

Stormwater Management

Led by: Director of Water Services

Service Description

Stormwater Management is a highly regulated, essential and public health focused service that protects property from flooding and ensures our watersheds are healthy by working with citizens and partners. Our service manages water from rain or snow/ice melt by collecting, storing, or moving it into the nearest river or creek through storm drains, pipes, ponds and outfalls. To prepare Calgarians for emergency response to flooding, we work with the community and other levels of government. We monitor river water quality and quantity, assess riverbank health, and we are involved in land use and development issues to reduce water quality impacts and flood risk in Calgary and the region.

Service Updates

Key service results

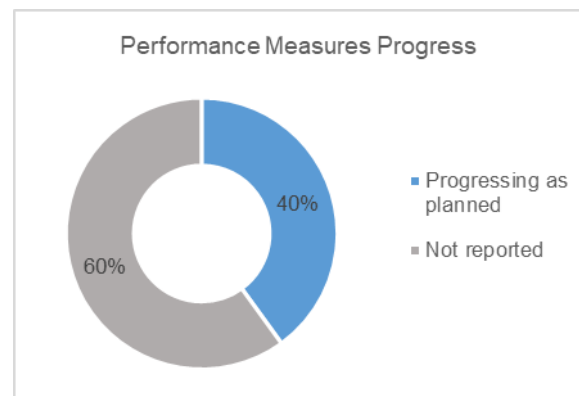
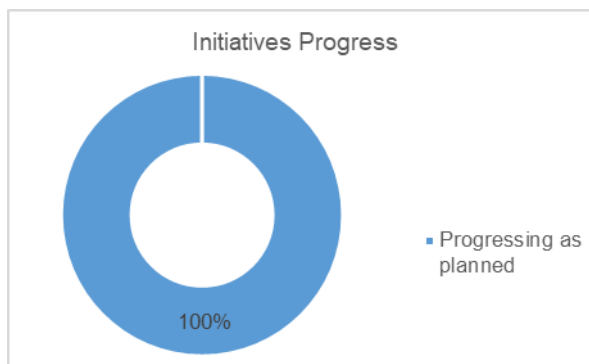
Citizen Satisfaction results continue to trend upward for this service line, an indicator of the importance citizens place on protecting public and private property and infrastructure, and proactively preparing Calgary for climate events.

The Council endorsed Stormwater Strategy is advancing as planned. Implementation teams have been established to support growth, development, and densification. We continue to balance investments in new and established communities while delivering stormwater outcomes.

The Community Drainage Improvement (CDI) program aims to reduce localized flooding throughout Calgary and has a current spend of \$8.8 M YTD. The Gladstone Connect project is one example of this work taking place in inner-city Calgary. The project's estimated completion is Spring 2025 with a total spend of \$27 M. The Providence Storm Trunk Stage 2, which supports new development in the Southwest Calgary Providence Area Structure Plan (ASP), started this spring and has a total investment of \$15.7M.

Recently, our Stormwater Pollution Prevention program partnered with the Geospatial team to build a modern geographic information system (GIS-based) workflow solution. This approach empowers the team with real-time information including log inspections, records and photos, all while in the field. These functions combine to allow better prioritization of work, more efficient inspections, and quicker reporting. It also facilitates more proactive and responsive interactions with customers.

Progress summary



Risk(s) impacting the progress

Risk of localized flooding

Unclear policy direction from Alberta Environment and Protected Areas (AEPA) around the management of stormwater and future policy direction

Inconsistent levels of Service



Measuring Our Performance

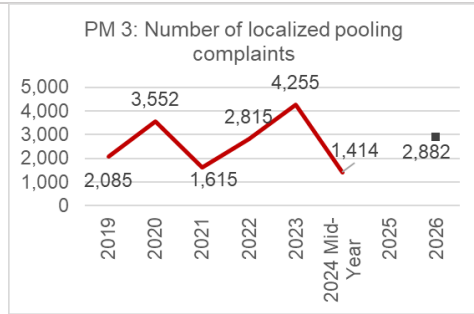
Legend

- Actuals
- Expected Future Performance
- ➔ Progressing as planned
- ⊖ Not progressing as planned

Performance Measures

Story behind the numbers

Status

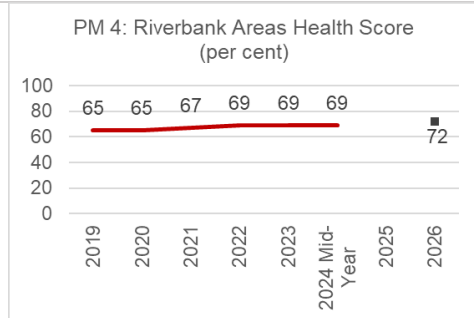


Stormwater pooling complaints are seasonal and variable each year, dependent on snowpack, temperature fluctuations and intensity of rainfall events.



Year to date, this metric stands at 1414. This metric is lower than previous years where more frequent, intense storms have hit Calgary.

With over 60,000 catch basins in Calgary, we regularly engage and educate the public to build an understanding of expectations during rain or thawing events and how their efforts can support with local drainage issues.



Riverbanks (riparian areas) are integral to maintaining healthy rivers and play a role in slowing flood waters. The City's Riparian Action Program establishes actions to protect and manage riverbanks and sets an expected future performance average of 72% city-wide. The current score is 69 % (101 assessed sites).



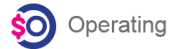


Progress on Service Delivery










PROGRESS STATUS








FUNDING TYPE



Initiative 1		Impact Area: City-wide	Funding Type: Operating, Capital
Reduce risk of localized flooding by continuing to invest in community and local drainage improvements, evolving the community drainage program to achieve desired levels of service, and quantifying the investments needed to address gaps and physical limitations of stormwater infrastructure in established communities.			
UPDATE 	<p>The Community Drainage Improvement (CDI) program continues to deliver projects to improve drainage service for Calgarians at risk of stormwater flooding. The next generation of capital improvements will be planned and evaluated using improved modelling and flood damage tools currently being planned and developed.</p> <p>Significant progress has been made on The City's ability to predict and quantify stormwater flood risk and the coming years will see us revisit our triple bottom line guidance and move towards an Average Annual Damage model for project evaluation and capital planning.</p>		
Initiative 2		Impact Area: City-wide	Funding Type: Operating, Capital
Create safe and resilient communities through the continued delivery of strategic initiatives and capital flood mitigation projects to reduce the risk of river flooding.			
UPDATE 	<p>Alberta Government's Springbank Offstream Reservoir is on track to meet its operational target date of spring 2025. A joint operations committee has been struck with the GoA to coordinate flood forecasting, response operations, water quality management/monitoring, dam safety, and communications. Staff have been participating in the Bow River Reservoir Options assessment which is undertaking comparative conceptual level engineering design of 3 shortlisted options for new dam/reservoir on the Bow River upstream of Calgary.</p>		
Initiative 3		Impact Area: City-wide	Funding Type:
Build resilient communities by guiding redevelopment in established areas to mitigate flood risks and working with developers on innovative stormwater management solutions that enhance public spaces.			
UPDATE 	<p>Work is underway to develop simplified methods and resources for the design and construction of on-site stormwater storage. This will include repeatable, easy to understand design tools, approved product lists, standard specifications and operation and maintenance guidance. Simplifying on-site requirements will enhance cost certainty for redevelopment investments. A simplified approval process for standard designs will be explored.</p>		
Initiative 4		Impact Area: City-wide	Funding Type:
Maintain service resilience by ensuring appropriate resources to respond to more frequent and extreme events and operate the growing Stormwater Management network (334 ponds and wetlands, 33 lift stations, 934 outfalls and over 5,000kms of underground pipes).			
UPDATE 	<p>The new Stormwater Operational Performance Team is building capacity to deliver maintenance and improvement projects within the stormwater system. An asset management plan is being developed to inform priorities. The team has been working with other teams to deliver the Dam Safety Program, which encompasses several storm ponds with embankments that qualify as provincially regulated dams.</p>		
Initiative 5		Impact Area: City-wide	Funding Type:
Build understanding of customer interactions and expectations of the Stormwater line of service. Develop programs that build customer awareness and shared responsibility for managing water quality and quantity on private property.			
UPDATE	<p>Water Services rolled out a rigorous customer research program that has increased understanding of customer needs and experience. Insights gathered are being used to deliver service and drive future conversations on service delivery.</p>		

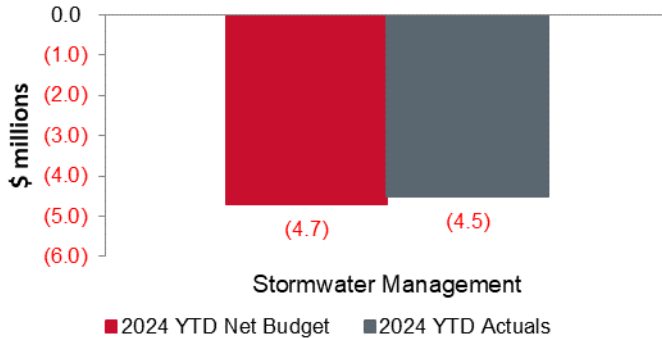
	There is also work underway to build better tools for evaluating green stormwater infrastructure including better support for developers to implement requirements for managing stormwater in new developments.	
Initiative 6	Impact Area: City-wide	Funding Type: 
Reduce the risk of safety incidents on stormwater infrastructure through the development of a storm pond safety program. Build understanding of investments needed for communicating, partnering, designing, and upgrading stormponds to meet program goals for safety.		
UPDATE 	Based on previous storm pond campaign results, we are pivoting our education efforts. Moving forward, public campaigns will focus on general stormwater education vs storm pond specific. There will also be more user friendly, lay language added to Calgary.ca as part of this effort. Future communication goals will focus on creating behavioral changes in relation to stormwater management.	
Initiative 7	Impact Area: City-wide	Funding Type: Operating, Capital
Adapt to our future climate by delivering and enabling investments and advancing initiatives that reduce flood risks and pollutants entering the river, and ensure operational staff and systems are prepared to respond to more frequent and extreme rain and flood events.		
UPDATE 	Work has advanced on the city-wide stormwater loading model which is helping the service line predict the impacts of growth and development, warmer water temperatures, and changing water quality dynamics as part of The City's Total Loading Management Plan. Work has also been completed on the Community Drainage Improvement program, which raises service standards and climate resilience against localized flood. In 2024, one example is the Kensington / Sunnyside Upper Plateau Separation project, which will be complete this year and will significantly reduce the risk of localized flooding.	
Initiative 8	Impact Area: City-wide	Funding Type: 
Meet future needs and advance the Stormwater Strategy to guide prioritization and resourcing for key initiatives on low impact development, watershed targets, customer and developer engagement, and partnership in development of public spaces.		
UPDATE 	Earlier this year, implementation teams were set up as sub-committees of the Service Line team to drive progress on 4 Stormwater Strategy priorities: -Established Communities stormwater management enhancement -Life-cycle operations, maintenance and asset management -Green Stormwater Initiatives -Performance Metrics In addition to initiatives within these priorities, the implementation teams will also focus on exploring improved customer engagement. These teams are also working toward definition of programs and resource needs for the 2027-2030 business cycle.	
Initiative 9	Impact Area: City-wide	Funding Type: 
Protect the health of the river and maintain our environmental performance by continuing to meet regulatory requirements on total loadings to the river and mitigating the risk of spills into the stormwater system.		
UPDATE 	The City-wide stormwater loading model is expected to be completed in Q4 2024. The model was calibrated using all monitoring data from 2001 to 2022, updated imperviousness layer from 2014 to 2021, added rain gardens, oil-grit separators, and new stormwater wet ponds. The City is currently working on the Total Loading Management Plan 5-year update to ensure compliance with the regulatory requirement stated in The City's Environmental Protection and Enhancement Act Approval.	
Initiative 10	Impact Area: City-wide	Funding Type: 
Establish levels of service, optimize value, and deliver service equity by leveraging innovation, data, technology, and customer insights.		
UPDATE	The Utility continues to invest in community resilience and increase the stormwater service levels in older communities. Levels of service, optimizing value and delivering service equity are key considerations for defining programs and resource needs for 2027-2030 as part of the stormwater strategy implementation planning.	

	<p>We are leveraging data and technology in day-to-day operations. The Stormwater pollution prevention team built a GIS based workflow/visualization platform to digitize and create efficiencies with inspections allowing for a more proactive approach to supporting customers.</p>	
<p>Initiative 11</p>	<p>Impact Area: City-wide</p>	<p>Funding Type:</p> 
<p>Optimize investment decision-making and proactive service delivery through the development of Stormwater Asset Management plans and preventative maintenance plans to align capital investments, maintenance contributions and operational resources.</p>		
<p>UPDATE</p> 	<p>The Stormwater Strategy team, which focuses on asset management, continues to work on developing the Stormwater Asset Management Plan. A strategic asset and technical management framework are currently being drafted. Work to understand green stormwater infrastructure (GSI) asset and maintenance roles and responsibilities is currently being scoped.</p>	
<p>Initiative 12</p>	<p>Impact Area: City-wide</p>	<p>Funding Type:</p> 
<p>Build shared priorities, develop objectives and improve activity planning by building partnerships across internal city business units.</p>		
<p>UPDATE</p> 	<p>To advance work that involves multiple City departments, we've established shared priorities within newly implemented, cross-departmental teams. The team helps advance projects such as The Corporation's City Building and rezoning initiatives, as well as shared priorities to address mid-cycle resource planning.</p>	



Service Updates on Financial Performance

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

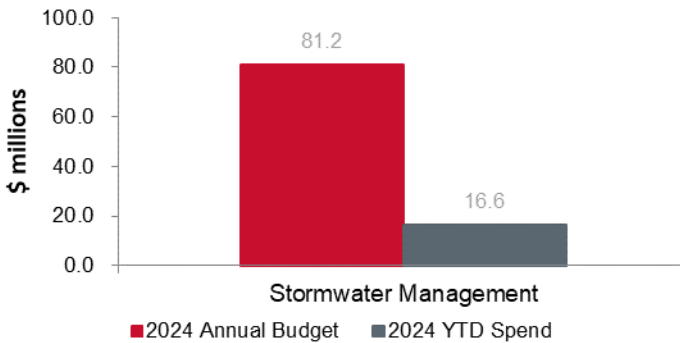


Operating Budget Updates - 2024 YTD net operating budget vs actuals:

The Stormwater service line is self-supported. The year-to-date variance for the service line is \$(0.2) 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 surplus transferred to reserve was \$22.7 million, which is higher than the budgeted transfer to reserve of \$14.1 million. This primarily resulted from higher than budgeted revenue due to higher than expected developer agreements signed that resulted in higher Off-Site levy revenue recognized and lower overall expenses than budgeted.

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 \$81.2 million with a year to date spend of \$16.5 million (20.4 per cent). The projected year end spend is \$81.2 million (100 per cent). Capital investments focus on improving watershed health and mitigating flood risks. Inflationary cost increases and higher than anticipated population growth require adjustments to capital budgets and delivery timelines. Examples of major investments include:

Community Drainage Improvement (\$8.8 million invested to date in 2024). Investments continue in northwest inner-city communities including the Upper Plateau Separation project. Improvements involve engineering design and construction to enhance the stormwater service potential and capacity to reduce the risk of flooding and improve resiliency against the impact of climate change.

Providence Drainage (\$4.3 million invested to date in 2024). The design and construction of the Providence Offsite Storm Trunk and Outfall Stage 2, includes 2 km of storm trunk and connects to the existing system built in Stage 1. The project will provide stormwater servicing for approximately 900ha of development and ultimately discharge treated stormwater into Fish Creek.