

**Utilities & Environmental Protection Report to
SPC on Utilities and Corporate Services
2018 February 14**

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UCS2018-0093
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2017 Watershed Planning Update

EXECUTIVE SUMMARY

The City of Calgary is dedicated to implementing the Government of Alberta's Water for Life Strategy through its water management framework that ensures reliable and resilient water servicing for Calgary and regional customers. Working with the Province and regional partners, The City aims to protect the water supply, use water wisely, keep rivers healthy and build resiliency to flooding. The City delivers on this commitment through three lines of service: water treatment and supply, wastewater collection and treatment, and stormwater management.

The City is achieving targets related to river water withdrawal, water consumption, and reducing pollutant loadings to the river. The City continues to make progress on protecting areas close to the rivers, implementing stormwater management initiatives, making major upgrades to the Bonnybrook wastewater treatment plant, and building flood resiliency. This report summarizes the actions taken in 2017 to protect Calgary's water supply, use water wisely, keep our rivers healthy, and build resiliency to flooding.

ADMINISTRATION RECOMMENDATION:

That the Standing Policy Committee on Utilities and Corporate Services recommends that Council receive this report for information.

PREVIOUS COUNCIL DIRECTION / POLICY

On 2013 May 29, the Standing Policy Committee (SPC) on Utilities and Corporate Services received the Watershed Management Planning Annual Update (UCS2013-0046) report for information. The report included annual progress updates for the Water Efficiency Plan and the Stormwater Management Strategy.

Subsequent Watershed Management Planning Update reports from 2014 to 2016 (UCS 2014-0108, UCS2015-0080, UCS2016-0167, and UCS2017-0266) were received for information.

BACKGROUND

Increased pressure on the watershed from regional growth and land use combined with climate change impacts make watershed management one of Calgary's most critical environmental resiliency challenges. The City works with the Province and regional partners on integrated watershed management, which addresses the important relationship between watershed protection, climate resiliency, and land use. The City's integrated watershed management approach aims to achieve the following goals:

- | | |
|-----------------------------|---------------------------------|
| 1. Protect our water supply | 3. Keep our rivers healthy |
| 2. Use water wisely | 4. Build resiliency to flooding |

INVESTIGATION: ALTERNATIVES AND ANALYSIS

Attachment 1 is a results-based accounting summary of watershed protection performance in 2017. Attachment 2 describes in detail the actions The City is taking in the goal areas outlined above, as well as challenges and priorities for 2018.

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Goal #1: Protect our water supply.

Reliable, secure, high-quality water supplies are essential for Calgary and the region. 2017 highlights:

- A Water Supply Management Framework is being implemented to build greater synergies among plans related to water efficiency, source watershed protection, drought management, climate change, infrastructure planning, and regional servicing.
- Development of a Source Water Protection Plan is underway, and is based on mitigating risks to Calgary's source watershed and on best practices from other jurisdictions. Water quality evaluation, and internal, external, and First Nations engagement was conducted in 2016-2017. The plan will be finalized in 2018.
- The Utility identified key climate adaptation priorities, and actions will be included in the next business planning cycle in alignment with the future Corporate Climate Resilience Plan.
- An uncharacteristically dry and hot summer resulted in Administration initiating an internal Drought Advisory Phase from 29 August to 2 October, requiring increased watershed monitoring, coordinating business units on water conservation readiness, and operational management to maximize water storage.
- The City participated in the Provincial Bow River Working Group project which developed recommendations for immediate and long-term flood and drought mitigation solutions for the Bow River watershed.
- The City is preparing for more stringent Health Canada guidelines on lead in drinking water. A review of The City's current practices on lead service connection management is required to develop an expanded strategy to meet the new guidelines anticipated for 2018.

Goal #2: Use water wisely

The City is on track to achieve the Council approved 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. 2017 highlights:

- Calgary's overall water use is on track to meet the 2033 target, with total per capita water demand decreasing by 29 per cent since 2003. Residential water demand was approximately 224 litres per capita per day in 2017.
- Calgary's highest total water use in a single day occurred on July 7 and remained below the current capacity of The City's water treatment plants.
- New water efficiency programming is underway for the industrial, commercial and landscape sectors and residential programming is being reviewed in consideration of the gains already made.
- The City continued to identify and fix watermain leaks, saving an estimated 6.5 million litres per day in 2017.

Goal #3: Keep our rivers healthy

The City's Total Loading Management Plan and Stormwater Management Strategy aim to reduce pollutants from entering the Bow River. The Riparian Action Program aims to improve the health of areas near rivers, and minimize further loss of riparian areas. 2017 highlights:

- Major upgrades to the Bonnybrook Wastewater Treatment Plant continued, including construction of the Biosolids Dewatering Facility, digester upgrades, and initiating

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construction of a flood protection berm for the Plant. These improvements will ensure The City continues to meet regulatory requirements and support population growth.

- Sediment and phosphorus loadings from stormwater and wastewater remained below provincial objectives.
- The construction of the Bowmont East Stormwater Quality Retrofit pond was completed. Once operational, it will significantly reduce sediment load to the Bow River in this area.
- The Riparian Action Program continued to advance, with seventeen bioengineering and riparian planting projects either designed, under construction or completed in 2017. Monitoring of riparian health indicates that Calgary's city-wide riparian health is improving.
- The City developed a set of indicators to inform the development of a comprehensive watershed health index which will help evaluate watershed health and inform urban development practices.

Goal #4: Build resiliency to flooding

The City continues to implement the recommendations made by the Expert Panel on river flood mitigation, with 15 of the 27 recommendations complete and the remaining underway. The City is also advancing the Community Drainage Improvement (CDI) Program aimed at reducing risk of stormwater flooding in communities. Flood resiliency and CDI program activities are summarised in a separate report to Council (UCS2018-0092). 2017 highlights:

- Council approved the Flood Mitigation Measures Assessment and Implementation Plan, including budget approval for specific projects. The approach includes combination of local, upstream, and non-structural mitigation measures to continue improving flood resiliency for Calgary.
- The City applied for \$81 million for community based flood mitigation projects through the Alberta Community Resiliency Program. The first set of funding awards from these applications will be announced in 2018.
- The CDI Program invests in stormwater infrastructure improvements in established communities with the highest risk of local stormwater flooding. In 2017 the Program delivered planning, design and construction activities in several communities as scheduled.

Stakeholder Engagement, Research and Communication

The City collaborates with internal and external stakeholders including Calgarians, community groups, non-governmental organizations, the development industry, land owners, regional partners, neighbouring communities and the Provincial and Federal governments to achieve watershed management goals. Through community engagement, surveys, and a strong presence in the community, The City continues to learn more about customers, their level of awareness and expectations to inform programs to improve the Water Utility's lines of service.

Strategic Alignment

The City's work aligns with the Provincial Water for Life strategy and regional watershed management plans. Moving forward on watershed management goals contributes to a number of Strategic Action areas in Council's Priorities for 2015-2018:

- A city of inspiring neighbourhoods (N2 - Build resiliency to flooding, Enable developments that meet the Municipal Development Plan and Calgary Transportation Plan; N5 -

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Systematically invest in established neighbourhoods as they evolve to accommodate changing community need; and N8 - Integrate watershed protection with land use planning).

- A healthy and green city (H3 - Manage the interrelationships between flood protection, water quality and quantity, and land use; H4 - Work with our regional partners and the Government of Alberta on an integrated approach to the watershed; and H6 and H10 – Lead by example and build awareness of shared responsibility to protect the environment).
- A well-run city (W5 - Integrate customer and stakeholder feedback to drive programs and service improvements).

Social, Environmental, Economic (External)

The City's programs and projects protect and enhance watershed health and address public health and safety, protect property, and increase community awareness. Our watershed management initiatives work to ensure healthy rivers for Calgary and neighbouring communities.

Secure and reliable water sources are critical to economic growth and community vitality. A culture of community sustainability is fostered by promoting water conservation that can contribute to deferring infrastructure expansions and help offset increases in water utility rates. Our flood mitigation program is building community resiliency and protecting critical infrastructure and communities from flood risk.

Financial Capacity

Current and Future Operating Budget:

Program initiatives to achieve the watershed management planning goals are incorporated in the 2015-2018 Utilities budget.

Current and Future Capital Budget:

Program initiatives to achieve the watershed management planning goals are incorporated in the 2015-2018 Utilities budget.

Risk Assessment

Sustainable management of water resources is one of Calgary's most significant community resiliency challenges. Integrated watershed management planning helps to evaluate and take action to reduce risks to our watershed from growth, anticipated changes to service delivery, and the impacts of climate change. Key risks identified include:

- Changes to regulations and policy direction, such as the establishment of the Calgary Metropolitan Region Board and future direction on Provincial flood policy will require The City to adapt service delivery, strategies and infrastructure. The City maintains a close working relationship with regulators, partners and internal and external stakeholders to help inform and prepare for anticipated regulatory changes.
- Climate variability, potential for drought, regional population growth and servicing present water supply risks. The two highest risks to Calgary's water supply and quality include upstream forest fires and land development. Climate resiliency planning for the Water Utility and the Integrated Water Supply Management Strategy will help further define and address these risks. Examining drought vulnerabilities and risks will help us

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develop and prioritize drought strategies The City also continues to enhance water efficiency programs and seek new innovations in water conservation programming.

REASON(S) FOR RECOMMENDATION(S): This report is provided for information as an update on progress of watershed management implementation and planning.

ATTACHMENT(S)

1. Attachment 1 – 2017 Watershed Planning Activity and Results Summary
2. Attachment 2 – 2017 Watershed Planning Update