

CITY OF MT SHASTA, CA

Stormwater Rate Study

FINAL REPORT / OCTOBER 12, 2023



October 12, 2023

Mr. Todd Juhasz
City Manager
City of Mt. Shasta
305 North Mt Shasta Boulevard
Mt Shasta, CA 96067

Subject: Stormwater Study Report

Dear Mr. Juhasz,

Raftelis is pleased to provide this Stormwater Rate Study Report (Report) for the City of Mt. Shasta (City) to support the City in establishing updated stormwater rates.

The major objectives of the study include the following:

- Develop financial plans for the stormwater utility to ensure financial sufficiency, meet operation and maintenance (O&M) costs, and ensure sufficient funding for capital needs.
- Review current rate structures for the stormwater utility and design rate alternatives that recover annual revenue requirements and improve customer class equity.

The report summarizes the key findings and recommendations related to the development of the financial plans for the utility and the development of alternative stormwater rates.

It has been a pleasure working with you, and we thank you and the City staff for the support provided during the course of this study.

Sincerely,

Henrietta Locklear
Vice President

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1. Executive Summary

1.1. Introduction

The City of Mt. Shasta (City) currently provides stormwater service within its boundaries, recovering revenue through a flat fee charged to its approximately 2,028 water accounts. The City’s stormwater utility is intended to be financially self-sufficient with funding for capital and operating requirements derived primarily from user charges, which amount to approximately \$24,000 annually. The City’s stormwater system consists of remnant creeks and wetlands interconnected to a network of pipes, drains, ditches, and culverts. Much of the current system is aging and in need of repair or replacement to continue proper function and prevent system failure. As annual user charges currently provide inadequate funding to meet requirements for both operating and capital needs, the City has been unable to complete relevant capital projects. The need has become more apparent as the City has begun to experience storms of greater intensity which exacerbate the City’s drainage issues. The aging infrastructure of the City must be addressed to continue to provide benefits to the community. An update of the Stormwater Master Plan in 2020 identified opportunities to implement multi-benefit projects which address the stormwater challenges experienced by the City.

Raftelis used industry standard methodologies to develop a financial plan and rate structure alternatives with needed, enhanced funding to support a more robust stormwater program and allow the City to take opportunities to improve local water quality, flood management, and the local environment through stormwater management.

1.2. Study Goals and Objectives

The goal for this study was to develop a 5-year financial plan for the City’s stormwater utility from FY 2024 – FY 2028 (study period) in which:

- Rate revenues are sufficient to meet annual operating and capital expenditures,
- Reserve levels are maintained in accordance with industry best practices¹, and
- The rate structure provides enhanced equity between customer classes compared with a flat rate.

1.3. Study Findings

The study team found that projected stormwater service revenue under the current rates and rate structure is insufficient to meet annual revenue requirements through the study period. To meet the City’s objectives, Raftelis recommends revenue adjustments following the schedule below for FY 2024 through FY 2028.

Table 1: Required Revenue Adjustments, FY 2024 - 2028

	FY 2024 [1]	FY 2025	FY 2026	FY 2027	FY 2028
Annual Revenue Adjustments	1,193%	140%	33%	20%	17%

[1] Rate adjustments in FY2024 are expected to be implemented beginning in February 2024.

These adjustments would increase annual rate revenues from approximately \$24,000 to an average of approximately \$1.4 million by FY2028, allowing the utility to enhance stormwater management. Following

¹ “Cash Reserve Policy Guidelines”, American Water Works Association, 2018

FY2028, Raftelis recommends annual revenue adjustments of 3.0%. In addition, Raftelis recommends instituting an impervious area (IA)-based rate structure with equivalent residential units (ERUs) serving as the units of charge. An IA-based rate structure will improve the equity of revenue recovery between classes compared with the current flat rate per account. Under the recommended revenue adjustment and rate structure, the monthly bill for a typical single-family property will increase from \$1.00 to \$15.00 in February 2024.

Table 2: Recommended Rate Structure

Land Use Type	Rate Structure
Single-Family Residential (SFR)	Flat fee, 1 ERU per parcel
Non-Single Family Residential (NSFR)	Fee calculated on measured IA; 1 ERU per 3,000 sq ft IA

Raftelis recommends that the stormwater financial plan be updated annually to reflect current estimates of revenue, operating expenses, capital improvement needs, and maintenance of reserve targets.

2. Financial Plan

2.1. Assumptions

The following data includes the major assumptions used in the study.

Table 3: Assumptions

Expense Inflation Factors	
Operations and Maintenance	7.0% FY24; 3.0% thereafter
Capital	7.0%
Current Stormwater Accounts	
Residential	1,660
<u>Non-Residential</u>	<u>174</u>
Total	2,028
Current Stormwater Fee (per account per month)	
Residential	\$1.00
Non-Residential	\$1.00

2.2. Revenue Requirements

2.2.1. Expenditures

The current and anticipated uses of funds include capital expenditure and operation and maintenance expenses (O&M). The costs of the City’s anticipated capital projects for FY2024 - 2028 are approximately \$3.2 million (inflated). The largest projects are part of the Cold Creek Realignment and Restoration. This multi-phase project is expected to be completed in FY 2031 and is projected to cost approximately \$6.1 million (inflated). Other projects include storm drainage replacement, street improvements, and retrofits, as well as installation of green infrastructure to provide proper storm drainage and treatment infrastructure.

O&M costs consist of regular inspections, cleaning, and maintenance, as well as seasonal program costs. O&M averages approximately \$40,000 annually during the study period.

2.2.2. Reserves

The City does not currently maintain a reserve balance. Raftelis recommends the City set target operating reserves at 60 days of operating expenses and capital reserves at the annual average of 5-years of capital expenses. This amount provides a reasonable operating allowance for sound stormwater utility operations and meets the reserve recommendation in the industry for a utility of this size.

To mitigate the impact that establishing operating and capital reserves in one year would have on rates, Raftelis recommends that both O&M and capital reserve targets be met by increasing the reserve amount incrementally. The annual average O&M reserve target over the study period is approximately \$6,500; Raftelis recommends using 60-day calculated expenses from FY 2028 as a target. The annual average of 5-years of capital expenses ranges from a low of \$850,000 to a high of \$1.5 million over the course of the study period. Raftelis recommends using the 5-year average calculated in FY 2028 as a capital reserve target, which

is approximately \$1.3 million. By phasing in the reserve target at 20% annually, the full reserve target will be met by the end of the study period.

Table 4: Reserve Targets

Reserve Type	Policy	Target Reserve (end of study period)	20% of Total Reserve Target (added per year)
O&M	60-day fund	\$6,929	\$1,386
Capital	5-year average of capital expenses	\$1,266,094	\$253,219
Total		\$1,186,616	\$254,605

2.3. Revenues

2.3.1. Current Rate Revenue

The main source of funds for the stormwater utility is stormwater rate revenue. The current monthly stormwater fee of \$1.00 per account generates approximately \$24,000 annually.

2.3.2. Grants and Other Sources of Funding

The City actively pursues additional sources of funding in addition to rate revenues. In July 2023, Raftelis worked with the City to complete a submission for funding through the Clean Water State Revolving Fund (CWSRF) Program. The submission requested financial assistance in the form of planning and design funds for drainage improvement projects totaling \$1,575,000. The CWSRF Program will provide funds in the fall of 2023. Following the planning and design stage, funding opportunities also exist with the CWSRF program; should the City decide to apply for this funding in the future, there is a better chance of award if the City can show the ability to match funds.

Raftelis also worked with the City to complete a submission in June for the Charging and Fueling Infrastructure (CFI) Discretionary Grant Program. This submission requested planning and design funds for deployment of alternative fuel infrastructure, which would include extensions of storm drainage infrastructure to the proposed sites. The total anticipated cost for planning and design is \$2.7 million; the City has requested \$2.16 million as part of this submission and, if awarded the grant, will require a 20% match. As this grant is currently pending, it has not been included as a source of revenue for this study. Should it be awarded, Raftelis recommends the City update its financial plan to account for the additional revenue.

2.3.3. Recommended Revenue Adjustments

Stormwater rate revenue should be set at a level that is sufficient to meet revenue requirements, finance the capital improvement program, and maintain adequate reserves. Raftelis recommends the City set target operating reserves at 60 days of operating expenses and capital reserves at the annual average of 5-year capital expenses. This amount provides a reasonable operating allowance for sound stormwater utility operations and exceeds the reserve recommendation in the industry for a utility of this size, which is a reserve equal to 60 days of operating expenses.

The City’s revenue under current rates is far outpaced by revenue requirements. To meet the City’s objectives, Raftelis has calculated the required revenue adjustments from FY 2024 – FY 2028. This adjustment would increase annual rate revenues from approximately \$24,000 to \$1.4 million in FY2028, allowing the utility to meet its objectives.

Table 5: Stormwater Utility Financial Plan Projections

Description	FY2024	FY2025	FY2026	FY2027	FY2028
Annual Revenue Adjustment	1,193%	140%	33%	20%	17%
Total Rate Revenues	\$314,625 [1]	\$755,100	\$1,006,800	\$1,208,160	\$1,409,520
Total Expenditures	\$139,332	\$267,301	\$284,469	\$1,144,327	\$1,552,392
Net Cash Flows	\$1,750,293	\$487,799	\$722,331	\$63,833	(\$142,872)
Ending Balance	\$1,750,293	\$2,238,092	\$2,960,423	\$3,024,256	\$2,881,384
Target Reserves	\$254,605	\$509,209	\$763,814	\$1,018,419	\$1,273,023
Over/(Under) Target	\$1,495,689	\$1,728,883	\$2,196,609	\$2,005,838	\$1,608,361

[1] Rate adjustments in FY2024 are expected to be implemented beginning in February 2024.

In addition, Raftelis recommends updating the current rate structure from a per-account charge to an impervious area-based rate structure with equivalent residential units (ERUs) serving as the units of charge. An IA-based rate structure will improve rate recovery equity between classes and clarity for customers. Under the recommended rate structure, the monthly fees for a typical single-family property are shown in the table below. This rate structure and its development are discussed in detail in the following section.

Table 6: Proposed Monthly Fee per ERU

Description	FY2024 [1]	FY2025	FY2026	FY2027	FY2028
Months Effective	5	12	12	12	12
Monthly Fee per ERU	\$15.00	\$15.00	\$20.00	\$24.00	\$28.00

[1] Rate adjustments in FY2024 are expected to be implemented beginning in February 2024.

3. Rate Structure

3.1. Background

The City's current rate structure is a fixed charge per water account of \$1 per month. There were no records to indicate whether this rate, established in the 1990s, was based upon the results of a utility rate study². The purpose of the rate structure analysis is to revisit the City's existing rate structure and provide recommendations on updates to the rate structure to improve equity, clarity, collections, administration, and/or revenue generation as needed.

3.2. Rate Structure Analysis

The rate structure currently in place in the City is a uniform flat monthly charge per account. Under this rate structure, all accounts are charged the same rate. The simplicity of this rate structure offers several benefits, primarily that it is easy to communicate and does not present an administrative burden. In addition, there is equality between all users, who are charged the same regardless of the characteristics of the land or developments associated with their account.

However, the current uniform rate structure presents certain drawbacks. The most significant disadvantage is the lack of precision in reflecting the impact of each property on stormwater runoff. Properties with significantly different levels characteristics that impact the quality and quantity of stormwater runoff might pay the same fee. As the main purpose of a stormwater utility is to manage stormwater runoff, charging all properties as if they have the same impact results in inequitable distribution of costs associated with this management.

The most important factor influencing a property's demand upon the City's stormwater system and program is stormwater runoff and the best surrogate for that demand is a measure of its impervious area. Using a rate structure founded on measured or effective IA is industry best practice. Implementation of a stormwater fee based on IA is a fair, equitable, and legally defensible stormwater rate structure. This approach directly ties fees to properties demand upon the system through their stormwater runoff, providing a rational nexus between a property's charge and the demands upon the utility. Properties with more impervious surfaces, which contribute more to runoff and require increased stormwater management efforts, pay higher fees.

As such, Raftelis recommends implementing an impervious area-based rate structure which will recover the required revenues in an equitable manner that reflects the demand placed by each property. Included in this analysis is an updated Equivalent Residential Unit (ERU) determination, the methodology for which is described in detail below. The ERU represents the amount of impervious surface area of a typical single family residential (SFR) property in the City and serves as the unit of charge. ERUs should be periodically updated over time to ensure that they continue to accurately reflect the IA of a typical residential property as the development occurs and characteristics of the City change.

² RFP: Professional Services for Stormwater Utility Rate Study, City of Mt Shasta, issued January 21, 2022.

3.2.1. Data

Raftelis used aerial imagery from 2022 and tax assessor data from Siskiyou County, CA to conduct the analysis. This data was used to determine which properties in the City were SFR and which were non-single family residential (NSFR) properties. SFR properties typically have one or two residential units per property. NSFR properties include all properties not captured in the SFR definition, including multi-family, commercial, industrial, and institutional properties. To determine the proper classification for each parcel, Raftelis reviewed Siskiyou County tax assessor land use codes and reviewed aerial imagery. Table 7 includes land use codes that were determined to be SFR properties based upon land use codes and visual assessment of aerial imagery³. All other properties were considered to be NSFR.

Table 7: SFR Land Use Codes

Land Use Code	Description	Detail
112A	Single Family Residential	Mobile Home (A=LPT, B=Licensed)
113	Single Family Residential	Class 1 to 3 Residence
114	Single Family Residential	Class 4 Residence
115	Single Family Residential	Class 5 Residence
115M	Single Family Residential	Class 5 Residence
116	Single Family Residential	Class 6 Residence
116M	Single Family Residential	Class 6 Residence
117	Single Family Residential	Class 7 Residence
118	Single Family Residential	Class 8 to 10 Residence
214	Multi-Residential - Nonconforming use	Class 4 Residence on Multi-Residential
215	Multi-Residential - Nonconforming use	Class 5 Residence on Multi-Residential
216	Multi-Residential - Nonconforming use	Class 6 Residence on Multi-Residential
221	Multi-Residential - Nonconforming use	Duplex Type
313	Commercial - Nonconforming use	Class 1 to 3 Residence on Commercial
314	Commercial - Nonconforming use	Class 4 Residence on Commercial
315	Commercial - Nonconforming use	Class 5 Residence on Commercial
316	Commercial - Nonconforming use	Class 6 Residence on Commercial
112A	Single Family Residential	Mobile Home (A=LPT, B=Licensed)

3.3. Units of Service

To determine the units of service that will serve as the basis upon which all properties are built, Raftelis calculated the City’s ERU value using a sample of SFR properties. This value represents the amount of IA of a typical SFR within the City. We are recommending a flat rate for SFRs; thus, each SFR will be assigned 1 ERU in the computation of units of service. Next, the impervious area on all NSFRs is digitized to determine the IA for each property, which is used to calculate the ERUs of each property. The sum of SFR and NSFR ERUs is the total units of service for the City and are used to calculate rates. The process of developing units of service is described in detail below.

³As properties can occasionally be misclassified in property records, individual property classes can be overridden in the bill file. This initial effort was completed to determine the population of SFRs versus non-SFRs.

3.3.1. Data Development and ERU Calculation

To calculate the ERU for the City, we conducted a random sample of 270 parcels which were determined to be single-family residences. This sample size was selected to ensure a 95% confidence level in the result. We ensured by visual review of the sample parcels that they encompassed a representative range of geography, structure age, and housing type. In some cases, an original randomly selected sample SFR property was not suitable to be included because it was obscured by vegetation and could not be accurately measured. In these cases, a visibly similar property from the same geographic region (the same block, if possible) was chosen to replace that sample property.

Once identified, the IA on each sample SFR parcel was digitized. Impervious areas include any surface that does not allow water to infiltrate the ground. Typical examples of IA include:

- Building roof top and canopies
- Concrete and asphalt pavement
- Structural decks and patios
- Brick and concrete pavers
- Gravel used for vehicular or pedestrian traffic and/or vehicle parking.

Figures 1 and 2 show examples of digitized SFR parcels. The sample property's boundary is outlined in yellow while IA is shown in translucent blue.



Figures 1 & 2: Digitized SFR Parcels

Once properties were digitized, Raftelis calculated summary statistics for the sample set.

Table 8: Sample Statistics

Maximum IA	18,060 sq ft
Minimum IA	1,099 sq ft
Average IA	3,429 sq ft
Median IA	3,082 sq ft

Based on this analysis, Raftelis recommends that the City define its ERU value as 3,000 to align with the calculated median IA of 3,082.

3.3.2. Units of Service Calculation

Raftelis calculated units of service separately for SFR and NSFR properties. SFRs were determined to be 1 ERU; therefore, these units were determined using a simple count of SFR properties.

NSFR units of service were calculated using a three-step process. First, NSFR properties were identified as those which did not fall into the SFR classification. Second, IA on these properties was digitized to determine the total square feet of impervious area for each property. Last, the ERUs for each parcel were calculated by dividing IA by the recommended ERU value of 3,000 sq ft, then rounding up to the next whole integer, as shown in the example below.

Table 9: Sample Property ERU Calculation Example

IA = 4,968 sq ft ERUs = 4,968 sq ft / 3,000 sq ft per ERU = 1.656 → 2 ERUs

The updated units of service calculated for this study include 1,206 SFR and 2,989 NSFR ERUs.

3.4. Rates Under Recommended Structure

Using the calculated units of service and rate requirements for each fiscal year of the study period, Raftelis calculated the required monthly rates under an IA-based rate structure.

Table 10: Calculated Monthly Rates Under Recommended Structure, FY 2024 – FY 2028

	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Units of Service					
SFR	1,206	1,206	1,206	1,206	1,206
NSFR	2,989	2,989	2,989	2,989	2,989
Total ERUs	4,195	4,195	4,195	4,195	4,195
Expenses					
O&M	\$37,450	\$38,574	\$39,731	\$40,923	\$42,150
Capital	\$101,882	\$228,728	\$244,738	\$1,103,404	\$1,510,242
Reserve Targets					
O&M	\$1,386	\$1,386	\$1,386	\$1,386	\$1,386

Capital	\$253,219	\$253,219	\$253,219	\$253,219	\$253,219
Revenue Requirement	\$393,896	\$521,865	\$539,033	\$1,398,891	\$1,806,957
Non-Rate Revenue	\$1,575,000	\$0	\$0	\$0	\$0
Revenue to be Collected from Rates	-\$1,181,104	\$521,865	\$539,033	\$1,398,891	\$1,806,957
Calculated Rate per ERU	-\$23.47	\$10.37	\$10.71	\$27.79	\$35.90

The calculations in the table above assume rates will be in effect for 12 consecutive months starting at the beginning of the fiscal year (July 1). While these rates would provide adequate funding for planned expenditures over the study period, they fluctuate noticeably from year to year, and feature large rates that may be intolerable to rate payers. To avoid such variability in rates and keep rates from reaching such high peaks in later years, Raftelis recommends beginning with a lower rate and increasing rates gradually over the course of the study. Raftelis recommends using the rate schedule detailed below for FY 2024 through FY 2028.

Table 11: Proposed Rates Under Recommended Structure, FY 2024 – FY 2028

Description	FY 2024 [1]	FY 2025	FY 2026	FY 2027	FY 2028
Months Effective	5	12	12	12	12
Proposed Rate per ERU	\$15.00	\$15.00	\$20.00	\$24.00	\$28.00

[1] Rate adjustments in FY2024 are expected to be implemented beginning in February 2024.

Raftelis recommends instituting an impervious area (IA)-based rate structure with equivalent residential units (ERUs) serving as the unit of charge. An IA-based rate structure will improve equity of revenue recovery between classes. Under this structure, all parcels with an SFR land use code will be charged using a flat rate of 1 ERU. The units of service for NSFRs will be calculated by dividing IA by the ERU value of 3,000 sq ft, then rounding up to the nearest whole number, as shown in the example in Table 9. This structure is shown in the table below.

Table 12: Recommended Rate Structure

Land Use Type	Rate Structure
Single-Family Residential (SFR)	Flat fee, 1 ERU per parcel
Non-Single Family Residential (NSFR)	Fee calculated on measured IA; 1 ERU per 3,000 sq ft IA

Under the recommended rate structure, the monthly bill for a typical single-family property will increase from \$1 to \$15.00 in February 2024.

Table 13: Comparison of FY2023 Current and Recommended Rates

Description	Current Rates, FY 2023	Recommended Rates, FY 2024 [1]
Charge per bill	\$1.00 per account	\$15.00 per ERU

[1] Rate adjustments in FY2024 are expected to be implemented beginning in February 2024.

4. Final Recommendations

The study team found that projected stormwater service revenue is insufficient to meet annual revenue requirements through the study period. Raftelis recommends rates be increased to meet revenue requirements and sufficiently fund operating and capital expenditures, as well as provide adequate reserves through the study period.

To meet this goal, Raftelis recommends revenue adjustments following the schedule below for FY 2024 through FY 2028.

Table 14: Recommended Revenue Adjustments, FY 2024 - 2028

	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028
Annual Revenue Adjustments	1,193%	140%	33%	20%	17%

These adjustments will increase annual rate revenues from approximately \$24,000 to an average of approximately \$1.0 million, allowing the utility to meet its goals. Following FY 2028, Raftelis recommends annual revenue adjustments of 3.0%. In addition, Raftelis recommends instituting an impervious area-based rate structure with equivalent residential units (ERUs) serving as the units of charge. Under the recommended rate structure, SFRs will be charged as 1 ERU, and units of service for NSFRs will be calculated based on measured IA.

Table 15: Recommended Rate Structure

Land Use Type	Rate Structure
Single-Family Residential (SFR)	Flat fee, 1 ERU per parcel
Non-Single Family Residential (NSFR)	Fee calculated on measured IA; 1 ERU per 3,000 sq ft IA

Under this rate structure and recommended revenue adjustments, the monthly bill for a typical single-family property will increase from \$1.00 to \$15.00 in February 2024. Proposed rates are shown in the table below.

Table 16: Proposed Rates Under Recommended Structure, FY 2024 – FY 2028

	FY 2024 [1]	FY 2025	FY 2026	FY 2027	FY 2028
Months Effective	5	12	12	12	12
Proposed Rate per ERU	\$15.00	\$15.00	\$20.00	\$24.00	\$28.00

[1] Rate adjustments in FY2024 are expected to be implemented beginning in February 2024.

Raftelis recommends that the stormwater financial plan be updated annually to reflect current estimates of revenue, operating expenses, capital improvement needs, and maintenance of reserve targets.