



2024 Drought Preparedness

Bow River Basin Council Legislation & Policy Workshop: ParticipACTION

February 23rd, 2024

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Presentation Outline

- **Background & Context** (3 min)
- **Drought Conditions: What We're Seeing** (3 min)
- **Drought Preparedness Actions** (10 min)
- **Drought Response Actions** (5 min)
- **Actions You Can Take** (5 min)
- **Video (time permit)** (3 min)



Calgary Drought Conditions



Drought is Top of Mind

'A societal issue': Drought-plagued Alberta braces for even worse conditions

Province will push 'water sharing.' Cities will restrict usage. This year could get drastic



[Jason Markusoff](#) · CBC News · Posted: Feb 01, 2024 2:00 AM MST | Last Updated: February 1



[News](#) / [Local News](#)



'Every drop counts': Water restrictions in Calgary could come earlier, last longer as drought continues

Below-average snowfall in southern Alberta not helping drought conditions: experts

Recent request from a Citizen to mayor's office: *"It is obvious that a severe water shortage is here now....I would like to know what Council plans to do to address this issue which is far more important than a new arena or downtown development."*

Calgary



Our region is prone to drought



Calgary



Building drought resilience for the 21st Century



Calgary



The City of Calgary Drought Resilience Plan

YardSmart

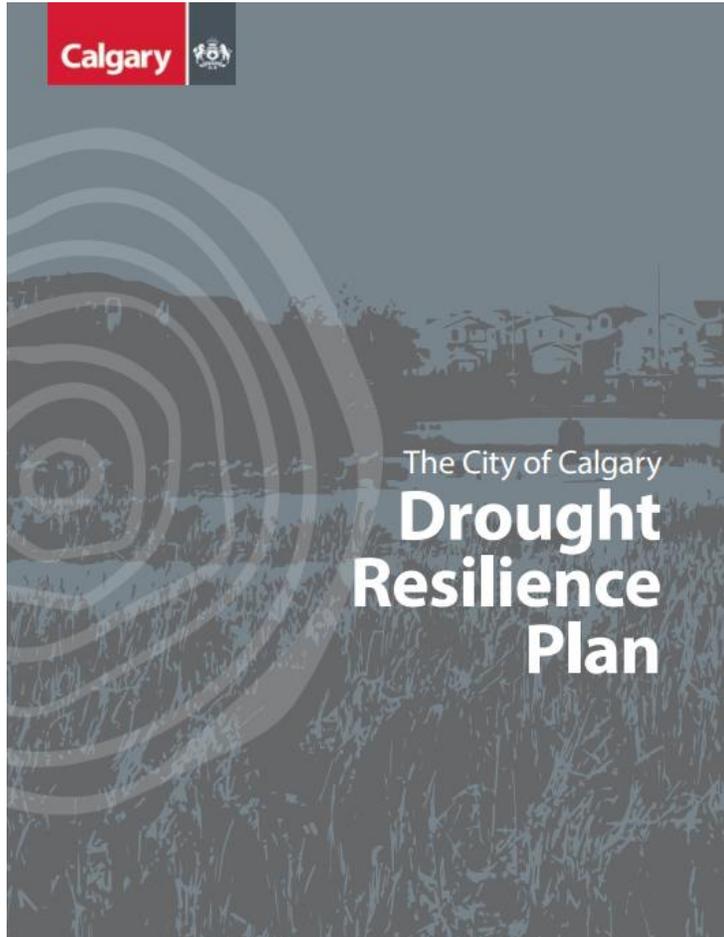
Planning & Design

A few planning and design tips can help you create a beautiful yard that's low maintenance, lower cost and easy on the environment.



Calgary Climate Strategy Pathways to 2050

Preparedness for Drought Resilience



Continue seasonal drought monitoring.



Ensure The City, businesses, and citizens are ready for drought.



Sufficient
Warning

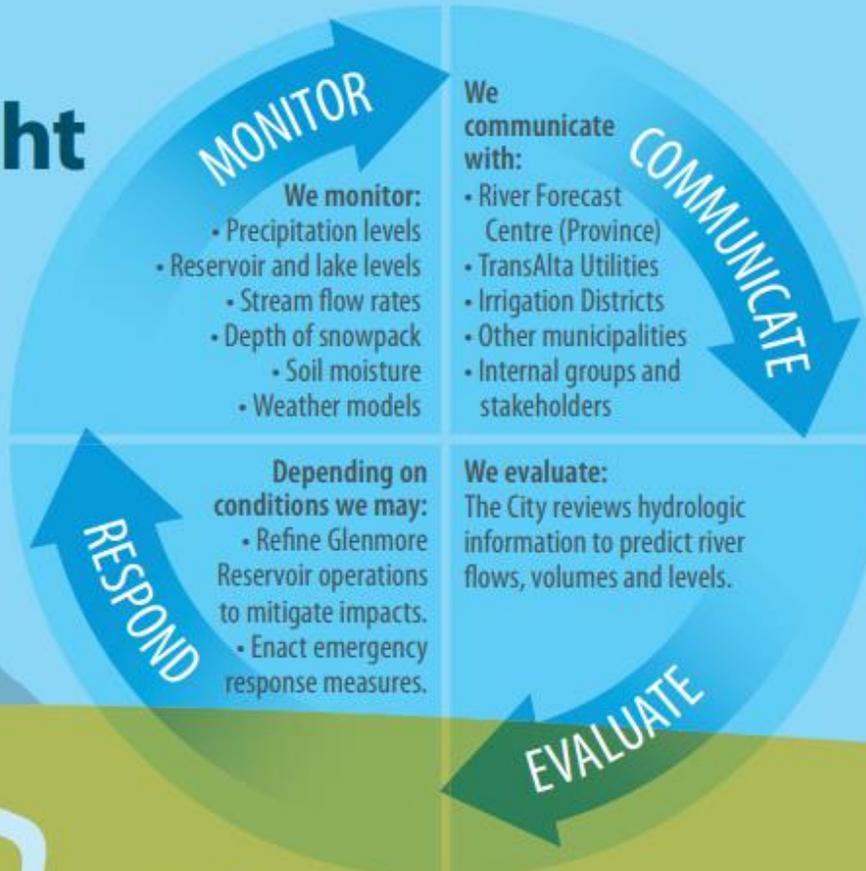


Proactive
Communication



Clear
Instruction

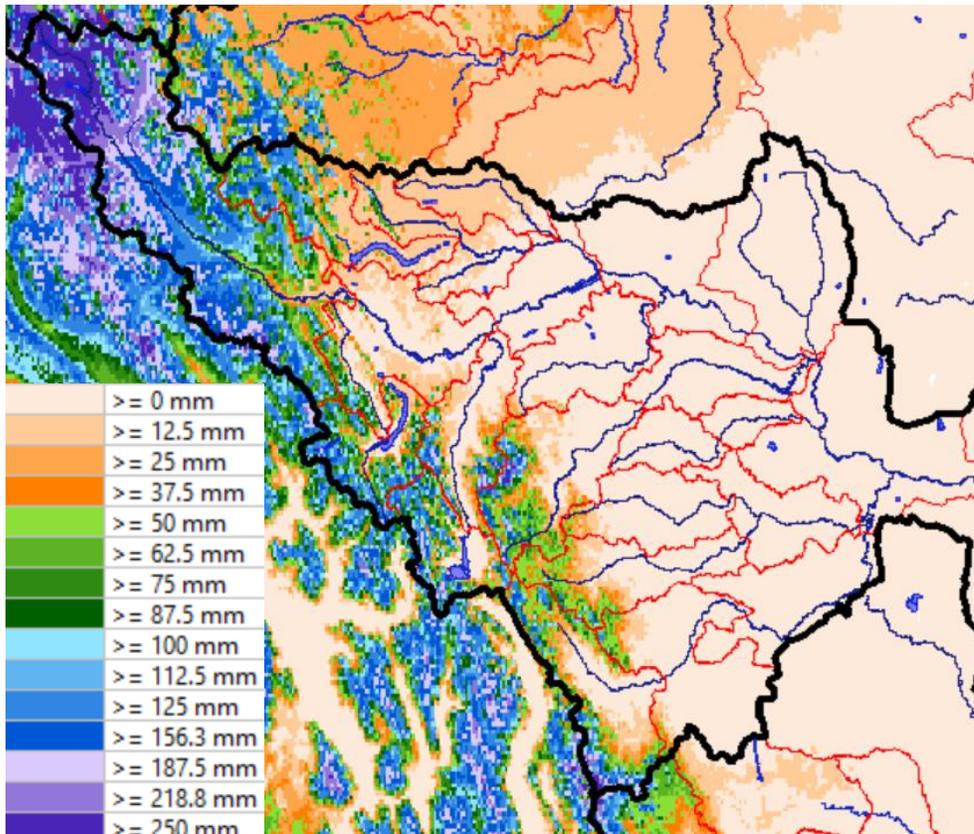
Understanding Flood and Drought Monitoring



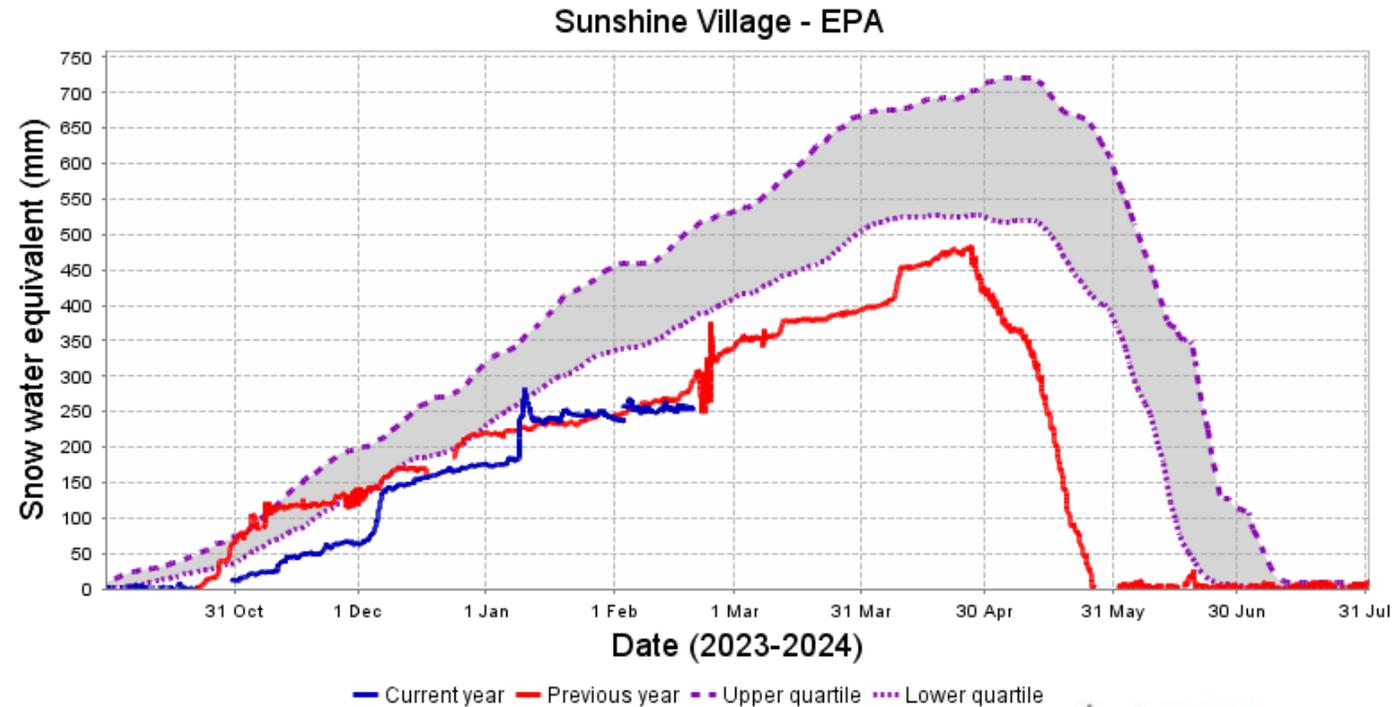
Key monitoring locations and activities

- Precipitation levels
- Reservoir and lake levels
- Stream flow rates
- Depth of snowpack
- Soil moisture
- Weather models
- Web cam
- Weather stations

● Snowpack is low to very low in both the Bow & Elbow watersheds



ISC: Unrestricted



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Monitoring Conditions

Reservoir Storage



- Total reservoir storage in the Bow watershed below normal
- Glenmore Reservoir storage above historic norms (2020 capacity expansions)



River Flows



- Bow & Elbow River flows remain below average

Monitoring Drought

- **Canadian Drought Monitor:** Calgary region still D2 – Severe Drought
- **30 day, 90 day precipitation** *within Calgary* slightly above average



February: City of Calgary still in Drought Advisory



Calgary Drought Conditions

- Voluntary water conservation
- City operations are voluntarily reducing use
- Citizens and businesses are being asked to voluntarily reduce their water use

2024 Drought Outlook

- Provincial Feb. water supply forecast: below average, but not extreme
(*Bow River at Calgary = 81-91% of avg., 19/99 years*)
- El Nino dissipating, likely over by May

Seasonal weather is unpredictable months in advance

Approach:

- Prepare for drought
- More than previous years





Calgary's 2024 Drought Preparedness Actions

Being carried out from November 2023 – May 2024



Preparedness vs. Response

	Drought Preparedness	Drought Response
Definitions*	<p>Ready to respond and manage impacts prior to the event.</p> <p><i>(also referred to as 'Readiness')</i></p>	<p>Action during or immediately before an event.</p>
2024 DRRI Program	<ul style="list-style-type: none"> • Greater focus • Execute from Dec. 2023 to May 2024 • Provide attention earlier • More internal resources deployed • Align actions 	<ul style="list-style-type: none"> • Better tools refined through readiness • Execute ~June to October 2024 if needed • Deploy more internal resources if drought is worse than 2023 • Better frontline communications

*Definitions adapted from: *Emergency Management Framework for Canada* - Third Edition (2017)

Key 2024 Drought Preparedness Actions *Completed*

- ✓ 2023 After-Action Debriefs
- ✓ Established 2024 Core Team, resources, governance, program plan
- ✓ Initiated and scoped key projects & activities
- ✓ Council / Senior Leadership Updates
- ✓ Interfacing with: Province, lake communities, regional customers, landscape industry, Enmax, businesses, media, TransAlta, internal Business Units, etc.
- ✓ **Drought & Water Shortage *Principles***



2024 Drought: Program Plan
Drought Readiness + Response Implementation (DRRI)

One City, One Voice



Drought readiness & response:

- ✓ Proactive
- ✓ Accelerate + coordinate
- ✓ Projects + actions



Key Preparedness Actions Underway

Communications

- 2024 Drought Communications Plan
- Web Site Updates and Design

Technical

- Drought Indicators & Triggers Review & Update
- Water Demand Scenarios and Analyses
0%, 10%, 20% water demand reduction scenarios

External Readiness

- Participating in Provincial Water Sharing Agreements Process
- Calgary Metropolitan Region Board + regional customers

Selected Preparedness Actions Underway

Water Utility

- Updating the Outdoor Water Use Restrictions Plan + Water Shortage Plan
- Interfacing with Lake Communities & Business Customers
- Water Utility Bylaw: Minor Housekeeping Updates Planned
- New Dedicated Bylaw Officers
- Acceleration of the Water Loss Reduction Program (*detect & fix leaks*)

Other

- Updates to service-specific Operational Drought Plans + Procedures (*Parks, Waste & Recycling, Facilities Management, etc.*)
- City Projects and Facilities leading by example (*stormwater irrigation, recycled wastewater, drought-friendly landscape designs*)
- Water Managed Sites Program Updates



Principles: The Need

Principle = A fundamental truth

Rules / Laws / Bylaws	Principles
Restrictive, what you can't do	Permissive, expected behaviours
Process-focused, based on rule interpretation procedures	Outcome-focused, strategic & adaptable
Based on rule interpretation, inflexible	Can better meet individual circumstances
Good in well-known situations with repeating patterns, requiring consistency	Better in dynamic, unpredictable situations that by nature are inconsistent (=drought!)



Drought & Water Shortage Principles

- **Prioritize Life Safety and Human Health**
- **Shared Responsibility**
- **Precautionary Water Stewardship**
- **Economic Sustainability**
- **Transparency**

Prioritize Life Safety and Human Health

Prioritize Life Safety and Human Health:

Critical life safety, human health, and reliable drinking water are the most essential water uses

Examples

- fire flows
- hospitals
- palliative care
- cooling of critical energy production infrastructure



Shared Responsibility

Shared Responsibility: Wise water use is the shared responsibility of everyone: governments, businesses, and people. Every drop counts across the entire Bow Basin watershed.



Precautionary Water Stewardship

Precautionary Water Stewardship: Avoid irreversible impacts on the river, and limit impacts to other natural systems. Apply the precautionary approach when risks are not fully understood.



Economic Sustainability

Economic Sustainability: Limit financial impacts to businesses, residents, and public services, and encourage innovation to keep as much economic activity as possible unaffected.



Transparency

Transparency: Base decisions on clear, science-based, publicly available information that treats water users consistently.



Immediate Next Steps to March

- Complete Communications Plan & Scale Up Internal & External Communications
- Test Principles Further Against Scenarios
- Participate in Water Sharing Agreements
- Continue monitoring and updating indicators



Drought *Response* in Calgary





Drought Response Phases



NORMAL	ADVISORY	RESTRICTIONS	EMERGENCY
Readiness + regular operations	Voluntary reduction in outdoor water use	Mandatory reduction in outdoor water use	Emergency water rationing

State of Local Emergency is highly unlikely due to 2024 drought

Outdoor Water Restrictions Phase: 4 Stages



RESTRICTIONS

Mandatory reduction in outdoor water use



	VERY DRY		EXTREMELY DRY	
	STAGE 1	STAGE 2	STAGE 3	STAGE 4
MANDATORY WATER RESTRICTIONS				
During mandatory water restrictions, all residents, businesses and City operations must restrict their outdoor water as outlined below. These restrictions are enforceable by the Water Utility Bylaw.				
Sprinklers 	YES 2 hr max., one day/week According to specific schedule based on address	YES 1 hr max., one day/week According to specific schedule based on address	NO	NO
Hoses with spray nozzle 	YES Anytime	YES Anytime	NO	NO
Hand watering 	YES Anytime	YES Anytime	YES Anytime	NO
Watering new grass 	YES Anytime	YES Anytime	YES Anytime	NO
Washing outdoor: Cars, windows, exterior building surfaces, sidewalks, driveways or walkways 	NO	NO	NO	NO
Filling outdoor pools or hot tubs 	YES Anytime	YES Anytime	NO	NO

Emergency Operations Contingency



EMERGENCY



Three major **municipal** EOC activations:

- 2013 Flood
- 2016 Fort McMurray Wildfire
- 2023 Yellowknife Wildfire

Three major **water** EOC activations:

- 2023 Boil Water Advisory
- 2023 Drought
- 2023 Cochrane Sewage Release



Together, we can make every drop count
Now is the time to start, big or small, to use water wisely

Together, we can make a difference at home

Every time you use water inside the home, there's an opportunity to conserve water



Take shorter showers



Run full loads in your washing machine and dishwasher

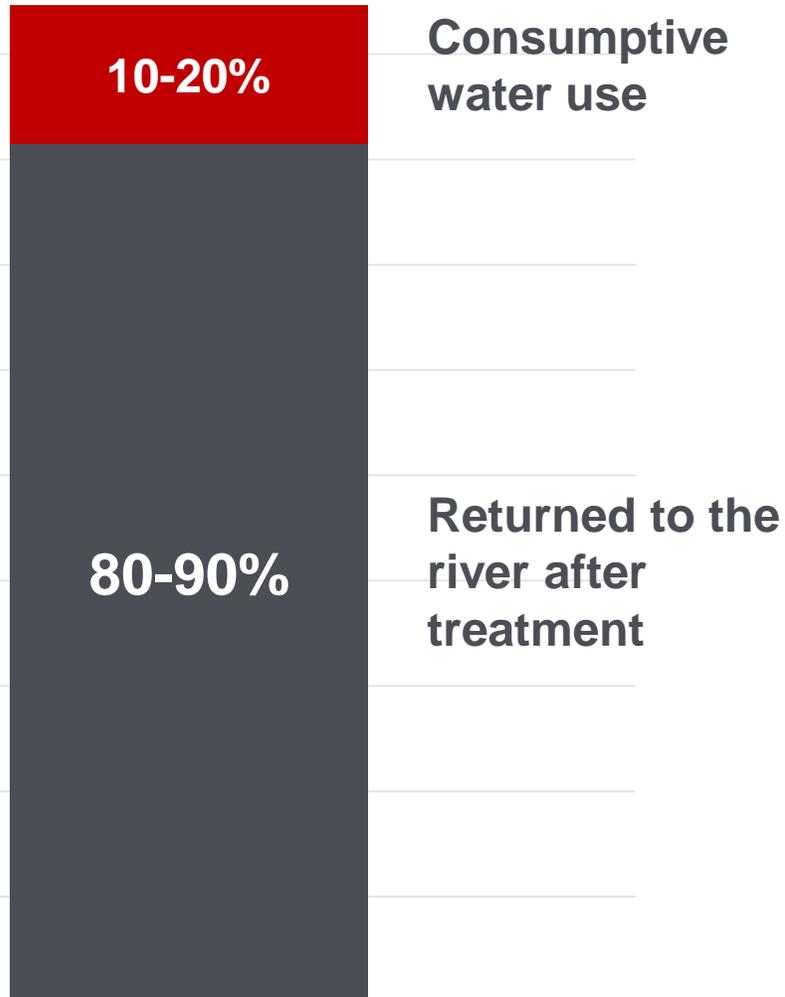


Turn off water when brushing teeth and shaving



Fix leaky taps and toilets

Reducing Outdoor Water Use Is Key



Outdoor water use consumes the largest volume of water

Reduced water use =



Preserves supply



Saves you money

Together, we can make a difference in our yards

Take action to prepare your yard for dry conditions and make it as water efficient as possible



Choose water-wise plants

If you are adding new plants to your garden, consider choosing drought-tolerant native plants.



Add mulch to your garden

Mulch will reduce the amount of water that evaporates from the soil thereby reducing the need to water plants.



Install a rain barrel

Capture and reuse any rain we get this season.

Together, we can make a difference in our yards

Be efficient with outdoor water use



Water when it's coolest

Early in the morning or later in the evening.



Water low and slow

Use a watering can, soaker hose or drip irrigation.



Watch the forecast

Skip watering if it has rained or if rain is in the forecast.

Together, we can make a difference in our yards

Conserve water outdoors



Keep your lawn three inches long

A deeper root system will develop and more moisture is kept.



Sweep up debris

Avoid using a hose to clean your garage, driveway or sidewalk.



Direct your downspouts on to your garden

Together, we can make a difference at work



Review your water use

Identify areas of your business where water consumption is highest to see if there are potential water saving opportunities.



Identify potential water-saving opportunities

- Check your plumbing system for leaks.
- Consider installing water-efficient fixtures and equipment.
- Remind your staff about using water wisely.

Conclusions & Summary

- **Drought risks are currently elevated in 2024**
- **The City of Calgary is actively preparing**
- **Updates: calgary.ca/drought**



**Make every drop
count**



