orderly, efficient program of on-going maintenance and operating costs, capital improvement and replacement activities, debt financing, and retirement of any outstanding debt. In addition, the long-term plan should fund and maintain reserve balances to adequate levels based on industry standards and MCSO fiscal policies.
- II. *Cost of Service Analysis*: Identifies and apportions annual revenue requirements to customers based on their demand on the utility system.
- III. *Rate Design*: Develops an equitable and proportionate fixed/variable schedule of rates to recover the costs of the utility. This is also where other policy objectives can be achieved, such as encouraging conservation. The policy objectives are harmonized with cost of service objectives to achieve the delicate balance of equity, financial stability and resource conservation goals.



Rate Setting Principles

The primary objective when conducting this comprehensive rate and financial analysis was to determine the adequacy of the existing rates (pricing, structure, and revenue sufficiency) and provide the basis for any necessary adjustments to meet the MCSO’s sewer operating and capital needs and fiscal policy objectives. MCSO desires a rate structure that fully funds operations, maintenance, and capital costs while providing long term funding of reserves. Absent an adjustment in sewer service rates, the planned addition of the \$17,000,000 WWMF would present a significant challenge to maintaining the financial health of MCSO sewer system.

Financial Management, Policies, and Rates

A financial plan revolves around the development of a proper long and short-term balance of revenues and expenditures. The following provides an outline of MCSO’s financial targets and policies, and the financial foundation of the cost of service and rate analysis. Over the past years, many generally accepted principles or guidelines have been established to assist in developing utility rates. The purpose of this section of the report is to provide a general background of the methodology and guidelines used for setting cost based utility rates, in order to provide a higher-level understanding of the rate setting approach detailed later in this report.

As a practical matter, there should be a general set of principles used to guide the development of sewer rates. For sewer rate setting, the Water Environment Federation (WEF) establishes sewer rate setting guidelines in their Manual of Practice No. 27 – *Financing and Charges for Wastewater Systems*. These guiding principles help to ensure there is a consistent global approach that is employed by all utilities in the development of their sewer rates. Below is a summary listing the established guidelines, which public utilities should consider when setting their rates. These closely reflect MCSO’s specified objectives.

Rates should be cost-based, equitable, and set at a level such that they provide revenue sufficiency			
Rates and process of allocating costs should conform to generally accepted rate setting techniques	Rates should provide reliable, stable and adequate revenue to meet the utility’s financial, operational, and regulatory requirements	Rate levels should be stable from year to year - no “rate shocks” -	Rates should be easy to understand and administer

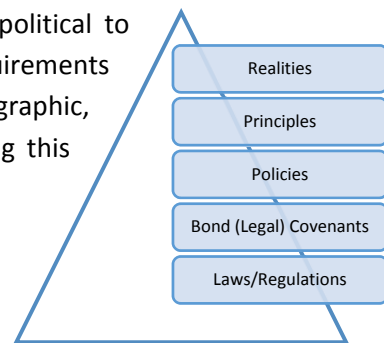
These guidelines, along with the District’s objectives, have been utilized within this study as a framework to help develop sewer rates that are cost-based and equitable.

Overview of Rate Setting Environment, Objectives, Process

Rate analyses are typically performed every few years to ensure that revenues from rates are adequately funding utility operations, maintenance, and future capital needs. In California, rate analyses also require compliance with the cost-of-service principles imposed by Proposition 218 to ensure that rates correlate to how costs are incurred. This rate analysis utilized generally accepted rate-making principles which resulted in the development of rates and charges which are projected to: 1) generate sufficient revenue to meet the financial requirements of the sewer utility, 2) address the need to recover sewer costs from users in a manner which is fair and equitable relative to service provided, and 3) meet the rate design goals of the utility.

Considerations in Setting Revenue Requirements

There are a multitude of considerations, ranging from financial to political to legal, which must be analyzed or discussed during the revenue requirements process of a rate analysis. This section, along with the accompanying graphic, provides an overview of the considerations that are reviewed during this process.



Capital Budgeting and Financing

Capital needs are defined by MCSO’s Capital Improvement Plan. As part of its budget and planning process, MCSO identifies capital improvements that are necessary for the continued treatment of wastewater in accordance with increasingly stringent wastewater standards. The Capital Improvement Plan is funded by a variety of sources including, sewer rate revenue, connection (impact) fees, debt, and capital reserves. Recent economic realities, including slower than anticipated growth and usage, have reduced funding and/or delayed funding of critical system improvements.

Capital Funding: Debt vs. PAYGO

The selection of the most appropriate funding strategy for capital projects is primarily a policy decision between use of cash (“Pay-as-you-go financing” or PAYGO), the issuance of debt (bonding), or a combination. PAYGO is the use or build-up of cash to fund capital improvements. With debt financing, capital improvements are paid for with borrowed funds (usually through the issuance of bonds) with the obligation of repayment, typically with interest, in future years. Development of an optimal capital financial plan depends on the definition of optimal. Each funding mechanism has a different impact on rates in the short and long run, different net present values, risks, and legal obligations. Due to the borrowing costs associated with debt, cash funding can be cheaper in the end; however, debt typically ensures greater generational equity for larger and longer lasting capital projects and can prevent larger near-term rate increases that can be needed to cash fund projects.

Our review of the District’s historical and planned sewer Capital Improvement Plan revealed that the District does not have sufficient funding on hand to meet its planned capital investments without increases to sewer rates. As such, to limit the immediate impact on ratepayers, MCSO plans to issue

debt to fund the WWMF. The District has worked with the CSWRCB to secure a low interest loan to finance this long-term project. In addition to the CSWRCB loan, additional debt funding of approximately \$1.5 million is forecasted to meet other sewer capital needs of the system.

Our recommendation is consistent with the observed funding policy of MCSO, and is that the District continues to balance the use all financing options, by using debt in the near-term to mitigate the impact on rates, and cash funding in the long-term for annual replacement projects.

Revenue Requirements

The method used by most public utilities to establish their revenue requirements is called the “cash basis” approach of setting rates. As the name implies, a public utility combines its cash expenditures over a time period to determine their required revenues from rates and other forms of income. The figure below presents the “cash basis” methodology.

Figure 1-1: Overview of the “Cash Basis” Design

+ Operation and Maintenance Expenses
+ Transfers
+ Capital Additions Financed with Rate Revenue
+ Debt Service (Principal and Interest)
= Total Revenue Requirements

To ensure that existing ratepayers are not paying for growth-related capital projects, Willdan, as part of a previously completed *Water and Sewer Connection Fee Analysis*, reviewed existing, approved/pending, and proposed Capital Improvement Projects (CIPs) with District staff in order to allocate projects between new (growth) and existing customers (operations and maintenance or “O&M”). Additionally, capital replacement expense (depreciation) is sometimes included in the cash basis approach to stabilize annual required revenue by spreading the replacement costs of a depreciated asset over the expected life of the asset, or through the term of a bond issue.

Based on the revenue requirement analysis, the utility can determine the overall level of rate adjustments needed in order for the utility to meet its overall expenditures.

Financial Planning

In the development of the revenue requirements, certain parameters are utilized to project future expenditures, growth in customers and consumption, and necessary revenue adjustments. MCSO’s budget documents are used as the baseline, which are then projected over a ten-year planning horizon to account for fluctuations in costs from year to year as well as adjustments to debt service payments.

Conservative growth assumptions and prudent financial planning are fundamental in ensuring adequate rate revenue to promote financial stability. The developed financial model considers the District’s existing debt service coverage ratio, the CSWRCB debt service coverage requirements, and operating

cash balances (cash on hand). In addition, as part of the financial planning, additional bond/loan financing is incorporated into the model to fund necessary capital improvements, including repair and replacement.

Rate Setting Principles Summary

In meeting the overall objectives of MCSO, the rate design must also conform to the State Constitution and the State’s Water Code. More specifically, Proposition 218 requires that property related fees and charges, such as water and sewer rates (as affirmed in *Bighorn-Desert View Water Agency v. Verjil*), not exceed the reasonable cost of providing the service associated with the fee or charge, and shall also not exceed the proportional cost of the service attributable to the parcel that is subject to the fee or charge. The cost of service analysis completed as part of this study takes into consideration these requirements and allocates costs to customer classes based on demand placed on the sewer system.

Rate Design

The final element, the rate design process, applies the results from the revenue requirements to develop rates that achieve the general guidelines, policies and objectives of MCSO, and compliance with the provisions of law. These objectives are achieved through the development of cost-based rates, but may also account for adjustments to expenditures or the level of cash reserves to balance rate shock, continuity of past rate philosophy, conservation objectives, ease of administration, and legal requirements. This section of the report incorporates the general principles, techniques, and economic theory used to set utility rates. These principles, techniques, and economic theory were the starting point for this rate study and the groundwork used to meet MCSO’s key objectives in analyzing and redesigning their utility rates.

This utility rate study was performed to allocate the costs of providing service to users in order to ensure that the resulting rates are equitable and in compliance with Proposition 218 requirements. The total cost of serving MCSO sewer customers is determined by distributing each of the utility cost components based upon the sewer service demands placed on the District by its customers. Therefore, a cost of service rate study enables a utility to adopt rates based on the costs incurred to serve its customers and corresponding accounts. The purposes of this cost of service study include defining the proportional allocation of the costs of service to users and deriving unit costs to support the development of sewer rates.

Sewer Rate Analysis

MCSO engaged Willdan Financial Services (Willdan) to perform a Sewer Rate Analysis focused on two main principles. First, develop rates that provide sufficient revenues to fund expenditures related to operations, maintenance, capital, and funding of reserves, specifically with the planned addition of the Wastewater Management Facility (WWMF). And second, within the cost of service principles of Proposition 218, design sewer rates that reflect the varying costs of serving sewer customers within the service area of the District. This section of the report outlines the details of the analysis and the approach to developing the recommendations.

The Sewer Fund is facing significant future capital expenditures and increased costs related to operations and a need to repair and replace aging infrastructure. The most significant project facing the Sewer Fund is the construction of the new WWMF anticipated to begin in the summer of 2015. The anticipated cost of this facility is \$17,000,000, which is to be funded through a low interest loan from the California State Water Resource Control Board. The anticipated costs of this facility will nearly double the fixed assets of MCSO's Sewer Fund, and will also have an impact on reserves and future operating costs. For the purpose of this analysis, the following assumptions have been made with respect to the planned WWMF:

- Issuance of \$17,000,000 loan with the California State Water Resource Control Board (CSWRCB); 30-year term and 2.0% interest. The loan is anticipated to be issued July 1, 2015, the beginning of fiscal year 2016. Per discussions with the CSWRCB, loan payments begin one year after project completion. A one year construction period is assumed with the first loan payment due July 1, 2017, the beginning of fiscal year 2018.
- In addition to loan payments, the CSWRCB requires a loan reserve equal to at least one annual payment, anticipated to be \$759,000. This reserve fund cannot be included in the loan and as such, for the purposes of our analysis, is generated through sewer rate revenue of the system.
- The CSWRCB loan will require a pledge of Sewer Fund revenues and debt service coverage requirement of 120%.
- The WWMF will generate additional operation expenses of approximately \$455,000 per year beginning fiscal year 2017.

In addition to the WWMF, there is approximately \$11,800,000 in additional sewer related capital projects planned over the next 10 years. These projects are planned to be funded through a combination of revenues generated by the Sewer Fund, sewer capacity fees, as well as future debt.

Sewer Discharge and User Characteristics

As sewer usage (discharge) is not metered, an examination of seasonal water consumption plays a critical role in ensuring equitable and revenue sufficient rates. Willdan examined the previous three years of billing data provided by the District. Multiple years of data were analyzed to ensure short-term anomalies were accounted for, and long-term trends were captured. Furthermore, billing data was analyzed to determine seasonal demand patterns and overall consumption characteristics. These discharge assumptions were cross-analyzed against treatment plant information (gallons treated) to confirm the appropriateness of the user discharge analysis.

It is important to note that multi-family complexes are charged and analyzed on a per unit basis, rather than by meter size. This is due to the lack of correlation between the meter size for water service and the amount of wastewater discharged into the system.

Customer Statistics

During the Fiscal Year 2014, an analysis of the sewer data, provided by MCSO, revealed service to an estimated 5,885 units across 52 different customer classifications, and discharge estimated at 446 thousand HCF of wastewater. A projection of units, discharge, and loading strengths is necessary in the evaluation of the revenue requirements, and the eventual development of rates. This projection is critical for the determination of revenues from rates (more specifically the allocation of required revenue to different classes and types of customers), escalation of treatment-related costs, and design of the rates.

Revenue Requirements Analysis

The first step in a sewer rate analysis is the review of required revenues. The result of this analysis is a snapshot of the utility's existing financial health, which is necessary to determine current and future revenue needs. To ensure that both short and long-term financial health were reviewed, Willdan developed a 10-year financial outlook; however, for the purposes of this study, rates and financial projections will be limited to 5 years. Willdan reviewed expenditures (operation and maintenance (O&M), capital, and reserve requirements) against revenues (rate revenue, capacity fee revenues, etc). Willdan also analyzed and reviewed the sewer fund's historical and current financial statements, three years of water consumption records, capital improvement programs and plans, reserve policies, and conferred with staff to forecast future expenditures.

Existing Sewer Revenues

The Sewer Fund receives a majority of its revenues from rates. In Fiscal Year 2014, the Sewer Fund yielded \$1.76 million in operating rate revenue. The Fiscal Year 2015 budget identifies approximately \$75,000 in Other Operating Revenue and approximately \$120,000 in Sewer Capacity Fee Revenue.

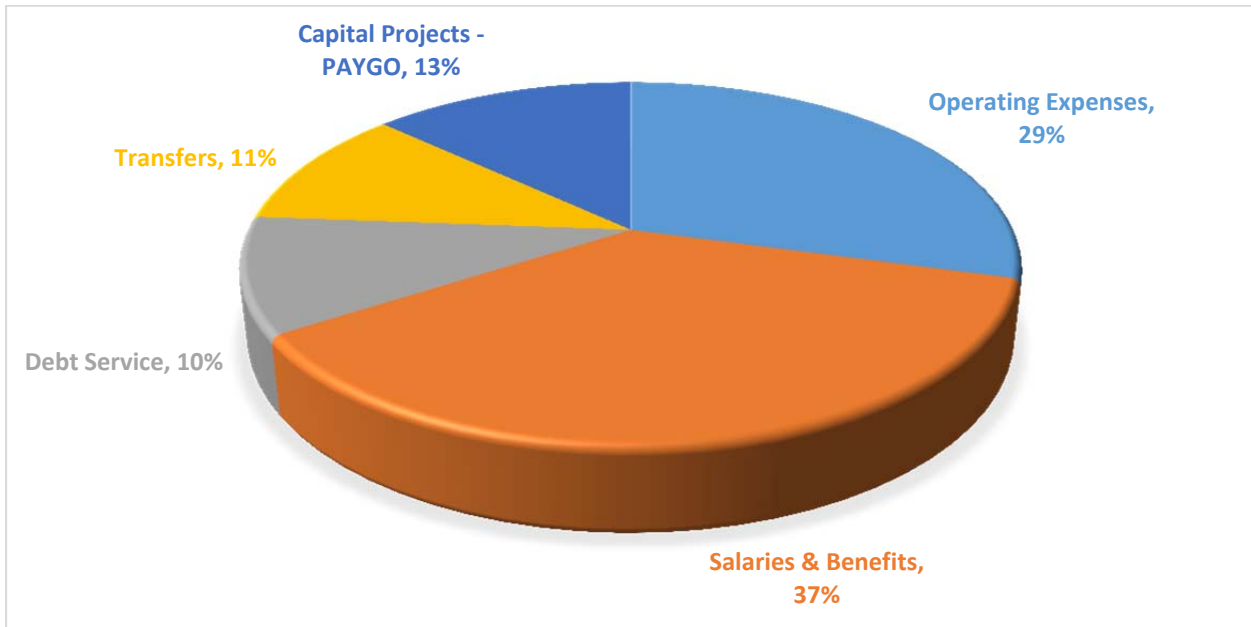
Existing Sewer Expenditures

To achieve long-term financial health, a utility's revenues must be sufficient to meet total expenditures or cash obligations. This "required revenue" includes all incurred costs related to operation and

maintenance, capital improvement programs, and principal and interest payments on existing or proposed debt.

As demonstrated by Figure 2-1, Sewer Fund expenditures were categorized into one of five classifications: (1) Operating Expenses; (2) Salaries & Benefits; (3) Debt Service; (4) Fund Transfers; and (5) Capital Projects. The pie chart below demonstrates the relative proportionate size of the various expense categories over the study period.

Figure 2-1: Sewer Fund - Cost Distribution by Expenditure Classification



The District prepares an annual list of sewer related capital improvements that are necessary to address current and future sewer system needs. Sewer related capital improvements between fiscal years 2015 and 2024 are planned to total approximately \$27.7 million. Approximately \$17.0 million of this is related to the WWMF.

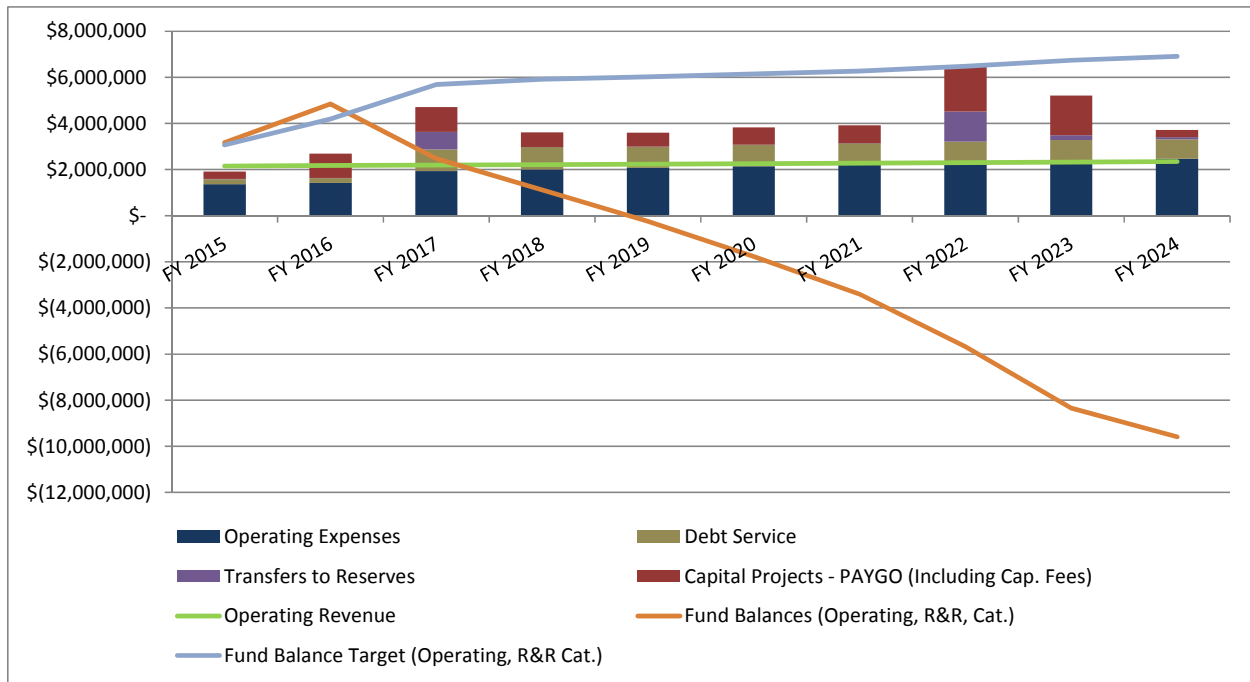
During the early years of the study period debt service costs, related to principal and interest on the existing debt service, account for a roughly thirteen percent (10%) of the sewer fund’s expenditures. As previously mentioned, due to continued effort to mitigate rate shock and smooth increases, MCSO is planning on issuing new debt to smooth the cash-flow needs of each fund, while maintaining moderate reserve levels. A typical condition associated with existing debt, or that would be required upon the issuance of any new debt, is a covenant to maintain of a certain level of debt service coverage (net revenue as a percentage of required debt service commitments). Revenues must be targeted to ensure MCSO meets these debt service coverage requirements, of 1.20, on any existing and proposed debt service.

In addition, to maintain financial flexibility, the sewer fund has a target to maintain an operating reserve of 6 months of operation & maintenance expenses (including salaries) on hand (180 days of operating expense) as part of its reserve policy. At the end of June (FY 2014), the sewer fund maintained a cash

balance of nearly \$3.7 million through a variety of funds including the Operating Fund, Renewal & Replacement Fund, Catastrophe Fund, and Capacity Fee Fund. Although in excess of the reserves target, the immediate need for cash funded capital projects will significantly burden the current reserve levels. As such, this reserve will be utilized to offset the short-term revenue shortfall associated with pay-as-you-go funded capital.

Figure 2-2 demonstrates the Baseline Scenario for the Sewer Fund. This represents current and projected financial conditions of the water utility absent any revenue adjustment (increases) over the forecast period. As the figure illustrates, existing revenue levels are unsustainable and the sewer fund is forecasted to run at a loss.

Figure 2-2: Sewer - Baseline Financial Scenario



The declining orange line (lower line) shows the fund’s projected ending cash balance. While short-term drops or dips of reserve levels are acceptable, given the beginning cash balance, the continued downward trend must be addressed with revenue adjustments, as the illustrated baseline scenario is unsustainable.

Revenue Requirement Summary

Given the existing financial condition of the utility, without near term revenue adjustments, MCSO’s sewer fund will not be able to meet its targeted objectives without rate increases in the future. As such, Willdan worked with MCSO staff to seek input for the development of a financial plan and rate structure that provides gradual adjustments to provide continued financial stability throughout the study period. Numerous financial scenarios were analyzed and presented over the course of the study. **The results and recommendations provided in the analysis were presented in April 2015 and stakeholders were subsequently mailed a Proposition 218 Noticed, also in April 2015.** The recommended financial scenario

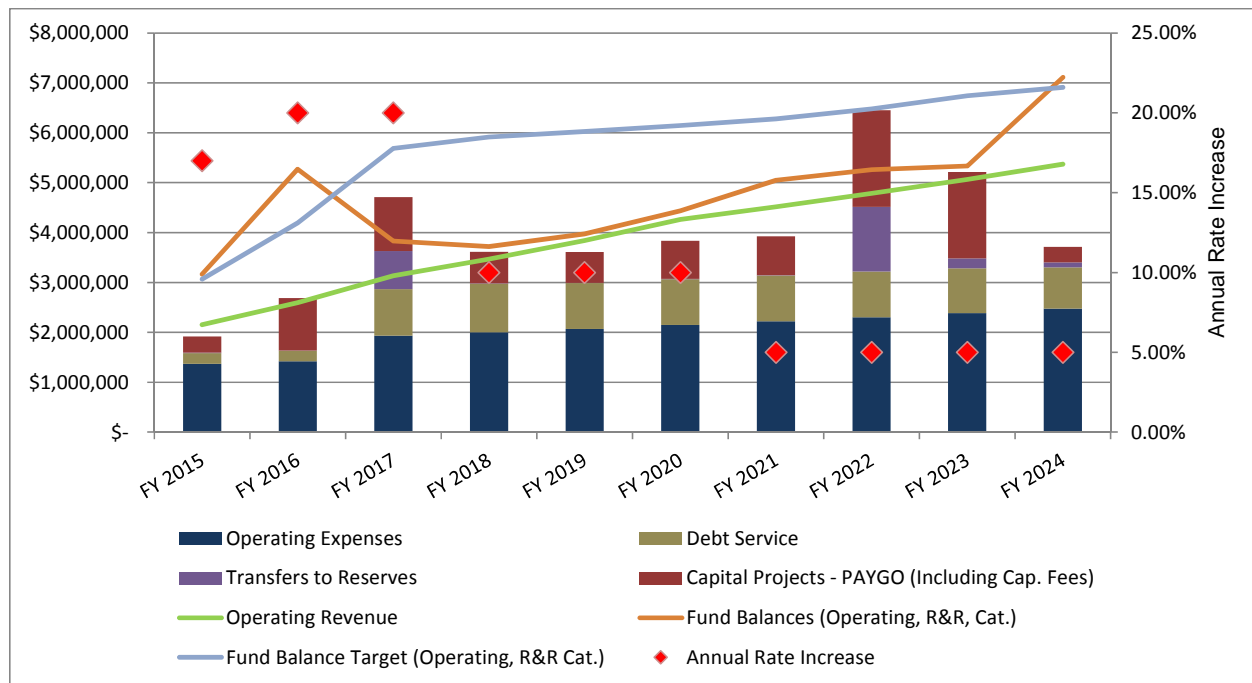
was structured and analyzed to maintain a positive net income and fully fund MCSO reserve targets within the study period and to be in compliance with the MCSO’s Debt Coverage Ratio.

Appendix A details the existing and projected expenditures of the sewer fund and the corresponding impact of the revenue adjustments on the fund’s financial health.

Similar to the Sewer - Baseline Scenario Figure 2-2, Figure 2-3 forecasts the financial health of the sewer fund, with the inclusion of adjusted revenue. As opposed to the baseline scenario, the revenue adjustments provide a more positive outlook and allow for the funding of reserves.

The results of the Revenue Requirements analysis indicate that future sewer revenue increases will be necessary in order to fund the sewer capital plan (including the WWMF), provide for future operational expenses, meet debt service requirements and debt service coverage requirements, and MCSO fund balance requirements. It should be noted that the plan and revenue increases presented herein do not result in fully funded Operating, Renewal and Replacement, and Catastrophe Fund reserves until fiscal year 2024. Annual revenue increases range from 20% to 5% over the forecast period.

Figure 2-3: Sewer - Recommended Financial Scenario



Cost of Service Analysis

Following the discharge and revenue requirement analysis, the next stage is to distribute costs (revenue requirements) to functional components, and ultimately, to each customer class. The cost of service analysis is a systematic process by which revenue requirements are allocated by wastewater system functions to generate a classification of fair and equitable costs in proportion to the service received for each user class. In a general sense, costs are separated into categories associated with customer service

and general administration, collection of wastewater (flow), and treatment (BOD and SS), and so on. Then these costs are allocated to different classes of customers based upon their proportionate demand on these system functions.

This section of the report discusses the allocation of operating and capital costs to the Flow, Suspended Solids (SS) and Biochemical Oxygen Demand (BOD) parameters, the determination of unit rates, and the calculation of user class cost responsibility.

Cost Allocation by Function

The cost of service allocation conducted in this study is established using the flow and strength characteristics method, which is endorsed by the Water Environmental Federation (WEF). Under this method, revenue requirements are allocated to the different user classes proportionate to their use of the wastewater system. Allocations are based on flow volume, SS, BOD, customer accounts, and wastewater monitoring. Use of this methodology results in a generally accepted cost distribution among customer classes and a means of calculating and designing rates to proportionately recover those costs.

Figure 2-4 presents the distribution of expenditures by function. This analysis is important in order to determine an appropriate and reasonable means of allocating expenditures to customers based on their unique characteristics and functional demand.

Figure 2-4: Distribution of Expenditure by Function

	Rate Revenue Requirement	Flow Volume	BOD	SS	Customer Accounts
Percent Allocation	100.0%	12.1%	12.1%	12.1%	63.6%
Fiscal Year Ending					
FY 2015	\$ 2,078,532	\$ 252,332	\$ 252,332	\$ 252,332	\$ 1,321,537
FY 2016	2,519,181	305,826	305,826	305,826	1,601,703
FY 2017	3,053,247	370,661	370,661	370,661	1,941,263
FY 2018	3,392,157	411,805	411,805	411,805	2,156,743
FY 2019	3,768,686	457,515	457,515	457,515	2,396,141
FY 2020	4,187,010	508,299	508,299	508,299	2,662,113
FY 2021	4,440,324	539,051	539,051	539,051	2,823,171
FY 2022	4,708,964	571,664	571,664	571,664	2,993,973
FY 2023	4,993,856	606,249	606,249	606,249	3,175,108
FY 2024	5,295,984	642,927	642,927	642,927	3,367,202

Rate Recommendations

The proposed sewer rates follow the same structure as existing rates which include two components; a fixed charge and a variable charge. The monthly fixed charge is the same for all sewer customer accounts and represents approximately 64% of sewer revenue. The variable charge differs by customer class based on cost of service principles related to the strength of sewer discharged by varying types of customers (i.e. higher strength discharge has a higher variable rate). This supports the cost of service concept that customers who are responsible for a greater proportion of the overall costs of treating wastewater should pay a higher proportionate rate. The variable rates account for approximately 36% of sewer revenue. Figure 3-1 provides the recommended fixed and variable charges for each of the customer classes over the next 5-years.

Figure 3-1: Recommended Sewer Charges

Customer Type	Existing (FY 2015)		July 1, 2015		July 1, 2016		July 1, 2017		July 1, 2018		July 1, 2019	
	Fixed ¹	Variable ²	Fixed ¹	Variable ²	Fixed ¹	Variable ²	Fixed ¹	Variable ²	Fixed ¹	Variable ²	Fixed ¹	Variable ²
01 - Single Family Residence	\$ 17.57	\$ 1.49	\$ 21.91	\$ 1.83	\$ 26.09	\$ 2.18	\$ 28.48	\$ 2.38	\$ 31.09	\$ 2.60	\$ 33.94	\$ 2.84
02 - Apartment/multi unit (each)	17.57	1.49	21.91	1.83	26.09	2.18	28.48	2.38	31.09	2.60	33.94	2.84
03 - Mobile Homes (each)	17.57	1.49	21.91	1.83	26.09	2.18	28.48	2.38	31.09	2.60	33.94	2.84
04 - Barber/Beauty Shop	17.57	1.54	21.91	1.86	26.09	2.24	28.48	2.46	31.09	2.70	33.94	2.97
05 - Office Building/Post Office	17.57	1.54	21.91	1.86	26.09	2.24	28.48	2.46	31.09	2.70	33.94	2.97
07 - Churches	17.57	1.86	21.91	2.26	26.09	2.71	28.48	2.98	31.09	3.28	33.94	3.61
08 - Rectory	17.57	1.86	21.91	2.26	26.09	2.71	28.48	2.98	31.09	3.28	33.94	3.61
10 - Restaurant/Taverns	17.57	5.75	21.91	6.97	26.09	8.36	28.48	9.20	31.09	10.12	33.94	11.13
11 - Motels/Hotels	17.57	4.14	21.91	5.03	26.09	6.04	28.48	6.64	31.09	7.31	33.94	8.04
12 - Gas Stations (No Market)	17.57	2.06	21.91	2.50	26.09	3.00	28.48	3.30	31.09	3.63	33.94	4.00
13 - Laundromats	17.57	1.41	21.91	1.70	26.09	2.04	28.48	2.25	31.09	2.47	33.94	2.72
14 - Retail/Banks/Theater/Other	17.57	1.86	21.91	2.26	26.09	2.71	28.48	2.98	31.09	3.28	33.94	3.61
15 - Bakery	17.57	5.75	21.91	6.97	26.09	8.36	28.48	9.20	31.09	10.12	33.94	11.13
16 - Market	17.57	5.77	21.91	7.00	26.09	8.40	28.48	9.24	31.09	10.17	33.94	11.18
17 - Fire Station/School	17.57	1.31	21.91	1.58	26.09	1.90	28.48	2.09	31.09	2.30	33.94	2.53
18 - Coast Guard Station/Airport	17.57	1.86	21.91	2.26	26.09	2.71	28.48	2.98	31.09	3.28	33.94	3.61
19 - Car Wash	17.57	1.12	21.91	1.36	26.09	1.63	28.48	1.79	31.09	1.97	33.94	2.17
20 - Church & Residence	17.57	2.82	21.91	3.42	26.09	4.10	28.48	4.51	31.09	4.96	33.94	5.46
21 - Round Table/Market	17.57	4.96	21.91	6.01	26.09	7.22	28.48	7.94	31.09	8.73	33.94	9.60
22 - Two sewer units/business	17.57	1.86	21.91	2.26	26.09	2.71	28.48	2.98	31.09	3.28	33.94	3.61
23 - Metered septage vault	17.57	2.86	21.91	3.47	26.09	4.16	28.48	4.58	31.09	5.04	33.94	5.54
24 - Two sewer units/daycare	17.57	1.81	21.91	2.22	26.09	2.65	28.48	2.89	31.09	3.15	33.94	3.44
25 - Sewer Units - Commercial	17.57	2.06	21.91	2.50	26.09	3.00	28.48	3.30	31.09	3.63	33.94	4.00
26 - Sewer Only Accounts	17.57	1.81			Customer Data Does Not Include Sewer Only Accounts							
27 - 2 sewer units/commercial	17.57	1.86	21.91	2.26	26.09	2.71	28.48	2.98	31.09	3.28	33.94	3.61
76 - Dialysis Clinic	17.57	1.69	21.91	2.05	26.09	2.46	28.48	2.70	31.09	2.97	33.94	3.27
MT - Minor Theater	17.57	1.54	21.91	1.86	26.09	2.24	28.48	2.46	31.09	2.70	33.94	2.97

¹ If multiple units per account, the Fixed Charge is applied to each unit

² Per HCF (hundred Cubic Feet) based on water consumption. Due to irrigation, Residential units are limited to a maximum of 12 HCF monthly (per unit)

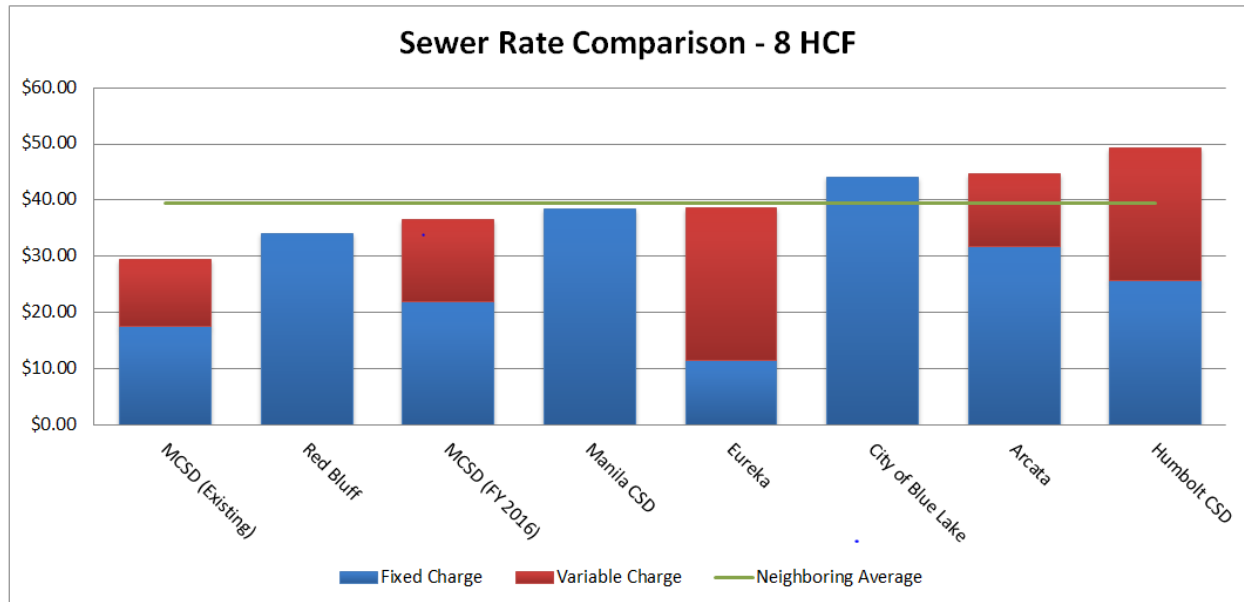
As discussed previously in this report, the results of the revenue requirements analysis indicated that future sewer revenue increases are necessary in order to fund the sewer capital plan (including the WWMF), provide for future operational expenses, meet debt service (and debt service coverage) requirements and MCSO fund requirements. In addition, as also previously noted, the plan and revenue increases presented herein do not result in fully funded Operating, Renewal and Replacement, and

Catastrophe Fund reserves until fiscal year 2024. The delayed funding of these reserves is used to offset higher near-term rate increases. Annual rate increases range from 20% to 10% over the FY 2016 to FY 2020 forecast period.

Rate Comparison

While operational structures and facilities vary greatly between sewer utilities, as do financial dynamics and policies such as levels of funding associated with routine rehabilitation and replacement of aging system components, levels of borrowing, and funding of reserves, rate comparisons provide stakeholders a nominal barometer of the MCSO rates in relation to surrounding or similar communities. Figure 3-2 below provides the estimated monthly bill for typical single family household’s consumption (8 HCF). MCSO, Eureka, Arcata, and Humboldt are the only local agencies that charge a variable charge (represented in Red), which provides users greater control over their monthly bill.

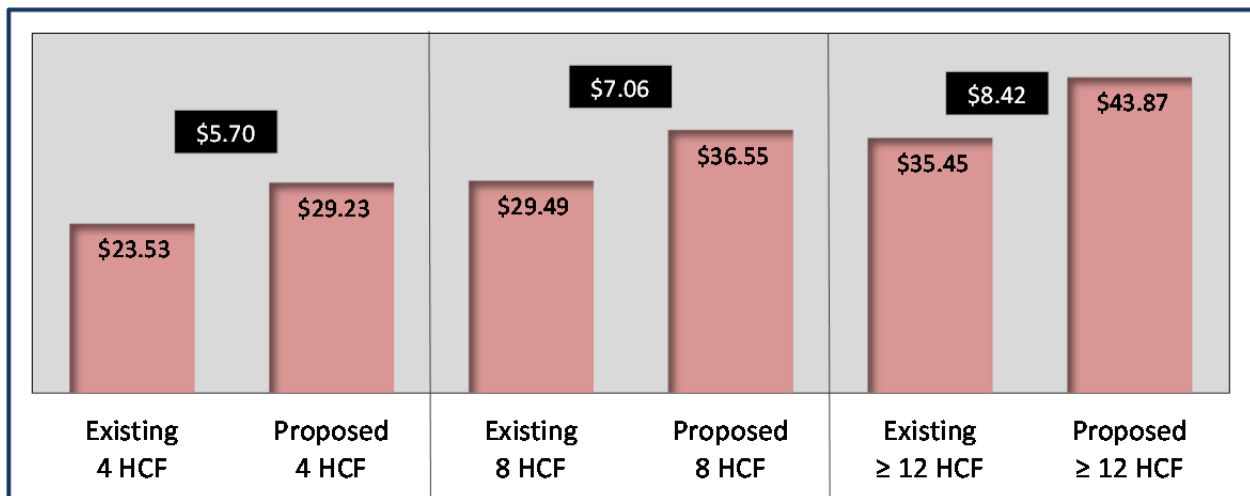
Figure 3-2: Single-Family Regional Sewer Rate Comparison



Customer Impacts

Based on the data analyzed for this study and the resulting projections and financial plan that were developed, the recommended rates will provide MCSO with the necessary revenue to provide continued quality sewer service, while mitigating impact on the average ratepayer to the best extent possible. Figure 3-3 below depicts the estimated impact to sewer rate payers for a variety of single-family consumption levels as wastewater is billed using water consumption. The figure provides the current and proposed sewer bills at different levels of single-family water consumption. The black boxes represent the bill difference between the existing (fiscal year 2015) and proposed July 1, 2015 (fiscal year 2016) rates.

Figure 3-3: Single-Family Monthly Bill Comparison



APPENDIX A - SUMMARY OF REVENUE REQUIREMENTS ANALYSIS

Line No.	Description	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Revenue from Rates											
1	Sewer Service Charges	\$ 1,776,523	\$ 1,794,289	\$ 1,812,231	\$ 1,830,354	\$ 1,848,657	\$ 1,867,144	\$ 1,885,815	\$ 1,904,673	\$ 1,923,720	\$ 1,942,957
Additional Rate Revenue from Adjustments											
2	FY 2015 @ 17%	\$ 302,009	\$ 305,029	\$ 308,079	\$ 311,160	\$ 314,272	\$ 317,414	\$ 320,589	\$ 323,794	\$ 327,032	\$ 330,303
3	FY 2016 @ 20%		419,864	424,062	428,303	432,586	436,912	441,281	445,694	450,151	454,652
4	FY 2017 @ 20%			508,875	513,963	519,103	524,294	529,537	534,832	540,181	545,582
5	FY 2018 @ 10%				308,378	311,462	314,576	317,722	320,899	324,108	327,349
6	FY 2019 @ 10%					342,608	346,034	349,494	352,989	356,519	360,084
7	FY 2020 @ 10%						380,637	384,444	388,288	392,171	396,093
8	FY 2021 @ 5%							211,444	213,559	215,694	217,851
9	FY 2022 @ 5%								224,236	226,479	228,744
10	FY 2023 @ 5%									237,803	240,181
11	FY 2024 @ 5%										252,190
12	Total Additional Rate Revenue	\$ 302,009	\$ 724,893	\$ 1,241,016	\$ 1,561,804	\$ 1,920,030	\$ 2,319,868	\$ 2,554,511	\$ 2,804,292	\$ 3,070,138	\$ 3,353,029
13	Total Rate Revenue	\$ 2,078,532	\$ 2,519,181	\$ 3,053,248	\$ 3,392,158	\$ 3,768,688	\$ 4,187,012	\$ 4,440,326	\$ 4,708,966	\$ 4,993,858	\$ 5,295,987
Other Non Rate Revenue											
14	Other Operating Revenue	\$ 74,470	\$ 74,470	\$ 74,470	\$ 74,470	\$ 74,470	\$ 74,470	\$ 74,470	\$ 74,470	\$ 74,470	\$ 74,470
15	Interest Earnings	2,000	4,000	7,000	0	0	0	2,000	5,000	0	0
16	Total Operating Revenue	\$ 2,155,003	\$ 2,597,651	\$ 3,134,718	\$ 3,466,629	\$ 3,843,159	\$ 4,261,484	\$ 4,516,798	\$ 4,788,438	\$ 5,068,331	\$ 5,370,459
Expenditures											
17	Operating Expenses	\$ (1,369,020)	\$ (1,421,794)	\$ (1,476,826)	\$ (1,534,215)	\$ (1,594,079)	\$ (1,656,536)	\$ (1,721,687)	\$ (1,789,680)	\$ (1,860,634)	\$ (1,934,684)
18	WWMF O&M	0	0	(454,938)	(466,312)	(477,970)	(489,919)	(502,167)	(514,721)	(527,589)	(540,779)
19	Total Operating Expenses	\$ (1,369,020)	\$ (1,421,794)	\$ (1,931,764)	\$ (2,000,527)	\$ (2,072,049)	\$ (2,146,455)	\$ (2,223,854)	\$ (2,304,401)	\$ (2,388,223)	\$ (2,475,463)
20	Net Revenue	\$ 785,983	\$ 1,175,857	\$ 1,202,954	\$ 1,466,102	\$ 1,771,110	\$ 2,115,029	\$ 2,292,944	\$ 2,484,037	\$ 2,680,108	\$ 2,894,996
	Capacity Fee Revenue	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000	\$ 120,000
	Net Revenue Available for Coverage	\$ 905,983	\$ 1,295,857	\$ 1,322,954	\$ 1,586,102	\$ 1,891,110	\$ 2,235,029	\$ 2,412,944	\$ 2,604,037	\$ 2,800,108	\$ 3,014,996
Non-Operating Expenses:											
21	Major Capital Funded with Existing Reserves/Current Cash	\$ (272,001)	\$ (391,035)	\$ (961,929)	\$ (616,429)	\$ (615,429)	\$ (742,429)	\$ (778,429)	\$ (1,371,429)	\$ (1,730,763)	\$ (311,263)
22	Transfers Out	(12,160)	(4,936)	(764,034)	(5,135)	(5,238)	(5,343)	(5,449)	(1,297,856)	(199,761)	(100,305)
23	Total Non-Operating Expenses	\$ (284,161)	\$ (395,971)	\$ (1,725,964)	\$ (621,564)	\$ (620,667)	\$ (747,772)	\$ (783,879)	\$ (2,669,285)	\$ (1,930,524)	\$ (411,567)
Debt Service:											
24	USDA Loan	\$ (90,250)	\$ (87,250)	\$ (94,000)	\$ (90,500)	\$ (87,000)	\$ (93,250)	\$ (89,250)	\$ (85,250)	\$ (66,625)	\$ 0
25	Other Debt Service	(124,560)	(124,560)	(83,640)	(55,377)	0	0	0	0	0	0
26	CA Water Resources Control Board Loans ⁽¹⁾	0	0	(759,000)	(759,000)	(759,000)	(759,000)	(759,000)	(759,000)	(759,000)	(759,000)
27	Other Future Debt	0	0	0	(70,000)	(70,000)	(70,000)	(70,000)	(70,000)	(70,000)	(70,000)
28	Total Debt Service for Coverage	\$ (214,810)	\$ (211,810)	\$ (936,640)	\$ (974,877)	\$ (916,000)	\$ (922,250)	\$ (918,250)	\$ (914,250)	\$ (895,625)	\$ (829,000)
Debt Service Coverage											
29	Debt Service Coverage - Forecasted ⁽¹⁾	4.22	6.12	7.45	1.63	2.06	2.42	2.63	2.85	3.13	3.64
30	Debt Service Coverage - Target	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20	1.20
31	Net Income	\$ 287,012	\$ 568,076	\$ (1,459,650)	\$ (130,340)	\$ 234,443	\$ 445,007	\$ 590,816	\$ (1,099,498)	\$ (146,041)	\$ 1,654,429

Note:

1 - The first CA Water Resource Control Board loan payment is anticipated to be due July, 1, 2017, the first day of fiscal year 2018. In order to ensure accumulation of these funds, CA Water Resource Control Board debt service is included in fiscal year 2017. The debt service coverage calculation for fiscal year 2017 does not include the CA Water Resource Control Board loan.

Line No.	Description	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Fund Balances											
Operating Reserve, Renewal & Replacement Reserve, and Catastrophe Reserve:											
32	Beginning Year Balance	\$ 2,861,748	\$ 3,168,080	\$ 5,269,983	\$ 3,830,332	\$ 3,719,990	\$ 3,974,430	\$ 4,439,434	\$ 5,050,245	\$ 5,263,040	\$ 5,337,086
33	Net Income from Operations	287,012	568,076	(1,459,650)	(130,340)	234,443	445,007	590,816	(1,099,498)	(146,041)	1,654,429
34	Net Transfers	7,321	1,521,827	0	0	0	0	0	1,292,297	194,092	94,522
35	Interest Earnings	12,000	12,000	20,000	20,000	20,000	20,000	20,000	20,000	26,000	28,000
36	Ending Balance	\$ 3,168,080	\$ 5,269,983	\$ 3,830,333	\$ 3,719,992	\$ 3,974,434	\$ 4,439,437	\$ 5,050,249	\$ 5,263,044	\$ 5,337,091	\$ 7,114,037
37	Percent of Target	103%	126%	67%	63%	66%	72%	80%	81%	79%	103%
Operating Reserve, Renewal & Replacement Reserve, and Catastrophe Reserve - Targets:											
38	Operating Reserve - 6 Months of O&M	\$ 684,510	\$ 710,897	\$ 965,882	\$ 1,000,264	\$ 1,036,025	\$ 1,073,228	\$ 1,111,927	\$ 1,152,201	\$ 1,194,112	\$ 1,237,732
39	Renewal & Replacement - 10% of Fixed Assets	1,986,151	2,904,584	3,936,015	4,096,933	4,159,526	4,228,418	4,305,461	4,441,254	4,624,664	4,726,765
40	Catastrophe - 2% of Fixed Assets	397,230	580,917	787,203	819,387	831,905	845,684	861,092	888,251	924,933	945,353
41	Annual Targets	\$ 3,067,891	\$ 4,196,398	\$ 5,689,100	\$ 5,916,583	\$ 6,027,455	\$ 6,147,330	\$ 6,278,481	\$ 6,481,706	\$ 6,743,708	\$ 6,909,850
42	Beginning Year Fixed Assets	\$ 19,700,506	\$ 20,022,507	\$ 38,069,182	\$ 40,651,112	\$ 41,287,541	\$ 41,902,970	\$ 42,665,399	\$ 43,443,828	\$ 45,381,257	\$ 47,112,020
43	Additions	322,001	18,046,675	2,581,929	636,429	615,429	762,429	778,429	1,937,429	1,730,763	311,263
44	Ending Year Fixed Assets	\$ 20,022,507	\$ 38,069,182	\$ 40,651,112	\$ 41,287,541	\$ 41,902,970	\$ 42,665,399	\$ 43,443,828	\$ 45,381,257	\$ 47,112,020	\$ 47,423,282
45	Annual Average Fixed Assets	19,861,507	29,045,845	39,360,147	40,969,326	41,595,255	42,284,185	43,054,614	44,412,543	46,246,639	47,267,651
CA Water Resources Control Board Loan Reserve:											
46	Beginning Year Balance	\$ 0	\$ 0	\$ 0	\$ 759,000	\$ 763,000	\$ 767,000	\$ 771,000	\$ 775,000	\$ 779,000	\$ 783,000
47	Net Transfers	0	0	759,000	0	0	0	0	0	0	0
48	Interest Earnings	0	0	0	4,000	4,000	4,000	4,000	4,000	4,000	4,000
49	Ending Balance	\$ 0	\$ 0	\$ 759,000	\$ 763,000	\$ 767,000	\$ 771,000	\$ 775,000	\$ 779,000	\$ 783,000	\$ 787,000
Compensated Absences Reserve:											
50	Beginning Year Balance	\$ 68,734	\$ 70,109	\$ 71,511	\$ 72,941	\$ 74,400	\$ 75,888	\$ 77,406	\$ 78,954	\$ 80,533	\$ 82,143
51	Net Transfers	1,375	1,402	1,430	1,459	1,488	1,518	1,548	1,579	1,611	1,643
52	Interest Earnings	0	0	0	0	0	0	0	0	0	0
53	Ending Balance	\$ 70,109	\$ 71,511	\$ 72,941	\$ 74,400	\$ 75,888	\$ 77,406	\$ 78,954	\$ 80,533	\$ 82,143	\$ 83,786
OPEB Reserve:											
54	Beginning Year Balance	\$ 173,216	\$ 177,680	\$ 182,214	\$ 186,818	\$ 191,495	\$ 196,244	\$ 201,069	\$ 205,971	\$ 210,950	\$ 216,009
55	Net Transfers	3,464	3,534	3,604	3,676	3,750	3,825	3,901	3,979	4,059	4,140
56	Interest Earnings	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000	1,000
57	Ending Balance	\$ 177,680	\$ 182,214	\$ 186,818	\$ 191,495	\$ 196,244	\$ 201,069	\$ 205,971	\$ 210,950	\$ 216,009	\$ 221,149
Capacity Fee Fund:											
58	Beginning Year Balance	\$ 460,640	\$ 532,640	\$ 0	\$ 0	\$ 100,000	\$ 221,000	\$ 322,000	\$ 444,000	\$ 0	\$ 120,000
59	Capacity Fee Revenue	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000	120,000
60	Interest Earnings	2,000	3,000	0	0	1,000	1,000	2,000	2,000	0	1,000
61	Funded Capital Projects	(50,000)	(655,640)	(120,000)	(20,000)	0	(20,000)	0	(566,000)	0	0
62	Ending Balance	\$ 532,640	\$ 0	\$ 0	\$ 100,000	\$ 221,000	\$ 322,000	\$ 444,000	\$ 0	\$ 120,000	\$ 241,000
Capital Program Funding											
Annual Capital Needs:											
63	Wastewater Management Facility	\$ 0	\$ 16,900,175	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
64	Other Capital Needs	322,001	1,146,500	2,581,929	636,429	615,429	762,429	778,429	1,937,429	1,730,763	311,263
65	Total Capital Program	\$ 322,001	\$ 18,046,675	\$ 2,581,929	\$ 636,429	\$ 615,429	\$ 762,429	\$ 778,429	\$ 1,937,429	\$ 1,730,763	\$ 311,263
Funding Sources:											
66	Operating Revenue	\$ 272,001	\$ 391,035	\$ 961,929	\$ 616,429	\$ 615,429	\$ 742,429	\$ 778,429	\$ 1,371,429	\$ 1,730,763	\$ 311,263
67	Capacity Fees	50,000	655,640	120,000	20,000	0	20,000	0	566,000	0	0
68	Debt	0	17,000,000	1,500,000	0	0	0	0	0	0	0
69	Total Capital Program Funding	\$ 322,001	\$ 18,046,675	\$ 2,581,929	\$ 636,429	\$ 615,429	\$ 762,429	\$ 778,429	\$ 1,937,429	\$ 1,730,763	\$ 311,263