

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 1.4 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

Key Service Results

Customers value reliable, high-quality drinking water right from the tap. They equally value timely responses when there's water outages to restore this service. The 2023 Citizen Satisfaction survey confirmed that satisfaction and trust with this service line remain high and that customers continue to feel they receive good value for money for the services provided.

This year's drought conditions presented staff unique opportunities to apply innovative water management activities including meticulous management of demand vs storage at Glenmore Reservoir. In August, The City enacted outdoor water restrictions. The restrictions lasted over two months but efforts by The City and our residents helped tremendously to reduce water demand: Together we were able to save 1.5 billion litres of water.

Work progressed in 2023 on the Fluoride Re-Introduction Project as per Council's direction. Detailed design was completed, a construction contract was awarded through the public tendering process and construction commenced in September at both water treatment facilities.

Service Challenges

Extreme weather events continue to present challenges to this service line. Staff had to quickly respond and prepare for drought conditions and other variable weather. Operating in these circumstances is accelerating the need to adjust our processes and strategies.

A boil water advisory occurred in three communities. While the event impacted service to citizens, we were able to remain compliant with drinking water regulations. Efforts were undertaken to understand how to mitigate these types of situations in the future.

Our water system requires highly skilled and technical expertise to deliver the essential services of drinking water treatment and distribution. For some, this requires achieving or maintaining certifications that keep The City in regulatory compliance with Alberta Environment and Protected Areas and the Environmental Protection and Enhancement Act. It requires ongoing, consistent efforts to ensure a sustainable workforce to correct staffing risks in a growing city.

Trends & Potential Uncertainties

Currently, all indicators point to a higher-than-average risk for drought in 2024 due to a strong El Nino bringing a drier, warmer winter for Southern Alberta. River levels in Calgary and much of southern Alberta remain low for this time of year and there continues to be low water storage in many reservoirs and rivers because of drought conditions in 2023.

Calgary's population growth combined with a changing climate will continue to create uncertainty around source water quantity and quality. This service line will continue to prepare and work towards becoming more efficient in the water we use and making strategic investments to ensure that Calgarians will continue receive the safe, clean, affordable drinking water they rely upon.



Measuring Our Performance

Legend

— Actuals

■ Expected Future Performance

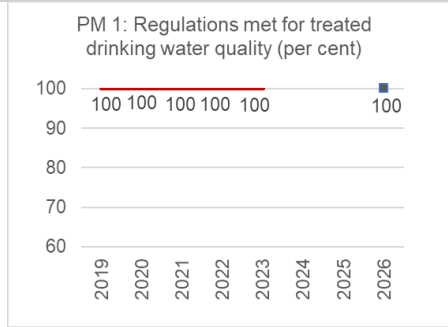
➔ Progressing as planned

⊖ Not progressing as planned

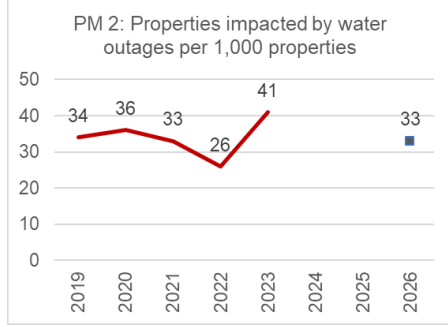
Performance Measures

Story behind the numbers

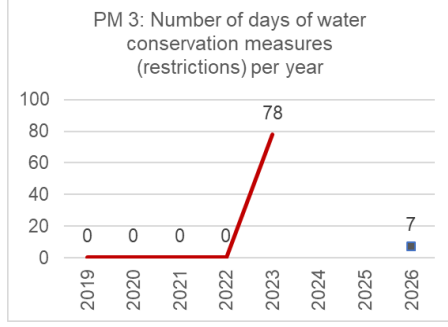
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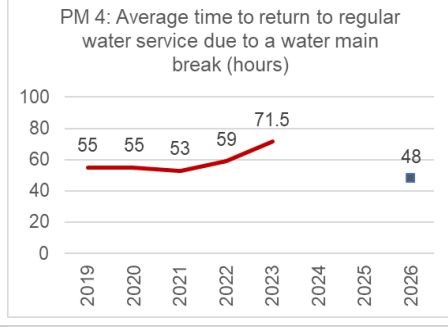
Provincial and federal regulations are in place to ensure that water is safe for our customers to drink and The City continues to work with regulators to navigate operational and reporting requirements that support improvement in these priority areas. For many years, Calgary has maintained 100% compliance for treated water quality with 2023 continuing that trend. This accomplishment centers on high maintenance standards and ~1,300 employees dedicated to planning, administering, and delivering a world class water utility.



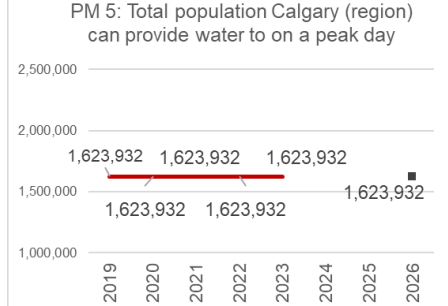
While customers remain satisfied with water reliability, in 2023 we saw more breaks and more larger scale issues which negatively impact this performance metric. Work has commenced on mitigating these risks and we will continue to strategically design systems to minimize service disruptions in the future.



For this metric, an upward trend signifies responsible water management during times of water shortage. Drought conditions in 2023 required The City to enact Stage 1 water restrictions from August 15 to October 31. During this period, Calgarians reduced water demand and saved an estimated 1.5 billion litres of water. Reducing water demand helps preserve storage in the Glenmore Reservoir, facilitates water sharing across the watershed, and helps reduce the risk of stress to fish and aquatic species during drought.



In 2023, we experienced more water main breaks (and more associated complexities with these repairs) along with staffing resilience challenges, which impacted our response times. Ongoing training combined with appropriate resourcing efforts are underway to ensure we are meeting our expected future performance. With a growing city and growing infrastructure, staffing capacity levels are being reviewed to meet our service levels.



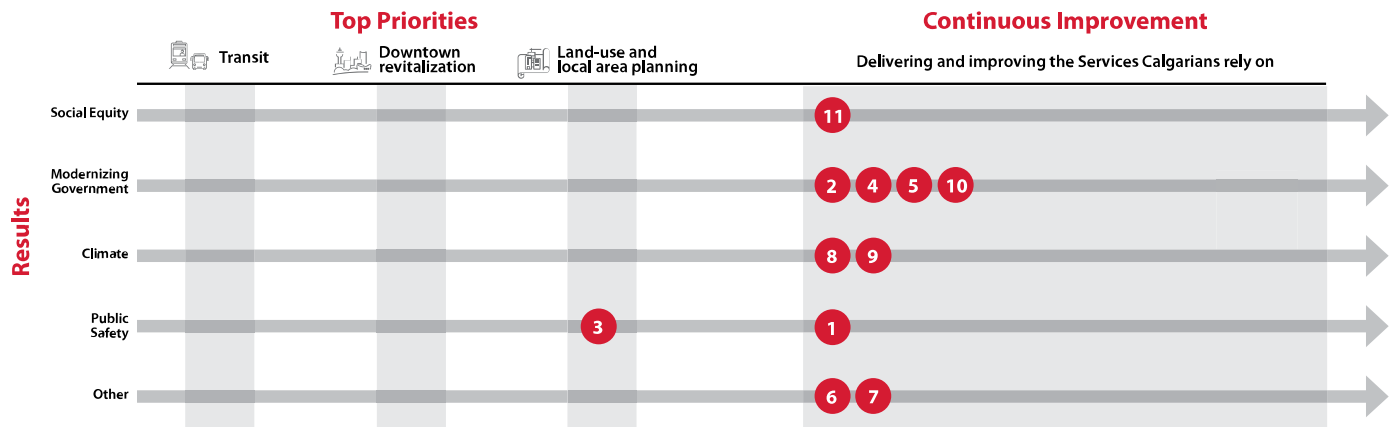
Calgarians expect that their water supply is sustainably managed for the future. Key water security strategies include conservation programs, regional supply planning, growth monitoring, addressing system water loss and ensuring water treatment plant capacity. At present, the Water Utility is able to service ~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.











Progress on Service Delivery

Alignment with Council Refined Priorities and Result Areas



- Legend**
- Completed
 - Progressing as planned
 - Not progressing as planned
 - Not started
 - Initiative number

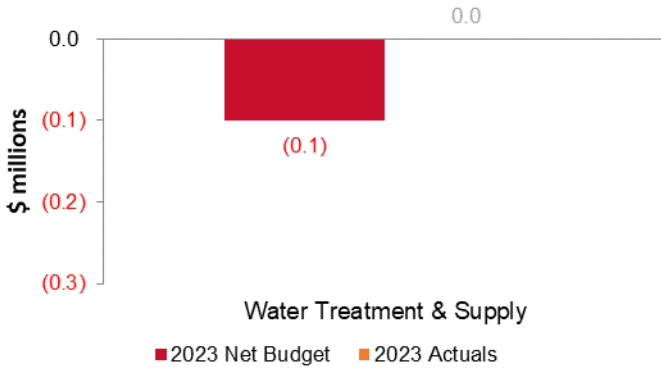
Initiative	Initiative Update	Status
1 Reduce potential risks (Emerging Substances of Concern, Distribution Monitoring Program, Lead Servicing Replacement, Dead End Mains) by continuing to deliver on water quality investments and programs and implementing best practices.	<p>Calgary has fewer lead services than other cities with approximately 500 lead services needing replacement. To date nearly 66 per cent have been replaced and 18 per cent have declined replacement. The remaining services will be replaced in 2024.</p> <p>Research was conducted in 2023 with Queens University to provide greater understanding of water quality risks in our distribution system. These results will inform continued water quality practices and strategies in our operations in 2024.</p>	
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.	<p>Utility staff remain involved in the Calgary Metropolitan Region Board (CMRB). The Calgary Committee approved an updated Regional Water, Wastewater and Stormwater Servicing Policy that aligns to the new regional growth plan and includes source water protection considerations.</p> <p>The Regional working group completed an infrastructure assessment and recommended tying Harmony wastewater system into the existing Cochrane line. This will be put forth to Cochrane, Rockyview and Calgary Councils in Q1 2024.</p>	
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.	In efforts to reduce the risk of lower quality source water, the Utility is engaged in research with universities and other Water Utility partners to explore sources of emerging public health risks.	
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).	Council approved the Drought Resilience Plan which sets forward a Calgary-specific approach for building drought resilience in the long-term. Work on an updated Water Efficiency Plan is underway. There is also continued advocacy for a new upstream Bow River Reservoir as an integrated water management tool to support drought and flood resilience.	

Initiative	Initiative Update	Status
<p>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 Bears paw dams, 41 pump stations, 17,000 hydrants and over 5000 km of underground pipes).</p>	<p>Strategies have been developed focusing on training tools and staffing resiliency to address maintenance risk and operate our system within our regulatory requirements. These resourcing strategies contribute to reliable, safe, high-quality drinking water for Calgarians.</p>	
<p>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.</p>	<p>Ongoing and continued efforts have been taken to work with our regulators and strengthen regulatory protocols in operating areas. There was also work done with TransAlta to exceed withdrawal limits in emergency situations.</p>	
<p>7 Prepare to address major system failure and to operate significant new infrastructure through building effective workforce capacity plans.</p>	<p>In 2023 critical maintenance work was identified. A team was assembled and work has commenced on mitigating the risks that were identified. There have been some challenges attracting staff with unique skill sets. Currently, work is underway to explore various delivery strategies for this critical work.</p>	
<p>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.</p>	<p>The Water Utility kicked off the refresh of the Water Efficiency Plan in 2023. This plan will explore a range of policy approaches to carefully manage our changing water resources to ensure we have enough water to meet the needs of customers, the environment and ensure a sustainable economy in the future.</p> <p>The Water Utility has also begun initial planning steps to build out future climate scenarios. This approach will help us prioritize risks and actions needed to prepare for this future reality.</p>	
<p>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.</p>	<p>The Utility is proactively accelerating drought preparedness and taking actions to ensure The City, businesses and Calgarians are ready for what is anticipated to be another dry and hot summer. This includes clear plans, communications, and procedures for response – both leading up to, during and after times of water shortage.</p>	
<p>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.</p>	<p>Water Services has completed the selection of meter supply vendors. We are now working on drafting requirements and procurement documents to acquire advanced meter reading hardware and software in 2024. This work will provide customers with more information on their water consumption while also enabling more efficient meter reading and effective resolution of billing issues.</p>	
<p>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.</p>	<p>The Water Utility rolled out a rigorous customer research program which has increased understanding of customer needs and experience. Insights gathered are being used to deliver service (drought response, customer water outage response) and drive future conversations around our service delivery.</p>	



Service Updates on Financial Performance

Net Operating Budget and Actuals as of December 31, 2023



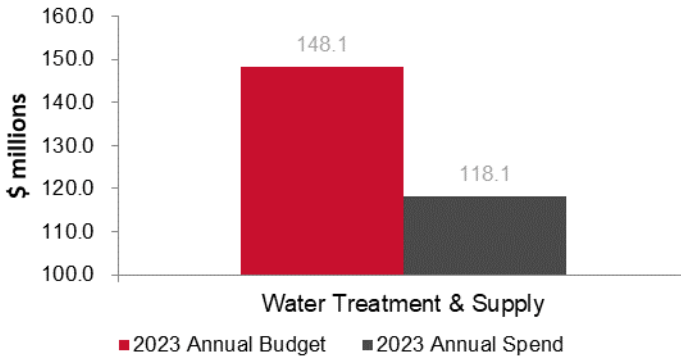
Operating Budget Updates - 2023 YTD net operating budget vs actuals:

The Water Treatment & Supply service line is self-supported and has an unfavourable operating variance of \$0.1 million. Variances occur due to the process for reporting self-supported expenditure in different areas that contribute to delivering service.

The operating surplus transferred to reserve was \$92.4 million which is higher than the budgeted transfer of \$65.3 million. This primarily resulted from higher than budgeted revenue due to hot, dry summer weather as well as an increase in development agreements resulting in higher Off-Site levy revenue. This service line had lower than budgeted salary and wage expenditures resulting from higher vacancies along with higher favorable sickness & accidents claims. These were offset slightly by unfavorable fringe benefits based on salary rounding impacts. Higher expenditures in materials, and supplies, internal contracted services, and electricity charges, offset the lower salary and wage expense.

The budgeted transfer to reserve is planned to fund capital expenditure including replacements, upgrades and investments that occur annually. Large capital investments are financed with debt. When the actual transfer to reserve is higher than planned, the borrowing for large capital investments will be lower than anticipated.

Capital Budget and Spend as of December 31, 2023



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

The 2023 capital budget is \$148.1 million with a year-end spend of \$118.1 million (79.7 per cent spent). Progress was made on capital investments to support growth and maintain existing assets within the water treatment plants and linear network. Supply chain issues affecting the availability of material and resources continue to have impacts on project delivery, in addition to cost and inflationary increases. Examples of major investments include:

210 Avenue SW Pump Station (\$9.9 million invested 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 (\$17.8 million invested in 2023). The feedermain project allows for residential and commercial growth in SW Calgary. The project is now complete and will provide redundancy to the feedermain network in South Calgary