

DRAFT REPORT



South Tahoe Public Utility District
*Comprehensive Sewer
Rate Study*

April 2024



April 25, 2024

Mr. Paul Hughes
General Manager
South Tahoe Public Utility District
1275 Meadow Crest Drive
South Lake Tahoe, California 96150

Subject: Draft Comprehensive Sewer Rate Study Report

Dear Mr. Hughes:

HDR Engineering, Inc. (HDR) is pleased to present the draft report on the comprehensive sewer rate study conducted for the South Tahoe Public Utility District (District). A key objective in developing the District's comprehensive sewer rate study was to develop a financial plan and rates that generate sufficient revenues to fund the operating and capital needs of the sewer utility, as well as determine the proportionality of the rates by conducting a cost of service analysis to support the proposed sewer rates. This report outlines the approach, methodology, findings, and conclusions of the comprehensive sewer rate study.

This report was developed utilizing the District's accounting, budgeting, operating, and customer records. HDR has relied on this information to develop our analyses that form our findings, conclusions, and recommendations. At the same time, this study was developed utilizing generally accepted rate setting principles and methodologies as outlined in the Water Environment Federation Manual of Practice No. 27. The conclusions and recommendations contained within this report are intended to provide a financial plan that meets the operating and capital needs of the utility and the basis for developing and implementing rates that are cost-based and proportional to the District's customers.

We appreciate the assistance provided by District staff in the development of this study. More importantly, we appreciate the opportunity to continue to assist District staff, management, and Board of Directors in establishing cost-based and proportional sewer rates.

Sincerely,
HDR Engineering, Inc.

Shawn Koorn
Associate Vice President



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Executive Summary

South Tahoe Public Utility District (District) retained HDR Engineering, Inc. (HDR) to perform a comprehensive rate study for its sewer utility. A comprehensive rate study determines the adequacy of the existing sewer rates and provides the basis to maintain cost-based and proportional rates. This report will describe the methodology, findings, and conclusions of the sewer rate study process undertaken for the District. The primary objectives of the study were to:

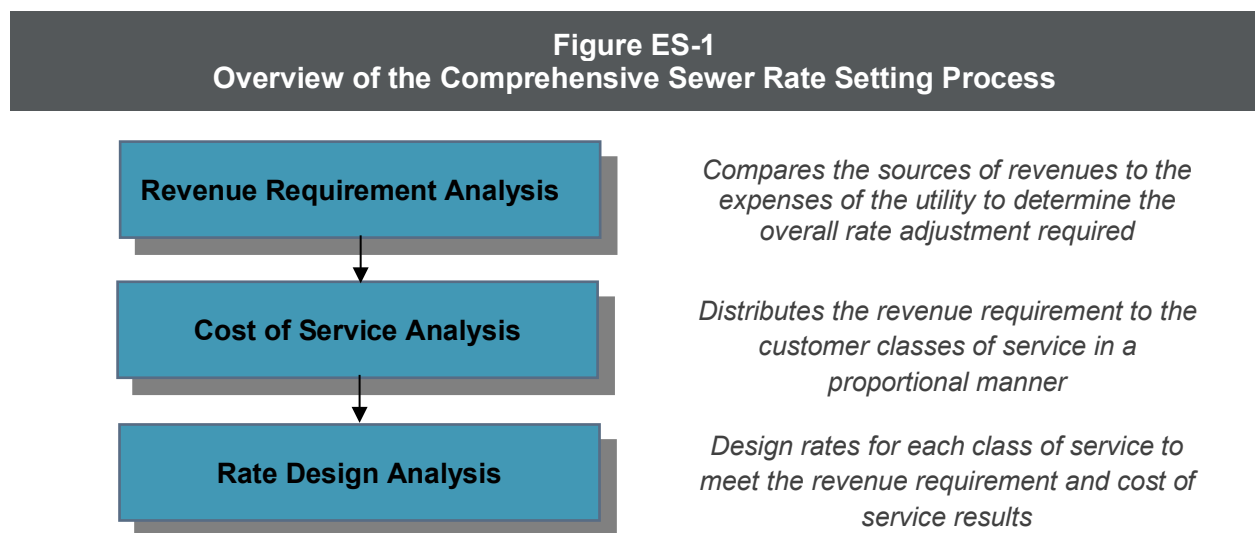
- ✓ Review the District's sewer rates to determine if the rates are meeting the goals and objectives of the District as well as sufficiently funding operational and capital expenses.
- ✓ Develop a financial plan for projecting operating and capital costs for the sewer utility for planning purposes.
- ✓ Provide the framework and methodology, based on generally accepted industry best practices and the District's unique system and customer characteristics, for the development of cost-based and proportional sewer rates.
- ✓ Adopt rates through the Proposition 218 process for the next five-year period.

These objectives were the basis and starting point of the comprehensive sewer rate study analysis.

The District was established in 1950 to provide water and sewer services to the residents of South Lake Tahoe. The District annually treats 2.5 billion gallons of wastewater from approximately 15,000 customers. The District owns and maintains 330 miles of collection and force mains, 42 lift stations, a wastewater treatment plant, and effluent pipeline to discharge the treated wastewater.

Overview of the Rate Study Process

This comprehensive rate study consists of three interrelated analyses performed for the sewer utility. Figure 1-1 provides an overview of these analyses.



Each of these analyses were completed in the development of the District's sewer rate study. The revenue requirement analysis is concerned with the overall level of revenues and expenses, both operating and capital, of the sewer utility. From this analysis, a determination can be made as to the overall level of adjustment to rate revenues necessary to meet annual needs. Next, a cost of service analysis is performed to proportionally distribute the revenue requirement to the identified customer classes of service, or rate schedules, served (e.g., single family, multi-family, hotel/motel, trailer park, and non-residential). Finally, once an overall level of rate revenue adjustment is determined and an proportional distribution of those costs, the last step of the rate study process is the design of rates to collect the appropriate level of revenues while considering the other rate design goals and objectives of the utility (e.g., revenue stability, cost-based, continuity in philosophy) as developed as part of the cost of service analysis.

Key Sewer Rate Study Results

- ✓ The revenue requirement analysis was developed for the projected time period of FY 2025 through FY 2033 for the sewer utility.
- ✓ The District's FY 2024 adopted budget for the sewer utility was used as the starting point of the analysis.
- ✓ Operation and maintenance (O&M) expenses are projected to increase at inflationary levels with no assumed changes to levels of service or anticipated extraordinary expenses.
- ✓ A cost of service analysis was developed to review the proportionality of the existing rates by proportionately distributing the revenue requirement to the customer classes of service for the sewer utility.
- ✓ The results of the cost of service analyses provided the unit costs (i.e., cost basis) which were used to establish the proposed sewer rates f.
- ✓ The rate study has developed proposed rates for the FY 2025 – FY 2029 time period, by customer class of service.
- ✓ The proposed sewer rate revenue adjustments were 13.5% for 2025 and 9.5% annually from FY 2026 through FY 2029, effective July 1st of each year.

Summary of the Revenue Requirement Analysis

The revenue requirement analysis is the first analytical step in the comprehensive sewer rate study process. This analysis determines the adequacy of the current revenues (at current rate levels) to fund annual operating expenses and capital improvement needs. From this analysis, a determination can be made as to the overall level of sewer rate revenue adjustments needed to provide adequate and prudent funding for the District's sewer system.

As a practical matter, a multi-year time frame is recommended in an attempt to identify and plan for major expenses that may be on the horizon. By anticipating future financial requirements, the District can begin planning for these changes sooner, thereby minimizing short-term rate impacts while also stabilizing long-term rates. For the District's study, a projected time period of FY 2025 through FY 2033 was developed with a focus on the next 5-year period (FY 2025 – FY 2029) for rate setting purposes.

For the revenue requirement analysis a "cash basis" approach was utilized. The "cash basis" approach is the most common methodology used by municipal and special purpose district utilities to

set their revenue requirement. In its most basic form, the cash basis approach is composed of O&M expenses, taxes / transfer payments, annual debt service payments, and rate funded capital projects. The primary inputs for the District's revenue requirement analysis were provided through the District's adopted sewer budget, financial planning documents, historical billed customer data, and the sewer capital improvement plan. Budgeted O&M expenses were projected using inflationary factors for the District's various expenses to provide wastewater collection, conveyance, treatment, and disposal services over the projected time period. These inflationary factors were based on historical District specific increases in costs and planned changes based on the District's planning and financial projection studies and analyses.

The proper and adequate funding of capital projects is important to help maintain existing facilities, provide consistent levels of service and minimize rate impacts over time. A general financial guideline is that, at a minimum, a utility should fund an amount equal to or greater than annual depreciation expense through current rate revenue (i.e., rate funded capital). Annual depreciation expense reflects the current investment in plant being depreciated or "losing" its useful life. Therefore, this portion of plant investment needs to be replaced or repaired to maintain the existing level of infrastructure (and service levels). However, it must be kept in mind that, in theory, annual depreciation expense reflects an investment in infrastructure that was placed in service an average of 15 years ago, assuming a 30-year useful (i.e., depreciable life). It is important to note and understand that depreciation expense is not the same as replacement cost. Thus, funding an amount which exceeds the sewer utility's annual depreciation expense is reasonable and appropriate target to aspire to as the utility becomes more fiscally sound.

HDR and District staff worked with the District Board to review various capital funding scenarios. These included various levels of renewal and replacement funding, planned long-term debt issuance as provided by the District, and prioritization of system specific improvements. Based on these discussions with the Board, the final capital improvement funding plan was developed. In developing this financial plan, HDR and the District have attempted to minimize rate impacts while funding the planned capital improvement projects through a mix of long-term borrowing and rate funding. Provided in Table ES-1 is a summary of the proposed capital improvement funding plan.

**Table ES-1
Overview of the Sewer Capital Improvement Plan (000's)**

	Budget	Projected								
	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033
Capital Plan Costs										
Engineering	\$3,058	\$2,948	\$3,026	\$3,105	\$3,187	\$3,270	\$3,356	\$3,445	\$3,536	\$3,629
Debt Service	3,000	3,112	2,817	3,342	3,275	3,319	3,658	3,779	3,553	3,342
Capital Improvement Projects	19,872	16,915	13,150	13,480	14,006	14,966	13,430	16,984	12,791	12,113
Capital Reserve Funding	0	0	0	562	1,292	819	0	1,453	0	1,831
Total Capital Investment	\$25,930	\$22,975	\$18,993	\$20,489	\$21,759	\$22,375	\$20,444	\$25,660	\$19,880	\$20,916
Capital Plan Funding										
Capital Reserve	\$11,152	\$1,910	\$107	\$0	\$0	\$0	\$1,152	\$0	\$486	\$0
Capacity/Connection Fees	633	570	513	462	415	374	336	303	273	245
Federal Aid	1,029	0	0	0	0	0	0	0	0	0
Assumed Debt Issuance/ Proceeds	5,494	12,505	9,087	10,019	9,509	8,457	3,057	7,867	0	0
Capital Funded from Rates	7,622	7,991	9,286	10,008	11,834	13,544	15,899	17,490	19,121	20,670
Total Capital Funding	\$25,930	\$22,975	\$18,993	\$20,489	\$21,759	\$22,375	\$20,444	\$25,660	\$19,880	\$20,916

Capital funding can come from a variety of sources, reserves, debt, federal aid, and rate funded capital. For the District's capital funding plan, as provided in Table ES-1, a key element was funding the capital improvement needs through a mix of long-term borrowing and rate funding. As a note, the capital funding plan for the District's revenue requirement contains a line item labeled capital funded from rates, this is a blanket term referring to the total amount of each years rate revenue that is intended to be used for capital. For planning purposes, the District identifies a portion of rate revenue as "capital improvement charge". For this study the capital improvement charge has been included in the rate funded capital component. This analysis assumes a significant amount of funding for capital which exceeds the District's annual depreciation \$4.6 million for minimum amount of capital funding required to properly maintain the utilities infrastructure. Over the analysis period, the plan estimates approximately \$9.8 million in rate funded capital which exceeds the minimum target level of funding.

As noted, the revenue requirement is comprised of O&M expenses, transfers/taxes, annual debt service payments, and rate funded capital. As outlined above, the O&M expenses were based on the FY 2024 adopted budget for the sewer utility. Future year projections were based on historical inflationary factors and known changes in costs through FY 2033. Transfers were made to the capital fund to meet future capital improvement funding in combination with projected long-term borrowing estimated by the District. Annual debt service payments, both principal and interest, were funded annually based on the existing annual debt service schedules as provided by the District. Finally, rate funded capital was developed to meet future capital funding needs and industry standard approaches.

These components are summed to develop the total revenue requirement for the District's sewer utility. The results of the revenue requirement are presented in Table ES-2 and provide the basis for future rate revenue adjustments to adequately fund annual operating and capital expenses over the study time period.

**Table ES-2
Summary of the Revenue Requirement Analysis (000"s)**

	Budget	Projected								
	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033
Sources of Funds										
Rates	\$14,364	\$14,380	\$14,396	\$14,412	\$14,427	\$14,443	\$14,459	\$14,475	\$14,491	\$14,507
Other Revenues	<u>9,394</u>	<u>9,605</u>	<u>9,707</u>	<u>9,900</u>	<u>10,058</u>	<u>10,223</u>	<u>10,411</u>	<u>10,609</u>	<u>10,851</u>	<u>10,881</u>
Total Sources of Funds	\$23,758	\$23,984	\$24,103	\$24,312	\$24,485	\$24,667	\$24,870	\$25,084	\$25,342	\$25,388
Applications of Funds										
Operations & Maintenance Expense	\$18,981	\$20,404	\$20,928	\$21,497	\$22,067	\$22,654	\$23,256	\$23,876	\$24,512	\$25,165
Rate Funded Capital:	7,622	7,991	9,286	10,008	11,834	13,544	15,899	17,490	19,121	20,670
Debt Service	3,763	4,340	4,002	5,087	5,111	5,475	6,032	6,032	5,688	5,366
To / (From) Reserves	<u>(3,000)</u>	<u>(3,112)</u>	<u>(2,817)</u>	<u>(3,342)</u>	<u>(3,275)</u>	<u>(3,319)</u>	<u>(3,658)</u>	<u>(3,779)</u>	<u>(3,553)</u>	<u>(3,342)</u>
Total Application of Funds	\$27,365	\$29,623	\$31,400	\$33,249	\$35,738	\$38,354	\$41,530	\$43,619	\$45,767	\$47,860
Balance/(Deficiency) of Funds	(\$3)	(\$2,522)	(\$4,397)	(\$6,321)	(\$8,873)	(\$11,427)	(\$14,261)	(\$16,020)	(\$17,833)	(\$19,677)
% Balance/(Deficiency) of Funds	0.0%	13.8%	24.1%	34.6%	48.5%	62.3%	77.6%	87.0%	96.7%	106.5%
Proposed Rate Adjustments	0.0%	13.5%	9.5%	9.5%	9.5%	9.5%	9.5%	5.0%	5.0%	5.0%

As shown in Table ES-2, revenues are insufficient to prudently fund the District's O&M and capital expenses over the projected time period. It is important to note the annual revenue deficiencies in the Table ES-2 are cumulative. That is, any adjustments in the initial years will reduce the deficiency in the later years. Over the projected five-year rate setting period of FY 2025 – FY 2029, rate revenues need to be adjusted by approximately 62.3% to adequately and properly fund the District's sewer utility O&M and capital expenses.

Based on the revenue requirement analysis developed, HDR recommends the District increase the overall revenue levels of the sewer utility. Based on the plan developed in this report, the recommended 13.5% for 2025 and annual adjustments of 9.5% thereafter will provide adequate funding for the time period of FY 2026 FY 2029 based on the assumptions developed as part of the rate study.

Summary of the Cost of Service Analysis

A cost of service analysis determines the proportional distribution of the revenue requirement to the identified customer classes of service. The objective of the cost of service analysis is different from determining the revenue requirement. A cost of service analysis determines the proportional manner to collect the total revenue requirement based on the customer class characteristics and facility requirements. A summary of the cost of service analysis for 2025 is shown in Table ES-3.

Table ES - 3 Summary of the Cost of Service Analysis (\$000)				
Class of Service	Present Revenue (FY 2025)	Allocated Costs	\$ Difference	% Difference
Single Family Residential	\$11,579	\$13,122	(\$1,542)	13.3%
Multi-family	2,755	3,137	(383)	13.9%
Non-Residential	1,484	1,693	(209)	14.1%
Motel/ Trailer Park/ Campground	<u>2,392</u>	<u>2,716</u>	<u>(324)</u>	<u>13.5%</u>
Total	\$18,210	\$20,668	(\$2,458)	13.5%

Table ES-3 provides a comparison of the current rate revenues to the distributed costs. During the analysis it was observed that the Motel/Hotel/Timeshare and the Trailer/Mobile Home Park/Campground customer classes were not materially different in their cost to serve so it was determined in discussion with the District that these classes of service should be merged into a single class as shown above as Motel/Trailer Park/Campground.

The difference between the rate revenues and distributed costs for each class of service represents the variance between the level of revenues currently received from each class of service and the proportional distribution of costs. In viewing these results, it is important to remember that a cost of service analysis is not an exact calculation. Rather, it reflects the current relationships between current customer revenues and current costs. These relationships change over time given budgetary changes and changes in customer usage patterns and system characteristics. A customer class is generally considered being within a reasonable range of its Cost of Service when the customers cost of service change is within 5% of the overall rate adjustment. This is due to

changing customer characteristics over time, and the use of a single year for cost allocation and revenues. As Table ES-3 shows each customer class is within 5% and thus considered within their cost of service. However, given the requirements of Proposition 218, the cost of service results are implemented through the rate design process. In this way, the proposed rates, and subsequent revenues, will reflect the results of the cost of service analysis and maintain the proportionality between customer classes of service.

Summary of the Rate Design Analysis

The final step of the comprehensive sewer rate study process is the design of the sewer rates to collect the appropriate levels of revenue and reflect the results of the cost of service analysis. This is done through the development of proposed rates that are based on the cost of service results, and specifically the average unit costs (i.e., cost-based rates), that reflect each customer classes' impact on the system and infrastructure need. In this case, the District charges all customers on a per sewer unit basis. Given this, the average unit costs take the total cost proportionally distributed to each customer class divided by the number of sewer billing units of each customer class.

Provided in Table ES – 4 are the current and proposed sewer rates for the District for the next five-year period. As noted, the only change to the District rate structure, was to combine the Motel/Hotel/Timeshare and Trailer/Mobile Home Park/Campground customer classes. Other than this adjustment to the rate classes, this study has not recommended any changes to the overall rate structure. However, the relationships between classes of services were adjusted to reflect the results of the cost of service analysis and the calculated average unit costs.

**Table ES-4
Current and Proposed Rates**

	Current	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029
Monthly Charge by Class of Service per Billing Unit						
Single Family Residential	\$17.53	\$19.86	\$21.75	\$23.81	\$26.07	\$28.55
Multi-family	16.93	19.20	21.03	23.02	25.21	27.61
Motel/Hotel/Timeshare	16.64	NA	NA	NA	NA	NA
Trailer/Mobile Home Park/Campground	16.62	NA	NA	NA	NA	NA
Motel/ Trailer Park/ Campground	NA	18.89	20.68	22.65	24.80	27.16
Non-Residential	17.53	19.86	21.75	23.81	26.07	28.55

Summary

This completes the summary of the comprehensive rate study completed for the District's sewer utility. Based on discussions with District staff and the Board, and results of the comprehensive sewer rate study, the following recommendations have been developed:

- ✓ The revenue requirement analysis showed a deficiency of annual revenues to meet annual operating and capital needs. To maintain the revenue sufficiency of the sewer utility, the proposed rate adjustment for FY 2025 is 13.5% followed by annual revenue adjustments of 9.5% through FY 2029 are recommended.

- ✓ The cost of service study resulted in minor cost differences between the customer classes of service. The proposed rates are recommended to be developed based on the cost of service results for each customer class of service.
- ✓ Proposed rates were developed that reflect the overall revenue needs and cost of service results for the next five-year period.
- ✓ It is recommended that the proposed rates be adopted for the next five-year period as they reflect the proportional distribution of costs.

A full and complete discussion of the development of the comprehensive rate study and the proposed rate adjustments can be found in following sections of this report.

1 Introduction

The South Tahoe Public Utility District (District) retained HDR Engineering, Inc. (HDR) to perform a comprehensive rate study for its sewer utility. A comprehensive rate study determines the adequacy of the existing sewer rates and provides the basis to maintain cost-based and proportional rates. This report describes the methodology, findings, and conclusions of the sewer rate study process undertaken for the District.

The District owns and operates the sewer collection and treatment systems serving the City of South Tahoe and surrounding communities. Wastewater collected by the District is treated and then transported via pipeline out of the Tahoe Basin as required by law.

A key element of this study involves adherence to the requirements of the California Constitution Article XIII D, or commonly referred to as proposition 218. This requires sewer utilities to establish a rate methodology which result in cost-based and proportional rates. The study provides a basis for adjusting rate revenues to adequate levels and recovering the cost of providing service in a proportional manner from the District's customers. This study has been developed using industry accepted sewer rate setting methodologies and best practices, along with District specific sewer system and customer data and information.

1.1 Goals and Objectives

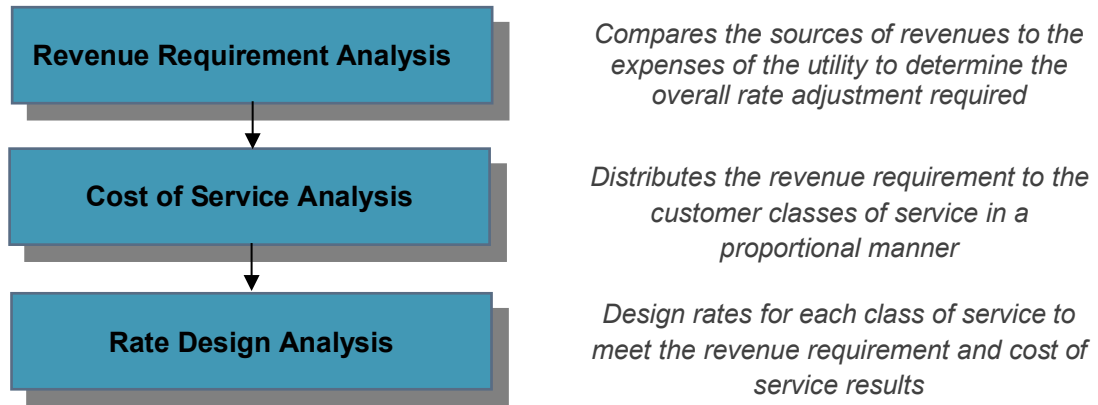
The District had a number of goals and objectives in mind for this study. These goals and objectives were as follows:

- ✓ Develop the sewer study in a manner that is consistent with the principles and methodologies established by the Water Environment Federation (WEF), Manual of Practice No. 27, Financing and Charges for Sewer Systems.
- ✓ In financial planning and establishing the District's rates, review and utilize best industry practices, while recognizing and acknowledging the specific and unique characteristics of the District's sewer system, customers, and facilities.
- ✓ Review the District's rates utilizing "generally accepted" rate making methodologies to determine adequacy and proportionality of the sewer utility rates.
- ✓ Meet the District's financial planning criteria and goals, such as debt service coverage ratios, adequate funding of capital infrastructure, and maintenance of adequate and prudent reserve levels.
- ✓ Develop a final proposed financial plan which adequately supports the sewer utility's funding requirements, while attempting to minimize overall impacts to rates.
- ✓ Provide rates designed to meet the requirements of Article XIII D.

1.2 Overview of the Rate Study Process

A comprehensive rate study consists of three interrelated analysis, which all were performed for the District's sewer utility rate study. Figure 1-1 provides an overview of these analyses.

Figure 1-1
Overview of the Comprehensive Sewer Rate Setting Process



A revenue requirement analysis is concerned with the overall funding sources and expenses of the utility. From this analysis, a determination can be made as to the overall level of adjustment to revenues (rates). Next, a cost of service analysis is performed to proportionally distribute the revenue requirement to the customer classes of service (e.g., residential, multifamily, non-residential), or the rate schedules for purposes of developing the proposed rates. Finally, once an overall level of revenue adjustment (cost basis) is determined, and a proportional distribution of the costs, the last step of the rate study process is the design of rates to collect the appropriate level of revenues while incorporating other rate design goals and objectives of the utility (e.g., revenue stability, continuity in philosophy) while maintaining the requirements of Proposition 218. As a part of this study, each of these analyses was completed to analyze the District's current sewer rates. At the same time HDR utilized "generally accepted" cost of service and rate setting techniques, methodologies and industry best practices in the development of the District's sewer rate study.

1.3 Report Organization

This report is organized as follows:

- ✓ Section 2 provides background information about the utility rate setting process
- ✓ Section 3 reviews the revenue requirement analysis
- ✓ Section 4 reviews the cost of service analysis
- ✓ Section 5 reviews the rate design analysis

A technical appendices is attached at the end of the report which provides the detailed analysis used in preparation of the District's study.

1.4 Summary

This report has been developed utilizing generally accepted rate setting methodologies. The next section of the report provides an overview of the basic theory and industry standard methodologies used to establish cost-based and proportional rates. This provided the foundation for subsequent sections of this report and in the development of the District's sewer rates.

2 Overview of the Rate Setting Process

2.1 Introduction

This section provides background information about the rate setting process, including descriptions of generally accepted principles, types of utilities, methods of determining the revenue requirement, cost of service, and rate design analyses. This information is useful for gaining a better understanding of the details presented in Sections 3 through 5.

2.2 Generally Accepted Rate Setting Principle

As a practical matter, all utilities should consider setting rates around generally accepted or global principles and guidelines. Utility rates should be:

- ✓ Cost-based, proportional, and set at a level that meets the utility's full revenue requirement
- ✓ Easy to understand and administer
- ✓ Designed to conform with generally accepted rate setting methodologies
- ✓ Stable in their ability to provide adequate revenues for meeting the utility's financial, operating, and regulatory requirements
- ✓ Established at a level which is stable from year-to-year from a customer's perspective

2.3 Determining the Revenue Requirement

Because public and private utilities have very different administrative and financial characteristics, their methods differ for determining revenue requirements and setting rates.

2.3.1 Public Utilities

Most public utilities use the “cash basis” approach for establishing their revenue requirement and setting rates. This approach conforms to most public utility budgetary requirements and the calculation is easy to understand. A public utility totals its cash expenditures for a period of time to determine its required revenues. The revenue requirement for a public utility is usually comprised of the following costs or expenses:

- ✓ **Total Operating Expenses:** This includes a utility's operation and maintenance (O&M) expenses, plus any applicable taxes or transfer payments. Operation and maintenance expenses include the materials, electricity, labor, supplies, etc., needed to keep the utility functioning.
- ✓ **Total Capital Expenses:** Capital expenses are calculated by adding debt service payments (principal and interest) to rate funded capital. In lieu of including capital improvements financed with rate revenues, a utility sometimes includes annual depreciation expense levels to stabilize the annual revenue requirement.

Under the cash basis approach, the sum of the capital and operating expenses equals the utility’s revenue requirement during any period of time (see Table 2-1).

Note that the two portions of the capital expense component, debt service and capital improvements financed from rates, are necessary under the cash basis approach because utilities generally cannot finance all their capital facilities with long-term debt. An exception occurs if a public utility provides service to a large wholesale or contract customer. In this situation, a public utility may use the “utility basis” approach (see below) to earn a fair return on its investment.

Table 2-1 Cash versus Utility Basis Comparison	
Cash Basis	Utility Basis (Accrual)
+ O&M Expense	+ O&M Expense
+ Taxes or Transfer Payments	+ Taxes or Transfer Payments
+ Rate Funded Capital (≥ Depreciation)	+ Depreciation Expense
+ Debt service (Principal + Interest)	+ Return on Investment
= Total Revenue Requirement	= Total Revenue Requirement

2.4 Analyzing Cost of Service

After the total revenue requirement is determined, it is distributed to the users of the service. The distribution, analyzed through a cost of service study, reflects the cost relationships for producing and delivering services. A cost of service study requires three steps:

1. Costs are **functionalized** or grouped into the various cost categories related to providing service (collection, pumping, treatment, etc.). This step is often largely accomplished by the utility’s chart of accounts within its accounting system.
2. The functionalized costs are then **allocated** to the appropriate cost component(s). Allocation refers to the arrangement of the functionalized data to the identified cost components. For example, a sewer utility’s costs are typically allocated as volume, strength, or customer-related.
3. Once the costs are allocated to the appropriate cost component(s), they are **distributed** to the customer classes of service (single family, multi-family, commercial, etc.). The distribution is based on each customer class’s relative, proportional, contribution to the cost component. For example, customer-related costs are distributed to each class of service based on the total number of customers in that class of service. Once costs are distributed, the required revenues for achieving cost-based rates can be determined.

2.5 Designing Rates

Rates that meet the utility’s objectives are designed based on both the revenue requirement and the cost of service analyses. This approach results in rates that are strictly cost-based. In designing the final proposed rates, factors such as ability to pay, continuity of past rate philosophy, economic

development, ease of administration, and customer understanding may be taken into consideration. However, the proposed rates must take into consideration each customer class's proportionate share of the costs allocated through the cost of service analysis to meet legal requirements.

2.6 Economic Theory and Rate Setting

One of the major justifications for a comprehensive rate study is founded in economic theory. Economic theory suggests that the price of a commodity must roughly equal its cost if equity among customers is to be maintained. This statement's implications on utility rate designs are significant. For example, a sewer utility usually incurs strength-related costs in treating high-strength sewer. It follows that the customers who have higher strength sewer flows and create additional treatment costs should pay for those strength-related facilities in proportion to their contribution to total plant loadings. When costing and pricing techniques are refined, consumers have a more accurate picture of what the commodity costs to produce and deliver. This also reflects Proposition 218 requirements of establishing cost-based and proportional rates.

“Economic theory suggests that the price of a commodity must roughly equal its cost if equity among customers is to be maintained.”

2.7 Summary

This section of the report has provided a brief introduction to the general principles, techniques, and economic theory used to set utility rates. These principles and techniques will become the basis for the District's sewer rate study. The next section will review the development of the revenue requirement analysis for the District's sewer utility.



3 Development of the Revenue Requirement

3.1 Introduction

This section describes the development of the sewer revenue requirement analysis for the District's comprehensive sewer rate study. The revenue requirement analysis is the first analytical step in the comprehensive rate study process. This analysis determines the adequacy (level) of the District's overall sewer rates and provides the cost basis for establishing the proposed rates. From this analysis, a determination can be made as to the overall level of sewer revenue (rate) adjustment needed to provide adequate funding for the sewer utility's operating and capital needs.

In developing the sewer revenue requirement, it was assumed the District's sewer utility must financially "stand on its own" and be properly funded. As a result, the revenue requirement analysis as developed herein assumes the full and proper funding needed to operate and maintain the system on a financially sound and prudent basis over a long-term period. This results in stable rate levels from both the Districts and customers perspective and minimizes large rate swings over time.

Provided below is a detailed discussion of the development of the revenue requirement analysis for the District's sewer utility.

3.2 Establishing a Time Frame and Approach

The first step in calculating the revenue requirement was to establish a time frame for the revenue requirement analysis. For this study, the revenue requirement was developed for FY 2025 – FY 2033. While the analysis was developed for this projected period, for purposes of reviewing the long-term financial health of the sewer utility, the focus for the adoption and implementation of proposed rates was for the next five-year period of FY 2025 – FY 2029.

The second step in determining the revenue requirement for the District was to decide on the basis of accumulating costs. For the District's revenue requirement, a "cash basis" approach was utilized. As was discussed in Section 2, the cash basis approach is the most common methodology used by municipal utilities to set their revenue requirement, and the approach used by the District in prior rate studies. Section 2 of this report also provided a simple overview of the cash basis methodology. The actual revenue requirement developed for the District was customized to follow the District's system of accounts (budget documents), which still contains the four basic cost components of a cash basis methodology. Table 3-1 provides a summary of the specific components within the cash basis approach used to develop the District's revenue requirement.

Table 3-1
Overview of the Sewer Utility Cash Basis Revenue Requirement

+ Sewer Operation and Maintenance Expenses
+ Rate Funded Capital [1]
+ Transfers to/from Reserves
<u>+ Debt Service (P + I) – Existing and Future</u>
= Total Sewer Revenue Requirement
<u>- Miscellaneous Revenues</u>
= Net Revenue Requirement (Balance Required from Rates)

[1] Rate Funded Capital
+ Total Sewer Capital Improvement Projects
Funding Sources Other than Rates
✓ Connection Fees
✓ Capital Reserves
<u>- ✓ Long term debt issues</u>
= Rate Funded Capital

Given a time period around which to develop the revenue requirement and a method to accumulate the appropriate costs; the focus shifts to the development and projection of the revenues and expenses of the sewer utility.

The primary financial inputs in this process were the District’s historical billing records, adopted sewer operating budget, and capital improvement plan. Presented below is a detailed discussion of the steps and key assumptions in the development of the District’s sewer projected revenues and expenses.

3.3 Projection of Revenues

The starting point of the analysis is the projection of revenues received by the District for providing sewer services. These revenue sources include rate revenues, or revenues received from customers, along with miscellaneous revenues received as part of operating a sewer utility. Provided below is a summary of the revenues received by the District’s sewer utility.

3.3.1 Projecting Sewer Rate Revenues

The first step in developing the revenue requirement was to develop a projection of rate revenues, at present rate levels. In general, this process involved developing projected billing units for each customer class of service. The billing units for each customer class of service were then multiplied by the applicable current rates. This method of independently calculating rate revenues results in the projected rate revenues used within the analysis match to the projected billing units. The projected billing units by class of service were based on historical billing records provided by the District.

The majority of the District's rate revenues are derived from residential customers. Currently, the District has five major classes of service:

- ✓ Single family
- ✓ Multifamily
- ✓ Motel/Hotel/Timeshare
- ✓ Trailer/Mobile Home Park/Campground
- ✓ Non-Residential

In total, at present rates, the District is projected to receive approximately \$18.2 million in rate revenue in FY 2025. Over the planning horizon of this study, customer growth is assumed to increase 0.2% annually resulting in projected rate revenue in 2033 of \$18.5 million.

3.3.2 Property Tax Revenues

The District receives approximately \$8.2 million in property tax revenue and uses this revenue as a funding source for the sewer fund. The District expects property tax revenue to grow at an average of 2.9% per year increasing to an estimated \$8.6 million in FY 2033.

3.3.3 Projecting Miscellaneous Revenues

In addition to rate revenues and property tax, the District also receives a variety of miscellaneous revenues which includes capacity fees, permit fees, interest and penalty charges, and investment interest to name the most significant. The sum of the miscellaneous revenue is approximately \$1.0 million in FY 2024 and remain flat through FY 2033.

3.3.4 Total Revenues

The total available operating revenue for the District's sewer utility is \$27.4 million in FY 2024 increasing to \$28.2 million by FY 2033. This increase is the result of minimal customer growth, increases in annual property tax revenues received, and other miscellaneous revenue increases.

3.4 Projecting Operation and Maintenance Expenses

Operation and maintenance (O&M) expenses are incurred by the District to operate and maintain the existing infrastructure and provide sewer services to customers. In general, operation and maintenance expenses are grouped into a number of different functional categories. HDR reviewed the District's adopted FY 2024 budget and determined it contained sufficient detail to develop the revenue requirement analysis. Therefore, in developing this analysis, HDR maintained the overall functional nature of the District's system of accounts (i.e., Plant Operations, Underground Repair, etc.).

Once the FY 2024 expenses were developed, escalation (inflationary) factors were developed for the basic types of expenses the District incurs: salaries, benefits, professional service, materials and supplies, equipment, miscellaneous, and utilities. The escalation factors developed for the projection of the District's O&M expenses were in the range of two to eight percent per year, depending on the type of cost and recent inflationary trends. Provided in Table 3-2 is a summary of the escalation factors used with the study.

Table 3–2
Summary of the Average Annual Escalation Factors

Type of Expense	FY 2025-2033
Labor	3.6%
Dental & Vision Benefits	3.0%
Medical Benefits	3.6%
Worker's Compensation	3.0%
Materials & Supplies	1.6%
Insurance	2.5%
OPEB	3.0%
Professional Services	1.6%
Repairs & Maintenance	2.0%
Equipment	1.6%
Miscellaneous	1.6%
Utilities	1.6%

Total O&M expenses for the District are projected to be approximately \$18.9 million in FY 2024, increasing to approximately \$25.2 million by FY 2033 as a result of projected inflationary impacts.

3.5 Projecting Capital Project Funding

A key element of the projection of the revenue requirement is the development of the capital funding plan. This funding analysis is based on the District’s capital improvement plan which has identified the infrastructure needs of the sewer utility. A prudent financial guideline for funding capital improvements is that, at a minimum, a utility should fund an amount equal to or greater than annual depreciation expense through rates (Rate Funded Capital). As a point of reference, the District’s annual depreciation for their sewer fund is approximately \$5.4 million. Annual depreciation expense reflects the current investment in plant being depreciated or “losing” its useful life. Therefore, this portion of infrastructure needs to be replaced to maintain the existing level of infrastructure. It must also be kept in mind that, in theory, annual depreciation expense reflects an investment in infrastructure an average of 15 years ago, assuming a 30-year depreciable (useful) life. Simply funding an amount equal to annual depreciation expense will not be sufficient to replace the existing or depreciated facility. Therefore, consideration should be given to funding within rates some amount greater than annual depreciation expense for renewals and replacements. Whenever possible, the District should be funding capital projects from current sewer rates in an amount greater than annual depreciation expense.

The District has completed a detailed evaluation of the sewer system with the intention to replace infrastructure based on condition and prior to infrastructure failure. Waiting for infrastructure failure often results in more costly repairs, customer inconvenience, and possible property damage. District staff and HDR provided the Board with capital improvement plans and funding alternatives. Based on those discussions, the final capital improvement plan was developed for the sewer rate study.

The analysis assumes annual average \$14 million available for capital over the analysis period. Table 3-3 provides the planned capital expenditures and the means for which they will be funded.

**Table 3-3
Overview of the Sewer Capital Improvement Plan (000's)**

	Budget	Projected								
	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033
Capital Plan Costs										
Engineering	\$3,058	\$2,948	\$3,026	\$3,105	\$3,187	\$3,270	\$3,356	\$3,445	\$3,536	\$3,629
Debt Service	3,000	3,112	2,817	3,342	3,275	3,319	3,658	3,779	3,553	3,342
Capital Improvement Projects	19,872	16,915	13,150	13,480	14,006	14,966	13,430	16,984	12,791	12,113
Capital Reserve Funding	0	0	0	562	1,292	819	0	1,453	0	1,831
Total Capital Investment	\$25,930	\$22,975	\$18,993	\$20,489	\$21,759	\$22,375	\$20,444	\$25,660	\$19,880	\$20,916
Capital Plan Funding										
Capital Reserve	\$11,152	\$1,910	\$107	\$0	\$0	\$0	\$1,152	\$0	\$486	\$0
Capacity/Connection Fees	633	570	513	462	415	374	336	303	273	245
Federal Aid	1,029	0	0	0	0	0	0	0	0	0
Assumed Debt Issuance/ Proceeds	5,494	12,505	9,087	10,019	9,509	8,457	3,057	7,867	0	0
Capital Funded from Rates	7,622	7,991	9,286	10,008	11,834	13,544	15,899	17,490	19,121	20,670
Total Capital Funding	\$25,930	\$22,975	\$18,993	\$20,489	\$21,759	\$22,375	\$20,444	\$25,660	\$19,880	\$20,916

As shown in Table 3-3, the District's capital improvement needs over the ten-year period will be funded through a mix of long-term borrowing, rate funded capital, and available reserves. This approach results in capital funding from rates exceeding minimum target levels. However, this is a critical aspect of maintaining the District's infrastructure and should be reviewed continually to maintain sufficient funding for the long-term and ultimate replacement of system infrastructure.

3.6 Projection of Annual Debt Service

The District has 12 existing debt issues as of the FY 2024 budget. For these issues the repayment schedules were used to project forward in the analysis period. In addition, the District intends to borrow approximately \$60.5 million to improve the sewer system through 2033. The District provided the terms of the borrowing for the future debt and assumed with an interest rate of 5% and a term of 20 years. Annual debt service payments, both principal and interest, are expected to increase from FY 2024 levels of \$3.7 million to an annual maximum of \$6.0 million in 2030. After 2030 debt service on existing debt begin to be fully repaid and the annual debt service is \$5.4 million in 2033.

It is important to note that HDR is not advising the District on the terms of any bond issuances but rather identifying the overall funding needs. The District will work with an independent financial advisor and District financial staff for the issuance of long-term debt. HDR is not acting in a municipal advisor role to the Department for the issuance of any long-term borrowing.

3.7 Summary of the Revenue Requirement Analysis

Given the above projections of revenues and expenses, a summary of the revenue requirement for the District's sewer utility can be developed. In developing the final revenue requirement, consideration was given to the financial planning considerations of the District. In particular, emphasis was placed on attempting to minimize rates, yet still have adequate funds to support the operational activities and capital projects throughout the projected time period. Presented in Table 3-4 is a summary of the sewer revenue requirement. A detailed analysis of the revenue requirement can be found in the Technical Appendices.

**Table 3-4
Summary of the Revenue Requirement Analysis (000"s)**

	Budget	Projected								
	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033
Sources of Funds										
Rates	\$18,177	\$18,210	\$18,242	\$18,275	\$18,307	\$18,340	\$18,373	\$18,406	\$18,438	\$18,471
Other Revenues	<u>9,184</u>	<u>8,892</u>	<u>8,761</u>	<u>8,653</u>	<u>8,558</u>	<u>8,586</u>	<u>8,896</u>	<u>9,194</u>	<u>9,496</u>	<u>9,712</u>
Total Sources of Funds	\$27,362	\$27,101	\$27,003	\$26,928	\$26,865	\$26,926	\$27,269	\$27,599	\$27,934	\$28,183
Applications of Funds										
Operations & Maintenance Expense	\$18,981	\$20,404	\$20,928	\$21,497	\$22,067	\$22,654	\$23,256	\$23,876	\$24,512	\$25,165
Rate Funded Capital:	7,622	7,991	9,286	10,008	11,834	13,544	15,899	17,490	19,121	20,670
Debt Service	3,763	4,340	4,002	5,087	5,111	5,475	6,032	6,032	5,688	5,366
To / (From) Reserves	<u>(3,000)</u>	<u>(3,112)</u>	<u>(2,817)</u>	<u>(3,342)</u>	<u>(3,275)</u>	<u>(3,319)</u>	<u>(3,658)</u>	<u>(3,779)</u>	<u>(3,553)</u>	<u>(3,342)</u>
Total Application of Funds	\$27,365	\$29,623	\$31,400	\$33,249	\$35,738	\$38,354	\$41,530	\$43,619	\$45,767	\$47,860
Bal./(Defic.) of Funds	(\$3)	(\$2,522)	(\$4,397)	(\$6,321)	(\$8,873)	(\$11,427)	(\$14,261)	(\$16,020)	(\$17,833)	(\$19,677)
% Bal./(Defic.) of Funds	0.0%	13.8%	24.1%	34.6%	48.5%	62.3%	77.6%	87.0%	96.7%	106.5%
Proposed Rate Adjustments	0.0%	13.5%	9.5%	9.5%	9.5%	9.5%	9.5%	5.0%	5.0%	5.0%

It is important to note the annual deficiencies (line noted as “Bal/(Defic.) of Funds”) in Table 3-4 are cumulative. That is, any adjustment in the initial years will reduce the deficiency in the following years. The results of the revenue requirement analysis indicate a deficiency of funds over the planning period. The deficiency ranges from approximately \$3,000 in FY 2024 to \$19.7 million by FY 2033.

As noted, the focus of the study is the next five-year projected period of FY 2025 through FY 2029. Based on the results of the revenue requirement, rates are deficient approximately 62.3% over the next five years. The calculation of the proposed rate adjustments are based on the annual balance or deficiency of funds. The annual balance or deficiency of funds is divided by the current rate revenues to determine the percentage rate adjustment necessary to fund annual operating and capital expenses. The proposed rate adjustments are calculated to collect the additional revenue equal to the deficiency in any year.

3.8 Consultant’s Recommendations

Based on the revenue requirement analysis developed, HDR recommends the District increase the overall rate revenue levels of the sewer utility based on the proposed rate adjustments shown in Table 3-5 during the next ten-year period. The first proposed rate revenue adjustment would be in FY 2025. As noted, additional future rate revenue adjustments are necessary to maintain the sewer utility in a financially healthy manner. As noted, these are primarily driven by the need to maintain and improve sewer infrastructure over this time period. As the District continues to evaluate and identify the capital funding needs, the future rate adjustments (FY 2026 – FY 2033) will be refined to reflect the Board’s funding approach and capital replacement needs.

Table 3-5 Ten-Year Rate Transition Plan									
FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033
0.0%	13.5%	9.5%	9.5%	9.5%	9.5%	9.5%	5.0%	5.0%	5.0%

3.9 Summary

This section of the report has provided a review of the District’s sewer revenue requirement analysis. The revenue requirement developed a financial plan to support the District’s operating and capital infrastructure requirements for the sewer utility. The next section will discuss the cost of service analysis, which results in a proportional distribution of costs to the District’s sewer customer classes of service (e.g., rate schedules).



4 Development of the Cost of Service

In the previous section, the revenue requirement analysis focused on the total sources and application of funds required to adequately fund the District's sewer utility operating and capital needs to provide the cost-basis for the proposed rate revenues. This section of the report will discuss the development of the cost of service analysis. A cost of service analysis is concerned with the proportional distribution of the total revenue requirement between the customer classes of service (e.g., single-family, multi-family, non-residential). The previously developed revenue requirement was allocated and distributed in the cost of service analysis completed for the District's sewer rate study.

In recent years, increasing emphasis has been placed on cost of service studies to meet Proposition 218 requirements. Following the generally-accepted guidelines and principles of a cost of service analysis as outlined in the Water Environment Federation Manual of Practice No. 27 (WEF MOP #27) will inherently lead to rates which are cost-based and proportional and reflect the intent of Proposition 218.

4.1 Objectives of a Cost of Service Study

There are two primary objectives in conducting a sewer cost of service study:

- ✓ Proportionally distribute the revenue requirement between the customer classes of service
- ✓ Derive average unit costs for subsequent rate designs

The objectives of the sewer cost of service analysis are different from determining revenue requirement. As noted in the previous section, a revenue requirement analysis determines the utility's overall financial needs, while the cost of service study determines the proportional manner to collect the revenue requirement from the sewer customer classes of service.

The cost of service analysis results in average unit costs (i.e., cost-based rates) which are used to design the proposed sewer rates and reflect the costs incurred by the customers. For example, a sewer utility incurs costs related to flow, strength, and customer-cost components. Each of these types of costs may be collected in a slightly different manner as to allow for the development of rates that collect costs in the same manner as they are incurred.

4.2 Determining the Customer Class of Service

The first step in a cost of service study is to determine the customer classes of service. Currently, the District has a separate rate schedule for single-family, multi-family, and non-residential customers. HDR reviewed the customer classes of service (i.e., rate schedules) with the District and recommends combining the Motel/Hotel/Timeshare and Trailer/Mobile Home Park/Campground customer classes as it was observed that their cost to serve was not materially significant. No other changes to the classes of service were recommended.

Based on this recommendation, the classes of service used within the cost of service analysis for cost of service purposes are:

- ✓ Single Family
- ✓ Multifamily
- ✓ Non-Residential
- ✓ New - Motel/Trailer Park/Campground, includes:
 - Motel / Hotel / Timeshare
 - Trailer / Mobile Home Park / Campground

In determining classes of service for cost of service purposes, the objective is to group customers together into similar or homogeneous groups based on facility requirements and/or flow characteristics.

4.3 General Cost of Service Procedures

A cost of service study utilizes a three-step approach to review costs which is outlined in WEF MOP #27, and outlined in Section 2 of this report. Provided below is a detailed discussion of the cost of service study conducted for the District's sewer utility, and the specific steps taken within the analysis.

4.3.1 Functionalization of Costs

The first analytical step in the cost of service process is called functionalization. Functionalization is the arrangement of expenses and asset (infrastructure) data by major operating functions within each utility. For example, a sewer utility generally incurs costs for pumping, treatment, collection, etc. Within this study, the functionalization of the cost data was provided through the District's system of accounts and asset data.

4.3.2 Allocation of Costs

The second analytical task performed in a cost of service analysis is the allocation process. Allocation determines why the expenses were incurred or what type of need is being met. The District's plant accounts and revenue requirement were reviewed and allocated using the following cost allocation components:

- ✓ **Volume Related Costs:** Volume related costs are those costs which tend to vary with the total quantity of sewer collected and treated. A majority of collection system costs and a portion of treatment costs are included in this component as they are designed and operated around the total wastewater volumes generated by the customers.
- ✓ **Strength Related Costs:** Strength related costs are those costs associated with the additional handling and treatment of high "strength" sewer. Strength of sewer is typically measured in biochemical oxygen demand (BOD)¹, and total suspended solids (SS)². Increased strength

¹ BOD is the amount of dissolved oxygen that must be present in water in order for microorganisms to decompose the organic matter in the wastewater.

² TSS is the entire amount of organic and inorganic particles dispersed in wastewater.

levels generally equate to increased treatment costs. Pre-treatment is generally required if the discharge is known to regularly exceed the typical waste strength.

- ✓ **Customer Related Costs:** Customer related costs vary with the number of a customer. Customer related costs typically include the costs of billing, collecting, and accounting. Customer related costs may also be further categorized as actual or weighted.
- ✓ **Direct Assignments:** Certain costs associated with operating the utility may be directly traced to a specific customer or class of service. These costs are then “directly assigned” to that specific class of service.

4.3.3 Development of Distribution Factors

Once the allocation process is complete, the allocated costs are distributed to each customer class of service. For the District’s study, allocated costs were distributed to the identified customer classes of service using the following distribution factors.

- ✓ **Volume Distribution Factor:** Volume related costs are generally distributed on the basis of contribution to sewer flows. In order to develop this distribution factor, some knowledge of the contribution to flows must be determined. Sewer flows were developed based on the total flows received at the treatment plant and proportionate with the number of billing units which are based on customer equivalencies.
- ✓ **Strength Distribution Factor:** Strength related costs are classified between biochemical oxygen demand (BOD), and suspended solids (SS). These types of costs are distributed to the identified classes of service based upon the relative estimated strengths that each class of service contributed to the overall flow at the plant. The District’s strength characteristics by class of service were estimated within this study based on estimated industry standard values and the strength of sewer received at the treatment plant.
- ✓ **Customer Distribution Factor:** Customer costs within the cost of service study are distributed to the identified customer classes of service based on their respective customer counts. The number of customers, by customer class of service, was developed within the revenue requirement study. Two types of customer allocation factors were developed, actual and weighted. Actual

Terminology of a Sewer Cost of Service Analysis

FUNCTIONALIZATION – The arrangement of the cost data by functional category (e.g., treatment, collection etc.).

ALLOCATION – The assignment of functionalized costs to cost components (e.g., volume, strength, and customer related).

DISTRIBUTION – Distributing the allocated costs to each class of service based upon each class’s proportional contribution to that specific cost component.

VOLUME COSTS – Costs that are classified as volume related vary with the total flow of sewer (e.g., chemical use at a treatment plant).

STRENGTH COSTS – Costs classified as strength related refer to the sewer treatment function. Different types of customers may have high sewer strength characteristics and high strength sewer costs more to treat. Facilities are often designed and sized around meeting these costs.

CUSTOMER COSTS – Costs classified as customer related vary with the number of customers on the system (e.g., billing costs).

DIRECT ASSIGNMENT – Costs that can be clearly identified as belonging to a specific customer group or group of customers.

CUSTOMER CLASSES OF SERVICE – The grouping of customers into similar groups based upon usage characteristics and/or facility requirements.

customer costs do not vary by the volume or strength characteristics of the class of service and are based on the actual number of customers for each class of service. A weighting factor was used to develop the weighted customer distribution factor. The weighted customer factor attempts to reflect the disproportionate costs associated with various customers. These customers can be assigned a higher per customer cost because they require additional administrative costs and possible monitoring.

The development of the approach and distribution factors is based on generally accepted principles as outlined in the WEF MOP #27. Given the development of the approach and distribution factors, the final step in the cost of service study is to distribute the allocated costs to the District's specific sewer customer classes of service.

4.4 Functionalization and Allocation of Plant in Service

In performing the functionalization of plant in service (infrastructure), HDR utilized the District's historical plant records. Once the plant assets were functionalized, the analysis shifted to allocation of the asset. The allocation process included reviewing each group of assets and determining which cost component the assets were related to. For example, the District's assets were allocated as: volume related, strength related, customer related, revenue related, or directly assigned to a specific customer class or classes of service. Provided below is a brief discussion of the allocation process used.

After a detailed review of the District's asset records, the functionalized plant (infrastructure) was allocated based on generally accepted cost allocation methods and an understanding of the District's operations and facility requirements. Pump stations-Force Mains are sized to meet total sewer flows, and are considered 100% volume based. Subsurface Collection Lines were classified as 100% volume. In reviewing the design for the treatment plant, it was classified as 50% to volume-related, 25% biochemical oxygen demand (BOD)-related and, 25% suspended solids (SS)-related. Provided in Table 4-1 is a summary of the allocation of plant in service. A more detailed exhibit of the District's functionalization and classification of sewer plant investment can be found in the Technical Appendix.

Plant Component	Vol.	Strength		Customer		Rev. Related	Direct Assign.
		BOD	SS	Actual Cust.	Weighted Cust.		
Subsurface Collection Lines	100%	0%	0%	0%	0%	0%	0%
Pump Station-Force Mains	100%	0%	0%	0%	0%	0%	0%
Treatment facilities	50%	25%	25%	0%	0%	0%	0%
Disposal Facilities	0%	55%	45%	0%	0%	0%	0%
Land & Easements	100%	0%	0%	0%	0%	0%	0%
CWIP	100%	0%	0%	0%	0%	0%	0%
General Plant	52%	26%	22%	0%	0%	0%	0%

4.5 Functionalization and Allocation of Operating Expenses

Operating expenses are generally functionalized and allocated in a manner like the corresponding plant account. For example, subsurface collection lines are typically allocated in the same manner (allocation percentages) as the plant account for underground repair. This approach to allocation of operating expenses was used for this analysis.

For the District’s study, the revenue requirement for FY 2025 were functionalized, allocated, and distributed. As noted earlier, the District utilized a cash basis revenue requirement, which was comprised of operation and maintenance expenses, debt service, and capital additions funded from rates. A more detailed review of the allocation of the FY 2025 revenue requirement can be found in the Technical Appendix, Exhibit 12.

Table 4-2 Summary of the Classification of the Sewer Revenue Requirement (\$000)							
Total	Volume	Strength		Customer		Revenue Related	Direct Assignment
		BOD	Suspended Solids	Actual Customer	Weighted Customer		
\$20,668	\$11,881	\$4,269	\$3,745	\$251	\$598	\$0	(\$75)
100%	57%	21%	18%	1%	3%	0%	0%

4.6 Major Assumptions of the Cost of Service Study

A number of key assumptions were used within the District’s sewer cost of service study. Below is a brief discussion of the major assumptions used.

- ✓ The test period used for the cost of service analysis was FY 2025. The revenue and expense data was previously developed within the revenue requirement analysis.
- ✓ A “cash basis” approach was utilized which conforms to generally accepted sewer cost of service approaches and methodologies. Under the cash basis approach, the revenue requirement previously developed are distributed to each customer class of service.
- ✓ The allocation of plant in service was developed based on generally accepted cost allocation techniques. Furthermore, the allocation process was developed using the District specific data and the District’s operations.
- ✓ Customer volumes used within this study for purposes of developing the distribution factors were estimated for each class of service based on the number of billing units and the total volumes received at the treatment plant.

4.7 Summary Results of the Cost of Service Analysis

In summary form, the cost of service analysis began by functionalizing the District's infrastructure records and operating expenses. The functionalized infrastructure and operating expenses were then allocated to the appropriate cost component(s). The individual allocated totals were then distributed to each of the customer classes of service based on the appropriate distribution factor(s). The distributed expenses for each customer class of service was then aggregated (summed) to determine each customer classes of service overall revenue responsibility. A summary of the detailed cost responsibility developed for each class of service is shown below in Table 4-3.

Cost Classifier	Total Costs	Single Family	Multi-family	Non-Res.	Motel/ Trailer Park/ Campground
Volume	\$11,881	\$7,457	\$1,845	\$956	\$1,623
Bio-Chemical Oxy. Demand	4,269	2,662	659	369	580
Suspended Solids	3,745	2,322	574	343	505
Customer Related	848	756	60	25	7
Revenue Related	0	0	0	0	0
Direct Assignment	<u>(75)</u>	<u>(75)</u>	<u>0</u>	<u>0</u>	<u>0</u>
Total	\$20,668	\$13,122	\$3,137	\$1,693	\$2,716

The proportional distribution of costs reflects the benefits received from infrastructure in place to provide service and the resulting operating expenses for each customer class of service. Once the total costs of each class of service has been developed, it can be compared to the current revenues of each class of service. The difference between the rate revenues and allocated costs for each class of service represents the variance from current rate levels to reflect the cost of service analysis. It is important to remember that a cost of service analysis is not an exact calculation. Rather it reflects the current relationships between current customer rate revenues and current costs. Cost of service relationships can change over time given changes in the way costs may be incurred, along with changes in customer characteristics. Table 4-4 provides the results of the cost of service analysis and shows the allocated costs per customer class.

**Table 4 - 4
Summary of the Cost of Service Analysis (\$'000)**

Class of Service	Present Revenue (FY 2025)	Allocated Costs	\$ Difference	% Difference
Single Family Residential	\$11,579	\$13,122	(\$1,542)	13.3%
Multi-family	2,755	3,137	(383)	13.9%
Non-Residential	1,484	1,693	(209)	14.1%
Motel/ Trailer Park/ Campground	<u>2,392</u>	<u>2,716</u>	<u>(324)</u>	<u>13.5%</u>
Total	\$18,210	\$20,668	(\$2,458)	13.5%

In reviewing the above results, it should also be understood that a cost of service analysis is based on one year's data and customer information, and customer characteristics may change over time. Therefore, it is appropriate to determine whether these findings are consistent over time, and when more firmly ascertained, make further cost of service adjustments at that time.

The other result of a cost of service analysis is the development of average unit costs, or cost-based rates. These average unit costs are based on the distribution of costs between the cost of service characteristics divided by the appropriate volume or pounds by component. These unit costs then become the basis for the proposed rates in the first year of the proposed rates. Provided in Table 4-5 is a summary of the unit costs.

**Table 4-5
Summary of the Unit Costs (\$/CCF)**

	Flow	Biochem. Oxy. Demand (BOD)	Suspended Solids (SS)	Direct Assign.	Total	Per Billing Unit Cost
Single Family Residential	\$6.71	\$2.39	\$2.09	(\$0.07)	\$11.12	\$19.86
Multi-family	6.71	2.39	2.09	0.00	11.19	19.20
Non-Residential	6.71	2.59	2.41	0.00	11.71	20.00
Motel/ Trailer Park/ Campground	<u>6.71</u>	<u>2.39</u>	<u>2.09</u>	<u>0.00</u>	<u>11.19</u>	<u>18.89</u>
System Average	\$6.71	\$2.41	\$2.11	(\$0.04)	\$11.19	\$19.64

These unit costs were developed based on the allocation of costs for each component, flow, BOD, and SS, divided by the estimated total system flow and based on the annual flow and sewer strength.

The District currently charges its customer classes on a per sewer billing unit rather than on a volume basis. This study does not recommend changing the District's rate structure at this time. Table 4-5 also shows the billing unit per customer class average unit cost provided with grey shading.

4.8 Consultant's Conclusions and Recommendations

Unlike a revenue requirement which is a review of a period of time, a cost of service is an analysis of a single point in time. A cost of service analysis should be viewed with perspective the time of the analysis and what will happen in the future. Given the results of the cost of service analysis, and the requirements of Proposition 218, HDR recommends the implementation of the cost of service results, and use of the unit costs, to develop the proposed rates for FY 2025.

4.9 Summary

This section of the report has provided an analysis of the cost of service analysis developed for the District. This analysis was prepared using generally accepted cost of service techniques. The next section of the report will review the present and proposed sewer rates for the District.

5 Development of the Rate Designs

5.1 Introduction

The final step of a comprehensive rate study is the design of rates to collect the desired levels of revenues, based on the results of the revenue requirement and cost of service analyses. In reviewing sewer rate designs, consideration is given to the level of the rates and the structure of the rates. The level of the rates refers to the amount of annual revenues received through rates. The structure of the rate is how the customer is charged. The combination of the level of rates, and structure of rates, provides a price signal to the customer on how their use impacts the costs of the system.

5.2 Rate Design Criteria and Considerations

Prudent rate administration dictates that several criteria must be considered when setting utility rates. Some of these rate design criteria are listed below:

- ✓ Rates which are easy to understand from the customer's perspective
- ✓ Rates which are easy for the utility to administer
- ✓ Consideration of the customer's ability to pay
- ✓ Continuity, over time, of the rate making philosophy
- ✓ Policy considerations (encourage efficient use, economic development, etc.)
- ✓ Provide revenue stability from month to month and year to year
- ✓ Promote efficient allocation of the resource
- ✓ Equitable and non-discriminatory (cost-based)

Many contemporary rate economists and regulatory agencies feel the last consideration, cost-based rates, should be of paramount importance and provide the primary guidance to utilities on rate structure and policy.

When developing the proposed rate designs, all the above listed criteria can be taken into consideration. However, it should be noted that it is difficult, if not impossible, to design a rate that meets all the goals and objectives listed above. For example, it may be difficult to design a rate that takes into consideration the customer's ability to pay, and one which is cost-based. In designing rates there are always trade-offs between a utility's rate design goals and objectives.

5.3 Development of Cost-Based Sewer Rates

A key objective for this study is to meet the legal of Proposition 218 and clearly document the steps taken to meet those requirements, which results in the development of cost-based and proportional sewer rates. Given this, the development of the District's proposed sewer rates have been closely reviewed to meet the requirements of California Constitution article XIII D, section 6 (Article XIII D).

A key component of Article XIII D is the development of rates which reflect the cost of providing service and are proportionally distributed between the specific customer classes of service. HDR would point out that there is no single methodology for proportionally assigning sewer costs to the customer classes of service. The Water Environment Federation Manual of Practice No. 27 provides alternative and differing methodologies which may be used to establish cost-based sewer rates. Unfortunately, Article XII D is not prescriptive and does not provide a single or specific methodology for establishing legally compliant sewer rates. Given that, HDR conducted this study using generally accepted rate setting methodologies, tailored to the District's specific facilities and customers, in order meet the requirements of Article XIII D. Furthermore, the rate setting methodology used in the District's study are based on the WEF MOP #27 and are, therefore, reasonable and appropriate.

HDR is of the opinion that the proposed rates meet the legal requirements of Article XIII D. HDR reaches this conclusion based upon the following:

- ✓ **The revenue derived from sewer rates does not exceed the funds required to provide the property related service (i.e., sewer service).** The proposed rates are designed to collect the overall revenue requirement of the District's sewer system.
- ✓ **The revenues derived from sewer rates shall not be used for any purpose other than that for which the fee or charge is imposed.** The revenues derived from the District's sewer rates are used exclusively to operate and maintain the District's sewer system.
- ✓ **The amount of a fee or charge imposed upon a parcel or person as an incident of property ownership shall not exceed the proportional costs of the service attributable to the parcel.** This cost of service analysis, and this report, has focused on the issue of proportional assignment of costs to customer classes of service in accordance with generally accepted cost of service principles. The proposed rates have appropriately grouped customers into customer classes of service (e.g., single family, multifamily, non-residential) that reflect the varying wastewater characteristics and system requirements (i.e., the benefits they receive from and burdens they place on the system) of each customer class of service. The grouping of customers and rates into these classes of service creates the proportionality and fairness expected under Proposition 218 by having differing rates by customer classes of service which reflect both the level of revenue to be collected by the utility, and the manner in which these costs are incurred and equitably assigned to customer classes of service based upon their proportional impacts.

5.4 Review of the Overall Rate Adjustment

As indicated in the revenue requirement and the cost of service analyses, the priority for the sewer utility was to transition the overall level of the sewer rates to meet financial needs. A rate transition plan was developed to prudently fund the utility's operating and capital infrastructure needs over the next 10 years though for rate design the study limited rates to the five-year period of FY 2025 through FY 2029. Provided in Table 5-1 is a summary of the proposed revenue adjustments for the next five-year period.

Table 5-1 Ten-Year Rate Transition Plan								
FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032	FY 2033
13.5%	9.5%	9.5%	9.5%	9.5%	9.5%	5.0%	5.0%	5.0%
- Proposed Rates-								

While the revenue requirement analysis resulted in the proposed revenue transition plan, it does not take into consideration the distribution of costs between the specific customer classes of service. In developing the final rates, the cost of service results were the basis, and specifically the average unit costs.

5.5 Present and Proposed Rates

In developing the proposed rate designs, the District’s existing rate structures were reviewed. The existing rate structure is contemporary in nature and reflects industry standard rate setting methods. As mentioned in the Cost of Service Section of this report, the Motel/Hotel/Timeshare and Trailer/Mobile Home Park/Campground customer classes of service were combined. These rate structures reflect the cost impacts each customer places on the system. Provided in Table 5-2 is a summary of the current and proposed rates. As a note, cost of service adjustments were made by customer class.

Table 5-2 Current and Proposed Rates						
	Current	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029

Monthly Charge by Class of Service

Single Family Residential	\$17.53	\$19.86	\$21.75	\$23.81	\$26.07	\$28.55
Multi-family	16.93	19.20	21.03	23.02	25.21	27.61
Motel/Hotel/Timeshare	16.64	NA	NA	NA	NA	NA
Trailer/Mobile Home Park/Campground	16.62	NA	NA	NA	NA	NA
Non-Residential	17.53	19.86	21.75	23.81	26.07	28.55
Motel/Trailer Park/Campground	NA	18.89	20.68	22.65	24.80	27.16

As can be seen in Table 5-2 the present rates are a flat monthly rate per sewer billing unit.

5.6 Summary of the Rate Design Analysis

This completes the rate design analysis for the City's sewer rate study. It is recommended that rates be adopted as shown in Table 5-2 which are designed to meet the District's projected revenue requirement and reflect a proportional distribution of costs to each customer class of service.



Technical Appendix
