



MOOREVIEW
Management Consulting Inc.

In Partnership With



Executive Summary Report

City of Calgary
Cost of Service Study

Final Version
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1.0 Document Purpose and Introduction

1.1 Introduction

In April 2021, Mooreview Management Consulting Inc. (in partnership with Raftelis) was engaged by The City of Calgary's (The City's) Water Utility to perform a Cost of Service Study (COSS) as outlined in Request for Proposal (RFP) # 20-1683¹. The purpose of this engagement was to perform a COSS for each of the Water Treatment and Supply, Wastewater Collection and Treatment, and Stormwater Management lines of service (the Water Utility) and develop utility service rates for the 2023-2026 business cycle. As indicated in The City's RFP, the desired outcomes from the cost of service studies were to:

1. Determine the equitable allocation of the revenue requirements between customer classes;
2. Address utility issues and strategic objectives associated with cost of service, rates, and rate setting; and
3. Establish fair and defensible rates for Water Treatment & Supply, Wastewater Collection and Treatment, and Stormwater Management that inform the 2023 to 2026 business plans and budgets.

1.2 Project Work Plan

A phased project approach and work plan was developed, reviewed with The City Project Manager and Steering Committee, and executed to deliver all in-scope deliverables. This approach was based on established industry-leading utility cost of service and ratemaking principles according to the following figure:



Figure 1: General Utility Cost of Service Study Analytical Approach

The COSS first determines overall rate revenue requirements per line of service, including the consideration of all appropriate operating costs and capital investments. These rate revenue requirements are distributed across customer classes in a fair and equitable manner reflecting the usage characteristics of each class. Finally, a rate design phase recommended a preferred set of fixed and variable rates per customer class to collect the targeted rate revenue requirements in alignment with the Water Utility's policies and objectives.

¹ The City of Calgary, "Cost of Service Study for Water Treatment & Supply, Wastewater Collection & Treatment, and Stormwater Management", RFP No. 20-1683, Issued November 2020



2.0 Rate Revenue Requirements

This section discusses the basis for the rate revenue requirements both for Inside City and Regional Customers.

2.1 Inside City Customers

For Inside City customers, a cash-basis approach is used to define total rate revenue requirements per line of service to help ensure there will be adequate revenues to operate, maintain, and manage the utilities as well as funding capital investments in utility assets. As such, rate revenues are primarily focused on covering annual cash requirements for both operating and capital needs, as well as providing money for reserve funds (in compliance with utility fiscal policies). This is a common method for municipal utilities to define their rate revenue requirements, as it is supported by industry-leading associations and guidance (such as the American Water Works Association²) and aligns with the municipality's cash-based, annual budgetary process and overarching requirement to operate on a not-for-profit basis. In addition, the Water Utility is subject to Council-approved utility fiscal policies and targets to ensure overarching financial stewardship.

Both the Water and Wastewater lines of service have identical rate revenue requirement cash components, including:

- i. **Operations and Maintenance (O&M) Expenses:** which include operating expenses (net of recoveries) required to operate and maintain the utility systems, including overhead administration allocations;
- ii. **Debt Servicing Payments:** which include all required debt interest expenses and principal repayments (net of usable off-site levy funding for growth investments) for capital assets financed with debt;
- iii. **Cash-Financed Capital Expenditures:** which include all capital expenditures funded by available cash or reserves, including capital maintenance and replacement;
- iv. **Return on Equity Transfers to The City:** which is calculated as 8.5 per cent return on equity The City has invested in the Utility Systems based on a deemed 60/40 debt to equity capital structure;
- v. **Incremental Reserve Transfers:** which are required each year to align with the fiscal policy to target the Sustainment Reserve funding level equal to 120 days worth of O&M; and
- vi. **Non-Rate Revenues:** which are a variety of fees, penalties, fines, and reserve interest revenues the Water Utility earns which serve to reduce the total rate revenues required.

² American Water Works Association (AWWA), "Principles of Water Rates, Fees, and Charges: M1 Manual", 7th Edition, 2017



2.1.1 Water Rate Revenue Requirement Projections

Based on the definition for Rate Revenue Requirements above, the projected rate revenue requirements for the Water line of service are detailed in the following figure:

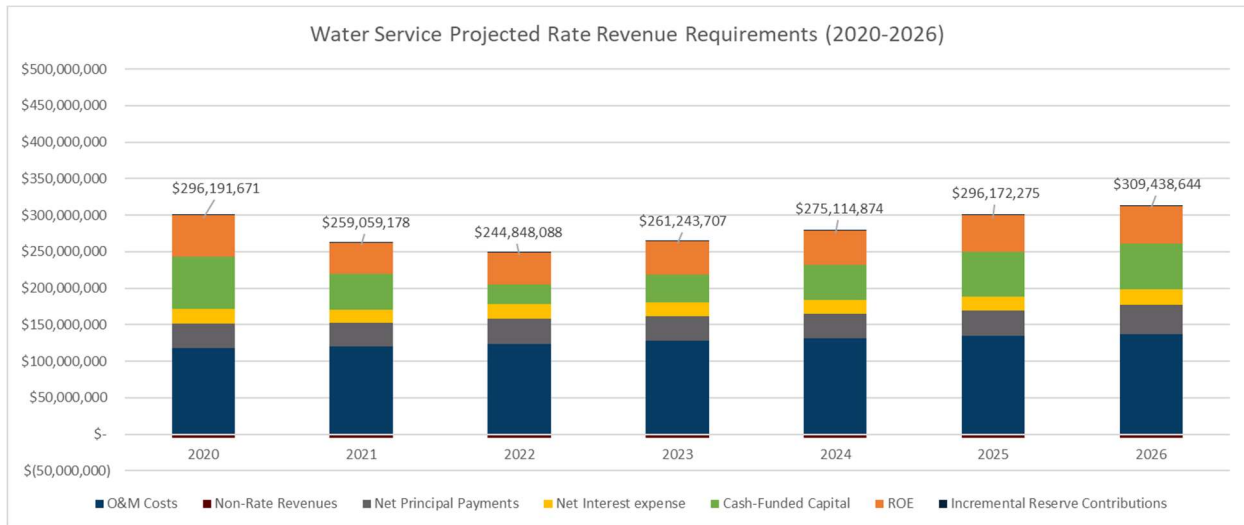


Figure 2: Water Service Projected Rate Revenue Requirements

From this figure, it can be determined that Water’s total rate revenue requirements are expected to remain relatively stable over the next business cycle as compared to 2020 actuals. The rate revenue requirements reach a maximum of approximately \$309 million in 2026, which represents an increase of approximately 4.5 per cent versus 2020.

2.1.2 Wastewater Rate Revenue Requirement Projections

Based on the definition for Rate Revenue Requirements above, the projected rate revenue requirements for the Wastewater line of service are detailed in the following figure:

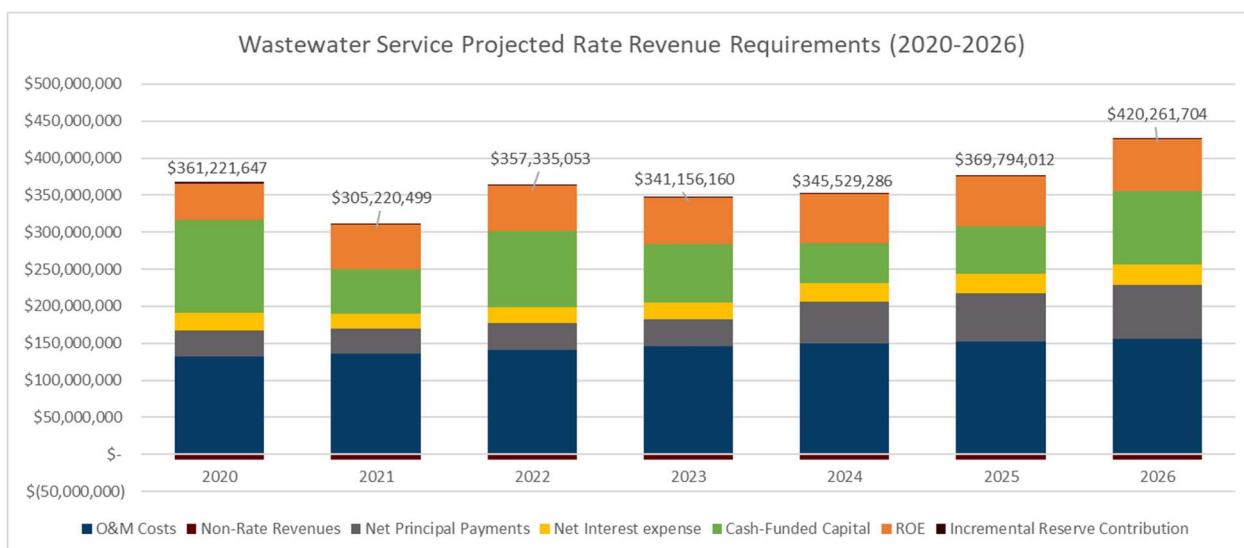


Figure 3: Wastewater Service Projected Rate Revenue Requirements



From this figure, it can be determined that Wastewater’s total rate revenue requirements are expected to grow by approximately 16.3 per cent by 2026 relative to the 2020 results. The rate revenue requirements are projected to grow to a maximum of approximately \$420 million in 2026.

2.1.3 Stormwater Rate Revenue Requirement Projections

The Stormwater line of service has very similar rate revenue requirements as Water and Wastewater, but it is exempt from providing a payment to the corporation in the form of a return on equity. All other cash-based rate revenue requirements listed apply. The projected rate revenue requirements for Stormwater are detailed in the following figure:

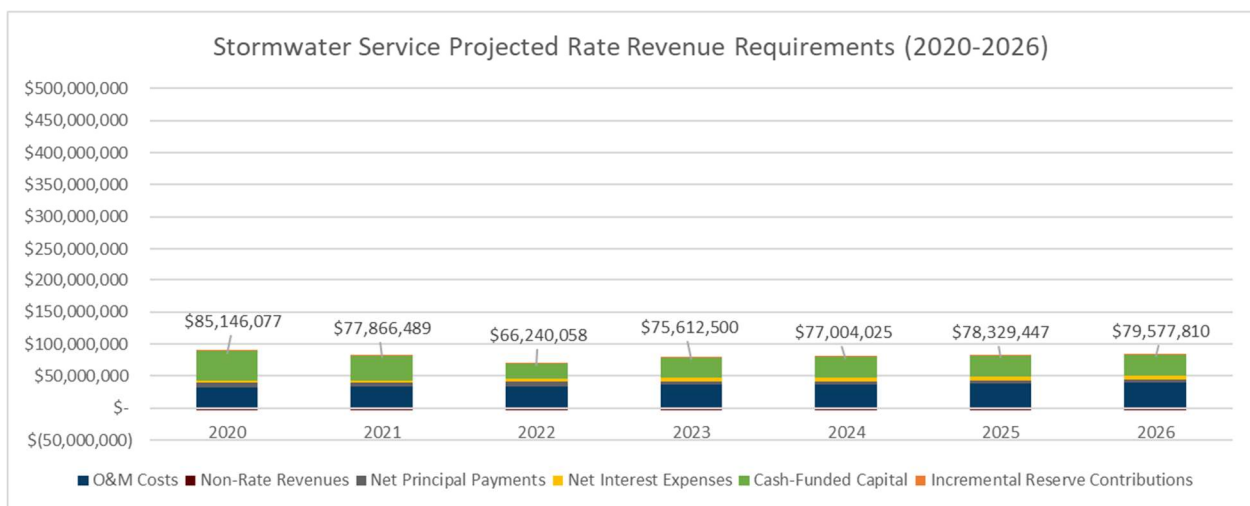


Figure 4: Stormwater Service Projected Rate Revenue Requirements

Overall rate revenue requirements are expected to be relatively stable, as projected results across 2023-2026 are less than incurred in 2020 (primarily due to less reliance on cash-financed capital expenditures).

2.2 Regional Customers

For Regional Customers consisting of The City of Airdrie, The City of Chestermere, The Town of Strathmore, The Town of Cochrane, and the Tsuu T’ina Nation, rate revenue requirements each for Water and Wastewater are determined via the “Utility Basis”. This aligns with the rate-making agreement originally established for the 2015-2018 business cycle in which only rate revenue requirements are considered for allocation to the Regional Customers based on their shared usage for applicable portions of the systems (i.e., “common-to-all”). These requirements are defined as:

- i. **Operations and Maintenance (O&M) Expenses:** same as (i) in Section 2.1 above, with focus only on the applicable “common-to-all” O&M expenses of which the Regional Customers share;
- ii. **Depreciation Expense:** which is determined based on in-service, City-financed assets as the Regional Customers share in their usage; and



- iii. **Return on Rate Base:** which is the weighted averaged cost of capital return on Rate Base as the Regional Customers share in its usage.

Stormwater Services are not provided by the Water Utility to the Regional Customers.

3.0 Cost of Service Analysis

This section describes the cost of service analysis performed for the Water and Wastewater lines of services.

3.1 Water Cost of Service

With overall rate revenue requirement projections established, analysis is then completed to allocate these across functions, cost drivers, and customer classes.

3.1.1 Water Functions

Functions represent the comprehensive scope of distinct work performed in the delivery of water services. They are also selected to recognize the distinction between Inside City versus Regional Customers. Inside City Customers receive full retail and distribution, while Regional Customers receive bulk water at a regional boundary point and provide their own storage and distribution activities. The following distinct water functions and supporting descriptions (regarding the assignment of unique assets into specific functions) are summarized below:

| Water Functions | Description |
|----------------------|---|
| Source of Supply | Glenmore Reservoir; Dam; Raw Water Pumping |
| Treatment | Plant, Filtration; Lab; Power Generation Area; Residuals Treatment; etc. |
| Transmission | Feeder mains & Large Pipes ≥ 500mm; Valve Chambers; Transmission Valves; Pump Stations (based on individual assessment); etc. |
| Distribution | Distribution Pipes & Small Pipes < 500mm; Distribution Valves; Anode Retrofit; Pump Stations (based on individual assessment); etc. |
| Distribution Storage | Reservoirs |
| Meters & Services | Meters; Customer Service Connections |
| Fire Protection | Hydrants |
| Bulk Water | Bulk Water Station |
| Customer Service | Customer Care & Billing |
| General | Administration; General Site; Office, etc. |
| Regional Customers | Unique Administration Work Required to Support Regional Customers |

Table 1: Water Service Functions

Assets designated as “General” are allocated to all other specific functions based on an overhead allocation. This was based on the percentage of the net book value of assets as directly allocated to each function.



The allocation of debt servicing costs was also completed using the same distribution of the net book value of assets to functions. This is based on the principle that debt capital financing policies can apply equally to assets across all functions. From a cost allocation perspective, it is typically more reasonable to allocate debt servicing based on this approach versus a specific review of each individual debenture.

Cash-financed capital projections were based on the capital planning envelope and detailed review of its projects. Each project was functionalized according to the assets it is scoped to deliver.

Analysis was also performed to assign all operating expenses (net of recoveries). A “bottom-up” review of each Division’s activities and chartfield drill financial results (by both Dept ID and Activity ID) was performed. In addition, input on specific allocations was provided by internal Utilities Managers and technical subject-matter-experts.

Finally, the Return on Equity allocations were completed based on the distribution of the net book value of the rate base across these functions.

The distribution of average 2023-2026 Water rate revenue requirements into functions is illustrated in the following graphic. Water Treatment represents the largest functional cost at 30 per cent of total followed closely by the Distribution Network (including storage and pumping) at 27 per cent of the total.

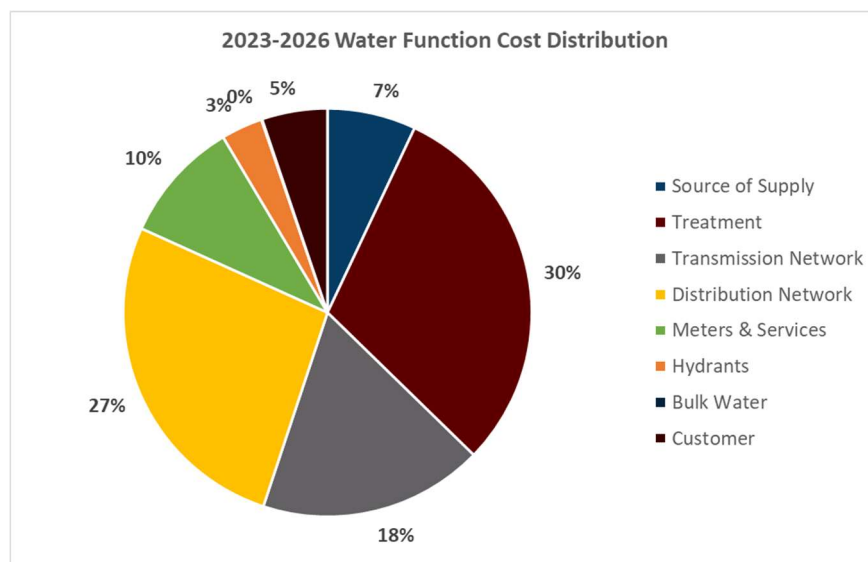


Figure 5: Allocation of Water 2023-2026 Functionalized Rate Revenue Requirements

3.1.2 Water Cost Drivers

The base-extra capacity method was used to allocate functionalized cost pools into cost drivers. This method is supported by the AWWA and is typically used for water utilities across North America. It focuses on assigning costs to base costs, extra-capacity costs, customer-related costs, and fire protection costs. Base costs are those which tend to vary with the total quantity of water consumed or customer average day usage. Extra-capacity costs are those required to



meet peak demands in excess of average (base) use and are sub-divided into both maximum day and maximum hour components. Customer-related costs comprise those required to serve customers regardless of the volume or capacity of water provided and include meter reading, billing, and customer service. Fire protection costs include both dedicated assets (i.e., hydrants) and fire flow capacities required to support community fire protection standards.

This method was followed to allocate all functionalized costs into these cost drivers. Of note is that all operating costs were allocated using the functional method (i.e., based on review of historical actual operating results) while capital costs were allocated using the design basis (i.e., based on review of the utility system’s designed capacity).

Finally, the most appropriate cost allocation techniques were developed in review and collaboration with a team of technical representatives from across the Water Utility to ensure a current and informed understanding of cost drivers for the business.

The distribution of the average 2023-2026 rate revenue requirements per cost driver is illustrated in the following figure:

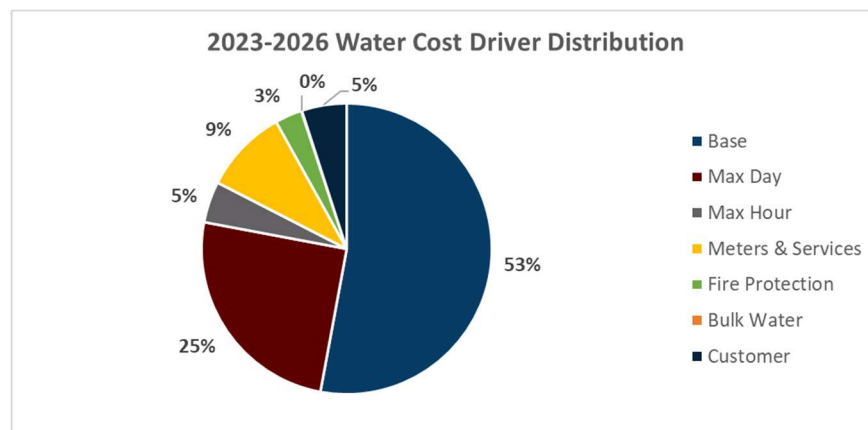


Figure 6: Distribution of Water 2023-226 Cost Driver Allocations

From this figure, the base cost driver represents 53 per cent of the total Water rate revenue requirements while maximum day represents 25 per cent.

3.1.3 Regional Customer Distributed Cost of Service

The first step in the distribution of costs across customer classes is to determine the Regional Customer’s projected rate revenue requirements (using the Utility basis). Once these are determined, they are subtracted from the overall rate revenue requirements using the Cash basis. The remaining rate revenue requirements form the basis for distributing across Inside City Customers.

Based on the ratemaking agreement with the Regional Customers and projections for average day and maximum day demands (as compared to those across all Inside City Customers), the projected 2023-2026 “common-to-all” rate revenue requirements were distributed. These are



detailed in the following table and delineated per each of the O&M, depreciation, and return on rate base revenue requirements:

| | Detailed Projections | | | | 2023-2026 Avg. |
|--------------------------------------|----------------------|----------------|----------------|----------------|----------------|
| | 2023 | 2024 | 2025 | 2026 | |
| Common to All (Utility Basis) | \$ 169,671,556 | \$ 174,053,076 | \$ 179,774,968 | \$ 187,634,371 | \$ 177,783,493 |
| Regional Customers Share | \$ 9,204,749 | \$ 9,605,267 | \$ 10,100,343 | \$ 10,550,608 | \$ 9,865,242 |
| O&M | \$ 3,891,124 | \$ 4,016,697 | \$ 4,137,015 | \$ 4,247,906 | \$ 4,073,186 |
| Depreciation | \$ 1,674,226 | \$ 1,768,311 | \$ 1,909,750 | \$ 2,022,711 | \$ 1,843,749 |
| Return on Rate Base | \$ 3,639,400 | \$ 3,820,259 | \$ 4,053,577 | \$ 4,279,992 | \$ 3,948,307 |

Table 2: Regional Customers Water 2023-2026 Distributed Costs of Service

3.1.4 Inside City Customer Distributed Cost of Service

Projected units of service (i.e., annual volume, maximum day demand, maximum hour demand, number of accounts, firefighting capacity requirements, and equivalent meters) were developed for each customer class based on a detailed review of historical customer consumption analysis (by class) and customer growth forecasts. These were used to distribute costs of service from the cost driver pools across each customer class.

In addition, the projected rate revenues for each customer class were calculated assuming the same 2022 rates held constant across 2023-2026. This provides a basis for comparing projected rate revenue requirements versus revenues per customer class, as can be seen in the following figure:

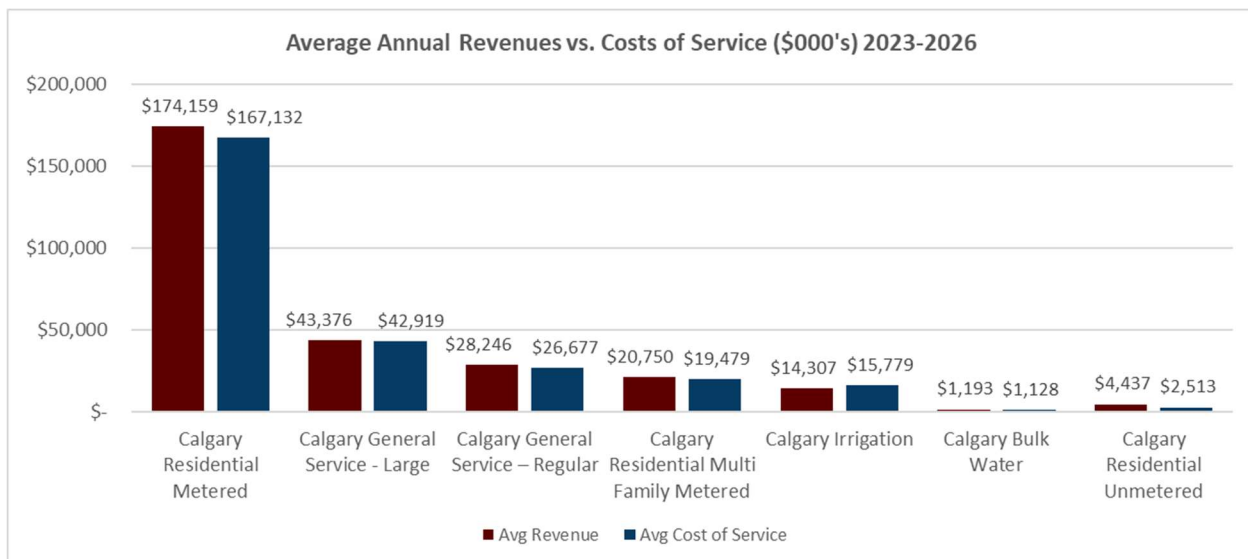


Figure 7: Water Projected Average 2023-2026 Revenue Requirements vs. Revenues with 2022 Rates

As can be seen, the Residential Metered class represents the largest customer class with 61 per cent of the distributed costs of service for Inside City Customers. The General Service Large class (commercial, institutional, and industrial customers with meter sizes equal to 75 mm and larger) represents approximately 16 per cent, while General Service Regular (meter sizes smaller than 75 mm) represent 10 per cent. Residential Multi-Family represents 7 per cent.



3.2 Wastewater Cost of Service

A similar cost of service analysis was completed for Wastewater as was done for Water.

3.2.1 Wastewater Functions and Treatment Processes

Functions represent the comprehensive scope of distinct work performed in the delivery of wastewater services. They are also selected to recognize the distinction between Inside City versus Regional Customers. Inside City Customers receive full retail and collection, while Regional Customers deliver contributed wastewater volumes to The City’s Utilities at a regional boundary point and provide their own retail collection activities. In addition, the Wastewater Treatment Plant function was subdivided into treatment processes which was necessary to identify unique cost causation drivers. These cost drivers include contributed wastewater volumes (including inflow and infiltration volumes) and different types of pollutant loadings the treatment processes are designed to remove, including Biochemical Oxygen Demand (BOD), Suspended Solids (TSS), Total Phosphorus (TP), Total Kjeldahl Nitrogen (TKN), and Fats, Oils, and Greases (FOG). Treatment for these pollutants is required for the treatment plants to discharge plant effluent to the receiving environment which fall within regulatory standards.

The following distinct Wastewater functions and supporting descriptions (regarding the assignment of unique assets into specific functions) are summarized below:

| Wastewater Functions | Description |
|-------------------------------------|--|
| Collection | Manholes & Sanitary Services Mains & Liners < 600 mm Allocated Force mains, Chambers, Lift Stations, & Syphons |
| Transmission | Trunks Mains & Liners > 600 mm Allocated Force mains, Chambers, Lift Stations, & Syphons |
| Treatment Processes | All Wastewater Treatment Plant infrastructure and treatment processes |
| Industrial Monitoring | Activities required to monitor extra strength wastewater customers |
| FOG Receiving Station | FOG Receiving Station |
| Wastewater Receiving Station | Valleyfield Wastewater Receiving Station |
| Reclaimed Water | Reclaimed Water (Shepard Energy Center) |
| Customer Service | Customer Care & Billing |
| General | Administration; General Site; Office, etc. |

Table 3: Wastewater Service Functions

In addition, a detailed listing of the distinct Wastewater treatment processes is provided below:



| Wastewater Treatment Process | Description |
|---|--|
| Preliminary Treatment | Headworks, Influent Pumping |
| Primary Treatment | Primary Clarifiers |
| Secondary Treatment | Secondary Clarifiers, Bioreactors, Oxygenation Tanks, Fermenters, etc. |
| Odour Control | Odour Control |
| Disinfection | UV Disinfection |
| Effluent Filtration | Effluent Filtration, Outfall |
| Biogas | Thermal Oxidation, Waste Gas Burner, Power Gen & Heating |
| Sludge Processing | Digesters, Sludge Blending, Dissolved Air Flotation |
| Biosolids Management | Lagoons, Dewatering, CALGRO, Sylvis, Composting |
| Reclaimed Water (<i>Shepard Energy Center vs. Plant Internal Use</i>) | Reclaimed Water Pumping and Pipeline |

Table 4: Wastewater Treatment Processes

A cost of service review was performed each for O&M expenses, debt servicing, rate base, cash-financed capital, and ROE calculations as was performed for the Water Utility (see Section 3.1.1). In addition to these, a detailed review of Wastewater Treatment Division workforce staffing, chemicals, and electricity expenses was performed to allocate rate revenue requirements into individual Treatment Processes.

The allocation of the Wastewater rate revenue requirements into functions and treatment processes is illustrated in the following graphic. As can be seen, the Treatment function represents approximately 59 per cent of the projected average 2023-2026 cost of service. Within Treatment, the Secondary Treatment (29 per cent) and Biosolids Management (23 per cent) represent the two largest costs of service.

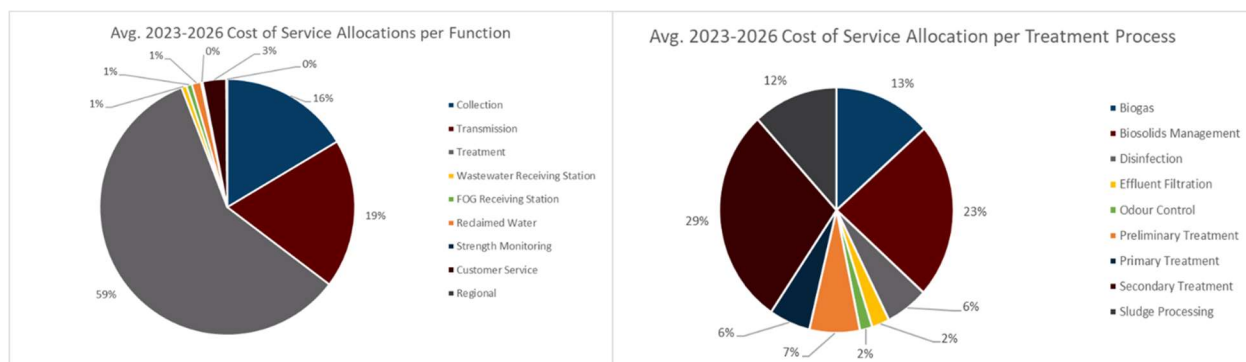


Figure 8: Allocation of Wastewater 2023-2026 Rate Revenue Requirements into Functions and Treatment Processes

3.2.2 Wastewater Cost Drivers

Allocations from functions and treatment processes to customer cost drivers were guided by applicable industry-leading practices, including the Water Environment Federation (WEF)



Manual of Practice No. 27³. This provided a basis for allocating functionalized rate revenue requirements across wastewater volumes, pollutant loadings, and direct services. These cost drivers comprised contributed wastewater volumes (including portions of inflow and infiltration), BOD, TSS, TP, TKN, Hauled Wastewater (Valleyfield Receiving Station), Hauled FOG (FOG Receiving Station), Reclaimed Water Service (provided to the Enmax Shepard Energy Centre), Industrial Monitoring (sampling of contributed wastewater from select over-strength wastewater customers), and Customers (reflecting customer care and billing and collection system maintenance activities). Cost allocations across these cost drivers included considerations for both the “design-basis” (which allocates costs based on the premise for what treatment processes are designed to do) and the “functional-basis” (which allocates costs based on actual contributed Wastewater flows and loadings as they are processed through the overall treatment plant). Similar to the project approach followed for Water, the most appropriate cost allocation techniques were developed in review and collaboration with a team of technical representatives from across the Wastewater line of service to ensure a current and informed understanding of cost drivers for the business. The distribution of the average 2023-2026 rate revenue requirements per cost driver is illustrated in the following figure:

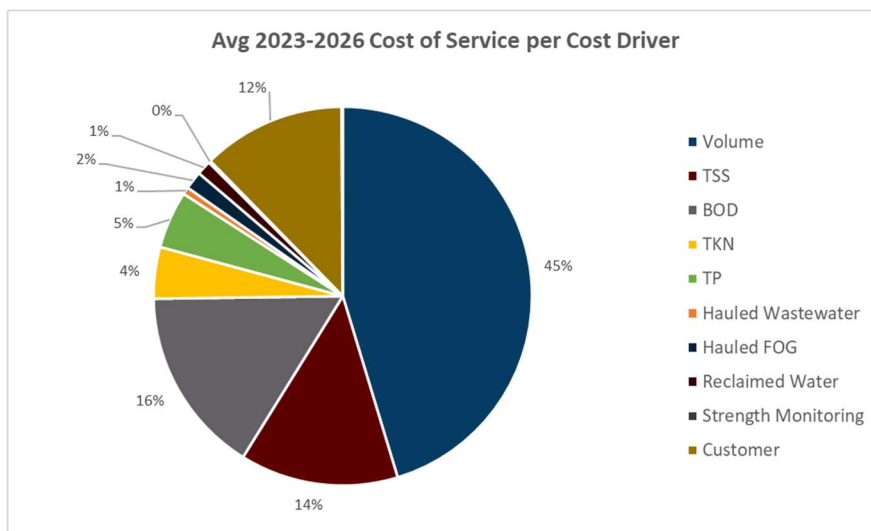


Figure 9: Distribution of Wastewater 2023-226 Cost Driver Allocations

From this figure, the Volume cost driver represents 45 per cent of the total Wastewater rate revenue requirements while BOD and TSS represent 16 per cent and 14 per cent, respectively. Customer costs represent 12 per cent of the total.

3.2.3 Regional Customer Distributed Cost of Service

Similar to Water, Regional Customer’s projected rate revenue requirements (using the Utility basis) are determined and subtracted from the overall rate revenue requirements using the Cash basis. The remaining rate revenue requirements form the basis for distributing across Inside City Customers. Based on the ratemaking agreement with the Regional Customers and projections for their average day wastewater volumes (as compared to those across all Inside

³ Water Environment Federation, “Financing and Charges for Wastewater Systems, Manual of Practice No. 27”, WEF Press, 2018



City Customers) and historical average wastewater pollutant concentration levels, the projected 2023-2026 “common-to-all” rate revenue requirements were distributed. These are detailed in the following table and delineated per each of the O&M, depreciation, and return on rate base rate revenue requirements:

| Item | Detailed Projections | | | | 2023-2026 Avg. |
|---------------------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|
| | 2023 | 2024 | 2025 | 2026 | |
| Common to All (Utility Basis): | \$ 240,601,123 | \$ 248,120,436 | \$ 255,005,489 | \$ 264,385,800 | \$ 252,028,212 |
| Regional Customers Share | \$ 17,395,781 | \$ 18,302,244 | \$ 19,145,551 | \$ 20,142,396 | \$ 18,746,493 |
| O&M | \$ 7,584,305 | \$ 7,902,241 | \$ 8,204,963 | \$ 8,498,064 | \$ 8,047,393 |
| Depreciation | \$ 3,216,816 | \$ 3,345,402 | \$ 3,471,773 | \$ 3,708,478 | \$ 3,435,617 |
| Return on Rate Base | \$ 6,594,660 | \$ 7,054,601 | \$ 7,468,815 | \$ 7,935,854 | \$ 7,263,483 |

Table 5: Regional Customers Wastewater 2023-2026 Distributed Costs of Service

3.2.4 Inside City Customer Distributed Cost of Service

Projected units of service (i.e., annual contributed wastewater volume, loadings for BOD, TSS, TKN, and TP, and number of accounts) were developed for each customer class based on a detailed review of historical customer usage analysis (by class) and customer growth forecasts. These were used to distribute costs of service from the cost driver pools across each customer class.

In addition, the wastewater return factors each for Residential Metered, General Service, and Residential Multi-Family customer classes were analyzed based on historical customer data. This calculates the estimated annual percentage of billed water consumption which is returned to the wastewater utility system. Based on this review, the following updated wastewater return factors per class were calculated and used for the basis of estimating contributed wastewater volumes:⁴

- Residential Metered: 88%
- General Service: 90%
- Residential Multi-Family: 95%

Each of these return factors represents a 2 per cent reduction versus the return factors used for the 2019-2022 rates.

In addition, the projected rate revenues for each customer class were calculated assuming the same 2022 rates held constant across 2023-2026. This provides a basis for comparing projected rate revenue requirements versus revenues per customer class, as can be seen in the following figure:

⁴ The return factor reflects the estimated portion of water consumption that is not returned as wastewater such as water used for lawn irrigation.

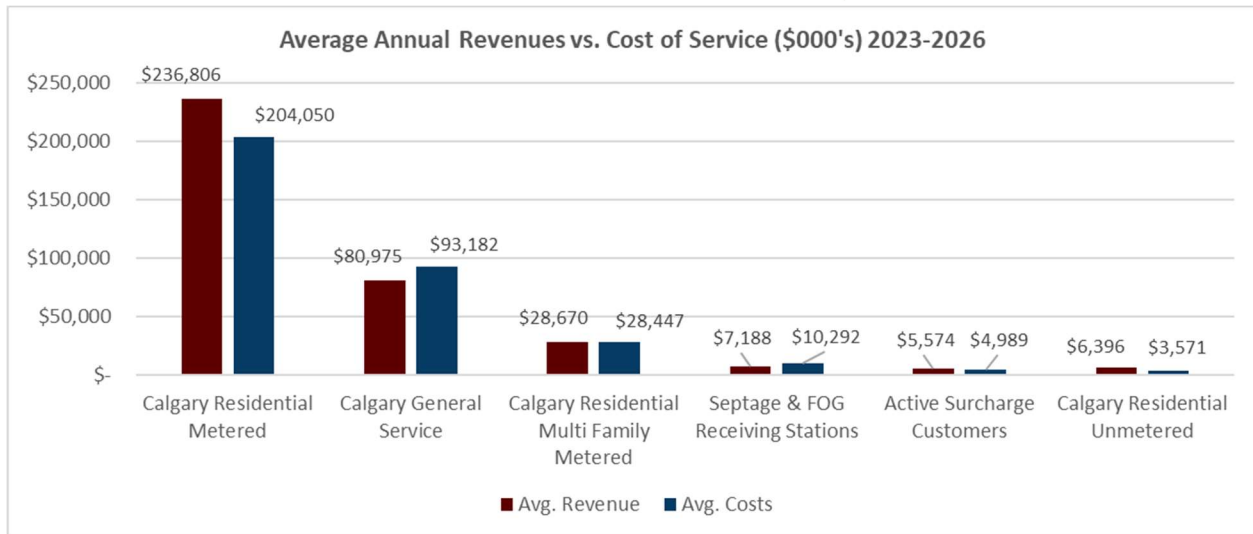


Figure 10: Wastewater Projected Average 2023-2026 Revenue Requirements vs. Revenues with 2022 Rates

As can be seen, the Residential Metered class represents the largest customer class with 59 per cent of the distributed costs of service for Inside City Customers. The General Service class represents approximately 27 per cent, while Residential Multi-Family represents 8 per cent.

4.0 Inside-City Customer 2023-2026 Rates Design

This section addresses the analysis and considerations in developing the recommended rates for 2023-2026.

4.1 2023-2026 Rates Priorities

To develop the 2023-2026 rates, it was necessary to review and update prioritized rate-making objectives. To establish these, a review of the Water Utility's existing Guiding Principles and 2019-2022 ratemaking priorities was performed. In addition, a strategic session was facilitated with the Water Management Team (WMT) to prioritize individual rate-making objectives for the Water and Wastewater lines of service. For Stormwater, it was decided by the Water Utility that it shall continue with the same fixed rate across all customers.

The Guiding Principles are utilized as an overarching set of rate-making considerations which each business cycle's rates need to consider and appropriately reflect. These principles and their definitions are summarized as below:



Financial Sustainability

Deliver sufficient and predictable revenue: In order to meet current and future regulatory requirements, and provide reliable services desired by customers, The Utility needs to receive sufficient and predictable revenue to recover its costs.

Rate Stability: Offer stability and predictability to The Utility and The Utilities customers.

Adaptability: Set rates structures that are dynamic, and provide flexibility to changing supply and demand.

Fairness and Equity to Customers

User Pay philosophy: Rates are based on the philosophy that a customer's rates should reflect the cost of providing the service to the customer.

Customer Equity: Each customer class should pay their fair share based on the customer class usage pattern and service benefits offered.

Accessible and Simple: Rate structures should be transparent and easy to understand.

Natural Resource Management

Conservation: Establish a rate that allows The City to continue to meet current and future regulatory requirements, while encouraging customers to adopt behaviours focused on water conservation, and protecting the watershed and river water quality.

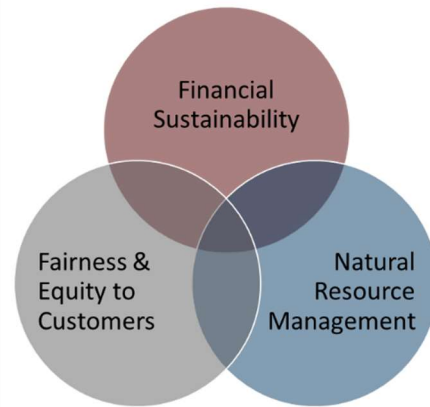


Figure 11: The Water Utility's Guiding Principles for Utility Ratemaking

Based on the outcomes from the facilitated session, the following priority rate-making objectives were confirmed for the 2023-2026 business cycle per line of service (see Appendix A for definitions):

| Rank | Water & Wastewater Priorities |
|--------------------------------|--|
| 1. Critically Important | Rate Stability & Customer Impact Customer Equity & User Pay Philosophy |
| 2. Very Important | Climate Change / Conservation / Watershed Protection Affordability / Ability to Control Bill Revenue Sufficiency & Predictability Accessible & Simple |
| 3. Important | Growth Pays for Growth Adaptability Ease for Implementation / Administration |

Table 6: Priority 2023-2026 Ratemaking Priorities for Water and Wastewater

These priorities were considered when evaluating alternative rate strategies for 2023-2026.

4.2 Fixed vs. Variable Rates Design

Based on a review of current fixed rate revenues versus variable rate revenues and input from the WMT, a focused exercise was completed evaluating alternative fixed and variable rates. Specifically, it was noted that customers continue to request an increased ability to control their monthly bills based on actual usage instead of fixed monthly service charges. This was a consideration from the previous COSS completed for the 2019-2022 rates as well.



From review of the 2019-2022 ratemaking practices, it was noted that the current monthly service charges are designed to fund the following costs within each the Water and Wastewater lines of service:

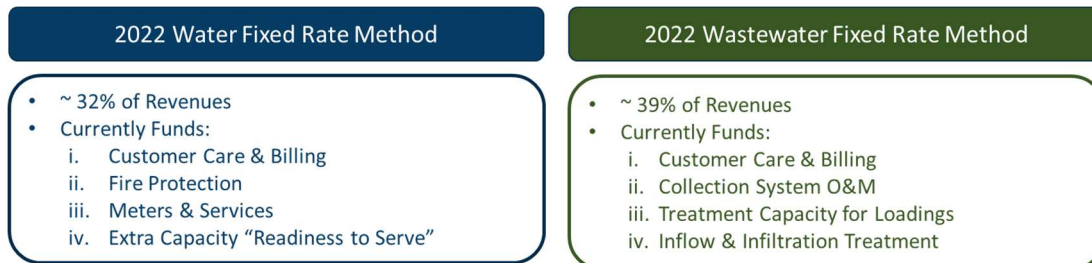


Figure 12: Current Water and Wastewater Fixed Rate Design Methods

From review of these specific costs, it is noted that it is an acceptable industry practice for the fixed portion of the rate to fund utility activities either not associated with the consumption or usage of the service or which are equivalent across all customer accounts. In this regard, it is entirely appropriate for the fixed charge to fund customer care and billing, fire protection, meters and services, and wastewater collection system operations and maintenance. However, there typically is subjectivity in the degree to which the fixed rate funds extra capacity readiness to serve (Water), treatment capacity for pollutant loadings (Wastewater), or treatment for inflow and infiltration (Wastewater). Given the desire for the Water Utility to evaluate a potential lower monthly service charge, customer impact analysis was performed on varying degrees of transfer for these costs from the fixed rates to the variable rates.

From this analysis, it was found that customers near the average level of consumption within their class would see a negligible monthly bill impact. Customers using lower amounts of water relative to others in the class will see a monthly bill reduction, while customers using higher levels will see bill increases. Considerations were given to each customer class across typical customer profiles and monthly consumption levels viewed as medium, low, and high. From this analysis, it was recommended that the Water Utility transfer approximately 50 per cent of these extra capacity and treatment costs from the fixed rate to the variable rate. This results in updated fixed rate structure intended to fund the following costs per line of service:

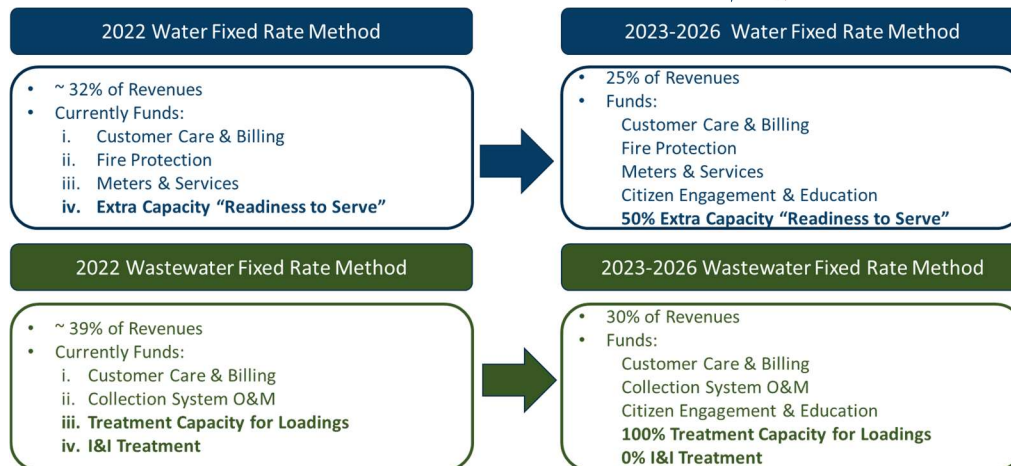


Figure 13: Proposed Fixed Rate Method for 2023-2026

Accordingly, the fixed rates are proposed to be adjusted by:

- **Water:** transfer 50 per cent of the extra capacity readiness to serve costs from the fixed rate to the variable rate; and
- **Wastewater:** transfer 100 per cent of the costs required to treat inflow and infiltration from the fixed rate to the variable rate.

4.3 Rates Implementation Scenarios

Based on the priority ratemaking objectives and targeted adjustments to the fixed and variable rates, unique 2023-2026 rate strategies were developed and evaluated. These considered the projected 2023-2026 rate revenues per customer class with existing 2022 rates versus the projected cost of service. The projected 2026 cost recovery (i.e.; percentage of rate revenues versus total cost of service) for each customer class is detailed in the following figure:

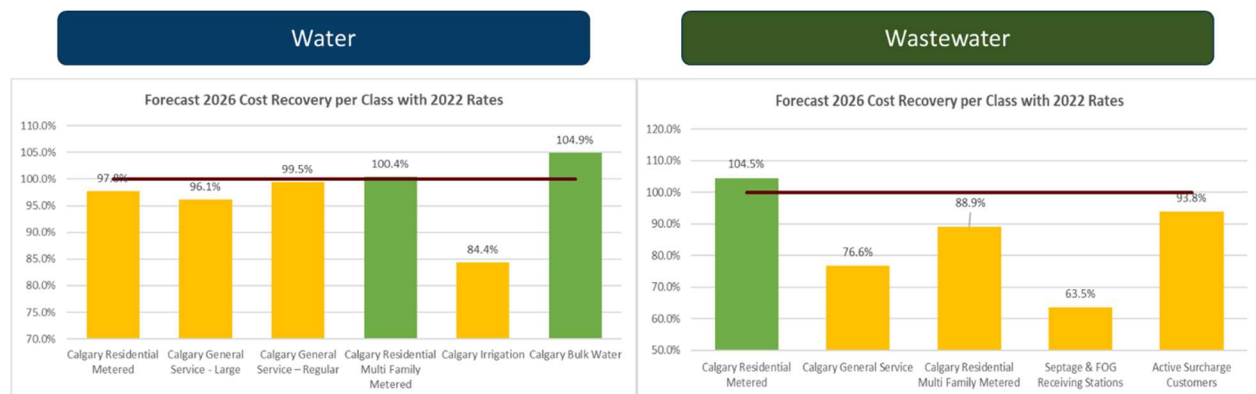


Figure 14: Projected 2026 Cost Recoveries with Constant 2022 Rates per Customer Class

Based on these projections, if 2022 rates are held constant it can be seen that in 2026:

- Residential Metered customers will underfund Water but will overfund Wastewater; and



- General Service customers will underfund both Water and Wastewater; and
- Multi-Family customers will overfund Water but will overfund Wastewater.

With this situation in mind, two alternative rate implementation strategies were prepared and evaluated:

1. Achieve 100 per cent targeted cost of service for each customer class by 2026 by evenly phasing in rate adjustments across 2023-2026; and
2. Minimize the degree of customer rate impact for select customer classes while still moving closer to 100 per cent targeted cost of service.

4.3.1 Achieve 100 Per Cent Cost Recovery by 2026

In this rates scenario, all fixed and variable rates across both Water and Wastewater are targeted for 100 per cent cost recovery in 2026 and rates are equally phased in from 2022 values to the 2026 targets. Based on this scenario, the following customer impacts are calculated for customers with the average monthly consumption and meter size within their respective class:

| Customer / Class | Average Meter Size mm | Average 30-Day Volume m ³ | Water Avg. 2023-26 Annual Bill Impact % | Wastewater Avg. 2023-26 Annual Bill Impact % | Combined Avg. 2023-2026 Annual Bill Impact % |
|-------------------------|-----------------------|--------------------------------------|---|--|--|
| Residential | 15 | 16.4 | 0.6% | -1.0% | -0.3% |
| General Service Large | 100 | 1,277 | 1.0% | +7.5% | +4.7% |
| General Service Regular | 25 | 80 | 0.0% | +5.8% | +3.3% |
| Multi-Family | 40 | 136 | -0.5% | +3.0% | +1.5% |
| Irrigation | 20 | 55 | +4.6% | NA | +4.6% |
| Septage Hauling | NA | NA | NA | -7.5% | -7.5% |
| Bulk Water | 20 | 57 | -1.2% | NA | -1.2% |

Table 7: Projected Average Bill Impact for Average Customers per Class – Target 100% Cost Recovery by 2026

Based on the customer impacts, it can be seen that potentially larger (i.e., equal to or greater than 3.5 per cent) average annual bill impacts will result for:

- Water Irrigation customers; and
- Wastewater General Service customers.

4.3.2 Minimize Customer Impact

From the evaluation of the projected impacts to average customers in Scenario 1, it can be seen that potentially significant impacts may result for General Service and Irrigation customers. As a result, a modified approach was taken to evaluate the impact to these customer classes while still ensuring the Water Utility’s financial policies including minimum debt servicing ratio and sustainment reserve levels are adhered to.



In this scenario, all target fixed rate adjustments to achieve 100 per cent cost recovery are still completed by 2026. However, variable rate adjustments were made to General Service (target to close 75 per cent of the cost recovery gap in 2026) and Irrigation (target to close 80 per cent of the cost recovery gap in 2026) customers. The following table illustrates the projected bill impact to average customers within each class based on this alternative:

| Customer / Class | Average Meter Size mm | Average 30-Day Volume m ³ | Water Avg. 2023-26 Annual Bill Impact % | Wastewater Avg. 2023-26 Annual Bill Impact % | Combined Avg. 2023-2026 Annual Bill Impact % |
|-------------------------|-----------------------|--------------------------------------|---|--|--|
| Residential | 15 | 16.4 | 0.6% | -1.0% | -0.3% |
| General Service Large | 100 | 1,277 | +0.5% | +5.6% | +3.4% |
| General Service Regular | 25 | 80 | -0.5% | +4.1% | +2.1% |
| Multi-Family | 40 | 136 | -0.5% | +3.0% | +1.5% |
| Irrigation | 20 | 55 | +3.4% | NA | +3.4% |
| Septage Hauling | NA | NA | NA | -7.5% | -7.5% |
| Bulk Water | 20 | 57 | -1.2% | NA | -1.2% |

Table 8: Projected Average Bill Impact for Average Customers per Class – Minimize Customer Impact

With this alternative, the following projected cost recoveries per customer class across both Water and Wastewater are targeted by 2026:

- Calgary Residential Metered: 100.0%
- Calgary General Service: 95.5%
- Calgary Residential Multi-Family: 100.0%

Based on the monthly bill impact to customers, as well as the impacts to the Water Utility’s projected customer equity outcomes and projected financial results versus established Water Utility financial policies, it is recommended the Water Utility select Alternative #2 Minimize Cost Recovery.

5.0 Regional Customer 2023-2026 Rates

This section summarizes the key changes to the nature of the rate-making approach with the Regional Customers and projected rate revenue requirements for both Water and Wastewater.

5.1 Updates to the Regional Customer Ratemaking Method

Based on review with the Regional Customers through their engagement with the Cost of Service analysis, the following denote the key changes to the 2023-2026 rate-making approach (relative to that used for 2019-2022):

- Inclusion of predicted Regional Customer volumes and water maximum day demand based on statistical review of their historical units of service which will be used to distribute O&M rate revenue requirements across Regional Customers and Inside City Customers;



- ii. Updates to Water Loss and Inflow and Infiltration allocation methods. Water Loss allocations were updated to include estimates for customer service connections within The City. Inflow and Infiltration allocation estimates were updated based on 2/3 to customer connections and 1/3 contributed customer volumes; and
- iii. Updates to how estimates for Inside City Customers projected average day and maximum day demands are calculated. Projected volumes and maximum day peaking are based on statistical analysis of historical customer consumption habits, water production data, and customer account growth forecasts;

5.2 Regional Customer 2023-2026 Rates

Rates for 2023-2026 were developed based on the receipt of contracted flows for both Water and Wastewater from each Regional customer and the development of “predicted” flows based on statistical review of historical customer consumption and peaking performance. The format for how rates are determined (while using the Utility Basis to calculate annual rate revenue requirements) is summarized as follows:

| Rate Component | Water | Wastewater |
|------------------------------|------------------------------------|---|
| Monthly Fixed Charge: | | |
| Return on Rate Base | \$ Return / Max Day Capacity | \$ Return / Wastewater Flow Capacity m3 |
| Depreciation Expense | \$ Depreciation / Max Day Capacity | \$ Depreciation / Wastewater Flow Capacity m3 |
| Variable Charge: | | |
| O&M Expense | \$ O&M / Consumption | \$ O&M / Contributed Wastewater Flow m3 |

Table 9: Rates Method for Regional Customers

Based on this method, the projected rate revenue requirements for the Water and Wastewater Utility Services, and the projected units of service for the Regional Customers and total Inside City Customers, the 2023-2026 rates are detailed as follows (pending final approval by the Regional Customers):



| | Detailed Projections | | | | | 2023-2026 Avg. |
|---|----------------------|--------------|---------------|---------------|----------------|----------------|
| | 2023 | 2024 | 2025 | 2026 | | |
| Regional Customers Rate Revenue Requirements | \$ 9,204,749 | \$ 9,605,267 | \$ 10,100,343 | \$ 10,550,608 | \$ 9,865,242 | |
| O&M | \$ 3,891,124 | \$ 4,016,697 | \$ 4,137,015 | \$ 4,247,906 | \$ 4,073,186 | |
| Depreciation | \$ 1,674,226 | \$ 1,768,311 | \$ 1,909,750 | \$ 2,022,711 | \$ 1,843,749 | |
| Return on Rate Base | \$ 3,639,400 | \$ 3,820,259 | \$ 4,053,577 | \$ 4,279,992 | \$ 3,948,307 | |
| Outside Metered Contracted Capacities: | | | | | | |
| | | | | | 2023-2026 Avg. | |
| Contracted Volumes (m3) - not incl Water Loss | 10,906,032 | 11,343,033 | 11,943,664 | 12,307,129 | 11,624,964 | |
| Contracted % ADD | 5.91% | 6.07% | 6.29% | 6.39% | | |
| Predicted Volumes (m3) - not incl Water Loss | 10,919,556 | 11,152,507 | 11,385,458 | 11,618,409 | 11,268,982 | |
| Predicted % ADD | 5.92% | 5.97% | 6.02% | 6.05% | | |
| Contracted Max Day Capacity (m3/day) | 51,540 | 53,534 | 56,307 | 57,988 | 54,842 | |
| Contracted % MDD | 6.93% | 7.10% | 7.36% | 7.47% | | |
| Predicted Max Day Capacity (m3/day) | 49,964 | 51,108 | 52,252 | 53,397 | 51,680 | |
| Predicted % MDD | 6.74% | 6.80% | 6.86% | 6.92% | | |
| Outside Metered "To-Be" Rate Projections: | | | | | | |
| | 2023 | 2024 | 2025 | 2026 | 2023-2026 Avg. | |
| O&M (Variable Rate Predicted per m3) | \$ 0.3563 | \$ 0.3602 | \$ 0.3634 | \$ 0.3656 | \$ 0.3614 | |
| Depreciation (per m3/365 days) | \$ 32.4841 | \$ 33.0316 | \$ 33.9170 | \$ 34.8815 | | |
| Return on Rate Base (per m3/365 days) | \$ 70.6134 | \$ 71.3614 | \$ 71.9912 | \$ 73.8082 | | |
| Total Fixed Rate (per m3/365 days) | \$ 103.0975 | \$ 104.3930 | \$ 105.9083 | \$ 108.6897 | \$ 105.5221 | |
| Total 30-Day Fixed Charge | \$ 436,736 | \$ 459,335 | \$ 490,137 | \$ 518,030 | \$ 476,059 | |

Table 10: 2023-2026 Water Regional Customer Rates

| Item | Detailed Projections | | | | | 2023-2026 Avg. |
|---|----------------------|---------------|---------------|---------------|----------------|----------------|
| | 2023 | 2024 | 2025 | 2026 | | |
| Regional Customers Rate Revenue Requirements | \$ 17,395,781 | \$ 18,302,244 | \$ 19,145,551 | \$ 20,142,396 | \$ 18,746,493 | |
| O&M | \$ 7,584,305 | \$ 7,902,241 | \$ 8,204,963 | \$ 8,498,064 | \$ 8,047,393 | |
| Depreciation | \$ 3,216,816 | \$ 3,345,402 | \$ 3,471,773 | \$ 3,708,478 | \$ 3,435,617 | |
| Return on Rate Base | \$ 6,594,660 | \$ 7,054,601 | \$ 7,468,815 | \$ 7,935,854 | \$ 7,263,483 | |
| Outside Metered Contracted Flows: | | | | | | |
| | 2023 | 2024 | 2025 | 2026 | 2023-2026 Avg. | |
| Annual Contracted Contributed Wastewater Flow (m3) | 11,515,377 | 11,963,191 | 12,389,378 | 12,775,718 | 12,160,916 | |
| % of Total (including I&I) | 6.84% | 7.01% | 7.16% | 7.28% | | |
| Annual Predicted Contributed Wastewater Flow - not in | 11,175,687 | 11,487,516 | 11,799,344 | 12,111,173 | 11,643,430 | |
| % of Total (including I&I) | 6.65% | 6.75% | 6.85% | 6.93% | | |
| Outside Metered "To-Be" Rate Projections: | | | | | | |
| | 2023 | 2024 | 2025 | 2026 | 2023-2026 Avg. | |
| O&M (Variable Rate per m3) | \$ 0.6786 | \$ 0.6879 | \$ 0.6954 | \$ 0.7017 | \$ 0.6909 | |
| Depreciation (per m3/day) | \$ 0.2793 | \$ 0.2796 | \$ 0.2802 | \$ 0.2903 | | |
| Return on Rate Base (per m3/day) | \$ 0.5727 | \$ 0.5897 | \$ 0.6028 | \$ 0.6212 | | |
| Total Fixed Rate (per m3/day) | \$ 0.8520 | \$ 0.8693 | \$ 0.8831 | \$ 0.9114 | \$ 0.8790 | |
| Total 30-Day Fixed Charge | \$ 806,423 | \$ 854,795 | \$ 899,226 | \$ 957,068 | \$ 879,378 | |

Table 11: 2023-2026 Water Regional Customer Rates

6.0 Recommendations

This section details the recommended rates schedule per customer class for 2023-2026 and considerations for the next COSS.



6.1 Recommended 2023-2026 Rates

Based on the evaluation of the alternative rate strategies, it is recommended to implement Alternative 2: Minimize Customer Impact. Based on this strategy, the following proposed 2023-2026 rates are summarized:

6.1.1 Water Fixed Rates

| Fixed Service Charges 30 Days per Meter Size | 2022 | 2023 | 2024 | 2025 | 2026 | Average Annual % Change |
|--|-------------|-------------|-------------|-------------|-------------|-------------------------|
| 15 mm | \$ 14.77 | \$ 14.18 | \$ 13.59 | \$ 13.01 | \$ 12.42 | -4.24% |
| 20 mm | \$ 27.64 | \$ 25.06 | \$ 22.47 | \$ 19.89 | \$ 17.30 | -11.04% |
| 25 mm | \$ 35.63 | \$ 33.49 | \$ 31.35 | \$ 29.21 | \$ 27.07 | -6.64% |
| 40 mm | \$ 62.76 | \$ 59.94 | \$ 57.12 | \$ 54.31 | \$ 51.49 | -4.83% |
| 50 mm | \$ 88.83 | \$ 86.82 | \$ 84.81 | \$ 82.80 | \$ 80.79 | -2.34% |
| 75 mm | \$ 174.43 | \$ 168.11 | \$ 161.79 | \$ 155.47 | \$ 149.16 | -3.84% |
| 100 mm | \$ 255.54 | \$ 253.36 | \$ 251.18 | \$ 249.00 | \$ 246.83 | -0.86% |
| 150 mm | \$ 451.99 | \$ 461.74 | \$ 471.49 | \$ 481.25 | \$ 491.00 | 2.09% |
| 200 mm | \$ 725.32 | \$ 739.99 | \$ 754.66 | \$ 769.34 | \$ 784.01 | 1.96% |
| 250 mm | \$ 1,129.33 | \$ 1,128.46 | \$ 1,127.59 | \$ 1,126.72 | \$ 1,125.85 | -0.08% |
| Bulk Water | \$ 27.64 | \$ 25.06 | \$ 22.47 | \$ 19.89 | \$ 17.30 | -11.04% |

Table 12: Recommended 2023-2026 Water Fixed Rates (by Meter Size)

In addition, it is recommended to maintain the existing 2022 rates for Residential Unmetered Customers across 2023-2026.

6.1.2 Water Variable Rates

| Variable Rates \$/m3 per Customer Class | 2022 | 2023 | 2024 | 2025 | 2026 | Average Annual % Change |
|--|-----------|-----------|-----------|-----------|-----------|-------------------------|
| Calgary Residential Metered | \$ 1.3851 | \$ 1.4339 | \$ 1.4827 | \$ 1.5316 | \$ 1.5804 | 3.35% |
| Calgary General Service - Large | \$ 1.3463 | \$ 1.3575 | \$ 1.3687 | \$ 1.3799 | \$ 1.3910 | 0.82% |
| Calgary General Service - Regular | \$ 1.3884 | \$ 1.4083 | \$ 1.4283 | \$ 1.4482 | \$ 1.4681 | 1.41% |
| Calgary Residential Multi Family Metered | \$ 1.3154 | \$ 1.3269 | \$ 1.3384 | \$ 1.3498 | \$ 1.3613 | 0.86% |
| Calgary - Irrigation | \$ 2.8453 | \$ 3.0064 | \$ 3.1674 | \$ 3.3285 | \$ 3.4896 | 5.24% |
| Calgary Bulk Water | \$ 1.7312 | \$ 1.7510 | \$ 1.7708 | \$ 1.7907 | \$ 1.8105 | 1.13% |

Table 13: Recommended 2023-2026 Water Variable Rates \$/m3 (by Customer Class)

6.1.3 Wastewater Fixed Rates

| Fixed Service Charges 30 Days | 2022 | 2023 | 2024 | 2025 | 2026 | Average Annual % Change |
|--|----------|------------|------------|------------|------------|-------------------------|
| Total Monthly Fixed Charge (All Customers) | \$ 28.62 | \$ 27.1191 | \$ 25.6181 | \$ 24.1172 | \$ 22.6163 | -5.72% |

Table 14: Recommended 2023-2026 Wastewater Fixed Rates (all customers)

In addition, it is recommended to maintain the existing 2022 rates for Residential Unmetered Customers across 2023-2026.

6.1.4 Wastewater Variable Rates

| Customer Class | 2022 | 2023 | 2024 | 2025 | 2026 | Average Annual % Change |
|--|------------|------------|------------|------------|------------|-------------------------|
| Calgary Residential Metered (per m3 Wastewater) | \$ 1.5500 | \$ 1.6292 | \$ 1.7084 | \$ 1.7877 | \$ 1.8669 | 4.76% |
| Calgary General Service (per m3 Wastewater) | \$ 1.9875 | \$ 2.1259 | \$ 2.2643 | \$ 2.4027 | \$ 2.5411 | 6.34% |
| Calgary Residential Multi Family Metered (per m3 Wastewater) | \$ 2.2800 | \$ 2.3830 | \$ 2.4860 | \$ 2.5890 | \$ 2.6920 | 4.24% |
| Calgary Septage Hauled Wastewater | \$ 29.9134 | \$ 27.9183 | \$ 25.9232 | \$ 23.9281 | \$ 21.9329 | -7.46% |
| Calgary FOG Receiving | \$ 29.9134 | \$ 27.9183 | \$ 25.9232 | \$ 23.9281 | \$ 21.9329 | -7.46% |
| Calgary Effluent Meters (per m3 wastewater) | \$ 1.9875 | \$ 2.1259 | \$ 2.2643 | \$ 2.4027 | \$ 2.5411 | 6.34% |

Table 15: Recommended 2023-2026 Wastewater Variable Rates (by Customer Class)



Note that it is proposed to establish a separate rate for FOG Receiving (provided to FOG haulers at the Bonnybrook Wastewater Treatment Plant) versus Hauled Wastewater (provided to haulers of wastewater at the Valleyfield Receiving Station and Bonnybrook Wastewater Treatment Plant). This is appropriate given that hauled FOG is pumped directly from the receiving station to the digesters at the Bonnybrook Plant for the purposes of energy generation, while hauled wastewater typically features very high pollutant concentration levels and is pumped to the headworks for full wastewater treatment. In addition, both services revenues are unregulated, meaning that revenues are based on haulers willingness to pay established tipping fees. Given these differences, it is appropriate for the Wastewater line of service to establish a separate FOG Receiving fee which is aligned with its co-generation objectives.

6.1.5 Wastewater Surcharge Rates

Surcharge rates are established and charged to active surcharge customers for their discharged wastewater with pollutant concentration levels in excess of their bylaw discharge limits. The City has recently performed extensive analysis on its Wastewater Loadings Management Program (WLMP) and is evaluating potential updates to its surcharge formula and the types of loadings to surcharge. This includes consideration for the establishment of surcharge rates for TP and TKN and prohibiting FOG discharges into the collection system.

It is acknowledged that the WLMP has recently identified the need to perform additional customer and stakeholder engagement prior to introducing these potential changes. As such, it is recommended that the current surcharge rates be maintained until this work is completed. These are as follows:

| Extra Strength Surcharges | 2022 | 2023 | 2024 | Average Annual % Change |
|---|-------------|-------------|-------------|-------------------------|
| Monthly Over Strength Charges (\$ per m3 Water for each mg/L > Bylaw) | | | | |
| TSS (300 mg/L) | \$ 0.001147 | \$ 0.001147 | \$ 0.001147 | 0.00% |
| BOD (300 mg/L) | \$ 0.001443 | \$ 0.001443 | \$ 0.001443 | 0.00% |
| FOG (100 mg/L) | \$ 0.001947 | \$ 0.001947 | \$ 0.001947 | 0.00% |
| TP (10 mg/L) | \$ - | \$ - | \$ - | - |
| TKN (50 mg/L) | \$ - | \$ - | \$ - | - |

Table 16: Recommended 2023-2024 Wastewater Surcharge Rates

6.2 Considerations for Next Steps / Next Cost of Service Study

In addition, there are opportunities for improvement / updates for the Water Utility for the next Cost of Service (expected to be completed during the 2023-2026 business cycle). These include the following:

1. **Align Asset Data Entry Records to Align with Cost of Service:** It is noted that tangible capital asset and asset management data entry practices have slightly changed during the past business cycle wherein new water and wastewater assets have been recorded at higher levels of detail. In some cases, assets are not recorded at the necessary level of detail to support the cost of service analysis.

In particular, it was noted that new linear water pipes are now recorded as general pipe instead of former practices which denoted small distribution mains versus larger



transmission mains. In addition, recent wastewater treatment projects are recorded as generic “wastewater treatment plants” instead of treatment process assets.

It is recommended the Water Utility review its current asset data entry practices against the desired level of detail required by its cost of service requirements and update its data collection and entry practices to better support future cost of service exercises.

2. **Review and Maintain Line of Service O&M Allocations versus Dept and Financial ID's:** It is acknowledged that since the Cost of Service has been initiated, The City has undergone a significant organizational restructuring. As such, it will be valuable to maintain and review how 2019 and 2020 Dept and Financial Activity ID's (and the resources within these ID's) were mapped to individual lines of service. This will assist with future cost of service exercises and The City's ability to compare with how historical O&M resources were allocated not only across the Water Utility, but also functions within each Service.
3. **Perform Local Market Review for Hauled FOG and Hauled Wastewater Rates:** As per Section 6.1.4, it is recommended to separate the FOG Receiving versus the Hauled Wastewater rates. As such, it is recommended that a focused local market review be performed to understand potential competitive regional interests for fats, oils, and greases and to inform an optimum FOG Receiving Station tipping fee for this material. Given that the Wastewater Utility Service has goals to reduce collection system blockages, service interruptions, and maintenance costs while also increasing energy production at the Wastewater Treatment Plant, consideration of a proper competitive tipping fee is required to help maximize the volume of hauled FOG it receives.

In addition, it is recommended that a regional market review be performed on alternative hauled wastewater disposal site rates given that hauled wastewater revenues are subject to hauler's willingness to pay. Further, the Wastewater line of service has the potential to create distinct hauled wastewater rate segments based on the type of wastewater disposed and their relative pollutant strengths. However, this will require further study of the relative strengths for the different types of hauled wastewater (i.e., septic tank, holding tank, and leachate).
4. **Wastewater Surcharge Rates:** Through performing the cost of service, total costs to treat BOD, TSS, TKN, and TP have been calculated and projected across the 2023-2026 business cycle. With this, per unit costs to treat each kilogram of contributed pollutant loading are determined. This analysis will underpin a potential new surcharge formula and rates to charge over strength customers who discharge wastewater with concentration levels above the stated bylaw limits. It is recommended the Water Utility utilize this cost of service analysis to support introduction of the new surcharge formula and rates once stakeholder engagement has been completed.
5. **Review Potential Sources of TKN and TP Discharges into the Collection System:** While extensive cost analysis has been performed to identify the costs to treat TKN and TP, it is not as well known of the specific customer sources for these loadings (other



than a recent wastewater sampling study performed on 20 of the Wastewater Utility Service's largest active surcharge customers). It may likely be that there are additional sources of industrial wastewater discharges of TKN and TP which are not presently active surcharge customers. As such, continued review and market research is appropriate to help identify these potential sources and to develop a surcharge revenue forecast for overstrength TKN and TP discharges.



Appendix A: Ratemaking Priorities Definitions

| Objective | Description |
|---|---|
| Accessible and Simple | <ul style="list-style-type: none"> Rate structures should be transparent and easy to understand |
| Adaptability | <ul style="list-style-type: none"> Set rates structures that are dynamic, and provide flexibility to changing supply and demand |
| Affordability / Ability to Control Bill | <ul style="list-style-type: none"> Customers should be better enabled to control their bill by means of managing their monthly consumption and usage of the Utility systems |
| Climate Change / Conservation / Watershed Protection | <ul style="list-style-type: none"> Establish a rate that allows The Utilities to continue to meet current and future regulatory requirements, while encouraging customers to adopt behaviours focused on climate change water conservation, and protecting the watershed and river water quality |
| Customer Equity | <ul style="list-style-type: none"> Each customer class should pay their fair share based on the customer class usage pattern and service benefits offered |
| Customer Impact | <ul style="list-style-type: none"> Extent to which customers will be impacted after implementing a rate structure |
| Ease of Implementation | <ul style="list-style-type: none"> Degree of ease and costs to implement and administer a new rate structure (e.g., integration with City billing and information systems and customer data) |
| Rate Stability | <ul style="list-style-type: none"> Offer stability and predictability The Utilities' customers |
| Revenue Sufficiency and Predictability | <ul style="list-style-type: none"> To meet current and future regulatory requirements, and provide reliable services desired by customers, The Utility needs to receive sufficient and predictable revenue to recover its costs |
| User Pay Philosophy | <ul style="list-style-type: none"> Rates are based on the philosophy that a customer's rates should reflect the cost of providing the service to the customer |
| Growth Pays for Growth | <ul style="list-style-type: none"> New customers are funded for customer contributions / funding Utility rates feature intergenerational equity |

Table 17: Ratemaking Priority Definitions