



# City of Modesto

## SEWER RATE AND FEE STUDY

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**BARTLE WELLS ASSOCIATES**  
INDEPENDENT PUBLIC FINANCE ADVISORS



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## **SECTION 1: INTRODUCTION AND EXECUTIVE SUMMARY**

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### **1.1 Background**

The City of Modesto provides wastewater (sewer) service to a population of over 215,000. The City's wastewater system consists of a sewer collection system, the Sutter Wastewater Treatment Plant (primary treatment), the Jennings Wastewater Treatment Plant (secondary and tertiary treatment), the Cannery Segregation Pipeline (CanSeg Line), and the Ranch (a functioning 2,226 acre farmland which receives and land-applies the effluent discharge from the CanSeg Line). The City last conducted an in-depth cost of service rate study in 2015, which was approved and implemented by the City in compliance with Proposition 218. Since 2015, the City has reviewed and updated its rates on a nearly annual basis and many of the rates have remained below the maximum rates approved under the Proposition 218 process.

The City engaged Bartle Wells Associates (BWA) to conduct a comprehensive cost of service review of the wastewater rates and charges. A rate update is needed due to infrastructure improvements identified in the 2016 Wastewater Master Plan Update, adopted in January 2020, and to fund operations as costs continue to increase.

A Wastewater Capital Improvement Plan (CIP) was prepared by the City's consulting engineer, Carollo Engineers. The Wastewater Master Plan Update identifies repair and replacement projects and capacity improvements needed over the next twenty years. The City's current rate revenues are insufficient to fund these costs.

### **1.2 Study Overview**

This rate study provides a financial plan incorporating the City's operating and capital costs, reserve targets, and funding mechanisms to develop the Wastewater Fund revenue requirements. First, separate revenue requirements are developed for the CanSeg Line and the Municipal and Industrial (M&I) system. The M&I system consists of the municipal residential, commercial, and industrial treatment stream. As a second step, the revenue requirement is allocated to customer service, flow, and pollutant loading to determine the unit costs of service. As the last step, the unit costs are developed into rates for the next five year period.

### **1.3 Procedural Requirements of Proposition 218**

Proposition 218, the "Right to Vote on Taxes Act", was approved by California voters in November 1996 and is codified as Articles XIIC and XIID of the California Constitution. Proposition 218 establishes requirements for imposing any new or increasing any existing property-related fees and charges. For many years, there was no legal consensus on whether water and sewer service fees met the definition of "property-related fees." In July 2007, the California Supreme Court essentially confirmed that Proposition 218 applies to water and sewer service fees.

The City must follow the procedural requirements of Proposition 218 for all sewer rate increases. These requirements include:

1. **Noticing Requirement** – The City must mail a notice of the proposed rate increases to all affected property owners or ratepayers. The notice must specify the amount of the fee, the basis upon which it was calculated, the reason for the fee, and the date/time/location of a public rate hearing at which the proposed rates will be considered/adopted.
2. **Public Hearing** – The City must hold a public hearing prior to adopting the proposed rate increases. The public hearing must be held not less than 45 days after the required notices are mailed.
3. **Rate Increases Subject to Majority Protest** - At the public hearing, the proposed rate increases are subject to majority protest. If more than 50% of affected property owners or ratepayers submit written protests against the proposed rate increases, the increases cannot be adopted.

Proposition 218 also established substantive requirements that apply to sewer rates and charges, including:

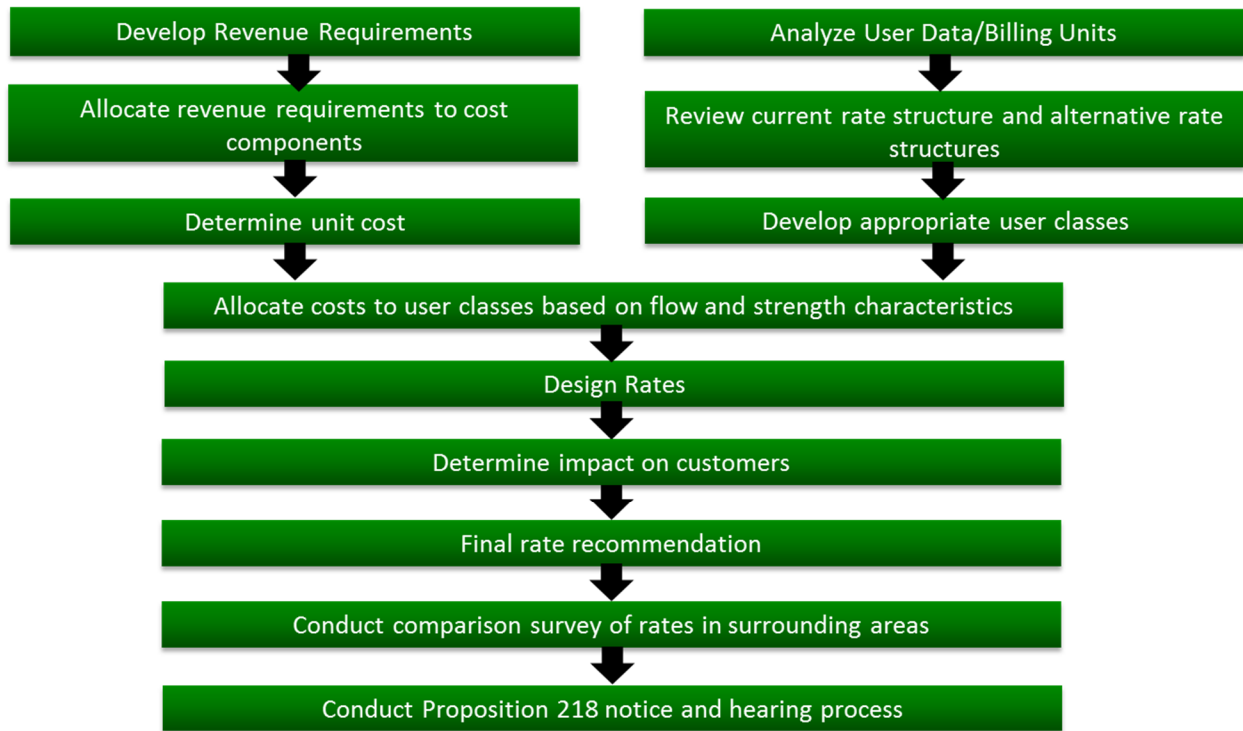
1. **Cost of Service** - Revenues derived from the fee or charge cannot exceed the funds required to provide the service. In essence, fees cannot exceed the “cost of service”.
2. **Intended Purpose** - Revenues derived from the fee or charge can only be used for the purpose for which the fee was imposed.
3. **Proportional Cost Recovery** - The amount of the fee or charge levied on any customer shall not exceed the proportional cost of service attributable to that customer.
4. **Availability of Service** - No fee or charge may be imposed for a service unless that service is used by, or immediately available to, the owner of the property.
5. **General Government Services** - No fee or charge may be imposed for general governmental services where the service is available to the public at large.

Charges for water, sewer, and refuse collection are exempt from additional voting requirements of Proposition 218, provided the charges do not exceed the cost of providing service and are adopted pursuant to procedural requirements of Proposition 218.

## 1.4 Rate Study Process

This section details the development of the City of Modesto’s sewer rates and compliance with Proposition 218 through a comprehensive cost of service and rate design study process as shown in the following figure.

**Figure 1: Comprehensive Cost of Service Study Process**



The following is a brief description of the sewer rate study process:

- **Revenue Requirements** - Revenue requirement is essentially a financial plan developed from the Wastewater Fund budget. Based on the best information currently available, the financial plan incorporates projected operation and maintenance costs, capital expenditures, debt service, and growth to estimate annual revenue requirements. The plan serves as a roadmap for funding the City's future operating and capital programs while maintaining long-term fiscal stability. The financial plan projections determine the annual wastewater revenue requirements to be recovered through sewer rates and other revenue sources.
- **Cost of Service Allocation** - The cost of service process builds on the financial plan analysis and assigns wastewater system costs to functional cost components (accounts, flow, BOD (biochemical oxygen demand), and TSS (total suspended solids)). This process is intended to proportionately allocate costs to each customer based on how he or she takes wastewater service.

- **Rate Design** - Rate design involves developing a rate structure that proportionately recovers costs from sewer system customers. Final rate recommendations are designed to (a) fund the utility's short- and long-term costs of providing service; (b) proportionately allocate costs to all customers and customer classes; and (c) comply with the substantive requirements of Proposition 218.

## **1.5 Findings and Recommendations**

The findings and recommendations presented in this report were developed with substantial input and overview from City staff and stakeholders. The rate recommendations include modifications to the cost of service allocations and sewer rates. The final rates are designed to recover the sewer utility's cost of service and proportionately recover costs from all customer classes.

### **1.5.1 Revenue Requirement**

Currently, the Wastewater Fund is in healthy financial shape. The service charges generate positive net revenues, debt coverage requirements are met, and the City has accumulated a cash reserve. Due to the COVID-19 pandemic capital spending slowed down and cash reserves increased. With the City's improved financial position, the City was able to avoid raising rates in FY 2021/22. However, to fund future operating cost increases and capital improvements, the service charges must increase to meet the City's future financial obligations.

### **1.5.2 Cost Allocation**

BWA proposes that the City continue to allocate costs to accounts, flow, BOD, and TSS for ratemaking purposes. These cost categories are common amongst wastewater purveyors and reflect how customers utilize wastewater service. The customer service (Account) functional cost allocation component includes customer service, billing, and administration. Flow is the quantity of wastewater generated by each customer. BOD and TSS are wastewater pollutants that the City must treat.

BWA found that the City's current rates should be adjusted to collect a greater portion of costs from BOD and TSS charges. With tertiary treatment coming online and secondary treatment improvements planned, a greater portion of the City's cost of service is attributable to pollutant loading. This shift in cost allocation has a greater impact on some commercial and industrial customers who have higher concentrations of BOD and TSS than domestic strength customers.

### **1.5.3 Rate Design**

BWA proposes to maintain the City's current rate structure based on unit charges for accounts, flow, and strength.

### 1.5.4 Proposed Rates

A summary of the current and proposed municipal and industrial sewer rates is provided below. BWA recommends rate revenue increase approximately 3.5% annually over the next five years. It is important to note that while total rate revenue is increasing at 3.5% annually, the impact to each rate in FY 2022/23 will vary due to the updated cost of service allocation.

**Table 1-1: Proposed Rates**

<b>Proposed Sewer Rates</b>	<b>FY 21-22</b>	<b>FY 22-23</b>	<b>FY 23-24</b>	<b>FY 24-25</b>	<b>FY 25-26</b>	<b>FY 26-27</b>
	<i>Existing</i>	<i>Proposed</i>	<i>Proposed</i>	<i>Proposed</i>	<i>Proposed</i>	<i>Proposed</i>
<b>Monthly Account Charge (\$/Account)</b>	\$4.68	\$4.86	\$5.04	\$5.22	\$5.41	\$5.60
<b>Residential Rates (\$/Dwelling Unit)</b>						
Single Family Residential, Mobile Home on a lot	\$37.10	\$38.31	\$39.65	\$41.04	\$42.48	\$43.97
Multiple Family (2-4 Dwelling Units), one additional Dwelling Unit or Mobile Home on a lot	\$28.60	\$29.11	\$30.13	\$31.18	\$32.27	\$33.40
Apartments (5 or more Dwelling Units), Mobile Home Space in a Mobile Home Park	\$25.33	\$25.97	\$26.88	\$27.82	\$28.79	\$29.80
<b>Commercial Quantity Charge (\$/100 cubic feet)</b>						
Group 1-BOD + TSS is 400 mg/l or less	\$3.69	\$3.85	\$3.98	\$4.12	\$4.26	\$4.41
Group 2-BOD + TSS is 401 mg/l to 900 mg/l	\$4.89	\$5.05	\$5.23	\$5.41	\$5.60	\$5.80
Group 3-BOD + TSS is 901 mg/l to 1,400 mg/l	\$6.08	\$6.29	\$6.51	\$6.74	\$6.98	\$7.22
Group 4-BOD + TSS is 1,401 mg/l or more	\$7.52	\$7.79	\$8.06	\$8.34	\$8.63	\$8.93
<b>Industrial Charges (these three components are additive)</b>						
Flow Charge (\$/Million gallons)	\$3,657	\$3,739.76	\$3,870.65	\$4,006.12	\$4,146.33	\$4,291.45
BOD Charge (\$/1,000 lbs)	\$256	\$278.79	\$288.55	\$298.65	\$309.10	\$319.92
TSS Charge (\$/1,000 lbs)	\$511	\$519.81	\$538.00	\$556.83	\$576.32	\$596.49
<b>Septage Quantity Charge</b>						
Flow charge per 1,000 gallons	\$67.00	\$69.35	\$71.78	\$74.29	\$76.89	\$79.58
<b>CanSeg Line Charges (these three components are additive)</b>						
Flow Charge (\$/Million Gallons)	\$3,319.00	\$2,852.34	\$2,923.65	\$2,996.74	\$3,071.66	\$3,148.45
BOD Charge (\$/1,000 lbs)	\$1.73	\$19.01	\$19.49	\$19.98	\$20.48	\$20.99
TSS Charge (\$/1,000 lbs)	\$5.00	\$37.46	\$38.40	\$39.36	\$40.34	\$41.35

### 1.5.5 Bill Impacts

All customers pay the account charge as well as the charges related to their classification. The following table shows the change in residential bills with the proposed rates. Variations in the FY 2022/23 rate increase percentages are due to the updated cost of service analysis (Section 4) leading to updated cost of service based rates (Section 5). It is important to note that all customers pay the account charge plus the charges related to their customer class.

The existing and proposed single family residential monthly bills are shown in the following table. Due to the updated cost of service analysis residential bills will increase by slightly less than the overall 3.5% increase in FY 2022/23.

**Table 1-2: Proposed Single Family Bill Impacts**

Single Family Residential Bill	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27
	<i>Existing</i>	<i>Proposed</i>	<i>Proposed</i>	<i>Proposed</i>	<i>Proposed</i>	<i>Proposed</i>
Monthly Account Charge (\$/Account)	\$4.68	\$4.86	\$5.04	\$5.22	\$5.41	\$5.60
Single Family Residential, Mobile Home on a lot (\$/Dwelling Unit)	<u>\$37.10</u>	<u>\$38.31</u>	<u>\$39.65</u>	<u>\$41.04</u>	<u>\$42.48</u>	<u>\$43.97</u>
<b>Total Single Family Residential Monthly Bill</b>	<b>\$41.78</b>	<b>\$43.17</b>	<b>\$44.69</b>	<b>\$46.26</b>	<b>\$47.89</b>	<b>\$49.57</b>
% Increase		3.3%	3.5%	3.5%	3.5%	3.5%

Existing and proposed example commercial monthly bills are shown in the following table. Due to the updated cost of service analysis some commercial bills will change by slightly more or less than the overall 3.5% increase in FY 2022/23.

**Table 1-3: Example Commercial Bill Impacts with Proposed Rates**

Monthly Commercial Bill Impacts	CCF per Month	Bill at Existing	Bill at Proposed	Bill Impact
		FY 21/22 Rates	FY 22/23 Rates	
<b>Commercial Quantity Charge (\$/100 cubic feet)</b> <i>Example CCF</i>				
Group 1-BOD + TSS is 400 mg/l or less	150	\$558.18	\$582.36	4.3%
Group 2-BOD + TSS is 401 mg/l to 900 mg/l	150	\$738.18	\$762.36	3.3%
Group 3-BOD + TSS is 901 mg/l to 1,400 mg/l	150	\$916.68	\$948.36	3.5%
Group 4-BOD + TSS is 1,401 mg/l or more	150	\$1,132.68	\$1,173.36	3.6%

Proposed average industrial monthly bills are shown in the following table. Due to the updated cost of service analysis average industrial bills are projected to increase slightly more than the overall 3.5% increase in FY 2022/23. Individual customer bill impacts will vary based on each customer's system utilization.

**Table 1-4: Projected Average Industrial Monthly Bill Impacts**

Average Industrial Customer Monthly Bill	Billing Units	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27
Account	1.0	\$4.68	\$4.86	\$5.04	\$5.22	\$5.41	\$5.60
Flow (Million Gallons)	2.6	\$9,473.57	\$9,687.96	\$10,027.04	\$10,377.98	\$10,741.20	\$11,117.13
BOD(1,000 lbs)	26.6	\$6,808.51	\$7,414.63	\$7,674.20	\$7,942.82	\$8,220.74	\$8,508.51
TSS (1,000 lbs)	5.0	<u>\$2,536.88</u>	<u>\$2,580.62</u>	<u>\$2,670.92</u>	<u>\$2,764.40</u>	<u>\$2,861.16</u>	<u>\$2,961.30</u>
Total Monthly Bill		\$18,823.64	\$19,688.07	\$20,377.20	\$21,090.42	\$21,828.51	\$22,592.54
Average Bill % Increase			4.6%	3.5%	3.5%	3.5%	3.5%

Proposed average CanSeg monthly bills are shown in the following table. Due to the updated cost of service analysis average CanSeg bills are projected to increase at 2.5% in FY 2022/23. Individual customer bill impacts will vary based on each customer’s system utilization.

**Table 1-5: Projected Average CanSeg Monthly Bill Impacts**

Average Customer Monthly Bill	Billing Units	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27
		<i>Existing</i>	<i>Proposed</i>	<i>Proposed</i>	<i>Proposed</i>	<i>Proposed</i>	<i>Proposed</i>
Account	1.0	\$4.68	\$4.86	\$5.04	\$5.22	\$5.41	\$5.60
Flow (Million Gallons)	75.0	\$248,925.00	\$213,925.50	\$219,273.75	\$224,755.50	\$230,374.50	\$236,133.75
BOD(1,000 lbs)	1,225.0	\$2,119.25	\$23,287.25	\$23,875.25	\$24,475.50	\$25,088.00	\$25,712.75
TSS (1,000 lbs)	621.7	<u>\$3,108.33</u>	<u>\$23,287.63</u>	<u>\$23,872.00</u>	<u>\$24,468.80</u>	<u>\$25,078.03</u>	<u>\$25,705.92</u>
Total Monthly Bill		\$254,157.26	\$260,505.24	\$267,026.04	\$273,705.02	\$280,545.94	\$287,558.02
Average Bill % Increase			2.5%	2.5%	2.5%	2.5%	2.5%

## **SECTION 2: CURRENT SEWER RATES**

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The City of Modesto assigns rates based on accounts, flow, BOD, and TSS unit costs. Each customer's wastewater bill is proportional to that customer's use or benefit from the wastewater system. The City's current rate schedule is provided at the end of this section.

### **2.1 Account Charge**

Resolution No. 2007-463 describes the monthly account charge as "a monthly fee charged to every sewer account to pay the actual fixed sewer system costs not allocable to sewer flow and strength components." The account charge is intended to recover general, administrative, and customer service costs. The FY2021/22 account charge is \$4.68 per month.

### **2.2 Flow and Strength Rates**

In addition to the account charge, each customer is billed based on their proportional use of the wastewater system based on flow and pollutant strength characteristics. Provided below is a description of the flow and strength charges for each customer class. The City's rates are based on unit costs for flow (\$/million gallons), BOD (\$/thousand pounds), and TSS (\$/thousand pounds). These unit costs are applied to flow and strength of each customer class to calculate the rates.

#### **2.2.1 Industrial Rates**

The City has forty-seven industrial customers. The point of discharge for each industrial customer is metered and sampled by the City of Modesto to determine flow and pollutant loading. Industrial customers are then billed for their observed flow, BOD, and TSS. Industrial wastewater flow is billed on a \$/million gallon (MG) basis, BOD is billed on a \$/thousand pound (klbs) basis, and TSS is also billed on a \$/thousand pound (klbs) basis.

#### **2.2.2 Cannery Segregation (CanSeg) Line Rates**

The CanSeg Line is used by four cannery customers during the canning season that typically runs from July through September. The CanSeg Line collects and conveys the canneries' process flow directly to the Ranch for land application. The point of discharge for each CanSeg customer is metered and sampled by the City of Modesto to determine flow and pollutant loading. CanSeg customers are then billed for their observed flow, BOD, and TSS. CanSeg wastewater flow is billed on a \$/million gallon (MG) basis, BOD is billed on a \$/thousand pound (klbs) basis, and TSS is also billed on a \$/thousand pound (klbs) basis.

#### **2.2.3 Commercial Rates**

The wastewater flow of other customer groups is not individually metered and sampled. The City estimates the flow and loading of non-industrial customers for rate design. Commercial customers are categorized into four groups based on pollutant loading. When a new commercial customer applies for service, the City of Modesto assigns the customer to a loading group based on typical strength characteristics for the type of business.

The City uses metered water use of commercial customers as a proxy for wastewater flow. City policy dictates that commercial customers must utilize dedicated irrigation water meters for outdoor use and separate meters for indoor water use. Indoor water use flows into the sewer system and outdoor water use does not. Because water use is billed on a hundred cubic foot (hcf) basis, the indoor water use/sewer flow of commercial customer is also billed for sewer on an hcf basis.

Unlike industrial customers, commercial customers are not billed separately for flow, BOD, and TSS. Instead, commercial customers have bundled rates which combine the costs of flow, BOD, and TSS into a single charge per hcf. The commercial flow is multiplied by the concentration (mg/l) to estimate the pounds of BOD and TSS produced per hcf of wastewater flow. The flow, BOD, and TSS are then multiplied by the unit charges (i.e., industrial rates) to determine a \$/hcf rate based on the loading of each commercial group.

### 2.2.4 Residential Rates

The residential customer class includes single family, multiple family (two to four dwelling units per account), and apartment customers (five or more dwelling units per account). Residential customers are charged for wastewater flow and strength on a per dwelling unit basis.

### 2.2.5 Septage Rate

The City also charges for the dumping of septic waste at the sewage treatment plant. The current rate is \$67 per 1,000 gallons of sewage. The septage rate was established as proportional to the unit costs of flow, BOD, and TSS less a collection system discount applied to the flow rate.

## 2.3 Current Rate Schedule

The City’s current rate schedule is provided below. It should be noted that schools have the option of being charged based on the average daily attendance (ADA) of pupils plus staff. ADA rates are subject to service agreements between participating schools and the City of Modesto.

**Table 2-1: Current Rate Schedule**

<b>Sewer Rates</b>	<b>FY 21-22</b>
	<i>Existing</i>
<b>Monthly Account Charge – All Accounts (\$/Account)</b>	<b>\$4.68</b>
<b>Residential Rates (\$/Dwelling Unit)</b>	
Single Family Residential, Mobile Home on a lot	\$37.10
Multiple Family (2-4 Dwelling Units), one additional Dwelling Unit or Mobile Home on a lot	\$28.60
Apartments (5 or more Dwelling Units), Mobile Home Space in a Mobile Home Park	\$25.33
<b>Commercial Quantity Charge (\$/100 cubic feet)</b>	
Group 1-BOD + TSS is 400 mg/l or less	\$3.69
Group 2-BOD + TSS is 401 mg/l to 900 mg/l	\$4.89

Group 3-BOD + TSS is 901 mg/l to 1,400 mg/l	\$6.08
Group 4-BOD + TSS is 1,401 mg/l or more	\$7.52
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<b>Industrial Charges (these three components are additive)</b>	
Flow Charge (\$/Million gallons)	\$3,657
BOD Charge (\$/1,000 lbs)	\$256
TSS Charge (\$/1,000 lbs)	\$511
<hr/>	
<b>Septage Quantity Charge</b>	
Flow charge per 1,000 gallons	\$67.00
<hr/>	
<b>CanSeg Line Charges (these three components are additive)</b>	
Flow Charge (\$/Million Gallons)	\$3,319.00
BOD Charge (\$/1,000 lbs)	\$1.73
TSS Charge (\$/1,000 lbs)	\$5.00
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## SECTION 3: REVENUE REQUIREMENT

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This section develops the Wastewater Fund revenue requirement for the next five years. The revenue requirement is the financial plan for the wastewater utility projecting operating and capital expenses and calculating the revenue needed to fund these expenses. A portion of the wastewater service costs is offset by non-rate revenues and use of reserves and the remainder must be funded by wastewater service charges. BWA developed a master revenue requirement for the Wastewater Fund as a whole and subordinate revenue requirements for the M&I system and the CanSeg Line.

### 3.1 Current Revenues

Year-end estimates for FY2020/21 indicate that the Wastewater Fund generated approximately \$67.0 million in revenue. Approximately \$59.2 million was collected from rate revenue and approximately \$7.8 million was collected from non-rate revenue sources. The City projects annual customer growth of 0.5%.

### 3.2 Operating Expenses

For FY2021/22, the wastewater operating expenses are budgeted at \$37.1 million. Based on input from City staff BWA reduced the budget by 5% for the rate study (actual expenses typically come in below budget). The revised operating budget for FY 2021/22 is \$35.3 million. Operating expenses consist of ongoing annual costs including staffing, materials, supplies, power, chemicals, and maintenance. Operating costs are projected to increase by 3.5% annually due to inflation. BWA adjusted the inflation assumption up from the previous 2% to reflect the current, elevated inflation levels.

### 3.3 Debt Service

The City of Modesto currently has several outstanding wastewater loans and bonds including State Revolving Fund (SRF) Loans and revenue bonds. In FY 2022/23 the City is budgeting \$12.2 million dollars in debt service.

### 3.4 Capital Expenditures

Building on the Wastewater Master Plan Update, Carollo Engineers developed a capital improvement plan for the sewer collection system and the wastewater treatment stream. Over the next five years, a total of \$237.8 million in capital improvements are planned. The fully detailed capital improvement plan is provided in Appendix B. This capital plan is the projected maximum capital spending scenario.

**Table 3-1: Summary of Capital Improvement Projects**

Capital Spending Category	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27
CanSeg	\$160,000	\$1,304,100	\$1,821,083	\$2,470,711	\$20,541,791	\$1,131,542
M&I	\$32,348,500	\$60,259,311	\$57,461,841	\$25,917,832	\$39,992,053	\$26,948,983

### **3.5 Financial Policies, Assumptions, and Targets**

The City's financial reserve policies include a reserve target and debt service coverage goal. The City intends to maintain a minimum cash reserve equal to 25% of its operating costs plus the annual SRF debt service payment. For FY2022/23, the minimum cash reserve is \$10.3 million.

The Wastewater Capital Improvement Plan (CIP) identifies \$237.9 million in capital improvement projects to be completed over the next five years. To mitigate rate impacts, the City intends to fund \$133.70 million from reserves and rate revenue (referred to as "pay-as-you-go" funding). The beginning FY2021/22 unaudited cash reserve is estimated to be nearly \$93 million, well in excess of the minimum reserve target. In FY 2022/23 the cash reserve is projected to be \$88.8 million. Although the reserve cannot fund all capital improvements over the next five years, it can be spent down in lieu of issuing additional debt. The build-up of reserves in FY 2020/21 was due to a slowdown in capital project work caused by the COVID-19 pandemic.

For financial planning purposes, it is assumed that annual capital expenditures in excess of the pay-as-you-go funding amount will be debt financed over a thirty year term via municipal revenue bonds. The City will pursue grants and low cost financing, including SRF loans, where possible. Municipal bond financing acts as a "worst case" financing scenario for the purpose of determining rates.

Most municipal debt requires that the issuer generate net operating revenues of 1.25 times the total annual debt service payment or greater. This is referred to as "debt service coverage." To support a strong credit rating and good financial health, the City typically maintains a debt coverage ratio of 2.0 times the annual payment or greater.

### **3.6 CanSeg Line Revenue Requirement**

BWA developed a revenue requirement and cash flow for the CanSeg Line to facilitate rates reflecting the cost to provide CanSeg service.

#### **3.6.1 CanSeg Reserve**

The CanSeg Line came into operation in September 1999. The first full canning season utilizing the CanSeg Line occurred in 2000 (FY2000/01). Based on the CanSeg line revenues and expenditures since the last rates study, the projected cash reserve attributable to the CanSeg line at the beginning of FY 2022/23 is \$8.1 million.

#### **3.6.2 Operating Expenses and Non-rate Revenue**

The CanSeg Line operating expenses are now a line item in the City's budget. The total CanSeg operating expenses are budgeted to be \$512,178 in FY2021/22. The city is also projecting an additional expense of \$100,000 to purchase water to blend with the flows being applied to the Ranch to evenly distribute the strength of the CanSeg flows around the Ranch. The water purchase is an estimate of the annual average

cost, the actual price and water purchase amounts are likely to fluctuate from year-to-year. CanSeg Line expenses are projected to increase due to inflation at 3.5% annually.

Expenses are offset by approximately \$509,271 in non-rate revenues, largely from the rent revenue from the Ranch. Allocation of non-rate revenues to the CanSeg Line is discussed in Section 4.3. Allocation of Non-Rate Revenues and detailed revenue and expense worksheets for the CanSeg Line are provided in Appendix A.

### 3.6.3 CanSeg Line Capital Expenses

Building on the Wastewater Master Plan Update, Carollo Engineers developed a capital improvement plan for both the M&I system and the CanSeg Line. Over the next five years, \$32.4 million in capital improvement projects are planned for the CanSeg Line. The CanSeg Line projected capital costs are shown below.

**Table 3-2: CanSeg Line 5-Year Capital Improvement Plan**

<b>Projected CanSeg Capital Improvement Plan</b>	<b>FY 22-23</b>	<b>FY 23-24</b>	<b>FY 24-25</b>	<b>FY 25-26</b>	<b>FY 26-27</b>
CanSeg Bank Armament	-	2,391,000	2,439,000	-	-
R&R Can Seg (River Trunk Gravity Line)	-	-	554,359	8,835,151	-
Odor Control Facilities	38,813	803,419	-	-	-
Secondary Treatment Facilities Upgrades	-	1,916,352	11,706,639	1,131,542	1,171,146
River Diversion Facilities	1,035,000	-	-	-	-
Ranch Irrigation System Flow Monitoring Modifications	87,975	-	-	-	-
CV Salts Compliance	103,500	214,245	-	-	-
<b>Total CIP</b>	<b>\$1,265,288</b>	<b>\$5,325,016</b>	<b>\$14,699,998</b>	<b>\$9,966,693</b>	<b>\$1,171,146</b>

### 3.6.4 CanSeg Line Capital Funding

The following table shows the projected capital funding sources for CanSeg. BWA projects the City will need \$20 million from financing and \$12.4 million in pay-go funding to support the CanSeg CIP.

**Table 3-3: CanSeg Capital Funding Sources**

Capital Funding	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27
<b>Capital Revenues</b>					
Use of Debt Proceeds			\$12,000,000	\$8,000,000	
Rate Funded Capital	\$1,265,288	\$5,325,016	\$2,699,998	\$1,966,693	\$1,171,146
<b>Total Capital Revenue</b>	<b>\$1,265,288</b>	<b>\$5,325,016</b>	<b>\$14,699,998</b>	<b>\$9,966,693</b>	<b>\$1,171,146</b>
<b>Total Capital Expenditures</b>	<b>\$1,265,288</b>	<b>\$5,325,016</b>	<b>\$14,699,998</b>	<b>\$9,966,693</b>	<b>\$1,171,146</b>

**3.6.5 CanSeg Line Cash Flow**

The following table provides the cash flow for the CanSeg Line. To fund operating and capital expenses, BWA projects the CanSeg rate revenue requirement will be \$3.0 million in FY2022/23. BWA recommends rate increases of 2.5% annually. BWA is recommending lower rate increases for CanSeg than M&I because a larger portion of CanSeg expenses consists of debt service which will not increase with inflation. Due to the slowdown in capital spending caused by the COVID-19 pandemic the City decided to not increase rates during 2021/22.

**Table 3-4: CanSeg Cashflow**

CanSeg Line Cash Flow Projections	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27
<b>Reserves</b>					
Beginning Balance	\$8,127,935	\$8,355,087	\$5,449,894	\$4,580,345	\$3,866,339
<b>Revenue Escalation</b>					
Rate Revenue Increase	2.50%	2.50%	2.50%	2.50%	2.50%
<b>Revenues</b>					
Rate Revenue	\$3,049,831	\$3,126,077	\$3,204,229	\$3,284,334	\$3,366,443
Rate Increase Revenue	76,246	78,152	80,106	82,108	84,161
Other Revenue	509,271	509,271	509,271	509,271	509,271
Interest on Reserves	\$40,640	\$41,775	\$27,249	\$22,902	\$19,332
<b>Total Revenue</b>	<b>\$3,675,987</b>	<b>\$3,755,275</b>	<b>\$3,820,855</b>	<b>\$3,898,615</b>	<b>\$3,979,206</b>
<b>Expenses</b>					
<i>Inflation</i>	3.5%	3.5%	3.5%	3.5%	3.5%
Operating Expenses	\$530,104	\$548,658	\$567,861	\$587,736	\$608,307
Water Purchase	\$103,500	\$107,123	\$110,872	\$114,752	\$118,769
Existing Debt Service	1,549,943	679,672	679,672	679,440	579,020
New Debt Service			\$632,000	\$1,264,000	\$1,264,000
Rate Funded Capital	\$1,265,288	\$5,325,016	\$2,699,998	\$1,966,693	\$1,171,146
<b>Total Expenses</b>	<b>\$3,448,835</b>	<b>\$6,660,468</b>	<b>\$4,690,403</b>	<b>\$4,612,621</b>	<b>\$3,741,241</b>
<b>Net Revenues</b>	<b>\$227,152</b>	<b>-\$2,905,193</b>	<b>-\$869,548</b>	<b>-\$714,006</b>	<b>\$237,965</b>
<b>Ending Balance</b>	<b>\$8,355,087</b>	<b>\$5,449,894</b>	<b>\$4,580,345</b>	<b>\$3,866,339</b>	<b>\$4,104,304</b>

### 3.7 Municipal and Industrial (M&I) Revenue Requirement

All but four customers have all their waste treated by the M&I system. BWA developed a revenue requirement and cash flow for the M&I system to facilitate rates reflecting the cost to provide M&I service.

#### 3.7.1 M&I Reserve

The projected cash reserve attributable to the M&I line at the beginning of FY 2022/23 is \$69.0 million.

#### 3.7.2 Operating Expenses and Non-rate Revenue

The total M&I operating expenses are budgeted to be \$34.8 million in FY2021/22. M&I expenses are projected to increase due to inflation at 3.5% annually.

Expenses are offset by approximately \$7.3 million in non-rate revenues. About \$2.8 million of the non-rate revenue is from the sale of water from tertiary treatment.

#### 3.7.3 M&I Capital Expenses

As part of the Wastewater Master Plan Update, Carollo Engineers developed a capital improvement plan for both the M&I system and the CanSeg Line. Over the next five years, \$211.3 million in capital improvement projects are planned for the M&I system. Projected M&I capital spending summarized below.

**Table 3-5: M&I Capital Improvement Plan (CIP) Summary**

<b>M&amp;I CIP Summary</b>	<b>FY 22-23</b>	<b>FY 23-24</b>	<b>FY 24-25</b>	<b>FY 25-26</b>	<b>FY 26-27</b>
Collection System Improvements	48,677,661	52,685,570	18,404,539	15,146,528	12,145,172
Sutter Plant Improvements	1,875,938	2,410,256	1,884,820	-	9,228,631
Jennings Plant Improvements	8,694,000	2,687,382	5,517,601	24,271,764	5,456,411
Engineering Studies	879,750	482,051	110,872	573,762	118,769
<b>Total CIP</b>	<b>\$ 60,127,349</b>	<b>\$ 58,265,260</b>	<b>\$ 25,917,832</b>	<b>\$ 39,992,053</b>	<b>\$ 26,948,983</b>

#### 3.7.4 M&I Capital Funding

The following table shows the projected capital funding sources for M&I. BWA projects the City will need \$90.0 million from financing and \$121.3 million in pay-go funding to support the M&I CIP.

**Table 3-6: M&I Capital Funding Sources**

Capital Funding	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27
<b>Capital Revenues</b>					
Use of Debt Proceeds		\$55,000,000		\$30,000,000	\$5,000,000
Grant Revenue					
Rate Funded Capital	\$60,127,349	\$3,265,260	\$25,917,832	\$9,992,053	\$21,948,983
<b>Total Capital Revenue</b>	<b>\$60,127,349</b>	<b>\$58,265,260</b>	<b>\$25,917,832</b>	<b>\$39,992,053</b>	<b>\$26,948,983</b>
<b>Total Capital Expenditures</b>	<b>\$60,127,349</b>	<b>\$58,265,260</b>	<b>\$25,917,832</b>	<b>\$39,992,053</b>	<b>\$26,948,983</b>

**3.7.5 M&I Cash Flow**

The following table provides the cash flow for the M&I system. To fund operating and capital expenses, BWA projects a M&I rate revenue requirement \$58.6 million in FY2022/23. BWA projects rate increases of 3.5% annually. Due to the slowdown in capital spending caused by the COVID-19 pandemic the City decided to not increase rates during 2021/22.

**Table 3-7: M&I Cash Flow Projections**

M&I Cash Flow Projection:	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27
<b>Reserves</b>					
Beginning Balance	\$69,042,634	\$28,093,588	\$44,366,759	\$37,675,221	\$47,319,900
<b>Revenue Escalation</b>					
Rate Revenue Increase	3.50%	3.50%	3.50%	3.50%	3.50%
Growth	0.5%	0.5%	0.5%	0.5%	0.5%
<b>Revenues</b>					
Rate Revenue	\$56,630,743	\$58,905,883	\$61,272,427	\$63,734,046	\$66,294,562
Rate Increase Revenue	1,982,076	2,061,706	2,144,535	2,230,692	2,320,310
Other Revenue	6,868,103	6,868,103	6,868,103	6,868,103	6,868,103
Interest on Reserves	\$345,213	\$140,468	\$221,834	\$188,376	\$236,599
<b>Total Revenue</b>	<b>\$65,826,135</b>	<b>\$67,976,160</b>	<b>\$70,506,899</b>	<b>\$73,021,217</b>	<b>\$75,719,574</b>
<b>Expenses</b>					
<i>Inflation</i>	3.5%	3.5%	3.5%	3.0%	3.0%
Total Operating Expenses*	\$35,966,214	\$37,225,032	\$38,527,908	\$39,683,745	\$40,874,257
Existing Debt Service	10,681,619	9,672,697	9,672,697	9,672,740	9,556,666
New Debt Service	\$0	\$1,540,000	\$3,080,000	\$4,028,000	\$4,976,000
Rate Funded Capital	\$60,127,349	\$3,265,260	\$25,917,832	\$9,992,053	\$21,948,983
<b>Total Expenses</b>	<b>\$106,775,182</b>	<b>\$51,702,988</b>	<b>\$77,198,437</b>	<b>\$63,376,538</b>	<b>\$77,355,906</b>
<b>Net Revenues</b>	<b>-\$40,949,047</b>	<b>\$16,273,172</b>	<b>-\$6,691,539</b>	<b>\$9,644,679</b>	<b>-\$1,636,332</b>
<b>Ending Unrestricted Balance</b>	<b>\$28,093,588</b>	<b>\$44,366,759</b>	<b>\$37,675,221</b>	<b>\$47,319,900</b>	<b>\$45,683,568</b>
Debt Coverage (Target 2.0)	2.80	2.74	2.51	2.43	2.40

\*Adjusted to reflect forecast based on prior expenditures

**3.8 Total Wastewater Fund Revenue Requirement**

The following sections combine the M&I and CanSeg financial projections.

### 3.8.1 Total Wastewater Capital Funding

The following table shows the projected combined capital funding sources for the Wastewater Fund. BWA projects the City will need \$110.0 million from financing and \$133.7 million in pay-go funding to support the Wastewater CIP.

**Table 3-8: Total Wastewater Capital Funding Sources**

Capital Funding	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27
<b>Capital Revenues</b>					
Use of Debt Proceeds	\$0	\$55,000,000	\$12,000,000	\$38,000,000	\$5,000,000
Grant Revenue					
Rate Funded Capital	\$61,392,636	\$8,590,276	\$28,617,831	\$11,958,747	\$23,120,129
<b>Total Capital Revenue</b>	<b>\$61,392,636</b>	<b>\$63,590,276</b>	<b>\$40,617,831</b>	<b>\$49,958,747</b>	<b>\$28,120,129</b>
<b>Total Capital Expenditures</b>	<b>\$61,392,636</b>	<b>\$63,590,276</b>	<b>\$40,617,831</b>	<b>\$49,958,747</b>	<b>\$28,120,129</b>

### 3.9 Wastewater Fund Master Cash Flow

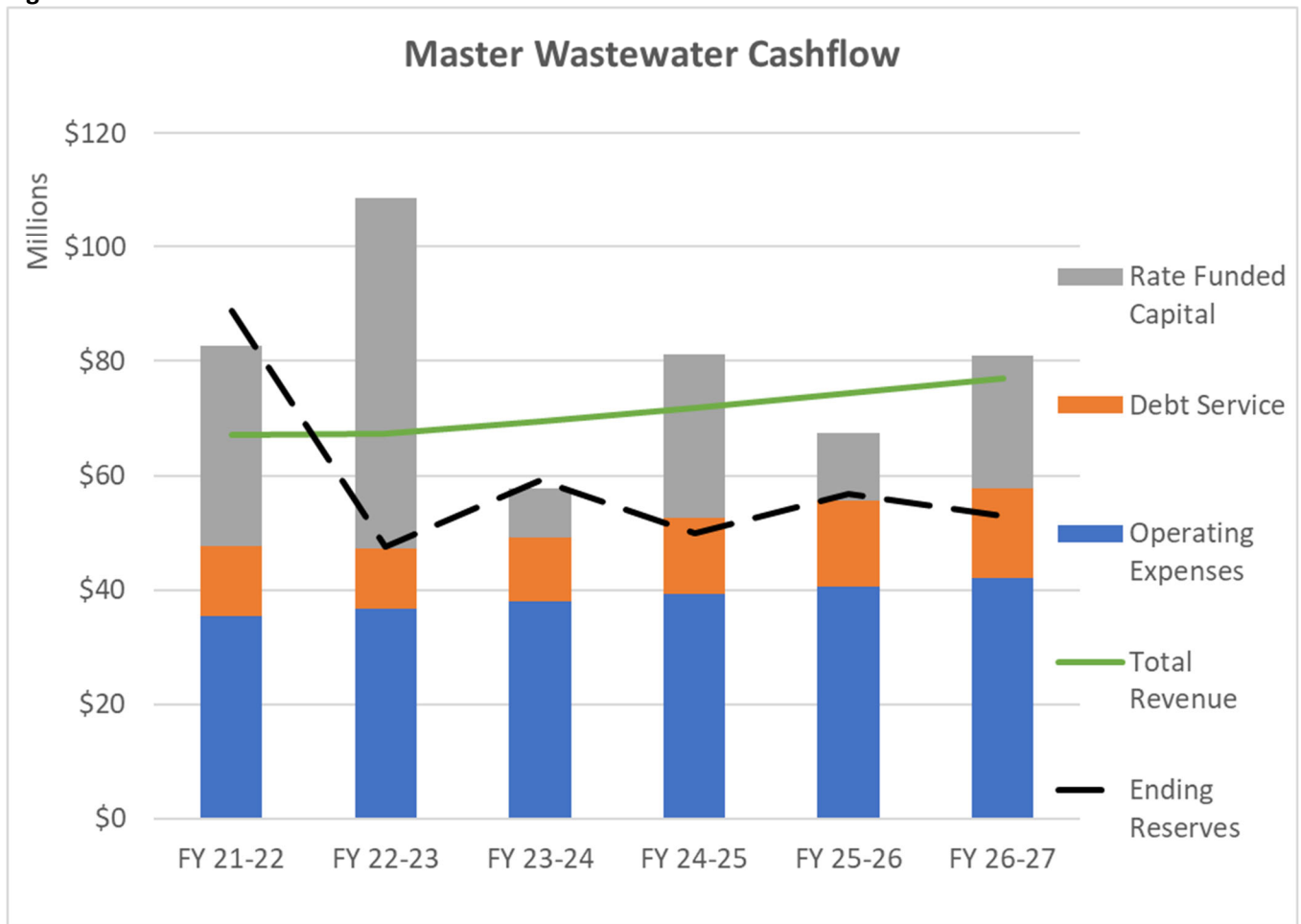
The following table provides the Wastewater Fund master cash flow, which incorporates the revenues and expenses for both the M&I and CanSeg Line systems. Current rate revenues are budgeted at \$59.2 million in FY 2021/22 and are proposed to increase to \$71.8 million by FY2026/27.

**Table 3-9: Wastewater Fund Master Cash Flow**

Wastewater Fund Cash Flow Projections	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27
<b>Reserves</b>					
Beginning Balance	\$77,170,569	\$36,293,070	\$49,428,325	\$41,627,553	\$50,118,758
<b>Revenues</b>					
Rate Revenue	\$61,583,291	\$63,939,872	\$66,463,552	\$69,087,493	\$71,815,695
Other Revenue	7,377,374	7,377,374	7,377,374	7,377,374	7,377,374
Interest on Reserves	\$385,853	\$181,465	\$247,142	\$208,138	\$250,594
<b>Total Revenue</b>	<b>\$69,346,517</b>	<b>\$71,498,711</b>	<b>\$74,088,067</b>	<b>\$76,673,005</b>	<b>\$79,443,663</b>
<b>Expenses</b>					
<i>Inflation</i>	3.5%	3.5%	3.5%	3.5%	3.5%
Total Operating Expenses*	\$36,599,818	\$37,880,812	\$39,206,640	\$40,578,873	\$41,999,133
Existing Debt Service	12,231,562	10,352,368	10,352,369	10,352,180	10,135,686
New Debt Service	\$0	\$1,540,000	\$3,712,000	\$5,292,000	\$6,240,000
Rate Funded Capital	\$61,392,636	\$8,590,276	\$28,617,831	\$11,958,747	\$23,120,129
<b>Total Expenses</b>	<b>\$110,224,017</b>	<b>\$58,363,456</b>	<b>\$81,888,840</b>	<b>\$68,181,799</b>	<b>\$81,494,948</b>
<b>Net Revenues</b>	<b>-\$40,877,499</b>	<b>\$13,135,255</b>	<b>-\$7,800,772</b>	<b>\$8,491,205</b>	<b>-\$2,051,285</b>
<b>Ending Unrestricted Balance</b>	<b>\$36,293,070</b>	<b>\$49,428,325</b>	<b>\$41,627,553</b>	<b>\$50,118,758</b>	<b>\$48,067,473</b>
Debt Coverage (Target 2.0)	2.68	2.83	2.48	2.31	2.29

\*Adjusted to reflect forecast based on prior expenditures

Figure 2: Master Wastewater Cashflow



## SECTION 4: COST OF SERVICE ALLOCATION

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The revenue requirements detailed in the previous section determine the amount of revenue to be recovered from sewer rates. The cost of service analysis advances the rate study process by providing a mechanism for recovery of revenues from customers based on the service that they receive from the wastewater system. Proposition 218 requires that agencies providing “property-related services” (including wastewater utility service) set rates and charges that are based on the cost of providing those services. Detailed cost allocation worksheets supporting this section are provided in Appendix A.

### 4.1 Methodology

BWA’s cost of service analysis reviewed each non-rate revenue and expense line item listed in the wastewater budget and allocated the revenues and expenses to customer service, the M&I wastewater system, and the CanSeg Line. All expenses and revenues not allocated to customer service were further allocated by function category. Functional categories include wastewater flow, total suspended solids (TSS) and Biochemical oxygen demand (BOD). Allocations were based on how the City incurs each revenue or expense and which customer group generates or benefits from each line item.

### 4.2 Customer Service (per Account) Allocation

Consistent with Resolution 2007-463, the customer service function encompasses revenues and costs that are not attributable to wastewater flow or strength characteristics. Customer service expenses are recovered through the account charge on all accounts.

The following table provides the budget line items allocated to customer service. The amounts allocated to Customer Service in each expense category are the portions which benefit each wastewater customer (large and small) equally. A substantial portion of the amount allocated to this category is management and administration related.

**Table 4-1: Number of Customer Service Allocation**

<b>Budget Line Item</b>	<b>Allocation to Customer Service</b>
<b>Operating Expenses</b>	
UPP - Wastewater General	70.0%
UPP - Wastewater Utility Billing and Collections	100.0%
UPP - Sphere of Influence Area Expansion	70.0%
UPP - Wastewater Inventory & Condition Assessment	70.0%
UPP - Wastewater Services Administration	70.0%
UPP - Wastewater Collections Administration	70.0%
UPP - Wastewater Operations Administration	70.0%
UPP - Wastewater Electrical Services	5.0%
General Fund Transfer	70.0%

### **4.3 Allocation of Non-Rate Revenues Between CanSeg and M&I**

The following non-rate revenues are allocated between the M&I system and the CanSeg Line:

Interest Revenue and Earnings – Interest earnings are conservatively estimated to be 0.5% on the cash reserves allocated to CanSeg and M&I. Interest is allocated to M&I and CanSeg based on the projected beginning reserve balance of each cashflow. [how allocated??]

Lease of Land – Lease/rental revenue generated from the rental of the Ranch to a farmer. City of Modesto M&I treated wastewater effluent and CanSeg Line process water is used by the farmer to irrigate the Ranch. The Ranch only benefits the CanSeg Line; therefore, all revenues and expenses related to the Ranch are allocated to the CanSeg Line.

General Fund (Repayment of Interfund Loan) – Resolution No. 2000-446 describes the repayment of transfers made from the water and wastewater funds to the General Fund from July 1997 to September 1999. BWA evaluated the historical wastewater rate revenue collected during that period and estimates that the CanSeg rate revenues accounted for 3.1% (noting that the CanSeg Line came into service July of 1999 and thus paid no rates prior to that date). The CanSeg Line is therefore allocated 3.1% of the General Fund repayments.

### **4.4 Debt Service**

All existing debt which benefitted CanSeg was allocated to CanSeg in the prior rate study. Existing obligations benefitting CanSeg in FY 2022/23 are the 2015 Wastewater Revenue/Refunding Revenue Bonds and the 2018A Refunding Bonds (2006A). CanSeg is allocated 46.41% of the debt service for these obligations. Debt service on existing obligations in FY2022/23 for CanSeg is projected to be \$1.55 million and for M&I is projected to be \$10.69 million.

### **4.5 Allocation to Flow and Strength (BOD & TSS)**

The final step in the cost allocation process is to allocate the M&I and CanSeg Line expenses and revenues to flow and strength categories based on input from City operations and engineering staff and the City's engineering consultants.

To determine the allocation for future debt service and pay-go capital spending City engineers determined allocations for each project. The following tables show the results of the capital allocation for M&I and CanSeg.

**Table 4-2: M&I Capital Allocation**

<b>M&amp;I Capital Functional Allocation</b>	<b>5-Year Average</b>	<b>Flow</b>	<b>BOD</b>	<b>TSS</b>
Collection System Improvements	\$29,411,894	100.0%		
Sutter Plant Improvements	\$3,079,929	100.0%		
Outfall Pipelines	\$0	70.0%	10.0%	20.0%
Jennings Plant Improvements	\$9,325,432	5.0%	70.0%	25.0%
Engineering Studies	\$433,041	86.5%	6.0%	7.5%
<b>Allocation Amount \$</b>	<b>\$42,250,295</b>	<b>\$33,332,675</b>	<b>\$6,553,785</b>	<b>\$2,363,836</b>
<b>Allocation Amount %</b>		<b>78.9%</b>	<b>15.5%</b>	<b>5.6%</b>

**Table 4-3: CanSeg Capital Allocation**

<b>CanSeg Capital Functional Allocation</b>	<b>5-Year Average</b>	<b>Flow</b>	<b>BOD</b>	<b>TSS</b>
CanSeg Bank Armament	\$2,415,000	100.0%		
Gravity Line)	\$1,877,902	100.0%		
Odor Control Facilities	\$168,446	50.0%	25.0%	25.0%
Upgrades	\$3,185,136	40.0%	30.0%	30.0%
River Diversion Facilities	\$207,000	100.0%		
Ranch Irrigation System Flow				
Monitoring Modifications	\$17,595	100.0%		
CV Salts Compliance	\$63,549	50.0%	25.0%	25.0%
<b>Allocation Amount \$</b>	<b>\$7,934,628</b>	<b>\$5,907,549</b>	<b>\$1,013,540</b>	<b>\$1,013,540</b>
<b>Allocation %</b>		<b>74.5%</b>	<b>12.8%</b>	<b>12.8%</b>

Each budget line item was assigned a function allocation category. The following tables present a summary of the cost allocation to flow and loadings by allocation category for M&I and CanSeg. The allocation categorization for each budget line is shown in the Appendix A.

**Table 4-4: M&I Cost Allocation to Flow and Strength**

M&I Functional Allocation Categories	5-Year Average Amount	Account	Flow	BOD	TSS	General
<b>Revenue</b>						
General Composite	\$3,109,958					100%
Rates Paid 1997-1999	\$366,429		60.1%	17.9%	22.0%	
Tertiary	\$2,856,716		33.3%	33.3%	33.3%	
<b>Total</b>	<b>\$6,333,103</b>		<b>\$1,172,813.16</b>	<b>\$1,017,643.24</b>	<b>\$1,032,688.91</b>	<b>\$3,109,958.00</b>
<b>Expense</b>						
General Composite	\$2,513,889					100%
Existing Debt	\$10,079,195		50.2%	18.0%	31.8%	
CIP - 5 year average	\$15,883,388		80.2%	14.5%	5.3%	
Tertiary	\$3,568,600		25.0%	25.0%	50.0%	
Collection System & Pumping	\$9,264,393		100.0%	0.0%	0.0%	
Lab, Enviro, Monitoring	\$3,679,235		0.0%	50.0%	50.0%	
All Treatment	\$4,987,967		55.3%	19.8%	24.9%	
Primary	\$4,159,654		70.0%	10.0%	20.0%	
Secondary	\$4,019,158		40.0%	30.0%	30.0%	
Recycled Water	\$1,698,118		100.0%	0.0%	0.0%	
Electrical	\$2,266,318		60.0%	30.0%	10.0%	
Account	\$3,884,170	100.0%				
<b>Total</b>	<b>\$66,004,086</b>	<b>\$3,884,170</b>	<b>\$38,290,385</b>	<b>\$10,139,788</b>	<b>\$11,175,855</b>	<b>\$2,513,889</b>
Net	\$59,670,983	\$3,884,170	\$37,117,572	\$9,122,145	\$10,143,166	-\$596,069
Flow, BOD, TSS Total	<b>\$56,382,882</b>		<b>65.8%</b>	<b>16.2%</b>	<b>18.0%</b>	
With General Composite \$	\$59,670,983	\$3,884,170	\$36,725,172	\$9,025,707	\$10,035,934	
With General Composite %		6.5%	61.5%	15.1%	16.8%	
FY 2021-22 Revenue Requirement <sup>1</sup>	\$53,820,901					
<b>Flow, BOD and TSS Revenue Requirement</b>	<b>\$53,820,901</b>	<b>\$3,503,370</b>	<b>\$33,124,674</b>	<b>\$8,140,836</b>	<b>\$9,052,022</b>	

<sup>1</sup>For rate making purposes the FY 2021/22 Revenue Requirement is based on available billing units multiplied by FY 2021/22 rates. This excludes the "Sewer Only" customer class as it includes all customer types.

**Table 4-5: CanSeg Cost Allocation to Flow and Strength**

<b>CanSeg Functional Allocation Categories</b>	<b>5-Year Average Amount</b>	<b>Flow</b>	<b>BOD</b>	<b>TSS</b>
Operating Expenses	\$549,307.31	100.0%		
Water Purchase	\$107,249.32	50.0%	25.0%	25.0%
Existing Debt Service	\$1,028,823.60	100.0%		
New Debt Service	\$948,000.00	74.5%	12.8%	12.8%
Rate Funded Capital	\$2,283,399.09	74.5%	12.8%	12.8%
<b>Total</b>	<b>\$4,916,779.32</b>	<b>\$4,037,621.10</b>	<b>\$439,579.11</b>	<b>\$439,579.11</b>
<b>Flow, BOD, TSS Total</b>	<b>\$4,916,779.32</b>	<b>82.1%</b>	<b>8.9%</b>	<b>8.9%</b>
Revenue Requirement Based on Projected System Demands				\$3,049,831.00
<b>Flow, BOD and TSS</b>				
<b>Revenue Requirement</b>	<b>\$3,049,831.00</b>	<b>\$2,504,497.60</b>	<b>\$272,666.70</b>	<b>\$272,666.70</b>

\*Does not include customer service

#### **4.6 Septage**

Septage customers transport their effluent directly to the wastewater treatment plant and do not use the sewer collection system. BWA believes the costs recovered by the rates are reasonable and recommends applying the overall revenue increase percentage to the septage rates.

## SECTION 5: RATE DESIGN

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The previous section determined the amount of revenue allocated to flow, BOD, and TSS for the M&I service, CanSeg Line, and secondary scalping service. The allocated revenue is then divided by the billing units to calculate the rates. A detailed schedule of billing units and projected rates is provided in Appendix A.

### 5.1 M&I Rate Design

#### 5.1.1 Billing Units

BWA estimated the number of accounts, number of residential dwelling units, and flows and loads for the next five years.

##### 5.1.1.1 Accounts

The City of Modesto currently provides wastewater service to 62,162 accounts consisting of residential, multiple family, commercial, industrial customers. The City projects growth of 0.5% annually for all customers.

**Table 5-1: Number of Customer Accounts**

<b>Customer Class</b>	<b>Current (FY 2021)</b>	<b>FY2022</b>
Growth in # Residential and Commercial		0.50%
Growth of Major Industrial		0.50%
Accounts		
SF Residential	53,422	55,000
Multi Residential	4,377	4,399
Commercial	2,698	2,711
Industrial	47	47
CanSeg	<u>4</u>	<u>4</u>
Total Accounts	60,548	62,162

### 5.1.1.2 Flow and Loadings

The following table shows the calculations used to estimate the flows and loadings of each customer class.

**Table 5-2: Total M&I Flows and Loads for Rate Design**

M&I Functional Allocation Categories	5-Year Average Amount	Account	Flow	BOD	TSS	General
<b>Revenue</b>						
General Composite	\$3,109,958					100%
Rates Paid 1997-1999	\$366,429		60.1%	17.9%	22.0%	
Tertiary	\$2,856,716		33.3%	33.3%	33.3%	
<b>Total</b>	<b>\$6,333,103</b>		<b>\$1,172,813.16</b>	<b>\$1,017,643.24</b>	<b>\$1,032,688.91</b>	<b>\$3,109,958.00</b>
<b>Expense</b>						
General Composite	\$2,513,889					100%
Existing Debt	\$10,079,195		50.2%	18.0%	31.8%	
CIP - 5 year average	\$15,883,388		80.2%	14.5%	5.3%	
Tertiary	\$3,568,600		25.0%	25.0%	50.0%	
Collection System & Pumping	\$9,264,393		100.0%	0.0%	0.0%	
Lab, Enviro, Monitoring	\$3,679,235		0.0%	50.0%	50.0%	
All Treatment	\$4,987,967		55.3%	19.8%	24.9%	
Primary	\$4,159,654		70.0%	10.0%	20.0%	
Secondary	\$4,019,158		40.0%	30.0%	30.0%	
Recycled Water	\$1,698,118		100.0%	0.0%	0.0%	
Electrical	\$2,266,318		60.0%	30.0%	10.0%	
Account	\$3,884,170	100.0%				
<b>Total</b>	<b>\$66,004,086</b>	<b>\$3,884,170</b>	<b>\$38,290,385</b>	<b>\$10,139,788</b>	<b>\$11,175,855</b>	<b>\$2,513,889</b>
Net	\$59,670,983	\$3,884,170	\$37,117,572	\$9,122,145	\$10,143,166	-\$596,069
Flow, BOD, TSS Total	<b>\$56,382,882</b>		<b>65.8%</b>	<b>16.2%</b>	<b>18.0%</b>	
With General Composite \$	\$59,670,983	\$3,884,170	\$36,725,172	\$9,025,707	\$10,035,934	
With General Composite %		6.5%	61.5%	15.1%	16.8%	
FY 2021-22 Revenue Requirement*	\$53,820,901					
<b>Flow, BOD and TSS Revenue Requirement</b>	<b>\$53,820,901</b>	<b>\$3,503,370</b>	<b>\$33,124,674</b>	<b>\$8,140,836</b>	<b>\$9,052,022</b>	

\*For rate making purposes the FY 2021/22 Revenue Requirement is based on available billing units multiplied by FY 2021/22 rates. This amount excludes the "Sewer Only" customer class as it includes customers from all customer classes and is not a class of its own. BWA feels allocations excluding the "Sewer Only" customers represents the wastewater system.

### 5.1.1.3 Unit Cost

Using revenue requirement from the cost allocation described in the previous section divided by the demand units derived from the flows and loading, the unit costs for each category can be calculated. The revenue requirement is based on FY 2021/22 revenues.

**Table 5-3: M&I Allocation Unit Rates**

<b>M&amp;I Allocation</b>				
<b>Units</b>	<b>Account</b>	<b>Flow</b>	<b>BOD</b>	<b>TSS</b>
	#	(CCF)	(LBS)	(LBS)
Demand Units	62,158	12,255,110	30,223,764	18,023,764
Revenue Requirement	<u>3,503,370</u>	<u>33,124,674</u>	<u>8,140,836</u>	<u>9,052,022</u>
Unit Rate	\$56.36	\$2.70	\$0.27	\$0.50

**5.1.1.4 Class Revenue Requirements**

The projected units in each class are multiplied by the unit costs to calculate the revenue requirement for each class.

**Table 5-4: Projected M&I Sewer Revenue Requirements**

<b>M&amp;I Class Revenue Requirement</b>	<b>Flow</b>	<b>BOD</b>	<b>TSS</b>	<b>Revenue Requirement</b>
	(CCF)	(LBS)	(LBS)	(\$)
Single Family	6,574,911	8,621,095	8,621,095	\$24,423,364.74
Multifamily	723,425	971,147	971,147	\$2,704,682.06
Apartments	1,224,222	1,643,432	1,643,432	\$4,577,020.08
Group 1	1,306,483	1,713,075	1,713,075	\$4,853,101.88
Group 2	133,228	374,336	374,336	\$648,935.32
Group 3	117,607	514,025	514,025	\$714,494.44
Group 4	222,083	1,386,653	1,386,653	\$1,670,186.09
Industrial	1,953,152	15,000,000	2,800,000	\$10,725,746.91
<i>Flow Charge</i> <i>(\$/Million gallons)</i>	1,953,152			\$5,279,228.94
<i>BOD Charge (\$/1,000 lbs)</i>		15,000,000		\$4,040,282.30
<i>TSS Charge (\$/1,000 lbs)</i>			2,800,000	\$1,406,235.68
<b>Total</b>	<b>12,255,110</b>	<b>30,223,764</b>	<b>18,023,764</b>	<b>\$50,317,531.53</b>

Finally, the class revenue requirements are divided by the rate units used for each class to derive the rate. The calculated rates at FY 21/22 revenue are then multiplied by the recommended rate increase amount to derive the recommended rates for FY 2022/23.

**Table 5-5: Projected M&I Sewer Rates After Cost Allocation**

Class	Revenue Requirement	Units	Rate at FY		Rate Unit
			2021/22 Revenue	Proposed FY 2022/23 Rate	
Account	\$3,503,369.80	62,162	\$4.70	<b>\$4.86</b>	\$/Account/Month
Single Family	\$24,423,364.74	55,000	\$37.01	<b>\$38.31</b>	\$/Dwelling/Month
Multifamily	\$2,704,682.06	8,014	\$28.13	<b>\$29.11</b>	\$/Dwelling/Month
Apartments	\$4,577,020.08	15,206	\$25.09	<b>\$25.97</b>	\$/Dwelling/Month
Group 1	\$4,853,101.88	1,306,483	\$3.72	<b>\$3.85</b>	\$/CCF
Group 2	\$648,935.32	133,228	\$4.88	<b>\$5.05</b>	\$/CCF
Group 3	\$714,494.44	117,607	\$6.08	<b>\$6.29</b>	\$/CCF
Group 4	\$1,670,186.09	222,083	\$7.53	<b>\$7.79</b>	\$/CCF
<b>Industrial</b>					
Flow Charge	\$5,279,228.94	1,461	\$3,613.29	<b>\$3,739.76</b>	\$/Million gallons
BOD Charge	\$4,040,282.30	15,000	\$269.36	<b>\$278.79</b>	\$/1,000 lbs
TSS Charge	\$1,406,235.68	2,800	\$502.23	<b>\$519.81</b>	\$/1,000 lbs

## 5.2 CanSeg Line Rate Design

The following table presents the CanSeg Line flow and strength charges. The allocated flow, BOD, and TSS rate revenue requirements are divided by the CanSeg billing units to calculate the rates. In addition to the charges shown below, the cannery customers will pay the proposed monthly account charge.

**Table 5-6: CanSeg Line Sewer Rates**

<b>CanSeg Rate Derivation</b>	<b>Flow</b>	<b>BOD</b>	<b>TSS</b>
	<i>(1,000,000 gallons)</i>	<i>(1,000 LBS)</i>	<i>(1,000 LBS)</i>
Demand Units	900	14,700	7,460
Revenue Requirement	<u>\$2,504,498</u>	<u>\$272.667</u>	<u>\$272.667</u>
Unit Rate at FY 2020/21			
Revenue Requirement	\$2,782.78	\$18.55	\$36.55
Projected FY 2022/23 Rates	\$2,852.34	\$19.02	\$37.47

### 5.3 Final Rates

The recommended rates resulting from the rate study are summarized in the following table.

**Table 5-7: Proposed Sewer Rates**

<b>Proposed Sewer Rates</b>	<b>FY 21-22</b>	<b>FY 22-23</b>	<b>FY 23-24</b>	<b>FY 24-25</b>	<b>FY 25-26</b>	<b>FY 26-27</b>
	<i>Existing</i>	<i>Proposed</i>	<i>Proposed</i>	<i>Proposed</i>	<i>Proposed</i>	<i>Proposed</i>
<b>Monthly Account Charge (\$/Account)</b>	\$4.68	\$4.86	\$5.04	\$5.22	\$5.41	\$5.60
<b>Residential Rates (\$/Dwelling Unit)</b>						
Single Family Residential, Mobile Home on a lot	\$37.10	\$38.31	\$39.65	\$41.04	\$42.48	\$43.97
Multiple Family (2-4 Dwelling Units), one additional Dwelling Unit or Mobile Home on a lot	\$28.60	\$29.11	\$30.13	\$31.18	\$32.27	\$33.40
Apartments (5 or more Dwelling Units), Mobile Home Space in a Mobile Home Park	\$25.33	\$25.97	\$26.88	\$27.82	\$28.79	\$29.80
<b>Commercial Quantity Charge (\$/100 cubic feet)</b>						
Group 1-BOD + TSS is 400 mg/l or less	\$3.69	\$3.85	\$3.98	\$4.12	\$4.26	\$4.41
Group 2-BOD + TSS is 401 mg/l to 900 mg/l	\$4.89	\$5.05	\$5.23	\$5.41	\$5.60	\$5.80
Group 3-BOD + TSS is 901 mg/l to 1,400 mg/l	\$6.08	\$6.29	\$6.51	\$6.74	\$6.98	\$7.22
Group 4-BOD + TSS is 1,401 mg/l or more	\$7.52	\$7.79	\$8.06	\$8.34	\$8.63	\$8.93
<b>Industrial Charges (these three components are additive)</b>						
Flow Charge (\$/Million gallons)	\$3,657	\$3,739.76	\$3,870.65	\$4,006.12	\$4,146.33	\$4,291.45
BOD Charge (\$/1,000 lbs)	\$256	\$278.79	\$288.55	\$298.65	\$309.10	\$319.92
TSS Charge (\$/1,000 lbs)	\$511	\$519.81	\$538.00	\$556.83	\$576.32	\$596.49
<b>Septage Quantity Charge</b>						
Flow charge per 1,000 gallons	\$67.00	\$69.35	\$71.78	\$74.29	\$76.89	\$79.58
<b>CanSeg Line Charges (these three components are additive)</b>						
Flow Charge (\$/Million Gallons)	\$3,319.00	\$2,852.34	\$2,923.65	\$2,996.74	\$3,071.66	\$3,148.45
BOD Charge (\$/1,000 lbs)	\$1.73	\$19.01	\$19.49	\$19.98	\$20.48	\$20.99
TSS Charge (\$/1,000 lbs)	\$5.00	\$37.46	\$38.40	\$39.36	\$40.34	\$41.35

## SECTION 6: RESIDENTIAL BILL COMPARISON

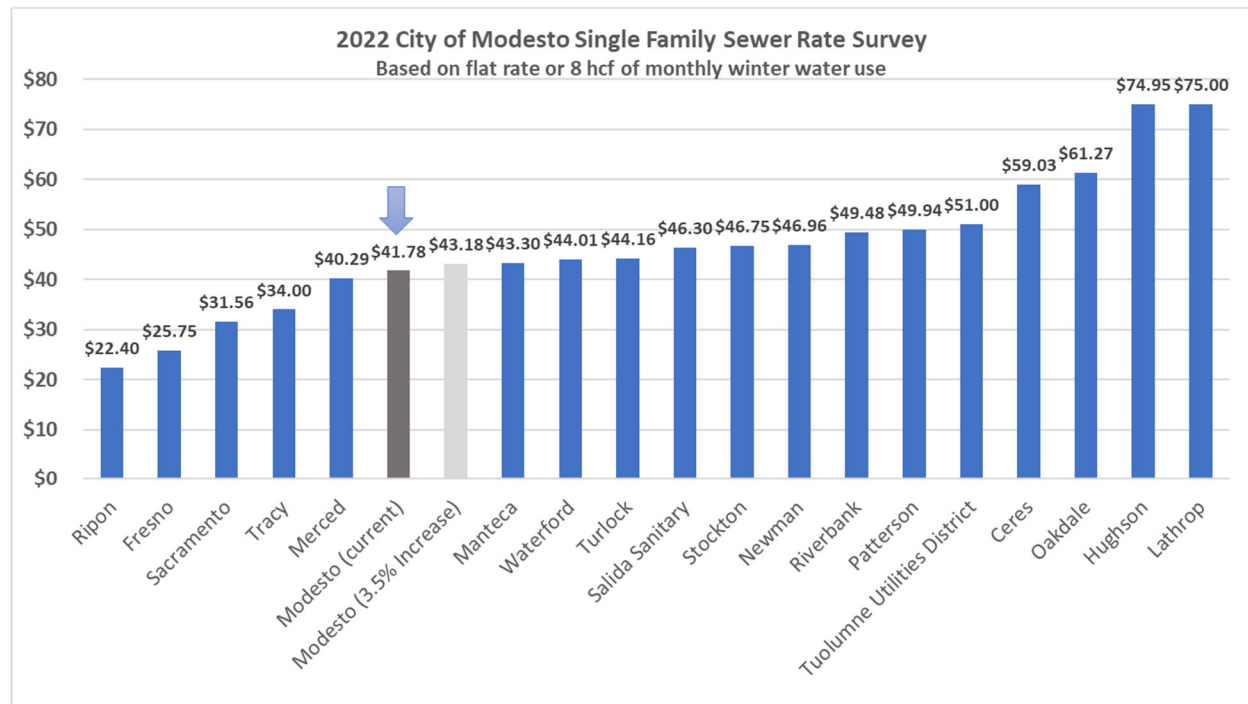
Under the proposed rate increases, the typical single family residential monthly bill is proposed to increase approximately 3.5% annually over the next five years.

**Table 6-1: Typical Customer Bill**

Single Family Residential Bill	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27
	<i>Existing</i>	<i>Proposed</i>	<i>Proposed</i>	<i>Proposed</i>	<i>Proposed</i>	<i>Proposed</i>
Monthly Account Charge (\$/Account)	\$4.68	\$4.86	\$5.04	\$5.22	\$5.41	\$5.60
Single Family Residential, Mobile Home on a lot (\$/Dwelling Unit)	<u>\$37.10</u>	<u>\$38.31</u>	<u>\$39.65</u>	<u>\$41.04</u>	<u>\$42.48</u>	<u>\$43.97</u>
<b>Total Single Family Residential Monthly Bill</b>	<b>\$41.78</b>	<b>\$43.17</b>	<b>\$44.69</b>	<b>\$46.26</b>	<b>\$47.89</b>	<b>\$49.57</b>
% Increase		3.33%	3.52%	3.51%	3.52%	3.51%

Although the typical residential bill is proposed to increase, the City of Modesto bill will remain competitive with other local wastewater agencies, see figure below.

**Figure 3: Residential Bill Comparison**



## **SECTION 7: CONCLUSIONS AND RECOMMENDATIONS**

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This Sewer Rate and Fee Study report presents a comprehensive review of the City of Modesto's wastewater revenue requirement, cost allocation, and rate structure. The City last conducted a comprehensive cost of service review in 2015.

### **7.1 Conclusions**

The City practices sound financial planning that has provided for the financial health of the wastewater enterprise. Historically, the City has gradually increased rates to keep up with inflationary cost increases and to accumulate reserves. This allows the City to avoid rate spikes when new costs are incurred, such as the new tertiary treatment plant operating and debt service costs. The City has been very successful in securing grants and low cost State Revolving Fund loans providing savings to the ratepayers. The City's financial targets are to maintain debt service coverage of 2.0 times the annual payment and to maintain reserves above 25% of operating costs plus one year's SRF debt service payment. These policies provide financial stability and benefit the ratepayers.

The City's rate structure, composed of account charges, flow charges, BOD charges, and TSS charges, is consistent with generally accepted rate making principles and industry standard practice. These functional categories reflect how the City provides wastewater service: the City provides customer service and billing, the City collects and conveys effluent, the City treats wastewater pollutants, and the City disposes of the wastewater. BWA finds the City's functional categories to be reasonable and appropriate.

Rates must increase over the next five years to fund the City's wastewater operating and capital expenses, meet debt coverage requirements, and to maintain emergency reserves. M&I rates are proposed to increase by 3.5% annually and CanSeg rates are proposed to increase at 2.5% annually.

### **7.2 Recommendations**

BWA recommends that the City adopt the rates shown in this report. Rates were developed as part of a collaborative process that included workshops with City staff, including personnel from Engineering, Wastewater Operations, and Finance, the City's consulting engineer, and cannery stakeholders.

At minimum, BWA recommends that the City review and update its cost allocation every five years and/or concurrent with Wastewater Master Plan Updates. Proposition 218 allows public agencies to adopt rates over a five year planning horizon. Any further rate increases must be supported by a cost of service analysis.

# Appendix A



# **Sewer Rate Study 2021-22**

## **November 19, 2021**



**BARTLE WELLS ASSOCIATES**  
Independent Public Finance Advisors

**Table 1**  
**City of Modesto Sewer Rate and Fee Study**  
**Proposed Sewer Rates**

<b>Proposed Sewer Rates</b>	<b>FY 21-22</b>	<b>FY 22-23</b>	<b>FY 23-24</b>	<b>FY 24-25</b>	<b>FY 25-26</b>	<b>FY 26-27</b>
	<i>Existing</i>	<i>Proposed</i>	<i>Proposed</i>	<i>Proposed</i>	<i>Proposed</i>	<i>Proposed</i>
<b>Monthly Account Charge (\$/Account)</b>	\$4.68	\$4.86	\$5.04	\$5.22	\$5.41	\$5.60
<b>Residential Rates (\$/Dwelling Unit)</b>						
Single Family Residential, Mobile Home on a lot	\$37.10	\$38.31	\$39.65	\$41.04	\$42.48	\$43.97
Multiple Family (2-4 Dwelling Units), one additional Dwelling Unit or Mobile Home on a lot	\$28.60	\$29.11	\$30.13	\$31.18	\$32.27	\$33.40
Apartments (5 or more Dwelling Units), Mobile Home Space in a Mobile Home Park	\$25.33	\$25.97	\$26.88	\$27.82	\$28.79	\$29.80
<b>Commercial Quantity Charge (\$/100 cubic feet)</b>						
Group 1-BOD + TSS is 400 mg/l or less	\$3.69	\$3.85	\$3.98	\$4.12	\$4.26	\$4.41
Group 2-BOD + TSS is 401 mg/l to 900 mg/l	\$4.89	\$5.05	\$5.23	\$5.41	\$5.60	\$5.80
Group 3-BOD + TSS is 901 mg/l to 1,400 mg/l	\$6.08	\$6.29	\$6.51	\$6.74	\$6.98	\$7.22
Group 4-BOD + TSS is 1,401 mg/l or more	\$7.52	\$7.79	\$8.06	\$8.34	\$8.63	\$8.93
<b>Industrial Charges (these three components are additive)</b>						
Flow Charge (\$/Million gallons)	\$3,657	\$3,739.76	\$3,870.65	\$4,006.12	\$4,146.33	\$4,291.45
BOD Charge (\$/1,000 lbs)	\$256	\$278.79	\$288.55	\$298.65	\$309.10	\$319.92
TSS Charge (\$/1,000 lbs)	\$511	\$519.81	\$538.00	\$556.83	\$576.32	\$596.49
<b>Septage Quantity Charge</b>						
Flow charge per 1,000 gallons	\$67.00	\$69.35	\$71.78	\$74.29	\$76.89	\$79.58
<b>CanSeg Line Charges (these three components are additive)</b>						
Flow Charge (\$/Million Gallons)	\$3,319.00	\$2,852.34	\$2,923.65	\$2,996.74	\$3,071.66	\$3,148.45
BOD Charge (\$/1,000 lbs)	\$1.73	\$19.01	\$19.49	\$19.98	\$20.48	\$20.99
TSS Charge (\$/1,000 lbs)	\$5.00	\$37.46	\$38.40	\$39.36	\$40.34	\$41.35

**Table 2**  
**City of Modesto Sewer Rate and Fee Study**  
**Billing Units**

Customer Class	Actuals	Projected
	Current (FY 2021)	FY2022
Growth in # Residential and Commercial		0.50%
Growth of Major Industrial		0.50%
Accounts		
SF Residential	53,422	55,000
Multi Residential	4,377	4,399
Commercial	2,698	2,711
Industrial	47	47
CanSeg	<u>4</u>	<u>4</u>
Total Accounts	60,548	62,162
Residential Dwelling Units		
Single Family	53,422	53,689
Multiple Family	8,014	8,054
Apartments	15,206	15,282
Commercial Flow (hcf)		
Group 1	1,301,663	1,308,172
Group 2	134,718	135,391
Group 3	111,210	111,766
Group 4	286,505	287,937
Industrial (Major and Minor)		
Flow (MG)	1,454	1,461
BOD (klbs)	14,752	14,825
TSS (kbs)	2,709	2,723
Canning Season (10MGD)		
Flow (MG)	892	904
BOD (klbs)	13,799	14,238
TSS (kbs)	6,291	6,918

**Table 3**  
**City of Modesto Sewer Rate and Fee Study**  
**Operating Revenues and Expenses**

<b>Non-Rate Revenue</b>	<b>Allocation Category</b>	<b>FY 2022</b>	<b>FY 2022</b>	<b>Account Allocation</b>	<b>Account Rev Req</b>	<b>Rate Rev Req</b>	<b>Can Seg Allocation %</b>	<b>CanSeg Rev Req</b>	<b>M&amp;I Rev Req</b>
Lease of Land	Ranch - Flow Only	497,700	497,700		-	497,700	100%	497,700	
Miscellaneous Lease	General Composite	25,044	25,044		-	25,044		-	25,044
Interfund Charges - Service Credit Labor Charges	General Composite	2,962,517	2,962,517		-	2,962,517		-	2,962,517
Interfund Charges - Equipment Rental	General Composite	24,274	24,274		-	24,274		-	24,274
Wastewater Developmental Fees (4211-42500)	CIP - 6 year average	535,000	535,000		-	535,000		-	535,000
General Fund (Repayment of InterFund Loan)	Rates Paid 1997-1999	378,000	378,000		-	378,000	3.1%	11,571	366,429
Compost Fund (Repayment of InterFund Loan)	Tertiary	51,919	51,919		-	51,919		-	51,919
JT (Repayment of JTF Interfund Loan)	General Composite	98,123	98,123		-	98,123		-	98,123
Intergov - Local - Del Puerto Water District (Debt Service)	Tertiary	1,153,663	1,153,663		-	1,153,663		-	1,153,663
Intergov - Local - Del Puerto Water District (O & M)	Tertiary	1,056,134	1,056,134		-	1,056,134		-	1,056,134
Intergov - Other Government Agencies (DPWD Water Sales)	Tertiary	495,000	495,000		-	495,000		-	495,000
Intergov - Local - City of Turlock	Tertiary	100,000	100,000		-	100,000		-	100,000
<b>Total Non-Rate Revenue</b>		<b>7,377,374</b>	<b>7,377,374</b>		-	<b>7,377,374</b>		<b>509,271</b>	<b>6,868,103</b>

**Table 3**  
**City of Modesto Sewer Rate and Fee Study**  
**Operating Revenues and Expenses**

<b>Operating Expenses</b>	<b>Allocation Category</b>	<b>FY 2022</b>	<b>FY 2022</b>	<b>Account Allocation</b>	<b>Account Rev Req</b>	<b>Rate Rev Req</b>	<b>Can Seg Allocation %</b>	<b>CanSeg Rev Req</b>	<b>M&amp;I Rev Req</b>
UPP - Wastewater General	General Composite	861,095	818,040	70.0%	572,628	245,412			245,412
UPP - Wastewater Utility Billing and Collections	Customer Service	1,158,120	1,100,214	100.0%	1,100,214	-			-
UTL - Wastewater Engineering Design	General Composite	967,886	919,492		-	919,492			919,492
UPP - Wastewater PCE Litigation (6210)	Collection System & Pumping	125	119		-	119			119
UPP - Capital Improvement Services	CIP - 5 year average	720,367	684,348	0.0%	-	684,348			684,348
UTL - Construction Administration	CIP - 5 year average	512	486	0.0%	-	486			486
UPP - Wastewater System Analysis	General Composite	214,359	203,641		-	203,641			203,641
UPP - Sphere of Influence Area Expansion	General Composite	35,941	34,144	70.0%	23,901	10,243			10,243
UPP - Wastewater Rate Analysis	General Composite	214,455	203,732		-	203,732			203,732
UPP - Wastewater Inventory & Condition Assessment	General Composite	104,974	99,725	70.0%	69,808	29,918			29,918
UPP - Wastewater Services Administration	General Composite	1,700,443	1,615,421	70.0%	1,130,795	484,626			484,626
UPP - Laboratory and Environmental Services Administration	Lab, Enviro, Monitoring	382,008	362,908	0.0%	-	362,908			362,908
UPP - Laboratory Services	Lab, Enviro, Monitoring	1,412,987	1,342,338	0.0%	-	1,342,338			1,342,338
UPP - Environmental Services	Lab, Enviro, Monitoring	1,465,865	1,392,572	0.0%	-	1,392,572			1,392,572
UPP - Wastewater Collections Administration	Collection System & Pumping	218,846	207,904	70.0%	145,533	62,371			62,371
UPP - Sewer Collections	Collection System & Pumping	7,507,203	7,131,843	0.0%	-	7,131,843			7,131,843
UPP - Utility Cuts Repavement	Collection System & Pumping	4	4	0.0%	-	4			4
UPP - Sewer Lateral Cost Sharing Program	Collection System & Pumping	83,429	79,258	0.0%	-	79,258			79,258
UPP - Wastewater Operations Administration	All Treatment	650,636	618,104	70.0%	432,673	185,431			185,431
UPP - Wastewater Plant Operations	All Treatment	4,225,583	4,014,304	0.0%	-	4,014,304			4,014,304
UPP - Sutter Plant Maintenance	Primary	3,686,650	3,502,317	0.0%	-	3,502,317			3,502,317
UPP - Jennings Plant Maintenance	Secondary	3,562,130	3,384,023	0.0%	-	3,384,023			3,384,023
UPP - Sewer Lift Stations	Collection System & Pumping	554,501	526,776	0.0%	-	526,776			526,776
UPP - Tertiary Treatment	Tertiary	3,162,806	3,004,665	0.0%	-	3,004,665		-	3,004,665
UPP - Cannery Segregation Line	Can Seg	539,135	512,178	0.0%	-	512,178	100.00%	512,178	
UTL - NVRRWP (North Valley Regional Recycled Water Program)	Recycled Water	1,505,021	1,429,770	0.0%	-	1,429,770			1,429,770
UPP - Wastewater Electrical Services	Electrical	2,114,325	2,008,609	5.0%	100,430	1,908,179			1,908,179
General Fund	General Composite	68,640	65,208	70.0%	45,646	19,562			19,562
<b>Total Operating Expense</b>		<b>37,118,046</b>	<b>35,262,143</b>		<b>3,621,627</b>		<b>31,640,517</b>	<b>512,178</b>	<b>31,128,339</b>

**Table 4**  
**City of Modesto Sewer Rate and Fee Study**  
**Existing Debt**

<b>Existing Debt Service</b>	<b>CanSeg Allocation</b>	<b>FY 21-22</b>	<b>FY 22-23</b>	<b>FY 23-24</b>	<b>FY 24-25</b>	<b>FY 25-26</b>	<b>FY 26-27</b>
2005 Series A & B Bonds	46.41%	0	0	0	0	0	0
2006 Series A Bonds	46.41%	0	0	0	0	0	0
SRF Recycled Water	0%	1,154,310	1,152,162	1,152,162	1,152,162	1,152,162	1,152,162
2015 Wastewater Revenue/Refunding Revenue Bonds	46.41%	2,790,750	2,784,358	909,130	909,130	908,630	0
SRF Loan Payments: Phase 2 - Tertiary Treatment Project (201	0%	0	0	0	0	0	0
2018A Refunding Bonds (2006A)	46.41%	560,747	555,400	555,400	555,400	555,400	1,247,650
Series 2020A Bonds (2011 State Loan Refunding)	0%	6,467,911	6,466,143	6,462,177	6,462,177	6,462,488	6,462,374
Series 2020B Bonds (2011 State Loan Refunding)	0%	<u>1,277,897</u>	<u>1,273,500</u>	<u>1,273,500</u>	<u>1,273,500</u>	<u>1,273,500</u>	<u>1,273,500</u>
<b>Total Debt Service</b>		<b>12,251,615</b>	<b>12,231,562</b>	<b>10,352,368</b>	<b>10,352,369</b>	<b>10,352,180</b>	<b>10,135,686</b>
<b>Total CanSeg Debt Service</b>		<b>1,555,391</b>	<b>1,549,943</b>	<b>679,672</b>	<b>679,672</b>	<b>679,440</b>	<b>579,020</b>
<b>Total M&amp;I Debt Service</b>		<b>10,696,224</b>	<b>10,681,619</b>	<b>9,672,697</b>	<b>9,672,697</b>	<b>9,672,740</b>	<b>9,556,666</b>

**Table 5**  
**City of Modesto Sewer Rate and Fee Study**  
**Future Bond Debt Service Estimates**

*Debt Service per \$10 Million of Project Funding*

	Assumptions	30-Year Bonds Near Term	30-Year Bonds Future
<b>Funding Target</b>		\$10,000,000	\$10,000,000
<b>Total Debt Issue</b>		\$10,300,000	\$10,300,000
<b>Project Fund Proceeds</b>		\$9,997,200	\$10,001,600
<b>Costs of Issuance</b>			
Underwriter Discount	0.70%	\$72,100	\$72,100
Issuance Costs	est.	150,000	150,000
Bond Insurance (tbd)	0.20%	33,600	37,900
Reserve Surety Bond (tbd)	2.00%	11,200	12,600
Contingency/Rounding		<u>35,900</u>	<u>25,800</u>
Total		302,800	298,400
<b>Financing Terms</b>			
Term (Years)		30	30
Average Interest Rate		3.50%	4.50%
<b>Annual Debt Service</b>		560,000	632,300
<b><i>Rounded Estimate</i></b>		<i>560,000</i>	<i>632,000</i>
<i>Estimates shown for financial planning purposes.</i>			

**Table 6**  
**City of Modesto Sewer Rate and Fee Study**  
**CanSeg CIP**

<b>CanSeg Capital Improvement Plan</b>	<b>Projected CanSeg Cost</b>	<b>FY 22-23</b>	<b>FY 23-24</b>	<b>FY 24-25</b>	<b>FY 25-26</b>	<b>FY 26-27</b>
CanSeg Bank Armament	\$4,830,000		2,391,000	2,439,000		
R&R Can Seg (River Trunk Gravity Line)	9,389,510	-	-	554,359	8,835,151	-
Odor Control Facilities	842,231	38,813	803,419	-	-	-
Tuolumne River Pipe Crossings Subtotal	100,000	-	-	-	-	-
Secondary Treatment Facilities Upgrades	19,690,847	-	1,916,352	11,706,639	1,131,542	1,171,146
River Diversion Facilities	1,035,000	1,035,000	-	-	-	-
Ranch Irrigation System Flow Monitoring Modifications	87,975	87,975	-	-	-	-
CV Salts Compliance	\$377,745	103,500	214,245	-	-	-
<b>Total CIP</b>	<b>\$67,493,388</b>	<b>\$1,265,288</b>	<b>\$5,325,016</b>	<b>\$14,699,998</b>	<b>\$9,966,693</b>	<b>\$1,171,146</b>

**Table 7**  
**City of Modesto Sewer Rate and Fee Study**  
**CanSeg Cash Flow Projections**

<b>CanSeg Line Cash Flow Projections</b>	<b>FY 21-22</b>	<b>FY 22-23</b>	<b>FY 23-24</b>	<b>FY 24-25</b>	<b>FY 25-26</b>	<b>FY 26-27</b>
<b>Reserves</b>						
Beginning Balance	\$7,013,146	\$8,127,935	\$8,355,087	\$5,449,894	\$4,580,345	\$3,866,339
<b>Revenue Escalation</b>						
Rate Revenue Increase		2.50%	2.50%	2.50%	2.50%	2.50%
<b>Revenues</b>						
Rate Revenue	\$2,898,021	\$3,049,831	\$3,126,077	\$3,204,229	\$3,284,334	\$3,366,443
Rate Increase Revenue	0	76,246	78,152	80,106	82,108	84,161
Other Revenue	509,271	509,271	509,271	509,271	509,271	509,271
Interest on Reserves	\$35,066	\$40,640	\$41,775	\$27,249	\$22,902	\$19,332
<b>Total Revenue</b>	<b>\$3,442,358</b>	<b>\$3,675,987</b>	<b>\$3,755,275</b>	<b>\$3,820,855</b>	<b>\$3,898,615</b>	<b>\$3,979,206</b>
<b>Expenses</b>						
<i>Inflation</i>		3.5%	3.5%	3.5%	3.5%	3.5%
Operating Expenses	\$512,178	\$530,104	\$548,658	\$567,861	\$587,736	\$608,307
Water Purchase	\$100,000	\$103,500	\$107,123	\$110,872	\$114,752	\$118,769
Existing Debt Service	1,555,391	1,549,943	679,672	679,672	679,440	579,020
New Debt Service				\$632,000	\$1,264,000	\$1,264,000
Rate Funded Capital	\$160,000	\$1,265,288	\$5,325,016	\$2,699,998	\$1,966,693	\$1,171,146
<b>Total Expenses</b>	<b>\$2,327,569</b>	<b>\$3,448,835</b>	<b>\$6,660,468</b>	<b>\$4,690,403</b>	<b>\$4,612,621</b>	<b>\$3,741,241</b>
<b>Net Revenues</b>	<b>\$1,114,789</b>	<b>\$227,152</b>	<b>-\$2,905,193</b>	<b>-\$869,548</b>	<b>-\$714,006</b>	<b>\$237,965</b>
<b>Ending Balance</b>	<b>\$8,127,935</b>	<b>\$8,355,087</b>	<b>\$5,449,894</b>	<b>\$4,580,345</b>	<b>\$3,866,339</b>	<b>\$4,104,304</b>
<b>Capital Funding</b>						
<b>Capital Revenues</b>						
Use of Debt Proceeds				\$12,000,000	\$8,000,000	
Rate Funded Capital	\$160,000	\$1,265,288	\$5,325,016	\$2,699,998	\$1,966,693	\$1,171,146
<b>Total Capital Revenue</b>	<b>\$160,000</b>	<b>\$1,265,288</b>	<b>\$5,325,016</b>	<b>\$14,699,998</b>	<b>\$9,966,693</b>	<b>\$1,171,146</b>
<b>Total Capital Expenditures</b>	<b>\$160,000</b>	<b>\$1,265,288</b>	<b>\$5,325,016</b>	<b>\$14,699,998</b>	<b>\$9,966,693</b>	<b>\$1,171,146</b>

**Table 8**  
**City of Modesto Sewer Rate and Fee Study**  
**Can Seg Functional Allocation and Rate Derivation**

<b>CanSeg Functional Allocation Categories</b>	<b>5-Year Average Amount</b>	<b>Flow</b>	<b>BOD</b>	<b>TSS</b>
Operating Expenses	\$549,307.31	100.0%		
Water Purchase	\$107,249.32	50.0%	25.0%	25.0%
Existing Debt Service	\$1,028,823.60	100.0%		
New Debt Service	\$948,000.00	74.5%	12.8%	12.8%
Rate Funded Capital	\$2,283,399.09	74.5%	12.8%	12.8%
<b>Total</b>	<b>\$4,916,779.32</b>	<b>\$4,037,621.10</b>	<b>\$439,579.11</b>	<b>\$439,579.11</b>
<b>Flow, BOD, TSS Total</b>	<b>\$4,916,779.32</b>	<b>82.1%</b>	<b>8.9%</b>	<b>8.9%</b>
Revenue Requirement Based on Projected System Demands				\$3,049,831.00
<b>Flow, BOD and TSS</b>				
<b>Revenue Requirement</b>	<b>\$3,049,831.00</b>	<b>\$2,504,497.60</b>	<b>\$272,666.70</b>	<b>\$272,666.70</b>

<b>CanSeg Rate Derivation</b>	<b>Flow</b>	<b>BOD</b>	<b>TSS</b>
	<i>(1,000,000 gallons)</i>	<i>(1,000 LBS)</i>	<i>(1,000 LBS)</i>
Demand Units	900	14,700	7,460
Revenue Requirement	<u>\$2,504,498</u>	<u>\$272,667</u>	<u>\$272,667</u>
Unit Rate at FY 2020/21			
Revenue Requirement	\$2,782.78	\$18.55	\$36.55
Projected FY 2022/23 Rates	\$2,852.34	\$19.02	\$37.47

**Table 9**  
**City of Modesto Sewer Rate and Fee Study**  
**M&I CIP**

<b>M&amp;I CIP Summary</b>	<b>FY 22-23</b>	<b>FY 23-24</b>	<b>FY 24-25</b>	<b>FY 25-26</b>	<b>FY 26-27</b>
Collection System Improvements	48,677,661	52,685,570	18,404,539	15,146,528	12,145,172
Sutter Plant Improvements	1,875,938	2,410,256	1,884,820	-	9,228,631
Jennings Plant Improvements	8,694,000	2,687,382	5,517,601	24,271,764	5,456,411
Engineering Studies	879,750	482,051	110,872	573,762	118,769
<b>Total CIP</b>	<b>\$ 60,127,349</b>	<b>\$ 58,265,260</b>	<b>\$ 25,917,832</b>	<b>\$ 39,992,053</b>	<b>\$ 26,948,983</b>

Table 10

City of Modesto Sewer Rate and Fee Study

M&I Cash Flow Projections

M&I Cash Flow Projections	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27
<b>Reserves</b>						
Beginning Balance	\$85,842,510	\$68,890,825	\$27,783,111	\$43,890,478	\$37,025,706	\$46,489,423
<b>Revenue Escalation</b>						
Rate Revenue Increase		3.50%	3.50%	3.50%	3.50%	3.50%
Growth	0%	0.5%	0.5%	0.5%	0.5%	0.5%
<b>Revenues</b>						
Rate Revenue	\$56,197,188	\$56,478,174	\$58,747,185	\$61,107,353	\$63,562,341	\$66,115,958
Rate Increase Revenue	0	1,976,736	2,056,151	2,138,757	2,224,682	2,314,059
Other Revenue	6,868,103	6,868,103	6,868,103	6,868,103	6,868,103	6,868,103
Interest on Reserves	\$429,213	\$344,454	\$138,916	\$219,452	\$185,129	\$232,447
<b>Total Revenue</b>	<b>\$63,494,504</b>	<b>\$65,667,468</b>	<b>\$67,810,355</b>	<b>\$70,333,666</b>	<b>\$72,840,255</b>	<b>\$75,530,567</b>
<b>Expenses</b>						
<i>Inflation</i>		3.5%	3.5%	3.5%	3.0%	3.0%
Total Operating Expenses*	\$34,749,965	\$35,966,214	\$37,225,032	\$38,527,908	\$39,683,745	\$40,874,257
Existing Debt Service	10,696,224	10,681,619	9,672,697	9,672,697	9,672,740	9,556,666
New Debt Service		\$0	\$1,540,000	\$3,080,000	\$4,028,000	\$4,976,000
Rate Funded Capital	\$35,000,000	\$60,127,349	\$3,265,260	\$25,917,832	\$9,992,053	\$21,948,983
<b>Total Expenses</b>	<b>\$80,446,189</b>	<b>\$106,775,182</b>	<b>\$51,702,988</b>	<b>\$77,198,437</b>	<b>\$63,376,538</b>	<b>\$77,355,906</b>
<b>Net Revenues</b>	<b>-\$16,951,685</b>	<b>-\$41,107,714</b>	<b>\$16,107,367</b>	<b>-\$6,864,771</b>	<b>\$9,463,716</b>	<b>-\$1,825,339</b>
<b>Ending Unrestricted Balance</b>	<b>\$68,890,825</b>	<b>\$27,783,111</b>	<b>\$43,890,478</b>	<b>\$37,025,706</b>	<b>\$46,489,423</b>	<b>\$44,664,083</b>
Debt Coverage (Target 2.0)	2.69	2.78	2.73	2.49	2.42	2.38

\*Adjusted to reflect forecast based on prior expenditures

Capital Funding	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27
<b>Capital Revenues</b>						
Use of Debt Proceeds			\$55,000,000		\$30,000,000	\$5,000,000
Grant Revenue						
Rate Funded Capital	\$35,000,000	\$60,127,349	\$3,265,260	\$25,917,832	\$9,992,053	\$21,948,983
<b>Total Capital Revenue</b>	<b>\$35,000,000</b>	<b>\$60,127,349</b>	<b>\$58,265,260</b>	<b>\$25,917,832</b>	<b>\$39,992,053</b>	<b>\$26,948,983</b>
<b>Total Capital Expenditures</b>	<b>\$35,000,000</b>	<b>\$60,127,349</b>	<b>\$58,265,260</b>	<b>\$25,917,832</b>	<b>\$39,992,053</b>	<b>\$26,948,983</b>

Table 11

City of Modesto Sewer Rate and Fee Study

Master Cash Flow Projections

Wastewater Fund Cash

Flow Projections	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27
<b>Reserves</b>						
Beginning Balance	\$92,855,656	\$77,018,760	\$35,986,388	\$49,111,557	\$41,297,942	\$49,773,366
<b>Revenues</b>						
Rate Revenue	\$59,095,210	\$61,429,178	\$63,931,319	\$66,452,293	\$69,073,360	\$71,798,512
Other Revenue	7,377,374	7,377,374	7,377,374	7,377,374	7,377,374	7,377,374
Interest on Reserves	\$464,278	\$385,094	\$179,932	\$245,558	\$206,490	\$248,867
<b>Total Revenue</b>	<b>\$66,936,862</b>	<b>\$69,191,645</b>	<b>\$71,488,625</b>	<b>\$74,075,224</b>	<b>\$76,657,223</b>	<b>\$79,424,753</b>
<b>Expenses</b>						
<i>Inflation</i>		3.5%	3.5%	3.5%	3.5%	3.5%
Total Operating Expenses*	\$35,362,143	\$36,599,818	\$37,880,812	\$39,206,640	\$40,578,873	\$41,999,133
Existing Debt Service	12,251,615	12,231,562	10,352,368	10,352,369	10,352,180	10,135,686
New Debt Service	\$0	\$0	\$1,540,000	\$3,712,000	\$5,292,000	\$6,240,000
Rate Funded Capital	\$35,160,000	\$61,392,636	\$8,590,276	\$28,617,831	\$11,958,747	\$23,120,129
<b>Total Expenses</b>	<b>\$82,773,758</b>	<b>\$110,224,017</b>	<b>\$58,363,456</b>	<b>\$81,888,840</b>	<b>\$68,181,799</b>	<b>\$81,494,948</b>
<b>Net Revenues</b>	<b>-\$15,836,896</b>	<b>-\$41,032,372</b>	<b>\$13,125,169</b>	<b>-\$7,813,615</b>	<b>\$8,475,424</b>	<b>-\$2,070,195</b>
<b>Ending Unrestricted Balance</b>	<b>\$77,018,760</b>	<b>\$35,986,388</b>	<b>\$49,111,557</b>	<b>\$41,297,942</b>	<b>\$49,773,366</b>	<b>\$47,703,170</b>
Debt Coverage (Target 2.0)	2.58	2.66	2.83	2.48	2.31	2.29

\*Adjusted to reflect forecast based on prior expenditures

Capital Funding	FY 21-22	FY 22-23	FY 23-24	FY 24-25	FY 25-26	FY 26-27
<b>Capital Revenues</b>						
Use of Debt Proceeds	\$0	\$0	\$55,000,000	\$12,000,000	\$38,000,000	\$5,000,000
Grant Revenue						
Rate Funded Capital	\$35,160,000	\$61,392,636	\$8,590,276	\$28,617,831	\$11,958,747	\$23,120,129
<b>Total Capital Revenue</b>	<b>\$35,160,000</b>	<b>\$61,392,636</b>	<b>\$63,590,276</b>	<b>\$40,617,831</b>	<b>\$49,958,747</b>	<b>\$28,120,129</b>
<b>Total Capital Expenditures</b>	<b>\$35,160,000</b>	<b>\$61,392,636</b>	<b>\$63,590,276</b>	<b>\$40,617,831</b>	<b>\$49,958,747</b>	<b>\$28,120,129</b>

**Table 12**  
**City of Modesto Sewer Rate and Fee Study**  
**M&I Flows and Loadings**

Wastewater Flows and Loadings	# of Sewer EDUs <sup>1</sup>	Est. Mo Flow HCF Per EDU <sup>2</sup>	Projected		Loadings (lbs)		
			Wastewater Flow GPD <sup>6</sup>	Strength (mg/l) <sup>9</sup> BOD <sup>7</sup> TSS <sup>8</sup>	BOD	TSS	
<b>Residential</b>							
Single Family	55,000	10.0	13,475,000	210	210	8,621,095	8,621,095
Multifamily	8,014	7.5	1,482,628	215	215	971,147	971,147
Apartments	15,206	6.7	<u>2,508,990</u>	215	215	<u>1,643,432</u>	<u>1,643,432</u>
<b>Total Residential</b>	<b>78,220</b>		<b>17,466,618</b>			<b>11,235,675</b>	<b>11,235,675</b>
<b>Nonresidential</b>							
Group 1		Varies	2,677,581	210	210	1,713,075	1,713,075
Group 2		Varies	273,045	450	450	374,336	374,336
Group 3		Varies	241,031	700	700	514,025	514,025
Group 4		Varies	455,149	1000	1000	1,386,653	1,386,653
<b>Industrial</b>		Varies	4,002,903			15,000,000	2,800,000
<b>Total Nonresidential</b>			<b>7,649,709</b>			<b>18,988,089</b>	<b>6,788,089</b>
<b>Total</b>			<b>25,116,327</b>			<b>30,223,764</b>	<b>18,023,764</b>

<sup>1</sup> "EDU" stands for equivalent dwelling unit

<sup>2</sup> Flow estimate based on input from City staff, average winter use and unit occupancy estimates from the 2019 American Community Survey

<sup>3</sup> "HCF" stands for hundred cubic feet

<sup>4</sup> Flow factor based on estimated flow returning to sewer

<sup>5</sup> "MG" stands for 1,000 gallons

<sup>6</sup> "GPD" stands for gallons per day

<sup>7</sup> "BOD" stands for biochemical oxygen demand

<sup>8</sup> "TSS" stands for total suspended solids

<sup>9</sup> State Water Resource Control Board (SWRCB) Guidelines for Wastewater Agencies

**Table 13**  
**City of Modesto Sewer Rate and Fee Study**  
**M&I Functional Allocation**

<b>M&amp;I Functional Allocation Categories</b>	<b>5-Year Average Amount</b>	<b>Account</b>	<b>Flow</b>	<b>BOD</b>	<b>TSS</b>	<b>General</b>
<b>Revenue</b>						
General Composite	\$3,109,958					100%
Rates Paid 1997-1999	\$366,429		60.1%	17.9%	22.0%	
Tertiary	\$2,856,716		33.3%	33.3%	33.3%	
<b>Total</b>	<b>\$6,333,103</b>		<b>\$1,172,813.16</b>	<b>\$1,017,643.24</b>	<b>\$1,032,688.91</b>	<b>\$3,109,958.00</b>
<b>Expense</b>						
General Composite	\$2,513,889					100%
Existing Debt	\$10,079,195		50.2%	18.0%	31.8%	
CIP - 5 year average	\$15,883,388		80.2%	14.5%	5.3%	
Tertiary	\$3,568,600		25.0%	25.0%	50.0%	
Collection System & Pumping	\$9,264,393		100.0%	0.0%	0.0%	
Lab, Enviro, Monitoring	\$3,679,235		0.0%	50.0%	50.0%	
All Treatment	\$4,987,967		55.3%	19.8%	24.9%	
Primary	\$4,159,654		70.0%	10.0%	20.0%	
Secondary	\$4,019,158		40.0%	30.0%	30.0%	
Recycled Water	\$1,698,118		100.0%	0.0%	0.0%	
Electrical	\$2,266,318		60.0%	30.0%	10.0%	
Account	\$3,884,170	100.0%				
<b>Total</b>	<b>\$66,004,086</b>	<b>\$3,884,170</b>	<b>\$38,290,385</b>	<b>\$10,139,788</b>	<b>\$11,175,855</b>	<b>\$2,513,889</b>
Net	\$59,670,983	\$3,884,170	\$37,117,572	\$9,122,145	\$10,143,166	-\$596,069
Flow, BOD, TSS Total	<b>\$56,382,882</b>		<b>65.8%</b>	<b>16.2%</b>	<b>18.0%</b>	
With General Composite \$	\$59,670,983	\$3,884,170	\$36,725,172	\$9,025,707	\$10,035,934	
With General Composite %		6.5%	61.5%	15.1%	16.8%	
FY 2021-22 Revenue Requirement*	\$53,820,901					
<b>Flow, BOD and TSS Revenue Requirement</b>	<b>\$53,820,901</b>	<b>\$3,503,370</b>	<b>\$33,124,674</b>	<b>\$8,140,836</b>	<b>\$9,052,022</b>	

**Table 14**  
**City of Modesto Sewer Rate and Fee Study**  
**M&I Revenue Requirement by Class**

<b>M&amp;I Allocation Units</b>	<b>Account</b>	<b>Flow</b>	<b>BOD</b>	<b>TSS</b>
	<b>#</b>	<b>(CCF)</b>	<b>(LBS)</b>	<b>(LBS)</b>
Demand Units	62,158	12,255,110	30,223,764	18,023,764
Revenue Requirement	<u>3,503,370</u>	<u>33,124,674</u>	<u>8,140,836</u>	<u>9,052,022</u>
Unit Rate	\$56.36	\$2.70	\$0.27	\$0.50

<b>M&amp;I Class Revenue Requirement</b>	<b>Flow</b>	<b>BOD</b>	<b>TSS</b>	<b>Revenue Requirement</b>
	<b>(CCF)</b>	<b>(LBS)</b>	<b>(LBS)</b>	<b>(\$)</b>
Single Family	6,574,911	8,621,095	8,621,095	\$24,423,364.74
Multifamily	723,425	971,147	971,147	\$2,704,682.06
Apartments	1,224,222	1,643,432	1,643,432	\$4,577,020.08
Group 1	1,306,483	1,713,075	1,713,075	\$4,853,101.88
Group 2	133,228	374,336	374,336	\$648,935.32
Group 3	117,607	514,025	514,025	\$714,494.44
Group 4	222,083	1,386,653	1,386,653	\$1,670,186.09
Industrial	1,953,152	15,000,000	2,800,000	\$10,725,746.91
<i>Flow Charge (\$/Million gallons)</i>	1,953,152			\$5,279,228.94
<i>BOD Charge (\$/1,000 lbs)</i>		15,000,000		\$4,040,282.30
<i>TSS Charge (\$/1,000 lbs)</i>			2,800,000	\$1,406,235.68
<b>Total</b>	<b>12,255,110</b>	<b>30,223,764</b>	<b>18,023,764</b>	<b>\$50,317,531.53</b>

**Table 15**  
**City of Modesto Sewer Rate and Fee Study**  
**M&I Rate Derivation**

Class	Revenue Requirement	Units	Rate at FY		Rate Unit
			2021/22 Revenue	Proposed FY 2022/23 Rate	
Account	\$3,503,369.80	62,162	\$4.70	<b>\$4.86</b>	\$/Account/Month
Single Family	\$24,423,364.74	55,000	\$37.01	<b>\$38.31</b>	\$/Dwelling/Month
Multifamily	\$2,704,682.06	8,014	\$28.13	<b>\$29.11</b>	\$/Dwelling/Month
Apartments	\$4,577,020.08	15,206	\$25.09	<b>\$25.97</b>	\$/Dwelling/Month
Group 1	\$4,853,101.88	1,306,483	\$3.72	<b>\$3.85</b>	\$/CCF
Group 2	\$648,935.32	133,228	\$4.88	<b>\$5.05</b>	\$/CCF
Group 3	\$714,494.44	117,607	\$6.08	<b>\$6.29</b>	\$/CCF
Group 4	\$1,670,186.09	222,083	\$7.53	<b>\$7.79</b>	\$/CCF
Industrial					
Flow Charge	\$5,279,228.94	1,461	\$3,613.29	<b>\$3,739.76</b>	\$/Million gallons
BOD Charge	\$4,040,282.30	15,000	\$269.36	<b>\$278.79</b>	\$/1,000 lbs
TSS Charge	\$1,406,235.68	2,800	\$502.23	<b>\$519.81</b>	\$/1,000 lbs

# **Appendix B**



Project	Project	Total Project	Can Seg Allocation %	Capital Improvement Program Cost per Phase (\$)										
				Phase 1										
				2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	
<b>Jennings Plant Improvements</b>														
BNR/Tertiary Treatment Facilities Expansion	JP-1	54,465,700	100%	-	-	-	-	-	-	-	-	-	-	-
Secondary Treatment Facilities Upgrades	JP-2	23,848,200	70%	30%	-	-	-	2,737,646	16,723,771	1,616,489	1,673,066	1,731,623	1,792,230	1,854,958
Jennings Dewatering & MW Network	JP-7		100%		50,000	2,070,000	-	-	-	-	-	-	-	-
WAS Handling Facilities	JP-4	21,690,100	100%		-	155,250	-	2,196,924	11,221,972	2,322,948	2,404,251	2,488,400	2,575,494	2,665,636
Primary Treatment and Solids Handling Facilities	JP-5	91,498,600	100%		-	-	-	-	-	2,173,442	2,249,513	2,328,246	2,409,734	2,494,075
Membrane Replacement/Optimization Project	JP-8	5,000,000	100%		-	-	-	-	5,737,615	-	-	-	-	-
Biosolids Removal Project	JP-9	10,000,000	100%		-	2,070,000	2,142,450	2,217,436	2,295,046	475,075	491,702	508,912	526,724	545,159
Corrosion Control Facilities	JP-10	2,200,000	100%		200,000	2,070,000	-	-	-	-	-	-	-	-
River Diversion Facilities	JP-11	2,000,000	50%	50%	-	2,070,000	0	-	-	-	-	-	-	-
Ranch Irrigation System Flow Monitoring Modifications	JP-12	250,000	100%	0%	-	258,750	-	-	-	-	-	-	-	-
Solids Removal Equipment	JP-13	1,000,000	100%		-	1,035,000	0	-	-	-	-	-	-	-
Miscellaneous Repairs	JP-6	1,013,000	100%		-	258,750	544,932	281,947	-	-	-	-	-	-
<b>Subtotal - Jennings Plant Improvements</b>		<b>212,965,600</b>			<b>250,000</b>	<b>9,987,750</b>	<b>2,687,382</b>	<b>7,433,953</b>	<b>35,978,403</b>	<b>6,587,953</b>	<b>6,818,532</b>	<b>7,057,180</b>	<b>7,304,182</b>	<b>7,559,828</b>
<b>Engineering Studies</b>														
Master Plan Updates	ES-1	2,150,000	100%		150,000	-	-	-	573,762	118,769	122,926	127,228	131,681	136,290
WDR Required Studies (West Yost to get costs)	ES-3	400,000	100%		200,000	207,000	-	-	-	-	-	-	-	-
CV Salts Compliance	ES-4	360,000	100%	0%	60,000	103,500	214,245	-	-	-	-	-	-	-
Asset Management Plan	ES-5	600,000	100%		-	414,000	214,245	-	-	-	-	-	-	-
Biosolids Master Plan	ES-6	350,000	100%		-	-	267,806	110,872	-	-	-	-	-	-
Land Application Study	ES-2	250,000	100%		-	258,750	-	-	-	-	-	-	-	-
<b>Subtotal - Engineering Studies</b>		<b>4,110,000</b>			<b>410,000</b>	<b>983,250</b>	<b>696,296</b>	<b>110,872</b>	<b>573,762</b>	<b>118,769</b>	<b>122,926</b>	<b>127,228</b>	<b>131,681</b>	<b>136,290</b>
<b>Total - Wastewater Treatment Improvements</b>		<b>386,402,500</b>			<b>860,000</b>	<b>12,885,750</b>	<b>6,597,353</b>	<b>9,429,646</b>	<b>36,552,165</b>	<b>15,935,353</b>	<b>16,493,091</b>	<b>17,070,349</b>	<b>17,667,811</b>	<b>18,286,185</b>
<b>Total - Collection System and Wastewater Treatment</b>		<b>658,957,363</b>			<b>17,508,500</b>	<b>61,563,411</b>	<b>59,282,923</b>	<b>28,388,544</b>	<b>60,533,844</b>	<b>28,080,525</b>	<b>29,063,343</b>	<b>30,080,561</b>	<b>31,133,380</b>	<b>32,223,048</b>