

# Wastewater Collection & Treatment

Led by: Director of Water Services

## Service Description

We're a big, growing city on a small river. This is a highly regulated, essential and public health focused service that ensures over 1.4M Calgarians and regional customers can trust that their wastewater is removed and treated to protect the health of the river. The Wastewater Collection & Treatment service collects wastewater from toilets, sinks and drains, treats it, and returns it to the river. We ensure necessary investments are made in treatment plants, pipes and people to keep pace with the needs of a growing population and so that service is available 24/7, 365 days a year during evenings, weekends, and emergencies.

## Service Updates

### Key service results

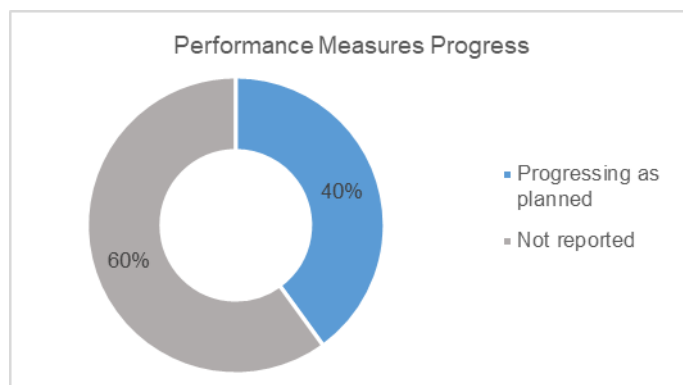
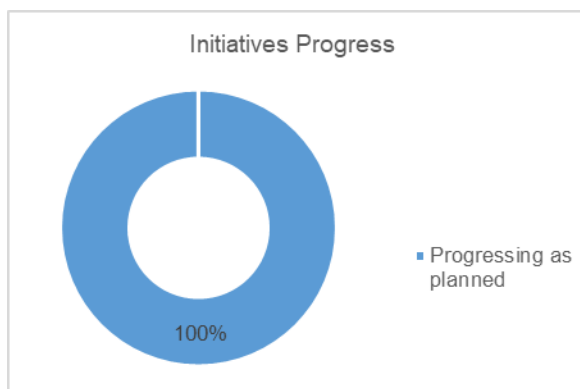
Given the highly regulated nature of wastewater, our team of experts work tirelessly to protect our rivers by ensuring regulatory compliance. We also support customer compliance to Calgary's Wastewater bylaw 14M2012 which protects our wastewater system and public health.

So far this year, several initiatives have advanced compliance efforts. In collaboration with Community Safety (EMCS), the Utility onboarded dedicated Water bylaw officers. This approach has found efficiencies between the business units. Moreover, the Officers focus on citizen education which has resulted in increased cooperation and compliance from customers.

Our Industrial Monitoring Group partnered with business units and external agencies to execute a 3-day Food Truck Blitz in April. The blitz enables City inspectors and Alberta Health Services to attend events to ensure food trucks are complying with legislation. They look to ensure grey and black water hoses are hooked up properly including appropriate disposal methods, and proper record keeping. In total, the blitz inspected 106 food trucks with compliance being very high at 90 per cent.

We are happy to report that significant upgrades were made to three lift stations in our wastewater collection system ensuring safe, reliable service well into the future. Lift stations are critical infrastructure as they move wastewater to our treatment plants. In 2024, the Woodbine Lift Station, the Palliser Lift Station, and the Deer Run Lift station will all be complete with a 2024 investment of \$7.5 M.

### Progress summary



### Risk(s) impacting the progress

Regulatory Non-Compliance

Insufficient collection and treatment capacity to accommodate growth

Lack of certified operators, as required by Alberta Environment and Protected Areas (AEPA), to manage Wastewater Collection & Treatment at plants



# Measuring Our Performance

### Legend

— Actuals

■ Expected Future Performance

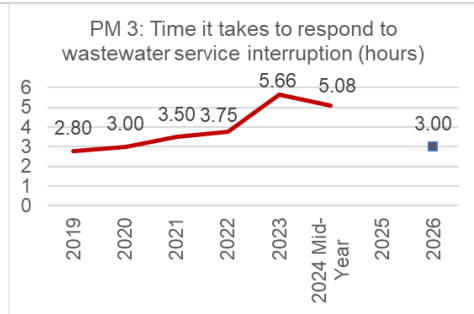
➔ Progressing as planned

⊖ Not progressing as planned

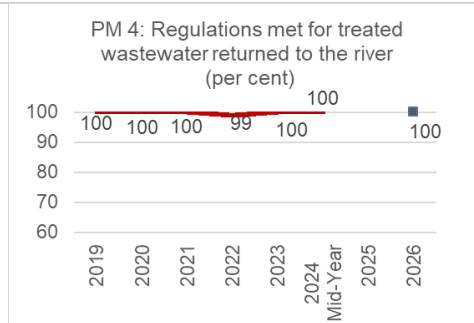
## Performance Measures

## Story behind the numbers

## Status



Citizens value quick response times to sewer backups. This measure reflects the time it takes the Water Utility to respond to a customer that is experiencing a wastewater backup. This metric currently stands at 5.08 hours. While this time has improved slightly from the previous year, we continue to seek opportunities to address risks in the collection system. Currently, a dedicated project team is further exploring related processes including succession planning, ride-alongs with crews, 311 processes and infrastructure assessments.



Wastewater is a highly regulated, essential, and public health focused service. The service is greatly valued by customers, and they expect their wastewater is cleaned to protect the health of the river. Calgary's three wastewater treatment plants continue treating wastewater better than the quality specified by Alberta Environment and Protected Areas, 100% of the time.

In order to maintain this high standard, a key focus will be to prioritize significant wastewater plant and collection system upgrades over the next few business cycles.



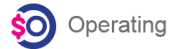


# Progress on Service Delivery








## PROGRESS STATUS



## FUNDING TYPE



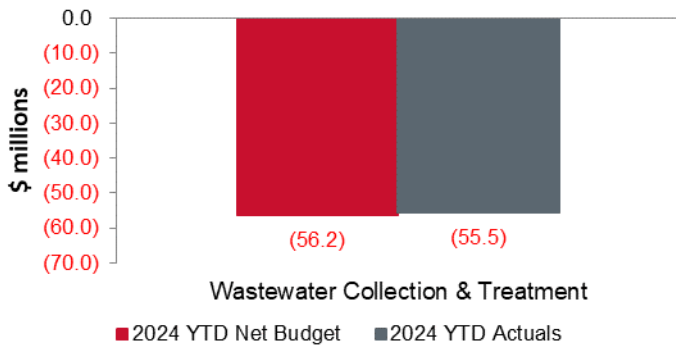
Initiative 1		Impact Area: City-wide	Funding Type: 
<b>Reduce risk of wastewater backups for customers by building understanding of the most effective risk reduction levers and investing in condition assessments to inform targeted upgrades and replacements for critical infrastructure.</b>			
UPDATE 	The Water Utility continues to inspect the condition of sanitary pipes, trunks, syphons, and lift stations. Results from these inspections inform the capital management work, pipe replacements and refurbishments. The Wastewater Asset Management Plan is also being updated with a completion date of 2025. This Plan will be informed by the recent asset management maturity assessment for the Service, and guide the development of risk-based, comprehensive condition assessments in late 2025 and 2026.		
Initiative 2		Impact Area: City-wide	Funding Type: 
<b>Establish clear levels of service for customers who experience wastewater backups by reviewing options with a lens of sustainability, customer expectations and industry best practices.</b>			
UPDATE 	The Utility is reviewing current practices regarding wastewater back up response times. The dedicated project team will investigate trends via data dashboards and the related processes to establish a root cause. This project aims to deliver service levels within the established target of 3 hours while ensuring cost benefit for all.		
Initiative 3		Impact Area: City-wide	Funding Type: 
<b>Explore opportunities to improve system monitoring and enable proactive response to issues such as choked wastewater mains and system risks that emerge.</b>			
UPDATE 	Exploration continues into the efficacy of flow monitors and gas monitors/sensors placed strategically on pipes throughout the collection network. These remote sensing technologies would send data back to our controls system and allow Water Services to better monitor, plan and respond to incidents. This follows our current practice for lift stations and success in this would have us monitoring even more of the collection system. Conversations regarding the availability of technology and future collaborations are ongoing. Additional resources have been allocated to control system design.		
Initiative 4		Impact Area: City-wide	Funding Type: 
<b>Maintain service resilience through ensuring appropriate resources including competent and certified operators to maintain regulatory compliance and operate a growing wastewater collection and treatment network (three treatment facilities, 43 lift stations and over 5,000 km of underground pipes).</b>			
UPDATE 	The certification pilot program is progressing as planned. No additional intake has occurred as we continue to work with Alberta Environment and Protected Areas Certification Committee to understand recent critical changes to the certification criteria and how it impacts our ability to have operators certified at Level III and IV.		
Initiative 5		Impact Area: City-wide	Funding Type: 
<b>Protect the river and reduce impacts to the system by working together with high-strength wastewater customers to ensure rate equity and bylaw compliance.</b>			

<p>UPDATE</p> 	<p>The Request for Proposals (RFP) for Customer Compliance Monitoring and Reporting software was published at the end of Q1. This software is being implemented to support increased customer oversight on wastewater bylaw compliance.</p> <p>We continue to be in regular communication with our high-strength customers as it relates to changes being implemented. As such, a consultant has been retained to conduct research on customer grant programs and options.</p>	
<p><b>Initiative 6</b></p>	<p><b>Impact Area:</b> City-wide</p>	<p><b>Funding Type:</b> Operating, Capital</p>
<p><b>Meet growth demands and reduce risks of customer backups, releases to the environment and regulatory non-compliance by evaluating and prioritizing significant upgrades at Bonnybrook Wastewater Treatment Plant, Fish Creek Wastewater Treatment Plant and the wastewater collection system.</b></p>		
<p>UPDATE</p> 	<p>Key investments in Fish Creek wastewater treatment plant (WWTP) upgrade planning and completion of the Bonnybrook WWTP Plant D upgrades are on track. Looking forward to future business cycles, the Wastewater Service has initiated planning projects which will inform future infrastructure investments. These planning initiatives will determine the necessary upgrades and expansions to The City's wastewater collection and treatment infrastructure to support future demands of growth, regulatory compliance, and protection of the environment.</p>	
<p><b>Initiative 7</b></p>	<p><b>Impact Area:</b> City-wide</p>	<p><b>Funding Type:</b> Operating, Capital</p>
<p><b>Improve energy efficiency and reduce Greenhouse Gas (GHG) emissions from wastewater operations.</b></p>		
	<p>Bonnybrook has generated 50% of its internal electrical needs and utilized 27% of biogas production. Pine Creek has utilized 38% of its biogas production for heating needs to reduce natural gas reliance. Fish Creek has utilized 0% of its biogas production due to in-process boiler upgrades. An energy audit for Bonnybrook is in progress and commissioning of the Cogeneration Facility is still in process.</p>	
<p><b>Initiative 8</b></p>	<p><b>Impact Area:</b> City-wide</p>	<p><b>Funding Type:</b> Operating, Capital</p>
<p><b>Reduce the exposure and vulnerability of the wastewater service to changes in influent strength, shifting seasonality, extreme weather events and higher temperatures related to climate change by supporting, prioritizing and enabling mitigation actions.</b></p>		
<p>UPDATE</p> 	<p>River water quality modelling is underway and will include corporate climate alignment. Modelling builds on our understanding of what future investments are required to successfully adapt. We will continue to collaborate with EPA to understand current and future expectations regarding Approval limits.</p>	
<p><b>Initiative 9</b></p>	<p><b>Impact Area:</b> City-wide</p>	<p><b>Funding Type:</b> </p>
<p><b>Establish levels of service, optimize value, and deliver service equity by leveraging innovation, data, technology, and customer insights.</b></p>		
<p>UPDATE</p> 	<p>The Water Utility is committed to pursuing customer insights with our dedicated Customer Research program. To date this year, we have completed phone interviews, focus groups and the continuous online survey which included in-depth surveys with our ICI (industrial commercial institutional) customers to better understand their perspectives and needs. We also just renewed a contract with an external vendor with whom we will continue to build out an extensive customer research program to further explore customer expectations around this service line.</p>	
<p><b>Initiative 10</b></p>	<p><b>Impact Area:</b> City-wide</p>	<p><b>Funding Type:</b> Operating</p>
<p><b>Reduce safety risk for employees and Calgarians caused by Hydrogen Sulfide (H2S) gases through improved modeling, monitoring and mitigation initiatives.</b></p>		
<p>UPDATE</p> 	<p>Work continues to explore modelling technologies that would support a better understanding of how and where H2S is generated and travels within the wastewater collection network. The implementation of new software in the Water Utility will allow us to gather more detailed, real-time data which will be tagged to a specific asset/location. For Wastewater collection this implementation will not be until 2025. We continue to explore alternative protective personal equipment including work-type specific supplied air or breathing apparatus for confined entry procedures.</p>	



# Service Updates on Financial Performance

### Net Operating Budget and Actuals as of June 30, 2024

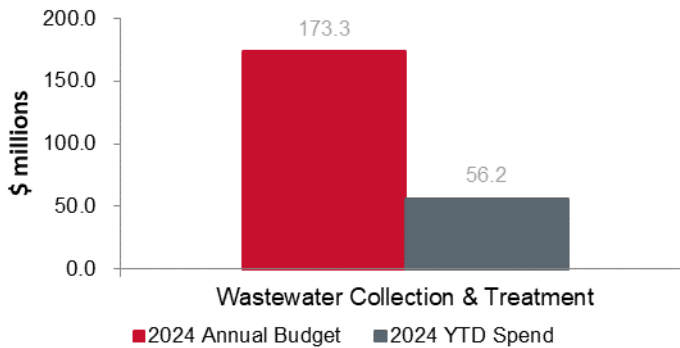


### Operating Budget Updates - 2024 YTD net operating budget vs actuals:

The Wastewater Collection and Treatment service line is self-supported. The year-to-date variance for the service line is \$(0.7) million unfavourable. Variances occur due to the process for reporting self-supported expenditure in different business units and departments that contribute to this service line. The operating transfer to reserve was \$10.9 million which is lower than the budgeted transfer to reserve of \$26.1 million. This primarily resulted from lower revenue and lower expenditures than budgeted for contract & generals services, offset by higher expenses in materials, equipment & supplies, salary & wages and utilities. Wastewater had higher than budgeted salary and wage expenditure resulting from more long-term seasonal workers along with higher overtime and fringe benefits offset by favorable sickness & accident claims.

The budgeted transfer to reserve is planned to fund capital expenditure including replacements, upgrades and investments that occur year after year. Large capital investments are planned to be 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 June 30, 2024



### Capital Budget Updates - 2024 total capital budget vs 2024 YTD spend:

The 2024 capital budget is \$173.3 million with a year to date spend of \$56.2 million (32.4 per cent). The projected year end spend is \$173.3 million (100 per cent). Investments were made to upgrade linear infrastructure to maintain levels of service and to increase treatment plant capacity. Inflationary cost increases and higher than anticipated population growth require adjustments to capital budgets and delivery timelines. Examples of major investments include:

- Bonnybrook (BB) Plant D Expansion includes a capital budget of \$50 million in 2024 with multiple active construction projects progressing. An overall investment of more than \$1 billion in extensive upgrades and expansions to the BB WWTP will protect the environment, increase energy efficiency, and accommodate future growth until the mid-2030s.
- Inglewood Sanitary Trunk (\$8.1 million invested to date in 2024). Additional sanitary trunk capacity is required from the discharge of the 15 St SE siphons on the south side of the Bow River to the Bonnybrook WWTP to ensure that The City's guideline of maintaining ability to convey wet weather flows resulting from a 1:50 year design rainfall event are satisfied.