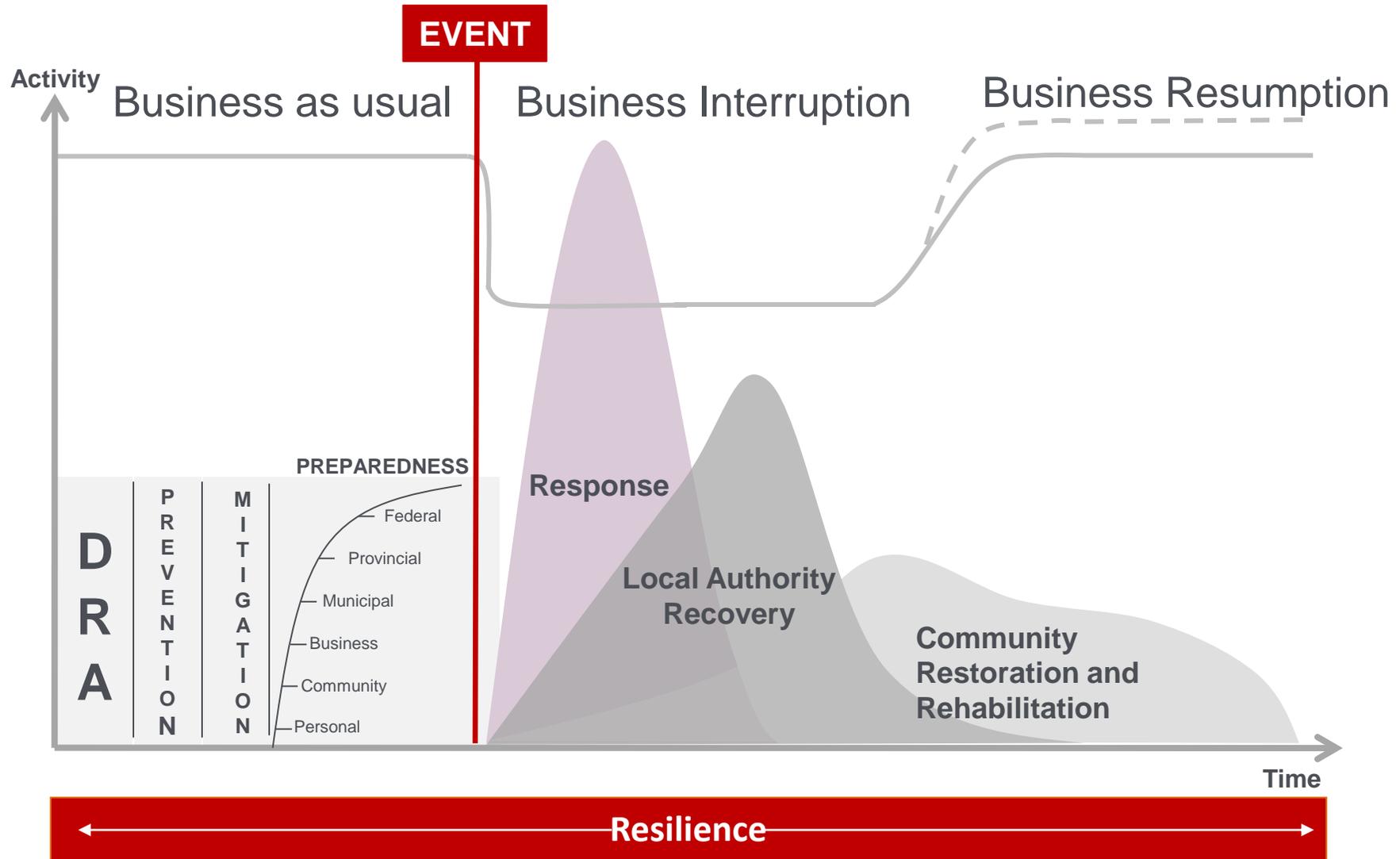




EM2022-0685 Status of Emergency Preparedness, Focus on Risk - Flooding
Recommendation: That the Emergency Management Committee recommend that Council receive this report for the Corporate record
Presentation to Emergency Management Committee of Council
2022 May 24



Comprehensive Emergency Management





Disaster Risk Assessment

15

High Risks

- Catastrophic flooding – Bow River
- Catastrophic flooding - Elbow River
- Extreme cold
- Mass casualty incident
- Major critical infrastructure failure
- Major dam breach – Bow River
- Major dam breach – Elbow River
- Major drought
- Major hostage incident
- Major rail incident
- Pandemic
- Severe blizzard
- Severe heavy rainstorm
- Severe winter storm
- Tornado





Flood and Dam Breach Risk Profiles



	Catastrophic Flood: Bow	Catastrophic Flood: Elbow	Major Dam Breach: Bow	Major Dam Breach: Elbow
Risk Level	High	High	High	High
Consequence	Major	Major	Catastrophic	Catastrophic
Risk Trend	Increasing 	Increasing 	Stable 	Stable 
Likelihood	Unlikely	Unlikely	Very Rare	Extremely Rare



Calgary Water

Mitigation and Prevention

Flood risk in Calgary



Glenmore Gates



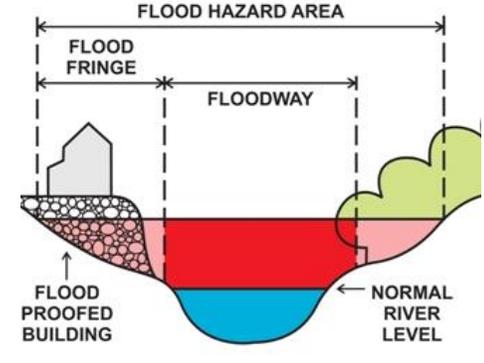
Ghost Agreement



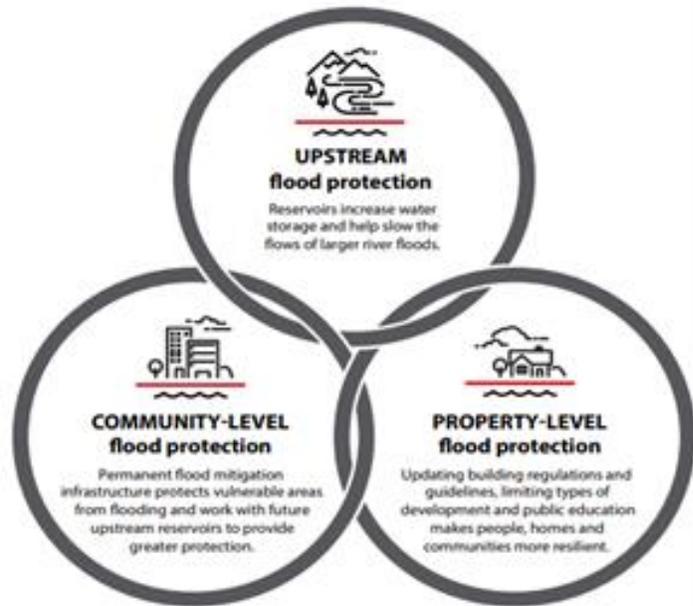
Flood Barriers



Outfall Upgrades



Development Controls



We've increased our flood resilience – and decreased risk

- 55% of Calgary's flood damage risk has been mitigated since 2013
- 70% will be mitigated when Springbank Offstream Reservoir is operational
- Still risk of extreme floods and associated hazards
- Work continues with communities and stakeholders

Flood preparedness



Be flood ready

Understand your risk Be prepared Stay informed

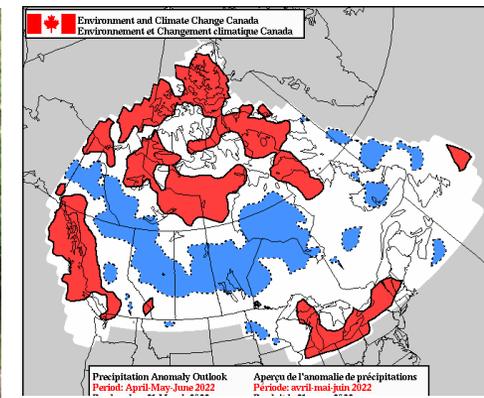


Communications and Citizen Flood Readiness

- Annual Flood Readiness campaign
- Citizen-focused program to drive flood resilience action, based on community research
- Information and resources for property owners and residents on how to be flood-ready and reduce damages
- Development regulations and policies to increase resilience of properties in flood risk areas

www.calgary.ca/floodinfo

Flood preparedness



Annual Response Preparedness

- Updates to the Flood Emergency Reference Manual (FERM)
- Monitoring of weather and river conditions 24/7
- Coordination between City departments, AEP, TransAlta
- Annual exercises (field deployment, forecasting, Water, CEMA)



City Dams



Glenmore Dam Upgrades

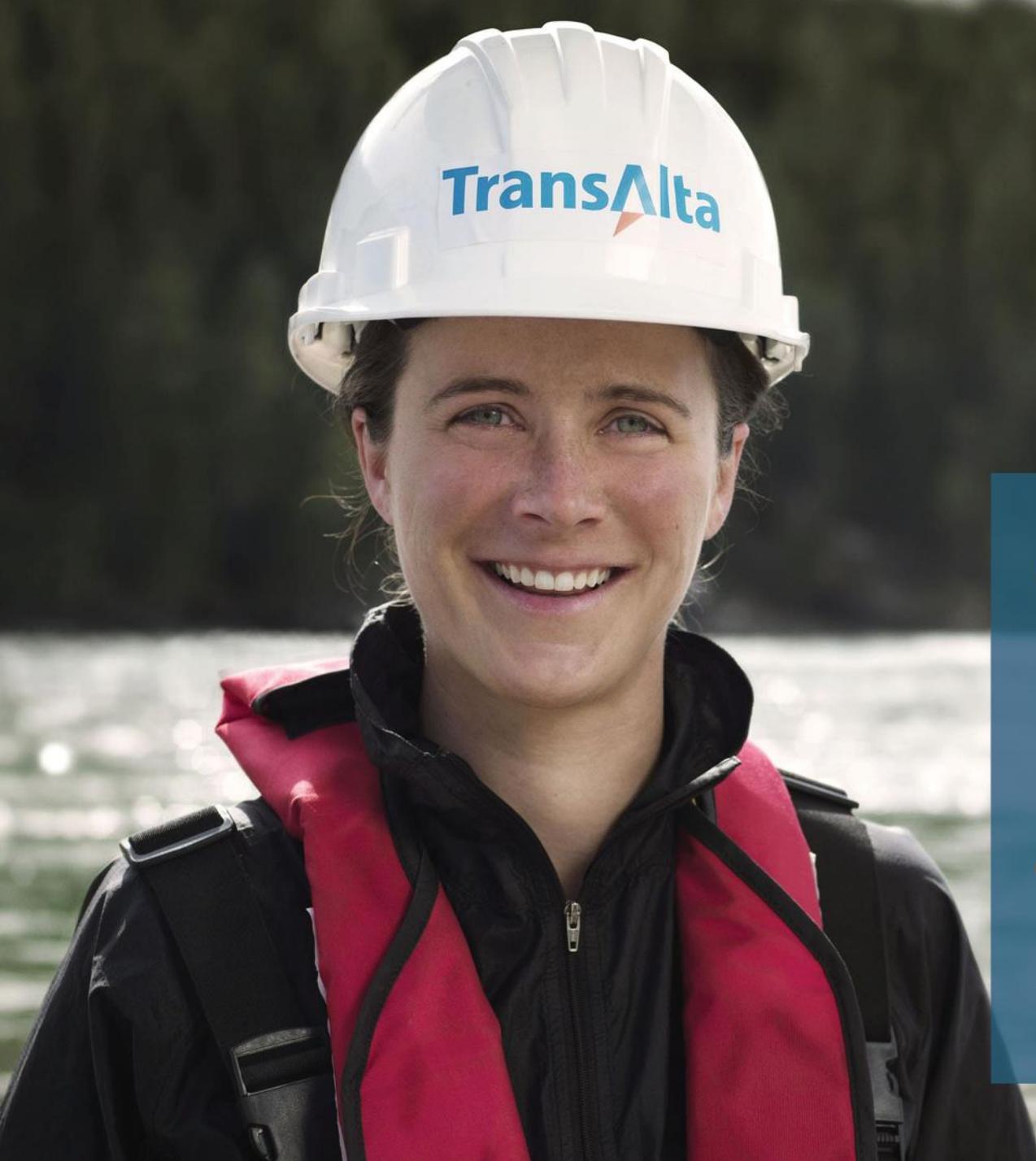
Dam Safety Program

- City owns and operates Glenmore Dam for water supply and flood mitigation
- Significant upgrades completed on Glenmore Dam in 2020 as part of dam safety and lifecycle maintenance
- Other City structures may be regulated as “dams” under 2018 AEP Dam Safety Directive (e.g., storm ponds)
- Dams meet robust provincial and federal regulations and guidelines for design, operation, maintenance, inspection, safety and emergency plans
- City has Dam Safety Program to manage these assets and ensure compliance across business units



TransAlta

Mitigation and Preparedness



TransAlta

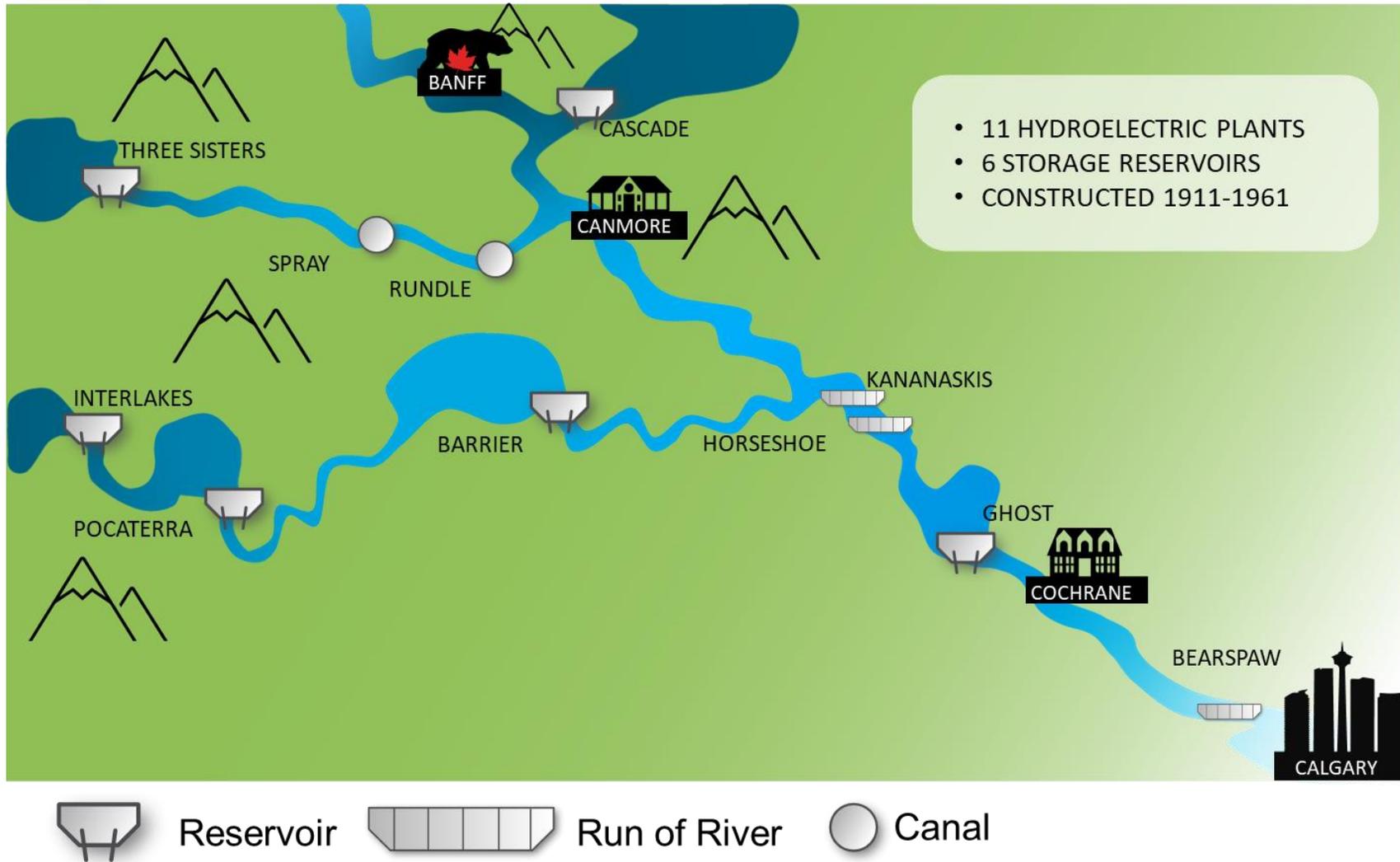
TransAlta™

Bow River Overview

—
Presentation to Calgary City Council

Scott Taylor, Chief Engineer, Dam Safety

TransAlta Bow River Projects



Flood Management

Standard text

- Level one
 - Level two
 - Level three
 - Level four



Low water in spring



TransAlta/AEP mountain snow survey



High Water in fall

Dam Safety Program

- Design and Regulation
 - Canadian Dam Association Guidelines
 - Alberta Dam Safety Directive
- Internal and external engineering inspections



Automated early warning weir



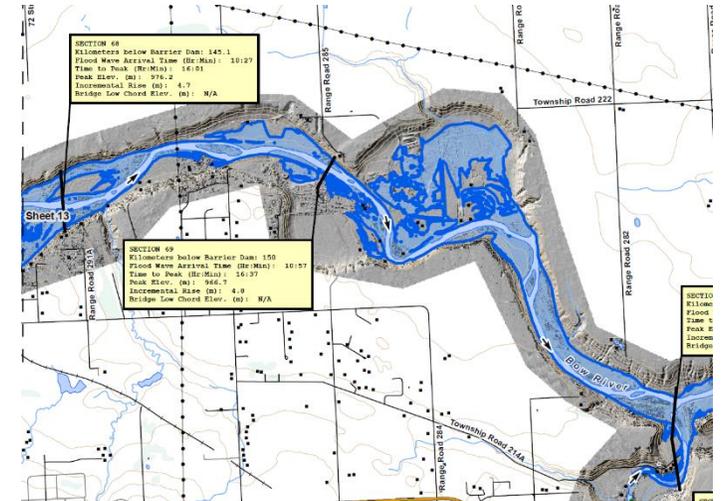
Dive inspections



Stability investigations

Dam Safety – Emergency Management

- Canadian Dam Association Guidelines
- Alberta Water Act and Dam Safety Directive
- Dam Breach modelling and maps
- Training and drills



Emergency Plan Inundation Mapping



Emergency Drills



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Calgary Emergency Management Agency

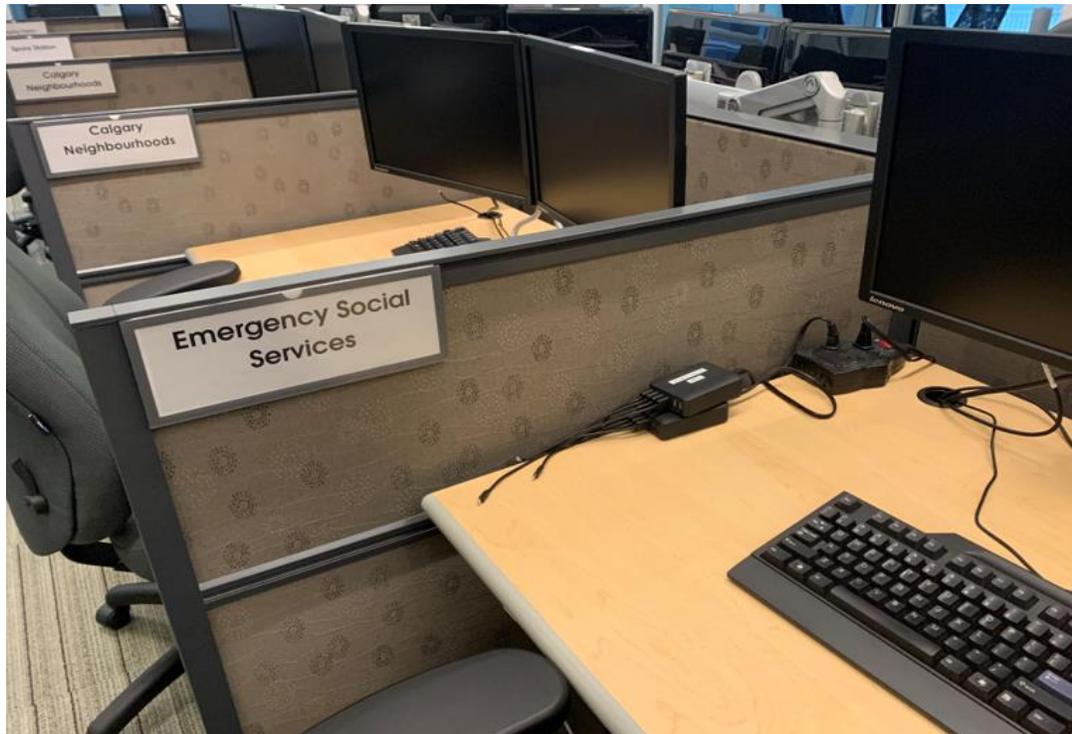
Preparedness and Response

Evacuation Planning





Emergency Social Services



Re-Entry Planning





Alberta Emergency Management Agency

Disaster Recovery

Disaster Recovery Programs for Flood

Presentation to City of Calgary, Emergency Management Committee of
Council
May 24, 2022

Brenda Fioretti
Director, Community Recovery Services
Alberta Emergency Management Agency
Municipal Affairs

Brenda.Fioretti@gov.ab.ca



Disaster Recovery Programs

- Provides financial assistance for uninsurable loss and damage caused by a disaster
- Flood disasters eligible for DRP are:
 - Considered an extraordinary event
 - Not covered by insurance that is reasonably or readily available for the type of disaster (Overland flooding)
 - Have caused widespread damage to property



To be considered extraordinary

- Rainfall – rainfall measures at least
 - 1 in 25-year level for urban areas, and
 - 1 in 50-year level for rural areas
- Streamflow – flooding caused by a waterway exceeds a 1 in 100-year level



Disaster Recovery Programs

- Restores the basic essentials of life to pre-disaster functional condition/capability :
 - damaged homes
 - small businesses including agricultural operations
 - public works and essential community services
- Does not provide “full value” replacement
- Is the payer of last resort



Disaster frequency and cost

- Disaster Recovery Program payouts
 - At least one every consecutive year since 1999
 - \$240 million - average annual DRP cost since 2010
- Disaster Insurance payouts
 - Six of the top ten costliest Canadian natural disasters have occurred in Alberta
 - \$7.5 billion in the last five years
 - \$3.6 billion - 2016 Fort McMurray wildfire
 - \$1.2 billion - 2020 Calgary region hailstorm

Disaster Recovery Program Changes

For homeowners

- One-time assistance limit per property
- \$500,000 funding cap
 - Applied per homeowner application and is not cumulative
 - Average residential DRP payout in 2018 was \$4300
- Published property addresses that receive assistance

For municipalities and all private sector applicants

- 90:10 cost-sharing arrangement for all DRP eligible costs between the GoA and the applicant
 - 90 per cent of eligible disaster costs are covered by the province
 - 10 per cent are covered by the applicant

Support for Communities

Financial

- Municipality
- Individual Homeowners and Tenants
- Small Businesses, Landlords and Agriculture

Recovery Coordination of Services

- Insurance
- NGO
- Other funding sources

Outcomes

- Reduced disaster recovery costs borne by Alberta taxpayers
- Risk reduction efforts create safer, more sustainable communities
- Long-term resiliency and risk reduction is achieved through community preparation and mitigation measures

Thank You!



Conclusion and Q&A

