

PREPARED BY EES CONSULTING

Rivergrove Water District

Water Cost of Service and Rate Study Revised Final

June 27, 2024



Russ Schneider, Senior Project Manager

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406-471-8015

June 27, 2024

Janine Casey
General Manager
Rivergrove Water District
17661 Pilkington Road
Lake Oswego, OR 97035

SUBJECT: Water Cost of Service and Rate Study

Dear Janine:

Attached please find the final report for the Water Cost of Service and Rate Study (COSA) for the Rivergrove Water District (District) prepared by EES Consulting (EES), a GDS Associates company.

We based the conclusions and recommendations contained within this report upon industry practice and accepted rate setting principles. The assumptions are consistent with the financial, consumption and engineering study data provided by the district and provide rate recommendations for the updated revenue requirement, customer, and system data and costs.

EES developed the study with mutual aid of District management and staff and appreciate the internal effort to refine the study. Thank you for the opportunity to aid in this rate setting process.

Sincerely,

A handwritten signature in black ink, appearing to read 'Russ Schneider', with a horizontal line underneath.

Russ Schneider
Senior Project Manager, EES Consulting

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1 Executive Summary

The Rivergrove Water District (District) retained EES Consulting (EES), a GDS Associates company, to perform a water cost of service (COSA) and rate study as part of its ongoing efforts to maintain fiscally prudent and fair rates for its water customers. The purpose of this report is to discuss the data inputs, assumptions and results that were part of developing the rate study. A comprehensive rate study generally consists of three separate, yet interrelated analyses. These three analyses are revenue requirement, cost of service, and rate design.

1.1 REVENUE REQUIREMENT

Revenue requirement is simply the amount of money that the District needs to collect from rates, after considering all sources and uses of funds and fund balances.

A revenue requirement analysis compares the overall revenues of the utility to its expenses and helps determine the overall adjustment to rate levels that is required. For this analysis, a cash method was used for determining the District's revenue requirement. A forecasted fiscal year (FY) 2025-26 test period budget was developed based on 2022-24 expenses and the District's capital improvement program. EES considered both the progress against the existing master plan and inflation since the completion of the master plan in calculating average annual capital funding from rates. A base case was defined to develop the study results. The District's revenue requirement includes both operating and administration expenses. This base case assumed the following:

- The water consumption forecast was based on historical 2022-2023 data from the District.
- The number of customers was based on billing data from the District for the same time period.
- Revenue for 2025-26 was based on current rates and consumption.
- O&M expenses were taken from the budgeted District expenses and fund transfers.
- Debt service was based on existing debt and loan payments.
- Capital spending-based capital plan was provided by the District and status of existing projects in the current Master Plan.¹

Capital Improvement Projects (CIP) are related to the infrastructure of a utility. The importance of properly funding for capital improvements cannot be understated. Failure to properly fund renewals and replacement within retail rates will lead to long-term financial problems. The District's current master plan was completed in April of 2014, but covers expected investments through 2033. EES did not evaluate engineering changes that may affect the master plan but did adjust expected spending based on progress against the existing master plan and include inflationary adjustments.

¹ The one exception to expected capital improvement costs is the District's plan to borrow \$2.7 million for P-3, Pipe Replacement - upsize 1,700 LF of 6" AC with 10" DI on Childs Road from canal to SW Indian Creek Ave. This item in the existing master plan is only \$374,000.

Total test period FY 2025-2026 net revenue required from rates forecast is \$1,335,067 for the water system. The forecast for rate revenues is \$1,136,441 for 2025-26 based on budgeted consumption and growth estimates provided in the data responses. Given fund balances, this results in a shortfall in the rate revenues relative to ongoing costs of \$161,718 in 2025-26.

Based on this revenue requirement, the District needs an additional annual system-wide increase in rate revenues between CY 2025 and 2033 of 7.5% on average, without borrowing additional funds. However, capital funding will rely on lumpy spending overtime and additional borrowing should reduce the net requirement from rates in the near term. EES recommends that the District fund 60% of the need from rates, which results in an average annual rate change of 4.5%.

Table 1-1 shows a summary of the revenue requirement, out years are included in the Appendix.

TABLE 1-1: REVENUE REQUIREMENT FY 2023-2028

	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029
Revenues							
Revenues at Present Rates	\$962,191	\$1,100,000	\$1,130,000	\$1,136,441	\$1,142,919	\$1,149,433	\$1,155,985
Other Income & Deposits	\$167,052	\$31,600	\$35,150	\$36,908	\$38,753	\$40,691	\$42,725
Total Revenue	\$1,129,243	\$1,131,600	\$1,165,150	\$1,173,349	\$1,181,672	\$1,190,124	\$1,198,710
Expenses							
<i>Personnel Services</i>	293,144	440,600	459,100	482,055	506,158	531,466	558,039
<i>Material Services</i>	359,384	465,300	436,200	458,010	480,911	504,956	530,204
<i>Capital Improvement (Net)</i>	35,051	110,717	62,017	88,668	116,651	146,034	176,885
Total	\$687,580	\$1,016,617	\$957,317	\$1,028,733	\$1,103,719	\$1,182,455	\$1,265,128
Debt Service	\$53,415	\$53,415	\$186,434	\$266,434	\$266,434	\$266,434	\$266,434
Capital Outlay	\$35,335	\$40,000	\$38,000	\$39,900	\$41,895	\$43,990	\$46,189
Use or Contribution to Fund Balance	\$208,000	\$208,000	\$208,000				
Transfer to Fund Balance for Capital	\$144,914	-\$186,432	-\$224,601				
Total Revenue Requirement	\$1,129,243	\$1,131,600	\$1,165,150	\$1,335,067	\$1,412,048	\$1,492,879	\$1,577,751
Surplus/Shortfall	\$0			-\$161,718	-\$230,377	-\$302,755	-\$379,041
Shortfall as % of Rates - Incremental				14.2%	5.9%	6.2%	6.4%
Average Need without Borrowing	7.5%						
Borrow 40% of Need	4.5%						

1.2 COST OF SERVICE (COSA) STUDY

A COSA evaluates the equitable allocation of the revenue requirement to the various customer classes of service. As is standard procedure for cost-of-service analyses, the revenue requirement or budget items are assigned to a function, then classify based on a billing determinant or allocator. EES keeps general ledger detail unbundled throughout the analysis.

A COSA can be performed using embedded costs (current or historical) or marginal (future or changing) costs. Embedded costs generally reflect the actual costs incurred by the utility and closely track the costs kept in its accounting records. Marginal costs reflect the costs associated with adding a new customer and are based on the costs of facilities and services incurred at the present time. This study uses embedded COSA as its standard methodology but considers increasing costs based on the historical characteristics of the system and the trends in data provided.

A COSA begins by functionalizing the revenue requirement as water supply, pumping, water treatment, distribution, and customer for the water analysis, as financial detail allows.

Next, the functionalized costs are classified to base-, excess-, and customer-related costs for water, and to flow-, strength-, and customer-related component costs. There are two generally accepted methodologies used to classify water system costs: Base-Extra method and Commodity-Demand method. Under the Base-Extra method, most of a water utility’s costs are split between base and extra costs. The Commodity-Demand method separates most of the water utility’s costs into demand and commodity costs.

For the District’s COSA, costs have been classified based on the Base–Extra method. Given several assumptions, the results show that the water utility is under collection from all customers. All customers are assumed to be in the same rate class. Table 1-2 shows the functionalization of costs.

TABLE 1-2: FUNCTIONALIZATION OF COSTS FOR RATE CLASSES (FY 25-26)

Functionalization of Costs (Net of Capital)	Total	Residential	Comm.	Irrigation	Public		
					Authority	Adult Care	Church
Total Operation & Maintenance	\$458,010	\$442,302	\$1,203	\$5,226	\$5,917	\$3,045	\$318
Total Administrative & General	\$482,055	\$465,522	\$1,267	\$5,500	\$6,227	\$3,205	\$334
Total Interest / Debt Service Expense	\$266,434	\$251,990	\$832	\$4,226	\$5,709	\$3,335	\$343
Other Contributions	\$39,900	\$38,532	\$105	\$455	\$515	\$265	\$28
Total Other Revenues	-\$36,908	-\$35,642	-\$97	-\$421	-\$477	-\$245	-\$26
Capital	\$88,668	\$84,061	\$324	\$1,352	\$1,832	\$998	\$102
Net Revenue Required from Rates	\$1,298,159	1,246,765	3,633	16,337	19,724	10,602	1,098
Revenues at Current Rates	\$1,136,441	1,111,858	4,969	9,195	9,090	1,181	148
Shortfall/Surplus	-\$161,718	(134,906)	1,336	(7,143)	(10,633)	(9,421)	(951)
	14.2%	12.1%	-26.9%	77.7%	117.0%	797.7%	644.0%

1.3 RATE DESIGN

Rate design encompasses a multitude of considerations that often are somewhat removed from the unit costs resulting from the cost-of-service analysis. Issues such as appropriate price signals, potential impact of rate adjustments, ability to pay, intra-class subsidies, etc., will ultimately influence the final approved rate structure.

1.4 RECOMMENDATION

Based on the projected revenue requirement and COSA, EES makes the following recommendations:

- Using current water rates, the District is not collecting sufficient revenues to meet costs. It is therefore recommended that the District increase water rates by approximately 4.5-7.5% annually to meet 2025-33 requirements and monitor annual budgets and fund balances for any interim increases beyond that, as shown in Table 1-3. EES recommends a higher first year increase of 7.9% and then annual increases of 4.1% thereafter.
- Additional rate change details and options will be discussed later in the report. EES also provided comparison charts to neighboring utilities in the appendix.

TABLE 1-3: RATE INCREASE FOR PROJECTED YEARS²

Year	Increase %	Usage Charge \$/ccf	Projected Service Charges Based on Meter Size				
			3/4"	1"	1 1/2"	2"	3"
24-25	Budget	3.84	\$47.70	\$102.72	\$194.28	\$304.13	\$597.07
25-26	7.9%	4.15	\$51.47	\$110.84	\$209.63	\$328.16	\$644.24
26-27	4.1%	4.32	\$53.58	\$115.38	\$218.22	\$341.61	\$670.65
27-28	4.1%	4.49	\$55.78	\$120.11	\$227.17	\$355.62	\$698.15
28-29	4.1%	4.68	\$58.06	\$125.04	\$236.49	\$370.20	\$726.78

- EES recommends that the District do a one-time adjustment to System Development fees as shown in Table 1-4 and then continue to escalate these as is current practice based on annual survey of engineering costs data.

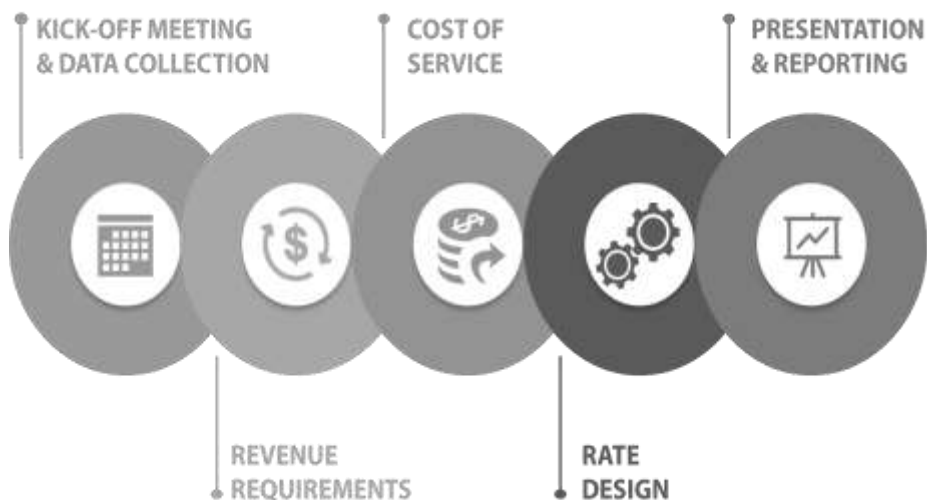
TABLE 1-4: SDC CURRENT AND PROPOSED 2025-26 RATES

Meter Size	Current SDC \$	Proposed SDC \$	% Change
1	13,784	\$14,349	4.2%
1 1/2	27,569	\$28,699	4.2%
2	44,110	\$45,919	4.2%
3	88,220	\$91,837	4.2%
4	137,843	\$143,495	4.2%
6	275,987	\$287,302	4.1%
8	441,099	459,184	3.5%

² The District budgeted for a 5% across the board increase in 2024-25, for the purposes of the study those are current rates for future consideration.

2 Background on Rate Setting and Cost of Service

In conducting a rate study, three inter-related analyses are performed. The first analysis is a revenue requirement analysis. This analysis examines the various sources and applications of funds for the utilities and determines the overall revenue (rate) adjustment required of the District. The next analysis typically developed is a COSA.



The COSA is used to determine the fair and equitable allocation of the total revenue requirement to the various customer classes of service. Finally, based on the results of the COSA and other policy considerations, rate design options are developed. The rate design options in this study are based on neighboring water utility rates.

2.1 RATE STUDY COMPONENTS

In developing water rates for the District, a major goal of the study is to develop cost-based unbundled rates that meet the District's revenue requirement needs. It is important to understand that a revenue requirement consists of both operational expenses and capital costs. Failure to collect the full revenue requirement may lead to a system that is more expensive to operate in the long run, and more susceptible to periodic failures.

This report is organized such that it follows the steps taken in analyzing and developing the District's COSA. Contained in this section is a generic discussion of the theory and financial principles behind setting rates. This is followed by a section discussing the development of the revenue requirement analysis, the cost-of-service study, and the results of that process. Finally, rate design options are discussed.

The setting of utility rates that are "fair and equitable" is a complex process. This process is directed, however, by "generally accepted methodologies" that can be used as a guide in developing the District's water rates. At the same time, there are often several financial principles or guidelines that must be taken into consideration during this process. Therefore, the setting of rates that are fair and equitable is an integration of these generally accepted methodologies and the financial policies or specific considerations for the District. For developing the COSA, EES assumed that the District must be financially stable and stand on its own.

The purpose of this section of the report is to provide a brief overview of the fundamentals of cost identification and allocation for purposes of developing rates. From this base level of knowledge, more insight and understanding can be obtained from the following sections of the report that discuss the specifics of the review of the District's allocated costs.

2.2 REVENUE REQUIREMENT APPROACH

By virtue of differences noted above for a public versus a private utility, their revenue requirements are based upon different elements or methodologies.

Most private utilities use what is known as an accrual or utility basis of determining revenue requirement or setting rate levels. This convention calculates a utility's annual revenue requirement by aggregating a period's operation and maintenance (O&M) expenses, taxes, depreciation expense, and a fair return on investment. Operating expenses include the labor, materials, supplies, etc., that are needed to keep the utility functioning. Private utilities must also pay state and federal income taxes, along with any applicable property, franchise, sales, or other forms of taxes. Next, depreciation expense is a means of recouping the cost of capital facilities over the useful lives of those facilities and a means of generating internal cash. Finally, a return on the capital invested pays for the utility's interest expense on indebtedness, provides funds for a return to the utility's equity holders in the form of dividends, and leaves a balance for retained earnings and cash flow purposes.

In contrast to the accrual or utility method of developing revenue requirement for private utilities, a different method of determining annual revenue requirement is often used for public utilities. The convention used by most public utilities is called the cash basis of cost accounting. As the name implies, a public utility aggregates its cash expenditures to determine its total revenue requirement for a specified period. Under the cash basis approach, there are four component costs. They are operation and maintenance expenses, reserves or fund balance requirements, debt service, and capital improvements funded from rates. The operating portion of the revenue requirement, i.e., O&M are similar under either methodology.

The major difference between the two methodologies is the way in which capital costs are viewed and handled. Capital costs under the cash basis approach are calculated by adding debt service to capital improvements financed with rate revenues. A utility's depreciation expense is often used as a measure of the reasonable level of funding required from rates for capital improvement activities. Depreciation expense represents the current investment of the utility and that portion that has become worn out or obsolete and must be renewed or replaced. It should further be noted that the two portions of the capital expense component are necessary under the cash basis approach because utilities often cannot finance all capital facilities with long-term debt and has to revenue finance a portion from current rates. Table 2-1 compares the cash and accrual accounting conventions.

TABLE 2-1: CASH VS. ACCRUAL BASIS COMPARISON

Cash Basis		Accrual (Utility) Basis	
+	O&M Expense	+	O&M Expense
+	Capital Improvements Financed with Operating Revenues	+	Depreciation Expense
+	<u>Debt Service</u>	+	<u>Return on Investment</u>
	Σ = Revenue Requirement		Σ = Revenue Requirement

For this study, cash basis accounting was used to determine the District's revenue requirement.

2.3 COST ALLOCATION APPROACH

After the total revenue requirement has been determined, it is allocated to the various customer classes of service based upon a fair and equitable methodology that reflects the cost-causal relationships for the production and delivery of the services. This analytical exercise usually takes the form of a COSA. A COSA begins by functionalizing a utility's revenue requirement as water supply, pumping, water treatment, distribution, and customer for the water analysis. Next, the functionalized costs are "classified" to base-, excess-, and customer-related costs for water systems.

Water excess-related costs are those that the utility incurs to meet a customer's water demand above the base. Base-related costs for water systems are those associated with the base or average day water demand. Customer-related costs for water systems vary with the number and type of customer served.

These component costs are then "allocated" to each class of service based upon the most equitable method available for each specific cost. At that point, the revenue requirement has been allocated to each class of service and a determination of the necessary revenue adjustments between classes of service can be made.

2.4 RATE DESIGN AND ECONOMIC THEORY

The final step in the rate study process is to design rates for customer classes taking into consideration the results of the revenue requirement and COSA. Rates can take many forms, but ultimately, they should reflect the component costs that the utility incurs and collect the desired level of revenues. The rate process utilizes the results of the revenue requirement and COSA to develop rates which achieve the overall goals and objectives of the District. These goals and objectives may include consideration of cost-based rates, but may also consider items such as the customer's ability to pay, continuity of past rate philosophy, economic development, ease of administration, etc. It is important to understand that a COSA is only one goal or objective in designing final water rates, however, it is an important one.

Best practices for rate making consider the foundational Bonbright principles of:

- Rate attributes: simplicity, understandability, public acceptability, and feasibility of application and interpretation.
- Effectiveness of yielding total revenue requirements.
- Revenue (and cash flow) stability from year to year.
- Stability of rates themselves, minimal unexpected changes that are seriously adverse to existing customers.

- Fairness in apportioning COSA among different consumers.
- Avoidance of “undue discrimination”.
- Efficiency, promoting efficient use of energy and competing products and services.

3 Revenue Requirement

This section of the report presents the introduction to the revenue requirements and the COSA for the District. EES based estimates of the historical financial performance and projected budgets, considering both the master plan previous rate studies.

3.1 OVERVIEW OF THE DISTRICT'S REVENUE REQUIREMENT METHODOLOGY

The District uses a cash basis method for budgeting and annual financials. For this analysis, a cash basis method is used in determining the District's revenue requirement. In summary form, the District's components to its revenue requirement include the elements shown in Table 3-1.

TABLE 3-1: ELEMENTS OF CASH BASIS REVENUE REQUIREMENT

Cash Basis	
+	Operation and Maintenance Expenses (O&M)
	✓ Personnel Services
	✓ Material Services
	✓ Other ongoing expenses
+/-	Other Contributions
+/-	Fund Transfers
+	Capital Improvements
=	Total Revenue Requirement
-	Other Revenue and Deposits
Σ	Net Revenues Required from Rates

From this basic analytical framework, the next step in determining the revenue requirement methodology is to select a time period over which to review revenue and expenses. In the case of the District, a fiscal year test period was utilized.

A budget period, fiscal year (FY) 2025-2026, was chosen as the test period for the cost-of-service study. The district provided audited expenses from year 2022-2023 and budgeted forecast for June 2023 through July 2024 and current balances. Revenues were estimated based on estimated consumption over the period 2024 through 2025.

3.2 REVENUE REQUIREMENT

This section of the report outlines the development of the revenue requirement. Simply stated, a revenue requirement analysis compares the overall revenues of the utility to its expenses and determines the overall adjustment to rate levels that is required. The comparison between the source and application of funds can then be used to determine revenue excess and shortfall.

3.3 DEVELOPMENT OF THE PROJECTED LOAD FORECAST AND FORECAST REVENUES

It was assumed that the water use, and the number of customers, will grow according to data provided by the District for the planning horizon. Modelling assumes 1.50% average annual growth in consumption in ccf and 0.60% average annual growth in meters or services.

3.4 OPERATIONS AND MAINTENANCE EXPENSES

Budgeted operating costs were divided between O & M and A & G, generally, to conform to the financial reporting of the revenue requirement inputs, the revenue requirements include \$458,010 in material services and \$482,055 in personnel services for 25-26. Where material services costs generally flow to O&M and personnel services flow to A & G.

O& M includes:

- Total 6202 – Professional Services
- Total 6101 – Operation & Maintenance
- Total 6001 – Administration/Billing/Overhead for the Above Categories

3.5 CAPITAL IMPROVEMENT PROJECTS

Capital Improvement Projects (CIP) are related to the infrastructure of the utility. Capital improvement projects are on an ongoing basis and are generally divided into two types or categories. These two categories are capital improvement projects, which are related to renewal and replacement, and growth-related facilities. Renewal and replacements are, as the name suggests, the replacement of existing and worn-out facilities. Growth-related facilities are those related to system expansion, system upgrades and new customers.

The importance of properly funding for capital improvements cannot be understated. In particular, failure to properly fund renewals and replacement within retail rates will ultimately lead to long term financial problems. In effect, the District will either use cash reserves to finance these renewals and replacement projects in the short-run, or worse yet, not make the necessary replacements at all.

For this study, it has been assumed that rates shall support an amount equal to the average of the District's remaining master plan requirements through 2033. This does not include other capital requirements not in existing plans. The District provided a capital improvement projection in the existing master plan, plus an assessment of work completed in existing budgets already.

For this draft report, the water system revenue requirement includes an annual average need from all funding sources for FY 2025-2026, of \$559,668. However, the net capital need from current rates averages \$245,410. To tie that to how the District budgets, think about the annual fund transfer to capital of \$208,000 plus Capital Outlay amounts of between \$38,000-\$45,000, plus net changes in other fund balances and new borrowing.

Table 3-2 presents the capital improvement programs expenditure for two different periods, 2014-2023 and 2024-2033, along with the 9-year average expenditure applicable to the current rate consideration and with an inflation adjustment of 1.32, the average capital need is \$364,210³.

³ This is \$245,410 considering only existing Master Plan amounts, without considering cost increases related to P-3 Pipe Replacements in the most recent loan estimates.

TABLE 3-2: CAPITAL IMPROVEMENT PROGRAMS

Project Category	2014-2023	2024-2033	9 Year Average	9 Year Average Inflation Adjusted
Distribution Piping	\$670,375	\$1,583,250	\$175,917	\$232,210
Storage & Related	\$1,130,000	\$0	\$0	\$0
Reliability	\$1,000,000	\$90,000	\$10,000	\$13,200
Other	\$100,000	\$810,000	\$90,000	\$118,800
Total	\$2,900,375	\$2,483,250	\$275,917	\$364,210

3.6 DEBT SERVICE

The District includes debt service expense of \$266,434 for 2025-2026. Debt service increased \$53,415/year in 2024-2025. It is likely that the District will be able to obtain additional loans for a portion of the future needs. It is anticipated that there will be at least \$80,000 annual in additional debt service from new loans in 2025-2026, although final rates and terms are yet to be determined.

Regardless, as with any capital spending plan, there are opportunities to adjust the timing and spending rates of other projects, and this proposal considers a multitude of factors given the information provided. However, the District has a limited annual source of revenue and should not take on too much debt, too fast. Therefore, best practice is to maintain consistent proportion of funding from current rates, while maintaining consistent rate changes.

3.7 ADMINISTRATIVE AND GENERAL

The District tracks A&G costs in personnel services. These general costs of operating the District fall into A&G categories and this includes the following budget items:

- 5020 – Administrative Wages
- 5040 – Operator Wages
- 5090 – Deferred Compensation
- Total 5200 – Payroll Benefits
- 5100 – Payroll Tax Expense

3.8 CAPITAL OUTLAY

The capital outlay line item expenditure includes \$39,900 for 2025-2026. This is the budgeted direct outlay toward capital, not considering net capital contributions from fund balances and borrowing. This will increase over time with increased capital spending.

3.9 OTHER INCOME AND DEPOSITS

The other income and deposits for FY 2025-2026 includes \$36,908. This includes all other deposits, but does not forecast any large amounts. There is some conservatism in the budgeting of these items.

3.10 MISCELLANEOUS REVENUES

The District's water system receives additional operating and non-operating revenues. These come in the form of connection and establishment fees and other miscellaneous sources. The estimate of these revenue items for FY 2024-2025 is approximately \$1,000. There are some categories of miscellaneous

interest and other that typically are not part of the budget but will likely have some positive revenue impact on future budgets.

3.11 SUMMARY OF REVENUE REQUIREMENT

Once all of the components of the cash basis revenue requirement have been forecast, the total revenue requirement can be derived. A summary of the District’s water system revenue requirement for the forecasted period can be seen in Table 3-3.

TABLE 3-3: SUMMARY OF REVENUE REQUIREMENTS

	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029
Revenues							
Revenues at Present Rates	\$962,191	\$1,100,000	\$1,130,000	\$1,136,441	\$1,142,919	\$1,149,433	\$1,155,985
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Total Revenue	\$1,129,243	\$1,131,600	\$1,165,150	\$1,173,349	\$1,181,672	\$1,190,124	\$1,198,710
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<i>Material Services</i>	359,384	465,300	436,200	458,010	480,911	504,956	530,204
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Total	\$687,580	\$1,016,617	\$957,317	\$1,028,733	\$1,103,719	\$1,182,455	\$1,265,128
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Use or Contribution to Fund Balance	\$208,000	\$208,000	\$208,000				
Transfer to Fund Balance for Capital	\$144,914	-\$186,432	-\$224,601				
Total Revenue Requirement	\$1,129,243	\$1,131,600	\$1,165,150	\$1,335,067	\$1,412,048	\$1,492,879	\$1,577,751
Surplus/Shortfall	\$0			-\$161,718	-\$230,377	-\$302,755	-\$379,041
Shortfall as % of Rates - Incremental				14.2%	5.9%	6.2%	6.4%
Average Need without Borrowing	7.5%						
Borrow 40% of Need	4.5%						

The COSA results imply the need for additional investments in infrastructure, technology, and services to ensure continued service quality and capacity to meet future demand, as shown in Table 3-4. It is important for the District to continually monitor the relationship between its current revenues and costs.

TABLE 3-4: 5-YEAR PROJECTED REVENUE INCREASE NEEDED

	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029
Current Rate Revenues	\$1,100,000	\$1,130,000	\$1,136,441	\$1,142,919	\$1,149,433	\$1,155,985
Surplus/Deficit			-\$161,718	-\$230,377	-\$302,755	-\$379,041
Rate Increase Proposal			7.9%	4.1%	4.1%	4.1%
Additional Revenue from Rates			\$89,779	\$136,639	\$183,765	\$231,161
Fund Balances and Borrowing			-\$71,940	-\$93,738	-\$118,990	-\$147,881

4 Cost of Service Analysis

4.1 COSA DEFINITION AND GENERAL PRINCIPLES

A COSA allocates the costs of providing utility service to the various customer classes served by the District based upon the cost-causal relationship associated with specific expense items. This approach is taken to develop a fair and equitable designation of costs to each customer class, where customers pay for the costs that they incur. Because most costs are not incurred by any one type of customer, the COSA becomes an exercise in spreading joint and common costs among the various classes using factors appropriate to each type of expense.

The COSA is the second step in a traditional three-step process for developing service rates. The first step is the development of the test period revenue requirement for the utility, which is the starting input for the COSA. The COSA spreads the revenue requirement across the various customer classes, creating per unit costs by class. In the third step, rates are designed for each customer class, with per unit costs being one consideration in setting the appropriate rate levels.

A COSA can be performed using embedded costs or marginal costs. Embedded costs generally reflect the actual costs incurred by the utility and closely track the costs kept in its accounting records. Marginal costs reflect the cost associated with adding a new customer and are based on the costs of facilities and services incurred at the present time. While marginal costs can be valuable for designing rates in certain instances, marginal costs are generally higher than embedded costs. Therefore, the use of a marginal COSA approach to cost allocation usually requires that all costs be scaled back to a level equal to the embedded cost revenue requirement established using actual or projected costs from an “accounting” perspective.

This study uses embedded COSA as its standard methodology. Therefore, the District’s embedded cost revenue requirement and existing rate base investment are used in developing the COSA results.

There are three basic steps to follow in developing a COSA, namely:

- Functionalization
- Classification
- Allocation

Functionalization separates costs into major categories that reflect the utility’s plant investment and different services provided to customers. The primary functional categories are source of supply, pumping, water treatment, customer, and general. Classification determines the portion of the cost that is related to specific cost-causal factors, such as those that are base-related, excess-related, or customer-related for water systems. The allocation of costs to specific customer classes is based on the customer’s contribution to the specific classifier selected. For instance, demand-related costs are allocated to a customer group using that customer group’s contribution to the measurement of system demand, whether coincident peak, non-coincident peak or some variation determined to be appropriate for the particular cost item. An analysis of customer requirement, loads, and usage characteristics is completed to develop allocation factors reflecting each of the classifiers employed within the COSA. The analysis may include an evaluation of the system design and operations, its accounting and physical asset records, customer load data, and special studies.

TABLE 4-1: CLASSIFICATION OF FIXED ASSETS

Classification of Plant or Rate Base					
	Commodity Base Use	Capacity Max Day Demand	Fire Protection	Customer	Total
Total System	45%	44%	5%	6%	100%

4.2 COST OF SERVICE ANALYSIS

The objective of the COSA is to analyze costs and equitably assign those costs to customers commensurate with the cost of serving those customers. The founding principle of cost allocation is the concept of cost-causation. Cost-causation evaluates which customer or group of customers causes the utility to incur certain costs by linking system facility investments and operating costs to serve certain facilities to the services used by different customers. This section of the report will discuss the general approach used to apportion the water utility's COSA and provide a summary of the results.

4.3 FUNCTIONALIZATION OF COSTS

The first step in the COSA process following finalization of the revenue requirement is to functionalize the revenue requirement. Functionalization is the separation of cost data into the functional activities performed in the operation of a utility system (i.e., water supply, treatment, pumping, and distribution). Functionalization was accomplished using the District's system of accounts.

In addition to the functionalized costs, certain joint costs are spread to each functional category based on the relationship of the joint cost to the business function. These joint costs include such items as administrative and general costs.

4.3.1 Standard Functionalization

Plant investment costs or rate base are generally functionalized into water supply, treatment, distribution and customer cost categories. The functionalization of the rate base typically is very straightforward as costs for the distinct functions are readily identifiable and rate base accounts are maintained by functional categories. Expense accounts are also typically kept according to these basic functional categories, with expense items associated with certain types of plant being treated in the same manner as the corresponding plant account. The two areas where there generally are differences in functionalization among utilities are in the treatment of general plant and A&G expenses. Typically, general plant is considered a separate functional category. Some utilities, when their internal accounting systems can support such an assignment process, will record general plant investment by loading the costs into the other functional categories, much like an overhead assignment or a form of activity based accounting. On the expense side, A&G costs can be treated in the same way. Generally, they are treated as a separate expense category that can be spread to functions based upon all other O&M expenses. However, they can also be spread to functions on the basis of total net plant, labor ratios, or, in some cases, directly assigned as part of the activity based accounting approach.

4.4 CLASSIFICATION OF COSTS

The second step in performing a COSA is to classify the functionalized expenses to traditional cost causation categories. These cost causation categories can be directly related to specific consumption behavior or system configuration measurements such as peak demand, volumetric usage, or number of customers. Each classification category will have a specific allocation factor that, when applied, will distribute those costs among the appropriate customer classes during the allocation phase of the analysis.

4.4.1 Standard Classification

There are two generally accepted methodologies used to classify water system costs: Base-Extra method and Commodity-Demand method. Under the Base-Extra method, the majority of a water utility's costs are split between base and extra costs. In its simplest form, base costs are incurred to meet the constant or average daily water needs on the water system, while extra costs are incurred to serve above average or peak day water needs.

The Commodity-Demand method separates most of the water utility's costs into demand and commodity costs. Demand costs are associated with providing facilities to meet the peak rates of use (or demand) placed on the water system by customers. These costs include capital-related costs on plants designed to meet peak demands and any associated O&M expenses. Commodity costs are costs that tend to vary by the quantity of water consumed by the customers. These costs include expenses such as pumping, chemicals, and power costs.

4.5 ALLOCATION OF COSTS

The third step in performing a COSA is the allocation of the District's total functionalized and classified revenue requirement to the customer classes of service. This is performed through the application of an appropriate allocation methodology. In general, the allocation of costs is straightforward once the costs have been classified into a specific category.

4.6 REVIEW OF CUSTOMER CLASSES OF SERVICE

Customer classes of service refer to the arrangement of customers into groups that reflect common usage characteristics or facility requirement. The classes of service used within this study were as follows:

- Residential
- Commercial
- Irrigation
- Public Authority
- Adult Care
- Church

Some of the minor rate classes are not necessarily intended to be at full COSA, so it is a policy decision for those rates. However, one class paying less or more impacts other classes.

4.7 MAJOR ASSUMPTIONS OF THE COSA

Major assumptions used in conducting the water COSA for the District are as follows:

- FY 2025-2026 was selected as the test period for the allocation of costs within the COSA.
- The water system revenue requirement as outlined in the previous section was used for the COSA.
- Water usage and the number of customers is assumed minimal growth over the planning period.

4.8 COST OF SERVICE RESULTS

Given the above assumptions regarding the water system COSA, the various costs were classified and allocated to the customer classes of service. A summary comparison of the allocated water system COSA

and anticipated revenue from present rates can be found in Table 4-1. The projected rate increases are necessary to bridge the gap between revenue and expenses and maintain adequate funding for operations, maintenance, and infrastructure investments. Table 4-2 shows the detailed breakdown of COSA results helps in understanding how different sectors are contributing to the overall revenue change and can inform future rate adjustments or policy decisions.

The 9% increase in the residential category suggests either a rate hike or an increase in usage by residential customers. This might be due to population growth, changes in billing structures, or higher per capita water consumption. If this trend continues, it could indicate a need for further investment in infrastructure to support the growing residential demand.

TABLE 4-2: COSA RESULTS FY 2025-2026⁴

	Present Rate Revenue	COSA Rate Revenue	% Change
Residential	1,111,858	1,246,764.55	12.0%
Commercial	4,969	3,633.46	-27.0%
Irrigation	9,195	16,337.28	78.0%
Public Authority	9,090	19,723.67	117.0%
Adult Care	1,181	10,602.05	798.0%
Church	148	1,098.35	644.0%
Total	1,136,441	1,298,159	14.2%

⁴ Some public purpose classes had low volumes during the study period and for subsidized rates this can appear a large under-collection. However the total dollar impact is low to other rates.

5 Rate Design Principles

Rates need to be designed to recover the District's COSA. In the current environment, the District will have to be increasingly diligent in reviewing certain key components of its revenue requirement to ensure revenue sufficiency. Rate designs that track volatile costs and that acknowledge the effects of price elasticity will become more prominent and important in the coming years.

This section of the report will identify rate setting principles as well as provide a framework for evaluation of the various rate design options. This section will be completed following the review of the draft COSA results.

5.1 RATE SETTING PRINCIPLES

Prudent rate administration requires that several viewpoints be considered in setting rates to the extent that the consumer remains a captive customer of the District. These views balance the needs of the consumer, the District, and society as a whole. All three need to be considered when designing rates.

5.2 CONSUMER

From a consumer's perspective, several issues predominate as noted below:

- Rates should foster fairness and equity. Customers should pay the cost incurred to provide them with service. This means that one customer class should not subsidize another customer class.
- Rates should be comparable. Customers that place similar demands on the utility's system should be served at the same rate. Alternatively, consumers that receive materially different types and/or levels of service should be charged differently. Discrimination should be avoided.
- Rates should be "affordable." Since utility services are seen as a necessity, service from the utility should be affordable to all customers within its service area or provisions should be made to ensure that this would be the case.
- The consumers should easily understand rates. Unless consumers can reasonably ascertain how their consumption patterns affect the price they pay, they will not be able to make rational decisions pertaining to usage. Clear price signals will drive a more competitive market for generated power.
- Rates should be designed so that they are stable, predictable and do not unnecessarily create adverse impacts on the consumer. Unstable rates can hinder planning, particularly for larger customers. For example, unstable rates have the effect of putting industrial customers at a competitive disadvantage versus similar companies with more stable rates.

5.3 UTILITY

Utilities have their own set of issues and concerns, including:

- Rates must fully recover the utility's revenue requirement.
- Rates for publicly owned utilities should allow for sufficient funds to cover needed capital improvements.
- Rates should be fair and equitable and send proper price signals. Rates that are fair and equitable promote good customer service.

- The rate structure should promote economic efficiency. The rate structure should facilitate good decision-making, foster efficient expansion of the system, and encourage efficient use of the existing system.
- The rate structure should provide for revenue stability and predictability.
- Just as the rate structure should be simple and easy to understand for the consumer, it should also be easy to administer by the utility.

5.4 SOCIETY

From a societal perspective, a number of further issues should be examined when designing rates. Rates should foster economic efficiency. The rate structure should ensure the optimal use of society’s scarce energy resources. Efficiency not only leads to optimal use, it also should lead to optimal non-use, or conservation. With the achievement of this level of efficiency as a goal, rates should closely reflect the COSA. This will also ensure that rates are both fair and equitable among users. As another means of assuring equity in ratemaking, there should be continuity in ratemaking philosophy.

5.5 RATE DESIGN OPTIONS

Following the review of this draft study, the District will need to make the following decisions before rate design options are developed:

- Overall rate increase needed.
- Rate increase by customer class versus across-the-board.

5.6 CURRENT RATE SCHEDULE

Table 5-1 shows the current rate schedule of the District. The District’s current usage charge of \$3.66 is positioned in the middle of the range when compared to other utilities. It’s neither the most expensive nor the cheapest, providing a moderate option for consumers. Given the competitive landscape, the district can consider introducing additional tiers to better segment and serve different usage levels as majority utilities have tiered rates of utilities. The District’s service charges are among the highest compared to other utilities, particularly for larger meter sizes.

TABLE 5-1: CURRENT RATE SCHEDULE (Budget 24-25)

Meter Size	Customer or Meter Charge, \$/Month	Volume Charge, \$/ccf
3/4	\$47.70	\$3.84
1	\$102.72	\$3.84
1 1/2	\$194.28	\$3.84
2	\$304.13	\$3.84
3	\$597.07	\$3.84
4	\$807.47	\$3.84
6	\$1,842.33	\$3.84
8	\$2,357.02	\$3.84

5.7 INSIDE AND OUTSIDE WATER RATES DIFFERENTIAL

Table 5-2 shows that the service charges for outside users typically in higher ranges, around 30% for most meter sizes, except for the 8" meter size, which shows a significant increase of 62%. The usage charge for outside users is also approximately 30% higher than for inside users.

TABLE 5-2: INSIDE/OUTSIDE WATER RATE SCHEDULE (Budget 24-25)

Meter Size	Inside Water Service Charge	Outside Water Service Charge	Percentage Difference
5/8" x 3/4"	\$47.70	\$62.06	30%
1"	\$102.72	\$133.50	30%
1 1/2"	\$194.28	\$252.54	30%
2"	\$304.13	\$395.36	30%
3"	\$597.07	\$776.24	30%
4"	\$807.47	\$1,049.70	30%
6"	\$1,842.33	\$2,395.03	30%
8"	\$2,357.02	\$3,823.33	62%

Inside Water Usage Charge	Outside Water Usage Charge	Percentage Difference
\$3.84	\$4.98	30%

5.8 SDC METHODOLOGY

The general methodology used to calculate water SDCs begins with an analysis of system, planning and design criteria to determine growth's capacity needs, and how they will be met through existing system available capacity and capacity expansion. Then, the capacity to serve growth is valued to determine the cost basis for the SDCs, which is then divided by the total growth capacity units to determine the system wide unit costs of capacity. The final step is to determine the SDC schedule, which identifies how different developments will be charged, based on their estimated capacity requirements.

Table 5-3 below proposed SDC adjustments are likely to result in increased revenue for the District ranging from approximately 4.2%. However, the District should continue to make annual adjustments based on the engineering cost service per current practice thereafter.

TABLE 5-3: SDC CURRENT AND PROPOSED RATES

Meter Size	Current SDC \$	Proposed SDC \$	% Change
1	\$13,784	\$14,349	4.2%
1 ½	\$27,569	\$28,699	4.2%
2	\$44,110	\$45,919	4.2%
3	\$88,220	\$91,837	4.2%
4	\$137,843	\$143,495	4.2%
6	\$275,987	\$287,302	4.1%
8	\$441,099	\$459,184	4.2%

5.9 POTENTIAL RATES

Tables 5-4 and 5-5 show the proposed rate that is based on an allocation of the annual revenue requirement to each customer type.

TABLE 5-4: RATE OPTION 1

Proposed Rates at 7.9% Increase for 1st Year							
		Residential	Comm.	Irrigation	Public Authority	Adult Care	Church
Customer or Meter Charge, \$/Bi-Monthly							
¾		\$51.47	\$51.47	\$51.47	\$51.47	\$51.47	\$51.47
1		\$110.84	\$110.84	\$110.84	\$110.84	\$110.84	\$110.84
1 ½		\$209.63	\$209.63	\$209.63	\$209.63	\$209.63	\$209.63
2		\$328.16	\$328.16	\$328.16	\$328.16	\$328.16	\$328.16
3		\$644.24	\$644.24	\$644.24	\$644.24	\$644.24	\$644.24
Volume Charge, \$/Ccf		\$4.143	\$4.143	\$4.143	\$4.143	\$4.143	\$4.143
Forecast Annual Rate Revenues							
Customer or Meter Charge, \$/Year	Total	Residential	Comm.	Irrigation	Public Authority	Adult Care	Church
¾	\$425,554	\$419,903	\$1,036	\$2,853	\$1,762	\$0	\$0
1	\$130,386	\$128,548	\$283	\$848	\$471	\$188	\$47
1 ½	\$6,455	\$6,364	\$14	\$42	\$23	\$9	\$2
2	\$6,063	\$5,978	\$13	\$39	\$22	\$9	\$2
3	\$3,968	\$3,912	\$9	\$26	\$14	\$6	\$1
Total Meter Charge Revenues, \$:	\$572,426	\$564,706	\$1,354	\$3,808	\$2,292	\$212	\$53
Volume Charge, \$ / Ccf	\$653,682	\$634,938	\$4,007	\$6,113	\$7,515	\$1,009	\$100
Total Revenues Projected (25-26)	\$1,226,108	\$1,199,644	\$5,361	\$9,921	\$9,807	\$1,222	\$153
Total Revenues at Present Rates	\$1,136,441	\$1,111,858	\$4,969	\$9,195	\$9,145	\$1,132	\$142
Target Increase	7.9%	7.9%	7.9%	7.9%	7.9%	7.9%	7.9%

Table 1-3 provides projected service charges based on meter size for fiscal years 2024 to 2028, along with the corresponding usage charges per ccf (hundred cubic feet) for different meter sizes.

TABLE 5-5: RATE OPTION 2

Proposed Rates at 4.1% Increase for Subsequent Years		Residential	Comm.	Irrigation	Public Authority	Adult Care	Church
Customer or Meter Charge, \$/Bi-Monthly							
¾		\$53.58	\$53.58	\$53.58	\$53.58	\$53.58	\$53.58
1		\$115.38	\$115.38	\$115.38	\$115.38	\$115.38	\$115.38
1 ½		\$218.22	\$218.22	\$218.22	\$218.22	\$218.22	\$218.22
2		\$341.61	\$341.61	\$341.61	\$341.61	\$341.61	\$341.61
3		\$670.65	\$670.65	\$670.65	\$670.65	\$670.65	\$670.65
Volume Charge, \$/Ccf		\$4.313	\$4.313	\$4.313	\$4.313	\$4.313	\$4.313
Forecast Annual Rate Revenues							
Customer or Meter Charge, \$/Year	Total	Residential	Comm.	Irrigation	Public Authority	Adult Care	Church
¾	\$443,054	\$437,118	\$1,078	\$2,970	\$1,834	\$55	\$0
1	\$135,726	\$133,814	\$294	\$883	\$490	\$196	\$49
1 ½	\$6,720	\$6,625	\$15	\$44	\$24	\$10	\$2
2	\$6,312	\$6,223	\$14	\$41	\$23	\$9	\$2
3	\$4,130	\$4,072	\$9	\$27	\$15	\$6	\$1
Total Meter Charge Revenues, \$:	\$595,943	\$587,852	\$1,409	\$3,964	\$2,386	\$276	\$55
Volume Charge, \$ / Ccf	\$680,505	\$660,992	\$4,172	\$6,364	\$7,823	\$1,051	\$104
Total Revenues Projected (26-27)	\$1,276,448	\$1,248,843	\$5,581	\$10,328	\$10,210	\$1,326	\$159
Projected Total Revenues at 1st Year (with 7.1% Increase)	\$1,226,108	\$1,199,644	\$5,361	\$9,921	\$9,807	\$1,222	\$153
Target Increase	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%	4.1%

5.10 BLOCK RATES OPTION

For the fiscal year 2024-2025, EES provides a block rate option for the two rate increases if the Board wants to introduce a tiered rate structure in Table 5-6. Each tier has a distinct rate or price point, and impacts can vary based on usage, quantity, or other levels. This rate design provides an incentive for conservation at higher consumption levels. The example below assumes constant consumption across the period.

TABLE 5-6: TIERED RATE OPTION

2 Block Volume Charge	Residential	7.9% Increase	4.1% Increase
	<i>Current Rates</i>	<i>7.90%</i>	<i>4.10%</i>
Total Volume Charge Revenue Requirement (Excludes Fire Protection Costs)	\$653,139	\$704,822	\$733,867
Total Ccf	153,256	153,256	153,256
Tier 1: Basic Use + MDD Use			
Base Use Revenue Requirement	\$516,699	\$558,412	\$581,287
Units, 0 to 8 Ccf	134,557	134,557	134,557
Block 1 Volume Charge, \$/Ccf	\$3.84	\$4.15	\$4.32
Tier 2: Excess Use			
Excess Use Revenue Requirement	\$136,440	\$146,409	\$152,580
Units, Over 8 Ccf	18,699	18,699	18,699
Block 2 Volume Charge, \$/Ccf	\$7.30	\$7.83	\$8.16
Total	\$653,139	\$704,822	\$733,867
		7.9%	4.1%

Appendix A – Long-Term Forecast

	2022-2023	2023-2024	2024-2025	2025-2026	2026-2027	2027-2028	2028-2029	2029-2030	2030-2031	2031-2032	2032-2033	2033-2034
<i>Source of Funds</i>												
Revenues at Present Rates	\$962,191	\$1,100,000	\$1,130,000	\$1,136,441	\$1,142,919	\$1,149,433	\$1,155,985	\$1,162,574	\$1,169,201	\$1,175,865	\$1,182,568	\$1,189,308
Other Income & Deposits	\$167,052	\$31,600	\$35,150	\$36,908	\$38,753	\$40,691	\$42,725	\$42,969	\$43,213	\$43,460	\$43,708	\$43,957
Total Sources of Funds	\$1,129,243	\$1,131,600	\$1,165,150	\$1,173,349	\$1,181,672	\$1,190,124	\$1,198,710	\$1,205,543	\$1,212,414	\$1,219,325	\$1,226,275	\$1,233,265
<i>Application of Funds</i>												
Personnel Services	293,144	440,600	459,100	482,055	506,158	531,466	558,039	\$585,941	\$615,238	\$646,000	\$678,300	\$712,215
Material Services	359,384	465,300	436,200	458,010	480,911	504,956	530,204	\$556,714	\$584,550	\$613,777	\$644,466	\$676,689
Capital Improvement (Net of borrowing and fund balances)	35,051	110,717	62,017	88,668	116,651	146,034	176,885	\$185,730	\$195,016	\$204,767	\$215,005	\$225,756
Total	\$687,580	\$1,016,617	\$957,317	\$1,028,733	\$1,103,719	\$1,182,455	\$1,265,128	\$1,328,385	\$1,394,804	\$1,464,544	\$1,537,771	\$1,614,660
Debt Service	\$53,415	\$53,415	\$186,434	\$266,434	\$266,434	\$266,434	\$266,434	\$266,434	\$266,434	\$266,434	\$266,434	\$266,434
Capital Outlay	\$35,335	\$40,000	\$38,000	\$39,900	\$41,895	\$43,990	\$46,189	\$46,189	\$46,189	\$46,189	\$46,189	\$46,189
Use or Contribution to Fund Balance	\$208,000	\$208,000	\$208,000									
Transfer to Fund Balance for Capital	\$144,914	-\$186,432	-\$224,601									
Total Revenue Requirement	\$1,129,243	\$1,131,600	\$1,165,150	\$1,335,067	\$1,412,048	\$1,492,879	\$1,577,751	\$1,641,008	\$1,707,427	\$1,777,167	\$1,850,395	\$1,927,283
Surplus/Shortfall				-\$161,718	-\$230,377	-\$302,755	-\$379,041	-\$435,465	-\$495,013	-\$557,842	-\$624,119	-\$694,018
Shortfall as % of Current Rates Incremental				14.2%	5.9%	6.2%	6.4%	4.7%	4.9%	5.1%	5.3%	5.6%
Average Need without Borrowing	7.5%											
Borrow 40% of Need	4.5%											

Appendix B – Rate Comparisons

Neighboring water utilities were surveyed to determine common rate structures and rate levels.

FIGURE B-1: BILL COMPARISON BIMONTHLY \$/10CCF

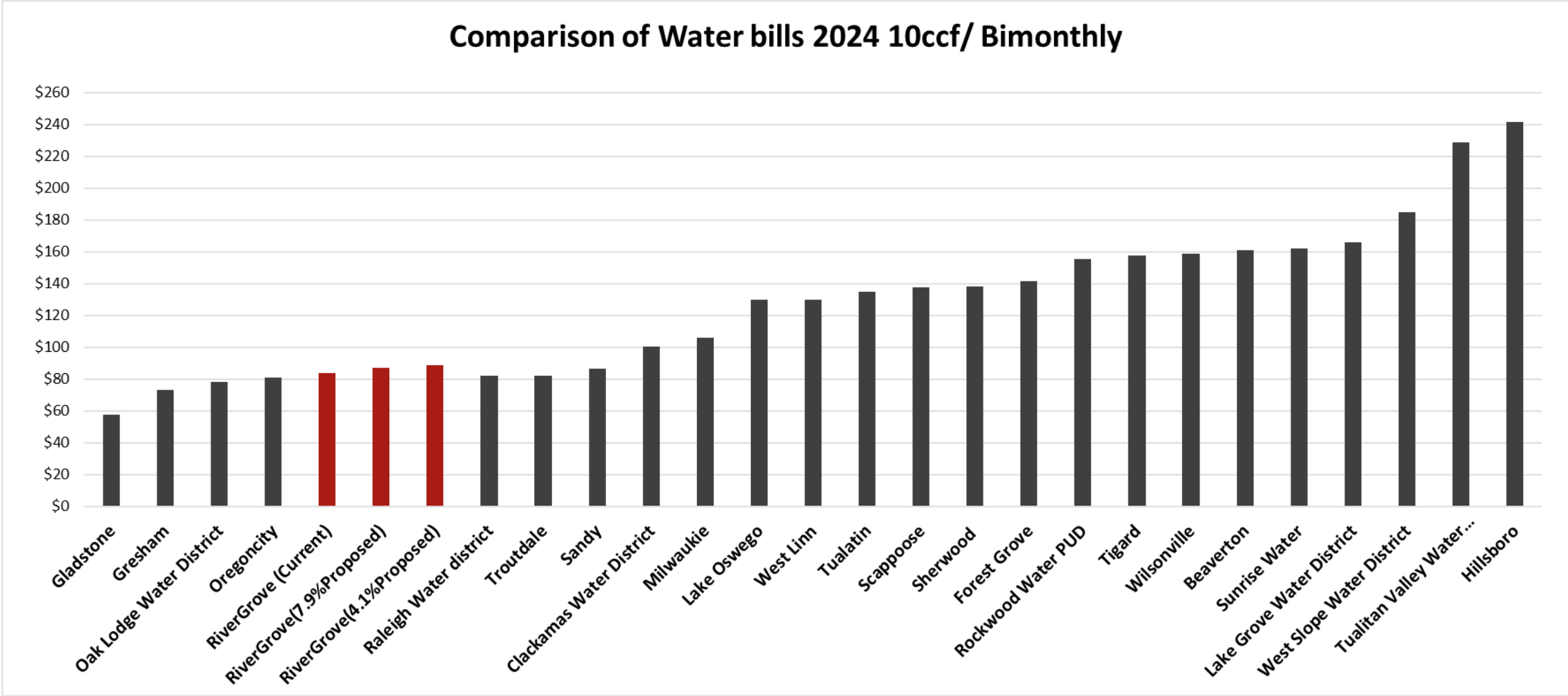


Figure B-2 illustrates out of many utilities listed, only a subset of them employs tiered rates for water usage. Tiered rates typically mean that the cost of water varies depending on the volume consumed by the customer.

1 unit = 100 cubic feet = 748 gallons of water

FIGURE B-2: TIERED RATES FOR VARIOUS WATER UTILITIES

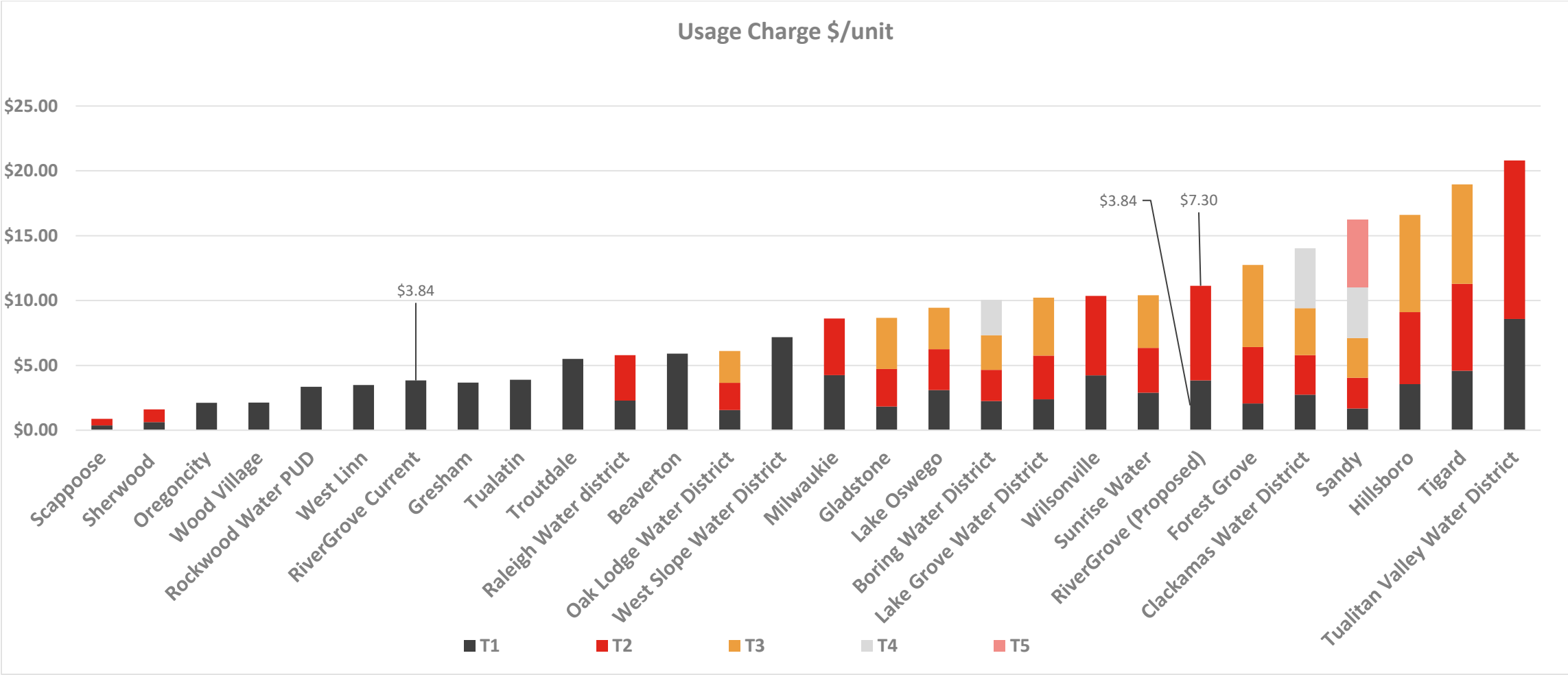


Figure B-3 illustrates the system development charges for various water utilities based on meter size. The District's service charges are on the higher side but not the highest. For customers with 1", 1.5", and 2" meters, the District's charges are comparable to some utilities but significantly lower than the highest charging utilities.

FIGURE B-3: SYSTEM DEVELOPMENT CHARGES FOR VARIOUS WATER UTILITIES

