

# Water Treatment & Supply

Led by: Director of Water Services

## Description

This is a highly regulated, essential and health-focused service that ensures reliable access to safe, high-quality drinking water for Calgarians now and for generations to come. Water Treatment & Supply protects public health and ensures long-term sustainability of our most valuable natural water resources. Plants, pipes, pumps and people work 24/7, 365 days a year through evenings, weekends, and emergencies to protect public health by providing clean drinking water for over 1.3 million customers in Calgary and the region. Calgarians are able to turn on the tap and receive safe, clean, affordable drinking water thanks to dedicated teams of experts and forward-thinking investments.

## Value and benefits

Our water service provides the foundation for economic, social, and climate resiliency for all Calgarians. The reliable delivery of safe, clear, good tasting and smelling water supports public health, allows businesses to thrive, and provides fire protection. The confluence of the Bow and Elbow rivers has always been a place where people gathered and built community around our two safe water supplies. Protecting and managing the health of our rivers today ensures high-quality water is available for future generations. As Calgary's population continues to grow, so does the demand on our rivers. Since we have a finite supply of water, we need to use it wisely to ensure we have enough to meet our future water needs. Calgarians are committed to water efficiency and protecting our rivers, and we play a leadership role in supporting Calgarians and businesses to reduce their water consumption.

## Customers

Our customers are all people who use water in the Calgary region. This includes residential users, commercial customers (e.g., hotels and restaurants), hospitals, schools and industrial customers (e.g., food producers). To be future-ready, we must listen to our customers as these conversations lead to many innovations.

## What we deliver

Customers receive reliable, high-quality drinking water that is safe to drink and aesthetically pleasing delivered right to their tap. We ensure system reliability through investment and proactive maintenance. If there is a disruption, we work to restore service quickly. Customers trust we will protect the watershed and plan for the future to meet Calgary's needs now and in the years to come.

## Partners

Non-governmental organizations, community groups and education partners; Research partners (Universities, Alberta Innovates); Government agencies (AHS, Alberta Environment & Parks); Upstream/downstream municipalities, river users and infrastructure operators; City services (Fire, Emergency Management, Roads, Parks); Developers; Regional municipalities and Calgary Metropolitan Regional Board

400,520	customers in Calgary and region
130,000	quality tests per year to ensure safety
177	main breaks/year over 5,000+ km of pipes
340,000 litres	of water treated every minute

## Key assets

Water Treatment & Supply has a growing network of two treatment facilities, Glenmore and Bearspaw reservoirs, 23 treated water reservoirs, a dam, 41 pump stations, 17,000 hydrants and over 5,000 km of underground pipes. Paired with 61,000 distribution valves and 340,000 meters for accurate billing, this critical infrastructure makes up the system customers count on to deliver their water needs.



\* Gross operating budget may include internal recoveries that are also included in other services' gross operating cost.

Note: Internal recoveries is how The City accounts for the costs of goods or services between services

# What we have heard & what we are watching

## What we have heard

We prioritize understanding our customers' values, priorities and service expectations to develop levels of service, guide continuous improvement, and inform long-term planning. Our customers' top priorities are safe, reliable, and aesthetically pleasing drinking water and ensuring sufficient supply for future demand. Based on our research so far, nearly half of customers believe no instance of safety risk to their drinking water to be acceptable. Customers expect a low risk of experiencing a service interruption and most expect instances of taste or appearance issues to be infrequent, occurring only 1-3 times per year. When service is unavailable, customers want timely, accurate information and information on what they are responsible for as either a homeowner or business/property owner. Customers expect us to deliver this and more at a fair price, with predictable and accurate billing.

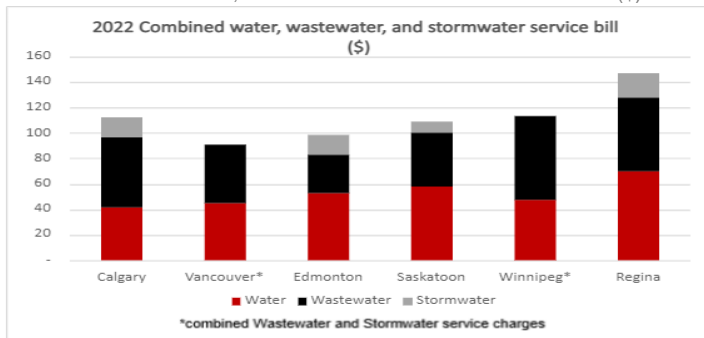
## What Council has directed

As an essential service, continuity of drinking water is a Council expectation. The Utility is taking action to ensure resilient service and reliable infrastructure. This includes treatment plant investments, additional maintenance staff, and upgrades to aging infrastructure. We are investing in lead mitigation programs, reintroducing fluoride, and advancing water metering initiatives to meet changing regulations and customer expectations. This service aligns with corporate climate change direction by implementing risk management measures and evaluating system resilience. We will be piloting new technologies to improve reliability of potable water treatment processes in the face of changing water quality and quantity. These resources are required to accelerate climate change actions and work towards 2050 climate mitigation and adaptation outcomes. With Council oversight, cost reductions keep customer rates low despite increasing inflation pressures in fuel, energy, and chemicals.

## What we are watching

Our customers' priorities are our priorities. We are updating our performance measures to include reporting on water aesthetics, take a holistic view of service reliability and inform our response to outages and emergencies. High-quality drinking water is dependent on system capability and performance as well as demand. Climate change will impact the frequency of flood and drought, affect source water quality and availability, and put pressure on our ability to deliver a service that meets customer expectations. Water supply and demand will need to be effectively managed, water storage capacity will become increasingly important, and our approach to treating drinking water may need to adjust with additional tools. Changing regulatory expectations and impacts to our operations mean that flexibility in service planning and delivery is required. Underpinning everything, we must monitor to ensure our service remains equitable and affordable for everyone.

Combined water, wastewater and stormwater service bill (\$)



Posted rates on municipality websites

## Comparing our service

In this budget cycle water rates remain at \$41/month. In return, Calgarians can expect a higher level of investment in infrastructure replacement and maintenance which will maintain overall service reliability.

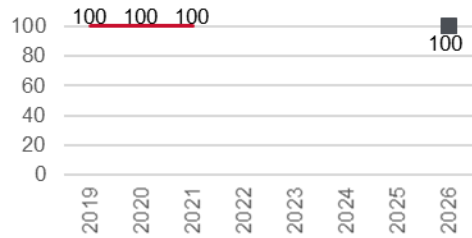
Calgary's water, wastewater and stormwater rates are at the median of other cities on small rivers that have similar regulatory requirements, environmental conditions, capital obligations and complexity of systems to operate. Comparisons are challenging since growth costs and service charges are calculated differently and many utilities do not pay return on equity to municipalities.

# Measuring performance & where we want to go

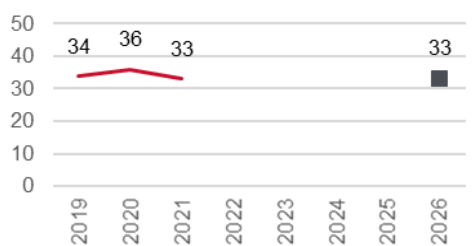
For Council Approval

— Actuals    ■ Expected Future Performance

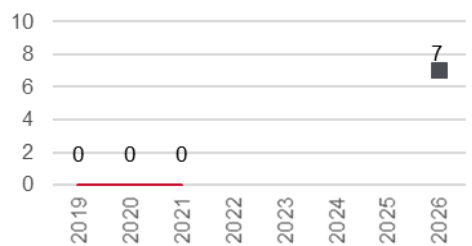
**PM1: Regulations met for treated drinking water quality (per cent)**



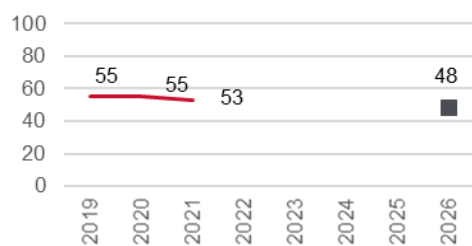
**PM2: Properties impacted by water outages per 1,000 properties**



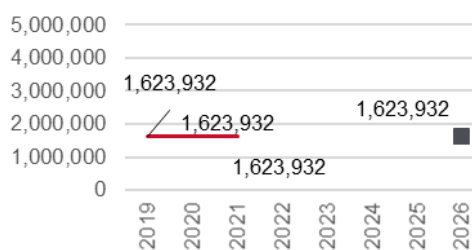
**PM3: Number of days of water conservation measures (restrictions) per year**



**PM4: Average time to return to regular water service due to a water main break (hours)**



**PM5: Total population Calgary (region) can provide water to on a peak day**



## Story behind the curve

Provincial and federal regulations are in place to ensure that water is safe for our customers to drink. For many years, Calgary has maintained 100% compliance for treated water quality. This accomplishment centres on investments in resilient infrastructure, high maintenance standards, and approximately 1,300 employees dedicated to planning, administering, and delivering a world class water utility. Highlighted in conversations with our customers, we are looking ahead at ways to further improve the taste, smell, and appearance of our water.

Both a daily need and a critical service during emergencies, we understand the impact of a water outage for our customers. To ensure reliability, we strategically design systems and maintenance plans to minimize service disruptions. To present in 2022, projections are consistent with previous data. This stability is due to investments to reduce water main breaks as well as proactive maintenance and replacement plans to ensure service continuity. Over the coming business cycle, we are investing \$342 million to ensure continued service reliability for our customers.

Calgarians typically experience very few water use restrictions, yet customer research tells us that that they are comfortable with outdoor use restrictions. To meet the demand of a growing region, respond to a climate with changing water flows, and maintain service affordability, customers may expect to experience water restrictions (less than seven days) in the coming years. We continue to increase drought resilience through water efficiency programs to reduce water demand and by protecting and diversifying water supplies so they meet the needs of communities, businesses and individuals.

This measure reflects the Water Utility's responsiveness to customers that are out of water. With added resources and other operational improvements, the time to restore service is expected to decrease. Coupled with lowering repair times, we are focused on improving the customer experience during an outage by updating frequency of our communications and integrating other tools to minimize customer impacts (i.e. water wagons, Recreation facility shower passes).

Calgarians expect that their water supply is sustainably managed for the future. Key support strategies include conservation programs, regional supply planning, growth monitoring, addressing system water loss, and ensuring water treatment plant capacity. At present, the Water Utility is able to service approximately 1.6 million customers in Calgary and surrounding communities. To stay ahead of demand, optimization upgrades are on track for 2026 completion and longer-term capacity needs are being strategized.

## What we plan to do

### Result for 2023-2026

We are investing to improve levels of service and reliability of infrastructure. Maintenance and replacement programs will help ensure customers do not experience main breaks or interrupted service. We are responding to climate change through risk management and system resilience evaluation.

### How we are going to get there

Reduce potential risks (Emerging Substances of Concern, Distribution Monitoring Program, Lead Servicing Replacement, Dead End Mains) by continuing to deliver on water quality investments and programs and implementing best practices.

Protect Calgary's source water by continuing to work within the region to establish a governance framework to have an aligned regional growth plan.

Reduce the risks associated with source water entering the water treatment plant on the Elbow River by implementing the Glenmore Reservoir source water protection plan.

Reduce long-term system reliability risks through continued exploration of water licensing and plant expansion, while implementing programs that influence timing of sizeable investments (e.g. water restrictions, water loss program, Water Efficiency Plan, graduated water rates).

Maintain service resilience through ensuring appropriate resources including competent and certified operators to maintain regulatory compliance and operate a growing water treatment and distribution system network (two treatment facilities, two raw and 23 treated water reservoirs, Glenmore and Bearspaw dams, 41 pump stations, 17,000 hydrants and over 5000 km of underground pipes).

Continue to work with our regulators to ensure water quality safety and to navigate operational and reporting requirements that support improvements in priority areas for the service.

Prepare to address major system failure and to operate significant new infrastructure through building effective workforce capacity plans.

Prepare for climate resilient service delivery by becoming more energy efficient, investigating new technologies and using new practices to improve water treatment process reliability, factoring in changing water quantity (volume and/or timing) and quality while supporting, prioritizing and enabling mitigation actions.

Reduce water use and average per day demand while maintaining Water Utility financial sustainability including incorporating climate change, drought management and offsetting future infrastructure costs by updating the Water Efficiency Plan and exploring new initiatives.

Advance water meter strategy to reducing meter reading costs, enhancing customer experience with more timely resolution of billing issues, and improving customer communication and feedback on water usage.

Continue to improve the customer experience and customer understanding of the service by establishing levels of service, innovating, optimizing value, and deliver service equity by leveraging innovation, data, technology, and customer insights.

# Operating budget needed to achieve results

For Council Approval

## Breakdown of net operating budget (\$000s)

	2023		2024		2025		2026	
	Base	One-time	Base	One-time	Base	One-time	Base	One-time
Previous Year's Net Budget	-		-		-		-	
Previously approved One-time budget		-		-		-		-
2022 One-time carry forward		-		-		-		-
Revenue Changes	(1,632)		(968)		383	-	(60)	-
Internal Recoveries Changes	(495)	-	(260)	-	(248)	-	(255)	-
Inflation	2,460	-	1,185	-	1,370	-	1,016	-
Operating Impact of Previously Approved Capital	(3,162)	-	(1,505)	-	(1,487)	-	(1,526)	-
Operating Impact of New Capital (Incremental)	2,525	-	4,717	-	5,869	-	8,355	-
Service Reductions	-	-	-	-	-	-	-	-
Service Increases	1,276	-	1,819	-	1,567	-	1,603	-
Transfers to/(from) reserves	(972)	-	(4,988)	-	(7,454)	-	(9,133)	-
Total net budget	-	-	-	-	-	-	-	-

## Total Operating Budget (\$000s) for Approval

	2022 Budget	2023			2024			2025			2026		
	At April 30	Base	One-Time	Total	Base	One-Time	Total	Base	One-Time	Total	Base	One-Time	Total
Expenditures	326,016	328,143	-	328,143	329,371	-	329,371	329,236	-	329,236	329,551	-	329,551
Recoveries	(10,304)	(10,799)	-	(10,799)	(11,059)	-	(11,059)	(11,307)	-	(11,307)	(11,562)	-	(11,562)
Revenue	(315,712)	(317,344)	-	(317,344)	(318,312)	-	(318,312)	(317,929)	-	(317,929)	(317,989)	-	(317,989)
Net	-	-	-	-	-	-	-	-	-	-	-	-	-

Note: Figures may not add up due to rounding.

# Capital budget needed to deliver service

For Council Approval

Activity	Investment Name	2023 Request (\$000s)	2024 Request (\$000s)	2025 Request (\$000s)	2026 Request (\$000s)	2027+ Request (\$000s)	Total Request (\$000s)
<b>Annual Investment Program(s)</b>							
		-	-	-	-	-	-
<b>Program(s)</b>							
460989	Facilities, Equipment & Technology	12,900	8,100	8,100	8,100	-	37,200
459259	Water Treatment Plant	17,378	41,349	36,178	36,178	-	131,083
460940	Water Distribution Network	32,081	65,662	93,942	93,942	-	285,627
<b>Projects(s)</b>							
		-	-	-	-	-	-
Sub-Total (New Budget Requests)		62,359	115,111	138,220	138,220	-	453,910
Previously Approved Budget Remaining		38,861	-	-	-	-	38,861
Total Capital Investment		101,220	115,111	138,220	138,220	-	492,771

## Explanation of capital budget requests

### Program(s)

#### Activity 460989: Facilities, Equipment & Technology

Investment in technology, tools & equipment, lab equipment and building maintenance.

Funding From: Capital Reserves (\$37,200 thousand)

Contributing Services: None

Operating Impact: None

#### Activity 459259: Water Treatment Plant

Investment in capital maintenance, upgrades to pump stations, plant electrical upgrades and plant capacity optimization.

Funding From: Capital Reserves (\$90,767 thousand) Self-supported Debt (\$40,316 thousand)

Contributing Services: None

Operating Impact: This request requires \$887 thousand base funding of operating costs starting in 2023, \$1,823 thousand base funding of operating costs starting in 2024, \$1,632 thousand base funding of operating costs starting in 2025, and \$2,323 thousand base funding of operating costs starting in 2026.

#### Activity 460940: Water Distribution Network

Maintaining the delivery of water in existing communities, extend services to new communities, and addressing capital maintenance needs.

Funding From: Capital Reserves (\$163,468 thousand) Self-supported Debt (\$122,159 thousand)

Contributing Services: None

Operating Impact: This request requires \$1,638 thousand base funding of operating costs starting in 2023, \$2,894 thousand base funding of operating costs starting in 2024, \$4,237 thousand base funding of operating costs starting in 2025, and \$6,032 thousand base funding of operating costs starting in 2026.