

Drought Resilience Plan

PURPOSE

The purpose of this report is to bring forward for approval Calgary's first comprehensive Drought Resilience Plan ('the Plan'; Attachments 2 and 3), which guides the strategic direction and actions to build resilience to drought as a key climate hazard for The City of Calgary. This report is timely as it demonstrates accelerated climate action.

PREVIOUS COUNCIL DIRECTION

Planning and preparing for a drought resilient city and region responds to Council's Declaration of a Climate Emergency (UCS2019-1539) and is driven by calls to action in Calgary's Climate Strategy: Pathways to 2050 (CD2022-0465) the Calgary Water Security Framework (UCS2019-1539), and the 2023 Stormwater Management Strategy Update (CD2023-0735).

RECOMMENDATION:

The Community Development Committee recommend that Council:

1. Approve the Drought Resilience Plan.
2. Advance priority water demand strategies from the Drought Resilience Plan in the 2023-2026 business cycle.
3. Continue to advocate for advancing the evaluation of a new upstream Bow River Reservoir as an integrated water management tool to support drought and flood resilience.

RECOMMENDATION OF THE COMMUNITY DEVELOPMENT COMMITTEE, 2023 OCTOBER 2:

That Council:

1. Approve the Drought Resilience Plan;
2. Advance priority water demand strategies from the Drought Resilience Plan in the 2023-2026 business cycle; and
3. Continue to advocate for advancing the evaluation of a new upstream Bow River Reservoir as an integrated water management tool to support drought and flood resilience.

CITY MANAGER/GENERAL MANAGER COMMENTS

General Manager Dalglish concurs with this report and how it will position Calgary to become a leading drought resilient city.

HIGHLIGHTS

- The Drought Resilience Plan sets the long-term direction for proactive drought resilience measures and identifies the key actions we need to take now to adapt to the hazard of drought.
- The goals and strategic actions outlined in the Drought Resilience Plan will provide insight into resourcing and budget needs at mid-cycle and for subsequent business cycles.

Drought Resilience Plan

- Ensuring there is enough water to meet the needs of customers, the environment and a sustainable economy is essential to the future of Calgary and the region. Decades of proactive planning and major milestones around water efficiency, drought preparedness, and integrated watershed management have to date ensured a safe, reliable and long-term water supply for Calgarians.
- History shows that our region is prone to prolonged, severe droughts which will be intensified by climate change in the future. A multi-year drought impacting Calgary is one of our city's top climate hazards, and improved climate modelling and risk analysis has provided new technical knowledge of how droughts will impact Calgary, and potential approaches needed to mitigate those impacts. This plan is timely to demonstrate accelerated action for climate adaptation.
- Droughts will have widespread impacts in our community, from water supply limitations to environment and ecosystem impacts, financial instability for The City of Calgary, and impacts to local and regional tourism, recreation and agriculture. Careful consideration of these impacts in City infrastructure, operations and city-building efforts will be key to adapting to those impacts and building long-term drought resilience.
- Improved demand management is a priority action. Investing in continued water demand reduction efforts means using less water overall as a city, decreasing vulnerability to periods of water shortage in drought and improving the resilience of homes, yards and businesses.
- New water storage solutions will help ensure a secure water supply that supports managing flood and drought risks in a changing climate.

DISCUSSION

Drought has received renewed attention over the last decade as climate change and urban growth reshape supply and demand in the Bow River watershed. The Drought Resilience Plan provides a long-term path forward to adapt to the impacts of drought as a community, to ensure that people, ecosystems and businesses are prepared to withstand and recover from the impacts of prolonged periods of dry conditions and water shortages.

In Calgary, drought is defined as the condition when the water required for municipal supply, irrigation and minimum environmental flows diminishes below specified thresholds. Droughts impact more than just the municipal water supply. They can have wide-ranging ecological, economic and social consequences such as reduced quality of green spaces, interruptions to community services, impacts to food security, air quality impacts, and increased cost of municipal services.

Administration has completed analyses to better understand localized drought impacts and vulnerabilities. These include water supply limitations, environment and ecosystem stress, financial instability for The City of Calgary, and economic disruption to local and regional tourism, recreation and agriculture. Impacts may also accumulate in severity when other compounding climate risks such as heatwaves, wildfires, and changes in seasonality overlap with drought occurrences. Careful consideration of these impacts in City infrastructure, operations and city-building efforts will be key to adapting and building long-term drought resilience.

Drought Resilience Plan

The Plan sets forward five goal areas and related strategic actions that reflect the integrated and complex nature of drought and the needed solutions. The goals and actions address our localized drought impacts and vulnerabilities and were identified and prioritized through a best practice review, technical analysis, public research and engagement. This table provides a brief overview of the five goals.

Goal	Description
Reduced water demand	Demand management to demonstrate that The City: is a responsible steward of the water we use as a large municipality in Alberta; is financially stable during time of drought; and has a modern water restriction bylaw that is fair and equitable.
Protected water supply	Improving water storage solutions, working to leverage licensing and water policy in times of drought and diversifying water supply portfolios will lead to improved water supply resilience.
Drought preparedness	Continued refinement of Calgary's drought response program to inform proactive drought response and decision making, including actions to ensure our corporation is prepared to minimize service disruptions and impacts to operations and infrastructure.
Healthy landscapes	Linking drought considerations into our city building efforts, including infrastructure, built and natural assets, and land use decisions. Focused effort on actions to protect the aquatic environment during low flows on the Bow and Elbow Rivers.
Strong relationships	Commitments to proactive watershed-scale collaboration, to equity-centred strategies that reduce drought vulnerabilities for people, and to strategies grounded in respect for the rights, knowledge and priorities of Indigenous Peoples.

Implementation of the Plan will lead with the priority of reducing water demand. Maintaining a thriving city and economy in a drought-prone location requires a continuously evolving relationship with water and climate change through an update to the current City of Calgary Water Efficiency Plan. This is foundational work and connects to the other goals from the water supply, readiness and response, ecosystem and people perspectives.

The Plan also positions The City to continue to advocate to protect our water supply for drought resilience. In anticipation of the completion of Phase two of the provincial Bow River Reservoir Options initiative, Administration will continue to work with the province to advance the outcomes of the Bow River Reservoir Options and Bow River Alternative Measures studies. Environment and Protected Areas are aiming to complete these studies in Q2 2024. Recent intergovernmental communications and advocacy have been effective; signaling the importance of this project as a priority for upstream flood and drought protection for Calgary and for downstream communities on the Bow River.

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EXTERNAL ENGAGEMENT AND COMMUNICATION

- | | |
|---|---|
| <input checked="" type="checkbox"/> Public engagement was undertaken | <input checked="" type="checkbox"/> Dialogue with interested parties was undertaken |
| <input checked="" type="checkbox"/> Public/interested parties were informed | <input type="checkbox"/> Public communication or engagement was not required |

Administration undertook a comprehensive engagement process from May 24 to June 14, 2022. An emphasis on partnerships to reach equity-deserving Calgarians was a core component to the engagement approach. The engagement is summarized in two What We Heard Reports (Attachments 4 and 5) available on engage.calgary.ca/drought.

The engagement process and input from City staff, subject matter experts, industry and business representatives, development industry, equity-deserving Calgarians, Indigenous communities and the public helped to shape and refine our plan, including goals and strategic actions. This process helped build a shared understanding for the urgency of addressing the impacts of drought and uncovered important topics and questions that will frame further engagement on program design and implementation. Letters of support for the Plan are included in Attachment 6.

IMPLICATIONS

Social

A drought-resilient city is one in which its institutions, communities, businesses and individuals can survive, adapt and grow in response to drought. Reducing Calgarians' vulnerability to drought is a priority action. The Strong Relationships goal provides focus for collaboration and working with others in the region and ensures The City supports equitable outcomes for individuals and communities before, during and after times of drought.

Environmental

The Plan furthers water conservation objectives for our community, in response to continued growth pressures and drought impacts to water supply. The Plan also articulates the impacts of growth and urban form on water uses and provides strategies for minimizing development impacts to water and land and integrating drought tolerant and natural landscapes that are resilient to drought and offer important ecosystem services and climate adaptation benefits. Low flow conditions in the Bow and Elbow rivers increase the sensitivity of the aquatic environment to wastewater (Bow River) and stormwater inputs. Failing to address this vulnerability is likely to lead to decreased water quality, reduced biodiversity and influx of invasive species.

Economic

A drought-resilient city is where citizens and businesses want to live, work and invest. Demand management actions prioritized in this plan support potential deferral of major new infrastructure investments. They will also more deeply explore the financial impact of drought on city operations and customers to inform long-term financial resilience strategies, including potential rate structure changes, drought surcharges or other financial tools or strategies.

Service and Financial Implications

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No anticipated financial impact

The goals and strategic actions outlined in the Drought Resilience Plan will provide insight into resourcing and budget needs at 2025 mid-cycle and for subsequent business cycles.

RISK

Securing Council support for the Plan, and in particular, the leading action of demand management, will enhance awareness and facilitate necessary progress to demonstrate Calgary as a responsible water steward in a shared watershed with growing demands from diverse sectors. Persistent water scarcity can erode investor confidence in a city's economic prospects, potentially deterring investment in both local businesses and infrastructure projects. Implementing the holistic suite of strategies for drought resilience is critical for supporting long-term growth and city building in a semi-arid and drought prone region.

ATTACHMENTS

1. Background and Previous Council Direction
2. Drought Resilience Plan Executive Summary
3. Drought Resilience Plan
4. What We Heard Report – Public and Businesses
5. What We Heard Report – City and Interested Parties
6. Letters of Support
7. Presentation
8. Public Submission Received at Committee
9. **Public Submissions Received After Committee**

Department Circulation

General Manager/Director	Department	Approve/Consult/Inform
Stuart Dalgleish, GM	PDS – GMO	Approve
Carolyn Bowen, Director	PDS – Climate and Environment	Approve
Nancy MacKay, Director	OS – Water Services	Approve
Doug Morgan, GM	OS – GMO	Inform
Josh White, Director	PDS – City and Regional Planning	Inform
Debra Hamilton, Director	PDS – Community Planning	Inform
Kelly Cote	PICS – Government Relations	Inform
Chief Sue Henry	CEMA	Inform

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