

**Utilities & Environmental Protection Report to
SPC on Utilities and Corporate Services
2019 May 15**

**ISC: UNRESTRICTED
UCS2019-0654**

2018 Integrated Watershed Management Update

EXECUTIVE SUMMARY

A healthy, resilient watershed providing clean, reliable water is vital for current and future generations in the Calgary region. Working with the Province and regional partners, The City takes an integrated watershed management approach to protect our water supply, use water wisely, keep rivers healthy and build resiliency to flooding. The Water Utility delivers on this commitment through three lines of service: water treatment and supply, wastewater collection and treatment, and stormwater management. This report summarizes the integrated watershed management actions taken in 2018 and highlights of actions underway and planned for 2019.

Actions taken in 2018 to protect our water supply include the development of a Source Water Protection Plan and initiation of a Drought Risk and Vulnerability Assessment. Regional collaboration was advanced through the establishment of the Calgary Metropolitan Region Board (CMRB) and implementation of The City's new policy on Regional Water, Wastewater and Stormwater Servicing. The Water Utility is achieving its targets relating to water conservation and remaining below its threshold goals for river water withdrawals.

The Water Utility continues to make progress on implementing stormwater management initiatives that keep pollutant loadings below The City's thresholds despite a growing city. This includes protecting riparian (areas adjacent to waterbodies) health through the Riparian Action Program's restoration, monitoring and education activities. We also continue to invest in major upgrades to the Bonnybrook wastewater treatment plant to ensure continued compliance with regulations and a growing population. Efforts to improve flood resiliency and reduce local stormwater flooding are ongoing through infrastructure and programs (see UCS2019-0653).

ADMINISTRATION RECOMMENDATION:

That the SPC on Utilities and Corporate Services receive this report for information.

**RECOMMENDATION OF THE STANDING POLICY COMMITTEE ON UTILITIES AND
CORPORATE SERVICES, DATED 2019 MAY 15:**

That Council receive Report UCS2019-0654 for information.

PREVIOUS COUNCIL DIRECTION / POLICY

On 2013 May 29, the SPC on Utilities and Corporate Services received the Watershed Management Planning Annual Update (UCS2013-0046) report for information which included annual progress updates for the Water Efficiency Plan and Stormwater Management Strategy. Subsequent annual Watershed Management Planning Update reports from 2013 to 2017 (UCS 2014-0108, UCS2015-0080, UCS2016-0167, UCS2017-0266, and UCS2018-0093) were received for information.

BACKGROUND

Increased pressure on watersheds from growth in the region and impacts of a changing climate make watershed management one of Calgary's most critical resiliency challenges. The Water Utility's commitment to watershed protection considers the needs of a growing customer base

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and balances the economic, social and environmental impacts of our decisions, programs, and actions. The Water Utility's integrated watershed management approach addresses the important interconnectedness between watershed protection, climate resiliency and water's influence on city-building. This approach aims to achieve four key goal areas: protect our water supply; use water wisely; keep our rivers healthy; build resiliency to flooding.

INVESTIGATION: ALTERNATIVES AND ANALYSIS

This section highlights key 2018 actions in the four key watershed protection goal areas.

Goal #1: Protect our water supply.

A safe and secure water supply is critical for economic and urban growth in Calgary and the region. 2018 highlights:

- A Water Security Strategy and Plan was initiated. This roadmap will connect priorities for water supply, water efficiency, climate change, regional servicing and drought management to build future water supply management solutions.
- A Source Water Protection Plan was finalized, with targeted collaborative actions including convening task forces on both wildfire-source water and on the Bearspaw Reservoir and ensuring source water protection activities are included in the CMRB's Interim Growth Plan.
- Development of a Drought Risk and Vulnerability Assessment is underway, aligning with Calgary's Climate Resiliency Strategy. This work will support development of a Corporate Drought Management Plan.
- A revised policy on Regional Water, Wastewater and Stormwater Servicing came into effect, affirming the need for collaborative regional servicing plans that balance economic, social and environmental factors.
- The CMRB was established in 2018, of which The City of Calgary is a member. With an interim plan now in place, the Board is required to develop a long-term Growth Plan and Servicing Plan by January 2021.

Goal #2: Use water wisely

The Water Utility is on track to achieve its Water Efficiency Plan target to accommodate Calgary's population growth with the same amount of water removed from the river in 2033 as in 2003. 2018 highlights:

- The Water Utility revamped and expanded its residential water leak education program to support high water use messaging and increased peak day communications to reduce outdoor water use.
- In 2018, Calgary's overall water use was 362 litres per capita per day (lpcd). This is a 30 per cent decrease since 2003, showing continued progress toward our 2033 target of 350 lpcd.
- Despite a service population increase of 25,000 people in Calgary and region and another warm, dry summer in 2018, water withdrawn from the river remained below the 2003 benchmark.
- Calgary's highest total water use in a single day (peak day) occurred on July 7 and remained below the current capacity of The City's water treatment plants.

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- The Water Utility continued to identify and fix watermain leaks through its surveying program, saving an estimated 119,000 litres per day in 2018.

Goal #3: Keep our rivers healthy

The City works to reduce our impact on the rivers. 2018 highlights:

- Major upgrades to the Bonnybrook Wastewater Treatment Plant are advancing to ensure continued compliance with regulatory requirements and to support population growth. Significant progress was made on the flood protection barrier. As well, major electrical upgrades were completed and four new secondary clarifiers and an upgraded sludge digester were commissioned.
- Work to update the 2005 Stormwater Management Strategy began in 2018. The Water Utility completed initial engagement that focused on understanding internal and external stakeholder perspectives on stormwater management. This will form the basis of continued engagement to identify priority areas for the Strategy update.
- The Bowmont East Stormwater Quality Retrofit pond in Dale Hodges Park became operational in 2018. The project reduces the amount of sediment entering the Bow River from the local stormwater catchment area by approximately 50 per cent.
- The Water Utility continued to advance the Riparian Action Program, with 25 bioengineering and riparian planting projects underway or completed in 2018. Field monitoring began in 2018, and results will help measure the improvement of riparian (areas next to waterbodies) health over time.

Goal #4: Build resiliency to flooding

The Water Utility continues to advance flood resiliency and reduce local stormwater flooding. Flood resiliency and localized flooding program activities are detailed in a separate report to Council (UCS2019-0653). 2018 Highlights:

- Funding awarded through the Alberta Community Resilience Program in 2018 includes support for construction of the Downtown flood barrier, the Upper Plateau Separation stormwater upgrades for the community of Sunnyside and building resiliency through the replacement of the 9th Avenue bridge.
- The total funds received for flood mitigation and resiliency work as of 2019 is now approximately \$69.1M, in support of 13 projects. The City completed five of the 13 projects in 2018, and the remaining eight projects are underway.
- The City continues to work closely with the Province to advocate for and provide technical support for timely construction of upstream flood mitigation for Calgary on both rivers.
- Through the Water Utility's Community Drainage Improvements (CDI) program, projects in the communities of Christie Park and Braeside were completed in 2018.
- Continued the Lot Drainage Improvements Project to identify ways to minimize stormwater flooding issues on private properties.
- The City plans to complete a residential Guide to Lot Drainage and present potential revisions to the Lot Grading Bylaw in 2019.

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Stakeholder Engagement, Research and Communication

The Water Utility takes a citizen-first approach to watershed management by working collaboratively with Calgarians, other orders of government, regional municipalities, landowners, developers, and businesses. Through engagement, research, partnerships and education, we aim to incorporate what matters most to citizens into watershed management decisions. In 2018, engagement focused on flood mitigation projects and input for an update to the Stormwater Management Strategy.

Strategic Alignment

The Water Utility's work aligns with The City's Climate Resilience Strategy and the Corporate Resilience Strategy. Advancing watershed management goals aligns to the following One Calgary Council Directives:

- Integrated watershed management is essential to protect public health and the environment, while strengthening our resiliency to a changing climate.
- Calgary must develop our communities with a focus on achieving future water security and a sustainable water supply.
- Watershed management must be integrated into our land use policies, plans and decisions.
- Accomplishing sustainable, effective watershed management within Calgary and the region will also require working collaboratively with other orders of government, adjacent municipalities, residents, landowners, developers, businesses, and the First Nations.

Social, Environmental, Economic (External)

Watershed management initiatives are critical to ensuring healthy rivers for Calgary and neighbouring communities. Our programs, plans and policies are also aimed at ensuring public health and safety, reducing risk to property and increasing community awareness.

Sustainable management of water is critical to long term city-building efforts in Calgary and the region. The Water Utility is working collaboratively with regional partners to develop regional servicing plans that balance the needs of stakeholders while supporting vibrant communities. Community resiliency related to water management is addressed through the Infrastructure and Environment themes of the Resilient Calgary strategy. Watershed protection activities support Calgary's Climate Resilience Strategy water management actions.

Financial Capacity

Current and Future Operating Budget:

Program initiatives to achieve the watershed management planning goals are incorporated in the 2019-22 Service Plans and Budgets.

Current and Future Capital Budget:

Program initiatives to achieve the watershed management planning goals are incorporated in the 2019-22 Service Plans and Budgets.

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Risk Assessment

Sustainable management of water resources is one of Calgary's most significant community resiliency challenges. Our integrated watershed management approach prioritizes actions to ensure reliable service delivery, reduce risk to our watershed health from growth and consider impacts of climate change. Key risks include:

- Calgary's water supply is impacted by regional growth, drought and climate change and the provincial closure of the South Saskatchewan River Basin to new water licences. Upstream forest fires and land use impacts remain the two highest risks to Calgary's water supply and quality. Collaborative actions under the developing Water Security Strategy and Plan are working to address these risks. The City continues to enhance water efficiency programs, and is working to align water demand forecasting and infrastructure planning to meet future needs of Calgarians and regional customers.
- Upcoming renewal of our water and wastewater approval licences require The City to work proactively to meet anticipated regulatory requirements.
- A focus on regional servicing including actions under the CMRB, will require The City to work collaboratively with regional stakeholders to adapt service delivery, strategies and infrastructure.

REASON(S) FOR RECOMMENDATION(S):

This report is provided for information as an update on progress of the Water Utility's watershed management implementation and planning.

ATTACHMENT(S)

1. Attachment 1 – 2018 Integrated Watershed Management Activity and Results Summary
2. Attachment 2 – 2018 Integrated Watershed Management Update