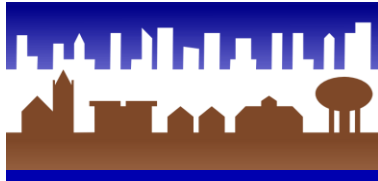




City of Milpitas
Sewer Rate Study
Draft Report
November 2018

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Municipal & Financial Services Group

November 28, 2018

Tony Ndah, P.E.
Public Works Director
City of Milpitas Public Works Department
1265 N. Milpitas Blvd
Milpitas, CA 95035

RE: Sewer Rate Study Results

Dear Mr. Ndah,

The Municipal & Financial Service Group is pleased to submit to the City of Milpitas this report summarizing our completed sewer rate study. This document represents the results of our analysis of the forecasted costs of providing sewer service to the City's customers and our recommendations for recovering these costs over the next five years. The study provides recommendations that will enhance the financial health and stability of the City's sewer operations while equitably charging its customers for the services provided.

It has been a distinct pleasure to work with the City of Milpitas. The dedication and assistance provided by City staff was essential to the completion of this study and should be acknowledged. Thank you for the opportunity to work with the City on this important project.

Very truly yours,

Eric Callocchia
Senior Manager
Municipal & Financial Services Group

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EXECUTIVE SUMMARY

This document has been prepared to present the work performed by the Municipal & Financial Services Group during the sewer rate study for the City of Milpitas. The study provides a financial plan for funding the operating and capital costs of the City's sewer system over a five-year planning period (FY 2019 through FY 2023), as well as a cost of service analysis and rate study. Although this report details rates for five years, the five-year financial plan takes into account the long-term (ten-year) financial needs of the City's system and prepares the City's Sewer Fund for those long-term revenue needs.

Objective and Scope

The City identified six generally stated work elements in the Scope of Services in its RFP for the Sewer Rate Study:

- Comprehensive financial review of sewer and wastewater finances
- Comprehensive review of financial obligations related to O&M and CIP for the water pollution control plant
- Development of sewer rate structure
- Assessment of the current rate structure as baseline for considering alternative rate designs
- Assessment of the rate design equity among the various customer classes
- Preparation comprehensive final report

The sewer rate study has been completed based on the above stated scope of services, and MFSG's recommendations are documented in this report.

Guiding Principles

The following principles were used to guide the rate study and were developed with the assistance of City staff:

- The City's Sewer Fund must be financially self-supporting. It is assumed that the cost of operating and maintaining the sewer system must be supported by the sewer fees and charges collected from customers with no support from other City funds. If at any time, other City resources must be used to support the sewer system, repayment, with interest, shall be made in an appropriate amount of time.
- The City should maintain reserves to provide for contingencies and unplanned expenses and to ensure that sufficient funds are generated each fiscal year to allow for appropriate system replacement. The two reserves considered in this report are restricted reserves for capital spending and unassigned, unrestricted reserves based on the City's two reserve policies:

"The City will maintain working capital...of approximately 25% of the annual operating and maintenance expenses for the Sewer Utility Fund."

"In addition, the City will maintain Infrastructure Replacement funds for both Water and Sewer Utilities. The goal is to accumulate at least \$2 million a year from each utility fund to set aside for replacement of infrastructure as the infrastructure reaches the end of its useful life"

- Sewer rates and charges shall be kept as low as possible *over time*. It is possible to keep rates low for a period by not investing sufficiently in the maintenance of the sewer system, but eventually the system will deteriorate and require substantial investments, leading to the need for significant and immediate rate increases. The assumption that the City will continually reinvest in the sewer system to replace assets as they reach the end of their useful lives is built into the analysis and allows for timely and predictable rate increases.

Assumptions

The following high-level assumptions were used to guide the rate study and were developed with the assistance of City staff:

- Operating and maintenance expenses: 3.0% escalation rate per year for all operating expenses (personnel, planning, facilities, technology, etc.)
- Customer and water usage/sewage generation changes: 0.0% growth per year
- Miscellaneous (non-rate) revenues: 0.0% growth per year
 - These are the Pooled Interest revenues allocated to the Sewer Fund
- All City of Milpitas capital projects are funded on a PAYGO (cash) basis with no additional debt issued
- CIP spending related to the San José/Santa Clara Regional Waste Water Facility is funded on a PAYGO (cash) basis except for three debt issues of:
 - \$20.0 million in FY 2020
 - \$15.0 million in FY 2021
 - \$5.0 million in FY 2025
- Minimum unassigned, unrestricted cash balance requirement: 90 days (25%) of annual operating expenses
- Minimum of \$2.0 million in Infrastructure Replacement set aside per year.

Depending on availability of data, actual Fiscal Year (FY) 2017, estimated FY 2018 or budgeted FY 2019 data was used as the base upon which forecasted figures were developed. All years within this report refer to the City's fiscal year (June 1 to July 31). While the study identifies needed sewer rates on a year-by-year basis for a 10-year planning period (FY 2019 – FY 2028), the charts and tables within this report provide data for the first five years in which rates and charges have been calculated.

Findings

The following findings were developed during the study:

- The City's current (FY 2018) sewer rates are not sufficient to fully fund the operating, capital, and cash reserve needs of the City's sewer system.
- The City's current planned reinvestment in its buried sewer assets is insufficient to fully fund the cost of rehabilitation and replacement needs of its buried assets and will allow the continuing decline in the physical condition of its sewer collection system.
- The City's rate calculation methodology generally complies with the Water Environment Federations Manual of Practice 27 - *Financing and Charges for Wastewater Systems*.
- The City currently collects 64% of its Personnel Services costs attributable to the sewer system in its bi-monthly Flat Fee.

- The City charges its Mobile Home Park customer class based on a per person flow assumption of 51 GPD and 2.24 persons per dwelling unit, resulting in a per dwelling unit flow assumption of 114 GPD.
- The City's Sewer Fund contains appropriate reserves given the operational and capital expenses of the City's system and the City's reserve policies.

Conclusions

Based on our findings, the following conclusions were drawn:

- The City needs to increase sewer rates over the five years of the planning period (FY 2019 to FY 2023) to increase projected revenues to match related expenses.
- The City will need to increase investment in its buried sewer infrastructure over the short and long term.
- Given the City's Sewer Fund balances (restricted for CIP and unassigned, unrestricted) rate increases can be phased-in over a number of years to mitigate the one-time impact on the City's customers.

Recommendations

Based on our conclusions, MFSG recommends that:

- The City implement rate increases through a multi-year financial plan that utilizes both increased rate revenues and the use of a portion of current cash on hand from the City's Sewer Fund reserves. This will allow the City to smooth rate increases over the planning period and mitigate customer rate shock while meeting both its funding and cash reserve requirements.
- The City collect 100% of its Personnel Services attributable to the sewer system costs in its bi-monthly Flat Fee.
- The City allocate costs to its Mobile Home Park customer class based on the same flow assumption used by the City of San José to allocate operating costs to the City of Milpitas, which is 63 GPD per person and 2.24 persons per dwelling unit, which equals 141 GPD per dwelling unit.
- The City adopt the following rates for the next five fiscal years:

Exhibit 1.1.1 Recommended Bi-Monthly Sewer Rates

	Current FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Sewer User Rate Revenue Increase		4.0%	8.0%	8.0%	7.0%	6.0%
Month of Implementation		February	July	July	July	July
Residential (per Dwelling Unit)						
Single-Family	\$90.27	\$97.60	\$102.52	\$111.07	\$118.34	\$124.14
Mobile Home Parks	\$56.97	\$76.03	\$79.86	\$86.53	\$92.19	\$96.71
Multiple-Family	\$69.32	\$74.96	\$78.73	\$85.30	\$90.88	\$95.34
Non-Residential Fixed Flat Fee (per bill)	\$15.27	\$24.30	\$25.03	\$25.78	\$26.55	\$27.35
Commercial (per HCF)						
Motels and Hotels	\$4.36	\$4.36	\$4.58	\$4.97	\$5.37	\$5.75
General Office	\$4.67	\$4.67	\$5.44	\$5.67	\$6.14	\$6.84
City of Milpitas	\$4.18	\$4.18	\$4.61	\$4.91	\$5.31	\$5.80
Service Stations	\$4.34	\$4.34	\$4.54	\$4.93	\$5.32	\$5.70
Eat/Drink Establishments	\$7.49	\$7.49	\$7.49	\$8.11	\$8.73	\$9.06
Convalescent Hosp/Daycare	\$4.23	\$4.23	\$4.46	\$4.84	\$5.23	\$5.60
Personal Services, Laundries	\$3.95	\$3.95	\$4.23	\$4.56	\$4.92	\$5.31
Electrical/Electronics	\$4.59	\$4.59	\$5.35	\$5.58	\$6.04	\$6.72
Machinery Manufacture	\$6.08	\$6.08	\$6.70	\$7.12	\$7.70	\$8.43
Monitored Sites (per HCF)						
RockTenn (Jefferson Smurfit)	\$4.67	\$8.35	\$8.35	\$9.39	\$10.11	\$10.46
T. Marzetti Co.	\$8.34	\$9.16	\$9.63	\$10.65	\$11.48	\$12.09
Prudential Overall Supply	\$6.70	\$6.70	\$6.70	\$7.08	\$7.66	\$8.42
Siemens Water Tech	\$4.91	\$4.91	\$5.61	\$5.87	\$6.36	\$7.06
Elmwood Rehabilitation	\$5.49	\$5.49	\$5.49	\$5.89	\$6.35	\$6.69
Linear Technology	\$4.59	\$4.59	\$5.47	\$5.71	\$6.18	\$6.88
DS W	\$4.59	\$4.59	\$4.80	\$4.92	\$5.34	\$6.04
Magic Tech & Headway Tech	\$4.53	\$4.62	\$5.82	\$6.07	\$6.57	\$7.32
Non-Monitored Sites (per HCF)						
Lucky Pure Water	\$3.94	\$3.94	\$4.21	\$4.54	\$4.91	\$5.29
Milpitas Materials	\$3.94	\$3.94	\$4.21	\$4.54	\$4.91	\$5.29
Union Pacific Railroad	\$5.11	\$5.11	\$5.84	\$6.12	\$6.63	\$7.35
Cisco	\$4.59	\$4.59	\$5.35	\$5.58	\$6.04	\$6.72
Lifescan	\$4.59	\$4.59	\$5.35	\$5.58	\$6.04	\$6.72
Institutional (per HCF)						
Schools/Colleges	\$6.31	\$6.31	\$7.94	\$8.05	\$8.73	\$9.99

- The City review rates and charges on an annual basis and revise as needed and consider a full cost of service study for all rates and charges every five years.

1. BASIS FOR THE STUDY

1.1 Objective and Scope

The objective and scope of services set forth between the City of Milpitas (“The City”) and the Municipal & Financial Services Group (“MFSG”) consisted of several related tasks with the goal of developing sewer rate study that would:

- A. Identify and document all current fees and charges levied by the City.
- B. Identify the current rate and fee structure used by the City.
- C. Identify and analyze the costs (personnel, operating, capital, debt service, etc.) incurred to provide each service.
- D. Compile data to develop the total costs associated with each fee area and develop the total costs to include direct plus indirect costs of each service.
- E. Develop and justify rate and user fee recommendations, taking the factors identified above into consideration.
- F. Project any revenue impact of implementing the rate and fee recommendations, as well as the anticipated impact on various user categories.
- G. Provide rate scenarios best suited to meeting the City’s goals of a user-equitable, self-supporting structure that will also encourage conservation.
- H. Present at a City Council meeting the completed study methods, results, analyses and recommendations.

The sewer rate study has been completed based on the above stated scope of services, and MFSG’s recommendations are documented in this report.

1.2 Study Background

The City of Milpitas was incorporated in 1954, together with the Milpitas Sanitary District. In 1980, the Sanitary District was dissolved, and the wastewater system moved under the jurisdiction (ownership and operation) of the City government. Since its incorporation, the City has continued to grow, with a current population of about 77,000. The City’s sewer system is operated as a self-supporting enterprise serving about thirteen square miles within the urban service area. Sewage is collected via about 140 miles of sewer collection mains in two service areas – the Valley Floor (mixed use, including residential, commercial and industrial) and the Hillside area, which is residential and located on the east side of the City.

Residential customers are billed bi-monthly on an equivalent dwelling unit (EDU) basis. Non-residential customers are billed monthly based on metered water consumption, with the unit of measurement being one hundred cubic feet (HCF), an amount equal to 748 gallons. Non-residential sewage rates vary based on the use of the property, with rates adjusted to reflect sewage strength (units of pollutants per quantity of sewage).

It has been more than three years since a formal cost of service / rate study has been performed for the City’s sewer system, and major capital improvements have been made and will continue to be made. Rates were last adjusted in August 2015. The City solicited bids for an independent review of the sewer system’s finances, with a focus on long-term sustainability, equitable treatment of the City’s’ customers

and compliance with legal and regulatory requirements, especially the evolving case law related to Proposition 218 and (to a lesser extent) Prop 26.

1.3 Guiding Principles

The following principles were used to guide the rate study and were developed with the assistance of City staff:

- The City's Sewer Fund must be financially self-supporting. It is assumed that the cost of operating and maintaining the sewer system must be supported by the sewer fees and charges collected from customers with no support from other City funds. If at any time, other City resources must be used to support the sewer system, repayment shall be made in an appropriate amount of time.
- The City should maintain reserves to provide for contingencies and unplanned expenses and to ensure that sufficient funds are generated each fiscal year to allow for appropriate system replacement. The two reserves considered in this report are restricted reserves for capital spending and unassigned, unrestricted reserves based on the City's two reserve policies:

"The City will maintain working capital...of approximately 25% of the annual operating and maintenance expenses for the Sewer Utility Fund."

"In addition, the City will maintain Infrastructure Replacement funds for both Water and Sewer Utilities. The goal is to accumulate at least \$2 million a year from each utility fund to set aside for replacement of infrastructure as the infrastructure reaches the end of its useful life"

- Sewer rates and charges shall be kept as low as possible *over time*. It is possible to keep rates low for a period by not investing sufficiently in the maintenance of the sewer system, but eventually the system will deteriorate and require substantial investments, leading to the need for significant and immediate rate increases. The assumption that the City will continually reinvest in the sewer system to replace assets as they reach the end of their useful lives is built into the analysis and allows for timely and predictable rate increases.

1.4 Assumptions

The following high-level assumptions were used to guide the rate study and were developed with the assistance of City staff:

- Operating and maintenance expenses: 3.0% escalation rate per year for all operating expenses (Finance Operations, Public Works Administration, Utility Engineering, etc.)
- Customer accounts and sewage generation changes: 0.0% growth per year
- Miscellaneous revenues: 0.0% growth per year
- All City of Milpitas capital projects are funded on a PAYGO (cash) basis with no additional debt service being issued
- CIP spending related to the San José/Santa Clara Regional Waste Water Facility is funded on a PAYGO (cash) basis except for three debt issues of:
 - \$20.0 million in FY 2020
 - \$15.0 million in FY 2021

- \$5.0 million in FY 2025
- Minimum unassigned, unrestricted cash balance requirement: 90 days (25%) of annual operating expenses
- Minimum of \$2.0 million in Infrastructure Replacement set aside per year.

Depending on availability, actual Fiscal Year (FY) 2017, estimated FY 2018 or budgeted FY 2019 data was used as the base upon which forecasted figures were developed. All years within this report refer to the City's fiscal year (June 1 to July 31). While the study identifies needed sewer rates on a year-by-year basis for a 10-year planning period (FY 2019 – FY 2028), the charts and tables within this report provide data for the first five years in which rates and charges have been calculated.

2. REVENUE REQUIREMENTS

This section of the report outlines the historical and future costs of operating and maintaining the City's sewer system, which constitute the sewer system's revenue requirements (i.e., the amount of revenue required to be collected from customers). Our approach includes a detailed review of each of the costs incurred by the City attributable to the sewer system. The cost analysis is broken into two main categories of costs: (1) operating costs and (2) capital costs (including debt and cash funding). This section describes each of the categories of costs incurred by the City as it provides sewer service. The costs are based on official documents and data provided by the City.

2.1 Operating Costs

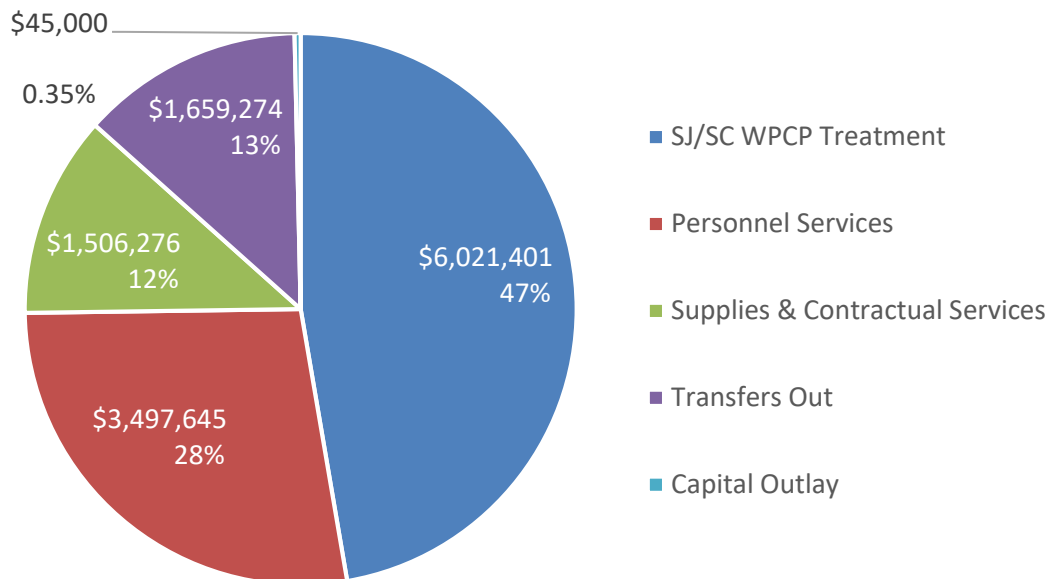
The day-to-day operating and maintenance (O&M) expenses of the sewer system are grouped into the following categories:

- Personnel Services
- Supplies and Contractual Services
- SJ/SC Regional Water Pollution Control Plant (WPCP)
- Transfers Out
- Capital Outlay

The City's largest operating budget line item is the annual payment to the City of San José for Milpitas' proportional share of sewage treatment services provided by the treatment facility owned by the City of San José. This single line item accounts for over 65% of the City's sewer operating budget. Transfers Out of the Sewer Operating Fund include transfers to the City's General Fund, Street Improvement Fund, Park Improvement Fund, General Government Fund, and Storm Drain Fund.

Projected FY 2019 sewer operating expenses total approximately \$12.7 million. This total does not include expenses related to debt service or capital improvements, which are accounted for in our study separately. Exhibit 2.1.1 provides a breakdown of the projected sewer operating expenses by category (with percent of total budget) for FY 2019.

Exhibit 2.1.1 FY 2019 Projected Sewer Operating Expenses¹



It should be noted that the Personnel Services shown above are the salary and benefit costs directly attributable to the Sewer Fund from Finance Operations, Public Works Administration, Utility Engineering, and Utility Maintenance.

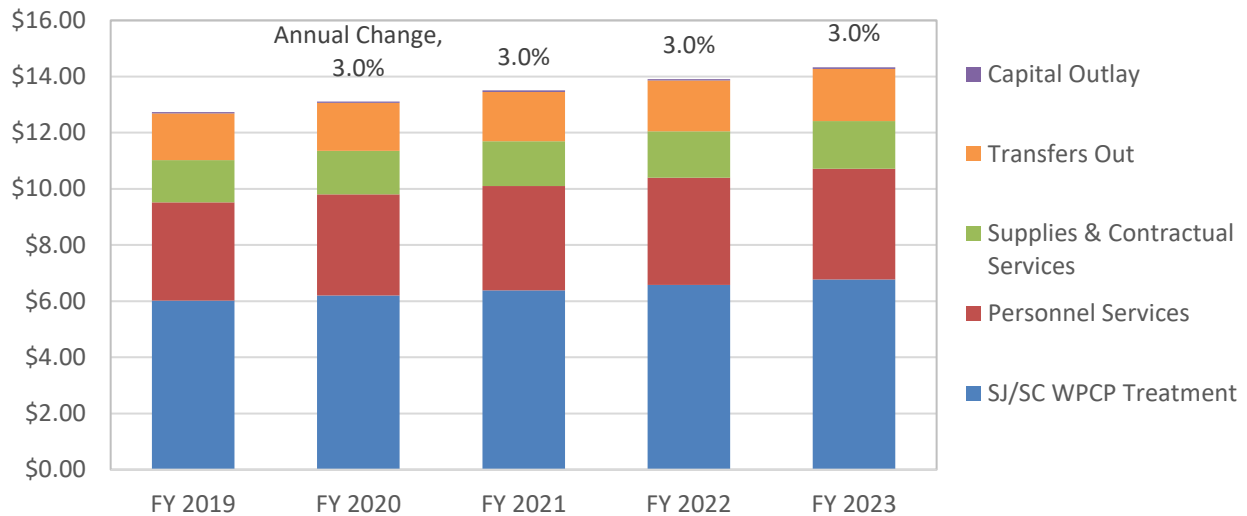
Transfers Out include costs that are incurred by other City funds that directly benefit the City's sewer system, and therefore are properly allocated to be collected via sewer rates within the Sewer Fund. These costs include not only personnel costs, but materials, supplies, and other costs related to projects that impact the sewer system. These are projects performed by other City departments that impact or are in the vicinity of the sewer utility, therefore it is proper that the sewer budget includes these transfers out to pay back other City departments for doing work on the sewer system. These transfers are assumed to continue at the same level as the FY 2019 budget, with 3.0% inflation per year to account for ongoing increases in costs related to City projects.

To project all other operating expenses, FY 2019 sewer budget line items were escalated using various inflation factors on a line item basis. The inflation assumptions for each line item are based on both the City's historical cost increases and the overall trend of the increasing cost of operating wastewater utilities nationwide, which has outpaced overall inflation over the past twenty years.

On average, the sewer operating budget is assumed to increase 3.0% per year. Exhibit 2.1.2 shows sewer budgeted O&M expenses for the base year (FY 2019) and projected O&M expenses for the remaining four fiscal years of the planning period (FY 2020 to FY 2023) with percent change from the previous year.

¹ Source: CityofMilpitasbudgetFY2018-19.pdf

Exhibit 2.1.2 Projected Sewer Operating Expenses



Increases in years beyond FY 2023 are assumed to continue at the pace of 3.0% per year.

2.2 Capital Costs

The annualized capital costs related to providing sewer service are generally comprised of existing debt service and any anticipated capital projects, which may be funded via the issuance of debt (typically bonds, loans or similar financial instruments) or funded from cash (either reserves on hand or cash collected from rates). This section will detail the capital costs that are projected for the City’s sewer system over the next ten years.

2.2.1 Existing Debt Service

On December 1, 2006, the Milpitas Public Financing Authority issued Certificates of Participation, 2006 Series A (Sewer COPs), in the original principal amount of \$9,535,000 to finance certain sewer facilities within the City. These sewer facilities included replacement of appurtenances at the Main Sewage Pump Station (February 2007 to November 2008), and the improvements were constructed to provide sewer service for all customers within the City. The Sewer COPs are collateralized by net revenues from the City’s Sewer System Installment Sale Agreement. In FY 2018, the City refinanced the 2006 COPs with new Wastewater Bonds with a principal balance of \$4,725,000. Annual principal and interest payments continue through FY 2027.

Exhibit 2.2.1 shows the future debt payments included in this analysis related to the 2017 Wastewater Bonds.

Exhibit 2.2.1 2017 Wastewater Bond Payment Schedule²

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Principal	\$480,000	\$460,000	\$475,000	\$495,000	\$515,000
Interest	\$170,273	\$187,500	\$173,700	\$154,700	\$134,900
Total Debt Service	\$650,273	\$647,500	\$648,700	\$649,700	\$649,900
% Change		(0.4%)	0.2%	0.2%	0.0%

The City’s sewer debt service payments are accounted for in MFSG’s rate projections.

2.2.2 Planned City of Milpitas Sewer Capital Improvement Projects

The City’s capital improvement program (CIP) includes two distinct cost centers. The first is a list of projects approved by the City of Milpitas to repair, rehabilitate, or replace the City’s sewer assets. The other capital cost is the portion of the SJ/SC WPCP capital improvements that the City of Milpitas is obligated to pay towards the repair, rehabilitation and replacement of the WPCP’s assets.

Included in MFSG’s rate projections is an analysis of the City’s buried infrastructure. MFSG used data provided by the City to identify the average useful life and replacement cost of the City’s sewage collection system pipes. The City’s asset database contains information regarding the material, length, and vintage of its sewer pipes, which is summarized below.

Exhibit 2.2.2 Summary of City of Milpitas Sewer Pipes³

Pipe Material	Total Length (LF)	% of Total Length	Avg Year Installed	Avg Year to Replace	Total Replacement Cost
Reinforced Concrete	40,060	5.35%	1984	2009	\$36,778,618
Vitrified Clay	665,389	88.83%	1973	2048	\$386,045,097
Acrylonitrile-Butadiene-Styrene (ABS)	6,975	0.93%	1978	2035	\$4,083,750
Polyvinyl Chloride (PVC)	14,250	1.90%	1984	2044	\$8,426,500
Cured in Place	50	0.01%	1975	1980	\$32,500
Ductile Iron	280	0.04%	1965	2025	\$126,000
Stainless Steel	22,015	2.94%	1980	2060	\$14,644,507
Total/Average	749,019	100.0%	1974	2046	\$450,136,972

Based on the install year and the assumed useful life of each the City’s sewer pipe segments, about 3.7% of the total length of the City’s pipe has reached the end of its useful life, with a replacement cost of \$25,128,616. MFSG’s analysis calculated that on average, an additional \$3.38 million is needed each year to properly reinvest in the City’s Sewer System. However, this additional line replacement cost is not included in this analysis because the City is currently planning a detailed condition assessment of its buried assets within the next fiscal year, the results of which will be a much more detailed and accurate sewer line replacement plan that the City plans to implement at the end of that study. It is anticipated that the results of that study will be incorporated into the City’s next cost of service study, impacting rates beginning in FY 2024.

Exhibit 2.2.3 provides a breakdown of the City of Milpitas’ planned CIP spending included in this analysis.

² Source: 2017 Wastewater Bond Debt Service Schedule.pdf

³ Source: SW depreciation.xlsx, Tab B-Sewer Pipe Components

Exhibit 2.2.3 Planned Sewer Capital Improvement Projects⁴

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Sewer Condition Assessment (6119)	\$100,000	\$50,000	\$50,000	\$50,000	\$50,000
Sewer Overflow Improvement (6123)	\$75,000	\$75,000	\$75,000	\$75,000	\$75,000
Pump Station Treatment Improv. (6125)	\$150,000				
Minor Sewer Projects (6126)	\$50,000	\$50,000	\$50,000	\$50,000	\$50,000
Supervisory Control and Data Acquisition		\$1,550,000			
System Hydraulic Modeling 17-19 (6129)	\$50,000	\$50,000			
Sewer Cathodic Protection Improv (6131)	\$625,000				
Master Plan 2019 (6132)	\$450,000				
Seismic Study 19 - 20		\$100,000			
System Replacement (6133)	\$500,000	\$500,000	\$500,000	\$500,000	\$500,000
Pump Station Treatment Improv (6125)	\$100,000	\$100,000	\$100,000	\$100,000	\$100,000
Main Lift Station Odor Control (6130)	\$300,000	\$1,950,000	\$0	\$0	\$0
MFGS Model Adjustment	\$115,000	\$184,910	\$1,225,000	\$1,225,000	\$1,225,000
Total City of Milpitas Capital Expenses	\$2,515,000	\$4,609,910	\$2,000,000	\$2,000,000	\$2,000,000

The model adjustment listed above is a placeholder that aligns the model’s project listing with the City’s policy of setting aside at least \$2.0 million per year in Infrastructure Replacement. Although the City has not identified specific projects in fiscal years 2021, 2022, and 2023, as projects are added to the City’s adopted CIP, the adjustment can be removed, and the actual projects entered. The above projections ensure that the rates recommended by MFGS are in compliance with the City’s reserve policy.

The above planned projects are assumed to be 100% funded by the City’s sewer user rates, as opposed to the capacity fees it charges new customers, for several reasons. First, historically the City has used capacity fees collected each year to reduce the cost of treatment capital allocated to the City by San José, not reduce the spending on City CIP projects. Second, the City’s CIP projects are all rehabilitative in nature and are not increasing the capacity of the system, and therefore should be paid for by the current users of the system. Finally, capacity fees are unpredictable and if the City based its CIP funding on the collection of a certain amount of capacity fees, in cases where the City collects less in capacity fees than planned, user rates would need to be adjusted to make up the shortfall. For these reasons, 100% of the City’s CIP is assumed to be funded with user rates.

All the City of Milpitas CIP costs shown above are assumed to be PAYGO (cash) funded each year. That is, the City will not issue any debt to pay for the sewer asset rehabilitation projects listed above.

2.2.3 SJ/SC Regional Waste Water Facility Capital Expenses and Projected Debt Service

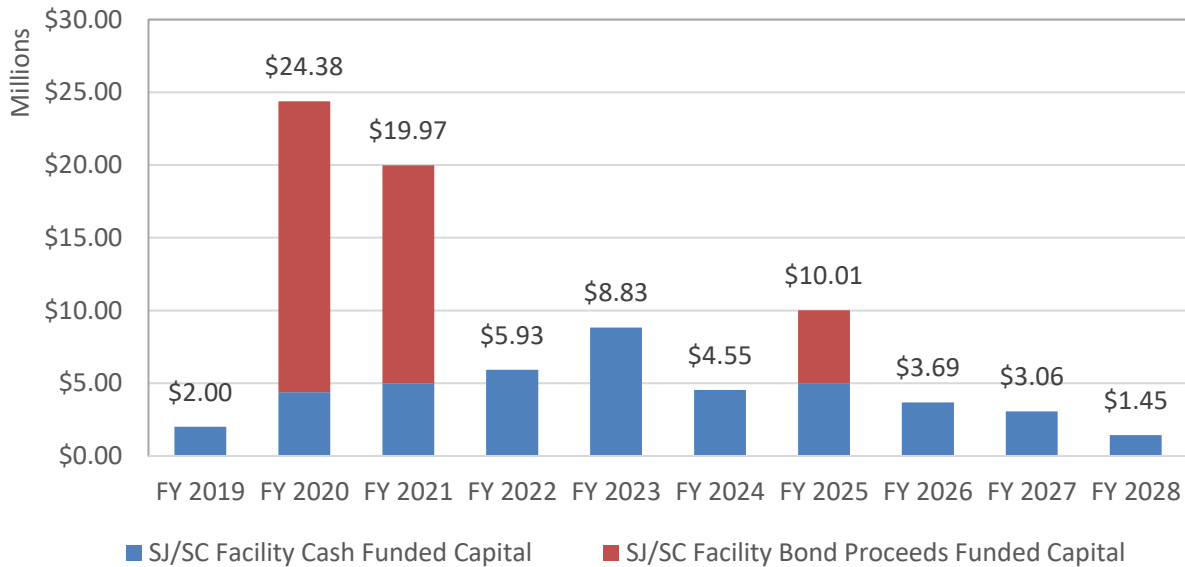
One hundred percent of the City of Milpitas’ sewer flow is transported to and processed at the SJ/SC Regional Waste Water Facility. Therefore, the City pays a share of both the operating and capital costs of the facility. For operating costs, the City is billed based on the proportional flow sent to the facility from the City as a percentage of the facility’s total flow each year. For capital costs, the City is billed a fixed percentage of the facility’s capital program based on the City’s buy-in of the facility’s total treatment capacity. Currently, the City’s capacity buy-in is 7.65% of the facility’s total capacity.

Each year, the City of San José gives to the City of Milpitas a ten-year projection of the capital costs related to the SJ/SC Regional Waste Water Facility and the portion of those costs that the City of Milpitas is

⁴ Source: City of Milpitas 2018 Capital Improvement Plan

obligated to pay. These costs have been historically volatile, with large differences in the amount due on a year to year basis. The current projected ten-year SJ/SC Regional Waste Water Facility capital costs that must be recovered by the City of Milpitas, along with the funding source assumed each year, are shown in Exhibit 2.2.4.

Exhibit 2.2.4 Ten-Year Projection of SJ/SC Regional Waste Water Facility Capital Costs⁵



MFSG’s analysis included the assumption that the City will utilize three debt issues to pay for the SJ/SC Regional Waste Water Facility capital payments during the next ten years:

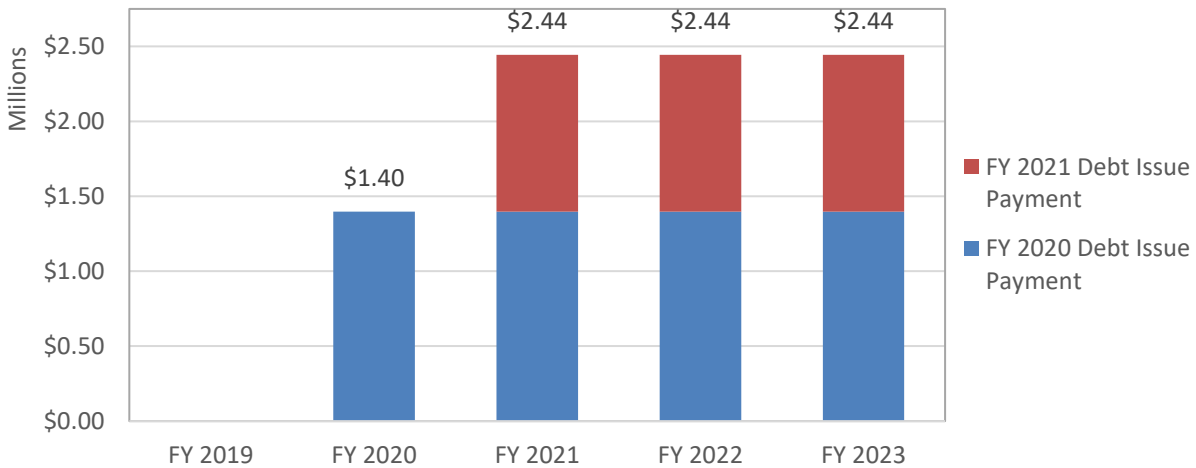
- \$20,000,000 in FY 2020
- \$15,000,000 in FY 2021
- \$5,000,000 in FY 2025

The use of bond proceeds to fund this major expense will smooth out the rate impact on the City’s customers and allow for the long-term planning of rate increases due to SJ/SC Regional Waste Water Facility capital expenses. Over the ten-year projection shown above, the average annual cash spending on SJ/SC Regional Waste Water Facility capital is about \$4.38 million dollars. The City’s rates must also support the debt service resulting from the three new bond issues assumed above.

Each of these bond issues is assumed to have issuance costs equal to 1.5% of the principal amount, an interest rate of 5.5% and a payment term of 30 years. These are conservative assumptions, as the City may qualify for lower interest rate terms. The projected total debt service obligation of the City of Milpitas that is the result of the two debt issues within the five-year planning period is shown below in Exhibit 2.2.5.

⁵ Source: CIP Allocation for RWF (17MAY2018).pdf

Exhibit 2.2.5 Projected New Debt Service Payments



The impact of these additional debt service payments has been factored into MFSG’s rate projections. Overall, MFSG’s approach takes into account the annual cash needs of the City’s sewer system, so the capital cash needs vary from the actual spending in years where the City issues debt. To illustrate the impact on rates, Exhibit 2.2.6 shows the sources and uses of capital funds for the five-year projection.

Exhibit 2.2.6 Sources and Uses of Sewer Capital Funds

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Sources of Capital Funds:					
City of Milpitas Sewer Rates	\$4,515,000	\$10,386,512	\$9,416,007	\$10,371,129	\$13,271,577
Loan Proceeds	\$ -	\$20,000,000	\$15,000,000	\$ -	\$ -
Total Sources of Capital Funds:	\$4,515,000	\$30,386,512	\$24,416,007	\$10,371,129	\$13,271,577
Uses of Capital Funds:					
City of Milpitas Capital Projects	\$2,515,000	\$4,609,910	\$2,000,000	\$2,000,000	\$2,000,000
SJ/SC Capital Projects	\$2,000,000	\$24,379,853	\$19,971,696	\$5,926,818	\$8,827,266
SJ/SC Debt Service	\$ -	\$1,396,749	\$2,444,311	\$2,444,311	\$2,444,311
Total Uses of Capital Funds:	\$4,515,000	\$30,386,512	\$24,416,007	\$10,371,129	\$13,271,577

The sources for the above table are as follows: Loan Proceeds: Exhibit 2.2.4; City of Milpitas Capital Projects: Exhibit 2.2.3; SJ/SC Capital Projects, Exhibit 2.2.4; SJ/SC Debt Service: Exhibit 2.2.5.

The total capital needs each year that must be generated from rates is the first line under sources of capital funds, City of Milpitas Sewer Rates. That is the total cash capital spending and debt service that must be supported by rates each year.

2.3 Sewer Revenue Requirements

The total annual cost of operating the City’s sewer system (the gross revenue requirements) includes operating and maintenance expenses and current and future capital costs. The sum of these costs, less any miscellaneous revenues, is the amount that needs to be recovered from user rates (referred to as the net revenue requirement).

The term “miscellaneous revenues” refers to two distinct revenue sources of the Sewer Fund. The first is the amount of interest income generated by the Sewer Fund reserves, which is allocated to the Fund each year. These revenues are estimated to be \$395,000 in FY 2018 and are estimated to be \$446,000 in FY 2019. MFSG’s model projects that these revenues will remain constant throughout the projection period.

The other miscellaneous revenue that is accounted for within the Sewer Fund is called Development revenue. These are the capacity charges levied by the City to new customers of the sewer system. These charges were estimated to be \$1.0 million in FY 2018 and FY 2019. MFSG’s analysis does not include these revenues going forward for two reasons. First, these revenues are unpredictable. The City is reaching buildout, and although some infill development will result in capacity fees being paid to the City’s Sewer Fund in the years to come, MFSG considered the conservative approach of not reducing the revenue needs of the sewer system by any amount of Development revenue. Second, in the case that the City does collect Development revenue, those monies are directed to the City’s capital improvement plan to pay down projects that have been approved each fiscal year. In the case that those projects are fully funded, the City augments its capital reserves with the Development revenue. In either case, MFSG’s approach does not include Development revenues in order to avoid any case in which the City collects less in Development revenues than projected, resulting in the need to either draw down on capital reserves more than predicted, or raise user rates to compensate for the difference in projected vs. actual revenues.

MFSG’s calculated rates assume that the entire system must be supported by its existing customer base. This is a conservative approach that will result in rates that will fully fund the projected costs of the system without the use of any Development revenue. Any Development revenue collected in fiscal years 2019 to 2023 will only improve the financial forecasts provided in this study.

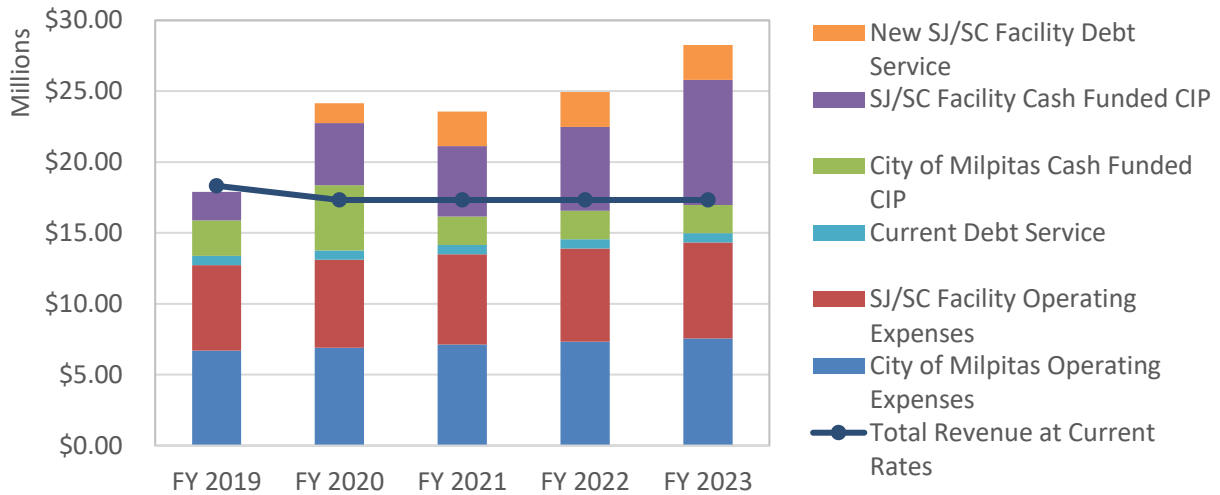
Exhibit 2.3.1 shows the revenue requirements (with percent change from the previous year) for the first five years of the planning period for the City’s sewer system.

Exhibit 2.3.1 Sewer Net Revenue Requirements Projection

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
City of Milpitas Operating Expenses	\$6,708,195	\$6,909,441	\$7,116,724	\$7,330,226	\$7,550,133
SJ/SC Facility Operating Expenses	\$6,021,401	\$6,202,043	\$6,388,104	\$6,579,747	\$6,777,140
City of Milpitas Cash Funded CIP	\$2,515,000	\$4,609,910	\$2,000,000	\$2,000,000	\$2,000,000
SJ/SC Facility Cash Funded CIP	\$2,000,000	\$4,379,853	\$4,971,696	\$5,926,818	\$8,827,266
Current Debt Service	\$650,273	\$647,500	\$648,700	\$649,700	\$649,900
New SJ/SC Facility Debt Service	\$ -	\$1,396,749	\$2,444,311	\$2,444,311	\$2,444,311
Total Revenue Requirement	\$17,894,869	\$24,145,496	\$23,569,536	\$24,930,803	\$28,248,750
Less Miscellaneous Revenues	(\$1,446,000)	(\$446,000)	(\$446,000)	(\$446,000)	(\$446,000)
Net Revenue Requirement	\$16,448,869	\$23,699,496	\$23,123,536	\$24,484,803	\$27,802,750
<i>% Change</i>		44.1%	(2.4%)	5.9%	13.6%

The revenue requirements of the City’s sewer system fluctuate greatly with the varying levels of capital infrastructure investment. Exhibit 2.3.2 shows how the revenue requirements of the system compare on an annual basis to the City’s revenues at the current (FY 2018) sewer rates.

Exhibit 2.3.2 Sewer Revenue Requirement vs. Revenue at Current Rates



The City’s current rates cannot support the long-term cash needs of the system, specifically the major capital investment needed to fund the SJ/SC Facility capital requirements. MFSG’s rate plan phases in rate increases to account for the overall trend in capital investment, as well as the increases in ongoing operating costs. However, before calculating rates, a detailed customer and consumption analysis must be performed. The next section of this report details this analysis.

3. CUSTOMERS AND USAGE

This section provides a summary of sewer customer accounts and sewage generation.

3.1 Customer Account and Usage Summary

The City currently provides sewer service to a population of over 77,000. Exhibit 3.1.1 provides a breakdown of most recently available (FY 2017) sewer customers by class. The rightmost column shows the percentage of metered water that is considered as billable sewer flow for each customer class. For example, Lucky Pure Water is only billed based on 29.19% of its metered water usage, because it has been determined based on their commercial process that 70.81% of its metered water does not end up as sewer effluent.

Exhibit 3.1.1 FY 2017 Customers and Usage by Class⁶

Customer Class	FY 2017 Accounts	FY 2017 Adjusted Usage (HCF)	% of Billed Water Used for Sewer
<u>Residential Dwelling Units*</u>			
Single-Family	12,427	1,097,580	100.00%
Mobile Home Parks	521	35,847	100.00%
Multiple-Family	10,067	682,820	100.00%
<u>Commercial</u>			
Motels and Hotels	25	102,661	100.00%
General Office	355	174,990	100.00%
City of Milpitas	35	12,680	100.00%
Service Stations	38	17,654	100.00%
Eat/Drink Establishments	179	212,372	100.00%
Convalescent Hosp/Daycare	21	16,397	100.00%
Personal Services, Laundries	58	35,194	100.00%
Electrical/Electronics	147	150,403	100.00%
Machinery Manufacture	18	4,349	100.00%
<u>Monitored Sites</u>			
RockTenn (Jefferson Smurfit)	1	2,848	29.76%
T. Marzetti Co.	2	13,815	79.84%
Prudential Overall Supply	2	19,742	100.00%
Siemens Water Tech	2	43,450	100.00%
Elmwood Rehabilitation	5	93,018	100.00%
Linear Technology	6	105,018	100.00%
DS W	2	654	100.00%
Magic Tech & Headway Tech	4	43,542	100.00%

⁶ Source: FY 18-19_Forms 1-6.xls

Customer Class	FY 2017 Accounts	FY 2017 Adjusted Usage (HCF)	% of Billed Water Used for Sewer
<u>Non-Monitored Sites</u>			
Lucky Pure Water	1	352	29.19%
Milpitas Materials	1	16	0.72%
Union Pacific Railroad	1	26	100.00%
Cisco	5	11,752	21.00%
Lifescan	1	221	100.00%
	9	12,366	
<u>Institutional</u>			
Schools/Colleges	64	23,803	100.00%

* Residential Customers are measured in Dwelling Units and billed a bi-monthly fixed fee without measured usage. The usage shown is an estimate based on per Dwelling Unit values of: 3.54 persons per Single Family, 2.24 persons per Mobile Home, and 2.73 persons per Multiple-Family unit.

Residential customers are measured in Dwelling Units in order to estimate the billable flow from each residential account without the use of measured water consumption.

Each residential account is one Dwelling Unit. However, the number of persons per Dwelling Unit vary for each class. The source of these values in San José’s 2015 Flow Study, Table 2.5 on page 11. The values are based on census track data from the 2012 American Community Survey (ACS) data, estimated to 2015 values:

- 3.54 persons per Single Family
- 2.24 persons per Mobile Home
- 2.73 persons per Multiple-Family.

To estimate the total flow of each residential class, a value of 51 gallons per day (GPD) is assigned to each person. Therefore, each Single Family account is assumed to use 51 GPD times 3.54 persons, equal to 181 GPD per account. Multiple-Family accounts are assumed to use 51 GPD times 2.73 persons, equal to 139 GPD per account. As of FY 2018, Mobile Home Parks are not charged the full allocation for the assumption of 35,847 HCF per year assessed by the SJ/SC facility, based on 63 GPD per person, or 141 GPD per account. Mobile Home accounts are assumed to use 51 GPD (in line with Single and Multiple Family allocations) times 2.24 persons, equal to 114 GPD per account.

The City currently bills Mobile Home Parks for 114 GPD per unit, resulting in a bi-monthly rate that is lower than the cost incurred by the City to provide sewer service to such Mobile Home Park. MFSG’s study assumes that the Mobile Home Park rate is immediately brought to an allocation of 141 GPD per dwelling unit, in line with the flow parameters used by the City of San José when allocating operational treatment costs to the City of Milpitas. Section 6.2 of this report contains a more thorough discussion of this issue.

Several of the City’s sewer customers receive sewer bills based on adjusted usage. MFSG’s analysis assumes that these usage adjustments will remain constant for the entire projection period. The usage values above represent the adjusted usage that is used to calculate each customer’s sewer bill.

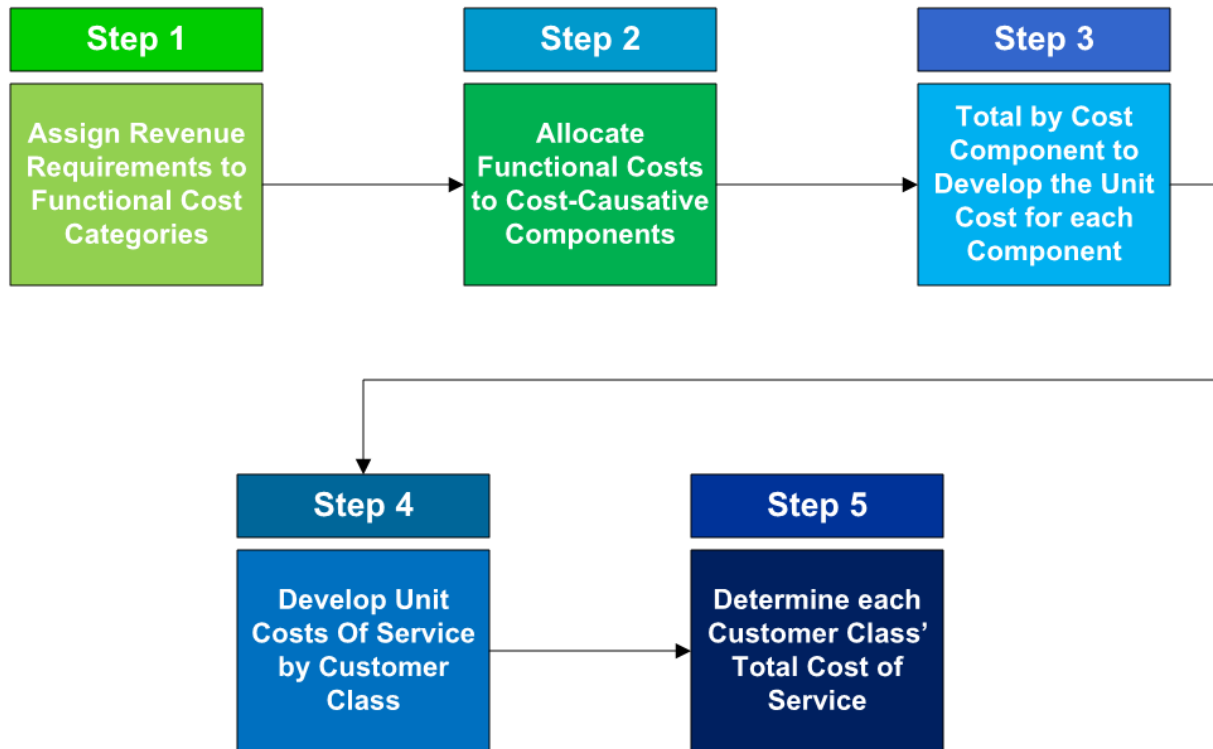
The number of customer accounts and dwelling units was held at its current level for MFSG’s analysis, with zero growth in the number of customers each year. This is a conservative projection, as the City will experience some development, and therefore increase in customers, over the five-year planning period.

4. COST OF SERVICE ANALYSIS

4.1 General Overview of Cost of Service Principles

The general industry standard practice of allocating sewer costs among a system's customer is outlined in the Water Environment Federation's *Manual of Practice 27: Financing and Charges for Wastewater Systems*.

Exhibit 4.1.1 General Cost of Service Process



The first step of the cost of service analysis is to determine the revenue requirement, which was outlined in Section 2 of this report. Once the operating and capital costs are determined, they each must be separated into functional cost categories. Then, each functional cost category must be allocated to one of four cost causative components: Flow, Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS) and Total Nitrogen (NH₃). A brief description of each of these components is as follows:

- Flow is simply the volume of effluent that must be treated by a treatment process.
- Biochemical Oxygen Demand (BOD) is the amount of dissolved oxygen needed (i.e. demanded) by aerobic biological organisms to break down organic material present in a given water sample.
- Total suspended solids (TSS) is the dry-weight of suspended particles, that are not dissolved, in a sample of water that can be trapped by a filter that is analyzed using a filtration apparatus.

- Ammonia Nitrogen (NH₃) must undergo nitrification, the microbial process by which reduced nitrogen compounds (primarily ammonia) are sequentially oxidized to nitrite and nitrate.

Because each customer class produces different levels of flow and concentration of pollutants, it is important to properly allocate the costs of the sewer system to these cost causative components to properly charge each customer class based on the costs that it incurs.

In general, the City's current rates adhere to the industry standard outlined above. The cost of service exercise performed for the City of Milpitas includes two separate allocations:

1. Allocation of Personnel Services costs to a "Flat Fee" based on Dwelling Units per customer class; and
2. Allocation of all other O&M and Capital costs based on the four cost causative components of Flow, BOD, TSS and NH₃.

The resulting rates represent the equitable distribution of the City's sewer costs among each of its customer classes. MFSG's cost of service allocations utilize the same framework as the City's current rate calculations, however MFSG's analysis assumes a greater allocation of costs to the City's Flat Fee, as detailed in the next section.

4.2 Allocation of Personnel Services to a Flat Fee

The City's FY 2019 Sewer Fund Personnel Services cost is equal to \$3,497,645, as set forth in the City's budget. These costs are all related to the direct administration and customer service functions of the City's Sewer Fund. Currently, the City allocates a portion of its Personnel Services costs to a "Flat Fee" that is allocated between Residential and Non-Residential customers based on Dwelling Units (residential customers) and accounts (non-residential customers). In FY 2018, the City allocated about \$2.2 million to this fee. MFSG's recommendation is to include the full cost of Personnel Services in the Flat fee and continue to allocate those costs between Residential and Non-Residential customers based on Dwelling Units and accounts.

The City's Personnel Services costs are the salaries and benefits directly associated with providing sewer service to the City's customers through the functions of Finance Operations, Public Works Administration, Utility Engineering and Utility Maintenance. The most equitable method of distributing these costs between Residential and Non-Residential customers is doing so based on Dwelling Units (for residential) and accounts (for non-residential). The costs are distributed to residential and non-residential customers based on the total number of dwelling units or accounts in each class, as shown in 0.

Exhibit 4.2.1 FY 2019 Allocation of Personnel Services Costs

	DU / Accounts	% Allocation	FY 2019 Costs
Personnel Services			\$3,497,645
Flat Fee Cost Allocation			
Residential	23,015	95.9%	\$3,355,774
Non-Residential	973	4.1%	\$141,871
Flat Fee per Month per Account (Non-Residential)			\$12.15
Additional Cost per HCF for Residential			\$1.85

The \$3,355,774 (Source: Exhibit 2.1.1) then must be allocated to the three residential customer classes. MFSG recommends that the City continue to allocate these costs to the three residential classes based on each class' assumed flow (HCF per year, Source: Exhibit 3.1.1), as shown in Exhibit 4.2.2.

Exhibit 4.2.2 FY 2019 Allocation of Personnel Services Costs to Residential Customers

Residential Flat Fee Allocation	HCF per Year	% Allocation	Residential Flat Fee Costs
Single-Family (70)	1,097,580	60.4%	\$2,027,935
Mobile Home Parks (72)	35,847	2.0%	\$66,232
Multiple-Family (71)	682,820	37.6%	\$1,261,607
Total Residential Flat Fee Revenue			\$3,355,774

The above costs are included in the proposed FY 2019 bi-monthly fee charged to all Residential customer accounts. Added to these costs are the other operational and capital costs described in the next section.

For Non-Residential customers, the proposed FY 2019 Flat Fee revenue is \$141,871. There are 973 non-residential accounts, so this revenue is collected as a \$24.30 fee per bi-monthly bill for each Non-Residential customer account.

4.3 Development of Unit Costs of Service for Non-Personnel Operating and Capital Cost Categories

The first step of the remaining cost of service exercise is to isolate the operating costs the City incurs between collection costs (allocated 100% based on Flow) and treatment costs (allocated to Flow, BOD, TSS and NH₃). This is simple for the City of Milpitas, because the only operating cost related to treatment is the line item in the City's budget that is the operating payment to the SJ/SC Regional Waste Water Facility. The other costs of the city can be split between Supplies and Contractual Services, Capital Outlay, and Transfers Out to other funds, which are purely related to the City's operation and maintenance of its collection system. Supplies and Contractual Services include the cost the City pays for the material it needs to complete its work, such as minor tools, chemicals, and small equipment. The City also uses contractual services to support staff with repair and maintenance work. The City budgets for Services and supplies each year to the annual budget process and the budgeted amounts are based on the projected work-plan for the upcoming fiscal year.

The second step in the City's cost of service process is also very straightforward. Because 100% of the City's costs are not related to treatment, those cost categories can be allocated 100% to the cost causative component of flow. The allocation percentages for treatment costs related to the SJ/SC Facility are given to the City of Milpitas by the City of San José on an annual basis.

The third step in the cost of service process is to simply multiply each cost category’s total by the percentage allocation for each cost causative component, resulting in the total operating cost by cost causative component Source: Exhibit 2.1.1). The first three steps of the cost of service process for the system’s operating costs are shown in Exhibit 4.3.1.

Exhibit 4.3.1 FY 2019 Operating Costs by Functional Cost Categories and Cost Causative Components

Functional Cost Categories	FY 2019 Costs	Flow	BOD	TSS	NH ₃
Supplies & Contractual Services	\$1,506,276	100.0%	0.0%	0.0%	0.0%
Capital Outlay	\$45,000	100.0%	0.0%	0.0%	0.0%
Transfers Out	\$1,659,274	100.0%	0.0%	0.0%	0.0%
SJ/SC WPCP Treatment	\$6,021,401	33.8%	24.9%	21.6%	19.6%
Total	\$9,231,951	\$5,248,734	\$1,501,978	\$1,300,803	\$1,180,435

The system’s capital costs (Sources: Exhibits 2.2.1, 2.2.3 and 2.2.4) must also be allocated to the four cost causative components in the same manner. The functional cost categories for capital expenses are the City’s existing debt, the City’s CIP and the CIP payment the City of Milpitas must pay for the treatment services provided at the SJ/SC Regional Waste Water Facility. The first three steps of the cost of service allocation is shown in Exhibit 4.3.2.

Exhibit 4.3.2 FY 2019 Capital Costs by Functional Cost Categories and Cost Causative Components

Functional Cost Categories	FY 2019 Costs	Flow	BOD	TSS	NH ₃
Existing Debt Service	\$650,273	69.7%	13.5%	7.3%	9.5%
City of Milpitas Capital Projects	\$2,515,000	81.7%	9.0%	5.8%	3.4%
SJ/SC Facility Capital Projects	\$2,000,000	81.7%	9.0%	5.8%	3.4%
Total	\$5,165,273	\$4,143,347	\$495,564	\$309,455	\$216,906

Although the City’s capital projects are focused on the collection system owned by the City, those projects are necessary to provide both collection and treatment services for the City’s customers, and therefore it is appropriate to allocate those capital costs in the same way as the SJ/SC Facility costs.

The debt service allocations are based on the use of the funds raised by the 2006 Series A Sewer Certificates of Participation. Both the City of Milpitas CIP and SJ/SC Facility CIP are allocated based on the total plant costs given to the City of Milpitas by the City of San José.

Using the above allocations, MFSG has calculated the cost basis for each of the City’s sewer service functions, completing steps one, two and three of the cost of service process. The fourth step is developing units of service for each customer class.

4.4 Development of Unit Costs of Service by Cost Causative Component

The City collects data on each of its customer classes, including the “loading” of each pollutant tracked within the sewer cost of service analysis. Flow is tracked as million gallons per day (MGD), while the pollutant loadings are tracked as pounds per day (lbs/day) based on the yearly active days for each customer class, which range from 176 to 365. Exhibit 4.4.1 shows the annual loadings of each cost causative component for the most recently available Fiscal Year.

Exhibit 4.4.1 Cost Causative Component Data by Customer Class

Customer Class	FY 2017 Units (HCF)	Flow (MGD)	BOD (lbs/day)	TSS (lbs/day)	NH3 (lbs/day)	Days Active
Single-Family	1,097,580	2.249	4.693	4.693	0.657	365
Mobile Home Park	35,847	0.073	0.153	0.153	0.021	365
Multiple-Family	682,820	1.399	2.919	2.919	0.409	365
Motels and Hotels	102,661	0.210	0.544	0.212	0.012	365
General Office	174,990	0.502	0.544	0.335	0.046	261
City of Milpitas	12,680	0.029	0.032	0.020	0.003	323
Service Stations	17,654	0.036	0.054	0.085	0.000	365
Eat/Drink Establishments	212,372	0.435	4.540	2.034	0.036	365
Convalescent Hosp/Daycare	16,397	0.034	0.064	0.024	0.004	365
Personal Services, Laundries	35,194	0.072	0.090	0.066	0.003	365
Electrical/Electronics	150,403	0.431	0.108	0.054	0.108	261
Machinery Manufacture	4,349	0.012	0.030	0.057	0.000	261
RockTenn (Jefferson Smurfit)	2,848	0.006	0.109	0.006	0.001	365
T. Marzetti Co.	13,815	0.033	0.659	0.066	0.000	313
Prudential Overall Supply	19,742	0.057	0.250	0.134	0.001	261
Siemens Water Tech	43,450	0.125	0.009	0.367	0.001	261
Elmwood Rehabilitation	93,018	0.191	0.660	0.497	0.035	365
Linear Technology	105,018	0.301	0.234	0.179	0.050	261
DS W	654	0.002	0.000	0.000	0.000	261
Magic Tech & Headway Tech	43,542	0.125	0.447	0.002	0.001	261
Lucky Pure Water	352	0.001	0.001	0.000	0.000	365
Milpitas Materials	16	0.000	0.000	0.000	0.000	365
Union Pacific Railroad	26	0.000	0.000	0.000	0.000	261
Cisco	11,752	0.034	0.008	0.004	0.008	261
Lifescan	221	0.001	0.000	0.000	0.000	261
Schools/Colleges	23,803	0.101	0.110	0.084	0.025	176
Total	2,901,202	6.458	16.260	11.991	1.423	

To determine the unit rate for operating expenses, each customer class' loading in each cost causative component is multiplied by that customer class' days active. These values are summed to arrive at the blended unit rate of operating costs. For example, Single Family users produced 4.693 lbs/day of BOD, times 365 days active, giving a total lbs/year of 1,712.79. The lbs/year value is determined for each customer class, and then they are added together to arrive at the total lbs/year of 5,708.85. In step three, the annual operating cost of BOD treatment was determined to be \$1,501,978 (see Exhibit 4.3.1), therefore the per unit operating cost of BOD treatment is \$1,501,978 divided by 5,708.85, which equals \$263. This method of determining the unit cost of operating the system is used because it takes into account both the volume and strength of each class' sewer effluent as well as the number of days per year each customer class is active, resulting in a blended per unit cost of operating the whole system on an annual basis.

The capital unit rate is simply the total cost of each cost causative component (as identified in step three) divided by the total loading in each cost causative component shown at the bottom of the above exhibit. For example, the total capital cost of treating TSS was calculated as \$309,455 per year (see exhibit 4.3.2), and the total loading of TSS is 11.991 lbs/year. Therefore, the total capital unit rate for TSS is \$309,455 divided by 11.991, which equals \$25,807. This method of calculating capital costs is straightforward and does not take into account the days active of each customer class, because the capital needs of the system are present regardless of how much the system is being utilized throughout the year. It is assumed that

all customers have access to the system at all times during the year and that capital costs must be recovered from all customers proportionately based on flow and strength of their sewer effluent.

Exhibit 4.4.2 shows the unit rates for each cost causative component.

Exhibit 4.4.2 Blended Unit Rate by Cost Causative Component

Unit Rates	Flow	BOD	TSS	NH₃
Operating	\$2,419	\$263	\$307	\$2,398
Capital	\$641,539	\$30,478	\$25,807	\$152,394

4.5 Determination of Cost of Service by Customer Class

The last step of the cost of service process is simple. Each customer class' appropriate cost in each or the cost causative components are equal to:

- Operating: Unit Rate x Customer Class Loading x Days Active
- Capital: Unit Rate x Customer Class Loading

Each of these calculations results in a class by class accounting for the costs caused by each customer class.

Exhibit 4.5.1 FY 2019 Operating Costs by Customer Class and Cost Causative Component

Customer Class	FY 2019 Total \$	Flow (\$/year)	BOD (\$/year)	TSS (\$/year)	NH3 (\$/year)
Single-Family	\$3,537,074	\$1,985,696	\$450,629	\$525,614	\$575,135
Mobile Home Park	\$115,520	\$64,852	\$14,717	\$17,166	\$18,784
Multiple-Family	\$2,200,463	\$1,235,329	\$280,343	\$326,992	\$357,800
Motels and Hotels	\$272,549	\$185,730	\$52,265	\$23,795	\$10,759
General Office	\$409,578	\$316,585	\$37,359	\$26,816	\$28,819
City of Milpitas	\$29,679	\$22,940	\$2,707	\$1,943	\$2,088
Service Stations	\$46,626	\$31,939	\$5,219	\$9,469	\$0
Eat/Drink Establishments	\$1,079,785	\$384,215	\$435,964	\$227,812	\$31,795
Convalescent Hosp/Daycare	\$42,210	\$29,665	\$6,193	\$2,670	\$3,682
Personal Services, Laundries	\$82,391	\$63,672	\$8,670	\$7,416	\$2,635
Electrical/Electronics	\$351,387	\$272,103	\$7,410	\$4,322	\$67,553
Machinery Manufacture	\$14,521	\$7,868	\$2,071	\$4,582	\$0
RockTenn (Jefferson Smurfit)	\$16,916	\$5,153	\$10,425	\$661	\$678
T. Marzetti Co.	\$85,868	\$24,993	\$54,309	\$6,380	\$186
Prudential Overall Supply	\$64,128	\$35,716	\$17,145	\$10,706	\$562
Siemens Water Tech	\$109,006	\$78,608	\$628	\$29,380	\$390
Elmwood Rehabilitation	\$318,396	\$168,284	\$63,411	\$55,645	\$31,055
Linear Technology	\$251,991	\$189,994	\$16,091	\$14,303	\$31,603
DS W	\$1,186	\$1,183	\$2	\$0	\$0
Magic Tech & Headway Tech	\$110,378	\$78,774	\$30,662	\$158	\$782
Lucky Pure Water	\$823	\$636	\$75	\$54	\$58
Milpitas Materials	\$36	\$28	\$3	\$2	\$3
Union Pacific Railroad	\$69	\$47	\$8	\$14	\$0
Cisco	\$27,456	\$21,261	\$579	\$338	\$5,278
Lifescan	\$516	\$400	\$11	\$6	\$99
Schools/Colleges	\$63,396	\$43,063	\$5,082	\$4,560	\$10,691
Total Operating Costs	\$9,231,951	\$5,248,734	\$1,501,978	\$1,300,803	\$1,180,435

Exhibit 4.5.2 FY 2019 Capital Costs by Customer Class and Cost Causative Component

Customer Class	FY 2019 Total \$	Flow (\$/year)	BOD (\$/year)	TSS (\$/year)	NH3 (\$/year)
Single-Family	\$1,807,244	\$1,443,005	\$143,020	\$121,101	\$100,117
Mobile Home Park	\$59,024	\$47,128	\$4,671	\$3,955	\$3,270
Multiple-Family	\$1,124,312	\$897,714	\$88,975	\$75,339	\$62,284
Motels and Hotels	\$158,913	\$134,970	\$16,588	\$5,482	\$1,873
General Office	\$353,972	\$321,734	\$16,582	\$8,640	\$7,016
City of Milpitas	\$20,726	\$18,838	\$971	\$506	\$411
Service Stations	\$27,048	\$23,210	\$1,656	\$2,182	\$0
Eat/Drink Establishments	\$475,597	\$279,209	\$138,366	\$52,488	\$5,535
Convalescent Hosp/Daycare	\$24,779	\$21,557	\$1,966	\$615	\$641
Personal Services, Laundries	\$51,189	\$46,270	\$2,752	\$1,709	\$459
Electrical/Electronics	\$297,655	\$276,529	\$3,289	\$1,392	\$16,445
Machinery Manufacture	\$10,392	\$7,996	\$919	\$1,476	\$0
RockTenn (Jefferson Smurfit)	\$7,323	\$3,744	\$3,309	\$152	\$118
T. Marzetti Co.	\$43,032	\$21,180	\$20,100	\$1,714	\$38
Prudential Overall Supply	\$47,493	\$36,297	\$7,609	\$3,450	\$137
Siemens Water Tech	\$89,727	\$79,887	\$279	\$9,467	\$95
Elmwood Rehabilitation	\$160,644	\$122,292	\$20,125	\$12,821	\$5,406
Linear Technology	\$212,529	\$193,085	\$7,142	\$4,608	\$7,693
DS W	\$1,204	\$1,202	\$1	\$0	\$0
Magic Tech & Headway Tech	\$93,907	\$80,056	\$13,609	\$51	\$190
Lucky Pure Water	\$509	\$462	\$24	\$12	\$10
Milpitas Materials	\$22	\$20	\$1	\$1	\$0
Union Pacific Railroad	\$56	\$48	\$3	\$4	\$0
Cisco	\$23,258	\$21,607	\$257	\$109	\$1,285
Lifescan	\$437	\$406	\$5	\$2	\$24
Schools/Colleges	\$74,283	\$64,900	\$3,345	\$2,179	\$3,860
Total Capital Costs	\$5,165,273	\$4,143,347	\$495,564	\$309,455	\$216,906

By adding each customer class' operating and capital cost recovery, it can be determined what percentage of annual rate revenue should be generated by each customer class. Exhibit 4.5.3 shows the results of the cost of service analysis.

Exhibit 4.5.3 Cost of Service Result by Customer Class

Annual Cost Recovery Per Class	Total O&M	Total Capital	Total \$	O&M %	Capital %
Single-Family	\$3,537,074	\$1,807,244	\$5,344,318	38.3%	35.0%
Mobile Home Park	\$115,520	\$59,024	\$174,544	1.3%	1.1%
Multiple-Family	\$2,200,463	\$1,124,312	\$3,324,775	23.8%	21.8%
Motels and Hotels	\$272,549	\$158,913	\$431,462	3.0%	3.1%
General Office	\$409,578	\$353,972	\$763,550	4.4%	6.9%
City of Milpitas	\$29,679	\$20,726	\$50,404	0.3%	0.4%
Service Stations	\$46,626	\$27,048	\$73,674	0.5%	0.5%
Eat/Drink Establishments	\$1,079,785	\$475,597	\$1,555,382	11.7%	9.2%
Convalescent Hosp/Daycare	\$42,210	\$24,779	\$66,990	0.5%	0.5%
Personal Services, Laundries	\$82,391	\$51,189	\$133,580	0.9%	1.0%
Electrical/Electronics	\$351,387	\$297,655	\$649,043	3.8%	5.8%
Machinery Manufacture	\$14,521	\$10,392	\$24,913	0.2%	0.2%
RockTenn (Jefferson Smurfit)	\$16,916	\$7,323	\$24,240	0.2%	0.1%
T. Marzetti Co.	\$85,868	\$43,032	\$128,900	0.9%	0.8%
Prudential Overall Supply	\$64,128	\$47,493	\$111,621	0.7%	0.9%
Siemens Water Tech	\$109,006	\$89,727	\$198,733	1.2%	1.7%
Elmwood Rehabilitation	\$318,396	\$160,644	\$479,040	3.4%	3.1%
Linear Technology	\$251,991	\$212,529	\$464,520	2.7%	4.1%
DS W	\$1,186	\$1,204	\$2,389	0.01%	0.02%
Magic Tech & Headway Tech	\$110,378	\$93,907	\$204,284	1.2%	1.8%
Lucky Pure Water	\$823	\$509	\$1,332	0.01%	0.01%
Milpitas Materials	\$36	\$22	\$59	0.0004%	0.0004%
Union Pacific Railroad	\$69	\$56	\$124	0.001%	0.001%
Cisco	\$27,456	\$23,258	\$50,714	0.3%	0.5%
Lifescan	\$516	\$437	\$954	0.01%	0.01%
Schools/Colleges	\$63,396	\$74,283	\$137,679	0.7%	1.4%
Total Annual Cost	\$9,231,951	\$5,165,273	\$14,397,224	100.00%	100.00%

The results shown above allow the equitable distribution of annual costs to each customer class. In any given fiscal year, the net operating revenue requirement is multiplied by the O&M percentage shown above for each customer class to determine that class' O&M cost responsibility. The same is done for annual capital costs. In each year, the rate determined for each customer class is equal to:

- Residential Customers:

$$\frac{[Flat Fee Allocation + (O\&M Net Revenue Requirement \times \% O\&M Allocation from Cost of Service) + (Capital Net Revenue Requirement \times \% Capital Allocation from Cost of Service)]}{(Billable Dwelling Units \times 6)}$$

The total residential costs are divided by six times the residential billable dwelling units to account for bi-monthly billing. Each customer will receive six sewer bills throughout the year, and therefore the total annual cost must be spread over six times the number of customers.

- Non-Residential Customers:

$$\begin{aligned} & \text{Bi Monthly Flat Fee} \\ & + \\ & \frac{[(\text{O\&M Net Revenue Requirement} \times \% \text{ O\&M Allocation from Cost of Service}) + \\ & (\text{Capital Net Revenue Requirement} \times \% \text{ Capital Allocation from Cost of Service})]}{\text{Annual Billable Units in HCF}} \end{aligned}$$

Non-residential customers are billed on flow, so the basis for each rate is the total flow in HCF from each customer class.

The City's rates can now be calculated on an annual basis, given assumed operating and capital costs. The next section of this report details a financial plan developed by MFSG to plan for the major operational and capital investments that the City will need to make in its sewer system over the next five to ten years.

5. FINANCIAL PLAN AND PROPOSED RATES

5.1 Total Revenue Projections at Current Rates

In Section 2, the projected costs (revenue requirements) of the system were presented and, in Section 3, projected customers and sewage generation were presented. In this section, we use the results of the cost of service analysis presented in Section 4 to determine an appropriate financial plan and set sewer rates for the next five years.

5.1.1 Revenues vs. Expenses at Current Rates

The adequacy of revenues from current rates was evaluated in order to determine if existing rates are sufficient to recover the revenue requirements. Exhibit 5.1.1 compares the revenue requirements with total revenue projections at current rates for the base year and the first five years of the planning period.

Exhibit 5.1.1 Sewer Revenue Requirements and Revenue at Current Rates

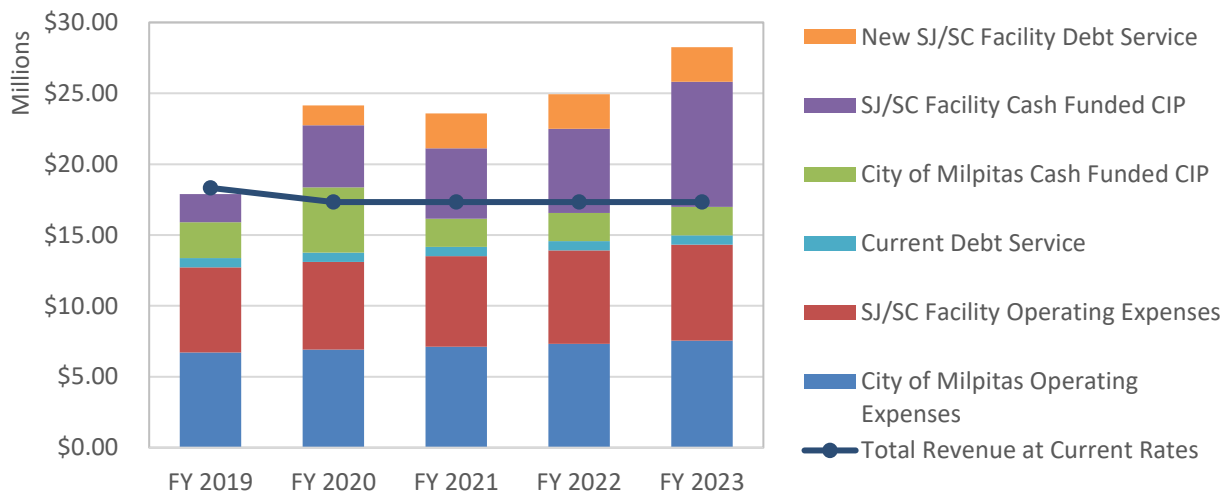
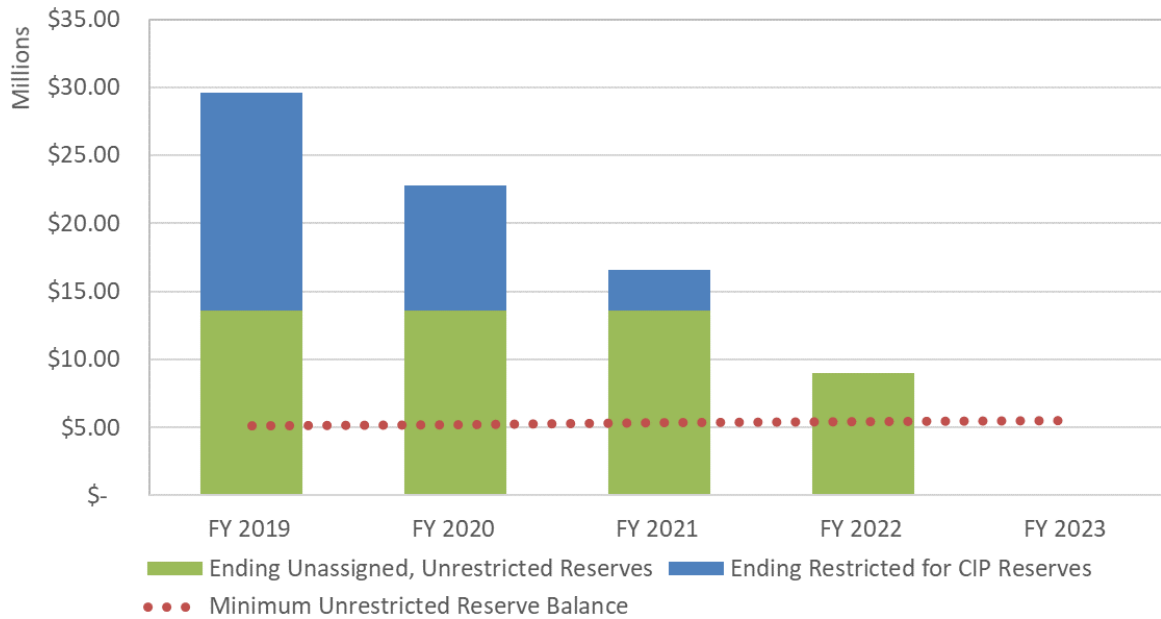


Exhibit 5.1.1 demonstrates that revenue collected at current sewer rates is insufficient to cover the revenue requirements in some years from FY 2020 to FY 2023. Current sewer rates would continue to not to generate sufficient revenue to fund the revenue requirements over the remainder of the long-term planning period. This has a significant impact on the sewer fund’s financial health.

5.1.2 Projected Sewer Fund Cash Balances at Current Rates

When considering the five-year rate plan, it is important to consider the long-term impact of rate changes made in early years. If the City were to not adjust rates in the five-year timeframe, the sewer system would experience heavy deficits over both the five-year and ten-year timeframe. Exhibit 5.1.2 shows the five-year sewer fund cash balance projection under the scenario in which the City does not adjust rates in any fiscal year. To be consistent with the City’s budget documents, all cash balance charts in this report show the combined balance of the City’s Sewer Fund, Sewer Fund CIP, Treatment Plant Construction Fund, Sewer 2017 Bonds Fund, and Sewer Infrastructure Replacement Fund.

Exhibit 5.1.2 Sewer Fund End of Year Balance at Current Rates (Five-Year Projection)



Under the current sewer rates, the Sewer Fund operating cash balance would be completely depleted in FY 2023. MFSG recommends that the City implement annual rate increases immediately to position the fund for the future investments needed in the sewer system.

5.2 Recommended Financial Plan and Rates

Given the results of the projections under current rates, MFSG recommends a phased in financial plan that will generate sufficient revenue over the five-year planning period to fully fund the sewer system and maintain the recommended minimum cash balance in the sewer fund, as well as position the fund for the long-term investments needed in the City’s sewer infrastructure. Exhibit 5.2.1 shows MFSG’s recommended sewer rates. It should be noted that in FY 2019, the projections assume that the City implement the new rates on February 1, 2019, just over halfway through the Fiscal Year. Each subsequent year assumes that the City adopt rates effective on July 1 of each Fiscal Year.

Exhibit 5.2.1 Recommended Sewer Rates

	Current FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Sewer User Rate Revenue Increase per Year		4.0%	8.0%	8.0%	7.0%	6.0%
Month of Implementation		February	July	July	July	July
<u>Residential (per Dwelling Unit)</u>						
Single-Family	\$90.27	\$97.60	\$102.52	\$111.07	\$118.34	\$124.14
Mobile Home Parks	\$56.97	\$76.03	\$79.86	\$86.53	\$92.19	\$96.71
Multiple-Family	\$69.32	\$74.96	\$78.73	\$85.30	\$90.88	\$95.34
Non-Residential Fixed Flat Fee (per bill)	\$15.27	\$24.30	\$25.03	\$25.78	\$26.55	\$27.35
<u>Commercial (per HCF)</u>						
Motels and Hotels	\$4.36	\$4.36	\$4.58	\$4.97	\$5.37	\$5.75
General Office	\$4.67	\$4.67	\$5.44	\$5.67	\$6.14	\$6.84
City of Milpitas	\$4.18	\$4.18	\$4.61	\$4.91	\$5.31	\$5.80
Service Stations	\$4.34	\$4.34	\$4.54	\$4.93	\$5.32	\$5.70
Eat/Drink Establishments	\$7.49	\$7.49	\$7.49	\$8.11	\$8.73	\$9.06
Convalescent Hosp/Daycare	\$4.23	\$4.23	\$4.46	\$4.84	\$5.23	\$5.60
Personal Services, Laundries	\$3.95	\$3.95	\$4.23	\$4.56	\$4.92	\$5.31
Electrical/Electronics	\$4.59	\$4.59	\$5.35	\$5.58	\$6.04	\$6.72
Machinery Manufacture	\$6.08	\$6.08	\$6.70	\$7.12	\$7.70	\$8.43
<u>Monitored Sites (per HCF)</u>						
RockTenn (Jefferson Smurfit)	\$4.67	\$8.35	\$8.35	\$9.39	\$10.11	\$10.46
T. Marzetti Co.	\$8.34	\$9.16	\$9.63	\$10.65	\$11.48	\$12.09
Prudential Overall Supply	\$6.70	\$6.70	\$6.70	\$7.08	\$7.66	\$8.42
Siemens Water Tech	\$4.91	\$4.91	\$5.61	\$5.87	\$6.36	\$7.06
Elmwood Rehabilitation	\$5.49	\$5.49	\$5.49	\$5.89	\$6.35	\$6.69
Linear Technology	\$4.59	\$4.59	\$5.47	\$5.71	\$6.18	\$6.88
DS W	\$4.59	\$4.59	\$4.80	\$4.92	\$5.34	\$6.04
Magic Tech & Headway Tech	\$4.53	\$4.62	\$5.82	\$6.07	\$6.57	\$7.32
<u>Non-Monitored Sites (per HCF)</u>						
Lucky Pure Water	\$3.94	\$3.94	\$4.21	\$4.54	\$4.91	\$5.29
Milpitas Materials	\$3.94	\$3.94	\$4.21	\$4.54	\$4.91	\$5.29
Union Pacific Railroad	\$5.11	\$5.11	\$5.84	\$6.12	\$6.63	\$7.35
Cisco	\$4.59	\$4.59	\$5.35	\$5.58	\$6.04	\$6.72
Lifescan	\$4.59	\$4.59	\$5.35	\$5.58	\$6.04	\$6.72
<u>Institutional (per HCF)</u>						
Schools/Colleges	\$6.31	\$6.31	\$7.94	\$8.05	\$8.73	\$9.99

Note that the impact of the revenue increase identified on the top line of the above chart does not necessarily reflect the rate increase for any given customer class. The rates charged to each class consider a number of factors, including that class' allocation of Flow, BOD, TSS and NH₃ costs. The financial plan only defines the total increase in revenue each year. The rates are calculated to meet that revenue target given the changing allocations of operating and capital expenses that are projected each year.

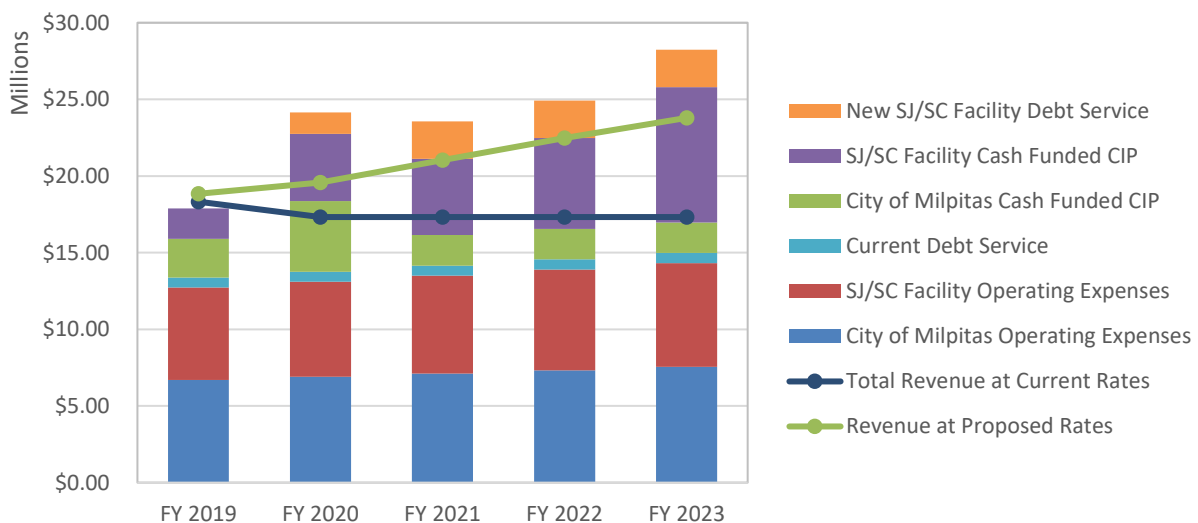
5.3 Total Revenue Projections at Proposed Rates

To maintain the financial health of the City’s sewer operations over the first five years of the planning period, sewer rate revenue needs to be increased. In addition to covering the revenue requirements, revenue must also be enough to satisfy the minimum cash balance specified of 180 days operating expenses outlined in Section 2.1.

5.3.1 Sewer Revenues vs. Expenses at Proposed Rates

MFSG proposes the use of the current cash balance as well as adjusting rates on a multi-year basis to provide a sound financial basis for the City’s sewer system. The flowing exhibit shows the revenue increases proposed by MFSG’s rate plan.

Exhibit 5.3.1 Sewer Revenue vs. Expenses Under Proposed Revenue Increases



MFSG’s rate plan for the sewer system depends on the multi-year usage of cash on hand to mitigate (“smooth out”) one-time rate increases. Over the five-year rate plan, the City’s sewer system will depend on a blend of increased rate revenues and the spending down of cash reserves. Due to the cash balance position of the sewer fund at the beginning of FY 2019, MFSG believes that a long-term phase-in is appropriate for the City’s sewer rates.

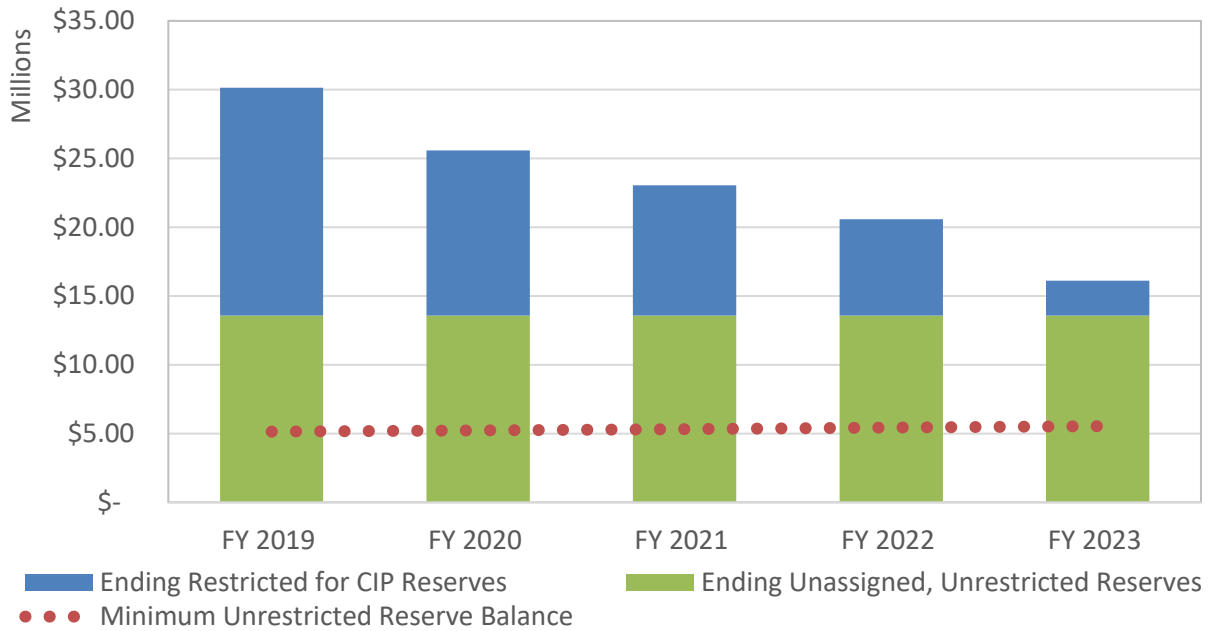
5.4 Sewer Fund Cash Balance Projections at Proposed Rates

Under MFSG’s proposed financial plan the City maintains the recommended reserve balance in each year of the five-year planning period. Under the proposed plan, the City maintains at least 180 days of cash within the Sewer Fund, which is the minimum that MFSG recommends.

5.4.1 Sewer Fund Balance at Proposed Rates

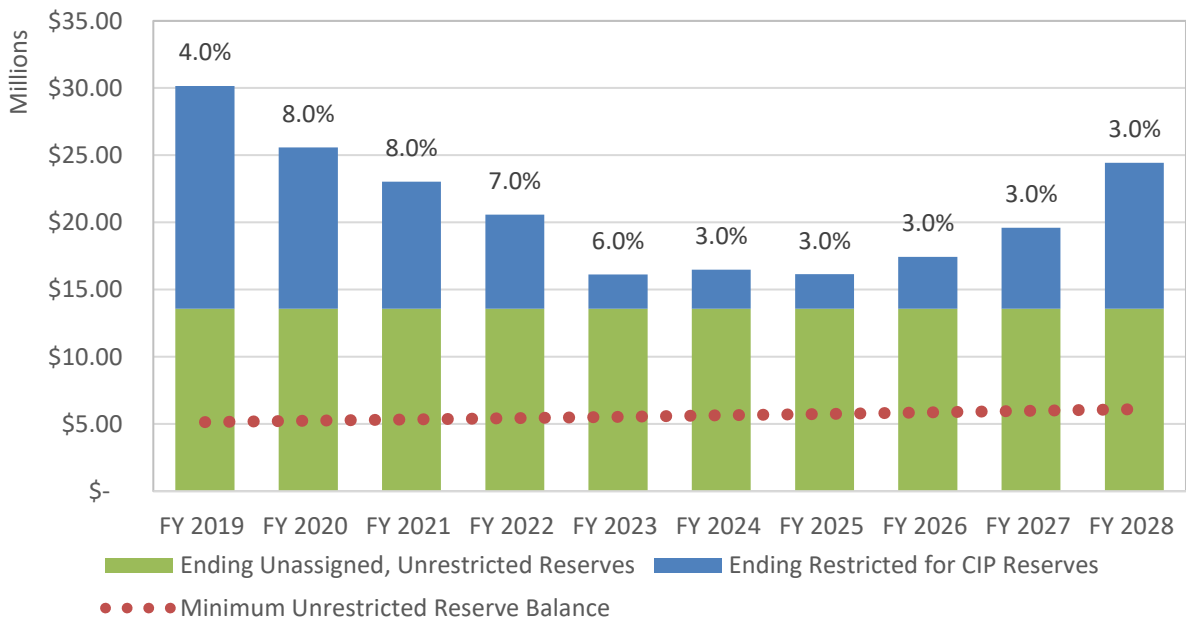
Sewer fund cash on hand will be used to phase in the revenue increases needed to support the long-term financial needs of the sewer system. Exhibit 5.4.1 shows the proposed draw-down on the sewer system’s cash balance to phase in the appropriate rate increases.

Exhibit 5.4.1 Sewer Fund Projected Balance under Proposed Rates (Five-Year)



The sewer system’s cash on hand will be utilized over portions of the projection to mitigate the need for higher sewer rate increases. Under the current projections the City’s sewer rates will be consistently cash flow positive in year six of the projection (FY 2024). However, at no time with the City’s Sewer Fund fall below the recommended 180 days of operating expenses. Exhibit 5.4.2 shows the long term (ten-year) projection of the City’s Sewer Fund balance.

Exhibit 5.4.2 Sewer Fund Projected Balance under Proposed Rates (Ten-Year)



The long-term projection includes 3.0% increases in operating expenses, the continuation of the City's FY 2023 CIP, the long-term projections of the SJ/SC WPCP capital costs, and 3.0% rate increase in each year after FY 2023. The percentages shown above the bars in the exhibit are the assumed revenue increases each fiscal year. It should be noted that the City will re-examine its sewer rate each year, and that these long-term projections will change with each future analysis.

A major consideration when projected the future revenue needs of the City's system is the impact that the proposed rates will have on the City's customers. The following section describes the projected impact on the City's sewer customers.

6. CUSTOMER BILL IMPACTS AND BILL COMPARISON

6.1 Bi-monthly Bill Impact of Recommended Rates

Exhibit 6.1.1 shows the percentage impact each year on customer bills. Because MFSG recommends adjusting rates to account for the updated cost of service results, the impact differs amongst the customer classes.

Exhibit 6.1.1 Sample Percentage Change in Bi-Monthly Bills by Customer Class

		FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Sewer User Rate Revenue Increase		4.0%	8.0%	8.0%	7.0%	6.0%
Month of Implementation		February	July	July	July	July
<u>Residential (per Dwelling Unit)</u>						
Single-Family		8%	5%	8%	7%	5%
Mobile Home Parks		33%	5%	8%	7%	5%
Multiple-Family		8%	5%	8%	7%	5%
<u>Commercial (per HCF)</u>						
	Average Bi-Monthly Usage (HCF)*					
Motels and Hotels	684	0%	5%	9%	8%	7%
General Office	82	2%	16%	4%	8%	11%
City of Milpitas	60	3%	10%	6%	8%	9%
Service Stations	77	3%	4%	8%	8%	7%
Eat/Drink Establishments	198	1%	0%	8%	8%	4%
Convalescent Hosp/Daycare	130	2%	5%	8%	8%	7%
Personal Services, Laundries	101	2%	7%	8%	8%	8%
Electrical/Electronics	171	1%	16%	4%	8%	11%
Machinery Manufacture	40	3%	10%	6%	8%	9%
<u>Monitored Sites (per HCF)</u>						
RockTenn (Jefferson Smurfit)	475	79%	0%	12%	8%	4%
T. Marzetti Co.	1,151	10%	5%	11%	8%	5%
Prudential Overall Supply	1,645	0%	0%	6%	8%	10%
Siemens Water Tech	3,621	0%	14%	5%	8%	11%
Elmwood Rehabilitation	3,101	0%	0%	7%	8%	5%
Linear Technology	2,917	0%	19%	4%	8%	11%
DS W	55	3%	4%	3%	8%	12%
Magic Tech & Headway Tech	1,814	2%	26%	4%	8%	11%
<u>Non-Monitored Sites (per HCF)</u>						
Lucky Pure Water	59	4%	7%	7%	8%	7%
Milpitas Materials	3	35%	4%	4%	5%	5%
Union Pacific Railroad	4	24%	8%	4%	6%	7%
Cisco	392	0%	16%	4%	8%	11%
Lifescan	37	5%	15%	4%	8%	10%
<u>Institutional (per HCF)</u>						
Schools/Colleges	62	2%	25%	1%	8%	14%

* Average bi-monthly usage for Non-Residential customers is calculated for each customer class as:
(Total Annual Flow/Customer Accounts)/6

The sample bill increases for each customer class vary from year to year due to varying levels of operating and capital spending needs. Each year, rates are calculated based on that year's operating and capital costs, which are allocated to each customer class based on the Flow, BOD, TSS, and NH₃ loadings show in Exhibit 4.4.1 of this report.

The total Sewer Fund rate revenue increase each year will be equal to the percentage shown on the top line of the above table.

6.2 Consideration of Mobile Home Park General Fund Subsidy

In 2015, the City of San José was presented with "Technical Memorandum No. 3" as a part of the "Phase 3 Flow and Load Study" performed by Carollo Engineers. The purpose of the study was to update the flow data used when allocating the treatment costs of the SJ/SC Regional Waste Water Facility to the Facility's Tributary Agencies, which include the Cities of San José, Santa Clara and Milpitas, as well as Cupertino Sanitary District, County Sanitation District No. 2-3, West Valley Sanitation District, and Burbank Sanitary District. The conclusion of that analysis was:

"Milpitas' mobile home data showed very low per-capita flow rates (approximately 30 GPCD in some years). After a close examination of the mobile home data, Carollo found two issues. The first was that the number of data points was very small, totaling only four accounts. The other issue was that although the consumption values for each account changed significantly from year to year, the number of units was relatively consistent. These issues led to the conclusion that the number of units in the database was incorrect, possibly due to fluctuating vacancies, and the number of data points too small to draw large conclusions. Therefore, Milpitas's mobile home data was not used in this analysis because a statistically significant number of reliable data points were not available."

– Carollo Engineers, Technical Memorandum No. 3 (2015) at p. 12

The final recommendation of Carollo's Flow study was to allocate 141 GPD per person to the City of Milpitas Mobile Home account, equivalent to 63 GPD per person. This was based on a weighted average of all Tributary Agencies due to the lack of data quoted above. City staff has since replaced the water meters at the mobile home parks and the more accurate data from the new water meters and sewer flow monitoring will be incorporated into future flow and load studies.

As a matter of rate setting policy, the 2015 sewer rate study set Mobile Home Park sewer rates based on an allocation of 51 GPD, which is in line with both Single Family and Multiple Family flow data. This resulted in a rate for Mobile Home Park customers based on 114 GPD per dwelling unit (2.24 persons per unit) rather than 141 GPD per unit. Therefore, the City's Mobile Home Park customers were paying a rate to the City of Milpitas that was lower than the costs allocated to those customers by the City of San José.

MFSG recommends aligning the City's rate calculation with the cost allocation made by the City of San José. That is, MFSG recommends that the City of Milpitas calculate Mobil Home Park rates using the 141 GPD per dwelling unit. This allocation results, as shown previously, in a significant increase in Mobile Home Park rates when compared with Single Family and Multiple Family rates.

MFSG was asked to consider mitigating the impact of the rate increases on Mobile Home Park customers via the use of a subsidy from unrestricted non-rate revenues. California's Proposition 218 does not allow the subsidy of any rate class via charging other rate classes higher fees within the same fund. That is, in

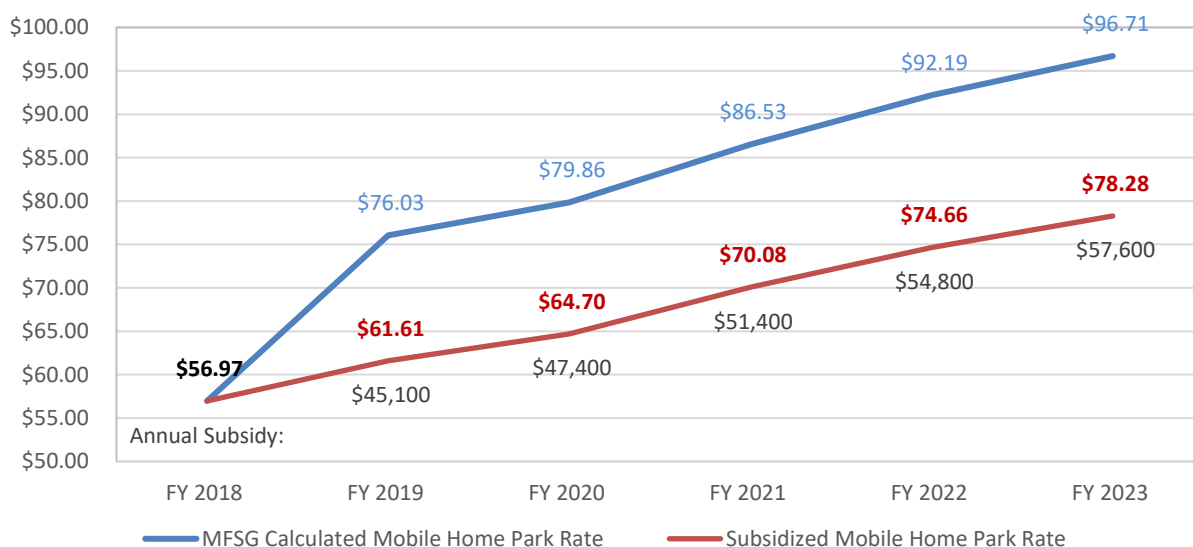
order to reduce the cost for any given rate payer, the City is only allowed to introduce the subsidy from unrestricted revenues, typically from the General Fund. MFSG considered a subsidy over the course of the five-year rate projection from the City’s general fund to reduce the rate impact on Mobile Home Park rate payers to equal the proposed rate impact on Single Family and Multiple Family users. This analysis is shown in Exhibit 6.2.1.

Exhibit 6.2.1 Mobile Home Park Subsidy Calculation

	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
MFSG Calculated Mobile Home Park Rate	\$56.97	\$76.03	\$79.86	\$86.53	\$92.19	\$96.71
% Increase		33%	5%	8%	7%	5%
Mobile Home Park Rate Subsidy		\$45,100	\$47,400	\$51,400	\$54,800	\$57,600
Subsidized Mobile Home Park Rate		\$61.61	\$64.70	\$70.08	\$74.66	\$78.28
		8%	5%	8%	7%	5%

This subsidy brings the Mobile Home Park rate increases in line with those of SFR and MFR customers. Exhibit 6.2.2 shows the subsidy graphically.

Exhibit 6.2.2 Percentage Change in Bi-Monthly Bills by Customer Class



The annual subsidy to the Sewer Fund would not impact the total revenue projections presented in this report, as the subsidy would be transferred into the Sewer Fund to compensate for the reduced revenue generated from Mobile Home Park customers each year. All other rates shown in MFSG’s recommended rate table remain unchanged under this scenario. While the total amount of the subsidy from the General Fund to offset mobile home park sewer costs would be \$45,100 in the first year of the plan, the subsidy would gradually increase each year to account for the compounding nature of the proposed rate increases.

6.3 Single Family Bi-Monthly Sewer Bill Comparison

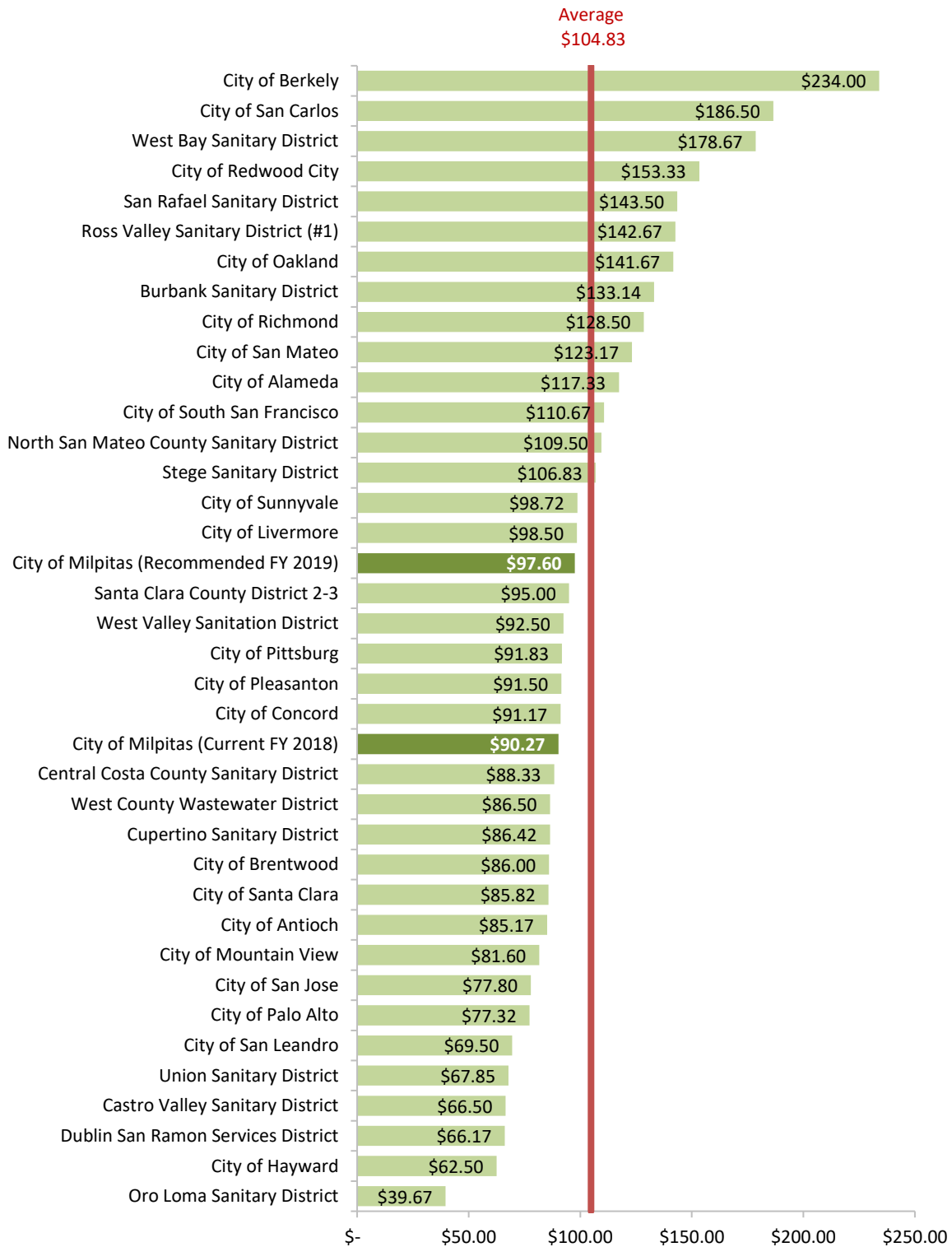
Exhibit 6.3.2 shows the City's current FY 2018 and recommended FY 2019 Single-Family bi-monthly rate as compared to several other wastewater agencies. In general, the wastewater agencies listed above meet two criteria:

1. Within 50 miles of the City of Milpitas
2. Have at least 100 miles of collection system and/or 5 MGD of treatment capacity.

Several notes should be made about the exhibit below. It is important to recognize the context of the chart. The bi-monthly cost shown is as of the latest available data, with all rates being currently effective as of the time of this report. That is, the chart does not reflect the individual financial performance of each agency's sewer system.

While the comparison is relevant in terms of customer perception, it cannot be relied upon for the purposes of rate setting. Our report details the specific and unique financial and operational profile of the City of Milpitas' sewer system, and MFSG has recommended rates that will raise the appropriate revenue to meet the City's costs. The other service providers shown below may or may not be charging rates that fully fund the operating, capital and reserve needs of each system.

Exhibit 6.3.2 Single Family Bi-Monthly Sewer Bill Comparison



7. FINDINGS, CONCLUSIONS AND RECOMMENDATIONS

The following findings, conclusions and recommendations were developed during the study.

7.1 Findings

The following findings were developed during the study:

- The City's current (FY 2018) sewer rates are not sufficient to fully fund the operating, capital, and cash reserve needs of the City's sewer system.
- The City's current planned reinvestment in its buried sewer assets is insufficient to fully fund the cost of rehabilitation and replacement needs of its buried assets and will allow the continuing decline in the physical condition of its sewer collection system.
- The City's rate calculation methodology generally complies with the Water Environment Federations Manual of Practice 27 - *Financing and Charges for Wastewater Systems*.
- The City currently collects 64% of its Personnel Services costs in its bi-monthly Flat Fee.
- The City charges its Mobile Home Park customer class based on a per person flow assumption of 51 GPD and 2.24 persons per dwelling unit, resulting in a per dwelling unit flow assumption of 114
- The City's Sewer Fund contains appropriate reserves given the operational and capital expenses of the City's system and the City's reserve policies.

7.2 Conclusions

Based on our findings, the following conclusions were drawn:

- The City needs to increase sewer rates over the five years of the planning period (FY 2019 to FY 2023) to increase projected revenues to match related expenses.
- The City will need to increase investment in its buried sewer infrastructure over the short and long term.
- Given the City's Sewer Fund balances (restricted for CIP and unassigned, unrestricted) rate increases can be phased-in over a number of years to mitigate the one-time impact on the City's customers.

7.3 Recommendations

Based on our conclusions, MFSG recommends that:

- The City implement rate increases through a multi-year financial plan that utilizes both increased rate revenues and the use of a portion of current cash on hand. This will allow the City to smooth rate increases over the planning period and mitigate customer rate shock while meeting both its funding and cash reserve requirements.
- The City collect 100% of its Personnel Services costs in its bi-monthly Flat Fee.
- The City allocate costs to its Mobile Home Park customer class based on the same flow assumption used by the City of San José to allocate operating costs to the City of Milpitas, which is 63 GPD per person and 2.24 persons per dwelling unit, which equals 141 GPD per dwelling unit.
- Adopt the following rates for the next five fiscal years:

Exhibit 7.3.1 Recommended Bi-Monthly Sewer Rates

	Current FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Sewer User Rate Revenue Increase		4.0%	8.0%	8.0%	7.0%	6.0%
Month of Implementation		February	July	July	July	July
Residential (per Dwelling Unit)						
Single-Family	\$90.27	\$97.60	\$102.52	\$111.07	\$118.34	\$124.14
Mobile Home Parks	\$56.97	\$76.03	\$79.86	\$86.53	\$92.19	\$96.71
Multiple-Family	\$69.32	\$74.96	\$78.73	\$85.30	\$90.88	\$95.34
Non-Residential Fixed Flat Fee (per bill)	\$15.27	\$24.30	\$25.03	\$25.78	\$26.55	\$27.35
Commercial (per HCF)						
Motels and Hotels	\$4.36	\$4.36	\$4.58	\$4.97	\$5.37	\$5.75
General Office	\$4.67	\$4.67	\$5.44	\$5.67	\$6.14	\$6.84
City of Milpitas	\$4.18	\$4.18	\$4.61	\$4.91	\$5.31	\$5.80
Service Stations	\$4.34	\$4.34	\$4.54	\$4.93	\$5.32	\$5.70
Eat/Drink Establishments	\$7.49	\$7.49	\$7.49	\$8.11	\$8.73	\$9.06
Convalescent Hosp/Daycare	\$4.23	\$4.23	\$4.46	\$4.84	\$5.23	\$5.60
Personal Services, Laundries	\$3.95	\$3.95	\$4.23	\$4.56	\$4.92	\$5.31
Electrical/Electronics	\$4.59	\$4.59	\$5.35	\$5.58	\$6.04	\$6.72
Machinery Manufacture	\$6.08	\$6.08	\$6.70	\$7.12	\$7.70	\$8.43
Monitored Sites (per HCF)						
RockTenn (Jefferson Smurfit)	\$4.67	\$8.35	\$8.35	\$9.39	\$10.11	\$10.46
T. Marzetti Co.	\$8.34	\$9.16	\$9.63	\$10.65	\$11.48	\$12.09
Prudential Overall Supply	\$6.70	\$6.70	\$6.70	\$7.08	\$7.66	\$8.42
Siemens Water Tech	\$4.91	\$4.91	\$5.61	\$5.87	\$6.36	\$7.06
Elmwood Rehabilitation	\$5.49	\$5.49	\$5.49	\$5.89	\$6.35	\$6.69
Linear Technology	\$4.59	\$4.59	\$5.47	\$5.71	\$6.18	\$6.88
DS W	\$4.59	\$4.59	\$4.80	\$4.92	\$5.34	\$6.04
Magic Tech & Headway Tech	\$4.53	\$4.62	\$5.82	\$6.07	\$6.57	\$7.32
Non-Monitored Sites (per HCF)						
Lucky Pure Water	\$3.94	\$3.94	\$4.21	\$4.54	\$4.91	\$5.29
Milpitas Materials	\$3.94	\$3.94	\$4.21	\$4.54	\$4.91	\$5.29
Union Pacific Railroad	\$5.11	\$5.11	\$5.84	\$6.12	\$6.63	\$7.35
Cisco	\$4.59	\$4.59	\$5.35	\$5.58	\$6.04	\$6.72
Lifescan	\$4.59	\$4.59	\$5.35	\$5.58	\$6.04	\$6.72
Institutional (per HCF)						
Schools/Colleges	\$6.31	\$6.31	\$7.94	\$8.05	\$8.73	\$9.99

- The City review rates and charges on an annual basis and revise as needed and consider a full cost of service study for all rates and charges every five years.



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PROPOSED MAXIMUM BI-MONTHLY RATE SCHEDULE

FY 2018/19 to FY 2022/23

Bi-Monthly Water Rates - Meter Charges

Meter Size	Current	Proposed	\$ Increase	Proposed	\$ Increase	Proposed	\$ Increase	Proposed	\$ Increase	Proposed	\$ Increase
		2018/19		2019/20		2020/21		2021/22		2022/23	
5/8"	\$19.44	\$27.01	\$7.57	\$28.63	\$1.62	\$30.34	\$1.72	\$32.17	\$1.82	\$34.10	\$1.93
3/4"	29.16	40.51	11.35	42.94	2.43	45.52	2.58	48.25	2.73	51.14	2.89
1"	48.60	67.52	18.92	71.57	4.05	75.86	4.29	80.41	4.55	85.24	4.82
1-1/2"	97.20	135.03	37.83	143.13	8.10	151.72	8.59	160.83	9.10	170.48	9.65
2"	155.52	216.05	60.53	229.02	12.96	242.76	13.74	257.32	14.57	272.76	15.44
3"	291.60	405.10	113.50	429.40	24.31	455.17	25.76	482.48	27.31	511.43	28.95
4"	486.00	675.16	189.16	715.67	40.51	758.61	42.94	804.13	45.52	852.38	48.25
6" & above	972.00	1,350.33	378.33	1,431.35	81.02	1,517.23	85.88	1,608.26	91.03	1,704.76	96.50
Detector Check/ RPDa/DCDA											
2 inch	31.10	43.21	12.11	45.80	2.59	48.55	2.75	51.46	2.91	54.55	3.09
3 inch	58.32	81.02	22.70	85.88	4.86	91.03	5.15	96.50	5.46	102.29	5.79
4 inch	97.20	135.03	37.83	143.13	8.10	151.72	8.59	160.83	9.10	170.48	9.65
6 inch and above	194.40	270.07	75.67	286.27	16.20	303.45	17.18	321.65	18.21	340.95	19.30
Volumetric Charges (per hcf)											
Residential	5.13	5.31	0.18	5.63	0.32	5.97	0.34	6.32	0.36	6.70	0.38
Commercial/Industrial/Institutional and Construction	5.13	5.31	0.18	5.63	0.32	5.97	0.34	6.32	0.36	6.70	0.38
Potable Irrigation	5.13	5.31	0.18	5.63	0.32	5.97	0.34	6.32	0.36	6.70	0.38
Santa Clara County (Ed Levin Park)	3.79	4.10	0.31	4.10	0.00	4.10	0.00	4.10	0.00	4.47	0.37
Recycled Irrigation	2.78	3.57	0.79	3.79	0.21	4.01	0.23	4.25	0.24	4.51	0.26
Recycled Water Industrial / Dual Plumbed	2.78	3.57	0.79	3.79	0.21	4.01	0.23	4.25	0.24	4.51	0.26
Recycled Water: City of Milpitas	2.78	3.57	0.79	3.79	0.21	4.01	0.23	4.25	0.24	4.51	0.26
Capital Surcharge (all potable use, per hcf)	1.30	1.08	-0.22	1.08	0.00	1.08	0.00	1.08	0.00	1.08	0.00