Draft Report

SOLVANG

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City of Solvang

Comprehensive Wastewater Rate Study

April 2022

April 15, 2022

Ms. Xenia Bradford
City Manager
City of Solvang
1644 Oak Street
Solvang, California 93463

Subject: Wastewater Rate Study Draft Report

Dear Ms. Bradford:

HDR Engineering, Inc. (HDR) is pleased to present to the City of Solvang (City) the draft report for the City's comprehensive wastewater rate study. The City's comprehensive study was developed to provide cost-based wastewater rates that generate sufficient revenue to fund the operation and maintenance costs and capital infrastructure needs of the wastewater utility. More specifically, the study was designed to develop cost-based and proportional wastewater rates for the City's customers. This report outlines the overall approach used to achieve these objectives, along with our findings, conclusions, and recommendations.

The costs associated with providing wastewater service to the City's customers has been developed based on City specific information and customer characteristics and is included within the development of the proposed wastewater rates. This update was developed using generally accepted rate setting principles and industry standard methodologies as outlined in the Water Environment Federation's Manual of Practice No. 27, Financing and Charges for Wastewater Systems to meet the requirements of Proposition 218. This report provides the basis for developing and implementing wastewater rates which are cost-based, proportional, and defensible for the City's customers.

We appreciate the assistance provided by the City's project team in the development of this study and this report. More importantly, HDR appreciates the opportunity to provide these technical and professional services to the City of Solvang.

Sincerely yours,
HDR Engineering, Inc.

Shawn Koorn
Associate Vice President

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Executive Summary

Introduction

HDR Engineering, Inc. (HDR) was retained by the City of Solvang (City) to conduct a comprehensive wastewater rate study (Study). The main objectives of the wastewater rate Study were:

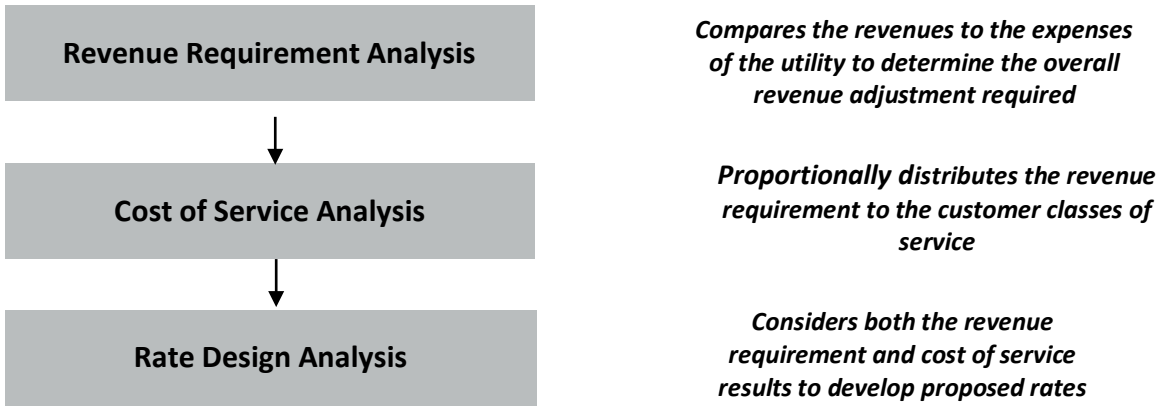
- Develop a projection of wastewater revenues to support the City's operating and capital costs
- Provide a proportional and equitable distribution of the costs for providing wastewater service to those customers receiving service
- Propose cost-based and equitable rates for a multi-year time period that are in compliance with State law

The City owns, operates, and maintains the wastewater system which provides service to the customers within the City of Solvang. The City's wastewater system plays a leading role in the protection of public health and the environment. Maintaining this system requires a proactive commitment to investing in the capital infrastructure and resources necessary to keep this vital system operating 24 hours a day, 365 days per year. The costs associated with providing wastewater service to the City's customers have been developed based on the information provided by City staff and incorporated and included within the development of the proposed wastewater rates.

Overview of the Rate Study Process

A comprehensive rate study is completed through three interrelated analyses to address the adequacy and proportionality of the wastewater rates. These three analyses are a revenue requirement analysis, a cost of service analysis, and a rate design analysis. These three analyses are illustrated below in Figure ES – 1.

Figure ES – 1
Overview of the Comprehensive Wastewater Rate Analysis



The above analytical framework was utilized in the development of the City's Study for reviewing and evaluating the City's wastewater rates.

Key Wastewater Rate Study Results

The technical analysis was developed based on the operation and maintenance (O&M) and capital infrastructure costs necessary to provide wastewater service to the City's customers. The wastewater study resulted in the following findings, conclusions, and recommendations.

- A revenue requirement analysis was developed for the time period of 2021-22 through 2031-32 for the wastewater utility
- The City's adopted 2021-22 wastewater utility budget was used as the starting point of the analysis
- Operation and maintenance (O&M) expenses are projected to increase at inflationary levels
- A cost of service analysis was developed, for test year 2022-23, to review the cost-basis of the existing wastewater rates and to distribute the revenue requirement proportionally among the various customer classes of service for the wastewater utility
- The results of the cost of service analyses for 2022-23 provided average unit costs (i.e., cost-based rates) which were used to establish the proposed wastewater rates
- The Study has developed proposed rates for a five year period of 2022-23 through 2026-27, by customer class of service
- Based upon the findings and conclusions from the revenue requirement analysis, the proposed wastewater rate revenue adjustments (not customer bill impacts) are 37.5% in 2022-23, 17.5% in 2023-24 and 2024-25, and 15.5% in 2025-26 and 2026-27. The rate adjustments are proposed to be effective July 1 of each year

Summary of the Wastewater Revenue Requirement Analysis

The City's wastewater utility revenue requirement analysis is the first analytical step in the rate study process. The revenue requirement analysis determines the adequacy of the City's current wastewater rates to fund budgeted and projected costs related to both O&M and capital infrastructure expenses. From this analysis, a determination can be made as to the overall level of wastewater revenue adjustments needed to provide adequate and prudent funding for the wastewater utility.

For this portion of the Study, the revenue requirement was developed from the City's adopted 2021-22 budget and then projected forward for a ten-year review period of 2022-23 through 2031-32. As a practical matter, reviewing a multi-year time frame is recommended in an attempt to identify major expenses that may be on the horizon. By anticipating future financial requirements, the City may begin planning for these changes sooner, thereby minimizing short-term rate shock and smoothing long-term rate adjustments. However, the focus of this Study was on the next five-year rate setting period of 2022-23 through 2026-27.

For the City's wastewater revenue requirement analysis, a "cash basis" methodology or approach was utilized. The cash basis approach is the most commonly used methodology by municipal utilities to set their revenue requirement. Under this approach, the revenues of the utility must be sufficient to recover all cash needs including O&M expenses, annual debt service payments, rate funded capital, and reserve funding. The primary financial inputs in the development of the revenue requirement were the City's adopted 2021-22 budget documents, historical billed customer and consumption data, and the City's wastewater capital improvement plan. The 2021-22 budgeted O&M expenses were projected for 2022-23 through 2031-32 using assumed escalation (inflationary) factors for the City's various expenses to provide wastewater collection, conveyance, treatment, and disposal services. These escalation factors were based on historical City cost trends and projected over the ten-year period.

The proper and adequate funding of capital projects is important to help minimize rate increases over time. General financial guidelines state that, at a minimum, a utility should annually fund from rates an amount equal to, or greater than, annual depreciation expense. The annual depreciation expense reflects the City's current investment in plant in service (infrastructure/facilities) being depreciated or "losing" their useful life. Over time, and as facilities become worn out or depleted, plant investment needs to be replaced to maintain the existing level of infrastructure (and service levels). However, it must be kept in mind that simply funding an amount equal to annual depreciation expense will not be sufficient to fund the replacement of an existing or depreciated facility. Therefore, consideration should be given to funding within rates at some amount greater than the annual depreciation expense for renewal and replacement capital projects.

A key element of the Study was the establishment of prudent levels of renewal and replacement funding to meet future capital improvement needs. The City has a number of significant capital improvement projects at the wastewater treatment plant, as well as annual capital needs throughout the collection system, over the next ten-year period. Over the rate setting period, the City anticipates funding the capital needs with $19.0 million in debt issuance, $604,000 in reserves/contributions, and $1.6 million in rate funded capital from 2022-23 through 2026-27.

As a point of reference, the City's annual depreciation expense is approximately $429,000 (2019-20). This financial plan has placed the City's annual rate funding for capital improvements at $185,000 in 2022-23, and gradually increasing over time to prudently fund capital renewal and replacement needs. The rate funded capital reaches $400,000 by 2026-27. In developing this financial plan, HDR and the City have attempted to minimize rate impacts while funding the City's capital improvement plan projects. HDR has worked closely with City staff to develop the proposed capital funding plan. It is important to note that in developing this capital funding plan, including the assumed need for a new debt issuance within the plan, HDR is not acting in a municipal advisory role for the City. Provided below in Table ES - 1 is a summary of the capital funding plan and the amount of annual rate funded capital over the five-year rate setting period. A more detailed discussion of the capital funding plan is included in Section 3 of this report.

Table ES – 1 Summary of the Capital Improvement Plan (000's)						
	2021-22	**2022-23**	**2023-24**	**2024-25**	**2025-26**	**2026-27**
Total Capital Projects	$279	$236	$215	$1,809	$9,413	$9,470
Total Non-Rate Funding	**$279**	**$51**	**$30**	**$1,409**	**$9,013**	**$9,070**
Rate Funded Capital	**$0**	**$185**	**$185**	**$400**	**$400**	**$400**

Given a projection of operating and capital expenses, a summary of the wastewater revenue requirement analysis was developed. Provided below in Table ES – 2 is a summary of the revenue requirement analysis for the City's wastewater utility.

Table ES - 2 Summary of the Wastewater Revenue Requirements (000's)						
	2021-22	**2022-23**	**2023-24**	**2024-25**	**2025-26**	**2026-27**
Revenues						
Rate Revenues	$1,422	$1,429	$1,437	$1,444	$1,451	$1,458
Miscellaneous Revenues	402	398	415	453	602	755
Total Revenues	**$1,824**	**$1,827**	**$1,852**	**$1,897**	**$2,053**	**$2,213**
Expenses						
Total O&M	$1,947	$2,003	$2,071	$2,143	$2,216	$2,292
Rate Funded Capital	0	185	185	400	400	400
Debt Service	0	0	0	107	772	1,458
Total To/(From) Reserves	(123)	176	480	544	395	297
Total Revenue Requirement	**$1,824**	**$2,363**	**$2,736**	**$3,194**	**$3,784**	**$4,448**
Bal./(Def.) of Funds	$0	($536)	($884)	($1,297)	($1,731)	($2,235)
Bal. as a % of Rate Rev.	0.0%	37.5%	61.6%	89.8%	119.3%	153.2%
Proposed Revenue Adjustment	**0.0%**	**37.5%**	**17.5%**	**17.5%**	**15.5%**	**15.5%**
Add'l Rev. from Rev Adj	$0	$536	$884	$1,297	$1,731	$2,235
Bal. / (Def.) After Rate Adj.	$0	$0	$0	$0	$0	$0

As can be seen, the revenue requirement has summed the annual O&M expense, rate funded capital, debt service, and reserve funding. The total revenue requirement is then compared to the total sources of funds which include the rate revenues, at present rate levels, and other miscellaneous revenues. From this comparison, a balance or deficiency of funds in each year can be determined. This balance or deficiency of funds is then compared to the current level of rate revenues to determine the level of adjustment needed to meet the revenue requirement. It is important to note the "Bal. / (Def.) of Funds" row is cumulative. That is to say that any rate revenue adjustments in the initial years will reduce the deficiency in the later years. Over the rate

setting period of this Study – 2022-23 through 2026-27 - the total deficiency of rate revenue is projected to be 153.2% or $2.2 million prior to proposed rate adjustments.

This level of deficiency is primarily being driven by the need to fund the City's capital projects. As can be seen in 2021-22, the City currently has no capital projects funded from rates, and it has no outstanding debt or debt payments. This study has identified the need to begin annually funding from rates a component to address renewal and replacement projects (i.e., $400,000 by 2024-25). At the same time, the District's capital plan requires the issuance of debt in 2024-25 through 2026-27. The annual rate impact of this long-term borrowing is an estimated annual debt service payment in 2026-27 of $1.5 million. Taken together, these two cost components are approximately $1.9 million of the total $2.2 million deficiency in 2026-27.

Based on the revenue requirement analysis developed herein, HDR has concluded that the City will need to adjust the level of wastewater revenues received over the next five fiscal years (2022-23 through 2026-27). HDR has reached this conclusion for the following reasons:

- Adjustments are necessary to fund the City's capital needs, of which a substantial portion is driven by the planned issuance of long-term debt to fund the wastewater capital improvement projects
- Adjustments are necessary to maintain prudent funding of annual renewal and replacement of the wastewater utility
- The proposed adjustments will positively position the City's financial health (e.g., debt service coverage ratios) and provide long-term, sustainable funding levels for the City

In reaching this conclusion, HDR would recommend that the City adopt the proposed wastewater rate revenue adjustments for 2022-23 through 2026-27 to provide sufficient funding for all the O&M and capital improvement needs over the next five fiscal years. A detailed discussion of the development of the revenue requirement is provided in Section 3 of this report.

Summary of the Wastewater Cost of Service Analysis

A cost of service analysis determines the proportional distribution of the revenue requirement to the various customer classes of service. The objective of the cost of service analysis is different from determining the revenue requirement. Whereas the revenue requirement analysis determines the utility's overall revenue needs, the cost of service analysis determines the proportional manner in which to distribute costs of service and collect the revenue requirement for the proposed time period. In this case, the revenue requirement developed for 2022-23 was used for establishing the cost of service analysis.

In summary form, the cost of service analysis began by functionalizing the revenue requirement for the wastewater system. As explained in more detail in this report (Section 4), the functionalized revenue requirement was then equitably allocated to the various cost components. The individual functional allocation totals were then proportionally distributed to the various customer class of service based upon each customer class's use of or demand placed on the system. The distributed expenses for each customer class were then aggregated to

determine each customer class's overall revenue responsibility. Table ES – 3 provides the summary of the cost of service analysis completed for the City's wastewater utility customers.

Table ES - 3
Summary of the Wastewater FY 2022-23 Cost of Service Analysis ($000)

Class of Service	Current Rate Revenues	Distribution of Costs	$ Difference	% Difference
Residential	$739	$1,064	($325)	43.9%
Multi-Family	290	401	(111)	38.2%
Commercial - Low	269	360	(90)	33.5%
Commercial - High	131	141	(10)	7.7%
Total	**$1,429**	**$1,966**	**($536)**	**37.5%**

The results of the cost of service analysis indicate cost differences between the customer classes of service. These customer classes reflect the various types of wastewater customers served by the City as well as the current rate schedules. Given the requirements of California Constitution Article XIII D, Section 6 (commonly referred to as Proposition 218), the results of the wastewater cost of service analysis are used to establish the proposed wastewater rates. As noted in the cost of service section (Section 4) of this report, the implementation of cost of service adjustments will impact the overall customer bill and revenue generation for the wastewater utility. A detailed discussion of the development of the cost of service analysis is provided in Section 4 of this report.

Summary of the Wastewater Rate Design

The final step of the comprehensive wastewater rate study process is the design of the wastewater rates to collect the desired levels of revenue, based on the results of the revenue requirement and cost of service analyses. The revenue requirement analysis provided a set of recommendations related to the level of annual revenue adjustments whereas the cost of service results are related to implementing interclass adjustments to reflect the proportional distribution of costs.

It is important to understand that each customer class has a separate rate given the different characteristics as outlined in the cost of service analysis. The City currently has a rate structure for each of the customer classes of service. The single family and multi-family customers are charged a monthly flat fixed charge. For commercial customers – both low and high strength - they are charged a flat fixed charge and a uniform volumetric charge base on all metered water use. After discussion with City staff, no rate structure changes are recommended at this time. Given the result of the prior analyses, the revenue requirement and cost of service analyses, proposed rates can be developed that reflect the cost-based allocation of the costs of providing service. Provided below in Table ES – 4 is a summary of the current and proposed wastewater rates.

Table ES – 4
Summary of the Present and Proposed Wastewater Rates

	Present Rates	2022-23	2023-24	2024-25	2025-26	2026-27
Base Charge						
Single Family	$34.65	$49.88	$58.61	$68.87	$79.54	$91.87
Multi-Family	34.65	47.90	56.28	66.13	76.38	88.22
Com / Ind - Low	34.65	39.43	46.33	54.44	62.88	72.63
Com / Ind - High	34.65	42.14	49.51	58.17	67.19	77.60
Consumption Charge						
Com / Ind - Low	$2.85	$4.06	$4.77	$5.60	$6.47	$7.47
Com / Ind - High	7.42	7.89	9.27	10.89	12.58	14.53

The proposed wastewater rates are based on the calculated average unit costs within the cost of service analysis. Average unit costs were calculated for both the base charge and the consumption charge for each customer class. The development of the City's proposed rate designs is outlined in detail in Section 5 of this report.

Summary

This wastewater rate study is the culmination of the technical analyses undertaken for the City's wastewater utility. The recommendations contained within this study are intended to adequately fund and maintain the City's wastewater utility with cost-based and proportional rates.

1 Introduction and Overview

HDR was retained by the City of Solvang (City) to conduct a comprehensive wastewater cost of service study (Study). The objective of the City's comprehensive wastewater rate study was to review the City's wastewater operating and capital costs and develop proportional rates that are in compliance with Proposition 218. The City's Study reviewed the adequacy of the existing wastewater rates and provides the framework and cost-basis for the proposed rates.

The City owns and operates the wastewater utility system in Solvang, California. This system includes and provided for the collection, conveyance, treatment, and disposal of the wastewater flows generated by its customers. The costs associated with providing wastewater service to the City's customers as well as providing treatment services to San Ynez Community Service District (SYCSD) have been developed based on the financial and operating data and information provided by the City and included/incorporated within the development of the Study.

1.1 Goals and Objectives

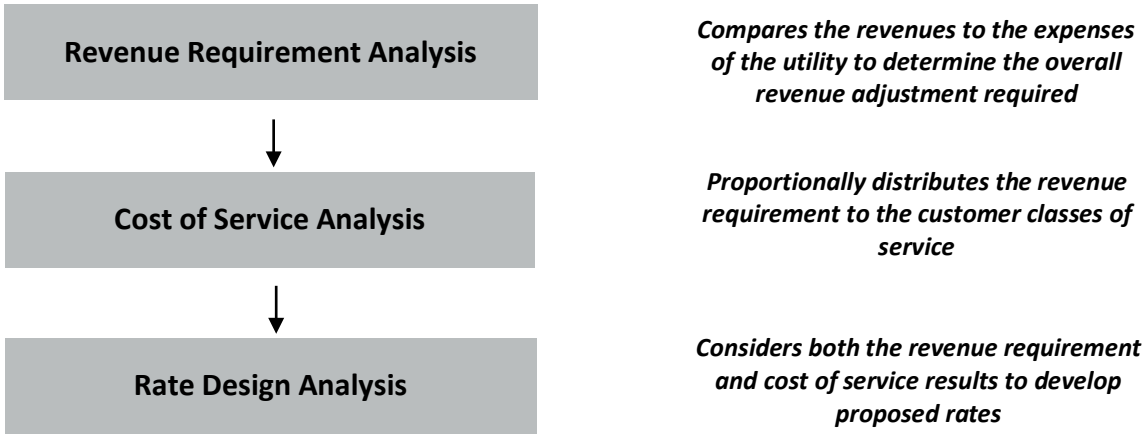
The City had a number of key objectives in developing their comprehensive wastewater rate study. These key objectives provided a framework for the policy decisions in the analyses that followed. These key objectives were:

- Develop the City's 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 (WEF MOP #27) and applicable law, including the requirements of California Constitution Article XIII D, Section 6 (commonly referred to as Proposition 218)
- In financial planning - and when establishing the City's rates - review and utilize industry standard practices, while recognizing and acknowledging the specific and unique characteristics of the City's wastewater system
- Meet the City's financial planning criteria and goals such as debt service coverage ratios, adequate funding of capital infrastructure replacement, and maintenance of prudent reserve levels
- Develop a financial plan which adequately supports the wastewater utility's funding requirements, while attempting to minimize overall impacts to rates

1.2 Overview of the Rate Study Process

User rates must be set at a level where a utility's O&M and capital expenses are met with the revenues received from customers. This is a crucial point, as failure to achieve this objective may lead to insufficient funds to maintain system integrity. To evaluate the adequacy and proportionality of the existing wastewater rates, a comprehensive wastewater rate study is often performed. A comprehensive rate study consists of three interrelated analyses. Figure 1 - 1 provides an overview of these analyses.

Figure 1 – 1
Overview of the Comprehensive Wastewater Rate Analyses



The above analytical framework for reviewing and evaluating rates was utilized for the development of the City's wastewater rate study. It is important to understand that the City's wastewater utility was reviewed on a financially stand-alone basis. That is, no funding from other City departments or the City's general fund was assumed or utilized in determining the level of adequate funding needed by the City from its wastewater utility rate revenues.

1.3 Organization of the Study

This report is organized in a sequential manner that first provides an overview of utility rate setting principles, followed by sections that detail the specific steps used to review and develop the City's proposed wastewater rates. The following sections comprise the City's wastewater cost of service study report:

- **Section 2** – Overview of Rate Setting Principles
- **Section 3** – Revenue Requirement Analysis
- **Section 4** – Cost of Service Analysis
- **Section 5** – Rate Design Analysis

Technical Appendices are attached at the end of this report, which detail the various technical analyses that were undertaken in the preparation of the Study.

1.4 Summary

This report will review the comprehensive wastewater cost of service study prepared for the City. This report has been prepared utilizing generally accepted and industry standard rate setting techniques and methodologies, while also taking into consideration meeting the requirements for establishing rates pursuant to the California Constitution.

2 Overview of Rate Setting Principles

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

2.1 Generally Accepted Rate Setting Principles

As a practical matter, all utilities should consider setting their rates around some 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 to generally accepted rate setting techniques
- Stable in their ability to provide adequate revenues for meeting the utility's financial, O&M, and regulatory requirements
- Established at a level that is stable from year-to-year from a customer's perspective

2.2 Determining the Revenue Requirement

Most public utilities use the "cash basis" methodology or 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 (i.e., municipal) 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. O&M expenses include the materials, electricity, labor, supplies, etc., needed to keep the utility functioning.
- **Total Capital Expenses:** Capital infrastructure expenses are calculated by adding debt service payments (principal and interest) to capital improvement projects financed from rate revenues. In lieu of including capital improvement projects financed from rate revenues, a utility sometimes includes annual depreciation expense to stabilize the annual revenue requirement. In addition, a utility may fund future capital improvements through transfers to capital reserves that are used in future years for capital improvements.

Under the cash basis approach, the sum of the total operating expenses plus the total capital expenses equals the utility's total revenue requirement during any selected period of time (historical or projected).

Note that the two portions of the capital expense component (debt service and rate funded capital projects) are necessary under the cash basis approach because utilities generally cannot finance all of their capital facilities with long-term debt. At the same time, it is often difficult to pay for capital expenditures on a "pay-as-you-go" basis given that some major capital projects may have significant rate impacts on a utility, even when financed with long-term debt. Many utilities have found that some combination of "pay-as-you-go" (rate) funding and long-term financing will often lead to minimization of rate increases over time.

Public utilities typically use the "cash basis"[1] approach to establish their revenue requirements. An exception occurs if a public utility provides service to a major wholesale or contract customer. In this situation, a public utility could use the "utility basis" approach (see Table 2 - 1) regarding earning a fair return on its investment. As a point of reference, the City's Study is based on the cash basis approach.

Table 2 – 1
Cash versus Utility Basis Comparison

	Cash Basis		Utility Basis (Accrual)
+	O&M Expenses	+	O&M Expenses
+	Taxes / Transfer Payments	+	Taxes/Transfer Payments
+	Rate Funded Capital Proj. (≥ Depr. Expense)	+	Depreciation Expense
+	Debt Service (Principal + Interest)	+	Return on Investment
=	**Total Revenue Requirement**	=	**Total Revenue Requirement**

2.3 Analyzing Cost of Service

After the total revenue requirement is determined, it is equitably and proportionally distributed to the various customers benefitting from the service. The distribution, analyzed through a cost of service analysis, reflects the cost relationships for providing wastewater services. A cost of service analysis requires three analytical steps:

1. Costs are ***functionalized*** or grouped into the various cost categories related to providing service. For the wastewater utility, this typically includes collection, pumping, and treatment. This step is largely accomplished by the utility's accounting system.
2. The functionalized costs are then ***allocated*** to specific cost components. Allocation refers to the arrangement of the functionalized data into cost components. For example,

[1] "Cash basis" as used in the context of rate setting is not the same as the terminology used for accounting purposes and the recognition of revenues and expenses. As used for rate setting, "cash basis" simply refers to the specific cost components to be included within the revenue requirement analysis.

wastewater costs are typically allocated as volume-[2], strength-(BOD, TSS, Nitrogen, and Phosphorous)[3], and customer-related.[4]

3. Once the costs are allocated into the components, they are ***distributed*** to each customer class of service. The distribution is based on each customer class's relative (proportional) contribution to the cost component (i.e., benefits received from, and burdens placed on the system and its resources). 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 revenues from each customer class of service required to achieve cost-based rates can be determined.

2.4 Designing Utility Rates

Proposed rates are designed based on the results from both the revenue requirement and the cost of service analysis. This approach results in rates that are cost-based and proportional. 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 proportional share of the costs distributed through the cost of service analysis to meet Proposition 218 requirements.

2.5 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 wastewater utility incurs additional costs to treat higher strength wastewater. It follows that the customers who create and discharge higher strength wastewater into the system create additional operating costs and should pay for the costs associated with treating higher strength waste and any other maintenance costs associated with their discharges. When costing and pricing techniques are refined, consumers have a more accurate understanding of what the service costs to collect and treat wastewater. This price-equals-cost concept provides the basis for the subsequent analysis. This is further reflected in the requirements of Proposition 218 which references the need for 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."***

2.6 Summary

This section of the report has provided a brief introduction to the general principles, techniques, and approach used to develop cost-based wastewater rates. These principles and techniques are the basis for the City's Study reviewed and discussed in this report.

[2] "Volume" refers to the amount of wastewater discharged

[3] "Strength" refers to the concentration of dissolved and suspended matter in sewage, as indicated, for example, by biochemical oxygen demand or suspended solids.

[4] "Customer-related" refers to such costs as billing and collections

3 Wastewater Revenue Requirement

This section of the report details the development of the revenue requirement analysis for the City's wastewater system. The revenue requirement analysis is the first analytical step in the comprehensive wastewater rate study process. From this analysis, a determination can be made as to the overall level of rate revenue adjustments needed to provide adequate and prudent funding for both O&M and capital infrastructure needs of the utility. The primary objective of the rate study was to develop cost-based and proportional wastewater rates that comply with the California Constitution, while attempting to minimize the long-term rate impacts to the City's customers.

3.1 Determining the Revenue Requirement

In developing the City's wastewater revenue requirement, a key objective is that the utility must financially stand on its own and be properly funded. That is to say, no revenues are being transferred from other City departments or funds to support the wastewater utility. As a result, the revenue requirement analysis assumes the full and proper funding needed to operate and maintain the wastewater system on a financially sound and prudent basis for the long-term.

3.1.1 Establishing a Time Frame and Approach

To begin calculating the revenue requirement for the City's wastewater utility, a time frame was established for the analysis (i.e., the Study time period). The budget year for 2021-22 was the starting point and costs were projected for the 10-year review period of 2022-23 through 2031-32. Reviewing a multi-year projected time period is recommended in an attempt to identify major expenses that may be on the horizon. By anticipating future financial requirements, the City can begin planning for these changes sooner, thereby minimizing short-term rate impacts and overall long-term rates. The costs from the City's adopted 2021-22 wastewater budget were projected over the 10-year projected time period based on estimated escalation (inflation) factors.

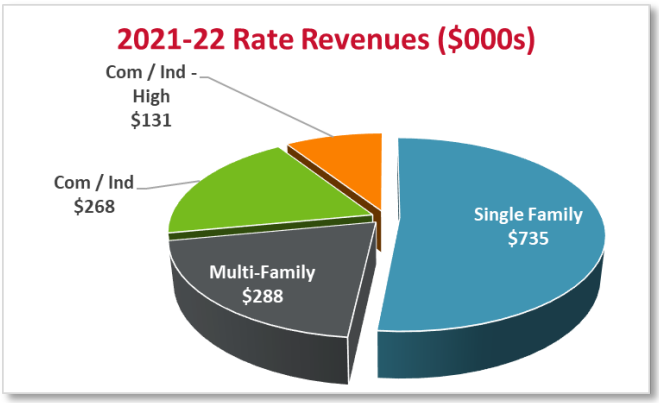
The second step in determining the revenue requirement was to decide on the basis for accumulating costs. As discussed in Section 2 of this report, the revenue requirement analysis was developed using the "cash basis" approach. The cash basis approach is the most commonly used methodology by municipal utilities to set their revenue requirement. This is also the methodology that the City has historically used to establish its wastewater revenue requirement. Given a time period around which to develop the revenue requirement and a method to accumulate the costs, the focus shifts to the development and projection of the revenues and expenses of the City's wastewater utility.

The primary financial inputs in the development of the revenue requirement were the City's adopted 2021-22 budget documents, recent 12-months of customer billing data, historical financial reports, and the City's Capital Improvement Plan (CIP). Presented below is a detailed discussion of the steps and key assumptions contained in the development of the City's wastewater revenue requirement analysis.

3.1.2 Projecting Rate and Other Miscellaneous Revenues

The first step in developing a projection of the wastewater rate revenues, at present rate levels, was to determine the projected billing units (fixed and volumetric charges) for each customer class of service (single-family residential, multi-family, commercial). The billing units for each customer class were based on the most recent 12-month period to determine the current customer usage and billing units. These billing units were then multiplied by the current adopted wastewater rates. This method of independently calculating rate revenues links the projected revenues used within the analysis to the projected billing units. It also helps to confirm that the billing units used within the Study are reasonable for purposes of projecting future revenues, distributing costs and, ultimately, establishing the proposed wastewater rates. The rate revenues are also shown in Exhibit 3 of the Technical Appendix, under "Rate Revenues" for 2021-22.

As can be seen in the graph, the majority of the City's rate revenues are derived from single family and multi-family customers. The City also serves a variety of commercial customers of varying levels of wastewater strength. In total, and at adopted present rate levels, the City's wastewater system is projected to receive approximately $1.4 million in rate revenues in 2021-22. Based on current City planning documents, the projection of rate revenues has assumed minimal customer growth at 0.5% per year. The projection of rate revenues in 2026-27, - assuming no rate adjustments – is projected to be approximately $1.5 million based on the growth assumptions noted above. The detailed calculation of the revenues at present rates can be found on Exhibit 6 of the Technical Appendix.



In addition to the rate revenues collected, the City also receives other miscellaneous revenues. These are revenues related to rents and leases, pretreatment analysis, interest income, etc. In total, the City is projected to receive approximately $402,000 in miscellaneous revenues in 2021-22. Miscellaneous revenues were estimated to increase slightly over the study time period. This is primarily due to the increase in the Santa Ynez Community Services District (SYCSD) reimbursement component which is based on the treatment O&M costs as well as the debt associated with treatment capital improvements. Based on these assumptions, miscellaneous revenues are anticipated to increase to $755,000 by 2026-27.

On a combined basis, and taking into account the rate revenues and the miscellaneous revenues, the City's wastewater utility has total projected revenues of approximately $1.8 million in 2021-22, which increases to approximately $2.2 million by 2026-27. The assumptions used for projecting customer growth and increases in miscellaneous revenues can be found on Exhibit 2 of the Technical Appendix. The projection of rate and miscellaneous revenues can be found on Exhibit 3 of the Technical Appendix.

3.1.3 Projecting Operation and Maintenance Expenses

Operation and maintenance (O&M) expenses are incurred by the City to maintain the wastewater collection, conveyance, treatment, and disposal system at a consistent service level. The starting point of the projection of O&M expenses was the City's adopted 2021-22 budget. Budgeted O&M expenses were projected over the rate study time period based on estimated escalation, or inflationary, factors. These factors took into consideration the City's recent cost trends and increases, along with any anticipated future increases. The escalation factors ranged from 2.5% to 4.0% annually for the various types of expenses (e.g., labor, benefits, materials & supplies). Other than the assumed adjustments for projected inflation, there were no additional O&M expenses added and no substantial changes were made to the existing budget expenses. The total operation and maintenance expenses for the wastewater utility are budgeted to be approximately $1.9 million in 2021-22. Based on assumed escalation of costs, the total O&M expenses are projected to increase to approximately $2.3 million by 2026-27. A summary of the O&M expenses is shown as a line item on Table 3 – 2 and detailed in Exhibit 3 of the Technical Appendix.

3.1.4 Projecting Capital Funding Needs

A key component in the development of the wastewater revenue requirement was to properly and adequately fund capital improvement needs in the near-term and long-term. One of the major issues facing many utilities across the U.S. is the amount of deferred capital projects and the funding pressure from regulatory-related improvements. The proper and adequate funding of capital projects is an important issue for all wastewater utilities and not just a local issue or concern of the City. To accomplish this, the City has an adopted Capital Improvement Plan (CIP) to address both the near- and long-term needs of the wastewater utility. The City's CIP will help guide and prioritize capital projects over time and the capital investments that may be needed to expand the capacity of facilities to accommodate future customers.

In general, there are three types of capital projects that the City may need to fund. These include the following types:

- Renewal and replacement projects
- Growth/capacity expansion projects
- Regulatory-related projects

A renewal and replacement project is essentially a project to maintain the existing system that is in place today. Existing facilities become worn out, obsolete, etc. The City should invest continuously in order to maintain the integrity of its facilities with renewal and replacement projects. In contrast, growth / capacity expansion projects are related to providing service (i.e., capacity) to new customers. This may be through expansion of the existing system or construction of new facilities to provide service to customers within the City's service area. Finally, certain projects may be a function of a regulatory requirement in which the Federal or State government mandates the need for an improvement to the system to meet regulatory standards. Understanding these different types of capital projects is important because it may help to explain why costs are increasing and the cost drivers for any needed rate adjustment.

The way in which projects are funded may vary by the type of capital project. For example, renewal and replacement projects should be funded through annual rates on a "pay-as-you-go basis". In contrast to this, growth or capacity expansion projects may be funded through the collection of connection fees (i.e., growth-related charges) in which new development pays a proportional and equitable share of the cost of improvements required as a result of their connection (impact). Finally, regulatory projects may be funded by a variety of different means, which may include one or more sources such as rates, long-term debt, grants, etc.

While the above discussion appears to neatly divide capital projects into three clearly defined categories, the reality of working with specific capital projects may be more complex. For example, a pump may be replaced, but while being replaced, it is up-sized to accommodate the need for greater capacity. There are many projects that share these "joint" characteristics. At the same time, projects may not be "replacement" related, but rather "improvement" related.

As a specific part of this Study, the City wanted to maintain a funding approach of "pay-as-you-go" (rate) funding as part of the City's capital improvement plan to maintain the wastewater system (e.g., renewal and replacement needs). In addition to the annual renewal and replacement needs, the City is also making very significant upgrades to the treatment plant and the sewer collection system. As a result, there are significant capital improvement needs over the next 10-year period. Over the rate setting period, 2022-23 through 2026-27, the City anticipates funding their capital infrastructure needs with proceeds of $19.0 million from debt issuance, $604,000 in reserve funding, and $1.6 million in rate funding. SYCSD proportionally contributes to treatment related capital projects which they receive a benefit and are included in the other funding total of the capital funding analysis. In developing this funding plan and including the use of long-term debt funding in that plan, it is important to note that HDR is not advising the City on the specific terms of any bond issuances but rather identifying the overall funding needs. In conducting this study and developing this capital funding plan, HDR is not acting in a municipal advisory role to the City for the issuance of any long-term debt instruments.

Provided below in Table 3 – 1 is a summary of the wastewater capital funding analysis.

Table 3 – 1 Summary of the Capital Funding Plan (000's)						
	2021-22	**2022-23**	**2023-24**	**2024-25**	**2025-26**	**2026-27**
Capital Projects						
Total Collection	$180	$62	$140	$753	$941	$684
Total Treatment	99	174	75	1,056	8,472	8,786
Future Unidentified CIP	0	0	0	0	0	0
Transfer to Capital Fund	0	0	0	0	0	0
Total CIP	**$279**	**$236**	**$215**	**$1,809**	**$9,413**	**$9,470**
Other Funding Sources						
Operating Fund	$265	$2	$1	$0	$0	$0
Capital Fund	14	14	14	14	360	149
SYCSD Funding	0	35	15	0	0	0
Revenue Bonds	0	0	0	1,395	8,653	8,921
Total Other Funding Sources	**$279**	**$51**	**$30**	**$1,409**	**$9,013**	**$9,070**
Rate Funded Capital	**$0**	**$185**	**$185**	**$400**	**$400**	**$400**

While the total amount of capital projects may vary from year to year, the wastewater capital funding plan has attempted to provide a consistent funding source for the replacement of deteriorating system assets. As can be seen in Table 3 - 1, in 2021-22, the City does not have sufficient funds through rates for pay as you go funding. Given this is not a sustainable level of renewal and replacement funding, this capital improvement funding plan has begun to fund this component and increase it over the projected five year period. In this case, the wastewater utility's rates will annually fund an amount of $185,000 in 2022-23 and 2023-24, which is then increased to $400,000 in 2024-25 through 2026-27. As a point of reference, the City's annual depreciation expense was approximately $429,195 in 2019-20. A desirable minimum funding target for rate funded CIP is an amount equal to or greater than annual depreciation expense in order to fund the amount of assets in the system which are annually deteriorating. Although the initial funding is less than annual depreciation expense, by the end of the rate setting period it is much closer to the suggested minimum level of rate funding. While not shown in Table 3 - 1, the financial plan continues to increase the rate funding of CIP over the remaining five years of the projected time period and ultimately reaches a funding level of $1.0 million by 2031-32.

In discussing the use of rate funding and annual depreciation expense, it is important to understand that annual depreciation expense is not the same as replacement cost. Thus, funding an amount which exceeds the annual depreciation expense is both prudent and appropriate to address the difference in cost between annual depreciation expense and replacement cost of an asset. As noted, to help establish a prudent level of annual replacement funding through rates, HDR worked with City staff to develop a funding plan for the CIP. In developing this financial plan, HDR and the City have attempted to minimize rate impacts while funding the planned capital projects of the City.

3.1.5 Projection of Debt Service

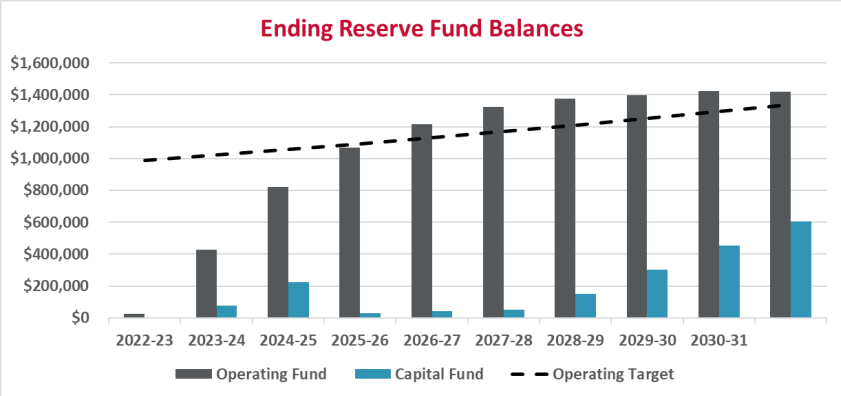
The City currently has no outstanding long-term debt issues or annual debt service payments. As noted above in the capital funding plan (Table 3 - 1), the City is anticipated to issue approximately $19.0 million in long-term debt to fund capital improvement projects planned for construction over the rate setting period. Based on this assumption, the City is projected to have a new debt service payment schedule that is estimated at $1.5 million per year by 2026-27.

3.1.6 Reserve Funding

The final component of the revenue requirement analysis is reserve funding. This can be described as transfers of revenue to/from reserve funds to maintain prudent ending fund balances or for future funding of specific or unanticipated projects/emergencies. Additionally, any balance of funds after the expenses are paid is maintained within the wastewater utility and transferred to the operating fund to fund/manage cash flow variances. As will be shown, the overall financial plan and proposed rate levels are at sufficient levels and the reserve funds are being maintained to meet or exceed minimum target levels.

- **Operating Fund**: The operating fund reserve primarily serves to manage cash flow of the City's wastewater utility. Typically, an operating reserve will have a minimum target of between 30 and 180 days depending on the intended use and a number of other factors. For the City's Study, a target minimum was set at 180 days of O&M which equals approximately $960,000 for 2021-22. Initially, the wastewater utility does not meet the minimum. However, under the proposed rate transition plan, the minimum ending balance target is met in 2026-27 and remains strong over the remaining years of the study.
- **Capital Fund**: The capital fund reserve is used to provide funding of capital projects. The main source of funding is through connection fee revenues, but funds may also be transferred to this reserve when funds are available. As the City maintains the funds in the capital reserve, they can be utilized for capital improvement projects in order to lessen the rate impact to the City's wastewater customers. The City's minimum funding target for the capital fund is set at 2 times annual depreciation expense. In 2021-22, this target is approximately $858,000. Although the minimum ending balance target is not being met during the projected time period, the wastewater utility continues to add funds and grow the reserve over the Study period.

Shown below is a graphical summary of the ending reserve funds over the review period.



3.1.7 Summary of the Wastewater Revenue Requirement

Given the above projections of revenues and expenses, a summary of the City's wastewater revenue requirement analysis can be developed. In developing the revenue requirement analysis, consideration was given to the financial planning considerations of the City. In particular, emphasis was placed on attempting to minimize rates, yet still provide adequate funds to support the operational activities and capital projects over the projected time period. Presented below in Table 3 – 2 is a summary of the City's wastewater revenue requirement. Detailed exhibits of this analysis can be found in the Technical Appendix (Exhibits 1 through 6).

Table 3 - 2
Summary of the Wastewater Revenue Requirements (000's)

	2021-22	2022-23	2023-24	2024-25	2025-26	2026-27
Revenues						
Rate Revenues	$1,422	$1,429	$1,437	$1,444	$1,451	$1,458
Miscellaneous Revenues	402	398	415	453	602	755
Total Revenues	**$1,824**	**$1,827**	**$1,852**	**$1,897**	**$2,053**	**$2,213**
Expenses						
Total O&M	$1,947	$2,003	$2,071	$2,143	$2,216	$2,292
Rate Funded Capital	0	185	185	400	400	400
Debt Service	0	0	0	107	772	1,458
Total To/(From) Reserves	(123)	176	480	544	395	297
Total Revenue Requirement	**$1,824**	**$2,363**	**$2,736**	**$3,194**	**$3,784**	**$4,448**
Bal./(Def.) of Funds	$0	($536)	($884)	($1,297)	($1,731)	($2,235)
Bal. as a % of Rate Rev.	0.0%	37.5%	61.6%	89.8%	119.3%	153.2%
Proposed Revenue Adj.	**0.0%**	**37.5%**	**17.5%**	**17.5%**	**15.5%**	**15.5%**
Add'l Rev. from Adj.	$0	$536	$884	$1,297	$1,731	$2,235
Total Bal. / (Def.) of Funds	$0	$0	$0	$0	$0	$0

As can be seen in Table 3 - 2, the revenue requirement has summed the O&M expenses, rate funded capital, debt service, and reserve funding. The total revenue requirement is then compared to the total sources of funds which include the rate revenues, at present rate levels, and other miscellaneous revenues. From this comparison, a balance or deficiency of funds in each year can be determined. This balance or deficiency of funds is then compared to the current level of wastewater rate revenues to determine the level of rate adjustment needed to meet the revenue requirement. It is important to note the "Bal. / (Def.) of Funds" row is cumulative. That is, any adjustments in the initial years will reduce the deficiency in the later years.

Over the five-year rate setting period, the total deficiency of rate revenue is projected to significant given the required wastewater treatment plant improvements to meet regulatory requirements. As can be seen in 2021-22, the City currently has no capital projects funded through rates (e.g., pay as you go), and it has no outstanding debt or annual debt payments. This Study has identified the need to begin annually funding from rates a component to address renewal and replacement projects (i.e., $400,000 by 2024-25). At the same time, the District's capital plan requires the issuance of debt in 2024-25 through 2026-27. The annual rate impact of this long-term borrowing is an estimated annual debt service payment in 2026-27 of $1.5 million. Taken together, these two cost components are approximately $1.9 million of the total $2.2 million deficiency in 2026-27.

The revenue requirement analysis developed and shown in Table 3 - 2 has been developed based on industry standard methodologies and approaches, the City's specific wastewater utility data and information, and reflect the financial planning objectives of the City. More importantly, the City desires to adequately and prudently fund its wastewater operating and capital needs.

Table 3 – 2 has also included a set of proposed revenue adjustments (blue highlighted band) which are sufficient to meet the total revenue requirements over the projected time period, based on the assumptions and data used within this analysis. As noted above, the proposed rate adjustments are primarily a function of the need to adequately fund the capital improvements. However, it is also a function of assumed inflation/escalation of operating costs over this time period. This financial plan strengthens the City's funding for capital infrastructure, while also meeting minimum reserve levels, funding annual debt service payments, and meeting or exceeding legally required minimum debt service coverage ratios. If the proposed wastewater rate adjustments are not implemented, the City will not have sufficient funding to prudently operate and maintain the wastewater system. In addition, the City's existing wastewater rates are not sufficient to support the issuance of new debt to fund the planned capital projects.

Over the rate setting period, annual deficiencies range from $536,000 in 2022-23 to $2.2 million in 2026-27. It is important to note that the overall revenue adjustments shown in Table 3 - 2 may not reflect the final rate adjustments, or bill impacts, incurred by the City's individual customers as the cost of service analysis will proportionally distribute the revenue requirement among the various customer classes. The overall revenue adjustment reflects the needed revenues for the system as a whole. A more detailed revenue requirement is included in Exhibit 3 of the Technical Appendix.

3.2 Consultant's Conclusions

Based on the revenue requirement analysis developed herein, HDR has recommended that the City adjust wastewater revenues 37.5% in 2022-23, 17.5% in 2023-24 and 2024-25, and 15.5% in 2025-26 through 2026-27. HDR has reached this conclusion for the following reasons:

- Revenue adjustments are necessary to fund the City's capital needs, of which a significant portion is driven by the funding of substantial treatment plant improvements
- Revenue adjustments are necessary to support the City's planned issuance of long-term debt. Absent the proposed revenue adjustments, the City will be unable to meet overall debt service coverage ratios and issue long-term debt to fund necessary capital projects.
- The revenue adjustments also reflect the need to fund the estimated cost impacts of inflation or cost escalation to the operation and maintenance expenses of the wastewater utility
- The proposed revenue adjustments position the City's wastewater utility to strengthen its financial health and provide long-term sustainable funding levels for the City's wastewater utility

In reaching this conclusion, HDR would recommend that the City adopt the proposed revenue adjustments for 2022-23 through 2026-27 in order to provide sufficient funding for annual O&M and capital improvement programs.

3.3 Summary

This section of the City's comprehensive wastewater rate study report has provided a discussion of the City's wastewater revenue requirement analysis. The revenue requirement analysis developed a rate/revenue transition plan to support the City's O&M and capital needs. The next section of this report will discuss the cost of service analysis developed for the City's wastewater utility which is the basis for establishing cost-based and equitable wastewater rates.

4 Wastewater Cost of Service

In the previous section, the revenue requirement analysis focused on the total sources and application of funds (i.e., revenues vs. expenses) required to adequately fund the City's wastewater utility. This section will provide an overview of the cost of service analysis developed for the City's wastewater utility.

The wastewater cost of service analysis is concerned with the proportional distribution of the total revenue requirement among the customer classes of service (e.g., single family, multi-family, commercial) to meet the requirements of Proposition 218. The previously developed revenue requirement analysis for FY 2022-23 was utilized in the development of the cost of service analysis.

4.1 Objectives of a Cost of Service Study

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

- Proportionally distribute the City's revenue requirement among the customer classes of service; and
- Derive average unit costs (i.e., cost-based rates) for subsequent rate designs.

The primary objective of the cost of service analysis is the proportional manner to collect the revenue requirement from the City's various customer classes of service. The second rationale for conducting a cost of service analysis is to allow for the development of proposed wastewater rates that properly reflect the costs incurred by the City and impacts customer place on the wastewater system. For example, a wastewater utility typically incurs costs related to flow (wastewater volumes), strength, and customer cost components. Each of these types of costs may be collected in a slightly different manner to allow for the development of rates that collect costs in the same manner as they are incurred.

4.2 Determining the Customer Classes of Service

The first step in a cost of service analysis is to determine the customer classes of service. Customers are grouped together in similar or homogenous groups based upon the type of customer, their usage characteristics, strength characteristics or facility requirements. The classes of service used within the cost of service analysis were as follows:

- ✓ Single Family
- ✓ Multi-Family
- ✓ Commercial – Low (Strength)
- ✓ Commercial – High (Strength)

HDR reviewed the current customer characteristics and facility requirements to determine the classes of service, which were the City's current customer classes and are consistent with typical industry practices.

4.3 General Cost of Service Procedures

In order to determine the proportional cost to serve each customer class of service on the City's wastewater system, a cost of service analysis is conducted. A cost of service analysis utilizes a three-step approach to review costs. These steps are outlined and discussed in Chapters 6 and 7 of the Water Environment Federation Manual of Practice No. 27 (WEF MOP #27). These steps take the form of *functionalization*, *allocation*, and *distribution*. Provided below is a detailed discussion of the wastewater cost of service analysis conducted for the City, 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 (plant) data by major operating functions (e.g., collection, pumping, treatment). Within this Study, the City's accounting records functionalized a majority of the expenses and assets. For those costs or assets that were not fully functionalized, HDR worked with City staff to review and functionalize the expense or asset

4.3.2 Allocation of Costs

The second analytical task performed in a wastewater cost of service study is the allocation of the costs. Allocation determines why a specific expense is incurred or what type of need is being met. The following cost allocators were used to develop the City's cost of service analysis:

- **Volume-Related Costs:** Volume-related costs are those costs which tend to vary with the total quantity of wastewater collected and treated. A majority of collection system costs are included in this component. An example of a volume-related cost is electricity used for pumping or treating wastewater.
- **Strength-Related Costs:** Strength-related costs are those costs associated with the additional handling and the treatment of high "strength" wastewater. For the City's study, strength was differentiated between biochemical oxygen demand (BOD), total suspended solids (TSS), nitrogen (N), and phosphorous (P). These constituents represent the strength factors that drive the City's treatment-related costs. Increased strength levels equate

Terminology of a Wastewater Cost of Service Analysis

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

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 – Volume-related costs vary with the total flow of wastewater (e.g., power for pumping).

Strength Costs – Strength-related costs refer to the constituent characteristics of the wastewater and the treatment function. Typically, strength-related costs are further defined as biochemical oxygen demand (BOD), suspended solids (SS), nitrogen (N), and phosphorous (P). Customers may have high level wastewater (i.e., greater than domestic strength characteristics), which costs more to treat. Components of the treatment process are designed and sized around treating wastewater strength.

Customer Costs – Customer-related costs vary with the number of customers on the wastewater system, e.g., billing, collecting, and accounting costs.

Direct Assignment – Costs that can be clearly identified as belonging to a specific customer or group of customers

to increased treatment costs for wastewater treatment systems.

- **Customer-Related Costs:** Customer-related costs vary with the addition or deletion of a customer or a cost which is a function of the number of customers served. Customer-related costs typically include the costs of billing, collecting, and accounting. Customer-related costs can be further defined as either actual or weighted. An actual customer cost is not disproportionate between customers (i.e., postage for billing). In contrast, a weighted customer costs have a disproportionate cost per customer associated with it (e.g., wastewater sampling for strength).
- **Capacity-Related Costs:** The WEF MOP #27 also discusses a capacity component as an allocation component. For the City's Study the capacity allocation reflects the capacity placed on the system by a customer in comparison to a residential equivalent (e.g., flow per account in terms of the number of residential customers) and is reflected through the sizing of the system to meet volume requirements of the system.
- **Revenue-Related Costs:** Some costs associated with the utility may vary with the amount of revenue received by the utility. An example of a revenue-related cost would be a utility tax which is based on gross utility revenue.

The basis, or methodology, for the allocation process is outlined in the WEF MOP #27. The methodology provided in the manual was then applied to the City's specific and unique circumstances, facilities, customers, costs, and system operation to develop the appropriate and equitable allocation approach.

4.3.3 Development of Distribution Factors

Once the allocation process is complete, and the customer groups have been defined, the various allocated costs were proportionally distributed to each customer class of service. The City's allocated costs were proportionally distributed to the customer classes of service using the following distribution factors.

- **Volume-Distribution Factor:** Volume-related costs are generally distributed on the basis of contribution to wastewater flows. In order to develop this distribution factor, some knowledge of the contribution to flows must be determined. Wastewater flows were estimated based on billed usage and winter water consumption plus assumed I&I[5] for each class of service for the projected test period, 2022-23. Winter water consumption is used as a surrogate for wastewater flows as wastewater flows are not metered. Winter water reasonably reflects the "indoor consumption" and the amount that is discharged into the wastewater system. The calculation of the volume distribution factor is shown in Exhibit 7 of the Technical Appendix.
- **Customer Distribution Factor:** Customer costs within the cost of service analysis are distributed to the various customer classes of service based upon their respective number of customer accounts. Two types of customer distribution factors were developed: actual and weighted customer service and accounting. The actual customer distribution factor

[5] I&I the inflow and infiltration of water into the wastewater system. This can be from rainwater, groundwater, or other sources of water that make it into the wastewater system.

assumes that there is no disproportionate cost associated with serving a customer (e.g., postage for bills is the same regardless of the size or usage of the customer) and the proportional distribution to each class is based on the number of accounts in each class of service. In contrast, a weighted customer distribution factor assumes that there is some disproportionality associated with serving different types of customers and attempts to estimate the level of difference in serving the customers and is based on the number of dwelling units. For example, a customer may have a single account, but have multiple living units associated with the single connection. Exhibit 10 of the Technical Appendix provides the calculation of the customer distribution factor.

- **Capacity Demand Distribution Factor:** This factor attempts to reflect the different capacity demands and costs associated with meeting varying capacity demands (wastewater flows) of customers. This difference in capacity demands is best viewed from the perspective of the customer's water meter. For example, there is a significant difference in volumetric flows associated with a customer with a 6" water meter as compared to one with a 5/8" water meter. This difference in potential capacity is reflected within the distribution factor. The proportion or distribution of capacity demands is based on the capacity demands the customer can place on the system based on the size of their water meter. Exhibit 8 of the Technical Appendix provides the calculation of this capacity demand distribution factor.
- **Strength-Distribution Factor:** Strength-related costs are distributed between BOD, TSS, Nitrogen, and Phosphorous. These costs are distributed to each of the classes of service based upon the estimated strength levels from industry standards as well as limited data from the City. The strength levels in total, for each customer class of service, were utilized to calculate the pounds removed for each constituent. Exhibit 9 in the Technical Appendix provides the calculation of the strength-distribution factors.
- **Revenue-Related Distribution Factor:** The revenue-related distribution factor was developed from the projected rate revenues for 2022-23 for each customer class of service as developed in Exhibit 3. A summary of the revenue distribution factor is provided in Exhibit 11 of the Technical Appendix.

The development of the distribution factors is based on generally accepted principles as outlined in the WEF MOP #27.

4.4 Summary of the Wastewater Cost of Service Analysis

In summary, the cost of service analysis began by functionalizing the City's wastewater assets (infrastructure) and O&M expenses. The functionalized asset and expense accounts were then allocated into their various cost components. Provided below is a summary of the allocation of the City's 2022-23 test period revenue requirement using the above described methodology and tailoring that methodology to the City's specific facility requirements and operations. Provided in Exhibits 11 and 12 of the Technical Appendix is a detailed summary of the allocation of the City's infrastructure and revenue requirement. Provided below in Table 4 – 1 is a summary of the costs allocated to each component.

Table 4 – 1 Summary of the Allocation of the 2022-23 Revenue Requirement ($000's)					
Volume	**Capacity**	**Strength**	**Customer**	**RR / DA**	**Total 2022-23 Costs**
$597	$280	$712	$377	$0	**$1,966**

Based on generally accepted methodologies and approaches, and the City's specific operating and capital costs associated with their wastewater collection and treatment system, the City's revenue requirement of approximately $2.0 million was allocated between the volume, capacity, strength, and customer-related components.

Once the total costs are allocated, they are then proportionally distributed to the customer classes of service based on the distribution factors previously developed. The distributed costs are then summed to develop the total distribution of costs to each customer class of service. Provided in Table 4 – 2 is a summary of the distribution of costs to the customer classes of service.

Table 4 – 2 Summary of the Distribution of the 2022-23 Revenue Requirement ($000's)						
Classes of Service	**Volume**	**Capacity Demand**	**Strength**	**Customer**	**RR / DA**	**Total**
Single Family	$318	$149	$348	$248	$0	$1,064
Multi-Family	118	55	129	97	0	401
Commercial – Low	130	61	143	26	0	360
Commercial – High	30	14	92	5	0	141
Total	**$597**	**$280**	**$712**	**$377**	**$0**	**$1,966**

As shown in Table 4 – 1 and 4 – 2 the total revenue requirement for 2022-23 has been equitably allocated between the various cost components based on generally accepted methodologies. Next, the individual allocation totals were then distributed proportionally to the various customer groups based on the appropriate distribution factors. For example, volume-related costs were proportionally distributed based on each customer class's share of total wastewater flows (i.e., contributions). The total costs classified to each cost component were proportionally distributed between the customer classes using the previously mentioned distribution factors. By using generally accepted methodologies (i.e., WEF MOP #27) and tailoring the analysis to the City's specific system and customer characteristics, provides the basis to meet the requirements of Proposition 218.

The total distributed costs are summed for each class of service and then compared to the current revenues of each class of service to determine the overall change in revenues needed from each

class of service to reflect the proportional distribution of costs. Provided below in Table 4 - 3 is the summary of the City's wastewater cost of service analysis.

Table 4 - 3
Summary of the Wastewater Cost of Service Analysis ($000)

Class of Service	Current Rate Revenues	Distributed Costs	$ Difference [1]	% Difference
Single Family	$739	$1,064	($325)	43.9%
Multi-Family	290	401	(111)	38.2%
Commercial – Low	269	360	(90)	33.5%
Commercial – High	131	141	(10)	7.7%
Total	**$1,429**	**$1,966**	**($536)**	**37.5%**

The results of the cost of service analysis indicate some cost differences between the customer classes of service. When reviewing the results of the cost of service analysis, it is important to understand that the results will not be "exact" each time the City updates its cost of service analysis. This is due to changing customer wastewater characteristics, external impacts such as drought conditions, and changes over time in how the City incurs costs.

To comply with the requirements of article XII D, section 6 (b) of the California Constitution (Proposition 218), HDR recommends that cost of service adjustments be made in accordance with the results of this study. To accomplish this, the distributed costs shown in the prior tables are used to develop average unit costs (i.e., cost-based rates) which become the proposed rates. In this way, the proposed rates are proportional and cost-based and reflect the results of the Study.

Provided below in Table 4 – 4 is the development of the single family and multi-family customer classes average unit cost calculation. The costs were taken from Table 4 – 2. These unit costs then become the basis for the proposed rates under the rate design section. As a point of reference, the rate structure for the single family and multi-family customers is a flat fixed monthly charge. Given this, the average unit costs for each are totaled and reflect the monthly flat fixed charge. As a point of reference, a flat monthly charge is a common wastewater rate structure in California and across the U.S.

Table 4 – 4
Summary of the Single Family and Multi-Family Average Unit Costs

	% Distribution of Total	Total Costs	Billing Units (DU)	Average Unit Cost/DU
Single Family				
Volume	*53.3%*	$318,194	1,777	$14.92
Capacity Demand	*58.2%*	148,972	1,777	6.99
Actual Customer	*65.9%*	248,459	1,777	11.65
Wt. Customer	*65.9%*	0	1,777	0.00
BOD	*48.2%*	75,959	1,777	3.56
TSS	*48.0%*	115,017	1,777	5.39
N	*51.2%*	80,693	1,777	3.78
P	*48.4%*	76,274	1,777	3.58
RR	*51.7%*	0	1,777	0.00
Total Single Family		**$1,063,569**		**$49.88**
Multi-Family				
Volume	*19.8%*	$118,392	697	$14.15
Capacity Demand	*22.8%*	55,429	697	6.63
Actual Customer	*25.9%*	97,484	697	11.65
Wt. Customer	*25.9%*	0	697	0.00
BOD	*17.9%*	28,263	697	3.38
TSS	*17.9%*	42,795	697	5.11
N	*19.1%*	30,024	697	3.59
P	*18.0%*	28,380	697	3.39
RR	*20.3%*	0	697	0.00
Total Multi-Family		**$400,766**		**$47.90**

The approach to establishing the average unit costs was slightly different for the Commercial - Low and Commercial - High customer classes. The current rate structure is maintained for the proposed rates which consists of a flat fixed charge and a uniform volumetric charge. This rate structure of a fixed charge and uniform volumetric charge is one that is commonly employed for wastewater utilities across the country. Table 4 – 5 shows the development of the Commercial - Low and Commercial - High average unit cost calculation. The costs shown in Table 4 - 5 were derived from Table 4 – 2 and the calculated average unit costs will become the basis for the rate designs for Commercial Low and Commercial High customers.

Table 4 – 5
Summary of the Commercial–Low and Commercial–High Average Unit Costs

	% Distribution of Total	Total Costs	Billing Units [1, 2]	Average Unit Cost
Commercial - Low				
Fixed Charge				
Capacity Demand	*15.7%*	61,075	183	$27.77
Actual Customer	*6.8%*	25,621	183	11.65
Wt. Customer	*6.8%*	0	183	0.00
Total		**$86,696**		**$39.43**
Variable Charge				
Volume	*21.9%*	130,452	67,281	$1.94
BOD	*19.8%*	31,141	67,281	0.46
TSS	*19.7%*	47,154	67,281	0.70
N	*21.0%*	33,082	67,281	0.49
P	*19.9%*	31,271	67,281	0.46
RR	*18.9%*	0	67,281	0.00
Total		**$273,100**		**$4.06**
Commercial - High				
Fixed Charge	*3.3%*	$14,034	38	$30.49
Capacity Demand	*1.4%*	5,363	38	11.65
Actual Customer	*1.4%*	0	38	0.00
Wt. Customer		**$19,397**		**$42.14**
Total				
Variable Charge				
Volume	*5.0%*	$29,975	15,460	$1.94
BOD	*14.0%*	22,118	15,460	1.43
TSS	*14.5%*	34,673	15,460	2.24
N	*8.7%*	13,683	15,460	0.89
P	*13.7%*	21,556	15,460	1.39
RR	*9.2%*	0	15,460	0.00
Total		**$122,005**		**$7.89**

[1] Billing units for the fixed charge are based on the number of accounts

[2] Billing units for the variable charge are based on the total billable CCF

The distributed costs for each customer class of service are used to develop the proposed rates for the test period, in this case, 2022-23. The total costs are divided by the billing units (e.g., number of dwelling units, accounts, and water consumption in CCF), to develop average unit costs which become the rates. The development of the cost of service and average unit costs are provided in Exhibits 13 and 15 of the Technical Appendix.

4.5 Consultant's Conclusions

The results of the cost of service analysis show that cost differences exist, and HDR is recommending that the City implement cost of service adjustments and realign the rate structures at this time. This realignment is a natural progression in designing rates as the results of the calculation may change between analyses based on consumption habits, the manner in which costs are incurred, system design or operation, etc. Given this the proposed rates presented in the next section of this report will reflect the results of the cost of service analysis and specifically the average unit costs developed in Tables 4 - 4 and 4 - 5.

4.6 Summary

This section of the report has provided a summary of the cost of service analysis developed for the City's wastewater utility. This analysis was prepared using generally accepted cost of service methodologies, techniques and principles along with the City's specific costs, and customer and system characteristics, to meet the requirements of Proposition 218. The next section of the report will review the present and proposed wastewater rates for the City.

5 Wastewater Rate Design

5.1 Introduction

The final step of the City's comprehensive wastewater rate study is the design of proposed rates. The rates are designed to collect a specific level of revenues, based on the results of the revenue requirement and cost of service analyses. In reviewing the City's rates, consideration is given to both the level of the rates and the structure of the rates.

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)
- Compliance with State law

It is important that the City provide its customers with a proper price signal as to what their usage or volumetric contributions are costing. This goal may be approached through rate *level* and *structure*. When developing the proposed rate designs, all the above-listed criteria were 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 customers' ability to pay, and one which is cost-based. In designing rates, there are always trade-offs between these various goals and objectives. However, Proposition 218 requires the implementation of proportional rates as developed in the cost of service analysis (i.e., average unit costs) as such, the above goals and objectives must be considered as part of the development of the cost of service analysis.

5.3 Development of Cost-Based Wastewater Rates

As mentioned, developing cost-based and proportional rates is of paramount importance in developing the City's proposed wastewater rates. While always a key consideration in developing rates, meeting the legal requirements, and documenting the steps taken to meet the requirements, has been in the forefront with the recent legal challenges in the State of California on utility rates. Given this, the development of the City's proposed sewer rates have been developed to meet the legal 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 among the various customer classes of service and the customers within each class. HDR would point out that there is no single methodology for proportionally distributing costs to the various customer groups. The Water Environment Federation Manual of Practice #27 (WEF MOP #27) provides various methodologies which may be used to establish cost-based wastewater rates. Article XIII D is not prescriptive and does not provide a specific methodology for establishing rates. Given that, HDR developed the City's proposed wastewater rates based on generally accepted rate setting methodologies to meet the requirements of Article XIII D.

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 wastewater rates does not exceed the funds required to provide the property-related service (i.e., wastewater service).** The proposed rates are designed to collect the overall revenue requirement of the City's wastewater system.
- **The revenues derived from wastewater rates shall not be used for any purpose other than that for which the fee or charge is imposed.** The revenues derived from the City's wastewater rates are used exclusively to operate and maintain the City's wastewater 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.** The cost of service section of this report focused exclusively on the issue of proportional assignment of costs to customer classes of service. The proposed rates have appropriately grouped customers into customer classes of service (single family, multi-family, commercial) that reflect the varying consumption patterns 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 equity and proportionality expected under Article XIII D 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 proportionally assigned to customer classes of service and customers within each class of service based upon their proportional impacts.

5.4 Overview of the Current Wastewater Rate Structure

It is important to understand that each customer class has a separate rate given the different characteristics as outlined in the cost of service analysis. The single family and multi-family customers use the same rate structure and are charged a flat monthly fixed charge to recover the cost of providing service. However, each customer class has a specific and separate charge reflecting the cost of service results. In contrast, commercial customers use a rate structure with a fixed monthly service charge and a consumption charge. Commercial rates are separated into two separate customer classes: Commercial - Low (strength) and Commercial – High (strength). While both commercial classes of service use the same rate structure, they are charged different rates to reflect their differing cost of service, particularly as it relates to wastewater strength.

5.5 Development of the Proposed Wastewater Rates

Section 5.4 provided a brief summary of the City's current wastewater rate structures. After discussion with City staff, no rate structure changes are recommended at this time. However, as all customers are currently charged the same flat fixed charge, it is recommended that the average unit costs, which vary by customer class, be utilized to calculate the unique fixed (base) charge for each customer class. Additionally, the volumetric charge will continue to be calculated for each commercial customer class. These are based on the unit costs as developed in the cost of service analysis and shown in Tables 4-4 and 4-5.

As noted, the proposed wastewater rates are based on the results of the overall revenue needs (revenue requirement) and the proportional distribution of costs (cost of service results). Provided below in Table 5 – 1 is a summary of the current and proposed wastewater rates. As a note, the rates are implemented at the start of the fiscal year, or July 1 of each year.

Table 5 – 1
Summary of the Present and Proposed Wastewater Rates

	Present Rates	2022-23	2023-24	2024-25	2025-26	2026-27
Base Charge ($/month)						
Single Family	$34.65	$49.88	$58.61	$68.87	$79.54	$91.87
Multi-Family	34.65	47.90	56.28	66.13	76.38	88.22
Com / Ind - Low	34.65	39.43	46.33	54.44	62.88	72.63
Com / Ind - High	34.65	42.14	49.51	58.17	67.19	77.60
Consumption Charge ($/CCF)						
Com / Ind - Low	$2.85	$4.06	$4.77	$5.60	$6.47	$7.47
Com / Ind - High	7.42	7.89	9.27	10.89	12.58	14.53

5.6 Summary

The City's proposed wastewater rates are contemporary in design and reflect the rate structures used by other similar utilities in California, both locally and statewide. Based on the City's constraints and characteristics, the proposed sewer rates appropriately reflect the cost to provide service and are cost-based and proportional to the City's customers. Full and complete technical appendices of the development of the City's comprehensive wastewater rate study and the proposed rate adjustments can be found in appendices of this report.

Technical Appendix