



# Final 2023 Comprehensive Rate and Capitalization Fee Studies



City of Coeur d'Alene Wastewater Division  
Wastewater Rate and Capitalization Fee Studies

March 23, 2023  
*Coeur d'Alene Idaho*



March 23, 2023

Mr. Michael Becker  
Wastewater Department Capital Program Manager  
City of Coeur d'Alene  
710 East Mullan Avenue.  
Coeur d'Alene, Idaho 83814

**Subject: City of Coeur d'Alene Comprehensive Wastewater Rate Study**

Dear Mr. Becker:

HDR Engineering, Inc. (HDR) is pleased to present the final report on the comprehensive wastewater rate and capitalization fee study conducted for the City of Coeur d'Alene (City). A key objective in developing the City's comprehensive wastewater rate and fee study was to develop a financial plan, and subsequent proposed rates and fees that generate adequate revenues to fund the operating and capital needs of the wastewater utility. Another objective of this study was to determine the equity or fairness of the current rates by conducting a cost of service analysis. This report outlines the approach, methodology, findings, and conclusions of the comprehensive wastewater rate and fee study process.

This report was developed utilizing the City's accounting, 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. The conclusions and recommendations contained within this report are intended to provide a financial plan that meets the needs for the operation, maintenance, replacement, and depreciation of the utility. Finally, this report provides the basis for developing and implementing rates and fees that are cost-based, defensible, and equitable to the City's customers.

We appreciate the assistance provided by City staff in the development of this study. More importantly, we appreciate the opportunity to work with the City of Coeur d'Alene's staff, management, and City Council on this project.

Sincerely yours,  
HDR Engineering, Inc.

David Clark, PE  
Senior Vice President

Shawn Koorn  
Associate Vice President



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# Executive Summary

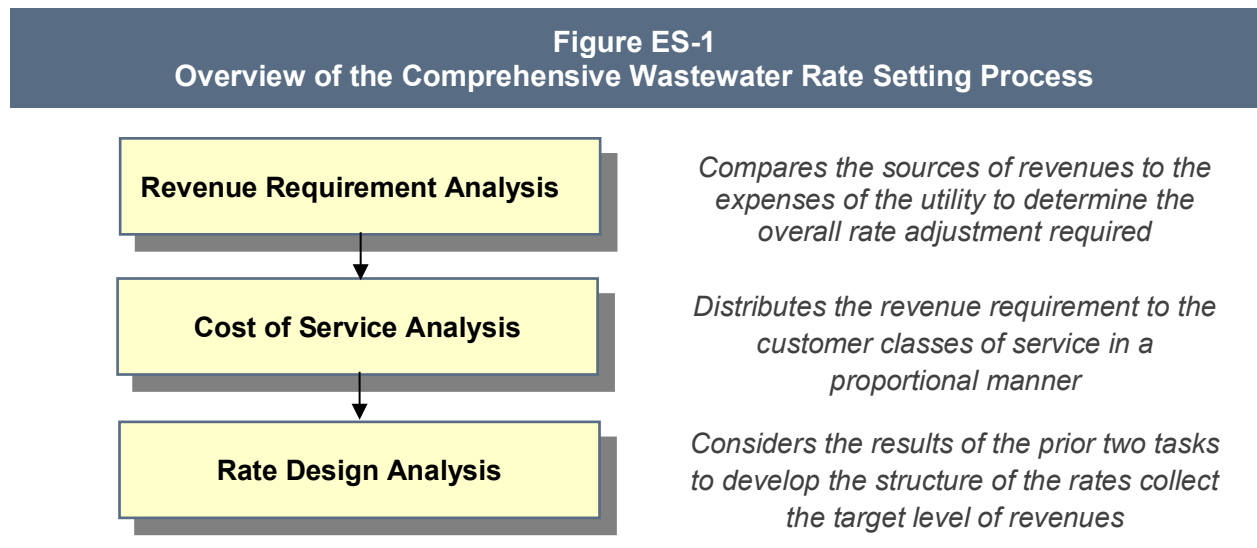
## Wastewater Rate Study

The City of Coeur d'Alene (City) retained HDR Engineering, Inc. (HDR) to perform a comprehensive rate and fee study for its wastewater utility. A comprehensive rate and fee study determines the adequacy of the existing wastewater rates and fees and provides the basis to maintain cost-based and equitable rates and fees. This report will describe the methodology, findings, and conclusions of the wastewater rate and fee study process undertaken for the City. The City has historically completed rate studies periodically to support the financial requirements of the wastewater utility, most recently in 2002, 2012 and 2018. This study is a continuation of the City's policy to maintain cost-based and equitable rates and fees for the next five-year period.

A comprehensive rate study determines whether existing rates are adequate to meet the utility's operating and capital expenses with revenues received from customers. Rates set too low may result in insufficient funds to maintain system integrity. The study provides a basis for making rate adjustments; as well as, addressing the fairness and equity of the City's current rates. As a point of reference, the summary of the CAP Fee is provided later in this section, as well as a detailed discussion in Section 7 of this report.

## Overview of the Rate Study Process

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



A revenue requirement analysis is concerned with the overall revenues and expenses, both operating and capital, of the utility. From this analysis, a determination can be made as to the overall level of adjustment to revenues necessary to meet annual needs. Next, a cost of service analysis is performed to equitably allocate costs from the revenue requirement to system cost drivers such as volume and strength and then distributes the allocated costs to the customer classes

of service (e.g., residential, commercial). Finally, once an overall level of rate adjustment is determined, and the costs have been distributed to the customer classes, the last step of the rate study process is the design of rates. The rate design considers the appropriate level of revenues to collect, for each customer class of service, while considering rate design goals and objectives of the utility (e.g., revenue stability, cost-based, continuity in philosophy).

## Key Wastewater Rate Study Results

A comprehensive rate study was undertaken to financially evaluate the wastewater utility on a stand-alone basis. That is, no subsidies between the wastewater utility and the City's other utility funds should occur. By viewing the wastewater utility on a stand-alone basis, the need to adequately fund both operations and maintenance (O&M) expenses and annual capital infrastructure needs must be balanced against the rate impacts to customers.

Based on the technical analysis undertaken as part of this study, the following findings, conclusions, and recommendations were noted.

- ✓ Total wastewater capital projects for the period of 2023 – 2032 total \$82.7 million including estimated inflationary impacts. These include the major projects listed below:
  - ✓ Equipment and Capital Replacement projects total \$17.7 million.
  - ✓ Tertiary Membrane Filter (TMF) expansion projects total \$14.5 million.
  - ✓ Collection system Improvements total \$8.7 million.
  - ✓ Trickle Filter Rehabilitation projects total \$8.7 million
  - ✓ Solids Handling Improvements total \$5.9 million
  - ✓ Ultraviolet (UV) Disinfection Upgrades total \$5.1 million
- ✓ A revenue requirement analysis was developed for the time period of 2023 – 2032. With the focus being on the next five-year period (2023 – 2027) for establishing proposed rates.
- ✓ A cost of service analysis was completed to review the equity of the existing rates.
- ✓ The cost of service results indicate that generally, residential and commercial are within a reasonable range of their cost of service.
- ✓ Low Income Residential rate was reassessed to better align with their cost to serve.
- ✓ Fernan Rates are being transitioned over the five-year period to be equal to the regular residential and commercial rates.
- ✓ Proposed rates were developed for the next five-year of period of 2023 through 2027 based on the overall revenue needs and cost of service results.
- ✓ The capital funding analysis assumes long-term borrowing of \$7 million in 2028, which is beyond the five-year rate window. The City will reassess the need for the long-term borrowing during the next rate study
- ✓ Prior to the end of 2027, final adopted effective rates, the City should review the need for additional rate adjustments and complete an update of the comprehensive rate study.

## Summary of the Revenue Requirement Analysis

A revenue requirement analysis sums the wastewater utility's annual O&M expenses and capital improvement needs and compares it to the total revenues of the utility to determine the overall rate adjustment required. Provided below in Table ES-1 is a summary of the wastewater revenue requirement analysis.

<b>Table ES-1</b>					
<b>Summary of Wastewater Utility Revenue Requirement (\$000s)</b>					
	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>
<b>Sources of Funds –</b>					
Rate Revenues	\$14,219	\$14,324	\$14,430	\$14,537	\$14,645
Misc. Revenues	86	140	104	86	76
<b>Total Source of Funds</b>	<b>\$14,304</b>	<b>\$14,464</b>	<b>\$14,534</b>	<b>\$14,623</b>	<b>\$14,721</b>
<b>Applications of Funds –</b>					
Wastewater Personnel Costs	\$3,587	\$3,694	\$3,805	\$3,919	\$4,037
Administration	1,172	1,211	1,251	1,293	1,336
Treatment	2,507	2,602	2,701	3,211	3,338
Collection	153	160	167	174	182
Sludge Management	146	151	156	162	168
Rate/Reserve Funded Improvements	4,600	4,700	4,850	5,200	5,650
Net Debt Service	3,013	3,013	3,013	3,013	3,015
Change in Working Capital	-	0	0	0	0
<b>Total Application of Funds</b>	<b>15,177</b>	<b>15,530</b>	<b>15,943</b>	<b>16,972</b>	<b>17,726</b>
Bal./(Defic.) of Funds	(\$873)	(\$1,067)	(\$1,410)	(\$2,349)	(\$3,005)
Balance as a % of Rates	6.1%	7.4%	9.8%	16.2%	20.5%
<b>Proposed Rate Adjustment</b>	<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>

It is important to note the annual deficiencies in the Table ES-1 are cumulative. That is, any adjustments in the initial years will reduce the deficiency in the later years. Over the projected time period, rates need to be adjusted by approximately 20.5% in order to adequately and properly fund the City's wastewater utility O&M and capital infrastructure needs.

Based on the revenue requirement analysis developed, HDR recommends the City increase the overall revenue levels of the wastewater utility. Based on the plan developed in this report, the recommended annual adjustments of 5.0% over the five-year rate setting period to provide adequate funding for both O&M and capital funding based on the assumptions developed as part of the rate study.

## Analyzing Cost of Service

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

1. Costs are functionalized or grouped into the various cost categories related to providing service (pumping, treatment, collection, 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 specific cost components. Allocation refers to the arrangement of the functionalized data into cost components. For example, a wastewater utility's costs are typically classified as volume, strength, or customer-related.
3. Once the revenue requirement is allocated to the cost components, the cost component totals are distributed to the customer classes of service (e.g., residential, commercial). The distribution is based on each customer class's relative 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 (e.g., proportional distribution). Once costs are distributed, the required revenues for achieving cost-based rates can be determined.

## Summary of the Cost of Service Analysis

A cost of service analysis determines the proportional distribution of the revenue requirement to each customer class of service. The objective of the cost of service analysis is different from determining the revenue requirement. A cost of service analysis determines the equitable manner to collect the revenue requirement based on the customer class characteristics and facility requirements. A summary of the cost of service analysis for 2023 is shown in Table ES-2.

<b>Table ES-2 Summary of the Cost of Service Analysis (\$000s)</b>				
<b>Customer Class of Service</b>	<b>Present Rate Revenues</b>	<b>Allocated Costs</b>	<b>\$ Difference</b>	<b>% Difference*</b>
<b>Residential</b>	\$8,719	\$8,935	(\$216)	5.4%
<b>Commercial</b>	5,500	5,612	(112)	4.4%
<b>Total</b>	\$14,219	\$14,547	(\$328)	5.0%

\* Percent difference is based on an April of each fiscal year implementation

Table ES-2 provides a comparison of the current rate revenues to the distributed costs for each customer class of service. 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 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. Given all customer classes are within this range, HDR does not recommend interclass changes to rate at this time.



## Rate Design

Rates that meet the utility's objectives are designed based on the results of both the revenue requirement and the cost of service analysis. This results in rates which are cost-based; however, rate design may also consider factors such as revenue stability, affordability, continuity of past rate philosophy, ease of administration, and customer understanding. Table ES-3 provides the current rates as adopted by the City and effective in 2022. The purpose of this study is to evaluate and update, as based on the results of the study, these rate for the next five-year period. At the end of that five year period a rate study will be conducted to set rate for the next five-years.

<b>Table ES-3 Current Wastewater Rates</b>		
<b>Customer</b>	<b>Billing Fee Code</b>	<b>Present Rates</b>
<b>Residential Rates</b>		
<b><u>Monthly Service Charges</u></b>		
Residential	SERS/SERV/SERSL/ SERF/SERMF	\$14.99
<b>Monthly Usage Charge (per dwelling unit)</b>		
Residential	SERS	33.82
Residential (vacation)	SERV	0.00
Residential-Low	SERSL	6.24
Fernan-Residential	SERF	24.17
Duplex-One Meter	SERMF	33.82
<b>Commercial Rates</b>		
<b><u>Monthly Service Charges</u></b>		
Commercial	CWCL/CWCM/CWCH/ SENRO6/SENRF	\$14.99
<b><u>Monthly Usage Charges</u></b>		
Commercial-Low	CWCL	5.61
Commercial-Medium	CWCM	6.44
Commercial-High	CWCH	7.24
Fernan-Commercial	SENRO6	4.86
Fernan-Commercial	SENRF	4.86

The overall revenue adjustments were determined in the revenue requirement analysis to calculate the prudent revenue levels necessary to fund operating and capital expenses. How the overall revenue adjustment is applied by class of service takes into consideration the cost of service results to determine how the overall revenue adjustment is collected.

The cost of service compared the overall rate categories of residential and commercial, but within each of those two categories there are additional sub-categories with different rates. Within the residential category there is single family homes, low use single family homes, and Fernan residential. Within the commercial category there are commercial low, medium, and high strength as

well as Fernan commercial. The rate design portion of the study will adjust the rates to better reflect the sub-category rates impact on the system based on the results of the study.

## Proposed Rates

Based on the revenue requirement and the cost of service analysis proposed rates were developed for the next five-years. Table ES-4 provides the proposed wastewater rates for the next five-year period. The proposed rates were adjusted evenly across the residential and commercial customer groups given the results of the cost of service indicated that the City's customer classes were within a reasonable range. Minor adjustments were made within the residential user group to align customer usage with their usage charge. Specifically, the residential low and Fernan rates were revised to reflect the average unit costs as developed in the cost of service analysis.

Table ES-4 Present and Proposed Wastewater Rates							
Customer Class and Rate	Billing Fee Code	Present Rates	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
<b>Monthly Service Charge</b>	All Customers	\$14.99	\$15.74	\$16.53	\$17.35	\$18.22	\$19.13
<b>Residential Rates</b>							
<b>Monthly Usage Charge (per dwelling unit)</b>							
Residential	SERS	\$33.82	\$33.18	\$34.83	\$36.58	\$38.40	\$40.32
Residential(vacation)	SERV	0.00	0.00	0.00	0.00	0.00	0.00
Residential-Low	SERSL	6.24	17.72	18.61	19.54	20.52	21.54
Fernan-Residential	SERF	24.17	27.09	30.16	33.39	36.77	40.32
Duplex-One Meter (x2)	SERMF	33.82	33.18	34.83	36.58	38.40	40.32
Residential + ADU-One Meter (x2)	SERADU	33.82	33.18	34.83	36.58	38.40	40.32
<b>Commercial Rates</b>							
<b>Monthly Usage Charges per 1,000 gallons</b>							
Commercial-Low*	CWCL	\$5.61	\$5.89	\$6.19	\$6.49	\$6.82	\$7.16
Commercial-Medium	CWCM	6.44	6.76	7.10	7.46	7.83	8.22
Commercial-High	CWCH	7.24	7.60	7.98	8.38	8.80	9.24
Fernan-Commercial	SENRO6	4.86	5.28	5.71	6.17	6.66	7.16
Fernan-Commercial	SENRF	4.86	5.28	5.71	6.17	6.66	7.16

## Capitalization Fee Study

The objective of a capitalization fee (CAP Fee) study is to calculate a cost-based and legally defensible CAP Fee for new customers connecting to the City's wastewater system. CAP Fees provide how new customers are able to "buy in" to the existing system.

Past legal challenges to CAP Fees has resulted in the development of an approach that reflects these legal decisions. The recent legal decisions outlined a methodology that takes the replacement

cost of the system, less unfunded depreciation and outstanding balance on debt, divided by the number of customer equivalent units that can be served at the existing capacity.

## Defining Capitalization Fees

The first step in establishing cost-based CAP Fees is to gain a better understanding of the definition of a CAP Fee. For purposes of this review, a CAP Fee or “system development charge” is used as interchangeable terms and hold the same meaning and intent. A system development charge is defined as follows:

*“These fees are one-time charges to customer when they connect to the system or by developers as part of the permitting or planning process.”<sup>1</sup>*

System development charges, or CAP Fees as the City refers to them, are a financial contribution to reimburse existing customers for the available capacity in the existing system. The main objective of a CAP Fee is to assess the benefiting (connecting) party their proportionate share of the cost of infrastructure required to provide them service (i.e., accommodate capacity needs).

CAP Fees are generally imposed as a condition of service. The objective of a CAP Fee is not to generate funds for a utility, but to assure that all customers seeking to connect to the utility’s system bear an equitable share of the cost of capacity that has been invested in the existing system. The development of the CAP Fee is based on a customer’s equitable share of the existing system. While some customer demands may vary, the purpose of the CAP Fee is not to exactly reflect the capacity requirements of each customer, but place customers in like groups similar to the rate setting process.

By reviewing and updating the CAP Fees, the City continues an important step in providing adequate infrastructure to new customers in a cost-based, fair, and equitable manner. The City should set CAP Fees which are cost-based while balancing the needs of the City and development community.

## Key Assumption of the CAP Fee Development

In developing the wastewater capitalization CAP Fees, a number of key assumptions are utilized. These are as follows:

- ✓ The City’s asset records are used to determine the existing plant assets and accumulated depreciation.
- ✓ The City provided outstanding principal on debt issued to fund sewer infrastructure.
- ✓ The Engineering News Record Construction Cost Index (CCI) was used to inflate the original cost of assets to an estimated replacement cost.

## Development of the Proposed CAP Fee

The CAP fee is based on the capacity of the existing system. This component results in new customers reimbursing existing customers for the new customer’s equitable share of the available capacity within the existing system that has been funded by existing customers. The process of

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<sup>1</sup> Financing and Charges for Wastewater Systems, Manual of Practice No. 27. Water Environmental Federation, Fourth Edition, Page 200.

calculating the capitalization fees is based upon a multi-step process. In summary form, these steps are as follows:

- ✓ System planning criteria
- ✓ Valuation of the fixed assets
- ✓ Existing system capacity

**Capitalization Fees**

The City's current fees are based the number of population equivalents (PE's) which vary by the type of customer. The established CAP fee is then multiplied by the PE units which is then multiplied by the customer class multiplier. The current single-family multiplier is 2.39 which was the people per household average for a single family home. Table ES-5 Provides current base CAP fee.

<b>Table ES-5 Current Base CAP Fee by System Component</b>	
<b>Component</b>	<b>Total System Fee</b>
Treatment	\$1,115
Collection Mains	177
Lift Stations	11
Compost	7
General Plant	73
<b>TOTALS Per PE</b>	<b>\$1,383</b>

Table ES-6 shows the multiplier, or PE units, for each customer type and the current calculated CAP Fee. As part of the CAP Fee update the PE Units will be reviewed and updated to reflect current conditions.

**Table ES-6  
 Current Wastewater CAP Fee**

<b>Customer Type</b>	<b>PE Units</b>	<b>Calculated CF</b>
<b>Residential</b>		
Single Family Dwelling	2.39 per unit	3,305
Multiple Family Dwelling (2 units)	2.39 per unit	3,305
<b>Commercial-Low</b>		
Bar or tavern	0.20 per seat	277
Factories	0.10 per 100 sq. ft.	138
Hospital	2.50 per bed	3,458
Institution (other than hospital)	1.25 per bed	1,729
Mobile Home	2.32 per unit	3,305
Multiple Family Dwelling (>2 units)	2.20 per unit	3,043
Office Space	0.10 per 100 sq. ft.	138
Retail Space	0.05 per 100 sq. ft.	69
School (without meal preparation)	0.08 per student/staff	111
Warehouse	0.04 per 100 sq. ft.	55
<b>Commercial-Medium</b>		
Hotel or motel (without kitchen facilities in room)	1.30 per unit	1,798
<b>Commercial-High*</b>		
Bakeries	0.20 per seat	351
Bowling Alley	1.00 per lane	1,755
Funeral homes	0.05 per 100 sq. ft.	88
Grocery markets with garbage disposals	0.04 per 100 sq. ft.	70
Hotel or motel (with kitchen facilities in room)	1.60 per unit	2,807
Laundry, commercial	1.90 per washing machine	3,334
Microbrewery	n/a	n/a
Restaurants	0.20 per seat	351
RV Parks	n/a	n/a
School (with meal preparation)	0.13 per student/staff	228
Theaters (indoor and outdoor)	0.03 per seat	53

For customers who do not fit into the classes in Table ES-6, a fee is calculated based on the customer's specific wastewater characteristics such as flow (volume), Biochemical Oxygen Demand (BOD), Total Suspended Solids (TSS), Ammonia, and Phosphorus. In addition to the CAP Fee the wastewater utility also applies a high strength surcharge to Commercial High customers to reflect the capacity impacts higher strength wastewater places on the system. The Current surcharge for high commercial customers is \$371.54 per PE.

### Summary of the CAP Fee Analysis

The CAP fee was updated to reflect the value of current plant assets (e.g., infrastructure). Table ES-7 provides the updated CAP Fee per PE.

<b>Table ES-7 Proposed Base CAP Fees</b>	
<b>Component</b>	<b>Total System Fee</b>
Treatment	\$2,559
Collection Mains	672
Lift Stations	53
Compost	66
General Plant	0
Debt Service Credit	(414)
<b>TOTALS Per PE</b>	<b>\$2,936</b>

Table ES-8 provides the proposed CAP fee by customer type based on the updated analysis. The PE units have been updated based on data provided from the latest US Census bureau data for the City of Coeur d'Alene. As a point of reference, the CAP fee calculation is based on the methodology as provided in the recent and historical legal decisions. This resulted in a CAP fee of \$2,936 per PE which results in a CAP Fee of \$6,665 for a for a single family customer.

**Table ES-8  
 Proposed Wastewater CAP Fee**

<b>Customer Type</b>	<b>PE Units</b>	<b>Calculated CF</b>
<b>Residential</b>		
Single Family Dwelling	2.27 per unit	\$6,665
Multiple Family Dwelling (2 units)	2.27 per unit	6,665
Accessory Dwelling Unit	2.20 per unit	6,460
<b>Commercial-Low</b>		
Bar or tavern	0.20 per seat	\$587
Coffee (or other beverage) Kiosk	0.77 per Kiosk	2,261
Factories	0.10 per 100 sq. ft.	294
Hospital	2.50 per bed	7,341
Institution (other than hospital)	1.25 per bed	3,670
Mobile Home	2.27 per unit	6,665
Mobile or Temporary Vendors	0.70 per vendor or space	2,055
Multiple Family Dwelling (>2 units)	2.20 per unit	6,460
Office Space	0.10 per 100 sq. ft.	294
Retail Space	0.05 per 100 sq. ft.	147
Recreational Vehicle Park	2.08 per RV site	6,107
School (without meal preparation)	0.08 per student/staff	235
Warehouse	0.04 per 100 sq. ft.	117
<b>Commercial-Medium</b>		
Hotel or motel (without kitchen facilities in room)	1.30 per unit	\$3,817
<b>Commercial-High*</b>		
Bakeries	0.20 per seat	\$814
Bowling Alley	1.00 per lane	4,070
Funeral homes	0.05 per 100 sq. ft.	203
Grocery markets with garbage disposals	0.04 per 100 sq. ft.	163
Hotel or motel (with kitchen facilities in room)	1.60 per unit	6,511
Laundry, commercial	1.90 per washing machine	7,732
Brewery	2.30 per Barrels of production capacity	9,360
Restaurants	0.20 per seat	814
School (with meal preparation)	0.13 per student/staff	528
Theaters (indoor and outdoor)	0.03 per seat	122

As noted earlier the Commercial high customers are subject to high strength surcharge. This charge was also update during this analysis. The high strength surcharge has increased to \$1,133.35 which is reflected in the CAP Fee calculated in Table ES-8.

## Summary

This completes the analysis for the City's wastewater utility rate and fee study. It is recommended that rates be adjusted by the proposed rate increases of 5.0% annually in 2023 through 2027. The

CAP Fee has been updated based on existing capacity, total population equivalents, and replacement cost of current plant assets. 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. The recommendations provided in this report were reviewed and adopted in ordinance No. 3715/ Council Bill No. 23-1004, during the City Council meeting on March 7<sup>th</sup> 2023. The adopted ordinance is attached at the end of this report.



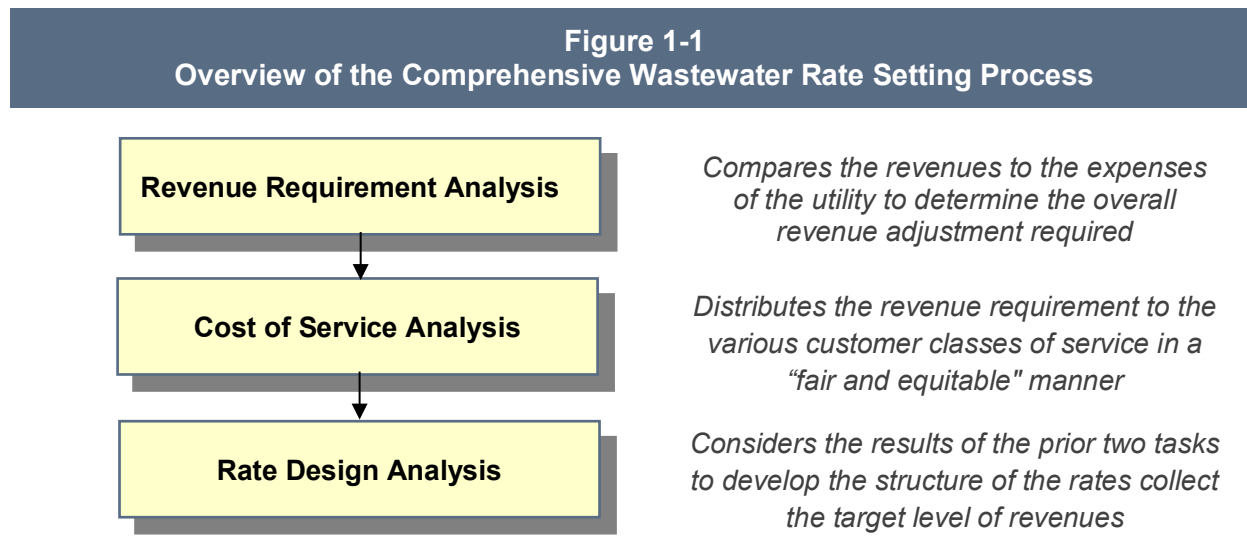
# 1 Introduction

The City of Coeur d'Alene (City) retained HDR Engineering, Inc. (HDR) to perform a comprehensive rate and fee study for its wastewater utility. A comprehensive rate and fee study determines the adequacy of the existing wastewater rates and fees and provides the basis to maintain cost-based rates and fees. This report describes the methodology, findings, and conclusions of the wastewater rate and fee study process undertaken for the City.

This study determined whether existing rates are adequate to meet the utility's O&M and capital expenses with revenues received from customers. Rates set too low may result in insufficient funds to maintain system integrity. The study provides a basis for making rate adjustments; as well as, addressing the equity of the City's current rates.

## 1.1 Overview of the Rate Study Process

This Comprehensive study consists of three interrelated analysis performed for the wastewater utility. Figure 1-1 provides an overview of these analyses.



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 rates. Next, a cost of service analysis is performed to proportionally distribute the revenue requirement to the customer classes of service (e.g., residential, commercial). Finally, once an overall level of rate adjustment is determined and a 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 a part of this study, HDR developed each of these analyses to analyze the City's current wastewater 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 City's wastewater rate and fee study

## 1.2 Report Organization

This report is organized as follows:

- ✓ Section 1 provides background information about the utility rate setting process
- ✓ Section 2 discusses the financial and rate setting policies established for the wastewater utility.
- ✓ Section 3 financial/rate setting policies
- ✓ Section 4 reviews the revenue requirement analysis
- ✓ Section 5 reviews the cost of service analysis
- ✓ Section 6 reviews the rate design analysis
- ✓ Section 7 reviews the update of the capitalization fees

A technical appendices is attached at the end of the report which provides the detailed analysis used in preparation of this report.

## 1.3 Summary

This report will review the comprehensive wastewater rate and fee analysis prepared for the City. 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 methodology used to establish cost-based rates. This provides the methodological foundation for the development of the City's wastewater rates.

## 2 Overview of the Rate Setting Process

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, the cost of service approach, and rate design. This information is useful for gaining a better understanding of the details presented in this report.

### 2.1 Generally Accepted Rate Setting Principle

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

- ✓ Cost-based, equitable, 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 techniques
- ✓ 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

### 2.2 Types of Utilities

Utilities are general divided into two types:

- ✓ **Public utilities** are usually owned by a city, county, or special district, and are theoretically operated at zero profit. A public utility is locally owned since its customers are also its owners.

Public utilities are capitalized, or financed, by issuing debt and soliciting funds from customers through direct capital contributions or user rates. Public or municipal utilities are typically exempt from state and federal income taxes. A publicly elected city council or board of trustees usually regulates public utilities.

- ✓ **Private utilities** are "for profit" enterprises and are owned by a private company and/or stockholders. The shareholders are, in essence, the owners of the private utility. Therefore, the owners of a private utility may not be customers or local citizens, but rather numerous individuals or shareholders spread across the United States.

A private utility is capitalized by issuing stock to the general public. Private utilities are taxable entities. Given their for-profit status, their rates and operations are generally regulated by a state public utility commission or other regulatory body.

As a point of reference, the City's wastewater utility is a public utility, and the analysis has been based on the methodology generally utilized by public utilities.

## 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

Public utilities generally 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 required revenues.
- ✓ Adds operation and maintenance (O&M) expenses to any applicable taxes or transfer payments to determine total operating expenses. Operation and maintenance expenses include the materials, electricity, labor, supplies, etc. needed to keep the utility functioning.
- ✓ Calculates capital costs by adding debt service payments (principal and interest) to capital improvements financed with rate revenues. In lieu of including capital improvements financed with rate revenues, a utility sometimes includes depreciation expense to stabilize 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 wholesale or contract customer. In this situation, a public utility could use the “utility basis” approach (see below) to earn a fair return on its investment.

<b>Table 2-1 Cash versus Utility Basis Comparison</b>	
<b>Cash Basis</b>	<b>Utility Basis (Accrual)</b>
+ O&M Expense	+ O&M Expense
+ Taxes or Transfer Payments	+ Taxes or Transfer Payments
+ Capital Improvements Financed with Rate	+ Depreciation Expense
+ Debt service (Principal + Interest)	+ Return on Investment
= Total Revenue Requirement	= Total Revenue Requirement

### 2.3.2 Private Utilities

Most private utilities use a “utility basis” or accrual approach for establishing revenue requirement and setting rates (see Table 2-1). A private utility typically:

- ✓ Totals its O&M expenses, taxes, and depreciation expense for a period of time. Depreciation expense is a means of recouping the cost of capital facilities over their useful lives and generating internal cash.
- ✓ Adds a fair return on investment.

Private utilities must pay state and federal income taxes along with any applicable property, franchise, sales, or other form of revenue taxes. The return portion of this type of revenue requirement pays for the private utility's interest expense on indebtedness, provides funds for a return to the utility's shareholders in the form of dividends, and leaves a balance for retained earnings and cash flow purposes.

## 2.4 Analyzing Cost of Service

After the total revenue requirement is determined, it is distributed to the users of the service. The distribution, usually 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 (pumping, treatment, collection, 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 specific cost components. Allocation refers to the arrangement of the functionalized data into cost components. For example, a wastewater utility's costs are typically classified as volume, strength, or customer-related.
3. Once the costs are allocated into components, they are **distributed** to the customer classes of service (residential, commercial). The distribution is based on each customer class's relative, or 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 analysis. This results in rates which are cost-based; however, rate design may also consider factors such as revenue stability, affordability, continuity of past rate philosophy, economic development, ease of administration, and customer understanding.

## 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 wastewater utility usually incurs strength-related costs when treating high-strength wastewater. It follows that the customers who have higher strength wastewater 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 price-equals-cost concept provides much of the basis for the subsequent analysis and comments.

## 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 City's analysis. The next section will review the development of the financial and rate setting policies established for this study.

## 3 Financial/Rate Setting Policies

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A key aspect of developing the comprehensive rate and fee study is the use of generally accepted policies to maintain a prudently funded utility. As part of the development of the City's wastewater analyses several key financial policies were included. These financial policies followed best management practices and guidelines as established by the Government Finance Officers Association (GFOA) and were developed as part of the previous City's rate studies.

### 3.1 Basis for Establishing Financial Policies to Aid in Setting Rates

The use of generally accepted financial policies provides the foundation and guidelines around which rates are established. They, in essence, establish the "ground rules" by which the analysis is developed. The outside financial community (rating agencies) views the use of financial policies as a strong indicator of the City's dedication and commitment to managing the wastewater utility in a financially prudent and sound manner.

### 3.2 Key Financial/Rate Setting Policies

Provided below is a summary of the key financial and rate setting policies that were taken into consideration during the development of the City's wastewater rate and fee study.

#### 3.2.1 Reserve Funds

The City shall strive to maintain adequate fund balances (reserves) in order to provide sufficient cash flows to meet operating and capital expenses.

Maintaining adequate reserve levels will allow the City to manage the various financial fluctuations. Furthermore, these reserve funds are to provide working capital for normal and ordinary operations, while also providing the ability to address economic downturns and system emergencies. As a part of the policy statement, specific policies regarding the following reserve funds were established.

- ✓ Operating Cash (a minimum funding of 60 days of O&M)
- ✓ Equipment Replacement Reserve (minimum annual replacement value)
- ✓ Capitalization Reserve (no minimum)
- ✓ Bond Reserve (annual debt service payment)

#### 3.2.2 Establishing Rates and Fees

The City's wastewater rates, and capital fees should be reviewed annually to provide greater assurance of sufficient operating revenues, maintain sufficient reserves, and provide an opportunity for the City to implement a planned and smooth transition for any needed rate adjustments.

This policy does not imply that rates must be adjusted each year, simply that the rates are reviewed in the context of these policies to assure that they are adequately funding the utility. This policy provides a detailed discussion of the analytical approach or methodology that should be used in reviewing the City's wastewater rates and fees. This includes the development of the following analyses:

1. Revenue Requirement Analysis
2. Cost of Service Analysis
3. Rate Design Analysis

In addition, the section of the financial policies addresses the establishment of Capitalization Fees (CAP Fees). CAP Fees are related to the cost of the existing capacity to serve new customers. CAP Fees should be established such that they reflect the City's policy or philosophy as it relates to the sharing of growth-related costs between existing customers and new customers connecting to the system.

### 3.2.3 Debt Issuance and Debt Management

The issuance of long-term debt is a valuable funding resource for the utility. Used appropriately and prudently, long-term debt can help minimize the utility's rates over time. The City shall minimize dependency on debt financing capital projects. Annual renewal and replacement capital projects should be adequately funded from rates. Long-term debt should be considered for unusually large capital improvement projects or greater than normal capital plans.

As noted, the prudent use of long-term debt to finance capital projects can be an effective tool to help the City minimize rates over time. This actually begins by providing a clear policy related to the funding of renewal and replacement projects. Adequately funding these "on-going" capital projects through rates will help minimize long-term borrowing over time. When long-term debt is used, it will likely be for significant non-recurring or unplanned events. The City will attempt to use the lowest cost available debt which does not impose any burdensome covenants or reporting requirements. When debt is issued, the City will, for financial planning purposes, target a 1.50 debt service coverage ratio when legally required. In total, including all debt even those without debt service coverage requirements, the City will target a 1.30 debt service coverage ratio.

## 3.3 Summary

The previous policies were used as guidelines for the development of the City's wastewater rate and fee study. As the City continues to update the wastewater rate and fee studies these policies should be reviewed to determine if they are still relevant and appropriate. The next section will detail the development of the utility revenue requirement analysis.



## 4 Development of the Revenue Requirement

This section of the report describes the development of the wastewater revenue requirement analysis for the City's wastewater rate study. The revenue requirement analysis is the first analytical step in the comprehensive process. This analysis determines the adequacy (level) of the City's overall wastewater rates. From this analysis, a determination can be made as to the overall level of wastewater rate (revenue) adjustment needed to provide adequate and prudent funding for both operating and capital needs. One of the main objectives of a wastewater rate study is to develop cost-based and equitable rates while minimizing the impacts to the utility's customers.

In developing the wastewater revenue requirement, it was assumed the 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 City's 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 City's wastewater utility.

### 4.1 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 a ten-year projected time period (FY 2023 – FY 2032). For purposes of the study, the focus for the analysis was on a five-year time period of FY 2023 through FY 2027, or the next five-year rate setting period. However, it is important to review this extended time period as significant capital improvements are necessary to meet regulatory requirements. 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 second step in determining the revenue requirement for the City was to decide on the basis of accumulating costs. As noted, for the City'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. Section 2 of this report also provided a simple overview of the cash basis methodology. The actual revenue requirement developed for the City was customized to follow the City's system of accounts (budget documents). However, even with these modifications, the City's revenue requirement still contains the four basic cost components of a cash basis methodology. Table 4-1 provides a summary of the specific components within the cash basis approach used to develop the City's revenue requirement.

**Table 4-1**  
**Overview of the Wastewater Utility Cash Basis Revenue Requirement**

+ Wastewater Operation and Maintenance Expenses
✓ Personnel expenses
✓ Administration expenses
✓ Treatment expenses
✓ Collection expenses
✓ Sludge Management expenses
✓ Reporting expenses
+ Net Capital Projects Funded from Rates[1]
+ <u>Debt Service (P + I) – Existing and Future</u>
= Total Wastewater Revenue Requirement
- <u>Miscellaneous Revenues</u>
= Net Revenue Requirement (Balance Required from Rates)
 [1] Net Capital Projects Funded from Rates
+ Total Wastewater Capital Improvement Projects
Funding Sources Other than Rates
✓ Capitalization Fees
✓ Capital Reserves
- <u>✓ Long term debt issues</u>
= Net Capital Improve. Funded From Rates

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 wastewater utility.

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

## 4.2 Projection of Revenues

The starting point of the analysis is the projection of revenues received by the City for providing wastewater services. These revenue sources include rate revenues, or revenues received from customers, as well as miscellaneous revenues received as part of operating a wastewater utility. Provided below is a summary of the revenues received by the City's wastewater utility. It should be noted that this section does not include a discussion on revenues received to fund capital improvements. These funding sources are discussed in the capital funding section of this report as they are a direct funding source for capital improvements.

### 4.2.1 Projecting Wastewater 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 group. The billing units for each customer group were then multiplied by the applicable current rates. This method of independently calculating rate revenues provides the relationship between the projected rate revenues used within the analysis tied to the projected billing units (i.e., customers and usage). The projected billing units by class of service were based on historical billing records.

Currently, the City has two primary classes of service: residential and commercial customers. The majority of the City's rate revenues are derived from residential customers. In total, at present rates, the City is projected to receive approximately \$14.2 million in rate revenue in FY 2023. Over the planning horizon of this study, customer growth is assumed to increase 1.0% annually while actual wastewater volume was assumed to grow at 0.3% annually. With the customer growth and volume growth rate revenue at the 2022 rates is expected to be \$14.6 million in 2027 and \$15.2 in 2032.

#### 4.2.2 Projecting Miscellaneous Revenues

In addition to rate revenues, the City also receives a variety of miscellaneous revenues which includes interest on investments, compost sales, and other revenues. The utility is projected to receive approximately \$85,500 in miscellaneous revenues in FY 2023. The annual level of miscellaneous revenues fluctuates depending on the amount of interest earnings on existing fund balances.

On a combined basis, taking into account the rate revenues along with miscellaneous revenues, the City's total projected revenues are expected to be approximately \$14.3 million in FY 2023, increasing slightly to \$15.4 million in FY 2032 before the projected additional revenue (rate) adjustments.

### 4.3 Projecting Operation and Maintenance Expenses

Operation and maintenance (O&M) expenses are incurred by the City to operate and maintain existing plant in service. In general, operation and maintenance expenses are grouped into several different functional categories (see Table 4-1). HDR reviewed the City's FY 2023 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 City's system of accounts (i.e., treatment, collection, personnel, etc.).

In discussions with City staff a few O&M increases outside of normal inflation were expected. One full time equivalent (FTE) was added to both administrative and treatment personnel in FY 2023 and 2 FTEs were added to collection in FY 2029. The City's capital plan includes Ultraviolet (UV) disinfection upgrades which are expected to increase the wastewater department's electric consumption when they are in service. This increase is estimated to be approximately \$400,000 when the upgrades are operational.

Based on the FY 2023 budgeted expenses, escalation factors were developed for the basic types of expenses the City incurs. The escalation factors used in the analysis were salaries and wages, office and operating supplies, professional services, machinery, and equipment, purchased power, other utilities, repairs and maintenance, and miscellaneous. The escalation factors developed for the projection of the City's O&M expenses were in the range of two to six percent per year, depending on the type of cost and recent inflationary trends. Provided in Table 4-2 is a summary of the escalation factors create with the study.

**Table 4–2  
 Summary of the Escalation Factors**

<b>Type of Expense</b>	<b>Escalation Rate</b>
Salaries and Wages	3.0%
Personnel Benefits	3.0%
Interfund Charges	3.0%
Office and Operating Supplies	3.0%
Professional Services	5.0%
Machinery and Equipment	6.0%
Operational Rentals and Leases	5.0%
Purchased Power	5.0%
Other Utilities	5.0%
Repairs and Maintenance	6.0%
Cost Share Reimbursements	3.0%
Miscellaneous	2.0%

HDR escalated the O&M expenses based on the escalation factors shown in Table 4-2. Total O&M expenses for the City are projected to be approximately \$7.6 million in FY 2023, increasing by an average annual rate of 4.3% to approximately \$11 million by FY 2032 primarily as a result of assumed inflation as well as the estimated increased operation costs from the expansion of the wastewater facility.

## 4.4 Projecting Capital Project Funding

The capital plan used in this rate study includes much higher capital costs that was assumed in the 2018 study. Total wastewater capital projects for the period of FY 2023 to FY 2032 amount to \$82.7 million. The City’s capital projects can be summarized by function, such as treatment, collection, compost, and general plant. This method for grouping capital projects is helpful for allocation purposes and categorizing what types of projects the City is funding on an annual basis. A summary of the wastewater capital improvement projects by functional component is provided in Table 4-3. A more detailed summary of the capital projects is provided in the Technical Appendix.

**Table 4-3  
 Summary of the Wastewater Utility Capital Improvement Plan (000's)**

<b>Project Description</b>	<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>	<b>FY 2028</b>	<b>FY 2029</b>	<b>FY 2030</b>	<b>FY 2031</b>	<b>FY 2032</b>
CIP Plan										
Treatment	\$5,540	\$9,624	\$6,583	\$6,385	\$3,276	\$8,707	\$0	\$4,201	\$2,792	\$0
Collection System	2,357	875	898	921	945	969	995	1,021	1,047	1,074
Compost	0	0	598	0	0	0	0	0	0	0
General Plant	1,750	3,255	3,076	3,156	1,978	2,029	2,109	2,136	2,192	2,249
<b>Total Revenue Requirement</b>	<b>\$9,647</b>	<b>\$13,753</b>	<b>\$11,154</b>	<b>\$10,462</b>	<b>\$6,199</b>	<b>\$11,706</b>	<b>\$3,103</b>	<b>\$7,357</b>	<b>\$6,031</b>	<b>\$3,323</b>
Capital Reserve Funding	\$0	\$0	\$0	\$0	\$0	\$1,294	\$3,247	\$2,863	\$919	\$3,877
<b>Total Capital Investment</b>	<b>\$9,647</b>	<b>\$13,753</b>	<b>\$11,154</b>	<b>\$10,462</b>	<b>\$6,199</b>	<b>\$13,000</b>	<b>\$6,350</b>	<b>\$10,220</b>	<b>\$6,950</b>	<b>\$7,200</b>
Capital Plan Funding										
Operating Fund Reserve	\$600	\$5,087	\$2,235	\$2,303	\$425	\$0	\$0	\$0	\$0	\$0
Capital Improvement Reserve	3,378	0	0	0	0	0	0	0	0	0
CAP Fee Fund	1,069	3,966	4,069	2,959	124	0	0	3,520	0	0
Low Interest Loan	0	0	0	0	0	7,000	0	0	0	0
Rate Funding	4,600	4,700	4,850	5,200	5,650	6,000	6,350	6,700	6,950	7,200
<b>Total Capital Funding</b>	<b>\$9,647</b>	<b>\$13,753</b>	<b>\$11,154</b>	<b>\$10,462</b>	<b>\$6,199</b>	<b>\$13,000</b>	<b>\$6,350</b>	<b>\$10,220</b>	<b>\$6,950</b>	<b>\$7,200</b>

The City's capital improvement plan can be grouped in a different way that reflects how the impact of the capital projects have on the system. These groupings include:



Grouping capital projects in the above categories is helpful when considering how those projects will be funded. The totals by project type are approximate, as some projects could be considered a combination of expansion and renewal and replacement in nature.

For this study, Renewal and replacement projects are funded by reserves and rate funded capital. A common industry standard for rate funded capital is, at a minimum, should be equal to or greater than annual depreciation expense from rates every year. 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. However, 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 is not a sufficient level of funding to replace the existing or depreciated facility. For this analysis sets rate funded capital was set at \$4.6 million in 2023 and increases to \$7.2 million in 2032. The increase in rate funded capital in progressive years enables the City to be better prepared to fund aging infrastructure when it is beyond its useful life.

Expansion projects are projects that increase the system's ability to serve more customers. The majority of the cost of expansion projects are assumed to be funded with CAP Fee funds. CAP fee funds are funds collected from new customers as a buy-in to the existing system.

The remaining projects are funded by reserves and a low interest loan assumed in 2028. The low interest loan is beyond the five-year rate setting period and the City should reassess the needs for this loan approximately one year in advance of 2028 to determine if the loan is actually necessary.

The funding plan in this study was arranged to minimize rates to the greatest extent possible assuming long-term debt, which in part, will be funded through new customer growth (CAP Fees) and rates.

## 4.5 Projection of Annual Debt Service

The final component of the City's revenue requirement is annual debt service. At the present time, the City has three outstanding debt obligations, the 2013 refunding loan, and a 2021 bond with an A and B series.

Debt service on the City's existing debt is \$3.5 million per year. Given the capital improvement plan discussed above, it is projected that the City will need to issue additional debt over the projected time frame. From the capital plan noted above, the assumed additional long-term borrowing needed will be in 2028. The annual debt service payments would begin in 2028 and be approximately \$462,000 per year increasing the total debt service to \$4 million per year. An important aspect of issuing debt is being able to afford annual payments. Debt service coverage (DSC) is a common way of determining if an institution can afford their debt load. Generally, a debt service coverage ratio of greater than 1.25 is assumed to be a good signal that the institution can repay their debt. Assuming 5% rate adjustments over the five-year rate setting period, the City is projected to have a debt service coverage ratio greater than 2.0.

## 4.6 Summary of the Revenue Requirement Analysis

Given the above projections of revenues and expenses, a summary of the revenue requirement for the City's wastewater utility can be developed. In developing the final revenue requirement, consideration was given to the financial planning considerations of the City. 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 as well as meeting the target DSC. Presented in Table 4-4 is a summary of the wastewater revenue requirement. A detailed analysis of the revenue requirement can be found in the Technical Appendices.

**Table 4-4**  
**Summary of Wastewater Utility Revenue Requirements (\$000s)**

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027	FY 2028	FY 2029	FY 2030	FY 2031	FY 2032
<b>Sources of Funds –</b>										
Rate Revenues	\$14,219	\$14,324	\$14,430	\$14,537	\$14,645	\$14,754	\$14,864	\$14,975	\$15,087	\$15,200
Misc. Revenues	86	140	104	86	76	80	86	90	93	96
<b>Total Source of Funds</b>	<b>\$14,304</b>	<b>\$14,464</b>	<b>\$14,534</b>	<b>\$14,623</b>	<b>\$14,721</b>	<b>\$14,834</b>	<b>\$14,949</b>	<b>\$15,065</b>	<b>\$15,180</b>	<b>\$15,296</b>
<b>Applications of Funds –</b>										
Total O&M Expenses										
Wastewater Personnel Costs	\$3,587	\$3,694	\$3,805	\$3,919	\$4,037	\$4,158	\$4,533	\$4,669	\$4,809	\$4,953
Administration	1,172	1,211	1,251	1,293	1,336	1,380	1,426	1,474	1,523	1,575
Treatment	2,507	2,602	2,701	3,211	3,338	3,472	3,611	3,756	3,908	4,066
Collection	153	160	167	174	182	190	199	208	217	227
Sludge Management	146	151	156	162	168	174	181	187	194	201
Rate Funded Improvements	4,600	4,700	4,850	5,200	5,650	6,000	6,350	6,700	6,950	7,200
Debt Service	3,013	3,013	3,013	3,013	3,015	3,476	3,479	3,470	3,476	3,475
<b>Total Application of Funds</b>	<b>15,177</b>	<b>15,530</b>	<b>15,943</b>	<b>16,972</b>	<b>17,726</b>	<b>18,850</b>	<b>19,779</b>	<b>20,463</b>	<b>21,077</b>	<b>21,697</b>
Bal./(Defic.) of Funds	(\$873)	(\$1,067)	(\$1,410)	(\$2,349)	(\$3,005)	(\$4,016)	(\$4,829)	(\$5,399)	(\$5,897)	(\$6,401)
Balance as a % of Rates	6.1%	7.4%	9.8%	16.2%	20.5%	27.2%	32.5%	36.1%	39.1%	42.1%
<b>Proposed Rate Adjustment</b>	<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>	<b>2.0%</b>	<b>2.0%</b>	<b>2.0%</b>	<b>2.0%</b>
Revenue from Rate Adj.	\$328	\$1,063	\$1,846	\$2,680	\$3,567	\$4,511	\$5,239	\$5,683	\$6,142	\$6,616



It is important to note the annual deficiencies (line noted as “Bal/(Defic.) of Funds”) in Table 4-4 are cumulative. That is, any adjustment in the initial years will reduce the cumulative 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 \$873,000 in FY 2023 to \$6.4 million by FY 2032. These results indicate that the City’s wastewater rates will need to increase by approximately 42% over the next ten years, and 20.5% for the five-year rate setting period.

The City’s fiscal year is from October 1 to September 30, and they have historically set new rates as of April 1<sup>st</sup>. Given the mid fiscal year rate adjustment implementation the analysis assumes revenue collected by a 5% rate adjustment will have roughly half that impact on revenue collections for the year implemented. The calculation of the proposed rate adjustments is based on the annual balance or deficiency of funds. The annual balance or deficiency of funds is divided by the current rate revenues and multiplied by approximately 50% to determine the percentage rate adjustment necessary to fund annual operating and capital expenses. The proposed rate adjustments were set to be an evenly distributed rate adjustment over the next five-years. The rate deficiencies in 2023 is funded from reserves but it is projected to be made up in the remaining rate setting period.

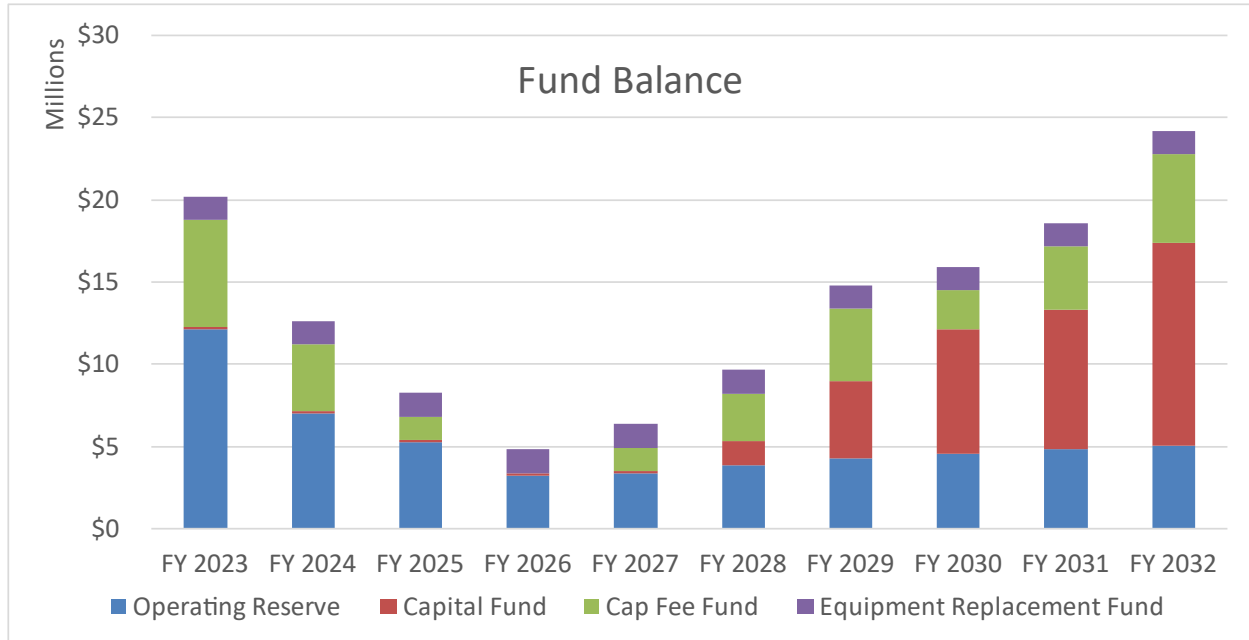
## 4.7 Projection of Debt Service Coverage Ratios

Generally speaking, long-term debt includes rate covenants requiring rates to be set at an adequate level to assure meeting a specified minimum debt service coverage ratio (DSC). This rate covenant is a financial measure of the utility’s ability to repay the debt. Even absent a required minimum DSC ratio it is important for the City to ensure that current revenues are sufficient to properly fund current, and future, annual debt service payments. In general, rates must be established at a level such that revenues less operating expenses will be 1.25 times greater than the maximum annual debt service payment on the outstanding debt. Given a minimum DSC, it is often prudent to plan or set rates at a level which exceeds this minimum. Based on the financial policies the DSC, for all outstanding debt, is set at 1.35. This helps to assure meeting the minimum DSC, and at the same time, provides a slight cushion for unexpected changes. This should also strengthen the City’s ability to issue long-term debt in the future, if necessary, since rating agencies would review the City’s past financial performance/results, along with their future ability to repay long-term debt.

Absent the proposed rate adjustments, the City debt service coverage ratio is projected decline over the 10 years of the analysis below required minimum levels. This is due to the increases in O&M and the issuance of debt in 2028. After the proposed rate adjustments, the City will be able to be well above the target DSC for the time period reviewed.

## 4.8 Projection of Ending Reserve Fund Levels

Reserves are a critical aspect of a utility’s financial standing. Maintaining prudent ending reserve balances provide several benefits to a utility. First, it provides a safety net to fund unforeseen increases in annual O&M costs. Second, when issuing long-term debt, the financial market requires sufficient reserves prior to issuing additional debt. Finally, and specific to the City’s analysis, given the uncertainty of available long-term funding for future improvements, it is critical that the City be able to cash finance portions of the project if long-term debt is not available. Based on the assumptions of the analysis, the projected financial plan has maintained reserve levels that exceed the minimum reserve levels. The following chart shows the cumulative ending fund balance.



The chart shows a significant decline in fund balance in the 2023 through 2026 period. This decline is caused by the use of reserves for capital projects. Notably beyond 2026 the reliance on fund balance to fund capital stops and fund balances recover through 2032.

## 4.9 Consultant’s Recommendations

Based on the revenue requirement analysis developed, HDR recommends the City increase the overall revenue levels of the wastewater utility based on the proposed rate adjustments shown in Table 4-4 during the next five-year period. The first proposed rate adjustment would be in FY 2023. Subsequent years of adjustments, through FY 2027 are proposed, to fund capital costs and increasing O&M costs. Table 4-5 shows the proposed rate transition plan for the next five-year period. The proposed rate adjustments would allow the City to fund projected O&M and capital needs over the next five-year period for the wastewater utility.

<b>FY 2023</b>	<b>FY 2024</b>	<b>FY 2025</b>	<b>FY 2026</b>	<b>FY 2027</b>
5.0%	5.0%	5.0%	5.0%	5.0%

## 4.10 Summary

This section of the report has provided a review of the City’s wastewater revenue requirement analysis. The revenue requirement developed a financial plan to support the City’s operating and capital infrastructure requirements for the wastewater utility. The next section will discuss the cost of service analysis, or the proportional distribution of costs, to the various customer’s served by the City.

## 5 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 City's wastewater utility operating and capital needs. 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 various customer classes of service (e.g., residential, commercial). The previously developed revenue requirement was allocated and distributed in the cost of service analysis for this study.

In recent years, increasing emphasis has been placed on cost of service studies by government agencies, customers, utility regulatory commissions, and other parties. This interest has been generated in part by continued inflationary trends, increased operating and capital expenditures, and concerns of equity in rates among customers. Following the generally-accepted guidelines and principles of a cost of service analysis will inherently lead to rates which are equitable, cost-based, and not viewed as arbitrary or capricious in nature.

### 5.1 Objectives of a Cost of Service Study

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

- ✓ Distribute the revenue requirement among the customer classes of service
- ✓ Derive average unit costs for subsequent rate designs

The objectives of the wastewater 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 fair and equitable manner to collect the revenue requirement.

The cost of service analysis results in unit costs which can be used to design wastewater rates are designed which reflect the costs incurred by the customers. For example, a wastewater 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.

### 5.2 Determining the Customer Class of Service

The first step in a cost of service study is to determine the customer classes of service. The goal of determining customer classes is to group customers with similar usage characteristics together. The City has two types of customers, residential and commercial. Within those main types of customers there are sub-groups that have slightly different rates. these groups and sub-groups are:

#### **Residential**

- Residential
- Residential – Low use
- Residential – Vacation

- Residential – Fernan

### **Commercial**

- Commercial Low strength (includes multifamily >2 units)
- Commercial medium strength
- Commercial high strength
- Commercial - Fernan

The differences between the four residential customer rates are a function of the assumed volume. While the regular residential rate consists of the typical household including duplexes, the low use rate is for customer who use no more than 2,500 gallons per winter month which is roughly half of the regular residential customers estimated usage, while the vacation rate assumes no usage.

Commercial user rates are different based on the level of wastewater strength. Commercial low is assumed to be like residential wastewater strength. Commercial medium has higher wastewater strength than residential and commercial high has higher strength wastewater than medium.

Both residential and commercial customer types have rates for customers who reside in City of Fernan Lake Village (Fernan). Rates for Fernan customers is a result of an agreement between Fernan and The City adopted in 1977. At this time, the agreement on the approach to establishing rates has been reviewed by the City and it was determined that the rate for the Fernan residential customers would be transitioned to the proposed City residential rate.

For cost of service purposes the customer classes of service will be the main customer groups of residential and commercial. However, the unit costs developed as part of the study were used to establish the proposed rates for residential low use customers, which are defined as those customers using less than 2,500 gallons per month.

## **5.3 General Cost of Service Procedures**

A cost of service study utilizes a three-step approach to review costs. These were previously discussed in our generic discussion in Section 2, and take the form of functionalization, allocation, and distribution. Provided below is a detailed discussion of the wastewater cost of service study conducted for the City, and the specific steps taken within the analysis.

### **5.3.1 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 wastewater utility generally incurs costs for pumping, treatment, collection, etc. Within this study, the functionalization of the cost data was largely accomplished through the City's system of accounts and asset data.

### **5.3.2 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 City's plant accounts, and revenue requirement were reviewed and allocated using the following cost classifiers:

- ✓ **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 and a portion of treatment 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 treatment of high “strength” wastewater. Strength of wastewater is typically measured in biochemical oxygen demand (BOD), total suspended solids (SS), Ammonia (A), and phosphorus (P). Increased strength 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 addition or deletion 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.

### 5.3.3 Development of Distribution Factors

Once the allocation process is complete, the allocated costs are distributed to each customer class of service. For the City’s study, allocated costs were distributed to the various customer groups 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 the winter water usage, from metered water sales, plus assumed I&I for each class of service for the projected test period.
- ✓ **Strength Distribution Factor:** Strength related costs are allocated between biochemical oxygen demand (BOD), suspended solids (SS), ammonia (A), and phosphorus (P). These types of costs are allocated to the various classes of service based upon the relative estimated strengths that each class of service contributed to the overall flow at the plant. The City’s strength characteristics by class of service

#### Terminology of a Wastewater 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 allocated as volume related vary with the total flow of wastewater (e.g., chemical use at a treatment plant).

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

**CUSTOMER COSTS** – Costs allocated 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.

were estimated within this study based on estimated industry standard values and the strength of wastewater received at the treatment plant.

- ✓ **Customer Distribution Factor:** Customer costs within the cost of service study are distributed to the various 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 distribution factors were developed, actual and customer service and accounting. Actual 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. Customer service and accounting was developed based on the number of living units associated with each account. For this study, the customer service and accounting were not used in distributing costs to the customer classes of service.

Given the development of the distribution factors, the final step in the cost of service study is to distribute the allocated costs to the identified customer classes of service.

## 5.4 Functionalization and Allocation of Plant in Service

In performing the functionalization of plant in service (infrastructure), HDR utilized the City's historical plant records. Once the plant assets were functionalized, the analysis shifted to the 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 City's assets were allocated to the following cost components: 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 classification process used.

After a detailed review of the City's asset records, the functionalized plant (infrastructure) was allocated based on generally accepted cost allocation methods and an understanding of the City's operations and facility requirements. Lift stations are sized to meet total wastewater flows and therefore are considered 100% volume based. The collection plant, or sewer mains, are sized to meet total flows. However, there is also a customer component considered for collection mains. This assumes that the investment in collection lines is a function of both flow of wastewater and the number of customers served. Therefore, collection mains were allocated as 90% volume and 10% actual customer related. In reviewing the design for the treatment plant, it was allocated as 30% to volume-related, 2% biochemical oxygen demand (BOD)-related, 21% suspended solids (SS)-related, 18% ammonia (A)-related, and 29% phosphorus (P)-related. The compost was allocated 12% volume related, 4% biochemical oxygen demand (BOD) related, 61% suspended solids (SS) related, 4% Ammonia (A) related, and 19% phosphorus (P) related. A more detailed exhibit of the City's functionalization and classification of wastewater plant investment can be found in the Technical Appendix. Provided in Table 5-1 is a summary of the allocation of the wastewater plant in service

**Table 5–1  
 Summary of the Allocation of Wastewater Plant in Service**

Category	Volume Related	BOD Strength Related	SS Strength Related	A Strength Related	P Strength Related	Customer Related
Treatment	30%	2%	21%	18%	29%	0%
Compost	12%	4%	61%	4%	19%	0%
Lift Stations	100%	0%	0%	0%	0%	0%
Sewer Lines	90%	0%	0%	0%	0%	10%

## 5.5 Functionalization and Allocation of Operating Expenses

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

For the City’s study, the revenue requirement for FY 2023 were functionalized, allocated, and distributed. As noted earlier, the City 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 revenue requirement can be found in the Technical Appendix, Exhibit 10.

## 5.6 Major Assumptions of the Cost of Service Study

A number of key assumptions were used within the City’s wastewater 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 2023. The revenue and expense data was previously developed within the revenue requirement analysis.
- ✓ A cash basis approach was utilized which conforms to generally accepted wastewater cost of service approaches and methodologies. Under the cash basis approach, the revenue requirements previously developed are allocated 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 City specific data, and knowledge of the City’s operations.
- ✓ Customer volumes used within this study for purposes of developing the distribution factors were estimated for each class of service based on historical winter water usage information provided by the City.

## 5.7 Summary Results of the Cost of Service Analysis

In summary form, the cost of service analysis began by functionalizing the City’s infrastructure records and operating expenses. The functionalized infrastructure and operating expenses were

then allocated to their various cost components based on industry standard methodologies. The individual allocation totals were then distributed to the various customer classes of service based on the corresponding distribution factor. The distributed expenses for each customer group were then aggregated to determine each customer group's overall revenue responsibility. A summary of the detailed cost responsibility developed for each class of service is shown below in Table 5-2.

<b>Table 5–2 Summary of the Cost of Service Analysis (\$000s)</b>				
<b>Customer Class of Service</b>	<b>Present Rate Revenues</b>	<b>Allocated Costs</b>	<b>\$ Difference</b>	<b>% Difference</b>
Residential	\$8,719	\$8,942	(\$223)	5.5%
Commercial	5,500	5,605	(105)	4.2%
<b>Total</b>	<b>\$14,219</b>	<b>\$14,547</b>	<b>(\$328)</b>	<b>5.0%</b>

The allocation of costs reflects the benefits received from infrastructure in place to provide service and the resulting operating expenses for each customer class of service. The difference between the rate revenues and distributed costs for each class of service represents the variance from current rate levels to reflect this 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. Given this, if a customer class is within +/- 5% of the system total, they are generally considered to be reasonable. For this study, both customer classes only vary slightly from the overall system revenue adjustment of 5%. Cost of service relationships can change over time given changes in the way costs may be incurred, along with changes in customer and system characteristics.

The revenue requirement determined the overall revenue adjustment necessary to fund operating and capital expenses. The cost of service results provide an indication of how the overall revenue adjustment should be collected. In this case, given the results of the cost of service analysis, no cost of service adjustments are proposed given a reasonable difference between the allocations of the customer classes of service. In this way, the City will continue its practice of charging cost-based rates.

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 unit costs. Unit costs are based on the allocation of costs between the various cost of service characteristics divided by the appropriate volume or pounds by component. These unit costs can be helpful when developing equitable rate designs for wastewater customers. Provided in Table 5-3 is a summary of the unit costs.



<b>Table 5-3 Summary of the Unit Costs</b>				
<b>Flow</b>	<b>Biochemical Oxygen Demand (BOD)</b>	<b>Suspended Solids (SS)</b>	<b>Ammonia (A)</b>	<b>Phosphorus (P)</b>
<b>\$3.93 / kgal</b>	<b>\$0.0493 / lb</b>	<b>\$0.5254 / lb</b>	<b>\$3.1200 / lb</b>	<b>\$27.0940 / lb</b>

These unit costs were developed based on the allocation of costs for each component, flow, BOD, SS, A, and P, divided by the estimated total system flow and total pounds based on the annual flow and wastewater strength. One of the key uses of this data is to determine the rate differential between the commercial customer classes of low, medium, or high strength

## 5.8 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. HDR recommends reviewing the results of the cost of service in context of past cost of service studies, and known changes to system or customer characteristics. As noted, generally if a customer class results are within 5% of the overall increase, the results are reasonable, and no specific cost of service adjustments are necessary. However, if specific changes are known, or projected, cost of service adjustments could be made to reflect these changes. The cost of service results for each customer class is less than 5% greater or less than the overall rate adjustment and as a result, no interclass adjustments are proposed. These results are consistent with the 2018 study where both residential and commercial results were within 5% of the overall rate adjustment.

## 5.9 Summary

This section of the report has provided a summary of the cost of service analysis developed for the City of Coeur d’Alene wastewater utility. This analysis was prepared using generally accepted cost of service techniques. The next section of the report will review the present and proposed wastewater rates for the City.

## 6 Development of the Rate Designs

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 wastewater 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.

### 6.1 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. It is important that the City provide its customers with a proper price signal as to what their usage is 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 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.

### 6.2 Review of the Overall Rate Adjustment

As indicated in the revenue requirement and the cost of service analyses, the priority for the wastewater utility was to transition the overall level of the wastewater rates to meet financial needs. A rate transition plan was developed to prudently fund the utility's operating and capital infrastructure needs. Provided in Table 6-1 is a summary of the proposed revenue adjustments for the next five-year period.

**Table 6–1  
 Proposed Rate Transition Plan – Overall System Adjustments**

	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
<b>Proposed Rate Adjustment</b>	<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>	<b>5.0%</b>

While the revenue requirement analysis resulted in the proposed revenue transition plan, it does not take into consideration the allocation of costs between the various customer classes of service. In developing the final rates, the cost of service results need to be taken into consideration. For this study, the results of the cost of service analysis showed minimal cost of service differences between the customer classes of service. Therefore, the rate transition plan will be applied to the proposed rates.

### 6.3 Present and Proposed Rates

In developing the proposed rate designs, the City’s existing rate structures were reviewed. The existing rate structure is contemporary in nature and has a separate rate for residential customers and commercial customers. The commercial customer rate structure is further defined by strength category (low, medium, high). The monthly service charge rate was increased 5% for all customers including all residential customers and all commercial customers.

In addition to the monthly service charge residential customers are charge a monthly usage charge. For this study the usage charge was adjusted to better reflect the proportionate nature of the charge. Currently the low use customer pay the a monthly use charge that is only 18% of the regular residential usage charge. To qualify for the low usage charge a customer must use less than 2,500 gallons each month during the winter months. The low use rate was adjusted to equal 53% of the regular residential usage rate to better reflect the actual difference in wastewater for low usage customers. Since the low usage charge increased at a much higher rate than the overall adjustment, that means that the regular residential usage charge could increase by a lesser amount to meet the overall 5% increase in revenue.

Another change in rates proposed for this study was to phase out the Fernan rate over the five-year rate setting period. Phasing out the Fernan rate was done by raising the usage rate 5% plus an additional \$1.72 per month annually. By the end of the five-year period the Fernan residential rate will be the same as the Coeur D’Alene residential rate. The same change was made to the Fernan commercial rate, but the volume rate was increased 5% plus \$0.17 per thousand gallons annually to match the Coeur D’Alene commercial low rate by 2027.

Rates were designed to collect 5% increase in revenue by residential as a whole and commercial as a whole. Provided in Table 6-2 is a summary of the present and proposed rates.

**Table 6-2  
 Present and Proposed Wastewater Rates**

Customer Class and Rate	Billing Fee Code	Present Rates	FY 2023	FY 2024	FY 2025	FY 2026	FY 2027
<b>Monthly Service Charge</b>	All Customers	\$14.99	\$15.74	\$16.53	\$17.35	\$18.22	\$19.13
<b>Residential Rates</b>							
<b>Monthly Usage Charge (per dwelling unit)</b>							
Residential	SERS	\$33.82	\$33.18	\$34.83	\$36.58	\$38.40	\$40.32
Residential(vacation)	SERV	0.00	0.00	0.00	0.00	0.00	0.00
Residential-Low	SERSL	6.24	17.72	18.61	19.54	20.52	21.54
Fernan-Residential	SERF	24.17	27.09	30.16	33.39	36.77	40.32
Duplex-One Meter (x2)	SERMF	33.82	33.18	34.83	36.58	38.40	40.32
Residential + ADU- One Meter (x2)	SERADU	33.82	33.18	34.83	36.58	38.40	40.32
<b>Commercial Rates</b>							
<b>Monthly Usage Charges per 1,000 gallons</b>							
Commercial-Low*	CWCL	\$5.61	\$5.89	\$6.19	\$6.49	\$6.82	\$7.16
Commercial-Medium	CWCM	6.44	6.76	7.10	7.46	7.83	8.22
Commercial-High	CWCH	7.24	7.60	7.98	8.38	8.80	9.24
Fernan-Commercial	SENRO6	4.86	5.28	5.71	6.17	6.66	7.16
Fernan-Commercial	SENRF	4.86	5.28	5.71	6.17	6.66	7.16

\*Includes multifamily residential customers greater than 2 units.

As can be seen in Table 6-2 the present residential rates are a flat monthly usage charge. In contrast to this, commercial rates have a volume-based usage charge. These volume-based charges are billed on the customer's water consumption and billed per thousand Gallons. The proposed rate adjustments were applied equally to both the fixed monthly customer charge, as well as the volume charge, when applicable, based on the adjustments in Table 6-1.

## 6.4 Summary of the Rate Design Analysis

This completes the rate design analysis for the City's wastewater rate study. It is recommended that rates be adjusted as shown in table 6-1. The adoption of the proposed rates in Table 6-2 are designed to meet the City's projected revenue requirement, which was developed and intended to prudently fund the City's wastewater operating and capital infrastructure improvement needs.

## 7 Development of the Capitalization Fee

The final aspect of the City's comprehensive rate and fee study was the review and update of the City's wastewater Capitalization Fee (CAP Fee). The objective of this review is to calculate a cost-based and legally defensible CAP Fee for new customers connecting to the City's wastewater system. CAP Fees provide the means for new customers to "buy in" to the existing system to recover the costs of operating, maintaining, replacing, and depreciating the existing sewer system at the time the new customer buys in.

To maintain compliance with the court mandated method for calculating CAP fees, the method described in the 1991 *Loomis v. City of Hailey* was used to calculate the level of the CAP Fee that can be legally charged.

### 7.1 Defining Capitalization Fees

The first step in establishing cost-based CAP Fee is to gain a better understanding of the definition of a CAP Fee. For purposes of this review, a CAP Fee or "system development charge" is used as interchangeable terms and hold the same meaning and intent. A system development charge is defined as follows:

*"These fees are one-time charges to customer when they connect to the system or by developers as part of the permitting or planning process.<sup>2</sup>"*

System development charges, or CAP Fees, are a financial contribution to reimburse existing customers for the available system capacity in the existing system.

The main objective of a CAP Fee is to assess the benefiting (connecting) party their proportionate share of the cost of infrastructure required to provide them service (i.e., accommodate capacity needs) at the time the party connects to the system. A CAP Fee is an assessment of service to the party connecting to the system, revenues are not used as a means of generating revenue, and the funds are used solely in support of the sewer system which preclude the fee from being a tax.

CAP Fees are permissible under Idaho Statute title 50, chapter 10, section 1030(e)&(f).

*"(e) To issue its revenue bonds hereunder to finance, in whole or in part, the cost of the acquisition, construction, reconstruction, improvement, betterment or extension of any works, or to finance, in whole or in part, the cost of the rehabilitation of existing electrical generating facilities;*

*(f) To prescribe and collect rates, fees, tolls or charges, including the levy or assessment of such rates, fees, tolls or charges against governmental units, departments or agencies, including the state of Idaho and its subdivisions, for the services, facilities and commodities furnished by such works, or by such rehabilitated existing electrical generating facilities, and to provide methods of collections and penalties, including denial of service for nonpayment of such rates, fees, tolls or charges; "*

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<sup>2</sup> Financing and Charges for Wastewater Systems, Manual of Practice No. 27. Water Environmental Federation, Fourth Edition, Page 200.

CAP Fees are generally imposed as a condition of service. As noted, the objective of a CAP Fee is not to generate funds for a utility, but to assure that all customers seeking to connect to the utility's system bear an equitable share of the cost of capacity that is invested in the existing system. The development of the CAP Fee is based on the estimated capacity a new customer will place on the system on average. While some customers may be above or below the average, the purpose of the CAP Fee is not to exactly reflect the capacity requirements of each customer, but place customers in like groups similar to the rate setting process.

By reviewing and updating its CAP Fee, the City continues an important step in providing adequate infrastructure to new customers in a cost-based and equitable manner. The City should set CAP Fees which are cost-based while balancing the needs of the City and development community.

## 7.2 Disclaimer

HDR has used generally accepted engineering and ratemaking principles in calculating the City's CAP Fee. This should not be construed as a legal opinion with respect to Idaho State law. HDR recommends that the City have its legal counsel review the development of the CAP Fee to verify compliance with Idaho State law prior to adoption by the City Council.

## 7.3 Present CAP Fee

The City's present wastewater CAP Fee is shown below in Table 7-1.

<b>Customer</b>	<b>Capitalization Fee</b>
Capitalization Fee per population equivalent (PE)	\$1,383
Single Family Dwelling (Assumes 2.39 PE's)	\$3,305

As shown in Table 7-1, the City's wastewater CAP Fee is based on population equivalencies. The last study used an assumed 2.39 persons per household. For the updated study the figure was revised to reflect the 2020 US Census Bureau data which indicates the persons per household in the City is 2.27.

## 7.4 Key Assumption of the CAP Fee Development

In developing the wastewater capitalization fee for the City's wastewater system, a number of key assumptions were utilized. These are as follows:

- ✓ The City's asset records were used to determine the existing plant asset value and accumulated depreciation.
- ✓ The Engineering New Record, Construction Cost Index (CCI) was used as a means of escalating the original cost to the estimated system replacement cost.
- ✓ The City's debt schedules were used to establish the outstanding loan principal for establishing the debt service credit.

## 7.5 Development of the Proposed CAP Fee

The CAP fee is based on the capacity of the existing system. This component results in new customers reimbursing existing customers for the new customer's equitable share of the available capacity within the existing system. The process of calculating the capitalization fees is based upon a four-step process. In summary form, these steps are as follows:

- ✓ System planning criteria
- ✓ Valuation of the fixed assets
- ✓ Estimating the replacement cost of the existing system
- ✓ Establishing credits against the replacement such as unfunded depreciation and debt service

### 7.5.1 System Planning Criteria

System planning criteria is used to establish the capacity needs of a population equivalent unit (PE) for the utility. The planning criteria were estimated based on information provided in the current wastewater rate study. Table 7-2 provides a summary of the planning criteria used to establish the City's wastewater capitalization fee.

<b>Planning Criteria Description</b>	<b>Unit</b>	
Total Residential Plant Volume	2,323,079	gallons
Total Number of Residential Customers	15,868	customers
Average Household Size household	2.27	persons per
Average Day Household Flow	64.49	gallons/PE
System Capacity	5,000,000	gallon/day
<b>TOTAL PE's</b>	<b>77,527</b>	<b>PE's</b>

The residential average day household flow of 64.49 gallons per PE was calculated based on 2,323,079 gallons residential water volume, as calculated in the wastewater rates study and based on historical billing records, divided by 15,868 residential customers divided by 2.27 persons per household  $(2,323,079/15,868/2.27) = 64.49$  gallons/PE. The gallon per PE has decreased since the last study which was 65.49 gallons per day. This trend is happening around the country where households are using less water due to a few factors including more water efficient water appliances and conservation efforts. The existing system capacity is 5 million gallons per day. 5 million gallons per day divided by 64.49 equals the existing system capacity of 77,527.

## 7.6 Calculated CAP Fee

Based on the sum of the existing infrastructure costs, the CAP Fee can be calculated. Charging an amount greater than the allowable CAP Fee would amount to an impermissible tax and violate Idaho constitution. The CAP Fee method is a backward looking fee in the sense that it is based on replacement cost of existing infrastructure only, and divided by existing capacity in equivalent units. Table 7-3 provides the original cost and the replacement cost of allowable assets.

Table 7-3 System Replacement Cost by Component		
Eligible Infrastructure	Original Cost	Replacement Cost
Treatment	\$131,376,021	\$255,201,349
Collection	22,611,847	58,806,319
Lift Stations	2,061,863	5,591,739
Compost	3,286,575	6,965,682
General Plant	0	0
<b>Total</b>	<b>\$198,308,530</b>	<b>\$326,565,089</b>

Replacement cost was determined by taking the original cost of the asset and bringing it up to today's cost (value) using the Engineering Record Construction Cost Index (ENR CCI). Once the system replacement costs have been established it is then reduced to account for unfunded depreciation and outstanding principal balance on debt. The net replacement cost is then divided by the number of PEs the system can serve to arrive at the new CAP Fee. Provided in Table 7-4 is a summary of the wastewater CAP Fee calculated under the Loomis methodology.

Table 7-4 Loomis Method Calculated Net Allowable Wastewater Capitalization Fee (\$/PE)	
Replacement Cost	\$326,565,089
Unfunded Depreciation	(66,303,299)
Outstanding Principal Balance	<u>(32,133,077)</u>
Net Replacement Costs	\$228,128,713
Capacity Per Day (Gallon/Day)	5,000,000
Gallons per PE per Day	64.36
Capacity in PEs	77,693
<b>Calculated CAP Fee</b>	<b>\$2,936</b>

Table 7-4 shows that using the legally approved method, the allowable CAP fee is \$2,936, meaning the CAP fee calculated using the City's historical method cannot exceed that amount. Given this, Table 7-5 provides the breakdown of the CAP Fee by system component.



<b>Table 7-5 Calculated Wastewater Capitalization Fee (\$/PE) by System Component</b>			
<b>Component</b>	<b>2022 Replacement Cost</b>	<b>Unfunded Depreciation</b>	<b>Total CF by Component</b>
Treatment	3,285	(726)	2,559
Collection Mains	757	(85)	672
Lift Stations	72	(19)	53
Compost	90	(23)	66
General Plant	0	0	0
Debt Service Credit	(414)	0	(414)
<b>TOTALS Per PE</b>	<b>\$3,790</b>	<b>(\$853)</b>	<b>\$2,936</b>

As shown in Table 7-5, the replacement cost is reduced by the unfunded depreciation, and then the outstanding debt is subtracted from the calculated CAP Fee. This results in a calculated net allowable fee of \$2,936 per population equivalent (PE). A detail of the net allowable CAP Fee for the City is shown in the Appendices.

The City charges a CAP fee to the various types of customers connecting to the system based on the equivalent number of PE's. Provided in Table 7-6 is a summary of the proposed CAP fee for the City.

**Table 7-6  
 Proposed Wastewater CAP Fee**

<b>Customer Type</b>	<b>PE Units</b>	<b>Calculated CF</b>
<b>Residential</b>		
Single Family Dwelling	2.27 per unit	\$6,665
Multiple Family Dwelling (2 units)	2.27 per unit	6,665
Accessory Dwelling Unit (ADU)	2.20 per unit	6,460
<b>Commercial-Low</b>		
Bar or tavern	0.20 per seat	\$587
Coffee (or other beverage) Kiosk	0.77 per Kiosk	2,261
Factories	0.10 per 100 sq. ft.	294
Hospital	2.50 per bed	7,341
Institution (other than hospital)	1.25 per bed	3,670
Mobile Home	2.27 per unit	6,665
Mobile or Temporary Vendors	0.70 per vendor or space	2,055
Multiple Family Dwelling (>2 units)	2.20 per unit	6,460
Office Space	0.10 per 100 sq. ft.	294
Retail Space	0.05 per 100 sq. ft.	147
Recreational Vehicle Park	2.08 per RV site	6,107
School (without meal preparation)	0.08 per student/staff	235
Warehouse	0.04 per 100 sq. ft.	117
<b>Commercial-Medium</b>		
Hotel or motel (without kitchen facilities in room)	1.30 per unit	\$3,817
<b>Commercial-High*</b>		
Bakeries	0.20 per seat	\$814
Bowling Alley	1.00 per lane	4,070
Funeral homes	0.05 per 100 sq. ft.	203
Grocery markets with garbage disposals	0.04 per 100 sq. ft.	163
Hotel or motel (with kitchen facilities in room)	1.60 per unit	6,511
Laundry, commercial	1.90 per washing machine	7,732
Brewery	2.30 per Barrels of production capacity	9,360
Restaurants	0.20 per seat	814
School (with meal preparation)	0.13 per student/staff	528
Theaters (indoor and outdoor)	0.03 per seat	122

[1] "Single Family Dwelling" category applied to Vacation Rentals or any dwelling unit defined in City Code.

[2] Institution, (other than hospital) category will be used to calculate PE's for Assisted care/group home with more than 8 occupants and 2 caregivers.

[3] "Retail" category will be used to calculate PE's for customers not listed in the above Commercial Low Category.

[4] Commercial high strength customer fees include a high strength surcharge of \$1,133.35 per PE.

[5] Brewery category will be used to calculate PE's based on the industry strength standards and maximum barrel production provide by applicants equipment supplier.

[6] School (with meal preparation) category will be used to calculate child care facilities with more than 8 children and 2 employees.

Table 7-6 presents the capitalization fee for residential and commercial customers. These fees are determined by multiplying the net allowable CAP Fee of \$2,936/PE times the population's equivalents per customer type. For single family dwelling this would be \$6,665 (\$2,936 X 2.27 PEs = \$6,665).

In some instances, a new customer looking to connect to the system will not “fit” into any of the categories described in Table 7-6. In those instances, the CAP Fee can be calculated based on the per unit costs based on the CAP Fee analysis. Provided in Table 7-7 is a summary of the unit costs as developed during the CAP fee analysis.

<b>Table 7-7 Summary of the CAP Fee Unit Costs</b>					
	<b>Volume/Flow</b>	<b>Biochemical Oxygen Demand (BOD)</b>	<b>Suspended Solids (SS)</b>	<b>Ammonia Nitrogen (N)</b>	<b>Phosphorus (P)</b>
Unit Cost per PE	\$9.27	\$295.26	\$4,125.35	\$10,346.81	\$118,405.06
	Gpd	Lbs/day	Lbs/day	Lbs/day	Lbs/day

These unit costs provide the typical cost per PE for calculating the CAP Fee for new customers connecting to the City’s system. These unit costs can also be used to determine adjustments to CAP Fees when wastewater flow has decreased, but the strength loadings have stayed the same or increased. Provided in Table 7-8 is a summary of the high strength surcharge for customer in the high strength category. This charge is added to the base per PE charge to reflect the additional impacts these high strength customers place on the treatment process and capacity required to serve them.

<b>Table 7-8 Overview of the High Strength Surcharge</b>					
	<b>Total</b>	<b>Biochemical Oxygen Demand (BOD)</b>	<b>Suspended Solids (SS)</b>	<b>Ammonia Nitrogen (N)</b>	<b>Phosphorus (P)</b>
High Strength Surcharge per PE	\$1,133.35	\$23.84	\$333.04	\$139.22	\$637.26
		Lbs/day	Lbs/day	Lbs/day	Lbs/day

## 7.7 Consultants Recommendations

Based on our review and analysis of the City’s wastewater CAP Fee, HDR recommends the following:

- ✓ The City should revise and update its wastewater CAP Fee for new connections to the wastewater system as set forth in this report.

- ✓ The City should update the actual calculations for the wastewater CAP Fee based on the methodology approved by the resolution or ordinance setting forth the methodology for CAP Fees at such time when significant new infrastructure is added and in use or at least every five years.
- ✓ For those customers that do not “fit” into the schedule, the City will review and determine the appropriate PE charge for the customer. The CAP Fee will be based on the customer’s specific capacity demands and charged appropriately.
- ✓ Over time customer usage characteristics may change. In these instances, the City will work with the customer to determine any appropriate adjustments to the CAP Fee. This may result in an increase, or decrease, to the CAP Fee while considering the full capacity the customer may place on the system.

## 7.8 Capitalization Fee Implementation Process

As noted, many times customers do not fit within the defined CAP Fee categories. In those cases, it is important to consider the customer’s capacity potential based on possible wastewater flows and strength levels. The final CAP Fee should reflect the ultimate capacity requirements of the customer and reflect the flow and strength unit costs calculated previously. Provided below are a few examples the City has dealt with and a recommendation of how the CAP Fee process can be used going forward.

As an example, a restaurant CAP Fee is based on a per seat basis, while the restaurant may not fill each of those seats, the customer could utilize the full capacity at any given time. This is the basis for the development of the CAP Fee, the capacity requirements that a customer can place on the system. However, the City does have in place a method for customers to discuss and review the CAP Fee. In those cases, the customer must provide sufficient data that their flow and strength do not reflect the CAP Fee charged. The City must also maintain the ability to review customer change in use and charge an incremental CAP Fee to reflect the actual capacity the customer is using.

Another example may be accessory dwelling units defined in City Code, or buildings that may not be sewerer but result in additional staff or public utilizing the premises. In those cases, if the additional staff or public results in increased capacity use, an incremental CAP Fee should be charged to reflect the capacity used by the customer. For additional living units on residential properties, it would be reasonable to charge these additional residential dwelling units the multi-family >2 PE charge.

Many times, customers, both residential and commercial, have previously paid CAP Fees for their property and later make improvements, additions, or changes to the facilities. In those cases, as the customer works through the City’s permitting process, the City should review the changes and if the changes result in additional capacity the City should charge the appropriate incremental CAP Fee. It is important to remember that only the incremental cap fee be charged as the customer has already paid a CAP Fee for the original facility.

In all of these cases, City staff should work with the customers and its legal department to charge an equitable CAP Fee.

## 7.9 Summary of the Capitalization Fee

The CAP Fees developed and presented in this review are based on financial and budgeting data, engineering information, and the value of the existing assets, future capital improvements, and “generally accepted” ratemaking principles. The fees in this report indicate the City should review their current fee structure and base the fee on as presented in this report. Establishment of a CAP Fee will create equitable and cost-based fees for new customers connecting to the City’s wastewater system.



## 8 Study Summary

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The recommended Sewer Rates and CAP Fees provided in this report was presented to the City Council March 7<sup>th</sup> 2023. The Council subsequently adopted the Sewer Rates and CAP Fee adjustments in ordinance No. 3715/Council Bill No. 23-1004.



# Appendix

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