Water Treatment & Supply

Led by: Director of Water Services

Service 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.

Service Updates

Highlights

Protecting public health by providing clean and safe drinking water is Water Services' most important priority. We test our drinking water over 100,000 times a year and meet or perform better than all provincial and federal guidelines.

Water Services advanced the Water Loss Strategy and reduced water loss by 12 per cent since 2019. Further analysis will establish more aggressive targets to maximize efficiency. Reducing system water loss, as well as outcomes of the Drought Management Plan and Water Efficiency Plan, are inputs for planning future water transmission and treatment capacity.

The Water Utility is implementing a digitization system for valve operation processes. This work is a big advancement in workplace efficiency and will strengthen our ability to provide safe and reliable drinking water to our customers.

Work advanced on the Advanced Metering Infrastructure Strategy with funding approvals and procurement strategies. Current focus is on sourcing hardware and software.

Challenges

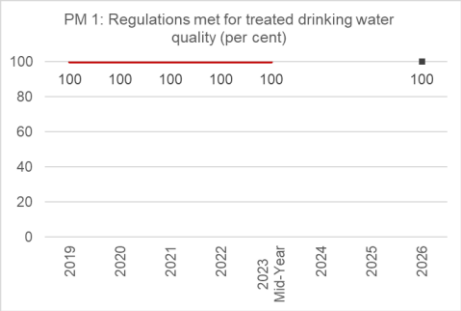
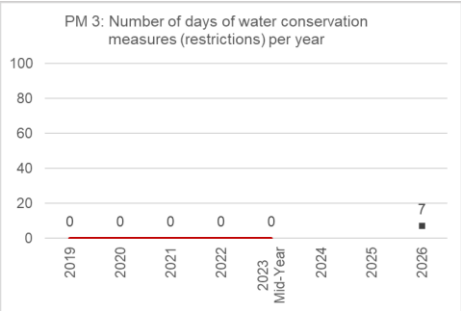
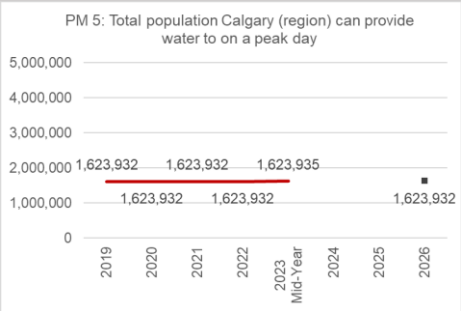
Calgary is fortunate to have access to great source water but in recent years are seeing earthy taste profiles emerging due to Geosmin in the late summer. While purely cosmetic and always safe to consume, we are taking a proactive approach to increase source water monitoring, invest in root cause research and create communications for customers in advance of elevated Geosmin levels.

Significant, urgent capital maintenance needs were identified and need to be addressed to ensure resilient service delivery for our customers. Action plans were developed to address the most significant risks and the necessary work will be executed. The response to address these issues have also compounded by global supply shortages.

In 2023, there is a focus on accelerated training to correct staffing risks due to current and projected retirements as well as ability to retain and attract staff. The Utility will continue to hire and train staff on an accelerated pace to reduce these workforce pressures.

Measuring Our Performance

Legend — Actuals; Expected Future Performance; Progressing as planned; Not progressing as planned

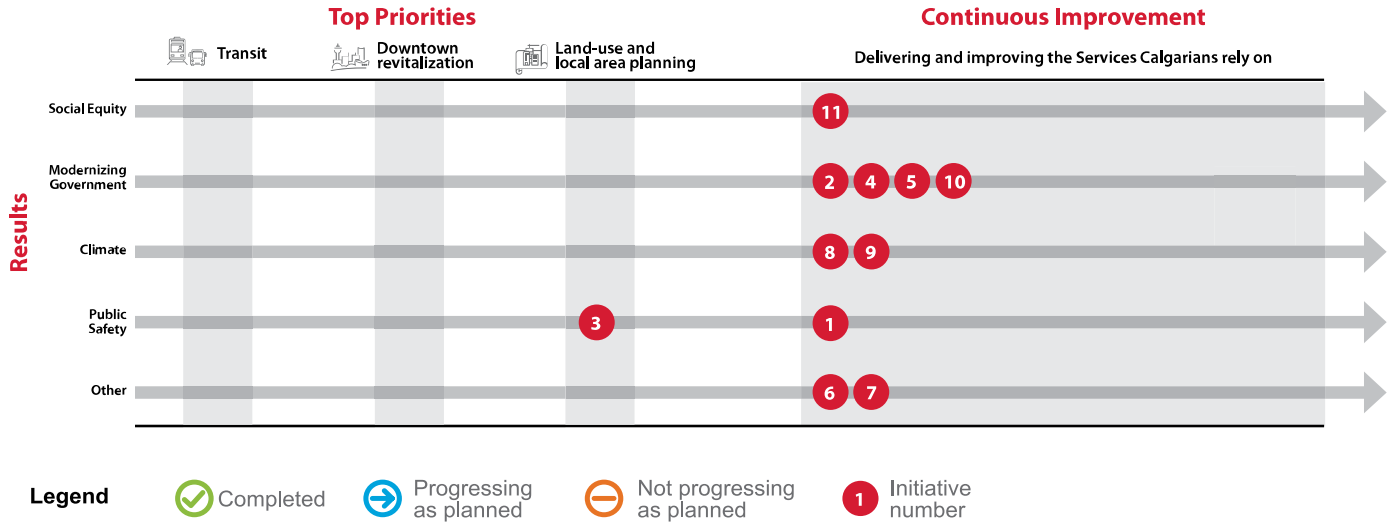
Performance Measures	Story behind the numbers	Status
	Provincial and federal regulations are in place to ensure that water is safe for our customers to drink. For many years, Calgary has maintained 100% compliance for treated water quality with 2023 not being the exception. While there was a boil water advisory which occurred in the communities of Belmont, Silverado and Yorkville, throughout the event The City always remained compliant with drinking water regulations. This accomplishment centers on high maintenance standards and over 1,300 employees dedicated to planning, administering, and delivering a world class water utility.	
	Calgarians typically experience very few water use restrictions, yet customer research tells us that that they are comfortable with outdoor use restrictions when needed. Modeling is showing hot temperatures and dry conditions will likely persist for the summer. Given that, the Drought Monitoring team is closely monitoring the situation in case there is a need to implement water conversation measures. The Water Utility is prepared to respond in a measured stepwise approach if the need for water conservation efforts is required for drought or needed operational maintenance activities.	
	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 1.6M customers in Calgary and surrounding communities. To stay ahead of demand, optimization upgrades and other conservation activities are on track and longer-term capacity needs are being strategized throughout this business cycle.	

Note: Not all performance measures were reported on for this report. To see the 2022 data for performance measures, please visit Service plans and budgets (calgary.ca). Additional measures that will be included in the 2023 year-end performance report include:

PM 2: Properties impacted by water outages per 1,000 properties
PM 4: Average time to return to regular water service due to a water main break (hours)

Progress on Service Delivery

Alignment with Council Refined Priorities and Result Areas

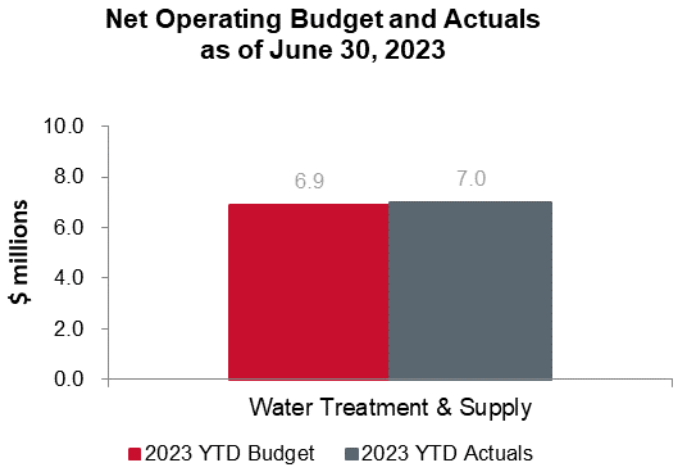


	Initiative	Initiative Update	Status
1	Reduce potential risks (Emerging Substances of Concern, Distribution Monitoring Program, Lead Servicing Replacement, Dead End Mains) by continuing to deliver on water quality investments and programs and implementing best practices.	In response to new regulatory Health Canada Guidance for Per- and polyfluoroalkyl substances (PFAS) and Total Organic Fluorine (TOF) Water Services is testing water coming into our plants. We are collaborating with Queens University on scientific studies to understand water quality changes over time in dead end water mains. This will inform our distribution system flushing program. The Lead Pipe Replacement Program investigation identified approximately 550 Tier 1 lead services for replacement. To date 35 per cent have been replaced, with 10 per cent projected for 2023 completion.	
2	Protect Calgary's source water by continuing to work within the region to establish a governance framework to have an aligned regional growth plan.	The Water Utility is supporting Calgary Metropolitan Region Board scoping and direction setting to inform future growth and servicing plan updates. Work is underway to strengthen Council's Regional Servicing Policy by the end of 2023. Following Council's direction, the Water Utility is supporting regional wastewater infrastructure assessment with Rocky View County, Cochrane and the Harmony Utility. Planning teams continue to collaborate with regional partners to manage source water risks through upstream planning oversight and processes.	
3	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.	The Water Utility is working collaboratively with partners to identify sources of sewage in stormwater. A new research project with the University of Alberta funded by Alberta Innovates seeks to identify water quality risks from urbanization.	
4	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).	The Drought Resilience Plan will be presented to Committee in September. Water Services is initiating Water Efficiency Plan updates, Drought Corporate Financial Sustainability analysis and Water Restrictions modernization study. The Water Loss Program has successfully reduced volume of water loss since 2019. A 2023 commitment is to provide alternative approaches to accelerate water loss reduction. Reducing system water loss, as well as Drought Management Plan and Water Efficiency Plan outcomes, are powerful inputs for planning future water transmission and treatment capacity.	

	Initiative	Initiative Update	Status
5	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).	In 2023, there is a focus on hiring and accelerated training of water treatment plant Operators to address forecasted gaps in skilled staffing. These risks are due to current and projected retirements, timing needed for staff to become certified and proficient, as well as ability to retain and attract staff. The Utility will hire and train staff on an accelerated pace to reduce these workforce pressures. Further evaluation of staffing is needed in other areas.	
6	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.	There has been an update to alarms and procedures for instantaneous withdrawal monitoring to ensure continued regulatory compliance of water licence limits.	
7	Prepare to address major system failure and to operate significant new infrastructure through building effective workforce capacity plans.	Significant, urgent capital maintenance needs have been identified and need to be addressed to ensure resilient service delivery for customers. Action plans have been developed to address the most significant risks and necessary work will be executed. The response is also compounded by global supply shortages. In 2023, there is focus on accelerated training to correct staffing risks. These risks are due to current and projected retirements as well as post-pandemic ability to retain and attract staff. The service will hire and train staff on an accelerated pace to reduce these workforce pressures.	
8	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.	The Water Utility has begun initial planning steps to build out plausible future scenarios (2050s, 2090s, 2100s), enabling us to further understand how climate change might impact the watershed and the region. This approach will help us prioritize risks and actions needed to prepare for this future reality.	
9	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.	Summer and Fall of 2023 are expected to be hot and dry with continued low flows in the Bow and Elbow Rivers. Drought response programming to reduce demand is underway (e.g., YardSmart, summer water conservation campaign, and drought advisory and restrictions preparation). The Water Loss Program has successfully reduced volume of water loss since 2019. A 2023 commitment is to provide alternative approaches to accelerate water loss reduction. A Drought Management Plan and Water Efficiency Plan outcomes are powerful inputs for planning future water transmission and treatment capacity.	
10	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.	Work has advanced on the Advanced Metering Infrastructure Strategy with funding approvals and initial meter procurements. Current focus is on sourcing hardware and software in the coming year.	

	Initiative	Initiative Update	Status
11	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.	In the first half of 2023, Water Services established a more formalized and rigorous customer research program which will increase understanding of customer needs and experience. Work has also advanced in tracking and understanding water quality aesthetics. Water Services will use these insights to drive future conversations around our service delivery.	

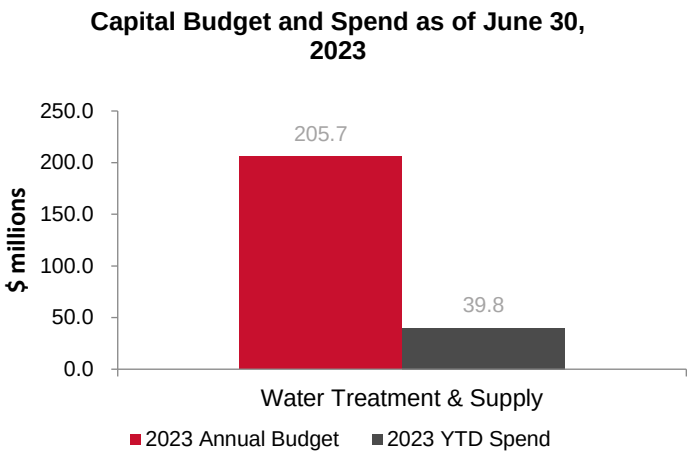
Service Updates on Financial Performance



Operating Budget Updates - 2023 YTD net operating budget vs actuals:

The Water Treatment & Supply service is self-supported. The Year To Date (June 30, 2023) variance is $0.02 million favorable after transferring the operating surplus of $37.9 million to reserve. While the intent is for the service line to net to zero, there is a favourable variance due to timing and process changes for 2023. The transfer to reserve was higher than the budget of $29.4 million, primarily due to higher than budgeted revenue with the hot and dry weather from April to June as well as lower than budgeted Salaries and Wages, Materials and Equipment and Utilities (natural gas and electricity) expenditures offset by higher Contract and General Services.

The transfer to reserve is used to fund capital expenditure including replacements, upgrades and investment that occur year after year. This service also finances large capital investments with debt and this transfer to reserve will help cover obligations on historical debt but will also reduce the need for future borrowing.



Capital Budget Updates - 2023 total capital budget vs 2023 YTD spend:

The 2023 capital budget is $205.7 million with a year to date spend of $39.8 million. The projected year end spend is $154.3 million (75 per cent). Progress was made on capital investments to support growth and maintain existing assets within the water treatment plants and linear network. Ongoing supply chain issues affecting the availability of material and resources continue to have impacts on project delivery. Examples of major investments include:

·210 Avenue SW Pump Station ($5.8 million invested to date in 2023). Construction of the new pump station will provide redundancy to the Lower Sarcee pressure zone and support both short- and long-term population growth.

·Lower Sarcee Feedermain ($3.3 million invested to date in 2023). The feedermain project allows for residential and commercial growth in SW Calgary. With the second and final part underway, this project is expected to be completed in 2024 and will provide redundancy to the feedermain network in South Calgary