



FINANCIAL PLAN 2019-2022 WATER AND WASTEWATER LINES OF SERVICE

2018 MARCH 14



MAKING LIFE BETTER EVERY DAY



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1.0 INTRODUCTION

This report provides an update on the financial plan for Calgary's Water Treatment and Supply (Water) and Wastewater Collection and Treatment (Wastewater) lines of service. Once approved, this plan will guide the Water Utility in the preparation of the 2019-2022 business plans and budgets and meet recommended financial targets. These two lines of service have historically been referred to as the "Utilities".

The financial plan for these two lines of service was first established in 2011 to provide improved financial capacity and sustainability to meet the challenges of maintaining service and responding to growth. This original plan set out a six -year timeframe for meeting the targets of the plan, in line with the three- year budget cycle that was in place at the time. In 2014, an update on the financial plan progress (UCS2014-0021) was prepared for Council. At that time, the plan moved to a seven- year timeframe to meet the financial targets to align with the new four- year budget cycle of 2015-2018.

1.1 CONTEXT FOR REVIEW OF FINANCIAL PLAN, POLICIES & TARGETS

Several factors which impact the financial plan for the Water and Wastewater lines of service have changed substantially since 2011. Specifically:

- Calgary has been facing an economic downturn since late 2014, after being one of the fastest growing municipalities in North America;
- The off-site levy bylaw (C2016-0023, Bylaw 2M2016) approved by Council on 2016 January 11 recovers 100 per cent of growth-related infrastructure costs (principal and interest) from developers, whereas previously the levy rates were only intended to recover 50 per cent of growth-related infrastructure costs;
- An independent utility industry consultant undertook a review of the Water Utility's level of financial risk, and appropriateness of financial policies relative to industry best practice; and
- In 2016, the approved utility rate increases were reduced for 2017 and 2018 (C2016-0688).

It is timely to review and revise the financial policies and targets set out in 2011 to mitigate financial risks and ensure financial sustainability.

These revised financial policies will guide the outcomes of the Cost of Service Study currently underway, which will in turn, inform rates for these lines of service in the 2019-2022 budget cycle. It is important to understand the current financial state of these services and potential financial policy changes in advance of the recommended outcomes of the Cost of Service Study.



2.0 THE WATER AND WASTEWATER UTILITIES BUSINESS MODEL

The Water and Wastewater lines of service are provided under a self-sustaining, public utility model and all costs shall be recovered through user rates, levies, fees and sources other than the municipal tax base.

The key components of the utility model include:

- Water and wastewater service rate revenue - Revenues for these lines of service consist primarily of rate revenue which is based on the Council-approved rates for Water and Wastewater.
- Off-site levy revenue - An off-site levy on development of new and existing areas is charged on the basis of water and wastewater system investments required for growth. The off-site levy recovers the full cost of infrastructure investments required to support new growth.
- Cost of service basis - A Cost of Service Study is carried out to ensure costs are being recovered appropriately from each customer class and that the right mix of fixed and volumetric charges are in place.
- Returns on equity (ROE) - Water and Wastewater lines of service pay an ROE annually to The City.
- Franchise fee - Water and Wastewater lines of service pay a franchise fee annually to The City.
- Capital intensive - The nature of these utility systems requires ongoing capital investment in infrastructure. Investment is required to develop and maintain assets to provide services to existing and future customers, while continuing to achieve regulatory and environmental requirements; and
- Financial Policies - In addition to complying with relevant Council and Administrative policies, Water and Wastewater lines of service maintain financial policies specific to their operations.

The services provided by The City's Water Utility and the requirements to deliver them are defined in part by watershed management planning activities. The integrated watershed management goals for the three lines of service operated by the Water Utility are to:

1. Protect our water supply
2. Use water wisely
3. Keep our rivers clean; and
4. Build resiliency to flooding



2.1 UTILITY RATE REVENUE

Water and wastewater service rate revenue is generated through basic service charges and volumetric rates that are applied by customer classes and are calculated to reflect the cost of providing services to customers.

Rate revenue is partially dependent on customer consumption. Part of the integrated approach to Watershed Management includes a Water Efficiency Plan and related water conservation programs. Water conservation efforts aim to reduce water consumption and are important to ensure long term water supply reliability and sustainability. As consumption decreases, rates need to be adjusted to compensate for the declining revenues since the costs for the Water and Wastewater lines of service are largely fixed in nature. New accounts attributed to growth help to offset the impacts of conservation efforts on the revenues.

2.2 OFF-SITE LEVIES

In 2015, Build Calgary undertook a review of the off-site levy bylaw. In 2016 January, Council approved a new off-site levy bylaw (C2016-0023, Bylaw 2M2016). The resulting bylaw provides for full cost recovery of growth-related infrastructure through the collection of off-site levies (OSL) from developers. Previously, only 50 per cent of growth-related capital costs were collected through off-site levies with the other 50 per cent being recovered through utility rates. The new bylaw is intended to collect 100 per cent of water and wastewater growth-related infrastructure costs. Off-site levy revenue is used to pay principal and interest charges for major water and wastewater infrastructure to service new growth. Examples of off-site infrastructure include leading infrastructure such as water and wastewater treatment plants, pump stations, water feeder mains, and sanitary sewer trunks.

Levies are charged when developers enter into either a development agreement for greenfield areas or a development permit for existing areas. If development does not materialize as projected, the result is a shortfall in OSL revenue. This injects uncertainty and risk into revenue collections, as was seen when 2016 development was much lower than projected due to economic conditions.

Recovery of growth related costs through OSL may decrease pressure on utility rates in 2019-2022, however significant risk and uncertainty exists in this model.

2.3 COST OF SERVICE

It is an industry best management practice to conduct a Cost of Service Study every 5 to 10 years. A Cost of Service is a methodical process by which the cost of providing a service is distributed in a fair and equitable manner, in proportion to the benefit derived by each customer class. The City provides water and wastewater services to a wide variety of customers, managing the quality and delivery of the water supply, and treating wastewater before it returns to the river. In providing these services, The City incurs ongoing operating and capital expenses. These operating and capital expenditures are subject to the combined effects of growth, inflation, and the need to repair, replace, and extend existing service facilities to meet customer service and regulatory requirements.

The current water and wastewater rate structure includes fixed and usage-based variable rate components. The rates and rate design are the results of the previous Cost of Service Studies, implemented in 2014 May. Based on the 2014 cost of service analysis, it was determined that a disproportionately high share of costs was recovered from residential customers, and a low share of costs from general service and bulk water customers. Key drivers of this disparity included changes in customer usage patterns since the previous Cost of Service Study. Therefore, to ensure equitable allocation of costs over time, the business has adopted the practice to conduct a cost of service study in each business cycle.

The Cost of Service Study for the Water and Wastewater lines of service include the following steps:

- 1) Analysis of customer servicing requirements and usage patterns and subsequent assignment of customers into distinct customer classes;
- 2) Identification of rate revenue requirements;
- 3) Categorization of rate revenue requirements by system functions;
- 4) Allocation of system function costs into distinct cost driver pools (or cost causation characteristics, such as volume, peaking, pollutant strength, etc.); and
- 5) Allocation of cost driver pools to customer classes based on the relative units of service for the class for each cost driver.

Upon completion of the cost of service, rate design steps are then performed. Rate designs are based on the projected cost recovery projections per customer class (per the cost of service) and rate objectives as prioritized by the Steering Committee. Utilities rate design considers a mix of fixed and variable rates by customer classes.

In addition to ensuring the equitable allocation of costs, the Cost of Service Study is an analytical tool to support financial management, and provide validation and documentation for ratemaking decisions. The Cost of Service Study is also a systematic practice to test equity, fairness and accuracy of rate setting.

It is important to all stakeholders and The City of Calgary that the user rates be founded on a sound set of principles. The guiding principles can be organized into three interdependent categories, including: Financial Sustainability, Fairness and Equity to Customers, and Natural Resource Management:

Financial Sustainability

Deliver sufficient and predictable revenue: To meet current and future regulatory requirements, and provide reliable services desired by customers, the Water and Wastewater lines of service need to receive sufficient and predictable revenue to recover their costs.

Rate Stability: Offer stability and predictability to both customers and service provider.



Adaptability: Set rates structures that are dynamic, and provide flexibility to address 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 behaviors focused on water conservation, and protecting the watershed and river water quality.

Finance and the Water Utility have been carrying out a Cost of Service Study for the Water and Wastewater lines of service. The recommendations will be presented to Council in 2018 June, and will help shape the development of the 2019-2022 rates for the Water and Wastewater lines of service.

2.4 RETURN ON EQUITY

Water and Wastewater lines of service pay a fixed, annual dividend of \$28.75 million and \$13.75 million respectively to The City of Calgary. This totals \$42.5 million annually.

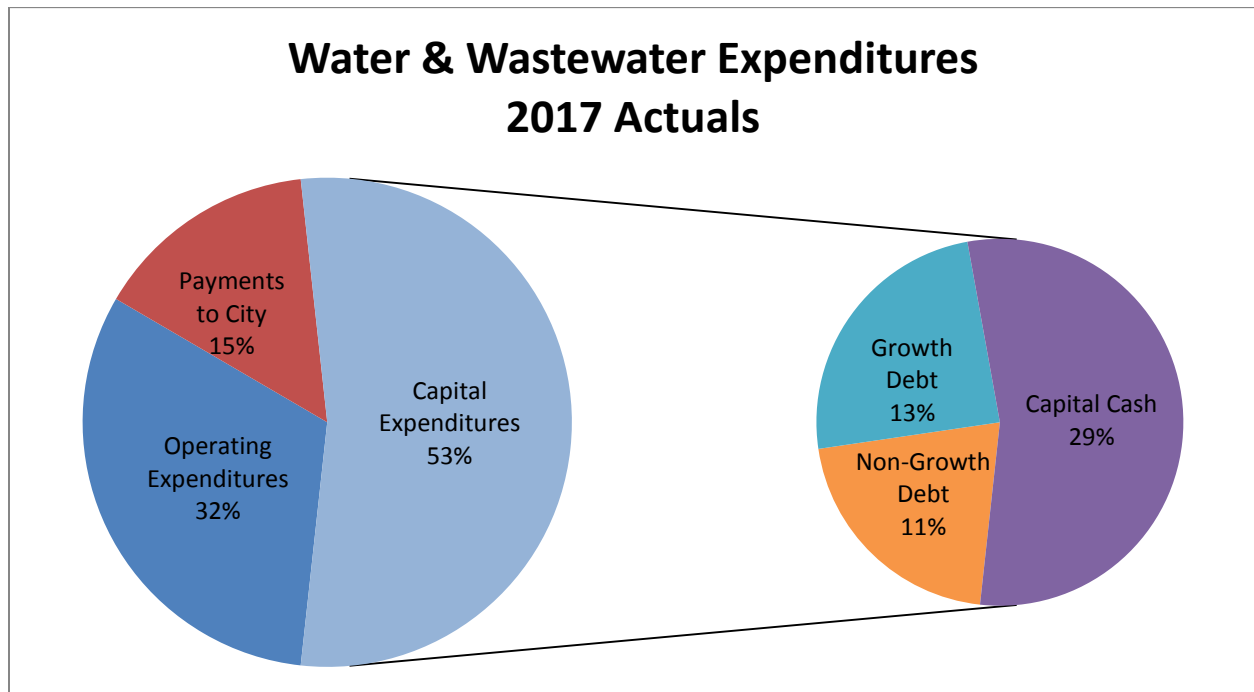
2.5 FRANCHISE FEES

The Water Resources and Water Services business units are granted the exclusive right to provide Water and Wastewater services within The City of Calgary, as such, an annual franchise fee is paid for the use of municipal rights of way. In lieu of property taxes, the Water and Wastewater lines of service pay The City of Calgary a 10 per cent tax on revenue. This tax on revenue, referred to as the franchise fee, is based on the total of sales and service charges from inside city and excludes developer fees and off-site levies (formerly known as acreage assessments). In 2017, the Water and Wastewater lines of service franchise fees totaled \$61.1 million (Water \$29.8 million, Wastewater \$31.0 million and Reclaimed Water \$0.3 million).

2.6 CAPITAL INTENSIVE

As The City continues to grow, so does the requirement for infrastructure needed to provide reliable service to Calgarians. The nature of utility systems requires significant ongoing capital investment in infrastructure. The capital is required to build and upgrade facilities and pipe networks to treat and distribute potable water, and to collect and treat wastewater. Of the current operating budget, approximately 53 per cent is capital related, as shown in Figure 1.

Figure 1: Water and Wastewater Lines of Service- Expenditure Breakdown of 2017 Actual



Capital requirements continue to experience increased pressure due to factors such as:

- Aging infrastructure, which impacts the ability to operate efficiently and effectively without service interruptions;
- Changes to regulatory and environmental requirements, which necessitate infrastructure upgrades or the construction of additional infrastructure;
- Introduction of new services or service levels, which require new or upgraded infrastructure; and
- Continued population growth, which triggers capacity upgrades and expansions.

Each investment driver provides a different perspective on when and where infrastructure investments are needed. The process to prioritize investments considers the need and timing of investments in light of the four drivers. The desired outcome is to meet customer and environmental priorities while staying within the financial capacity of the Water and Wastewater lines of service.

These factors are summarized in Figure 2.



Figure 2: Investment Drivers

Investment Driver	Objective	Percentage of Water Infrastructure Investment Plan (WIIP)
Maintain assets	Maintaining, protecting and extending the life of infrastructure investments.	20% - 25%
Regulatory & Environmental Protection	Continuing to meet increasingly stringent regulatory and environmental protection requirements.	15% - 20%
Service	Continuing to provide reliable and high quality services to meet the needs of citizens.	10% - 20%
Growth	Providing infrastructure to meet the needs of a growing city.	45% - 60%

2.6.1 Maintain Assets

Investments in capital maintenance are necessary to keep existing infrastructure operating to meet its intended purpose. Customers benefit from these investments through reliable and trusted service, lower utility rates, less property damage, and protection of public health. Ongoing condition assessment and maintenance programs are undertaken, which have helped identify and eliminate potential service failures that could be costly to replace on a reactionary basis.

2.6.2 Regulatory and Environmental Protection

The City of Calgary has a Wastewater Operating Approval under the Government of Alberta’s Environmental Protection and Enhancement Act (EPEA), which sets out limits for specific parameters, monitoring and reporting requirements and operator certification requirements. Similarly, The City of Calgary has a Water Operating Approval under EPEA that outlines treatment, monitoring and reporting, and operator certification requirements. Increasingly stringent regulations for water and wastewater treatment also drive additional investment requirements at the water and wastewater treatment plants. Continual capital investments will be required to ensure the treatment plants continue to meet compliance with regulations.

The federal *Wastewater Systems Effluent Regulations* came into effect, and will necessitate upgrades of the Fish Creek wastewater treatment plant to comply with ammonia toxicity standards. The south catchment study is being undertaken to ensure compliance with these new regulatory requirements. Additional capital investments may also be required as a result of negotiations with Alberta Environment and Parks to renew the Wastewater Operating Approval in 2018.

2.6.3 Service

Calgarians have historically reported a high level of satisfaction in water and wastewater services provided by The City demonstrated by the annual City Satisfaction Survey results. In 2017, 94 per cent



of citizens reported that they were “satisfied” or “very satisfied” with the quality of The City’s drinking water services. Despite such positive indicators of service levels, opportunities exist to improve services and better meet community expectations.

2.6.4 Growth

The City of Calgary has undergone significant changes in growth over the last several years from one of the fastest growing Cities in North America to a City with negative migration in 2016. The 2015 Civic Census showed that Calgary grew by 35,721 people over the previous year. Forecasts for 2016 indicated a citywide population growth of 28,785 people (*Suburban Residential Growth 2016-2020 Report*). The average citywide gain over the next five years was forecasted to be an average of 27,117 people per year (2016-2020). However, the actual total population growth was 4,256 in 2016 and 11,166 in 2017.

Water and wastewater infrastructure are key enablers for growth. To align with the Corporate Growth Management Framework and to support growth, the Water Utility monitors performance measures for serviced land supply and treatment capacity. Currently the target is to have three to five years of land available for development that is serviced by water, wastewater and stormwater infrastructure. The utility services also target to have at least five years of both water and wastewater treatment plant capacity available. Of the current operating budget, about 13 per cent is attributed to debt payments and finance charges for growth-related infrastructure.

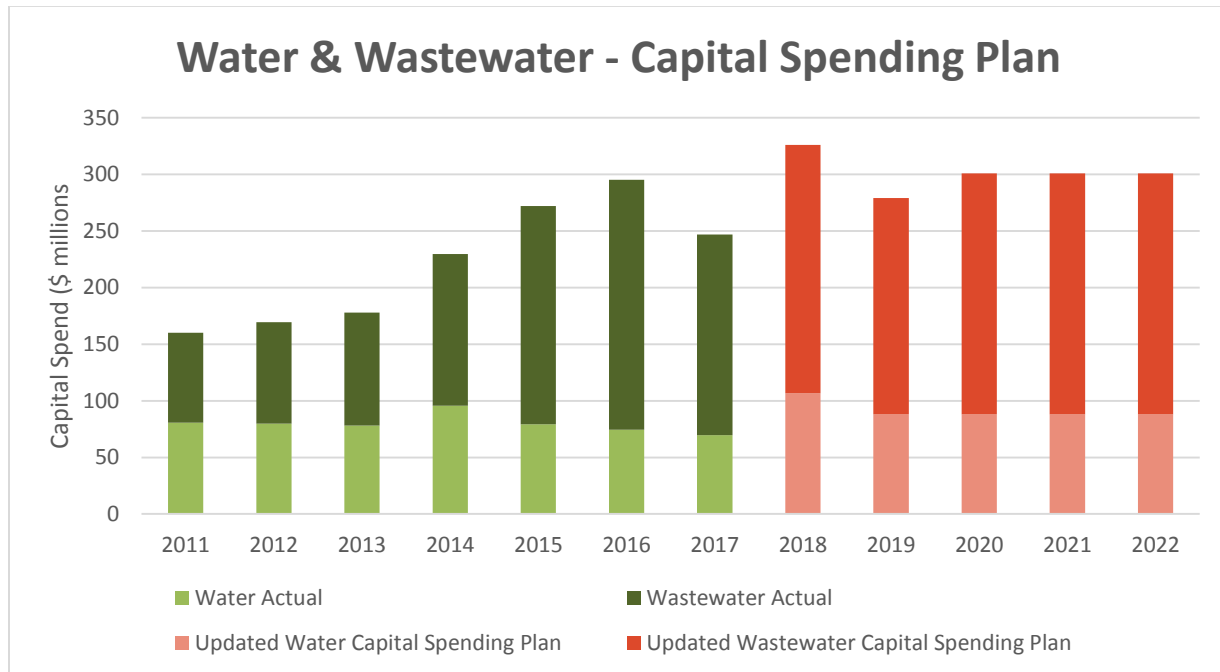
To manage higher than anticipated growth in Calgary prior to the economic downturn as well as future projected growth, upgrades and expansion of the Bonnybrook Wastewater Treatment Plant is required. This represents a total investment of approximately \$1 billion over seven years, from 2015-2022. The largest component of the expansion program at Bonnybrook is the new Plant D project which accounts for an estimated \$620 million of that total investment. Typically, major plant expansions are required every 10 years and a review of the city-wide wastewater treatment implementation strategy is currently underway. This includes all wastewater treatment facilities to ensure investments are targeted to accommodate changing population growth forecasts and the distribution of that growth across the city.

2.6.5 Annual Spending Plan

To accomplish investments per these capital program drivers for the 2015-2018 budget cycle, the Water and Wastewater lines of service will deliver annual capital spending plans of about \$300 million (Figure 3).

Via capital budget recast, the capital budget is more closely aligned with anticipated capital spend, still targeting an annual spend of \$300 million, and ensuring that the investment commitments made in Action Plan are fulfilled. Capital projects are delivered through a Stage Gate process with additional controls that ensure the budget is allocated to the highest priority projects when they are ready to proceed and with the most accurate cost estimates available. Investment in wastewater treatment plants includes a large proportion of materials and equipment that are subject to uncertainty around foreign currency exchange rates; steps are being taken to mitigate this uncertainty.

Figure 3: Water and Wastewater lines of service – Capital Spending Plan



2.7 FINANCIAL POLICIES

As part of the financial plan, the Water and Wastewater lines of service have financial policies specifically around debt and use of debt for long-term assets. These financial policies help manage obligations and the constraints we work within, and to manage financial risks especially in the area of financing long-term assets. Financial policies have measures and targets associated. These policies and targets are reviewed in preparation for the next business cycle.

2.7.1 Debt and Cash Financing

An appropriate mix of debt and cash financing derived from debt service coverage ratio and minimum cash requirements is necessary to deliver water and wastewater services. A good mix of financing strengthens the financial position of the line of service while providing greater flexibility when planning for future capital requirements.

Operating costs are always fully funded from revenues. Subject to funding availability, the Water and Wastewater lines of service shall cash finance capital projects that are part of the on-going improvement program, or will reduce the operations and maintenance costs.

Water and Wastewater lines of service shall debt finance capital projects that are substantial in cost and size and where the benefits will extend over a relatively long period. This spreads the costs of the infrastructure over an appreciable portion of the useful life of the assets. The nature of water and



wastewater infrastructure is mostly long-lived projects that serve current and future generations, which means debt financing is proper to achieve “intergenerational equity” with the rate payers who benefit from these capital infrastructures helping to pay for the cost of the assets.

Debt limits and debt servicing limits are normally established by lending institutions to ensure that debts and related interest costs are repaid in a timely manner. The City as a Corporation has both a debt limit and a debt servicing limit, as required by the *Municipal Government Act* (MGA). The MGA outlines that for The City, debt may not exceed a limit of twice the revenue and that debt servicing may not exceed a limit of 35 per cent of revenue. The City has set an administrative target of 80 per cent of the MGA total debt and debt servicing limits. Debt from the capital-intensive Water and Wastewater lines of service contributes to The City debt levels and is subject to these targets.

Historically debt has been managed within a fixed debt limit target of \$2 billion and a target of 40 per cent of revenues for debt servicing. Instead of a fixed specific level of maximum debt limit, a better way to determine the reasonableness of debt obligations is through a debt service coverage ratio. Debt service coverage ratio states net operating income as a multiple of debt, and its target would be stated in terms of how many times those debt servicing obligations could be paid after other obligations are met. Debt service coverage ratio reflects the line of service’s ability to pay debt service after first paying for critical operations and maintenance expenditures and the required transfers to The City. The ratio should be calculated per the following formula:

$$\text{Debt Service Coverage Ratio} = \frac{\text{Total Revenues} - (\text{Operating Expenses} + \text{Payments to The City})}{\text{Total Debt Service}}$$

It is recommended that each line of service maintain a debt service coverage ratio at minimum of 1.75 times in place of the current policy’s measures and targets. Further for 2023-2026, it is recommended that the Debt Service Coverage Ratio target be increased to 1.80. This will function as capital contingency to ensure some debt capacity is maintained for unexpected capital requirement. This change in the measurement and target for debt will maintain overall debt at a level consistent with the historical \$2 billion debt ceiling.

2.7.2 Cash Financing of Maintenance Capital

The financial plan for Water and Wastewater lines of service, outlines a policy and target of cash financing 100 per cent of the capital maintenance projects identified in the capital budget. This target has been achieved since 2015. No change is recommended in this area of the policy.

2.7.3 Debt to Equity Ratio

The Debt to equity ratio of 60/40 was confirmed for the Water and Wastewater lines of service in 2011 financial plan, which will help guide towards the appropriate mix of cash and debt financing. Water and Wastewater lines of service monitor annually and report periodically on the debt to equity ratio.



2.7.4 Debt Term

For assets financed by self-supported debt, the Water and Wastewater lines of service apply debt terms based on the specific asset and its purpose with the objective of matching a longer debt term with an asset that has a longer useful life. Per historical financial plans, the Water and Wastewater lines of service employ a 25 year debt term on major projects. This policy should be revised as “The Water and Wastewater lines of service will employ up to a 25 year debt term on major projects” since expenditures relating to growth investments in treatment plants employ a 10 year debt term. This accelerated debt servicing is incorporated in the new 2016 off-site levy rates calculation.

2.7.5 Sustainment Reserves

In 2011, the Sustainment Reserve was created to provide a measure of financial flexibility in cash flow to fund unplanned expenditures in both operating and capital, and to manage the financial risks of short term shortfalls in projected revenue. The lines of service aimed to maintain sufficient reserves at 10 per cent of total revenues by the end of 2018. However, the rate increases for water and wastewater services approved in Action Plan at a blended 8.3 per cent increase per year were reduced to 2.5 per cent annually for 2017 and 2018, which delayed the achievement of the reserve target from 2018 to 2022.

The independent financial review recommended that in lieu of the policy of maintaining sustainment reserves equal to 10 per cent of total revenues, that this target be modified to maintaining sustainment reserves equal to 120 days of annual operating expenses. In terms of the sustainment reserve balance to be achieved and maintained, the 120 days operating expenditures is slightly higher than the previous 10 per cent of revenues target. This reserve balance, once achieved by end of 2022, will provide the services with cash reserves for normal operating expenditure and deal with contingencies in revenue fluctuation. Coupling that with additional debt capacity maintained through Debt Service Coverage Ratio target of 1.80 in the 2023-2026 timeframe, these services will be better able to sustain short term increases in operating and capital requirements.

2.7.6 Return on Equity

The Water and Wastewater lines of service will continue to pay a fixed, annual dividend of \$28.75 million and \$13.75 million respectively to the City of Calgary. No change is recommended in this area of the policy.

2.7.7 Franchise Fee

In lieu of property taxes, Water and Wastewater lines of service will pay The City of Calgary a 10 per cent tax on revenue. This tax on revenue, referred to as the franchise fee, is based on the total of sales and service charges and excludes developer fees and acreage assessments. No change is recommended in this area of the policy.



2.7.8 Depreciation

The Water and Wastewater lines of service will maintain depreciation rates that are aligned with generally accepted accounting practices. Depreciation on donated assets is not charged as an operating expense for the purpose of rate setting. No change is recommended in this area of the policy.

3.0 PROJECTED PERFORMANCE RELATIVE TO REVISED FINANCIAL PLAN TARGETS

Along with ongoing focus on achieving current financial targets by 2018 and the revised financial targets by 2022, the Water and Wastewater lines of service will continue to manage increasing cost pressures, market uncertainty and financial sustainability while providing high quality water and wastewater services to Calgarians.

Water and Wastewater lines of service rate revenue forecast was used to test potential financial policies compliance in each of the Water and Wastewater lines of service for the 2019-2022 business cycle. All financial targets recommended in financial plan 2019-2022 will be met.

Figure 4: Debt Service Coverage Ratio

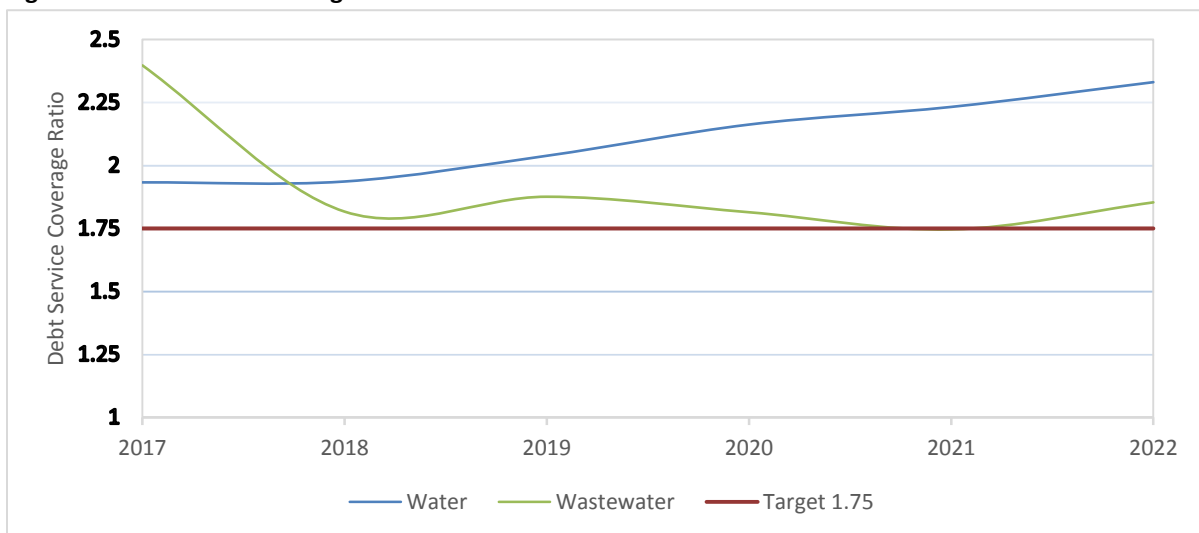
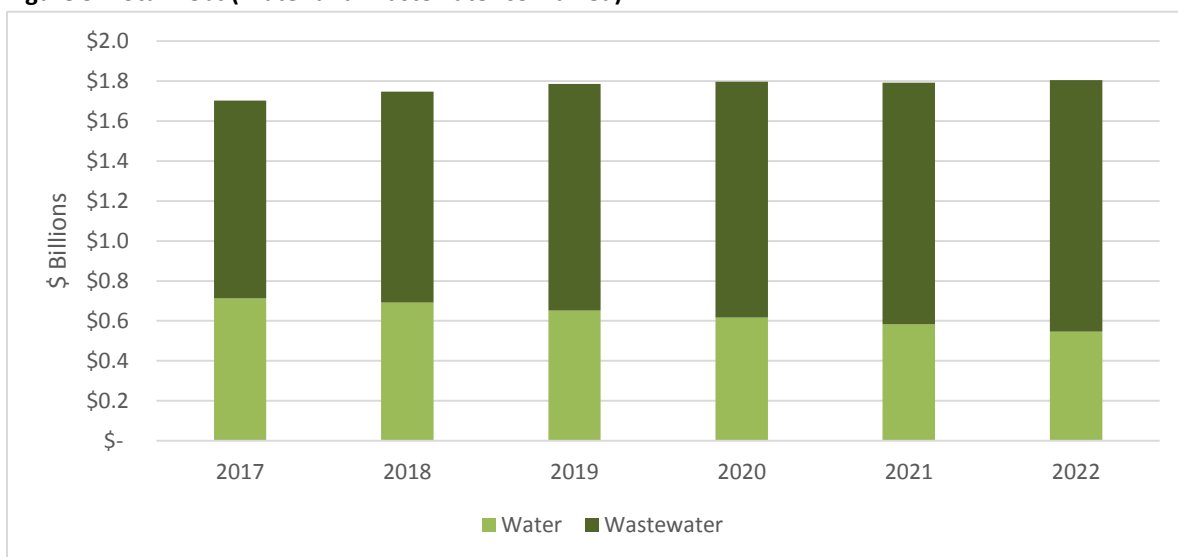
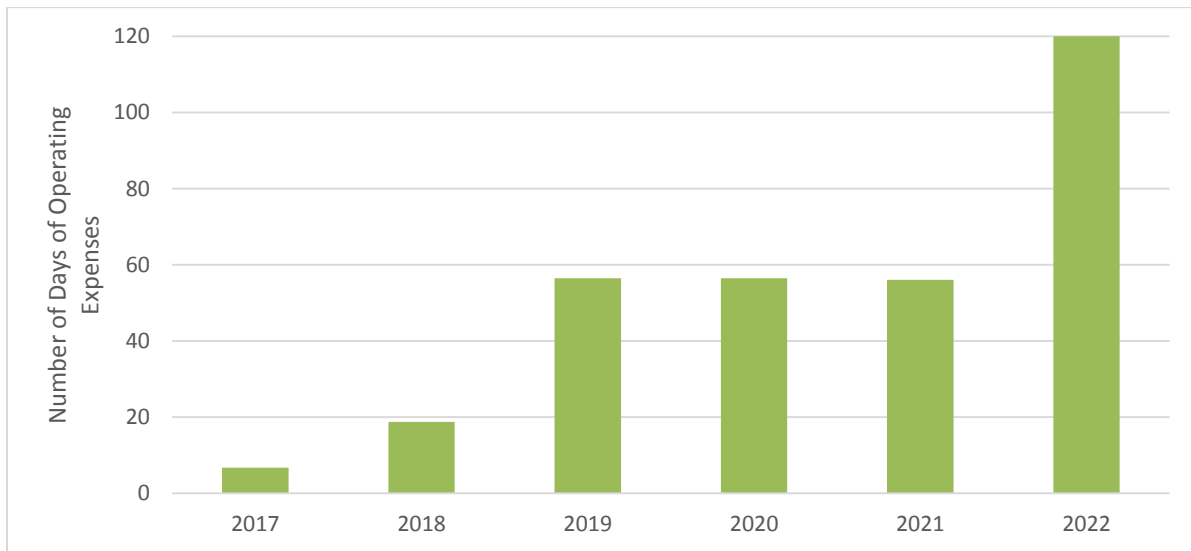


Figure 5: Total Debt (Water and Wastewater combined)



Note: This Chart provides information only, not financial targets for compliance.

Figure 6: Sustainment Reserve Balance (Water and Wastewater combined)



4.0 CONCLUSION

The Water and Wastewater lines of service will achieve compliance with the financial targets set out in the financial plan 2019-2022, thereby ensuring a financially sustainable future. Compliance to the financial plan by the end of 2022 will be contingent on the rate increases that will be presented to Council as part of One Calgary. The Water and Wastewater lines of service will concentrate on:

- Report to Council the Water and Wastewater indicative rates for 2019-2022 in alignment with One Calgary.
- Complete and report to Council the Cost of Service Study to inform 2019-2022 utility rates by 2018 June.