ALPINE SPRINGS
COUNTY WATER DISTRICT

Alpine Springs County Water District

Water, Sewer, Garbage, and Parks Utility Rate Study

March 2023

March 20, 2023

Mr. Joe Mueller
General Manager
Alpine Springs County Water District
270 Alpine Meadows Road
Alpine Meadows, CA 96146

Subject: Alpine Springs County Water District Utility Rate Studies

Dear Mr. Mueller:

HDR Engineering, Inc. (HDR) is pleased to present the draft report for the utility rate study (Study) for the water, sewer, garbage, and park utilities for the Alpine Springs County Water District (District). A key objective in developing the District's rate studies was to develop financial plans and proposed rates that generate sufficient revenues to fund the operating and capital needs of the District's utilities. This report outlines the approach, methodology, findings, and conclusions of the comprehensive rate study process.

This report was developed utilizing the District's accounting, customer, operating, and management 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 for each utility. The conclusions and recommendations contained within this report are intended to provide a financial plan that prudently funds the operating and capital needs of each of the District's utilities. Finally, this report provides the basis for developing and implementing cost-based and proportional rates for the District's customers.

We appreciate the assistance provided by District staff in the development of this Study. More importantly, we appreciate our long-term relationship with the District.

Sincerely yours,
HDR Engineering, Inc.

Josiah Close
Senior Financial Analyst

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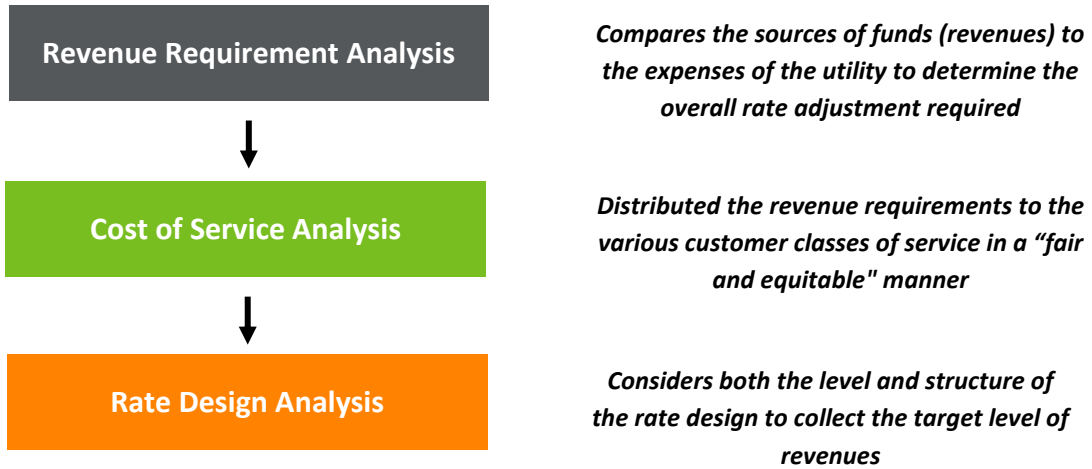
Introduction

HDR Engineering (HDR) was retained by the Alpine Springs County Water District (District) to perform a rate study (Study) for the District's water, sewer, garbage, and parks utilities. The development of this Study determines the adequacy of the existing utility's rates and provides the basis for adjustments to cost-based and proportional levels. This report describes the methodology, findings, and conclusions of the Study.

Overview of the Rate Study Process

A rate study typically utilizes three interrelated analyses to address the adequacy and proportionality of a utility's rates. These three analyses are a revenue requirement analysis, a cost of service analysis, and a rate design analysis.

Figure ES – 1
Overview of the Comprehensive Rate Analyses



For the District's Study, a revenue requirement, cost of service, and rate design analyses were completed. As noted, the cost of service study proportionally distributes the costs between various customer classes of service, tiers, and the fixed and variable components of the rate structure. In the District's case, there is essentially a single class of service for rate setting purposes. As a result, the cost of service focused on the tier pricing and differences between service levels for the water utility as an example. Given this, the proposed rates were designed based on the results of the revenue requirement and cost of service which result in cost-based and proportional rates that will collect the revenues necessary to prudently operate the utilities.

Key Rate Study Results

A comprehensive review of the District's water, sewer, garbage, and parks rates were undertaken. The utilities were financially evaluated on a stand-alone basis. That is to say that no subsidies or transfers between the utilities should occur. By viewing the utilities on a stand-alone basis, the need to adequately fund both O&M and capital infrastructure must be balanced against the rate impacts to customers.

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

- The FY 2022-23 budgets were the basis for developing the financial plan for each utility
- Customer growth for water, sewer, and garbage utilities is assumed to be flat
- Capital improvement projects funded through rates are at the level of depreciation for FY 2022-23 and escalated, thereafter
- The water and sewer systems master plan has identified significant capital infrastructure needs
- The District has assumed the need for long-term borrowing to fund the identified capital improvement projects for the water utility
- A revenue requirement analysis (financial plan) was developed for the District's water, sewer, garbage, and parks utilities for FY 2023-24 through FY 2032-33
    - ✓ For the water utility, recommended adjustments of 24.5% for FY 2023-24, 15.5% annually for FY 2024-25 through FY 2026-27, followed by 6.5% for FY 2027-28
    - ✓ For the sewer utility, recommended adjustments of 17.5% FY 2023-24, 13.3% for FY 2024-25, 9.5% annually in FY 2025-26 and FY 2026-27, and 3.0% in FY 2027-28
    - ✓ For the garbage utility, recommended adjustments of 10.0% for FY 2023-24 and then 6.0% annually from FY 2024-25 through FY 2027-28
    - ✓ No rate adjustments were proposed for the parks utility
- These proposed adjustments will transition the District's water, sewer, and garbage utility rates to a funding level sufficient to cover assumptions for future O&M, debt service, and capital expenses
- A cost of service analysis was developed for the water, sewer, and solid waste utility to develop the proposed cost-based and proportional rates
- All the utilities share reserve funds. Each utility is independently calculated with regards to its share of transfers to fund the reserve funds of the District
- Proposed rates were developed for FY 2023-24 through FY 2027-28 on an annual basis
- Prior to the final rate adjustment in FY 2027-28, the District should begin to review the need for additional rate adjustments

Summary of the Water Utility

The water utility analysis includes the revenue requirement analysis, cost of service analysis, and rate design analysis. The revenue requirement analysis compared the revenues received from customers through water rates - along with miscellaneous revenue - to the total operating and capital expenses of the utility to determine the adequacy of the current water rates. A key

component of the water revenue requirement was the determination of adequate renewal and replacement funding to maintain the District's water infrastructure and fund capital improvements identified through the recent master plan. Currently, the District funds capital through rates from two components: the depreciation component which is an amount equal to annual depreciation expenses and the second is the recapitalization which is equal to 10.0% of water rate revenues. This policy for reinvestment in the water utility is prudent and the District should continue to increase the annual rate funded capital in order to reflect future renewal and replacement needs of the system. Additionally, the capital funding was evaluated in light of the District's master plan to make sure adequate funding is planned. Provided below in Table ES - 1 is a summary of the water revenue requirement.

Table ES – 1
Summary of the Water Utility's Revenue Requirement ($000s)

	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28
Revenue						
Rate Revenues	$766	$766	$766	$766	$766	$766
Other Revenues	34	40	46	52	58	62
Total Revenues	**$800**	**$807**	**$812**	**$818**	**$825**	**$828**
Expenses						
Total O & M	$594	$621	$649	$679	$710	$742
Total Debt Service	0	0	0	0	301	301
Rate Funded Capital	0	0	0	0	0	0
Total To / (From) Reserves	308	453	355	600	487	569
Total Expenses	**$902**	**$1,075**	**$1,004**	**$1,278**	**$1,497**	**$1,612**
Bal./(Def.) of Funds	($102)	($268)	($193)	($461)	($673)	($784)
Bal. as a % of Rate Revenues	13.3%	34.9%	25.1%	60.1%	87.8%	102.3%
Proposed Rate Revenue Adj.	**0.0%**	**24.5%**	**15.5%**	**15.5%**	**15.5%**	**6.5%**
Add'l Revenue from Rate Adj.	$0	$188	$336	$506	$704	$799
Total Bal. /(Def.) of Funds	($102)	($80)	$143	$46	$31	$15

Based on the revenue requirement analysis developed, HDR recommends the District increase the overall revenue levels of the water utility annually by 24.5% in FY 2023-24, 15.5% annually in FY 2024-25 through FY 2026-27, then 6.5% in FY 2027-28.

The next component in the comprehensive rate study process is the cost of service analysis. A cost of service analysis determines the proportional distribution of the revenue requirement to the customer classes of service (i.e., rate schedules) as well as aides in identifying the fixed and variable rate components. The objective of the cost of service analysis determines the proportional manner to collect the revenue requirement from each customer class. As the District has one rate schedule for all customers, the focus of the cost of service was on the distribution of costs to the fixed charge and the development of the tier pricing for the water

consumption charge. In addition, the District has a snowmaking rate. This rate was developed in a cost based manner previously and as a miscellaneous revenue it is planned to be adjusted by the overall rate adjustment percentage. Shown below in Table ES – 2 is a summary of the unit cost results from the cost of service analysis.

Table ES – 2
Summary of the Water Cost of Service Unit Costs

Fixed Charge (Annual)	$1,235.00
Consumption Charge *($ / 1,000 gal)*	
Tier 1	$3.96
Tier 2	5.02
Tier 3	8.50

Developing cost-based water rates is of paramount importance in developing proposed water rates. Given this, the District's proposed water rates have been developed with the intent of meeting the legal requirements of California constitution article XIII D, section 6 (Article XIII D). A key component of Article XIII D is the development of rates which reflect the cost of providing service and are distributed proportionally. HDR would point out that there is no single methodology for the proportional assigning costs to the various customer groups of cost components. The American Water Works Association (AWWA) M1 Manual clearly delineates various methodologies which may be used to establish cost-based rates. Article XIII D does not prescribe a particular methodology for establishing rates; consequently, HDR developed the District's proposed water rates based on the AWWA M1 manual methodology to meet the requirements of Article XIII D and with consideration given to the applicable legal decisions in order to provide an administrative record of the steps taken to establish the District's water rates.

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

- **The revenue derived from water rates does not exceed the funds required to provide the property related service (i.e., water service).** The proposed rates are designed to collect the overall revenue requirements of the District's water utility.
- **The revenues derived from water rates shall not be used for any purpose other than that for which the fee or charge is imposed.** The revenues derived from the District's water rates are used exclusively to operate and maintain the District's water system.
- **The amount of a fee or charge imposed upon a parcel or person as an incident of property ownership shall not exceed the proportional costs of the service attributable to the parcel.** The cost of service analysis was specifically developed to focus on the issue of proportional assignment of costs between the fixed rate and tier rates. The distribution of costs between the fixed and tier rates creates the equity and fairness expected under Article XIII D by having

differing rates which reflects the manner in which these costs are incurred and the proportional impacts and burdens on District's the water system and water resources.

The District currently has one rate schedules for all water customers. This consists of an annual fixed charge by service meter size and an increasing block, three-tier consumption charge. Given the prior discussion of the need to develop rates based on cost of service principles, the unit costs in Table ES - 2 were used to develop the proposed water rates for the District's customers. Provided below in Table ES - 3 is a summary of the present and proposed District water rates over the five-year rate setting period.

Table ES – 3
Summary of the Present and Proposed Annual Water Rates

	Present Rates	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28
Base Charge						
3/4"	$884.00	$1,235.00	$1,426.00	$1,648.00	$1,904.00	$2,029.00
1"	1,474.00	2,062.00	2,382.00	2,752.00	3,180.00	3,388.00
1 1/2"	2,936.00	4,113.00	4,751.00	5,488.00	6,340.00	6,753.00
2"	4,698.00	6,583.00	7,603.00	8,782.00	10,144.00	10,804.00
3"	8,810.00	12,350.00	14,264.00	16,476.00	19,031.00	20,269.00
Usage Charge *($ / 1,000 gal)*						
0 - 100,000 gal	$3.31	$3.96	$4.58	$5.35	$6.24	$6.71
100,000 - 200,000 gal	4.53	5.02	5.80	6.77	7.89	8.47
200,000 + gal	8.56	8.50	9.82	11.42	13.27	14.21
Snowmaking Rate						
Usage Charge *($ / 1,000 gal)*	$1.32	$1.64	$1.89	$2.18	$2.52	$2.68

As can be seen in Table ES - 3 the annual rate structure is comprised of an inclining three-block rate structure plus a fixed monthly meter charge by meter size. When compared to the present rate structure, the proposed rate structure has remained the same and each element (meter charge and usage charge) of the rate structure has been adjusted based on the results of the cost of service analysis for the proposed FY 2023-24 rates. The proposed rates for FY 2024-25 through FY 2027-28 are adjusted based on the overall system revenue adjustment as developed in the revenue requirement analysis. As mentioned previously, the usage component for the snowmaking rate shown has been adjusted by the overall rate water system adjustment.

A full and complete discussion of the development of the water utility technical analysis and the proposed rate adjustments can be found in following sections of this report.

Summary of the Sewer Utility

Similar to the water utility analysis, the sewer utility analysis included the development of the revenue requirement analysis, cost of service analysis, and rate design analysis. The revenue requirement analysis reviewed the level of sewer revenues received from customer and other

sources and compared them to the sewer operating and capital expenses to determine adequacy of existing sewer rates. Proposed rate adjustments were developed to fund the sewer utility based on the operating and capital needs over the next five year period. Similar to the water utility analysis, a key component of the analysis was determining a prudent level of capital funding in light of the District's recent master plan and identified capital improvement needs. As noted in the water utility discussion the District is prudently funding renewal and replacements at this time through the transfer to reserves equal to annual depreciation plus 10% of annual rate revenues. Provided below in Table ES - 4 is a summary of the sewer revenue requirement.

Table ES – 4
Summary of the Sewer Utility's Revenue Requirement ($000s)

	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28
Revenue						
Rate Revenues	$330	$330	$330	$330	$330	$330
Other Revenues	7	7	7	7	7	7
Total Revenues	**$337**	**$337**	**$337**	**$337**	**$337**	**$337**
Expenses						
Total O & M	$247	$255	$264	$274	$284	$294
Total Debt Service	0	0	0	0	0	0
Rate Funded Capital	0	0	0	0	0	0
Total To / (From) Reserves	99	146	167	212	242	244
Total Expenses	**$346**	**$401**	**$431**	**$485**	**$525**	**$538**
Bal./(Def.) of Funds	($10)	($65)	($94)	($149)	($188)	($201)
Bal. as a % of Rate Revenues	2.9%	19.6%	28.6%	45.1%	57.2%	60.9%
Proposed Rate Revenue Adj.	**0.0%**	**17.5%**	**13.5%**	**9.5%**	**9.5%**	**3.0%**
Add'l Revenue from Rate Adj.	$0	$58	$110	$152	$197	$213
Total Bal. /(Def.) of Funds	($10)	($7)	$16	$3	$9	$12

Based on the results of the sewer revenue requirement, HDR recommends the District increase the overall revenue levels of the sewer utility. It is proposed that the District increase rate revenues for the sewer utility by 17.5% in FY 2023-24, 13.5% in FY 2024-25, 9.5% annually in FY 2025-26 through FY 2026-27, and 3.0% in FY 2027-28.

A cost of service analysis was also undertaken for the sewer utility. Just as with the water utility, there is currently a single rate structure for all District sewer customers. Additionally, the District charges a flat rate annually on a per fixture unit basis. As part of the District's Study, it was determined that residential customers will be moved to a flat fixed charge from the per fixture unit basis which reflects contemporary rate design trends as well as matching that of the regional wastewater treatment provider. The cost of service for the sewer utility was developed on a per fixture unit cost and only the denominator for the rate design was altered for the residential

customers. The District's sewer cost of service analysis was based on total cost and the total number of fixer units for each customer class. For FY 2023-24, this resulted in a rate of $117.27 per fixture unit. This unit cost provides the basis for the rate design.

The proposed rates were based on the cost of service results. As noted, the rate structure was changed slightly for residential customers and for commercial customers the existing structure was maintained while both rate schedules reflect current District sewer costs. For residential customers, the total costs which were distributed based on the number of fixture units were divided by the total number of residential customers. Subsequent years were simply adjusted by the proposed rate adjustment. Table ES - 5 provides the present and proposed rates for the sewer utility.

Table ES – 5
Summary of the Present and Proposed Sewer Rates

	Present Rates	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28
Fixed Charge						
Per Fixture Unit	$99.80	--	--	--	--	--
Commercial (per fixture unit)	--	$117.30	$133.10	$145.70	$159.50	$164.30
Residential (per customer)	--	$545.60	$619.30	$678.10	$742.50	$764.80

In reviewing the District's customer billing data, it was determined that a typical sewer customer is billed for 4.5 units. Under the present rates, this customer would pay $449.10/year. Under the proposed rates, the customer would pay $545.58 in FY 2023-24.

A more detailed discussion of the development of the sewer revenue requirement and rate designs can be found in following sections of this report.

Summary of the Garbage Utility

The garbage utility analysis was also based on a revenue requirement analysis, cost of service analysis, and rate design analysis. The revenue requirement analysis considered the current level of rate revenues received from garbage customers and the prudent funding of operations and maintenance expenses. A major expense and key input in the garbage analysis for the District is the contractual rate for garbage disposal services. Provided below in Table ES - 6 is a summary of the garbage revenue requirement.

Table ES – 6
Summary of the Garbage Utility's Revenue Requirement ($000s)

	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28
Revenue						
Rate Revenues	$267	$267	$267	$267	$267	$267
Other Revenues	2	2	2	2	2	2
Total Revenues	**$269**	**$269**	**$269**	**$269**	**$269**	**$269**
Expenses						
Total O & M	$241	$256	$272	$288	$306	$325
Total Debt Service	0	0	0	0	0	0
Rate Funded Capital	0	0	0	0	0	0
Total To / (From) Reserves	37	40	42	44	47	49
Total Expenses	**$278**	**$296**	**$314**	**$333**	**$352**	**$374**
Bal./(Def.) of Funds	($10)	($27)	($45)	($64)	($84)	($105)
Bal. as a % of Rate Revenues	3.6%	10.2%	16.8%	23.9%	31.3%	39.3%
Proposed Rate Revenue Adj.	**0.0%**	**10.5%**	**6.0%**	**6.0%**	**6.0%**	**6.0%**
Add'l Revenue from Rate Adj.	$0	$28	$46	$64	$84	$105
Total Bal. /(Def.) of Funds	($10)	$1	$1	$1	$1	$1

Based on the revenue requirement analysis developed, HDR recommends the District increase the garbage rates by 10.5% in FY 2023-24 followed by 6.0% annually in FY 2024-25 through FY 2027-28.

Garbage rates are based on two components, the disposal fee (contract rate) and the district administrative portion. As part of the Study, the two components of the garbage rate were reviewed to determine if the District rates collected sufficient revenues to fund District operations. The contractual disposal costs were set at the current rate and increased at assumed inflationary rate (7.0% / year). The District's rate component was then adjusted by the proposed rate adjustments which were developed in the revenue requirement analysis. Provided below in Table ES - 7 are the present and proposed rates for the garbage customers.

Table ES – 7
Summary of the Present and Proposed Garbage Rates

	Present Rates	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28
Garbage Rate	$322.90	$322.70	$342.10	$362.60	$384.40	$407.50
Administration Fee	189.80	242.40	256.90	272.30	288.60	305.90
Total Customer Charge	**$512.70**	**$565.10**	**$599.00**	**$634.90**	**$673.00**	**$713.40**

Under the present rates, a garbage customer would pay $512.70/year. Under the proposed rates, the same customer would pay $565.10/year in FY 2023-24. A more detailed discussion of the analysis developed for the garbage utility can be found in following sections of this report.

Summary of the Parks Utility

A review of the Parks utility was also developed as part of the Study, however, at this time no proposed rates were developed. The development of the revenues was based on the parks passes sold and events held at the park. The parks utility also receives additional funds from a proportion of the property taxes the District receives. When comparing the revenues received to the expenses of the parks utility a deficiency exists. As noted, at this time the District management and Board determined that no adjustments to the parks fees would be made. Table ES - 8 provides a summary of the development of the revenue requirement.

Table ES – 8
Summary of the Parks Utility's Revenue Requirement ($000s)

	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28
Revenue						
Rate Revenues	$42	$42	$42	$42	$42	$42
Other Revenues	126	126	126	126	126	126
Total Revenues	**$168**	**$168**	**$168**	**$168**	**$168**	**$168**
Expenses						
Total O & M	$218	$228	$238	$248	$260	$271
Total Debt Service	0	0	0	0	0	0
Rate Funded Capital	0	0	0	0	0	0
Total To / (From) Reserves	4	4	4	4	4	4
Total Expenses	**$222**	**$232**	**$242**	**$253**	**$264**	**$275**
Bal./(Def.) of Funds	($54)	($64)	($74)	($85)	($96)	($108)

For the District's parks utility rates were not proposed for the time period reviewed. District staff will monitor the parks utility fund and adjust the budget and use fees as necessary. A more detailed discussion of the development of the parks utility revenue requirement can be found in following sections of this report.

Summary of the Combined Reserve Levels

Reserves are an important part of a utility's financial picture which are often indicative of financial health. There can be many different purposes for reserves. The District currently has four reserve funds:

- **Operating Reserve –** Funds are used to fund the District's operating needs. The operating reserve fund has a minimum balance 75 days O&M expenses. This total O&M includes water, sewer, garbage, and parks utilities.

- **Catastrophe Reserve –** Provides a minimum reserve to fund emergency repairs or replacements. The minimum fund balance is based on 30 days O&M expenses for all four utilities.
- **Rate Stabilization Reserve –** Is in place to mitigate any unforeseen large rate increases, or short-term cash flow issues that otherwise would result in short-term rate increases. The rate stabilization is set equal to 10% of annual rate revenues for all four utilities.
- **Capital Project Reserve –** Is in place to fund capital projects on an annual basis. The minimum target balance for a capital reserve is generally based on annual depreciation expense, renewal and replacement needs, or the annual average capital needs over the time period being reviewed. However, the capital project reserve ending balance can "float" depending on the funding needs in any given year. Currently, the water, sewer, and garbage utilities contribute the annual depreciation expense to the capital reserve as well as 10% of rate revenues.

Provided below in Table ES - 9 is a summary of the ending fund balances and target ending fund balances for the District's reserve funds.

Table ES – 9
Overview of the Ending Fund Balances ($000's)

	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28
Operating Reserve						
Ending Fund Balance	$311	$193	$327	$350	$361	$372
Target Fund Balance	*275*	*288*	*301*	*315*	*330*	*345*
Catastrophe Reserve						
Ending Fund Balance	$110	$116	$121	$127	$133	$139
Target Fund Balance	*110*	*115*	*120*	*126*	*132*	*138*
Rate Stabilization Reserve						
Ending Fund Balance	$140	$169	$190	$214	$240	$254
Target Fund Balance	*140*	*168*	*190*	*213*	*239*	*252*
Capital Project Reserve						
Ending Fund Balance	$49	$8	$136	$1,660	$523	$1,659
Target Fund Balance	*403*	*438*	*468*	*500*	*535*	*557*

Given the types of reserves, and level of the reserves over the timer period reviewed, the District has adequate funds should unforeseen cash flow needs materialize.

1 Rate Setting Principles

This section of the report provides background information about rate setting process, including descriptions of generally accepted principles, types of utilities, methods of determining a revenue requirement, the cost of service analysis, and rate design. This information is useful for gaining a better understanding of the details presented in Sections 2 through 5 of this report. The report is laid out as follows:

- **Section 2** – Water Rate Analysis
- **Section 3** – Sewer Rate Analysis
- **Section 4** – Garbage Rate Analysis
- **Section 5** – Parks Rate Analysis

1.1 Goals and Objectives

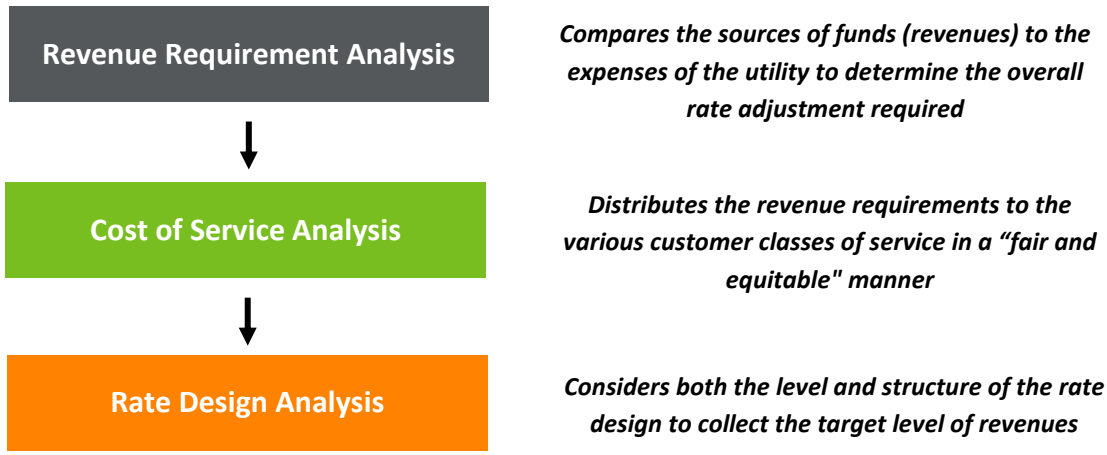
The District had a number of key objectives in developing the Study. These key objectives provided a framework for policy decisions in the analyses that follows. These key objectives were as follows:

- Develop the water analysis in a manner that is consistent with the principles and methodologies established by the American Water Works Association (AWWA), M1 Manual, Principles of Water Rates, Fees, and Charges
- Develop the sewer analysis in a manner that is consistent with the principles and methodologies established by the Water Environment Federation (WEF), Manual of Practice No. 27, Financing and Charges for Sewer Systems
- Develop the garbage and parks analyses in a similar manner as water and sewer with generally accepted principles and methodologies
- In financial planning and establishing the District's rates, review and utilize best industry practices, while recognizing and acknowledging the specific and unique characteristics of the District's systems
- Review the District's rates utilizing "generally accepted" rate making methodologies to determine adequacy and equity of the utility rates
- Meet the District's financial planning criteria and goals which may include debt service coverage ratios, adequate funding of the renewal and replacement of the capital infrastructure, and maintenance of adequate reserve levels
- Develop a financial plan which adequately supports the utility's funding requirements, while attempting to minimize overall impacts to rates
- Provide rates designed to meet the legal requirements of Article XIII D and recent legal decisions related to Article XIII D

1.2 Overview of the Rate Study Process

A comprehensive study consists of three interrelated analyses. Figure 1 - 1 provides an overview of these analyses.

Figure 1 – 1
Overview of the Comprehensive Rate Analyses



A revenue requirement analysis is concerned with the overall funding sources and expenses of the water, sewer, garbage, and parks utilities. From this analysis, a determination can be made as to the overall level of adjustment to rates. Once an overall level of rate adjustment is determined, for the District's Study the next step is the development of the cost of service analysis to determine the rates for the water, sewer, and solid waste utility. At this time a cost of service analysis was not completed for the parks utility as proposed rates are not being developed as part of the Study. Next, is the design of rates to collect the appropriate level of revenues while considering other rate design goals and objectives of the utility (e.g., revenue stability, conservation). As a part of the Study, HDR developed the revenue requirement analysis, cost of service, and rate design analysis to analyze the District's current water, sewer, garbage, and parks rates. In the development of the District's analyses, HDR utilized "generally accepted" rate setting techniques and industry best practices.

1.3 Determining the Revenue Requirement

Most public utilities use the "cash basis" [1] approach for establishing their revenue requirement and setting rates and is shown in Table 1 - 1. 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. 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 – shown in Table 1 – 1 – regarding earning a fair return on its investment. The revenue requirement for a public utility is usually comprised of the following costs or expenses:

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

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

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

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

Table 1 – 1
Cash versus Utility Basis Comparison

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

1.4 Analyzing Cost of Service

After the total revenue requirement is determined, it is proportionally allocated to the users of the service. The allocation, analyzed through a cost of service analysis, reflects the cost relationships for providing water, sewer, and garbage services. A cost of service analysis requires three analytical steps:

1. Costs are ***functionalized*** or grouped into the various cost categories related to providing service (supply, distribution, pumping, etc.). This step is largely accomplished by the utility's accounting system.
2. The functionalized costs are then ***allocated*** to specific cost components. Allocation refers to the arrangement of the functionalized data into cost components. For example, a utility's water costs are typically allocated as average day, peak day, or customer related.

3. Once the costs are allocated into components, they are proportionally ***distributed*** to the customer classes of service (e.g., residential, commercial, etc.) and between the fixed customer charge and variable charge (rates). The distribution is based on each customer class's relative contribution to the cost component (i.e., benefits received from and burdens placed on the system and its resources). For example, customer-related costs are distributed to each class of service based on the total number of customers in that class of service. Once costs are distributed, the revenues from each customer class of service required to achieve cost-based rates can be determined.

1.5 Designing Utility Rates

Rates that meet the utility's objectives are designed based on both the revenue requirement and the cost of service analysis. This approach results in rates that are strictly cost-based and does not consider other non-cost based goals and objectives (conservation, economic development, affordability, revenue stability, etc.). In designing the final proposed rates, these goals and objectives may be taken into consideration. However, the proposed rates must take into consideration equitable and proportional allocation of costs through a cost of service analysis to meet the legal requirements.

1.6 Economic Theory and Rate Setting

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

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 water utility usually incurs capacity-related costs to meet summer lawn watering needs. It follows that the customers who creates excessive peak demands or flows on the system which creates the need for additional system capacity should pay for those over-sized facilities in proportion to their contribution. When costing and pricing techniques are refined, consumers have a more accurate understanding of what the service costs to produce, treat, deliver, etc. This price-equals-cost concept provides the basis for the subsequent analysis and comments.

1.7 Summary

This section of the report has provided a brief introduction to the general principles, techniques, and approach used to develop cost-based and equitable water, sewer, garbage, and parks rates. These principles and techniques will become the basis for the District's comprehensive rate study.

2 Water Rate Analysis

This section describes the development of the District's water utility analysis. This section will provide a detailed review of the analyses completed for the water utility. The revenue requirement will provide the total revenue needs to prudently fund the water utility. The cost of service analysis determines the cost-basis for the fixed and consumption charges. Based on these two analyses, rates are designed to collect that level of revenues from the District's customers.

2.1 Determining the Revenue Requirement

The revenue requirement analysis determines the adequacy of the District's water rate revenues. From this analysis, a determination can be made as to the overall level of rate adjustment needed to provide adequate and prudent funding for both operating and capital needs.

In developing the water revenue requirement, it was assumed the utility must financially "stand on its own" and be properly funded. In other words, the water utility should be self-sufficient and not rely on other District funds to support water related operating and capital needs. As a result, the water revenue requirement developed assumes the full and proper funding needed to operate and maintain the system on a financially sound and prudent basis.

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

2.1.1 Establishing a Time Frame and Approach

The first step in calculating the revenue requirement for the water utility was to establish a time frame for the revenue requirement analysis. For the Study, the water revenue requirement was developed based on the FY 2022-23 adopted budget and then projected for the 10-year period of FY 2023-24 through FY 2032-33. Reviewing a multi-year time period is generally recommended in an attempt to identify any major expenses – both operational and capital - that may be on the horizon for example, the master plan capital projects. By anticipating future financial requirements, the District 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 District was to decide on the basis of accumulating costs. The "cash basis" approach was utilized which is the most common approach to developing revenue requirements for municipal utilities. In addition, this is the method used to develop the District's revenue requirement during the previous studies. Given a time period around which to develop the revenue requirement and a method to accumulate the appropriate costs, the focus then shifts to the development and projection of the revenues and expenses of the water utility.

The primary financial inputs in this process were the District's customer billing records, operating budget, and capital improvement plan. Presented below is a detailed discussion of the steps and

key assumptions contained in the development of the projections of the District's revenues and expenses.

2.1.2 Projecting Rate and Other Revenues

The first step in developing the water utility revenue requirement was to develop a projection of rate revenues, at present rate levels. In general, this process involved developing projected annual consumption/billing units. The billing units were then multiplied by the current rates to develop a projection of rate revenues. This calculation is completed to develop billing units for future rate designs, and to compare the budgeted level of revenues compared to current billing units. The projected consumption was based on the most recent calendar year consumption data. The District's customers are billed annually based on an increasing three-block rate schedule with a variable meter charge based on the customer's service meter size.

In total, at present water rates, the District is projected to receive approximately $766,000 in water rate revenues for FY 2022-23. Over the planning horizon of the Study, customer growth is expected to be 0.0% per year. In total, rate revenues are projected to continue at approximately $766,000 through FY 2027-28.

In addition to rate revenues, the District also receives other revenues which include interest income, snow making, and other miscellaneous revenue. The utility is projected to receive approximately $34,000 of other revenues in FY 2022-23. Other revenues are expected to increase over time and total $61,000 by FY 2027-28 primarily from the increase in snow making revenue with is tied to the overall water system rate adjustment.

On a combined basis - considering the rate revenues along with other revenues - the District's total projected water revenues are expected to be approximately $800,000 in FY 2022-23, increasing slightly to approximately $828,000 in FY 2027-28, absent any rate increases.

2.1.3 Projecting Operation and Maintenance Expenses

Operation and maintenance (O&M) expenses are incurred by the District to operate and maintain the existing water system in order to provide service to the District's customers. The beginning point was the FY 2022-23 adopted budget which was then projected out into the future. To begin the process of projecting O&M expenses over the planning horizon, escalation factors were developed. The escalation factors developed were for the basic types of expenses the District incurs: labor, medical benefits, other benefits, insurance, materials & supplies, equipment, utilities, and miscellaneous expenses. The escalation factors used were in the range of 2.5% to 6.0% per year, depending on the type of cost and recent inflationary trends.

In developing the water analysis, HDR maintained the overall functional nature of the District's system of accounts (i.e., labor, benefits, chemicals, supplies). Total operation and maintenance expenses for the water utility are budgeted to be $594,000 in FY 2022-23. Given the budgeted O&M expenses, HDR then escalated them based on the previously mentioned escalation factors. O&M expenses are projected to increase to approximately $742,000 by FY 2027-28 as a result of

assumed inflation over the time period. No extraordinary O&M expenses were assumed during the planning period.

2.1.4 Debt Service

At the present time, the District has no outstanding long-term debt obligations for the water utility. As part of the capital funding plan, the District has determined there will be the need to issue new long-term debt in order to fully fund the planned capital projects for the water utility based on the District's recent master plan. Assumed long-term debt service payments start in FY 2025-26 at approximately $300,000 per year through FY 2027-28.

2.1.5 Rate Funded Capital

The District's water utility capital improvements planned over the Study's time horizon include projects identified as part of the District's recent master plan which address renewal and replacements along with other system improvements. Provided below in Table 2 - 1 is a summary of the District's water capital improvement plan and proposed funding sources.

Table 2 – 1
Summary of the Water Capital Improvement Projects ($000s)

	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28
Total Capital Projects	$202	$358	$321	$4,538	$1,848	$2,275
Less: Other Funding Sources						
O&M Reserve	$0	$0	$0	$0	$0	$0
Capital Reserve	202	358	321	400	1,848	680
New Long-Term Debt	0	0	0	4,138	0	1,595
Total Other Funding Sources	**$202**	**$358**	**$321**	**$4,538**	**$1,848**	**$2,275**

There are a number of different methods which may be used to fund the capital plan. Among the methods that may be used to finance these capital improvement projects are long-term debt, reserves, and rates.

A general financial guideline states that, at a minimum, a utility should fund an amount equal to or greater than annual depreciation through rates. Annual depreciation expense reflects the current investment in plant being depreciated or "losing" its useful life. Therefore, this portion of plant investment needs to be replaced to maintain the existing level of infrastructure. In theory, annual depreciation expense reflects an investment in infrastructure an average of 15 years ago, assuming a 30-year useful, or depreciable life. Simply funding an amount equal to annual depreciation expense is not sufficient to replace the existing or depreciated facility. Therefore, consideration should be given to funding within rates some amount greater than annual depreciation expense for renewals and replacements. Whenever possible, the District should be funding capital projects from rates in an amount greater than annual depreciation expense. Currently, the District has a policy to capital through a transfer to reserves equal to

annual depreciation expense. There is also a recapitalization component of the capital funding plan which is a transfer to reserves equal to 10.0% of annual rate revenues.

The District's water capital improvement plan totals approximately $7.3 million over the FY 2022-23 to FY 2027-28 time period. The funding sources for these projects are assumed to be from the District's capital reserves as well as from long-term debt issuances. In this way the District is funding its capital improvements, specifically the renewal and replacement projects, through current rate levels.

2.1.6 Reserve Funding

As mentioned above, the District funds capital via annual transfers to the capital projects reserve. There are two transfers amounts included, one to reflect annual depreciation expense and the other for recapitalization. Annual depreciation expense was based on FY 2022-23 budged figure. The recapitalization transfer is based on 10.0% of annual rate revenues and the level of recapitalization includes the future rate adjustments. In addition, the Study includes additional capital transfers as the level of capital funding needed will increase substantially given the projects identified in the master plan. In FY 2022-23 total transfers total approximately $308,000 and increase to approximately $569,000 by FY 2027-28. These funds are used to fund annual capital improvements, maintain minimum reserve levels, and minimize future rate impacts.

2.1.7 Summary of the Revenue Requirement

Given the above projections of revenues and expenses, a summary of the revenue requirement for the District's water utility can be developed. In developing the final revenue requirement, consideration was given to the financial planning considerations of the District. In particular, emphasis was placed on attempting to minimize rates, yet still have adequate funds to support the operational needs and capital projects throughout the projected time period. Presented in Table 2 - 2 is a summary of the water revenue requirement. The detailed analysis can be found in the Technical Appendix.

Table 2 – 2
Summary of the Water Utility's Revenue Requirement ($000s)

	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28
Revenue						
Rate Revenues	$766	$766	$766	$766	$766	$766
Other Revenues	34	40	46	52	58	62
Total Revenues	**$800**	**$807**	**$812**	**$818**	**$825**	**$828**
Expenses						
Total O & M	$594	$621	$649	$679	$710	$742
Total Debt Service	0	0	0	0	301	301
Rate Funded Capital	0	0	0	0	0	0
Total To / (From) Reserves	308	453	355	600	487	569
Total Expenses	**$902**	**$1,075**	**$1,004**	**$1,278**	**$1,497**	**$1,612**
Bal./(Def.) of Funds	($102)	($268)	($193)	($461)	($673)	($784)
Bal. as a % of Rate Revenues	13.3%	34.9%	25.1%	60.1%	87.8%	102.3%
Proposed Rate Revenue Adj.	**0.0%**	**24.5%**	**15.5%**	**15.5%**	**15.5%**	**6.5%**
Add'l Revenue from Rate Adj.	$0	$188	$336	$506	$704	$799
Total Bal. /(Def.) of Funds	($102)	($80)	$143	$46	$31	$15

It is important to note the annual deficiencies in Table 2 - 2 are cumulative. That is, any adjustment in the initial years will reduce the needed 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 $102,000 in FY 2022-23 to $784,000 by FY 2027-28, or cumulatively from 13.3% to 102.3% deficit.

2.1.8 Review of the Reserve Levels

Reserves are an important part of a utility's financial health. There can be many different purposes for reserves. The District currently has four reserve funds: operating reserves, catastrophe reserves, rate stabilization reserve, and capital project reserve. Each reserve fund is shared between the District's utilities.

The Operating Reserve is used to fund the District's operating needs. It is important for the District to set a minimum balance on the reserve fund. When the balance of funds reaches the minimum level, it is a signal for action on the District's part. The operating reserve fund has a minimum balance 75 days O&M Expenses. For the water system this is approximately $122,000 in FY 2022-23 and increases to $152,000 by FY 2027-28.

The Catastrophe Reserve is established to help fund the utilities should an emergency occur. Each utility contributes the minimum of 30 days O&M Expenses. For the water utility this is an approximately $49,000 in FY 2022-23 and by FY 2027-28 reaches $61,000.

The rate stabilization reserve is in place to mitigate any unforeseen large rate increases, or short-term cash flow issues that otherwise would result in short-term rate increases. The rate stabilization is set equal to 10.0% of annual water revenues which is approximately $77,000 in FY 2022-23 and by FY 2027-28 is $157,000.

The Capital Project Reserve is used to fund the impact of the capital improvement plan on the rates. The minimum target balance for a capital reserve can vary depending on the use of the funds. In most cases utilities will target annual depreciation expense or an annual average capital expenditure for a specific time period. In most cases the capital reserve fund balance will float based on capital needs over the time period. The District annually contributes an amount equal to annual depreciation as well as 10% of annual rate revenues. Additionally, in the case of an increased level of capital funding, such as the case for the District given the master plan, capital funding above the typical transfer may be necessary. For the water utility the revenue contributed to this fund approximately $308,000 for FY 2022-23 which grows to $424,000 in FY 2027-28.

2.1.9 Debt Service Coverage Ratio

Historically, the District has operated under a cash, or pay-as-you-go, approach to fund capital improvements for the water system. That methodology is going to now transition, in light of the substantial water system improvements identified in the master plan, to a strategic approach using a mix of reserves, rates, and long-term debt. As the District migrates to this new funding approach, care must be given so as to not become overdependent on long-term debt issuances and over leveraged. Generally accepted and industry standard approaches often utilize the debt service coverage (DSC) ratio in order to estimate the water utility's ability to repay long-term debt service and indicate if the District has too much long-term debt outstanding. Additionally, the DSC ratio will help to highlight the steps that may be necessary to transition future rates to a certain level to allow for the District's water utility to issue more long-term debt. As the District's water utility does not currently have any long-term debt, the DSC ratio is not calculable until FY 2026-27 where the calculation equals 2.72 and remains strong through FY 2027-28 at 2.95.

2.1.10 Summary of the Water Revenue Requirement

Based on the revenue requirement analysis developed, HDR recommends the District increase the overall revenue levels of the water utility by 24.5% in FY 2023-24, 15.5% - annually - in FY 2024-25 through FY 2026-27, followed by FY 2027-28 by 6.5%. The anticipated adjustments would move the District towards fully funding the current level of operations and capital needs for the water utility. This section of the report has provided a discussion of the District's water revenue requirement analysis. The revenue requirement developed a financial plan to support the District's operating and capital infrastructure requirements.

2.2 Water Cost of Service

In the previous section, the revenue requirement analysis focused on the total sources and application of funds required to adequately fund the District's water utility. This section will provide an overview of the cost of service analysis developed for the District's water utility.

A cost of service analysis determines the proportional distribution of the total water revenue requirement between the fixed and variable components as well as the various customer classes of service; however, in the District's case there is a single class of service (i.e., rate schedule). The revenue requirement that was developed and was utilized in the development of the cost of service analysis which was based on the costs incurred by the District to provide water service for the test year of FY 2023-24.

2.2.1 Objectives of a Cost of Service Study

For the District's Study, there are two primary objectives in conducting the cost of service analysis: allocate and distribute costs between fixed and variable components and derive average unit costs (i.e., cost-based rates) for subsequent rate designs

The objectives of the cost of service analysis are to determine the proportional manner to collect the revenue requirement. The results of the cost of service analysis determine the unit costs which are used in the development of the final proposed rates. The cost of service analysis provides a per unit cost of water consumption based on the proportional share of costs. For example, a water utility incurs costs related to average day, peak day, fire protection, and customer-related cost components. An important consideration for a water utility cost of service is the fact that it must build sufficient capacity[2] to meet summer peak capacity needs. Therefore, those customers contributing to those peak demands on the system should pay their proportionately higher share of the costs to provide the capacity in the system. The unit costs provide the relationship between these components which are then used to set cost-based rates.

2.2.2 Determining the Customer Classes of Service

As mentioned previously, the District's customer base is very homogeneous and, therefore, there is one customer class of service for purposes of the cost of service analysis.

2.2.3 General Cost of Service Procedures

In order to determine the cost to serve the customers on the District's water system, a cost of service analysis is conducted. A cost of service analysis utilizes a three-step approach to review costs. These steps take the form of functionalization, allocation, and distribution. Provided below is a detailed discussion of the water cost of service study conducted for the District, and the specific steps taken within the analysis. The approach used for the District's Study conforms to generally accepted cost of service methodologies as outlined in the AWWA M1 manual.

2.2.3.1 Functionalization of Costs

The first analytical step in the cost of service process is called functionalization. Functionalization is the arrangement of expenses and asset (e.g., wells, distribution system) data by major operating functions (e.g., supply, transmission, storage, distribution). Within this study, there

[2] System capacity is the system's ability to supply water to all delivery points at the time when demanded. Coincident peaking factors are calculated for each customer class at the time of greatest system demand. The time of greatest demand is known as peak demand. Both the operating costs and capital assets related costs incurred to accommodate the peak demands are generally allocated to each customer class based upon the class's contribution to the peak month, day and hour event.

was a limited amount of functionalization of the cost data since it was largely accomplished within the District's system of accounts.

2.2.3.2 Allocation of Costs

The second analytical task performed in a water cost of service study is the allocation of the costs. The allocation of costs examines why the expenses were incurred or what type of need is being met. The following cost allocators were used to develop the cost of service analysis:

- **Commodity Related Costs:** Commodity costs are those costs which tend to vary with the total quantity of water consumed by a customer. Commodity costs are those incurred under average load (demand) conditions and are generally specified for a period of time such as a month or year. Chemicals or utilities (electricity) are examples of commodity-related cost as these costs tend to vary based upon the total demand of water.
- **Capacity Related Costs:** Capacity costs are those which vary with peak demand, or the maximum rates of flow to customers. System capacity is required when there are large demands for water placed upon the system (e.g., summer lawn watering). For water utilities, capacity related costs are generally related to the sizing of facilities needed to meet a customer's maximum water demand at any point in time. For example, portions of distribution storage reservoirs and mains (pipes) must be adequately sized to meet for this particular type of requirement.
- **Customer Related Costs:** Customer costs are those costs which vary with the number of customers on the water system. They do not vary with system output or consumption levels. These costs are also sometimes referred to as readiness to serve or availability costs. Customer costs may also sometimes be further classified as either actual or weighted. Actual customer costs vary proportionally, from customer to customer, with the addition or deletion of a customer regardless of the size of the customer. An example of an actual customer cost is postage for mailing bills. This cost does not vary from customer to customer, regardless of the size or consumption characteristics of the customer. In contrast, a weighted customer cost reflects a disproportionate cost, from customer to customer, with the addition or deletion of a customer. Examples of weighted customer costs are items such as meter maintenance

Water Cost of Service Analysis Terminology

Functionalization – The arrangement of the cost data by functional category (e.g., source of supply, treatment, etc.).

Allocation – The assignment of functionalized costs to cost components (e.g., commodity, capacity, customer, and fire protection related).

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

Commodity Costs – Costs that are classified as commodity related vary with the total demand of water (e.g., chemical use at a treatment plant).

Capacity Costs – Costs classified as capacity related vary with peak day or peak hour usage. Facilities are often designed and sized around meeting peak demands.

Fire Protection Costs – Costs that are related to fire protection services (e.g., hydrants, oversizing of storage and distribution mains).

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

expenses, where a large commercial customer requires a significantly more expensive meter than a typical residential customer.

- **Public Fire Protection Related Costs:** Fire protection costs are those costs related to the public fire protection functions. Usually, such costs are those related to public fire hydrants and the over-sizing of mains and distribution storage reservoirs for fire protection purposes
- **Revenue Related Costs:** Some costs associated with the utility may vary with the amount of revenue received by the utility. An example of a revenue related cost would be a utility tax which is based on the gross utility revenue.

2.2.4 Development of Distribution Factors

Once the allocation process is complete, and the customer groups have been defined, the allocated costs were distributed to each customer group. The District's allocated costs were distributed based on the following distribution factors.

- **Commodity Distribution Factor:** As noted earlier, commodity-related costs vary with the total water consumption. Therefore, the commodity distribution factor was based on the projected total metered consumption plus losses by tier for the projected test period.

- **Capacity Distribution Factor:** The capacity distribution factor was developed based on the contribution to peak day for each tier. Peak day use by tier was developed by calculating peaking factors. In this particular case, the peaking factor was defined as the relationship between peak day contribution and average day use and determined for each tier based on a review of the average month to peak month usage for each tier. Given an estimated peaking factor, the peak day contribution for each tier was developed.

- **Customer Distribution Factor:** Customer costs vary with the number of customers on the system. Two basic types of customer distribution factors were identified – actual and weighted. The distribution factor for actual customer was based on the projection of the number of customers developed within the revenue requirement. The weighted customer distribution factor attempts to reflect the disproportionate costs associated with serving different types of customers. The weighted customer distribution factor is for meters and services. This factor attempts to reflect the different costs and capacity demands associated with providing larger sized meters. For example, there is a significant difference in the capacity requirements and demands associated with a 3/4" meter compared to a 6" meter.

- **Public Fire Protection Distribution Factor:** The development of the distribution factor for public fire protection expenses involved an analysis of each class of service and their fire flow requirements. The analysis took into account the gallon per minute fire flow requirements in the event of a fire, along with the duration of the required flow. The fire flow rates used within the distribution factor were based on industry standards and similar experiences with other water cost of service studies. The minimum fire flow requirements are then multiplied by the number of customers in each class of service, and the assumed duration of the fire, to determine the prorated fire flow requirements.

- **Revenue Related Distribution Factor:** The revenue related distribution factor was developed from the projected rate revenues for FY 2023-24. These same revenues were used within the revenue requirement analysis discussed previously.

As mentioned before, in a typical cost of service study, the distribution factors represent a general group of similar customers. For this analysis, however, additional cost detail was needed when allocating costs. This meant that the commodity and capacity allocation factors were further broken down. For example, a factor for each of the three tiers was developed for the calculation of the proposed rates to provide the cost basis for the rates (i.e., Proposition 218).

2.2.5 Functionalization and Allocation of Operating Expenses

The District does not separate its O&M expenses by function (e.g., supply, treatment, etc.), which is not an uncommon approach for utilities. As a result, the approach to allocate the operating expenses was based on how one would functionalize the plant in service, or asset data, which reflects the investment made by the District to provide water service.

For the District's Study, the revenue requirement for FY 2023-24 was functionalized and allocated based on the approach noted above. As noted earlier, the District utilized a cash basis revenue requirement, which was comprised of operation and maintenance expenses, debt service, and change in working capital. Provided in Table 2 - 3 is a summary of the allocation of the water revenue requirement to the cost components.

Table 2 - 3
Summary of the Allocation of the Revenue Requirement ($000)

	Total	*Commodity*	*Capacity*	*Actual Customer*	*Fire Protection*	*Revenue*
Total Revenue Requirement	**$645**	**$20**	**$68**	**$509**	**$47**	**$0**

2.2.6 Major Assumptions of the Cost of Service Analysis

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

- A test period is used for the cost of service analysis in order to select the expenses which should be allocated. The revenue and expense data was previously developed within the revenue requirement study.
- A cash basis approach was utilized which conforms to generally accepted water cost of service approaches and methodologies
- The allocation of costs was developed based upon generally accepted cost allocation techniques. Furthermore, they were developed using the District's specific data.
- Consumption by tier used within this Study was developed from historical usage information provided by the District

- Peak day capacity distribution factors were estimated based upon average to peak month relationship

2.2.7 Summary Results of the Cost of Service Analysis

In summary form, the cost of service analysis began by functionalizing the District's revenue requirement. The functionalized revenue requirement was then allocated to the appropriate cost component(s). For the customer related or fixed costs, all customers have the same rate schedule so the total costs were unchanged. However, for the tiered consumption charges, the costs were distributed to the individual tiers. The distributed expenses were then aggregated to determine the overall revenue responsibility. Shown below in Table 2 – 4 is a summary of the distributed costs for commodity, capacity, and direct assignment (DA) which we distributed to the different tiers.

Table 2 – 4
Summary of the Distribution of Commodity, Capacity, DA, and Customer ($000)

	Total	Tier 1	Tier 2	Tier 3
Consumption Related				
Commodity	**$34**	$25	$4	$5
Capacity	**115**	65	14	37
Direct Assignment	0	0	0	0
Total	**$149**	**$90**	**$17**	**$42**
Customer	**$885**			

Provided in Table 2 - 5 is a summary of the cost of service analysis.

Table 2 - 5
Summary of the Water Cost of Service Analysis ($000)

Class of Service	Present Rate Revenues	Distributed Costs	$ Difference	% Difference
Total	**$766**	**$1,034**	**$268**	**34.9%**

The cost of service study attempted to equitably align the operating and capital costs to the respective benefit received from and burdens placed on the water system (proportional allocation). The results of the analysis show that some cost differences exist between tiers. It is important to understand that a cost of service analysis is based on one year's O&M expense data and projected customer usage information. Given this, the results of the cost of service analysis may change from year to year. As the District continues to monitor rates and cost of service results through future studies, future cost of service adjustments may be necessary to reflect consumption patterns at that time.

2.2.8 Cost of Service Summary

The analysis shows that some cost differences exist and, given the requirements of Article XIII D, the results of the cost of service will be used to establish the proposed rate designs for the District. A more detailed discussion of the use of the cost of service results is provided in the rate design section of this report.

This section of the report has provided the recommendations resulting from the cost of service analysis developed for the District's water utility. This analysis was prepared using generally accepted cost of service techniques as provided in the AWWA M1 Manual and the specific costs and customer characteristics of the District's customers. The following section of the report will provide a summary of the present and proposed rates for the District's water utility.

2.3 Rate Design

The final step of this study is the design of water rates to collect the desired levels of revenues, based upon the results of the revenue requirement. In reviewing water rate designs, consideration is given to the level of the rates and the structure of the rates.

The priority for the water utility was to adjust the overall level of the water rates to meet the District's financial needs. Therefore, the results of the revenue requirement analysis are used for establishing the proposed rate adjustments for the water utility. In developing the proposed rate designs, the District's existing rate structure was maintained. Rates were developed for FY 2023-24 through FY 2027-28 as developed in the cost of service analysis and overall revenue needs established in the revenue requirement analysis.

The key output from the cost of service is the unit cost calculation. This is important as it forms the basis of the proposed rates and is compliant with the requirement of Prop 218 to maintain a cost basis for the rates. In order to calculate the unit costs, the aggregated costs assigned to each customer class are divided by the corresponding assumed units with which the customers will be charged. For the District's Study, there are no customer classes and all customers are charged in the same manner. However, the District does employ a 3-tiered consumption charge and so costs which are distributed to the individual tiers are then divided by the assumed consumption in each tier to calculate the unit cost. Shown below in Table 2 – 6 is a summary of the unit cost calculation for the District.

Table 2 – 6 Summary of the Water Unit				
	Total	**Tier 1**	**Tier 2**	**Tier 3**
Consumption Related - *$ / 1,000 gal*				
Commodity		$1.10	$1.10	$1.10
Capacity		2.86	3.92	7.41
Direct Assignment		0.00	0.00	0.00
Total		**$3.96**	**$5.02**	**$8.50**
Consumption (1,000 gal)		*22,652*	*3,460*	*4,948*
Customer Related - *$ / Equiv. Meter*				
Customers	$1,146			
Fire Protection	89			
Total	**$1,235**			
# of Equiv. Meters	716			

From the unit cost calculation, as mentioned previously, the proposed rates can be developed.

2.3.1 Present and Proposed Water Rate Designs

The District currently has a rate structure which includes a fixed meter charge and a three-tiered increasing block consumption charge. In addition, the District has a snowmaking rate. This rate was reviewed in a cost-based manner previously by staff and, as a miscellaneous revenue, it is planned to be adjusted by the overall rate adjustment percentage. Presented in Table 2 – 7 is a summary of the present and proposed annual water rates. No changes in the water rate structure were proposed or made and only the level of the rate components were changed.

Table 3 – 7 Summary of the Present and Proposed Annual Water Rates						
	Present Rates	**FY 2023-24**	**FY 2024-25**	**FY 2025-26**	**FY 2026-27**	**FY 2027-28**
Base Charge						
3/4"	$884.00	$1,235.00	$1,426.00	$1,648.00	$1,904.00	$2,029.00
1"	1,474.00	2,062.00	2,382.00	2,752.00	3,180.00	3,388.00
1 1/2"	2,936.00	4,113.00	4,751.00	5,488.00	6,340.00	6,753.00
2"	4,698.00	6,583.00	7,603.00	8,782.00	10,144.00	10,804.00
3"	8,810.00	12,350.00	14,264.00	16,476.00	19,031.00	20,269.00
Usage Charge *($ / 1,000 gal)*						
0 - 100,000 gal	$3.31	$3.96	$4.58	$5.35	$6.24	$6.71
100,000 - 200,000 gal	4.53	5.02	5.80	6.77	7.89	8.47
200,000 + gal	8.56	8.50	9.82	11.42	13.27	14.21
Snowmaking Rate						
Usage Charge ($ / 1,000 gal)	$1.32	$1.64	$1.89	$2.18	$2.52	$2.68

The average water customer uses approximately 55,000 gallons in a year. Under the present rates, this customer would pay $1,066.05/year. Under the proposed rates, the same customer using 55,000 gallons of water in a year would pay $1,452.92 or a $386.87/year difference in FY 2023-24.

2.4 Summary of the Water Utility Analysis

This completes the analysis for the District's water utility. It is recommended that rates be increased annually by 24.5% in FY 2023-24, 15.5% annually in FY 2024-25 through FY 2026-27, and 6.5% in FY 2027-28 to meet the calculated revenue levels to fund the water utility. Full and complete detail of the development of the water utility's rate analysis and the proposed rate adjustments can be found in Technical Appendix A.

3 Sewer Rate Analysis

This section of the report provides a detailed summary of the analyses completed for the sewer utility. As discussed previously, the revenue requirement analysis is based on the District's sewer utility financially "standing on its own" and not be subsidized by any other District funds or utilities. The cost of service analysis develops a cost per customer to establish the annual rate. Given these two analyses, the proposed rates for the next five-year period can be developed.

3.1 Determining the Revenue Requirement

Similar to the water utility, the objective of the revenue requirement analysis for the sewer utility was to determine the sufficiency of current sewer rates to adequately fund operating and capital needs over the next five year period.

The primary financial inputs in this process were the District's customer billing records, current operating budget, and capital improvement plan developed in the District's recent master planning effort. Presented below is a detailed discussion of the steps and key assumptions contained in the development of the sewer revenue requirement.

3.1.1 Establishing a Time Frame and Approach

The sewer revenue requirement analysis begins by determining the time frame for the revenue requirement analysis. Similar to the other utility analyses, the revenue requirement was developed for the FY 2022-23 budget year and a 10-year projected time period of FY 2023-24 through FY 2032-33. A multi-year time period is recommended to identify any major expenses that may be on the horizon. By anticipating future financial requirements, the District can begin planning for these changes sooner, thereby minimizing short-term rate impacts and overall long-term rates.

The revenue requirement developed for the District was based on the "cash basis" approach which includes operation and maintenance expense, taxes or transfers, rate funded capital, and annual debt service. The cash basis approach is the most common approach used by municipal utilities when developing the revenue requirement analysis and is the method the District used in prior rate studies. The District's current budget followed the cash basis approach and was the basis for the sewer utility analysis.

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

3.1.2 Projecting Rate and Other Revenues

The first step in developing the revenue requirement was to develop a projection of rate revenues, at current rate levels. In general, this process involved developing projected billing units for the sewer customers. The District's bills its sewer customers an annual charge based on the customer's number of fixture or billing units. A billing unit is based on the number of

bathrooms, kitchen sinks, and garbage disposals. The billing units for each customer, based on current customer billing data, were then multiplied by the applicable current rates. This method of independently calculating revenues is completed to compare to current budget levels and for use in the rate design process.

In total, at present rates, the sewer utility is projected to receive approximately $330,000 of rate revenue in FY 2022-23. Over the planning horizon of this study, customer growth is expected to be flat at 0.0% per year resulting in total rate revenues of approximately $330,000 in FY 2027-28.

In addition to rate revenues, the District also receives other revenues. Other revenue includes interest income and miscellaneous revenue. The utility is projected to receive approximately $7,000 of other revenues in FY 2022-23. Other revenues are expected to remain flat over the rate study time period.

On a combined basis, taking into account the rate revenues along with other revenues, the District's sewer total projected revenues are expected to be approximately $337,000 in FY 2022-23 and remain flat through FY 2027-28.

3.1.3 Projecting Operation and Maintenance Expenses

Operation and maintenance (O&M) expenses are incurred by the District's sewer utility to operate and maintain the sewer system. The costs incurred in this area are expensed during the current year and are not capitalized or depreciated.

To begin the process of projecting sewer O&M expenses over the planning horizon, escalation factors were developed. The same escalation factors that were used in the water analysis were used in the sewer analysis. These included: labor, medical benefits, other benefits, insurance, materials & supplies, equipment, utilities, and miscellaneous expenses. Benefits and utilities are predicted to increase higher than the average rate of inflation during the planning horizon. The other escalation factors used were in the range of 2.5% to 6.0% per year, depending on the type of cost and recent inflationary trends.

In developing this analysis, HDR maintained the overall functional nature of the District's system of accounts (i.e., salaries, chemicals, supplies) configured to fit within the cash basis approach. To develop the projection of O&M expenses, the District's FY 2022-23 budget was the starting point. The budgeted O&M was then escalated the O&M expenses based on the previously mentioned escalation factors over the rate setting period through FY 2027-28. Total operation and maintenance expenses for the sewer utility were budgeted at approximately $247,000 for FY 2022-23. O&M expenses are projected to increase to approximately $294,000 by FY 2027-28 as a result of assumed inflation over the time period. No extraordinary O&M expenses were assumed during the planning period.

3.1.4 Rate Funded Capital

The District's sewer utility capital improvements planned over the Study's time horizon primarily include renewals and replacements, along with other system improvements. The District is currently performing a master plan for the sewer utility which is aiding in identifying the projects and funding levels necessary to maintain a highly level of service for the sewer utility customers. Provided below in Table 3 - 1 is a summary of the capital improvement plan and proposed funding sources.

Table 3 – 1
Summary of the Sewer Utility Capital Improvement Projects ($000s)

	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28
Total Capital Projects	**$286**	**$410**	**$212**	**$247**	**$254**	**$262**
Less: Other Funding						
O&M Reserve	$0	$0	$0	$0	$0	$0
Capital Reserve	286	410	212	247	254	262
New Long-Term Debt	0	0	0	0	0	0
Total Funding Sources	**$286**	**$410**	**$212**	**$247**	**$254**	**$262**

There are a number of different sources which may be used to finance these capital improvement projects including long-term debt, reserves, and rates. As with the water utility, the sole source for capital projects is through available capital reserves. As noted, the District funds the capital reserves annually in order to cash finance capital improvements. Over the period, the District is planning on $1.8 million in capital projects and all of this is funded through the capital projects reserve. The District should continue to fund annual depreciation through rates. The District is meeting this guideline through the annual depreciation and recapitalization transfers.

3.1.5 Projecting Debt Service

At the present time, the sewer utility has no outstanding debt obligations and funds annual capital improvements on a "pay as you go" basis. Therefore, no long-term debt is assumed over the projected time period.

3.1.6 Reserve Funding

As part of the capital funding program the sewer utility makes annual transfers to the Capital Fund Reserve. Based on Board policy, there are two transfers amounts included, one for annual depreciation and the other for recapitalization. The transfer for annual depreciation is based on the District's accounting records. The depreciation transfer in future years was based on the FY 2022-23 annual depreciation expenses escalated for assumed additions and retirements. The recapitalization transfer is based on 10% of annual rate revenues. For future years the recapitalization transfer included the proposed rate increases. In FY 2022-23 total transfers for capital reserves are approximately $99,000, increasing to approximately $244,000 in FY 2027-28. These transfers are used to fund future capital improvements as well as maintain minimum reserve levels and minimize rate increases long term.

3.1.7 Summary of the Revenue Requirement

Given the above projections of revenues and expenses, a summary of the revenue requirement for the District's sewer utility can be developed. In developing the final revenue requirement, consideration was given to the financial planning considerations of the District. In particular, emphasis was placed on attempting to minimize rates, yet still have adequate funds to support the operational activities and capital projects throughout the projected time period. Presented in Table 3 - 2 is a summary of the sewer revenue requirement. Detailed analysis can be found in the Technical Appendix.

Table 3 – 2
Summary of the Sewer Utility's Revenue Requirement ($000s)

	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28
Revenue						
Rate Revenues	$330	$330	$330	$330	$330	$330
Other Revenues	7	7	7	7	7	7
Total Revenues	**$337**	**$337**	**$337**	**$337**	**$337**	**$337**
Expenses						
Total O & M	$247	$255	$264	$274	$284	$294
Total Debt Service	0	0	0	0	0	0
Rate Funded Capital	0	0	0	0	0	0
Total To / (From) Reserves	99	146	167	212	242	244
Total Expenses	**$346**	**$401**	**$431**	**$485**	**$525**	**$538**
Bal./(Def.) of Funds	($10)	($65)	($94)	($149)	($188)	($201)
Bal. as a % of Rate Revenues	2.9%	19.6%	28.6%	45.1%	57.2%	60.9%
Proposed Rate Revenue Adj.	**0.0%**	**17.5%**	**13.5%**	**9.5%**	**9.5%**	**3.0%**
Add'l Revenue from Rate Adj.	$0	$58	$110	$152	$197	$213
Total Bal. /(Def.) of Funds	($10)	($7)	$16	$3	$9	$12

It is important to note the annual deficiencies in Table 3 - 2 are cumulative. That is, any adjustment in the initial years will reduce the needed deficiency in the following years. The results of the revenue requirement analysis indicate a deficiency of funds over the review period. The deficiency ranges from approximately $10,000 in FY 2022-23 to $201,000 in FY 2027-28, or 2.9% to 60.9%.

3.1.8 Review of the Reserve Levels

Reserves are an important part of a utility's financial picture. There can be many different purposes for reserves. The District currently has four reserve funds: operating reserves, catastrophe reserves, rate stabilization reserve, and capital project reserve. Each reserve fund is shared between the utilities.

The Operating Reserve is used to fund the District's operating needs. It is important for the District to set a minimum balance on the reserve fund. When the balance of funds reaches the minimum level, it is important that the District's begin to monitor its cash flow and develop the appropriate steps to maintain minimum reserve levels. The operating reserve fund has a minimum balance 75 days O&M Expenses. For the sewer system this implies a minimum of approximately $51,000 in FY 2022-23 and increases to $60,000 in FY 2027-28.

The Catastrophe Reserve is established to help fund the utilities should an emergency occur. Each utility contributes the minimum of 30 days O&M Expenses. For the sewer utility this is $20,000 in FY 2022-23 and by FY 2027-28 is $24,000.

The rate stabilization reserve is in place to mitigate any unforeseen large rate increases, or short-term cash flow issues that otherwise would result in short-term rate increases. The rate stabilization is set equal to 10% of annual sewer revenues and is approximately $33,000 in FY 2022-23 which increases to 54,000 in FY 2027-28.

The Capital Project Reserve is used to fund the impact of the capital improvement plan on the rates. Similar to the water utility there is no specific target ending fund balance as the capital fund balance can vary depending on its purpose. For the sewer utility the total revenue contributed to this fund is approximately $54,000 in FY 2022-23 and increases to $70,000 by FY 2027-28.

Given the types of reserves, and level of the reserves over the timer period reviewed, the District has adequate funds should unforeseen cash flow needs materialize.

3.1.9 Summary of the Sewer Revenue Requirement

Based on the revenue requirement analysis developed, HDR recommends the District increase the overall revenue levels of the sewer utility annually by 17.5% in FY 2023-24, 13.5% in FY 2024-25, 9.5% annually in FY 2025-26 through FY 2026-27, and 3.0% in FY 2027-28. The proposed adjustments would move the District closer to fully supporting the projected level of operations and capital needs for the sewer utility especially transitioning to a higher level of annual renewal and replacement capital investments based on the master plan.

3.2 Sewer Cost of Service

In the previous section, the revenue requirement analysis focused on the total sources and application of funds required to adequately fund the District's sewer system. This section will provide an overview of the cost of service analysis developed for the District's sewer utility.

Similar to the water cost of service analysis, the sewer cost of service analysis is concerned with the proportionate distribution of the total revenue requirement. The previously developed revenue requirement was utilized in the development of the cost of service analysis. Given the nature of the District's system being collection only and a single class of service, a simplified cost of service analysis can be used to allocate and proportionally distribute costs.

3.2.1 Objectives of a Cost of Service Study

The primary objective of the cost of service analysis is the equitable manner to allocate and proportionately distribute the revenue requirement from the District's customers. As mentioned in the discussion above, the District's cost of service analysis was developed on a per fixture unit cost that is then used to charge all customers.

3.2.2 Determining the Customer Classes of Service

The District currently has a single customer class of service which is currently billed on a fixture unit basis. It is important to note that the District will move to charging residential customers a flat fixed charge per account and the commercial customers will maintain the fixture unit billing approach. However, the costs will still be distributed based on the number of fixture units.

3.2.3 General Cost of Service Procedures

In order to determine the cost to serve the customers on the District's sewer system, a cost of service analysis is conducted. Again, because of the nature of the District's operations and customer demographics, an abbreviated cost of service was undertaken. The total revenue requirement is divided by the total number of fixture units to determine a per fixture unit annual rate for commercial customers as well as the fixed charge per account for residential customers.

3.2.4 Summary of the Sewer Cost of Service Analysis

The District's expenses were then aggregated to determine the overall revenue responsibility. HDR proposes that cost of service be reflected in accordance with the unit cost summary as shown below in Table 3 - 3

Table 3 – 3
Summary of the Sewer Unit Costs

	Revenue Requirement	Billed Units	Unit Cost *($ / Unit)*
All Customers	**$387**	**3,303**	**$117.27**

3.2.5 Summary

This section of the Study has provided a summary of the cost of service analysis developed for the District. This analysis was prepared with the intent to follow generally accepted cost allocation methodologies and develop a per unit cost for the District based on the revenue requirement. The next section of the Study will review the present and proposed sewer rates for the District.

3.3 Rate Design

The final step of the sewer study is the design of sewer rates to collect the desired levels of revenues, based on the results of the revenue requirement and cost of service analyses. As mentioned before, rates need to be adjusted starting in FY 2023-24 in order to fully fund the

utility. The District charges its customers on a per fixture unit basis. A fixture unit is based on the number of bathrooms, kitchen sinks, and garbage disposals. For the proposed rates, the commercial customers will still be charged per fixture unit the same as how the unit costs are calculated in the cost of service analysis. For the residential customers, the total revenue contribution is calculated based on the number of fixture units, however, the total rate is now calculated by dividing by the number of accounts. Rates were developed for FY 2023-24 through FY 2027-28.

3.3.1 Present and Proposed Sewer Rate Designs

Presented in Table 3 - 4 is a summary of the present and proposed rates. For residential customers, the proposed rates are a fixed charge per account rather than the number of fixture units. No change in rate structure was made for the commercial customers and the per unit cost was used to establish the proposed rates.

Table 3 – 4
Summary of the Present and Proposed Sewer Rates

	Present Rates	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28
Base Charge *($ / Fixture Unit)*	$99.80	--	--	--	--	--
Commercial *($ / Fixture Unit)*	--	$117.30	$133.10	$145.70	$159.50	$164.30
Residential *($ / Account)*	--	$545.60	$619.30	$678.10	$742.50	$764.80

A typical residential sewer customer has 4.5 fixture units. Under the present rates, this customer would pay $449.10 / year. Under the proposed rates, in FY 2023-24, the same customer would pay $545.60.

3.4 Summary of the Sewer Utility Analysis

This completes the analysis for the District's sewer utility. It is recommended that rates be increased by 17.5% in FY 2023-24, 13.5% in FY 2024-25, 9.5% annually in FY 2025-26 through FY 2026-27, and 3.0% in FY 2027-28. Full and complete detail of the development of the sewer utility's rate analysis and the proposed rate adjustments can be found in Technical Appendix B.

4 Garbage Rate Analysis

This section of the report presents the garbage rate analysis undertaken for the District. As with the water and sewer utilities, the objective of the garbage rate study was to determine the sufficiency of current garbage rate revenues to cover projected operating and capital needs.

The revenue requirement analysis assumes that the District's garbage utility must financially "stand on its own" and not be subsidized by any other District fund. In developing the revenue requirements for this utility, all the costs that are necessary to run the garbage utility in a prudent and financially stable manner were included.

4.1 Determining the Revenue Requirement

A revenue requirement analysis determines the level of garbage rate adjustment needed to provide adequate and prudent funding for both operating and capital needs. Provided below is a detailed discussion of the development of the garbage utility revenue requirement.

4.1.1 Establishing a Time Frame and Approach

The first step in calculating the revenue requirement for the garbage utility was to establish a time frame for the revenue requirement analysis. As with the previously discussed utilities, the revenue requirement was developed for the budget year of FY 2022-23 and a 10-year projected time period of FY 2023-24 through FY 2032-33. Reviewing a multi-year time period is recommended to identify any major expenses that may be on the horizon allowing for the utility to begin planning for these changes sooner, thereby minimizing short-term rate impacts and overall long-term rates. As with the other utilities, the rate setting period was determined to be FY 2023-24 through FY 2027-28.

The revenue requirement developed for the garbage utility was based on the "cash basis" approach which includes operation and maintenance expense, taxes or transfers, rate funded capital, and annual debt service. The cash basis approach is the most common approach used by municipal utilities when developing the revenue requirement analysis. The revenue requirement analysis developed for the District was customized to follow the District's system of accounts (budget documents). Given a time period around which to develop the revenue requirement and a method to accumulate the appropriate costs, the focus then shifts to the development and projection of the revenues and expenses of the garbage utility.

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

4.1.2 Projecting Rate and Other 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 rate revenues for garbage customers. Each customer was multiplied by the applicable current rates. This method of independently calculating revenues assures the projected rate revenues used within the analysis tie to the budgeted revenue. The projected revenue was based on historical customer billing records.

In total, at present rates, the garbage utility is projected to receive approximately $267,000 in rate revenue in FY 2022-23. Over the planning horizon of this study, customer growth is expected to be 0.0% per year resulting in a flat projection of total rate revenues through FY 2027-28 at $267,000.

In addition to rate revenues, the District also receives other revenues. Other revenue includes interest income and miscellaneous revenue. The utility is projected to receive approximately $2,000 in other revenues in FY 2022-23. Other revenues are expected to remain flat over the review period.

On a combined basis, taking into account the rate revenues along with other revenues, the District's garbage total projected revenues are expected to be approximately $269,000 in FY 2022-23 through FY 2027-28.

4.1.3 Projecting Operation and Maintenance Expenses

Operation and maintenance (O&M) expenses are incurred by the District's garbage utility to operate and maintain existing garbage service. The costs incurred in this area are expensed during the current year and are not capitalized or depreciated.

To begin the process of projecting garbage O&M expenses over the planning horizon, escalation factors were developed. Escalation factors were developed for the basic types of expenses the District incurs: labor, benefits – medical, benefits - other, insurance, materials & supplies, equipment, utilities, and miscellaneous expenses. Benefits and utilities are projected to increase higher than the average rate of inflation during the planning horizon. The other escalation factors used were in the range of 2.5% to 7.0% per year, depending on the type of cost and recent inflationary trends. To maintain consistency between the utility studies O&M escalation factors are the same as water and sewer.

In developing this analysis, HDR maintained the overall functional nature of the District's system of accounts (i.e., salaries, equipment, supplies, etc.). Given the budgeted FY 2022-23 O&M expenses, HDR then escalated the O&M expenses based on the previously mentioned escalation factors. A key expense in the garbage analysis was the contractual rate for garbage disposal which is approximately $158,000 in FY 2022-23. Total operation and maintenance expenses for the garbage utility are projected to be approximately $241,000 in FY 2022-23. O&M expenses are projected to increase to approximately $325,000 by FY 2027-28, as a result of assumed inflation over the time period. No extraordinary O&M expenses were assumed during the planning period.

4.1.4 Projecting Capital Improvement Projects Funded From Rate Revenues

Over the Study's time horizon there are minimal planned capital improvement projects for the garbage utility. As a result, in some years, the analysis assumes a level of future unidentified capital projects that are likely to occur up from time to time. Funding for these projects are assumed, as with sewer and a major portion of water capital improvements, from the capital reserve. Prudent financial planning says that the garbage utility should reinvest in the existing system to maintain a high level of service and reliability. The District is meeting this guideline through the annual depreciation and recapitalization transfers to the capital reserve fund as with water and sewer.

4.1.5 Projecting Debt Service

At the present time, the garbage utility has no outstanding debt obligations. There are no new long-term debt issues assumed during the time period reviewed for the garbage utility.

4.1.6 Reserve Funding

At the present time, the garbage utility makes annual transfers to the capital projects reserve. There are two transfer amounts include, the first reflects annual depreciation expense for capital improvement funding and the other for recapitalization or renewal and replacements. The depreciation amount is based on the current annual depreciation expense based on FY 2022-23 accounting records. Future years transfers are based on assumed additions to utility infrastructure. The recapitalization amount is based on 10% of annual rate revenues which includes the proposed rate adjustments for future years. In FY 2022-23 total transfers are approximately $37,000, increasing to approximately $49,000 by FY 2027-28.

4.1.7 Summary of the Revenue Requirement

Given the above projections of revenues and expenses, a summary of the revenue requirement for the District's garbage utility can be developed. In developing the final revenue requirement, consideration was given to the financial planning considerations of the District. In particular, emphasis was placed on attempting to minimize rates, yet still have adequate funds to support the operational activities and capital projects throughout the projected time period. Presented in Table 4 - 1 is a summary of the garbage revenue requirement. Detailed analysis can be found in the Technical Appendix.

Table 5 – 1 Summary of the Garbage Utility's Revenue Requirement ($000s)						
	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28
Revenue						
Rate Revenues	$267	$267	$267	$267	$267	$267
Other Revenues	2	2	2	2	2	2
Total Revenues	**$269**	**$269**	**$269**	**$269**	**$269**	**$269**
Expenses						
Total O & M	$241	$256	$272	$288	$306	$325
Total Debt Service	0	0	0	0	0	0
Rate Funded Capital	0	0	0	0	0	0
Total To / (From) Reserves	37	40	42	44	47	49
Total Expenses	**$278**	**$296**	**$314**	**$333**	**$352**	**$374**
Bal./(Def.) of Funds	($10)	($27)	($45)	($64)	($84)	($105)
Bal. as a % of Rate Revenues	3.6%	10.2%	16.8%	23.9%	31.3%	39.3%
Proposed Rate Revenue Adj.	**0.0%**	**10.5%**	**6.0%**	**6.0%**	**6.0%**	**6.0%**
Add'l Revenue from Rate Adj.	$0	$28	$46	$64	$84	$105
Total Bal. /(Def.) of Funds	($10)	$1	$1	$1	$1	$1

The results of the garbage utility revenue requirement analysis indicate a deficiency of funds over the rate setting period. It is proposed that the District adjust rates by 10.5% in FY 2023-24 and then 6.0% annually in FY 2024-25 through FY 2027-28. The deficiency ranges from approximately $10,000 in FY 2022-23 to $105,000 by FY 2027-28, or 3.6% to 39.3%. It is important to note the annual deficiencies in Table 5 - 1 are cumulative. That is, any adjustment in the initial years will reduce the needed deficiency in the following years.

4.1.8 Review of the Reserve Levels

The District currently has four reserve funds: operating reserves, catastrophe reserves, rate stabilization reserve, and capital project reserve. Each reserve fund is shared between the three utilities; water, sewer, and garbage.

The Operating Reserve is used to fund the District's operating needs. It is important for the District to set a minimum balance on the reserve fund. When the balance of funds reaches the minimum level, it is a signal for action on the District's part. The operating reserve fund has a minimum balance of 75 days O&M Expenses. For the garbage system this implies an annual target of approximately $49,000 in FY 2022-23 and by FY 2027-28 reaches $67,000.

The Catastrophe Reserve is established to help fund the utilities should an emergency occur. Each utility contributes the minimum of 30 days O&M Expenses. For the garbage utility this is an average of approximately $20,000 in FY 2022-23 which increases by FY 2027-28 to $27,000.

The Rate Stabilization Reserve is there to help maintain rate impacts to customers. Each utility contributes the minimum of 10% of annual rate revenues including the revenues from any proposed rate adjustments. The garbage utility contributes approximately $27,000 in FY 2022-23 and that increases to $37,000 by FY 2027-28.

The Capital Project Reserve is used to fund the impact of the capital improvement plan on the rates. Similar to the water and sewer utilities there is no specific target ending fund balance as the capital fund balance can vary depending on its purpose. For the sewer utility the total revenue contributed to this fund is approximately $37,000 in FY 2022-23 and then $49,000 in FY 2027-28.

Given the types of reserves, and level of the reserves over the timer period reviewed, the District has adequate funds should unforeseen cash flow needs materialize.

4.1.9 Summary of the Garbage Revenue Requirement

Based on the revenue requirement analysis developed, HDR recommends the District increase the overall revenue levels of the garbage utility by 10.5% in FY 2023-24 and then 6.0% annually in FY 2024-25 through FY 2027-28. The proposed adjustments help the District fund the current level of operations and capital needs for the garbage utility.

This section of the report has provided a discussion of the District's garbage revenue requirement analysis. The revenue requirement developed a financial plan to support the District's garbage operating and capital infrastructure requirements.

4.2 Cost of Service

For the District's garbage utility, a review of the cost basis for the current rates was undertaken. Similar to the approach taken with the sewer utility and in comparison to the water utility, the garbage utility had a more straightforward analysis preformed. This was due to two main points: the garbage utility rate consists of a component that is a direct pass through in essence meaning the District does not control the level of rates; this is the disposal component. The other piece of the rate, the administration component, is derived from the Districts cost to administer the garbage services and program. The second reason that would recommend an abbreviated cost of service analysis is that the District's customers are of a homogeneous group and there are not currently any separate customer classes to distribute costs between.

Given the considerations above, the goal of the cost of service was to:

- Separate the disposal and administration costs
- Develop a per account charge for the administrative component based on current costs

The allocation of costs to the collection and administration components was a straightforward analysis. Each line item of the District's budget was evaluated and then the summation of all the costs related to either collection or administration was performed. Below in Table 4 – 2 is a summary of the District's costs for FY 2023-24 which is the test year used and matches the water and sewer cost of service analyses.

Table 4 – 2 Summary of the Garbage Allocated Costs			
	Total	**Disposal**	**Administration**
Revenue Requirement	**$294**	$168	$126

From the allocated costs shown above, the unit costs can be determined based on the assumed number of billing accounts for the District. Shown in Table 4 – 3 is a summary of the unit costs for the District's garbage utility.

Table 4 – 3 Summary of the Garbage Unit Costs			
	Disposal	**Administration**	**Total**
Unit Costs *($/Acct./Yr)*	$322.70	$242.40	**$565.10**

Based on the results of the cost of service and the unit costs therein, the proposed rate design can be developed and is shown in the following section.

4.3 Rate Design

The final step of the rate study process is the design of rates to collect the desired levels of revenues, based on the results of the revenue requirement analysis. In developing the proposed rate designs, the District's existing rate structure was maintained.

4.3.1 Present and Proposed Garbage Rate Designs

There are two parts to the annual garbage bill, a disposal fee and local District administrative component. The disposal fee is the direct pass through cost related to the District's contract for disposing of the collected garbage. In addition to the disposal cost the District must also recover the District's costs of providing garbage service. During the development of the Study the District was notified of the proposed disposal cost. The analysis and rates were revised to reflect the new disposal rate. Presented in Table 4 - 4 is a summary of the present and proposed rates. No change in rate structure was made and the proposed adjustments were applied to the district expense to collect the overall target revenue.

Table 5 – 4
Summary of the Present and Proposed Garbage Rates

	Present Rates	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28
Garbage Rate	$322.90	$322.70	$342.10	$362.60	$384.40	$407.50
Administration Fee	189.80	242.40	256.90	272.30	288.60	305.90
Total Charge *($/Acct./Yr)*	**$512.70**	**$565.10**	**$599.00**	**$634.90**	**$673.00**	**$713.40**

Under the present rates, a garbage customer would pay $512.70 / year in FY 2022-23. Under the proposed rates, the same customer would pay $565.10 / year in FY 2023-24.

4.4 Summary of the Garbage Utility Analysis

This completes the analysis for the District's garbage utility. It is recommended that rates be increased by 10.5% in FY 2022-23 and then annually by 6.0% from FY 2024-25 through FY 2027-28. Full and complete detail of the development of the garbage utility's rate analysis and the proposed rate adjustments can be found in Technical Appendix.

5 Parks Rate Analysis

This section of the report presents the Parks rate study undertaken for the District. As with the other three utilities, the objective of the parks rate analysis was to determine the sufficiency of current parks rate revenues to cover projected operating and capital needs.

5.1 Determining the Revenue Requirement

A revenue requirement analysis determines the adequacy of the overall level of revenues needed to fund the parks utility operating needs. From this analysis, a determination can be made as to the level of parks rate adjustment needed to provide adequate and prudent funding for both operating and capital needs. Provided below is a detailed discussion of the development of the parks utility revenue requirements.

5.1.1 Establishing a Time Frame and Approach

The first step in calculating the revenue requirement for the parks utility was to establish a time frame for the revenue requirement analysis. As with the previously discussed utilities, the revenue requirement was developed for a 10-year time period (FY 2022-23 – FY 2032-33).

The revenue requirement developed for the parks utility was based on the "cash basis" approach just as with the water, sewer, and garbage utilities for the District. The cash basis approach includes operation and maintenance expense, taxes or transfers, rate funded capital, and annual debt service. The revenue requirement analysis developed for the District was customized to follow the District's system of accounts (budget documents). Given a time period around which to develop the revenue requirement and a method to accumulate the appropriate costs, the focus then shifts to the development and projection of the revenues and expenses of the parks utility.

The primary financial inputs in this process were the District's historical park usage and fee records, adopted operating budget, and current capital improvement plan. Presented below is a detailed discussion of the steps and key assumptions contained in the development of the projections of the District's parks revenues and expenses.

5.1.2 Projecting Rate and Other Revenues

The next step in developing the revenue requirement was to develop a projection of rate revenues, at present rate levels. To develop a projection of parks utility revenue HDR reviewed the past five years of parks usage fees. In developing the revenue projection, HDR utilized the last year of data as it appeared to reflect the current usage of the facilities. Based on the current park usage fees, the parks utility is projected to receive approximately $42,000 in rate revenue in FY 2022-23. Over the planning horizon of this Study, 0.0% customer growth was included resulting in a flat projection in rate revenues at $27,000 by FY 2027-28.

In addition to rate revenues, the District also receives other revenues. Primarily, the parks utility receives a portion of the property taxes received by the District. Other revenues include interest

income, and other miscellaneous revenue. The utility is projected to receive approximately $126,000 in other revenues, primarily from property taxes, in FY 2022-23. Other revenues are expected remain flat over time.

On a combined basis, taking into account the rate revenues along with other revenues, the District's parks total projected revenues are expected to be approximately $168,000 in FY 2022-23, and remain at this level throughout the rate setting period ending in FY 2027-28.

5.1.3 Projecting Operation and Maintenance Expenses

Operation and maintenance (O&M) expenses are incurred by the parks utility to operate and maintain existing parks service. The costs incurred in this area are expensed during the current year and are not capitalized or depreciated.

To begin the process of projecting parks O&M expenses over the planning horizon, escalation factors were developed. Escalation factors were developed for the basic types of expenses the District incurs: labor, benefits, insurance, materials & supplies, equipment, utilities, and miscellaneous expenses. Benefits and utilities are predicted to increase higher than the average rate of inflation during the planning horizon. The other escalation factors used were in the range of 2.5% to 6.0% per year, depending on the type of cost and recent inflationary trends. To maintain consistency between all the utility's rate studies O&M escalation factors are the other utilities.

In developing this analysis, HDR maintained the overall functional nature of the District's system of accounts (i.e., salaries, chemicals, supplies, etc.). Given the budgeted O&M expenses, HDR then escalated the O&M expenses based on the previously mentioned escalation factors. Total operation and maintenance expenses for the parks utility are projected to be approximately $218,000 in FY 2022-23. O&M expenses are projected to increase to approximately $271,000 by FY 2027-28, as a result of assumed inflation over the time period. No extra or additional O&M expenses were assumed during the planning period.

5.1.4 Rate Funded Capital

Over the study's time horizon there are limited planned capital improvement projects for the parks utility. In FY 2024-25 it is planned to resurface the tennis courts but no other capital is identified at this time during the rate setting period. As with the other three utilities, it is assumed that the planned capital projects will be paid exclusively through capital reserves which are funded by the annual reserve transfer.

5.1.5 Debt Service

At the present time, the parks utility has no outstanding debt service obligations and no new or additional long-term debt issuances have been identified or assumed at this time.

5.1.6 Reserve Funding

The parks utility budget includes two annual transfers to the Capital Fund Reserve just as with the water, sewer, and garbage utilities. The first reflects annual depreciation expense and is used to fund future capital improvements. This level of fund transfer is based on the current year

accounting period records to reflect the minimum capital improvement needs for the parks utility. The second is recapitalization which reflects 10% of annual revenues. The recapitalization transfer maintains fund balances and funds annual operating deficiencies when park facility use is not sufficient to fund annual operation expenses. In FY 2022-23 total transfers are approximately $4,000 and remaining flat through FY 2027-28.

5.1.7 Summary of the Revenue Requirement

Given the above projections of revenues and expenses, a summary of the revenue requirement for the parks utility can be developed. Presented in Table 5 - 1 is a summary of the parks revenue requirement. Detailed analysis can be found in the Technical Appendix.

Table 5 – 1
Summary of the Parks Utility's Revenue Requirement ($000s)

	FY 2022-23	FY 2023-24	FY 2024-25	FY 2025-26	FY 2026-27	FY 2027-28
Revenue						
Rate Revenues	$42	$42	$42	$42	$42	$42
Other Revenues	126	126	126	126	126	126
Total Revenues	**$168**	**$168**	**$168**	**$168**	**$168**	**$168**
Expenses						
Total O & M	$218	$228	$238	$248	$260	$271
Total Debt Service	0	0	0	0	0	0
Rate Funded Capital	0	0	0	0	0	0
Total To / (From) Reserves	4	4	4	4	4	4
Total Expenses	**$222**	**$232**	**$242**	**$253**	**$264**	**$275**
Bal./(Def.) of Funds	($54)	($64)	($74)	($85)	($96)	($108)
Bal. as a % of Rate Revenues	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%
Proposed Rate Revenue Adj.	$0	$0	$0	$0	$0	$0
Add'l Revenue from Rate Adj.	($54)	($64)	($74)	($85)	($96)	($108)
Total Bal. /(Def.) of Funds	$42	$42	$42	$42	$42	$42

The results of the revenue requirement analysis indicate a deficiency of funds over the rate setting period. The deficiency ranges from approximately $54,000 in FY 2022-23 to $108,000 in FY 2027-28. It is important to note the annual deficiencies in Table 5 - 1 are cumulative. That is, any adjustment in the initial years will reduce the needed deficiency in the following years.

In discussion with District staff and Board it was determined that no adjustments to the parks utility fees would be made at this time. In order to fund the annual deficiencies the District will use available reserves, additional property taxes when available, and monitor annual operating expenditures to minimize costs as much as possible.

5.1.8 Summary of the Parks Revenue Requirement

At this time no fee adjustments have been proposed for the parks utility. District staff and Board will need to monitor the parks revenues and expenditures and develop an appropriate plan should the projected deficiencies occur.

5.2 Rate Design

As indicated above, no rate adjustments suggested for the parks utility. In discussion with District staff and Board the current level of parks utility fees will be maintained and the if additional revenues are necessary (i.e., property tax allocation) the Board will determine the appropriate action.

5.3 Summary of the Parks Utility Analysis

This completes the analysis for the District's parks utility. Full and complete detail of the development of the parks utility rate study and the proposed rate adjustments can be found in Technical Appendix D.

Technical Appendix A – Water Analysis

Technical Appendix B – Sewer Analysis

Technical Appendix C – Garbage Analysis

Technical Appendix D – Parks Analysis