

FINAL
CITY OF DUNSMUIR
SEWER RATE STUDY



MARCH 2019

JOB No. 204.59

Prepared By:



FINAL **SEWER RATE STUDY**

FOR

**CITY OF DUNSMUIR
5915 DUNSMUIR AVENUE
DUNSMUIR, CA 96025**

JOB No. 204.59

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ABBREVIATIONS

CDBG	Community Development Block Grant
City	City of Dunsmuir
CVRWQCB	Central Valley Regional Water Quality Control Board
CWSRF	Clean Water State Revolving Fund
DIF	Development Impact Fees
EDU	Equivalent Dwelling Unit
FY	Fiscal Year
GPD	Gallons per Day
I&I	Infiltration & Inflow
IRWM	Integrated Regional Water Management
M	Million
MHI	Median Household Income
NPDES	National Pollution Discharge Elimination System
RD	Rural Development
USEPA	U.S. Environmental Protection Agency
WWTP	Wastewater Treatment Plant

EXECUTIVE SUMMARY

I. INTRODUCTION

The City of Dunsmuir (City) owns and operates its sewer system consisting of a collection system with lift stations, treatment plant, and effluent disposal facilities. The City's collection system is primarily a gravity system, except that the north Dunsmuir area (located north of the I-5 bridge over the Sacramento River) drains to the I-5 lift station. The I-5 Lift Station pumps raw sewage to the gravity sewer in Dunsmuir Avenue on the south side of the river. A smaller lift station serves the Shasta Retreat Area in north Dunsmuir, which pumps up to the gravity sewer in North Dunsmuir Avenue. The collection system, located south of the I-5 bridge over the Sacramento River, flows by gravity to the wastewater treatment plant (WWTP).

The WWTP consists of a headworks, oxidation ditch activated sludge treatment, secondary clarifier, travelling bridge filters, chlorination/dechlorination, and river outfall/diffuser. Waste sludge is stabilized in an aerobic digester and conveyed to drying beds for dewatering and disposal.

Treated effluent is conveyed to the Sacramento River in accordance with requirements set forth in the City's National Pollution Discharge Elimination System (NPDES) permit issued by the Central Valley Regional Water Quality Control Board (CVRWQCB).

The sewer system is operated by the City as an independent enterprise through a Sewer Enterprise Fund. Expansion and upgrading of the sewer system are funded primarily through connection fees but also through user fees. The Sewer Development Fees provide funds for growth-related improvements to the sewer system and are not reflected in this study.

II. PURPOSE AND SCOPE

PACE Engineering, Inc. (PACE) prepared the City's 2007 Master Sewer Plan. This rate study presents the results of the review and analysis of the City's current Sewer Enterprise Fund rates. The Manual of Practice No. 27, Fourth Edition (2018), Financing and Charges for Wastewater Systems by Water Environment Federation, was utilized to establish policies presented in this study. This review was conducted to determine if the

current rate structure can provide the revenues needed to allow the City to recover the total costs of the Sewer Enterprise from existing and future customers. Costs that were reviewed included the costs of operation and maintenance, principal and interest on loans (debt service), normal additions and replacements to the systems, administrative costs, reserve funding, and capital improvement programs.

The purpose of the study is to identify possible changes to the City's current rate structures, which may be required to provide the future revenues needed to meet projected costs. In addition, the City requested that the rate structures be equitable such that, as nearly as practical, each customer would pay their fair share of the costs of providing the services received. The scope includes a review and analysis of the operation of the City's Sewer Enterprise based upon historic and budgeted expenditures and revenues.

In order to facilitate public involvement and create a transparent environment from which the rate study was generated, the City formed a "Citizens' Committee" made up of two City Council members and three community members. Six public workshops were completed with the Citizens' Committee beginning in February 2018 through January 2019. Draft rate study results were presented at a public workshop prior to the December 20, 2018 City Council meeting for consideration and comment by the City Council and public. A presentation of the proposed study was also presented at a "Town Hall" meeting on March 6, 2019.

The work performed included:

- Hosting public meetings with Citizens' Committee members to collect and review available information and review the methodology to be used in the development of the recommended rate structures for sewer services.
- Reviewing historical account information and anticipated future costs for the five-year study period (FY 19-20 through FY 23-24).
- Reviewing capital improvement funding needs.
- Develop a forecast of the annual revenue requirements.

- Recommending rate structures that will generate the level of revenue needed, with a distribution of those costs on an equitable basis between current and new customers, as well as by class of customer.

In order to implement recommended sewer rates, the City will need to initiate Proposition 218 proceedings.

Proposition 218 was passed by California voters in November 1996 as the “Right to Vote on Taxes Act.” The Proposition 218 procedure involves sending “protest ballots” to all property owners affected by the proposed rates. At the end of a 45-day “notice period,” the City will host a public hearing where all “protest ballots” will be counted. If a simple majority of affected property owners submit protests against the proposed rates, the proposed rates cannot be implemented by the City.

However, if less than a majority (<50%) of protests are received, the City Council will have the authority to implement the proposed rates if it so desires.

III. STUDY ASSUMPTIONS

The following assumptions were used to analyze and project future costs, revenues, and rates for this study:

- Proposed Sewer Enterprise Fund rates must generate sufficient revenues to cover the costs of system operation and maintenance, replacement capital improvements, and principal and interest (debt service) allocated to system users.
- The financial plan presented in this report does not reflect revenue generated from development impact fees (DIF). Future growth will pay DIFs that will be directed to fund infrastructure improvements needed to accommodate future growth.
- The Sewer Enterprise Funds will operate with a balanced budget maintaining adequate reserve and replacement funds.

IV. SEWER RATE AND FINANCIAL PLAN RECOMMENDATIONS

A. SUMMARY OF FINDINGS

Findings related to the City's current sewer rates are summarized below:

- The current rate structure is not based on actual water consumed but rather was largely based on estimates of plumbing fixture units and flow impacts from specific features developed in the mid-1980s, for example, number of rooms for a hotel, number of public/private restrooms in a retail store, etc. As such, there is much variability between wastewater flows from different establishments of the same class of use.
- The current sewer rate structure consists of a fixed monthly service charge for all single-family residential accounts.
- The current sewer rate structure for non-residential accounts is fairly complicated consisting of over 50 different rate codes. The rate codes appear to be empirically based and do not necessarily reflect a business's true impact to the sewer system. As such, the same rate code can be applied to similar businesses that have very different wastewater contributions.
- The City has debt obligations from three loans as follows: 1994 USDA Certificates of Participation (COP); 2007 USDA River Avenue Sewer Project; and 2012 CWSRF WWTP/Collection Improvements.
- Sewer rates need to provide sufficient revenues to sustain the capital replacement program at levels desired for long-term system reliability.

B. SEWER RATE RECOMMENDATIONS

The sewer rates recommended for adoption through FY 23-24 are summarized in Table ES-1. The rates shown reflect acquisition of \$4.0M of long-term debt to fund capital replacement projects. Refer to Table 5 for various rate scenarios needed to fund capital replacement projects with long-term debt. The analyses contained in this report assume that the proposed FY 19-20 rates will become effective on or before July 1, 2019.

Table ES-1 – Recommended Monthly Sewer Rates

User Class	Budgeted FY 18-19	Proposed FY 19-20	Proposed FY 20-21	Proposed FY 21-22	Proposed FY 22-23	Proposed FY 23-24
Residential Flat Rate per Unit ⁽¹⁾⁽²⁾	\$40.08	\$45.00	\$50.00	\$54.00	\$57.00	\$59.00
Non-Residential Flat Rate per EDU ⁽²⁾⁽³⁾	varies	\$45.00	\$50.00	\$54.00	\$57.00	\$59.00

Notes:

1. Residential accounts include single-family residences; apartments, including duplexes, triplexes, and fourplexes; and mobile homes on their own parcel. Mobile home parks are charged based on non-residential (water consumption based) rates.
2. One equivalent dwelling unit (EDU) equals 200 gallons per day (6,080 gallons/mo.) of wastewater flow, which is the estimated flow from a typical single-family household.
3. Non-residential EDUs based on 90% of average monthly water consumption for January, February, and March.

The current sewer bill for a single-family residence is \$40.08 per month. It is expected the single-family residence bill will increase to \$59.00 per month by FY 23-24 as shown in Table ES-1.

The recommendations for the sewer rate structure include:

- Changing from the rate code-based rate structure to a wintertime water consumption-based rate structure will cause some customers' bills to increase, while others will decrease.
- The City to implement a sewer rate structure for all non-residential accounts based on wintertime water consumption.
- The City to require its industrial dischargers to apply for and obtain industrial waste discharge permits in accordance with U.S. Environmental Protection Agency's pre-treatment rules.
- The City to adopt a policy which requires non-residential sewer customers who are not served water by the City to install a flow measuring device in the sewer lateral for the purpose of determining monthly user fees.

C. SEWER FINANCIAL PLAN RECOMMENDATIONS

The following recommendations are made with respect to the sewer fund structure and reserve policies. These recommendations are intended to improve the financial

condition of the sewer utility and minimize the potential for future rate volatility as well as take steps to replace portions of the City's aging infrastructure.

- The sewer utility should maintain a minimum operating reserve of 25% of the budgeted total expenses, less debt service and on-going capital projects. The designated operating reserve will provide funds available for emergencies, unanticipated fluctuations in revenues relative to costs, and other unforeseeable events.
- The City's existing "Sewer Service Standby" service fee policy is to remain in place, which requires customers to continue paying the monthly sewer charge even if water is shut off to the property. This charge shall apply to those customers who request to discontinue their water service for periods throughout the year, such as vacation or second homes. The rationale is that operation and maintenance of the sewer system is an ongoing, day-to-day activity, benefiting all sewer connections, whether they are discharging wastewater during a particular time or not. In addition, most laterals, whether being used or not, leak groundwater into the City's collection system, which must be treated and disposed.
- The City should strive to hire a Grade III wastewater treatment plant operator before the end of FY 2018-19. The State of California is applying pressure to the City to make this happen.
- Fund a \$4.0M collection system improvement project using loan and grant funds. The project will generally consist of replacing 15,000 feet of sewer main and lateral replacement, replacing 36 manholes, and adding 324 two-way cleanouts, of which 144 will contain backflow prevention valves. The City has already obtained a \$500,000 planning grant, which has facilitated planning and partial design for this project. Thus, the total project amount would be about \$4.5M.
- Review inflationary trends annually using the American Cities Municipal Index or Consumer Price Index (CPI) and confirm that inflation is still within the inflation factors used in the five-year financial plan. Higher than projected inflation may require adjustments to the proposed rate schedule.
- Update this Sewer Rate Study within five years, such that a new five-year study can be adopted and implemented by July 1, 2024.

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I. CURRENT SEWER USE RATES

The City's existing sewer rates have remained unchanged at \$40.08 per month since July 2011. Prior to that, sewer rates were increased by \$5 per month on July 1, 2010 and \$5 per month on July 1, 2011 after being \$30.08 between July 1, 2001 and June 30, 2010. Since the last rate increase in 2011, inflation has increased between 16% and 22%.

The existing rate schedule generally classifies various non-residential customer classes as "low," "average," and "high" flow. Within the general rate approach, the City has created "rate codes" intended to apply the "general" rate requirements to the specific non-residential customer. There are 54 different rate codes used to impose sewer rates on non-residential customers.

One of the inherent problems with this approach is that the sewer rates are based on the somewhat subjective opinion of the City staff person setting up the rates. In addition, the current approach does not take into account the seasonal variation in sewage flows resulting from fluctuations in patronage and/or occupancy from the non-residential customers. As such, there are likely non-residential customers paying too much for sewer service and some who are not paying their fair share.

For example, a hotel does not experience 100% occupancy of all rooms on every night of the year; although, many hotels pay monthly sewer bills as if the facility were 100% occupied. Conversely, a non-residential customer may be paying a monthly bill based on one restroom facility in a small business. However, the restroom may be used throughout the day and night by employees and patrons, generating more wastewater than a typical office open eight hours per day may generate.

A more modern approach to establishing sewer rates is to base monthly charges on some fraction of actual water consumption whether it be wintertime or monthly consumption. It is recommended the City base its monthly sewer charges on 90% of average water used

during January, February, and March. Unfortunately, this adjustment will cause some customers' sewer bills to experience substantial increases over historical bills, while others will experience decreases.

According to wintertime (January, February, and March) water consumption records, roughly 74% of non-residential sewer accounts are underpaying on their current sewer bill. Approximately 16% are paying too much, and 10% are paying approximately the right amount.

The bottom line is, use of actual wintertime water consumption to establish monthly sewer bills is considered the fairest for all customers. This practice will require City staff to establish non-residential monthly sewer charges after March but before April sewer bills are mailed each year.

II. HISTORICAL GROWTH AND EXPENDITURES

A. SEWER UTILITY CUSTOMERS AND SEWER USE - HISTORY

According to the US Census Bureau, there has been no growth within the City of Dunsmuir in recent years. Data indicates the population of the City between 2009 and 2016 has decreased by about 18% from 1,984 to 1,631 persons. It is uncertain if this trend will continue.

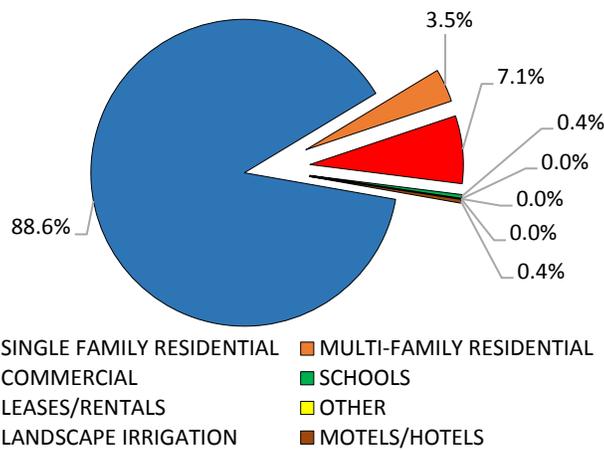
For planning purposes for this rate study, it is assumed the population served by the City's sewer system will be unchanged for the next five years. If unexpected growth does occur and revenue is higher than projected, the City will apply the additional funds toward replacement of deteriorated infrastructure.

Table 1 – Historical Sewer Rates

Effective	7/1/01	7/1/10	7/1/11	7/1/12
Percent Increase		16.6%	14.3%	0%
RESIDENTIAL				
Single-Family Dwelling	\$30.08	\$35.08	\$40.08	\$40.08
Apartments (per unit)	\$30.08	\$35.08	\$40.08	\$40.08
Mobile Homes	\$30.08	\$35.08	\$40.08	\$40.08
COMMERCIAL				
Motel and Hotel (per unit)	\$15.03	\$17.53	\$20.03	\$20.03
Retail				
Low Flow	\$31.29	\$36.49	\$41.69	\$41.69
Avg. Flow	\$51.00	\$59.48	\$67.96	\$67.96
Grocery Stores				
Low Flow	\$102.93	\$120.04	\$137.15	\$137.15
Avg. Flow	\$167.15	\$194.93	\$222.71	\$222.71
High Flow	\$220.80	\$257.50	\$294.20	\$294.20
Bars/Restaurants	\$79.96	\$93.25	\$106.54	\$106.54
Restaurants				
Avg. Flow	\$95.71	\$111.62	\$127.53	\$127.53
High Flow	\$112.79	\$131.54	\$150.29	\$150.29
Gas Stations	\$35.87	\$41.83	\$47.79	\$47.79
Medical/Dental	\$45.01	\$52.49	\$59.97	\$59.97
Schools				
High School	\$186.04	\$216.96	\$247.88	\$247.88
Elementary	\$208.61	\$243.29	\$277.97	\$277.97
Phone Companies	\$71.84	\$83.78	\$95.72	\$95.72
Railroad				
Railroad	\$445.26	\$519.27	\$593.28	\$593.28
U.P. Modular	\$481.13	\$561.11	\$641.09	\$641.09

In July 2017, the City of Dunsmuir had a total of 1,386 sewer accounts. Figure 1 summarizes the current number of customer accounts, as well as the current estimated amount of annual water use, which is generally proportional to the quantity of wastewater discharged by each class of customer. As expected, wastewater discharged by all user classes, except for the single-family residential class, represents a higher proportion of wastewater discharge than is reflected by the percentage of customer accounts in each class.

Percent by No. of Accounts



Percent by Water Use

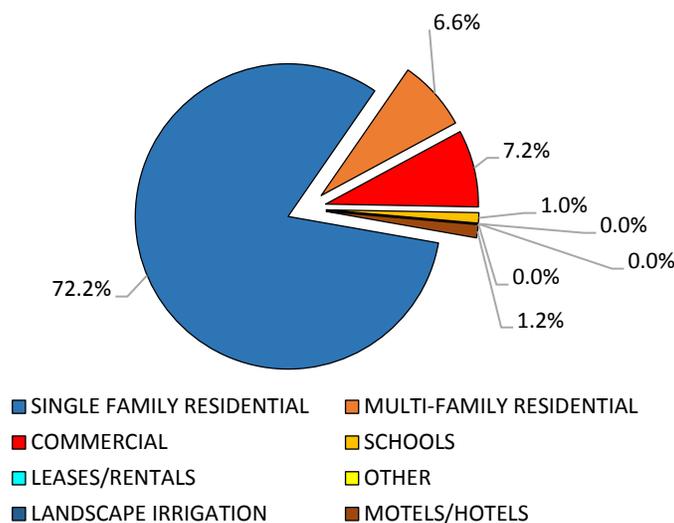


Figure 1 – Summary of Customers and Annual Water Use

Sewer accounts are segregated into user types as shown in Table 2.

Table 2 – Meter Summary

User Type	Total
Motel/Hotel	8
Commercial Summary	100
Landscape (no sewer)	6
Institutional Summary	4
Multi-Family Summary	35
Single-Family	1,233
Total:	1,386

B. SEWER UTILITY EXPENDITURES

Sewer utility expenditures for operation and maintenance and for replacement capital projects are normally made from the Sewer Enterprise Fund. Table 3 is a summary of actual Sewer Enterprise Fund expenditures for FY 14-15 through FY 17-18.

Table 3 – Historic Expenditures

Description	Expended (FY 14-15)	Expended (FY 15-16)	Expended (FY 16-17)	Expended (FY 17-18)
Personnel & Related Expenses	\$349,675	\$310,626	\$375,908	\$363,932
Contract Services	\$38,807	\$75,718	\$96,264	\$53,191
Insurance & Taxes	\$26,612	\$57,722	\$59,367	\$73,834
Repairs, Maintenance, & Utilities	\$107,383	\$121,629	\$130,556	\$109,987
Material, Supplies, Permits, and Licenses	\$18,783	\$8,964	\$16,061	\$12,572
Capital Outlay ⁽¹⁾	\$0	\$14,847	\$62,389	\$407,846
Existing Debt (Interest)	\$62,554	\$101,493	\$75,067	\$72,745
Total:	\$603,814	\$690,999	\$815,612	\$1,094,107

⁽¹⁾All Capital Outlay shown is reimbursed by Proposition 1 planning grants.

The City has not had a sewer rate increase since July 1, 2011. Revenue generated from the \$5/month rate increases in July of 2010 and 2011 (\$10/month total) was placed into an internal account titled, “Sewer Improvement Fund.” The intention was to use this “extra” revenue to fund capital replacement projects. Some capital replacement work has taken place utilizing these funds; however, inflationary increases in expenditures has reduced the usefulness of this approach.

The decision to place the revenue generated from the 2010 and 2011 rate increases into a Sewer Improvement Fund would have been more beneficial had the City continued to make annual inflationary increases to the \$30.08/month rate in July 2010. But the City did not do that. Meanwhile, expenditures have increased to the point that revenue generated from the \$30.08/month rate is not adequate to offset expenditures. For example, at the end of FY 18-19, it is projected the City will have a balance of -\$283,000 in the Sewer Operating Fund, while the Sewer Improvement Fund will have a balance of approximately \$629,000.

Therefore, it is recommended the City use a portion of accumulated cash in the Sewer Improvement Fund to offset inflationary increases in expenditures. Or, if the City wishes to maintain the balance in the Sewer Improvement Fund, it will need to adopt even higher increases to sewer rates.

III. SEWER RATE DEVELOPMENT

A. SEWER RATE REVENUE REQUIREMENT FOR CAPITAL PROJECTS

The annual sewer enterprise rate revenue requirement is based on sewer system operation and maintenance cost plus debt service obligations and replacement capital improvement needs, less other sewer system revenues, such as interest earnings and other income.

The City has capital improvement needs in its collection system, including lift stations and wastewater treatment plant. Recently, the City obtained two \$500,000 planning grants through CWSRF to perform planning, design, and environmental services toward implementation of 1) a Collection System Replacement Project that will replace old, deteriorated sewers and 2) a project to make improvements to the City's WWTP.

The Collection System Replacement Project will add two-way cleanouts and backflow valves, where required, to service laterals throughout the collection system. In addition, the worst-condition sewer mains will be replaced.

Wastewater treatment plant improvements are needed to supplement work completed in 2014 and meet updated treatment, discharge, and monitoring requirements.

Recommended WWTP improvements include the following:

- Install new influent pipeline
- Install screening unit and a new headworks channel
- Construction of an open channel biological selector with mixers prior to the oxidation ditch
- Replace aeration basin aerators and motors
- Install diffused air system in Sludge Lagoon #1
- Replace existing aluminum grates at the effluent wet well
- Install new actuated butterfly valves in effluent wet well to Ponds 1 and 2
- Relocation of outfall diffuser in Sacramento River
- Replace existing lab equipment as needed for quality assurance and/or quality control

- Upgrade of WWTP electrical, controls, and alarms
- Install four groundwater monitoring wells

It is anticipated construction funding applications for a \$4.0M Collection System Replacement Project and a \$5.56M WWTP Improvement Project will be submitted to the Proposition 1 CWSRF program in early 2019. It is unclear the likelihood of the City obtaining 100% grant funding for these two projects; however, of the two projects, it is more likely the WWTP Improvement Project will receive grant dollars for construction due to state policies regarding priority of funding toward these types of projects.

Therefore, it is recommended the City pursue conventional (loan/grant) financing for the \$4.0M Collection System Replacement Project but hold out for grant dollars to construct the WWTP improvements.

As a result of the ongoing collection planning grant efforts, an additional \$5.562M in collection system improvements have been identified as near-term, high-priority needs. If the City desires to pursue these improvements, it is likely a long-term financing arrangement will be necessary. Assuming a 70%/30% loan/grant split from USDA, with a 40-year loan at 2.5% interest, the annual debt and debt reserve obligation on a \$5.562M project would be about \$171,000 per year, or about \$9.31 per month per Equivalent Dwelling Unit (EDU).

B. COST OF SERVICE ANALYSIS

Development of sewer rate recommendations normally involves two primary steps. First, the Sewer Enterprise Fund costs are allocated to functional cost components, and then, a rate structure is designed to incorporate these cost components. The goal is to allocate the costs and design a rate structure that results in the costs being proportionately distributed among customer classes.

There are a number of ways to allocate costs for rate setting purposes. Some are rather complex, requiring a significant effort to develop and to administer. Others are somewhat simpler to develop, understand, and administer. The City's current rate structure assigns a flat rate for residential (single-family, multi-family, and mobile homes on single parcels) accounts. This is a common approach used by most public agencies and is considered the most appropriate for the City.

Current sewer rates for non-residential accounts are separated into ten general categories of use and further delineated by “low,” “average,” or “high” flow. The problem with this approach is not all existing accounts fit well into these limited account classes. Plus, there are no documented guidelines to determine whether an account is a low, average, or high flow discharger.

In addition, for accounts such as motels/hotels, restaurants, and schools, the existing rate structure assumes these accounts are 100% occupied throughout the year. Intuitively, we know this is not the case. For example, motels/hotels and restaurants have varying occupancy and patronage rates throughout a given month or year. Schools do not have students during the summer.

A more appropriate approach is to base sewer charges for non-residential accounts on some fraction (typically 90%) of actual wintertime water consumption.

Another approach for allocating monthly charges is to utilize a rate structure based on organic strength of waste. Using this type of structure, high-strength dischargers such as restaurants would pay a higher bill than others discharging the same flow. Factors can range from 1.5 to 2.0 times a flow-based approach. These types of rate structures are more difficult to administer and typically are not necessary for small communities. For all accounts except industrial dischargers, it is recommended the City utilize a water consumption-based rate structure.

C. SEWER RATE DESIGN

In order to establish an acceptable sewer rate structure, it is important that the following concepts be adhered to while establishing the structure.

- Rate structures should be easy to understand and implement.
- Rates should promote efficient use of the resource, i.e., conservation minded.
- Rates should be equitable and non-discriminating, i.e., cost-based.
- There should be continuity in the rate-making philosophy over time.
- Rates should consider all aspects of utility usage, including planning for the future.
- Rates should provide month-to-month and year-to-year revenue stability within the Sewer Enterprise Fund.

- Sewer rates should recover adequate revenue to fund the following:
 - Day-to-day operation and maintenance expenses, including reserves intended to replace short-lived assets or assets with useful lives of 5 to 20 years such as instrumentation, controls, computers, pumps, vehicles, etc.
 - Debt service obligations for long-term capital improvement loans, including required reserves by the funding agency.
 - Capital project replacement costs.

According to City water consumption records during 2017, the wintertime water consumption (January, February, and March) for single-family residences in the City was about 200 gallons per day (GPD). This flow rate correlates closely with other similar communities in northern California.

It is common to utilize wintertime water consumption as a basis for establishing sewer rates for non-residential accounts because there is very little to no outside water use during these months, especially in cold communities like the City of Dunsmuir.

It is recommended the City base its sewer rates on 90% of wintertime water consumption. The 90% factor is intended to account for the likelihood that not all water delivered through the water meter is discharged into the sewer. In addition, the 10% reduction accounts for a small amount of wintertime outside water use. This is consistent with how many other agencies, including a number in Siskiyou County, use wintertime water consumption to establish sewer flows.

The typical monthly sewer fee for residential accounts is based on 200 GPD, or 6,080 gallons per month. A non-residential account, consuming 20,000 gallons per month, would pay a sewer bill based on the following:

$$(20,000 \text{ gallons} \times 90\%) \div (200 \text{ GPD/EDU} \times 30.4 \text{ days/mo}) = 2.96 \text{ EDU}$$

Therefore, a non-residential account consuming 20,000 gallons of water in a month would pay a sewer bill equivalent to 2.96 times a typical residence.

For industrial customers, it is recommended the City require each discharger to submit an industrial waste discharge application characterizing the existing or proposed discharge. The City will then issue an Industrial Waste Discharge Permit, which identifies any pre-treatment and/or monitoring requirements associated with the discharge. The City is

obligated to regulate industrial dischargers in accordance with U.S. Environmental Protection Agency (USEPA) pre-treatment requirements.

It is recommended that flow meters be installed on all industrial dischargers' sewers for the purpose of determining sewer billing and implementation of any pre-treatment regulations.

D. MULTI-YEAR FINANCIAL PLAN GUIDELINES

In order to develop a recommendation regarding future rates, we developed a multi-year financial plan for the sewer enterprise. This financial plan considers both capital and operating programs. Specific plan elements are described below:

1) Capital Projects

As described hereinbefore, the City is in the planning phases for a Collection System Replacement Project that will replace approximately 15,500 feet of old sewer main and lateral piping, including 36 manholes, refer to Figure 2. The City was successful in obtaining a \$500,000 planning grant to cover a large portion of the soft (non-construction) costs associated with the project. In addition, the City obtained a \$500,000 planning grant to complete planning and design activities for a \$5.562M project to make improvements to the WWTP. The City is currently seeking CWSRF implementation grant funding to construct the WWTP project. Thus, there is currently no plan to fund WWTP improvements through proposed sewer rates.

There is an additional \$5.6M± in capital replacement improvements needed in the City's collection system, refer to Table 4 and Figure 3. The City should continue to explore grant funding opportunities through Proposition 1 or future propositions; Community Development Block Grants (CDBG); Integrated Regional Water Management (IRWM); and others. Note that Long-Term Improvements (2025-2039) are not shown on Figures 2 or 3.

Based on input from CWSRF staff, the likelihood of the City obtaining State CWSRF grant dollars to fund collection system improvements is not great for the following reasons:

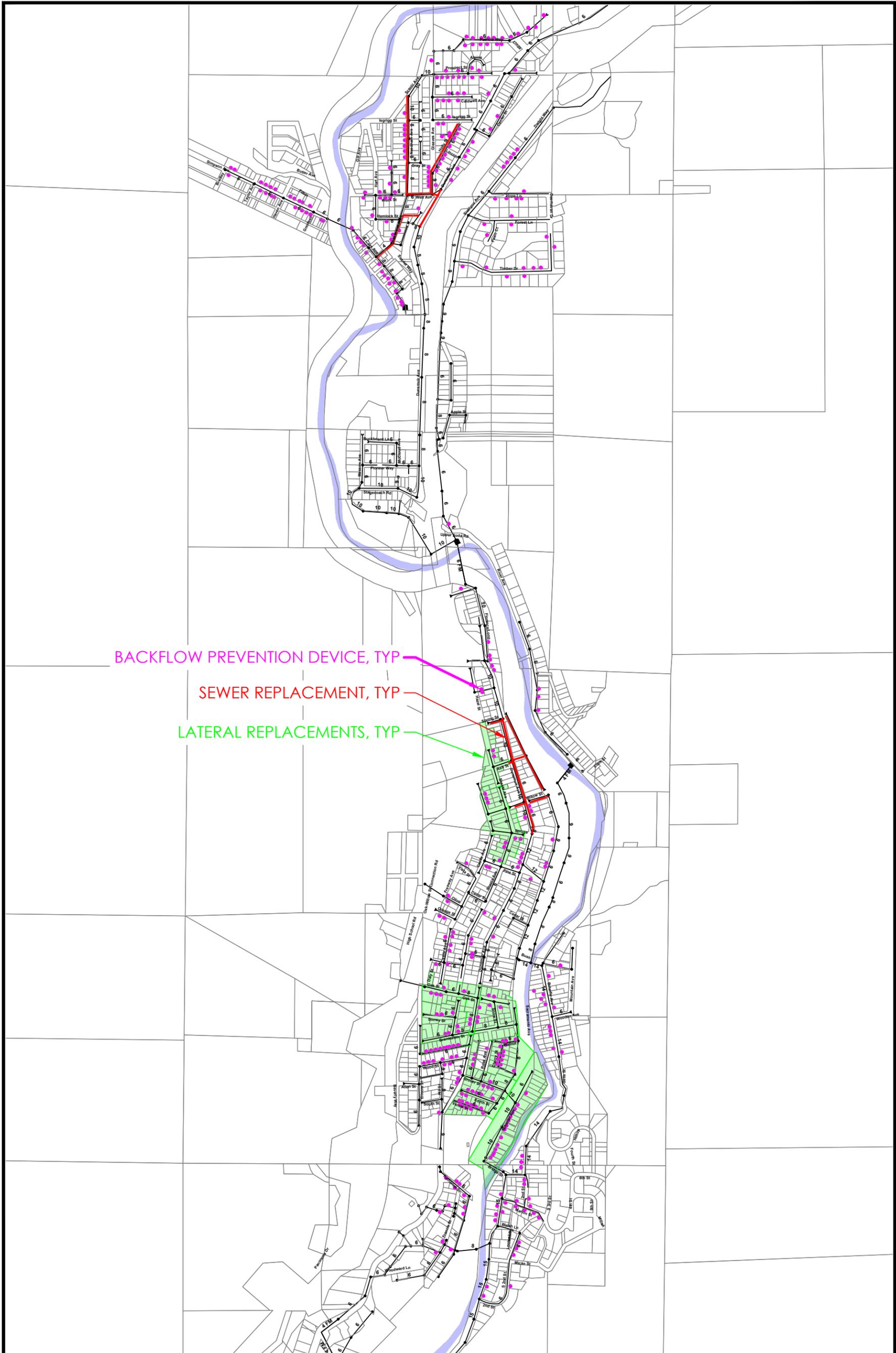
1. The Proposition 1 dollars are expected to be gone in early 2019.

2. Within the last year, CWSRF has shifted its funding priorities to treatment and water quality-related projects. Thus, collection system-related projects are currently low priority.
3. The June 2018 passage of Proposition 68 allocated additional funding to the CWSRF funding program. However, this funding is said to be allocated to treatment and water quality projects only.

For these reasons, we recommend the City plan to fund the \$4.5M Collection System Replacement Project with sewer rates, meaning acquisition of a long-term loan and possibly a small grant component.

Table 4 – Capital Project Replacement Needs

Rank	Description	Estimated Project Cost (Feb 2019 Dollars)
Immediate Improvements (2018)		
1 - Collection System Improvement Project		
	This project will replace sewer mains identified by City staff with a known history of deficiencies and will replace sewer infrastructure in high inflow & infiltration (I&I) contributing areas. Additionally, backflow prevention device will be installed on all parcels requiring one, thus greatly lowering the liability the City faces from sewer backups.	\$4,500,000
		\$4,500,000
Near-Term Improvements (2019-2024)		
1 - Master Sewer Plan Update		
	The City's Master Sewer Plan is in need of an update to identify potential hydraulic deficiencies, as well as to properly plan and execute capital improvements in the coming decade and beyond.	\$100,000
2 - I-5 Lift Station Replacement Project		
	This project will replace the I-5 Lift Station which was originally constructed in the late 1960s.	\$350,000
3 - Lift Station Upgrades Project		
	This project will make improvements to the Shasta Retreat Lift Station, River Avenue Lift Station, and South Dunsmuir Lift Station to improve operations and link to the City's SCADA control system.	\$100,000
4 - Dunsmuir Avenue Sewer Replacement Project		
	This project will replace the 10-inch sewer main in Dunsmuir Ave. from Spring St. to Florence Loop with a 12-inch sewer main. This project was identified in the Master Sewer Plan.	\$690,000
5 - Downtown Lateral Replacement Project		
	This project will continue replacing the old clay laterals throughout Downtown Dunsmuir which are a significant contributor to I&I in the City. Two-way cleanout will be installed on each lateral.	\$1,032,000
6 - River Avenue Sewer Replacement Project		
	This project will replace the old cast iron sewer running above-grade along the bank of the Sacramento River.	\$500,000
7 - Gleaves Avenue Area Sewer Replacement Project		
	This project will replace the old clay sewer lines in North Dunsmuir in the Needham Ave. Alley, Gleaves Ave., and Scenic Ave. This area was identified as a moderate contributor to the City's I&I.	\$480,000
8 - West Downtown Area Sewer Improvement Project		
	This project will replace the sewer collection system infrastructure on the west side of Downtown on Orange St., Olive St., Castle Ave., and Cedar St.	\$490,000
9 - Hemlock Street Area Sewer Replacement Project		
	This project will replace the old clay sewer lines in North Dunsmuir in and around Hemlock St.	\$430,000
10 - Shasta Retreat Area Sewer Replacement Project		
	This project will replace the old clay sewer lines in North Dunsmuir in the Shasta Retreat Area.	\$640,000
11 - Patricia Way Area Sewer Replacement Project		
	This project will replace the old clay sewer lines in North Dunsmuir in the Patricia Way Area. These sewer mains were identified in the Master Sewer Plan of needing additional capacity.	\$440,000
12 - Marion Street Area Sewer Improvement Project		
	This project will replace the sewer lines in the Marion Street area and install sufficient number of manholes and rod holes to facilitate proper maintenance of these lines which are currently lacking with the collection system in the area.	\$310,000
		\$5,562,000
Long-Term Improvements (2025-2039)		
1 - N. Dunsmuir Avenue Sewer Replacement Project		
	This project will replace the old clay sewer lines along N. Dunsmuir Ave. These sewer mains were identified in the Master Sewer Plan as needing additional capacity.	\$960,000
2 - Siskiyou Way Sewer Replacement Project		
	This project will replace the old clay sewer lines in North Dunsmuir along Siskiyou Way.	\$700,000
3 - City-Wide Two-Way Cleanout Installation Project		
	This project would install two-way cleanouts on all remaining laterals that lack them.	\$500,000
4 - Wastewater Treatment Plant - Pond Rehabilitation Project		
	This project will rehabilitate Ponds 1 & 2 with a bentonite clay liner.	\$250,000
		\$2,410,000



BACKFLOW PREVENTION DEVICE, TYP

SEWER REPLACEMENT, TYP

LATERAL REPLACEMENTS, TYP

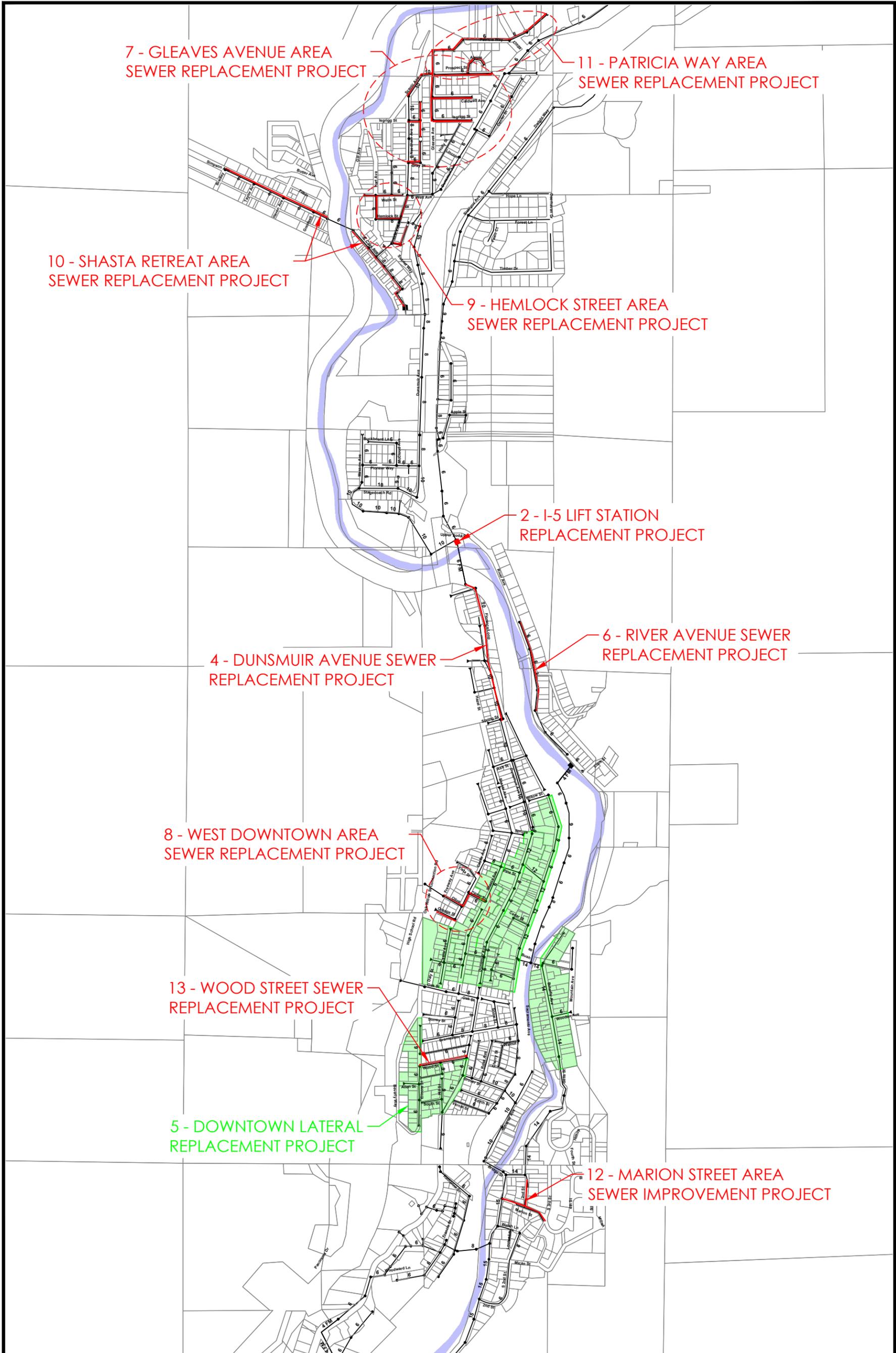


CITY OF DUNSMUIR
 COLLECTION SYSTEM
 IMPROVEMENT PROJECT
 (IMMEDIATE IMPROVEMENTS)

FIGURE 2

DATE: 3/19

JOB #204.59



CITY OF DUNSMUIR
 NEAR-TERM IMPROVEMENTS
 (NO FUNDING SOURCE YET)

FIGURE 3

DATE: 3/19

JOB #204.59

Table 5 contains a summary of required sewer rate increases if one or more of the proposed capital replacement projects are funded through long-term loans with a small grant component. Sewer rates shown in Table 5 assume 30% grant and a 70% 40-year loan at 2.5% per annum.

Table 5 – Capital Replacement Project Financing and Sewer Rate Options

OPTION	CAPITAL PROJECT FINANCING OPTIONS	SEWER RATE OPTIONS				
		FY 18-19	FY 19-20	FY 20-21	FY 21-22	FY 22-23
1	No Capital Project Financing	\$45.00	\$50.00	\$54.00	\$55.00	\$56.00
2	Fund \$4.5M Collection System Improvements	\$45.00	\$50.00	\$54.00	\$58.00	\$59.00
3	Option 2, plus \$5.562M WWTP Improvements	\$45.00	\$52.00	\$58.00	\$63.00	\$67.00
4	Options 2 & 4 (collection only)	\$49.00	\$57.00	\$65.00	\$73.00	\$73.00
5	Options 2 & 3, plus \$5.562M Collection System Improvements	\$49.00	\$59.00	\$69.00	\$79.00	\$81.00
6	Options 2-4, plus \$2.41M Long-Term Collection System Improvements	\$52.00	\$65.00	\$75.00	\$87.00	\$90.00

Option 2, highlighted in yellow, is the recommended approach for the City to spend a portion of its accumulated cash in the Sewer Improvement Fund to replace a portion of the aged collection system. Note the sewer rate only needs to be \$3 per month higher in years four and five, respectively, to fund a \$4.5M capital replacement project versus funding no capital projects.

Option 2 would spend the Sewer Improvement Fund down to about \$96,000 by the end of year five. If the City employs annual inflationary rate increases beyond the five-year planning period, the Sewer Improvement Fund will begin to slowly build back up, reaching about \$151,000 by the end of FY 2027-28.

2) Reserve Accounts

Operation reserves ranging from 10% to 40% of annual operating costs are common for public sewer utilities. Given the potential for fluctuations in annual water use, which can result in variable sewer rate revenues, it is recommended the City maintain an operating reserve equal to at least 25% of its annual operation and maintenance expenses. This is equivalent to about three months of operating expenses to be available in reserve at all times.

Short-lived asset reserves are set up to accumulate revenue for replacing short-lived assets – those with expected lives of 5 to 20 years. Examples of short-lived assets

include pumps/motors, vehicles and equipment, electrical/controls/SCADA equipment, building maintenance and repair, etc. Whether USDA Rural Development (RD) financing is used or not, it is considered an essential practice to maintain such a reserve in order to keep a well maintained and reliable system. Table 6 shows a breakdown of short-lived assets for both the collection and treatment portions of the sewer enterprise. Shown are the estimated replacement cost, replacement period, and annual reserve contribution. Of the total contribution shown, approximately \$71,000 is already being funded as part of the City's budget, representing a proposed increase of about \$30,000 per year.

Table 6 – Short-Lived Asset Reserve Breakdown

Equipment	Replacement Period	Estimated Cost	Annual Reserve
Collection System			
Computer Work Station	5	\$5,000	\$1,000
Trench Compaction Equipment	5	\$5,000	\$1,000
Replace Flusher Hose	5	\$3,000	\$600
Vac-Con Tube Replacements	5	\$8,000	\$1,600
Work Truck - Collection	10	\$30,000	\$3,000
Vac-Con Replacement	10	\$100,000	\$10,000
Dump Truck (1/3 cost Sewer, Water, Streets)	15	\$120,000	\$8,000
Backhoe (1/3 cost Sewer, Water, Streets)	15	\$150,000	\$10,000
4" Bypass Pumping Equipment	20	\$185,000	\$9,250
Subtotal Collection System:			\$44,450
Treatment Facilities			
Replace Coagulant Feed Equipment	5	\$20,000	\$4,000
Computer Work Station and Server	5	\$10,000	\$2,000
Lab Equipment (scale, incubator, spectro., etc.)	10	\$80,000	\$8,000
Analyzers (3 @ \$5K each)	10	\$15,000	\$1,500
Flowmeters (3 @ \$5K each)	10	\$15,000	\$1,500
Pumps and Motors [ML, RAS (2), AD (2), Effluent (2)]	10	\$70,000	\$7,000
Mixers (2 @ \$7K each)	10	\$14,000	\$1,400
Maintenance on Buildings/Structures, incl. HVAC	10	\$65,000	\$6,500
Replace Filter Media	10	\$50,000	\$5,000
Work Truck - Treatment	10	\$30,000	\$3,000
Blowers (2 @ \$15K each)	15	\$30,000	\$2,000
Replace SCADA System	15	\$50,000	\$3,333
Aerotors Motor Bearings	15	\$15,000	\$1,000
Sludge Drying Bed Replacement	20	\$50,000	\$2,500
Replace Generator & ATS	20	\$80,000	\$4,000
Replace Headworks Screen	20	\$80,000	\$4,000
Subtotal Treatment Facility:			\$56,733
TOTAL SHORT-LIVED ASSET ANNUAL CONTRIBUTION:			\$101,183

3) Financial Plan Assumptions

The following is a list of the primary assumptions used in developing the multi-year financial plans:

- Operation and maintenance costs will increase at 2.5% per year, which is similar to Consumer Price Index inflation the past few years.
- It was decided no growth would be anticipated for the purpose of generating revenue projections in this rate study. This approach is considered conservative in that, if growth occurs, any increase in revenue may be applied toward needed capital improvements.
- Traditional equipment replacement and maintenance costs covered in Account Nos. 7610, 7630, 7720, 7790, 7810, 7820, and 7840 are to be paid from a short-lived asset replacement reserve, as shown in Table 6. Thus, expenditures for these accounts are shown as "\$0" during the five-year planning period.
- Account No. 7300 has, historically, been used for contract WWTP operations. It is anticipated the City will hire a Grade III Operator prior to the end of FY 18-19. Therefore, these costs will be reflected in the 71XX account numbers going forward. Thus, the future budget for Account No. 7300 is significantly reduced.
- It is recommended the Sewer Improvement Fund be used to dampen needed rate increases and fund a \$4.5M Sewer Replacement Project. By the end of the five-year planning period, it is desirable to have approximately \$100,000 in the Sewer Improvement Fund. The fund will begin to slowly build if the City commits to raising sewer rates at inflationary levels each year after FY 23-24.
- When sewer rates are increased, it is human nature to reduce consumption to compensate for the increased cost. As such, it is prudent planning to allow for this price elasticity when making revenue projections. AWWA Manual M1 suggests rate planners assume price elasticity of 10% to 30%, absent an extensive study. This means that revenue projection increases should be reduced 10% to 30% to account for water conservation efforts to reduce future sewer bills. For the City, it is assumed price elasticity will be 30%.

- Maintain a separate Operating Reserve Fund of 25% of the annual operating and maintenance expenditures, less debt and capital projects.
- It is recommended the City fund the \$4.5M Collection System Capital Replacement Project within the next few years utilizing a 70%/30% loan/grant combination from USDA RD. The financial plan assumes construction would begin in 2020 and be completed in 2021. The planning and majority of design effort for this project was paid through a \$500,000 planning grant through Proposition 1 CWSRF.
- Depreciation will remain unfunded.

4) Financial Plan Results

A five-year projection of the Sewer Enterprise Fund expenditures and revenue requirements is shown in Table 7. Table 8 presents a summary of the five-year financial plan values based on the fixed monthly rate for single-family units increasing from \$40.08 per month in FY 18-19 to \$59.00 per month in FY 23-24. Also shown are the beginning reserve fund balances, revenues, expenditures, and year-end operating reserves for the Sewer Enterprise Fund. As indicated in Table 8, approximately \$533,000 of the Sewer Improvement Fund is used to help offset the annual deficit, fund an Operating Reserve, and contribute toward the proposed \$4.5M Collection System Improvement Project. At the end of the 5-year planning period, the Sewer Improvement Fund is expected to contain a balance of about \$96,000. The Operating Reserve will be about -10% at the end of FY 19-20 and increase to the 25% target at the end of FY 20-21 and every year thereafter.

The financial plan projected revenues are based on estimated normal water consumption each year during the planning period. However, annual revenues will still be subject to fluctuation with varying water consumption.

Table 7 – Projected Expenditures and Transfers

	Inflation Factor	Actual (FY 17-18)	Budgeted (FY 18-19)	Projected (FY 19-20)	Projected (FY 20-21)	Projected (FY 21-22)	Projected (FY 22-23)	Projected (FY 23-24)
O&M Expenses (Fund 20-000)								
71XX Salary and Benefits	2.5%	\$282,322	\$324,561	\$332,675	\$340,992	\$349,517	\$358,255	\$367,211
71XX Additional Allocation for Grade III WWTP Operator	2.5%	\$0	\$0	\$102,000	\$104,550	\$107,164	\$109,843	\$112,589
7200 Training and Education	2.5%	\$365	\$3,000	\$3,075	\$3,152	\$3,231	\$3,311	\$3,394
7220 Physical Exams	2.5%	\$0	\$200	\$205	\$210	\$215	\$221	\$226
7230 Sub/Membership Dues	2.5%	\$448	\$1,000	\$1,025	\$1,051	\$1,077	\$1,104	\$1,131
7240 Clothing/Cleaning	2.5%	\$1,265	\$2,000	\$2,050	\$2,101	\$2,154	\$2,208	\$2,263
7300 Professional Services	2.5%	\$34,106	\$50,000	\$2,000	\$2,050	\$2,101	\$2,154	\$2,208
7330 Contract Lab Analysis	2.5%	\$19,085	\$30,000	\$30,750	\$31,519	\$32,307	\$33,114	\$33,942
7340 Litigation Expense	2.5%	\$0	\$5,000	\$5,125	\$5,253	\$5,384	\$5,519	\$5,657
7410 Adv/Notices	2.5%	\$131	\$300	\$308	\$315	\$323	\$331	\$339
7480 Management/Admin Charges	2.5%	\$79,849	\$86,070	\$88,222	\$90,427	\$92,688	\$95,005	\$97,380
7610 Equipment Maint. & Replacement	2.5%	\$2,882	\$7,500	\$0	\$0	\$0	\$0	\$0
7620 Vehicle Fuel	2.5%	\$3,899	\$5,500	\$5,638	\$5,778	\$5,923	\$6,071	\$6,223
7630 Vehicle Maintenance	2.5%	\$3,869	\$5,000	\$5,125	\$5,253	\$5,384	\$5,519	\$5,657
7640 Radio Replc/Repair	2.5%	\$0	\$2,400	\$0	\$0	\$0	\$0	\$0
7710 Property Taxes	2.5%	\$279	\$300	\$308	\$315	\$323	\$331	\$339
7720 Maintenance Buildings/Grounds	2.5%	\$526	\$4,500	\$0	\$0	\$0	\$0	\$0
7730 Utilities	2.5%	\$49,862	\$65,000	\$66,625	\$68,291	\$69,998	\$71,748	\$73,542
7750 Phone	2.5%	\$7,298	\$8,000	\$8,200	\$8,405	\$8,615	\$8,831	\$9,051
7760 Leases/Rentals	2.5%	\$1	\$900	\$923	\$946	\$969	\$993	\$1,018
7790 Oxidation Ditch Maintenance	2.5%	\$1,893	\$4,000	\$0	\$0	\$0	\$0	\$0
7810 Sludge Bed Maintenance	2.5%	\$5,991	\$6,000	\$0	\$0	\$0	\$0	\$0
7820 Chlorinator/Contact Maint	2.5%	\$15,780	\$20,000	\$0	\$0	\$0	\$0	\$0
7840 Pump Station Maintenance	2.5%	\$8,789	\$25,000	\$0	\$0	\$0	\$0	\$0
7860 Depreciation- Not Funded	2.5%	\$0	\$0	\$0	\$0	\$0	\$0	\$0
7900 Office Supplies	2.5%	\$1,489	\$3,000	\$3,075	\$3,152	\$3,231	\$3,311	\$3,394
7920 Supplies/Materials	2.5%	\$1,754	\$2,200	\$2,255	\$2,311	\$2,369	\$2,428	\$2,489
7930 Postage	2.5%	\$2,898	\$3,000	\$3,075	\$3,152	\$3,231	\$3,311	\$3,394
7950 Main Repairs	2.5%	\$2,152	\$7,000	\$7,175	\$7,354	\$7,538	\$7,727	\$7,920
7970 Lab Supplies/Maintenance	2.5%	\$7,046	\$6,500	\$0	\$0	\$0	\$0	\$0
8100 Liability Insurance	2.5%	\$32,662	\$22,741	\$23,310	\$23,892	\$24,490	\$25,102	\$25,729
8100 SCORE Assessment	2.5%	\$39,534	\$13,414	\$13,749	\$14,093	\$14,445	\$14,807	\$15,177
8110 Property Insurance	2.5%	\$1,359	\$1,659	\$1,700	\$1,743	\$1,787	\$1,831	\$1,877
8120 Flood Insurance	2.5%	\$0	\$0	\$0	\$0	\$0	\$0	\$0
8130 Permits and Licenses	2.5%	\$5,982	\$6,500	\$6,663	\$6,829	\$7,000	\$7,175	\$7,354
8200 Equipment Replace	2.5%	\$0	\$0	\$0	\$0	\$0	\$0	\$0
8300 Bad Debt	2.5%	\$809	\$5,000	\$5,125	\$5,253	\$5,384	\$5,519	\$5,657
Subtotal		\$614,325	\$727,245	\$720,379	\$738,388	\$756,848	\$775,769	\$795,163
Debt Service and Debt Service Reserve								
8600 1994 USDA-COP's								
Principal	0.0%	\$13,000	\$14,000	\$14,000	\$14,000	\$16,400	\$16,400	\$16,400
Interest	0.0%	\$16,290	\$15,165	\$14,535	\$12,492	\$12,492	\$12,492	\$12,492
2007 USDA-River Avenue								
Principal	0.0%	\$12,000	\$12,000	\$13,000	\$14,800	\$14,800	\$14,800	\$14,800
Interest	0.0%	\$27,923	\$27,413	\$26,903	\$25,134	\$25,134	\$25,134	\$25,134
2012 CWSRF WWTP/Collection Improvements								
Principal	0.0%	\$75,985	\$77,353	\$78,745	\$83,101	\$83,101	\$83,101	\$83,101
Interest	0.0%	\$28,773	\$27,406	\$26,013	\$21,657	\$21,657	\$21,657	\$21,657
- POTENTIAL CAPITAL REPLACEMENT PROJECTS		\$0	\$0	\$0	\$0	\$122,696	\$122,696	\$122,696
Subtotal		\$173,971	\$173,337	\$173,196	\$171,184	\$296,280	\$296,280	\$296,280
Capital Improvements								
- Short-Lived Asset Replacement	3.0%	\$0	\$0	\$101,183	\$104,219	\$107,345	\$110,566	\$113,883
8270 Sewer Prj-Staff (Associated w/ Capital Projects)	4.0%	\$0	\$0	\$0	\$0	\$0	\$0	\$0
8280 Misc. Sewer Improvements (Outfall Diffuser & Chlorine)	0.0%	\$20,873	\$43,327	\$0	\$0	\$0	\$0	\$0
8295.50 CWSRF-Sewer Collection Imp. (Planning Grant)	0.0%	\$313,933	\$120,868	\$30,000	\$0	\$0	\$0	\$0
8295.55 CWSRF-WWTP Imp. (Planning Grant)	0.0%	\$93,913	\$273,789	\$63,645	\$0	\$0	\$0	\$0
-		\$0	\$0	\$0	\$0	\$0	\$0	\$0
Subtotal		\$428,719	\$437,984	\$194,828	\$104,219	\$107,345	\$110,566	\$113,883
Total Expenditures, Debt Service, and Capital		\$1,217,015	\$1,338,566	\$1,088,403	\$1,013,791	\$1,160,473	\$1,182,614	\$1,205,326
Expenditures that are shifted to a "Short-Lived" Asset Reserve and paid for out of this reserve. The reserve collects \$101,183/year (FY19-20) from rates to fund these and other similar expenditures.								
Expenditures for this account have, historically, covered WWTP contract operations. Once the City hires a Grade III Operator, these expenses will be covered in the 71XX account nos.								

Table 8 – Summary of Financial Plan with 100% of Normal Water Use

	Actual (FY 17-18)	Budgeted (FY 18-19)	Projected (FY 19-20)	Projected (FY 20-21)	Projected (FY 21-22)	Projected (FY 22-23)	Projected (FY 23-24)
ASSUMPTIONS USED							
Estimated New Equivalent Dwelling Units (EDUs)	0	0	0	0	0	0	0
Annual Single-Family Sewer Rate Increase	0.0%	0.0%	12.3%	11.1%	8.0%	7.4%	2.5%
SEWER RATES USED							
Single-Family User Rate (\$/EDU)	\$40.08	\$40.08	\$45.00	\$50.00	\$54.00	\$58.00	\$59.00
Percentage of MHI @ \$32,557/Household/Year	1.48%	1.48%	1.66%	1.84%	1.99%	2.14%	2.17%
California MHI = \$63,783 (March 2018)							
BEGINNING FUNDS AVAILABLE BALANCE (Note 1)							
Operations and Maintenance Fund	-\$66,488	-\$123,815	-\$282,890	-\$70,266	\$184,597	\$189,212	\$193,942
Sewer Improvement Fund	\$668,832	\$659,499	\$628,613	\$354,234	\$121,122	\$73,608	\$85,868
Debt Reserve Funds (Restricted)	<u>\$180,031</u>	<u>\$180,031</u>	<u>\$180,031</u>	<u>\$180,031</u>	<u>\$180,031</u>	<u>\$180,031</u>	<u>\$180,031</u>
Total Beginning Funds Balance	\$782,375	\$715,715	\$525,754	\$463,999	\$485,750	\$442,851	\$459,841
REVENUES							
Hookup Permits	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Penalties	\$7,633	\$7,633	\$7,633	\$7,633	\$7,633	\$7,633	\$7,633
Interest-LAIF	\$0	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500	\$2,500
Interest-Other	\$17	\$17	\$17	\$17	\$17	\$17	\$17
Other County & State Grant & Loan Funds	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Prop 1-Planning WWTP	\$93,913	\$273,789	\$63,645	\$0	\$0	\$0	\$0
Prop 1-Planning Collection	\$313,933	\$120,868	\$30,000	\$0	\$0	\$0	\$0
Sewer Charges	\$549,348	\$558,020	\$922,853	\$1,025,392	\$1,107,423	\$1,189,455	\$1,209,963
Sewer Improvement Revenue	\$185,511	\$185,778	\$0	\$0	\$0	\$0	\$0
Connection Capacity Charges (@ \$_____/EDU)	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
Total Revenue	\$1,150,355	\$1,148,605	\$1,026,648	\$1,035,542	\$1,117,573	\$1,199,605	\$1,220,113
EXPENDITURES							
Sewer Enterprise	<u>\$614,325</u>	<u>\$727,245</u>	<u>\$720,379</u>	<u>\$738,388</u>	<u>\$756,848</u>	<u>\$775,769</u>	<u>\$795,163</u>
Total Expenditures	<u>\$614,325</u>	<u>\$727,245</u>	<u>\$720,379</u>	<u>\$738,388</u>	<u>\$756,848</u>	<u>\$775,769</u>	<u>\$795,163</u>
DEBT SERVICE & DEBT SERVICE RESERVE							
1994 USDA-COP's	\$13,000	\$14,000	\$14,000	\$14,000	\$16,400	\$16,400	\$16,400
2007 USDA-River Avenue	\$12,000	\$12,000	\$13,000	\$14,800	\$14,800	\$14,800	\$14,800
2012 CWSRF WWTP/Collection Improvements	\$75,985	\$77,353	\$78,745	\$83,101	\$83,101	\$83,101	\$83,101
Interest on Long-term Debt (Paid from Sewer Imp. Fund)	\$72,986	\$69,984	\$67,451	\$59,283	\$59,283	\$59,283	\$59,283
POTENTIAL CAPITAL REPLACEMENT PROJECTS	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$122,696</u>	<u>\$122,696</u>	<u>\$122,696</u>
Total Debt Service & Debt Service Reserve	\$173,971	\$173,337	\$173,196	\$171,184	\$296,280	\$296,280	\$296,280
CAPITAL PROJECT FUNDING							
Short-Lived Asset Replacement	\$0	\$0	\$101,183	\$104,219	\$107,345	\$110,566	\$113,883
Sewer Prj-Staff (Associated w/ Capital Projects)	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Misc. Sewer Improvements (Outfall Diffuser & Chlorine)	\$20,873	\$43,327	\$0	\$0	\$0	\$0	\$0
CWSRF-Sewer Collection Imp. (Planning Grant)	\$313,933	\$120,868	\$30,000	\$0	\$0	\$0	\$0
CWSRF-WWTP Imp. (Planning Grant)	<u>\$93,913</u>	<u>\$273,789</u>	<u>\$63,645</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
Total Capital Project Funding	\$428,719	\$437,984	\$194,828	\$104,219	\$107,345	\$110,566	\$113,883
RESERVES							
OPERATING RESERVE @ 25% of ANNUAL EXP. (Note 2)	-\$123,815	-\$282,890	-\$70,266	\$184,597	\$189,212	\$193,942	\$198,791
SEWER IMPROVEMENT FUND (Note 3)	\$659,499	\$628,613	\$354,234	\$121,122	\$73,608	\$85,868	\$95,806
DEBT SERVICE RESERVES	<u>\$180,031</u>	<u>\$180,031</u>	<u>\$180,031</u>	<u>\$180,031</u>	<u>\$180,031</u>	<u>\$180,031</u>	<u>\$180,031</u>
YEAR-END OPERATING RESERVE	-20%	-39%	-10%	25%	25%	25%	25%

NOTES:

1. Beginning Cash for FY17-18 is based on the pre-Audit Balance Sheet for the Sewer Enterprise Fund as of June 30, 2017.
2. At beginning of FY18-19, allocated one-half of "Sewer Improvement Fund" to "Operating Reserve."
3. "Sewer Improvement Fund" funds Short-Lived Asset Replacement expenses, as well as planned Capital Replacement Projects.

E. PROPOSED SEWER RATES

A summary of the proposed sewer rates for all user classes in the 5-year financial plan is shown in Table ES-1 in the Executive Summary at the beginning of this report. Specific proposed changes to the City's current sewer rate structure are described below:

- Single-family user accounts will be charged a flat monthly fee based on an average wintertime flow contribution of 200 GPD.
- Non-residential user accounts will be charged based on 90% of wintertime or actual water consumption.

Due to restructuring of the non-residential sewer rates from the current "user class" approach to a water consumption-based approach, there will be some substantial adjustments amongst the non-residential customer base. Some customers will see reductions in their bills, while most will see increases.

A tabulation of sewer rates for other agencies is shown in Table 9. The monthly service charges vary from \$27.00 to \$87.87 based on an average wintertime daily consumption of 200 GPD.

Figure 4 indicates estimated average monthly residential sewer bills for each agency.

Table 9 – Sewer User Rate Comparison

Purveyor	Effective Date	Base Rate	Volume of Water (CF)	Volume Units	Cost Per Unit Volume	Monthly Charge
Weed FY18-19	FY18-19	\$27.55				\$27.00
Weed FY21-22	FY21-22	\$29.23				\$29.23
Red Bluff FY17-18	FY17-18	\$34.00				\$34.00
Anderson FY17-18	FY17-18	\$22.44	813	100 CF	\$1.52	\$34.80
Mt. Shasta FY18-19	FY18-19	\$37.00				\$37.00
Dunsmuir FY18-19	FY18-19	\$40.08				\$40.08
McCloud FY17-18	FY17-18	\$40.10				\$40.10
Willows FY17-18	2016	\$40.19				\$40.19
Yreka FY17-18	FY17-18	\$42.00				\$42.00
Dunsmuir FY19-20	FY19-20	\$45.00				\$45.00
2015 CA Ave. ⁽¹⁾	2015	\$45.62				\$45.62
Nevada City 2012	2012	\$47.00				\$47.00
Redding FY18-19	FY18-19	\$54.86				\$54.86
Dunsmuir FY23-24	FY23-24	\$59.00				\$59.00
Mt. Shasta FY21-22	FY21-22	\$61.00				\$61.00
Shasta Lake FY18-19	FY18-19	\$67.02				\$67.02
Ashland FY17-18	FY17-18	\$31.08	813	100 CF	\$4.637	\$68.78
Williams 2016	2016	\$74.27	813	100 CF	\$2.23	\$92.40

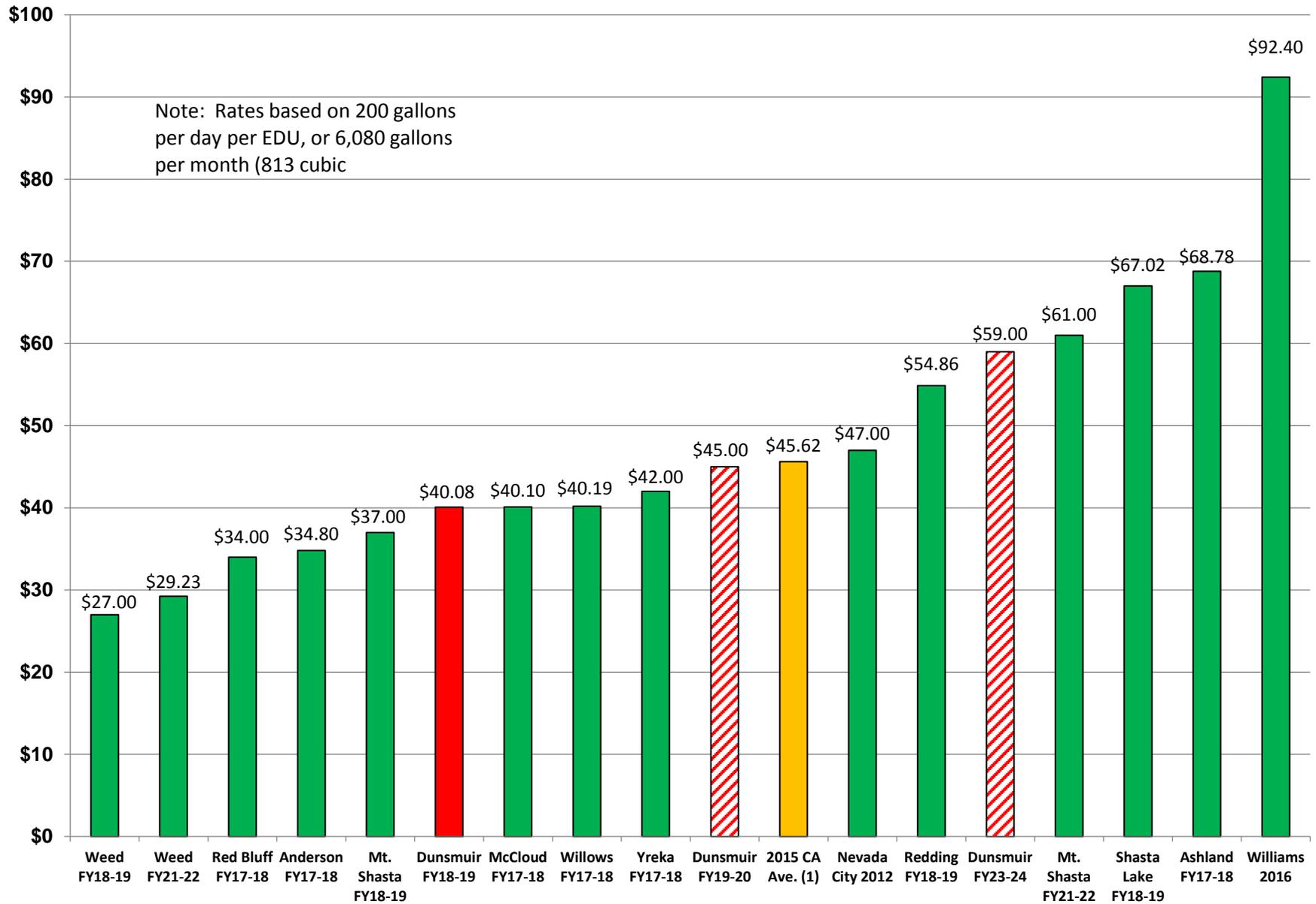
Based on average wintertime water use (i.e., 200 GPD/EDU x 30.4 Days = 6,080)

F. PROPOSED NON-RATE RELATED CHANGES

As a result of review and analysis of the City’s current practices regarding sewer rate implementation, it is recommended the following changes be made:

- In accordance with USEPA's pre-treatment requirements, it is recommended the City implement a pre-treatment program for its industrial dischargers, which requires dischargers to apply for and obtain a permit for industrial wastewater discharges.
- It is recommended the City implement a policy that requires non-residential customers who do not utilize the City’s water supply to install a flow measuring device on the sewer lateral for the purpose of establishing monthly sewer fees.

Figure 4 – Sewer User Rate Comparison



(1) According to 2015 California-Nevada Water and Wastewater Rate Survey by Raftelis Financial Consultants, Inc. and AWWA.