

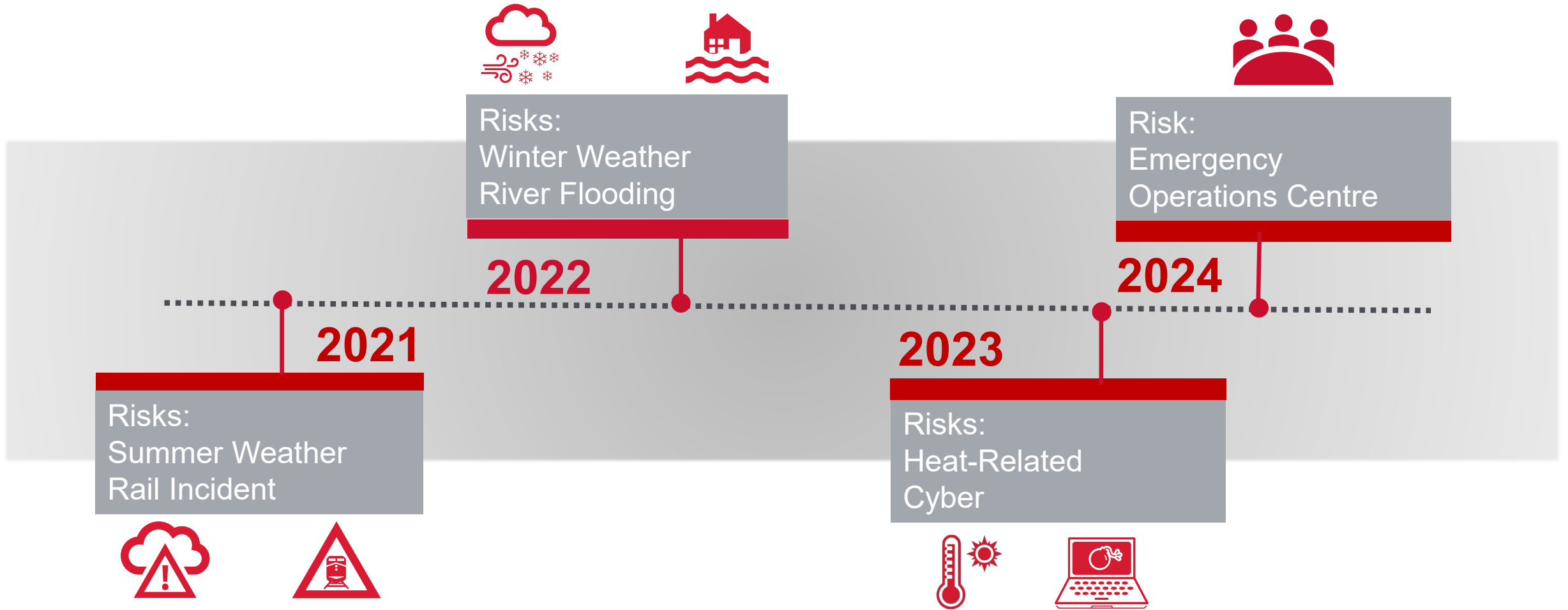


Status of Emergency Preparedness Focus on Risk: Severe Spring & Summer Weather

2025 May 7



That the Emergency Management Committee recommend that Council receive this report for the Corporate Record

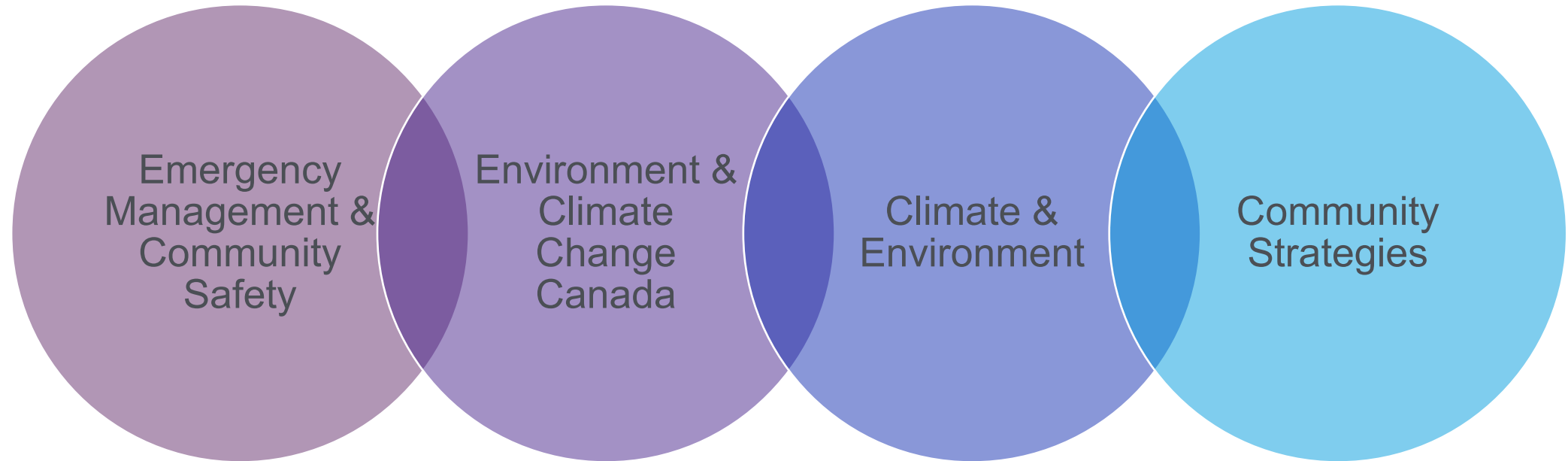


Severe spring & summer weather risk profiles



| | Tornado | Heavy Rainfall | Windstorm | Hailstorm | Thunderstorm |
|-------------|--------------|----------------|------------|--------------------|--------------------|
| Risk level | High | High | Medium | Medium | Medium |
| Consequence | Major | Moderate | Minor | Minor | Insignificant |
| Risk trend | → | ↗ | ↗ | → | → |
| Likelihood | Unlikely | Likely | Likely | Almost Certain | Almost Certain |

Collaborative approach



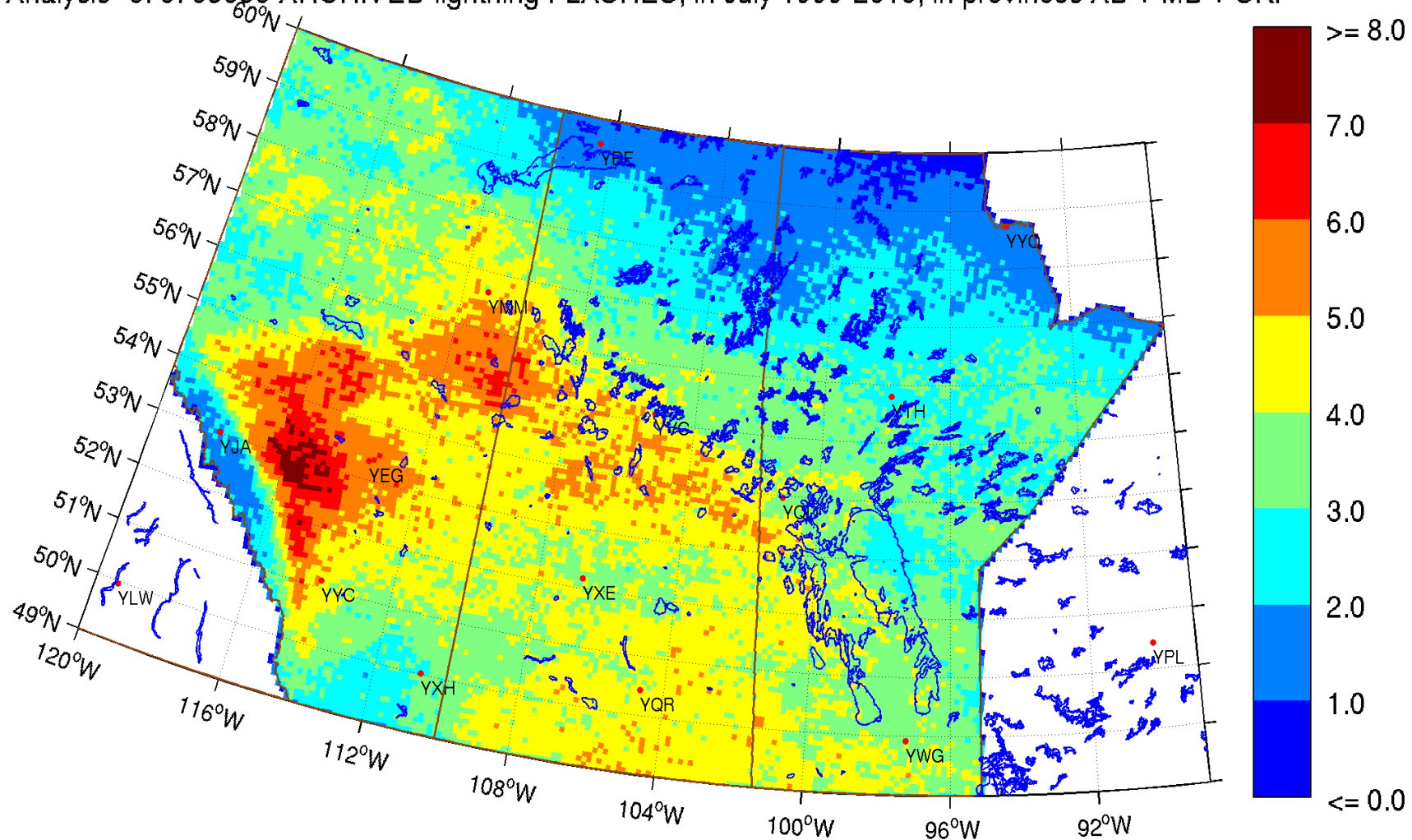


Environment & Climate Change Canada

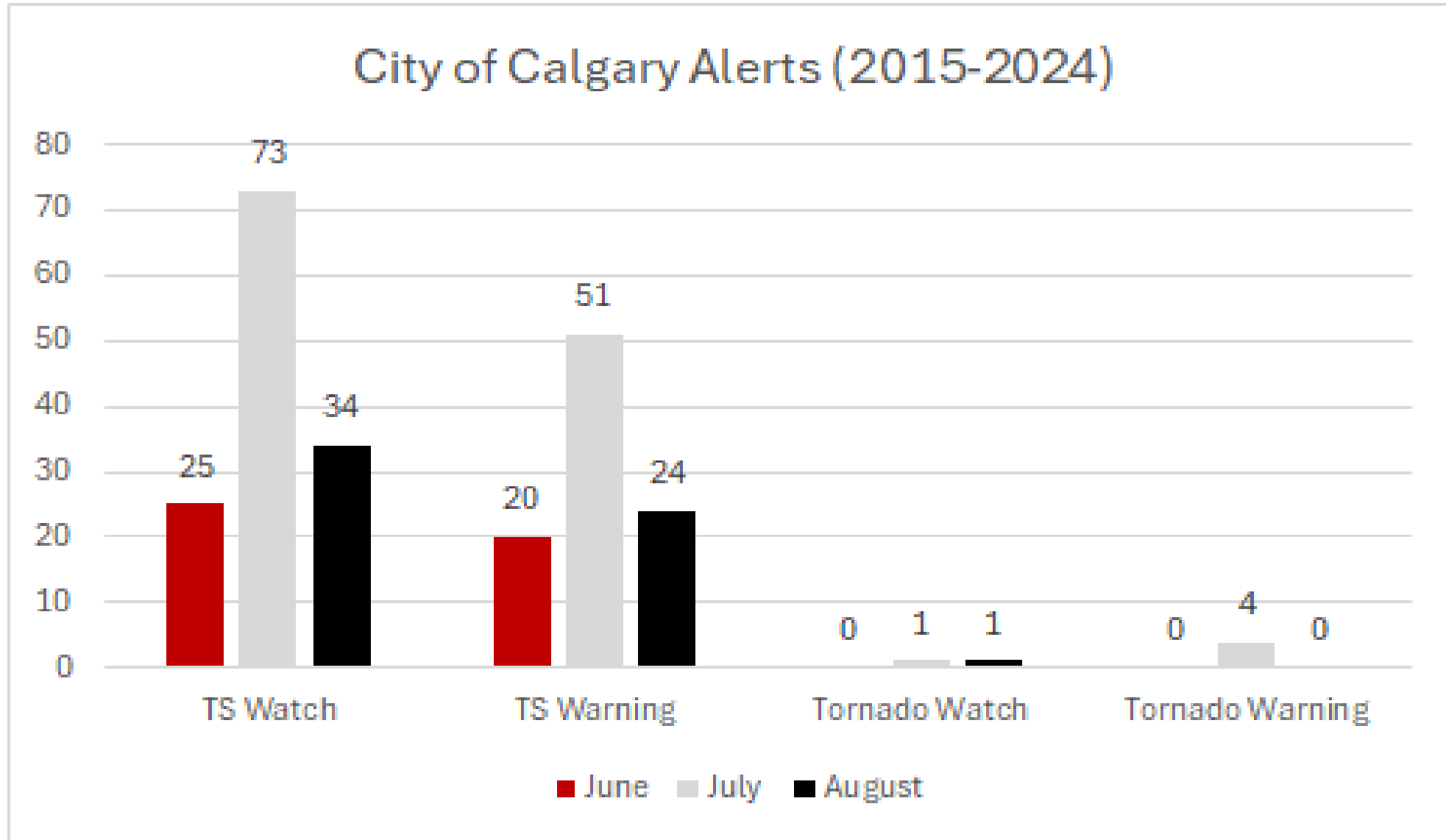
Alysa Pederson – Warning Preparedness Meteorologist

Severe Thunderstorm risks for Calgary

Analysis* of 8785858 ARCHIVED lightning FLASHES, in July 1999-2018, in provinces AB + MB + SK.



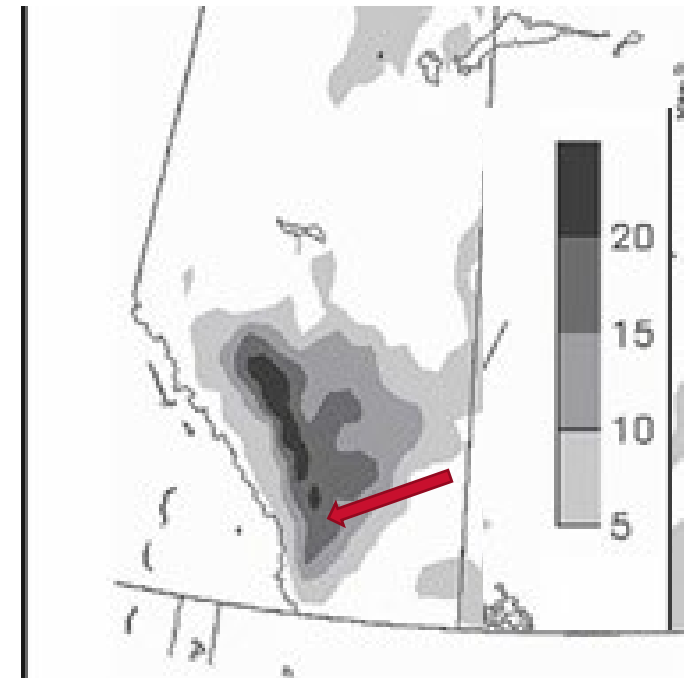
Severe Thunderstorm risks for Calgary



- Extreme Hail (5+ cm) occurs near Calgary every 1-2 years.
- Multiple extremely damaging events in the Calgary area in 1991, 2010, 2012, 2014, 2020, & 2024.
- Addition of Broadcast Intrusive Alerts for Hail (and wind) introduced in 2022



Model Severe hail days for Alberta from June 1 to August 31, 2000.
(Brimelow et al 2006)



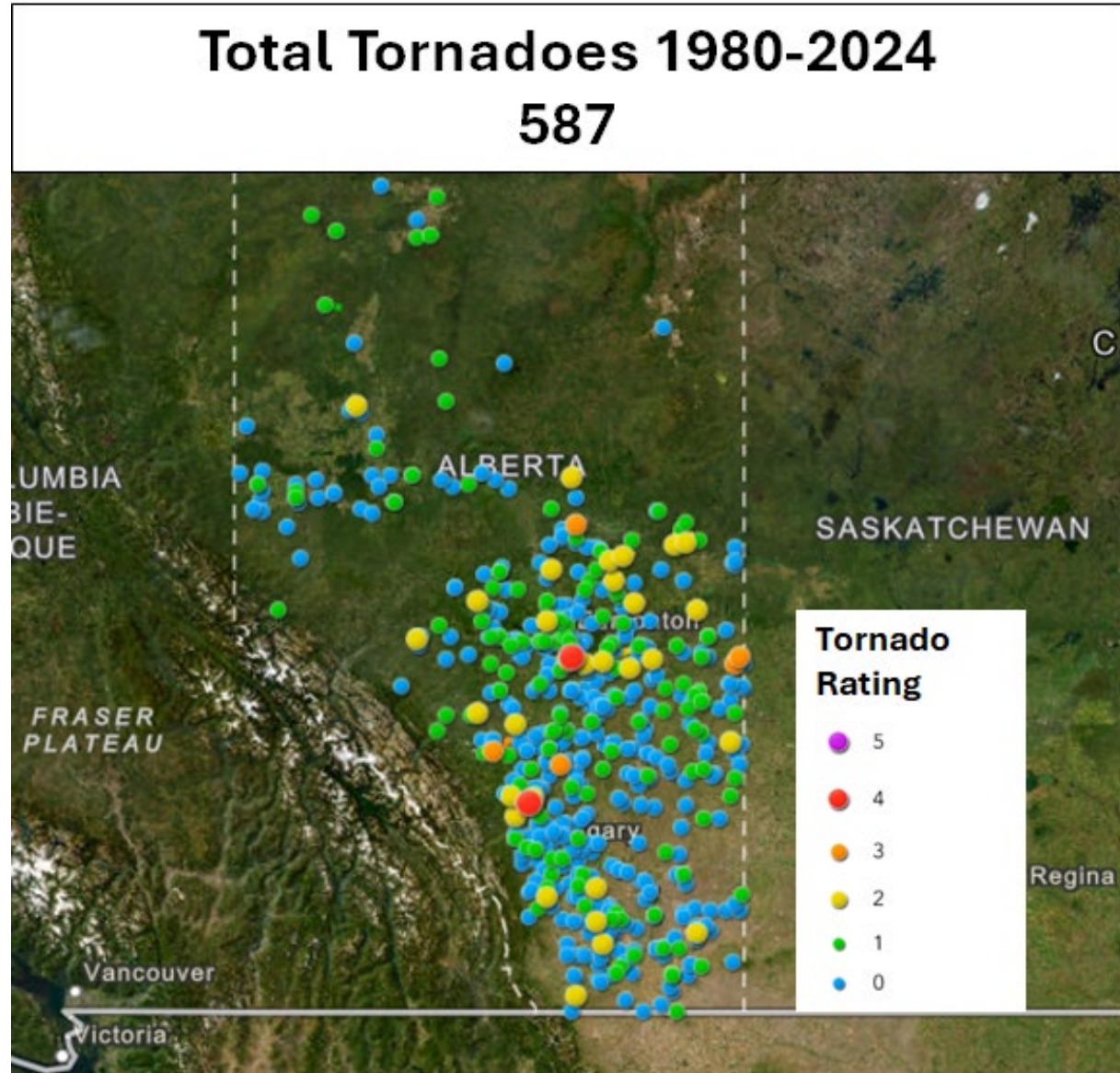


Big Valley Jamboree, August 1, 2009,
Stage Collapse
Photo: Ed Kaiser, Edmonton Journal



Barn Collapse, July 14, 2019
Eston, SK.

- Average of 12-15 confirmed tornadoes per year
- Damage measured on the EF scale since 2013
 - F scale pre-2013
- Tornadoes in cities are rare in Alberta



A typical tornado in Alberta



- Typical tornadoes are small
- Most common between 1 pm & 8 pm in Alberta

- Rated for the damage they cause
- Not always related to their size



Canada's first F5 tornado – Elie, MB

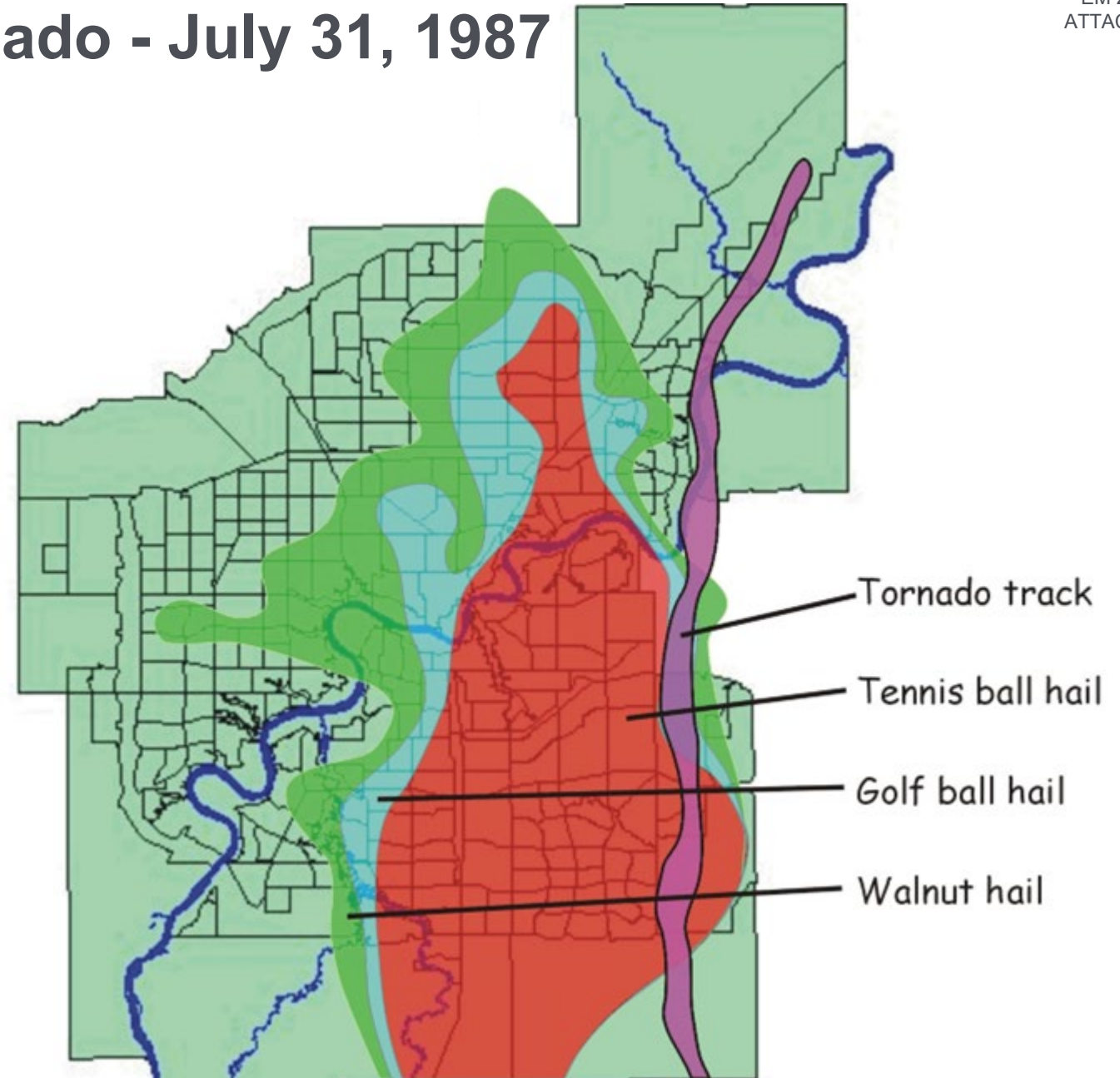
- Most recent significant tornado in AB
 - Didsbury, AB
July 1, 2023
 - EF-4 with maximum wind of 275 km/h
 - Travelled 15.3 km & was 620m wide



- 27 fatalities, 300 injured
- Lasted ~90 minutes (3pm to ~4:30pm)
- Track length 30.8 km
- Up to 1.3km wide
- Destroyed 200 mobile homes with 15 fatalities in Evergreen Mobile Home Park
- F4 tornado

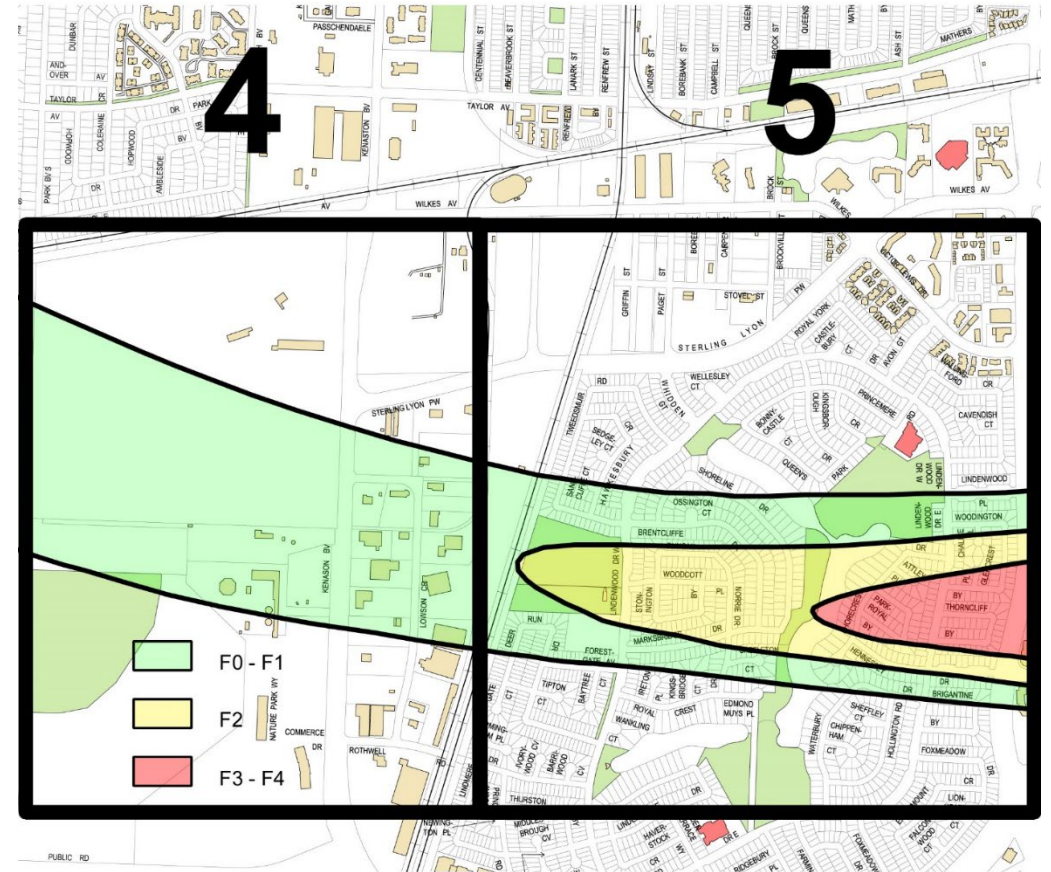


- Hail Damage associated with the Edmonton tornado in 1987



What if a Canadian city suffered an EF4 tornado?

- Environment and Climate Change Canada meteorologists did a study in 2006
- Estimated damage numbers:
 - 6800 homes damaged/destroyed
 - over 200 businesses/commercial buildings
 - over 3000 injuries, 100 deaths
 - at least *\$1.5B damage from tornado alone
 - additional *\$150m - \$1B hail damage
- Published in the Canadian Meteorological and Oceanographic Society Bulletin
Vol 34. No 3, Pg. 88



Areas 4-5: Tuxedo Industrial Park and Lindenwoods





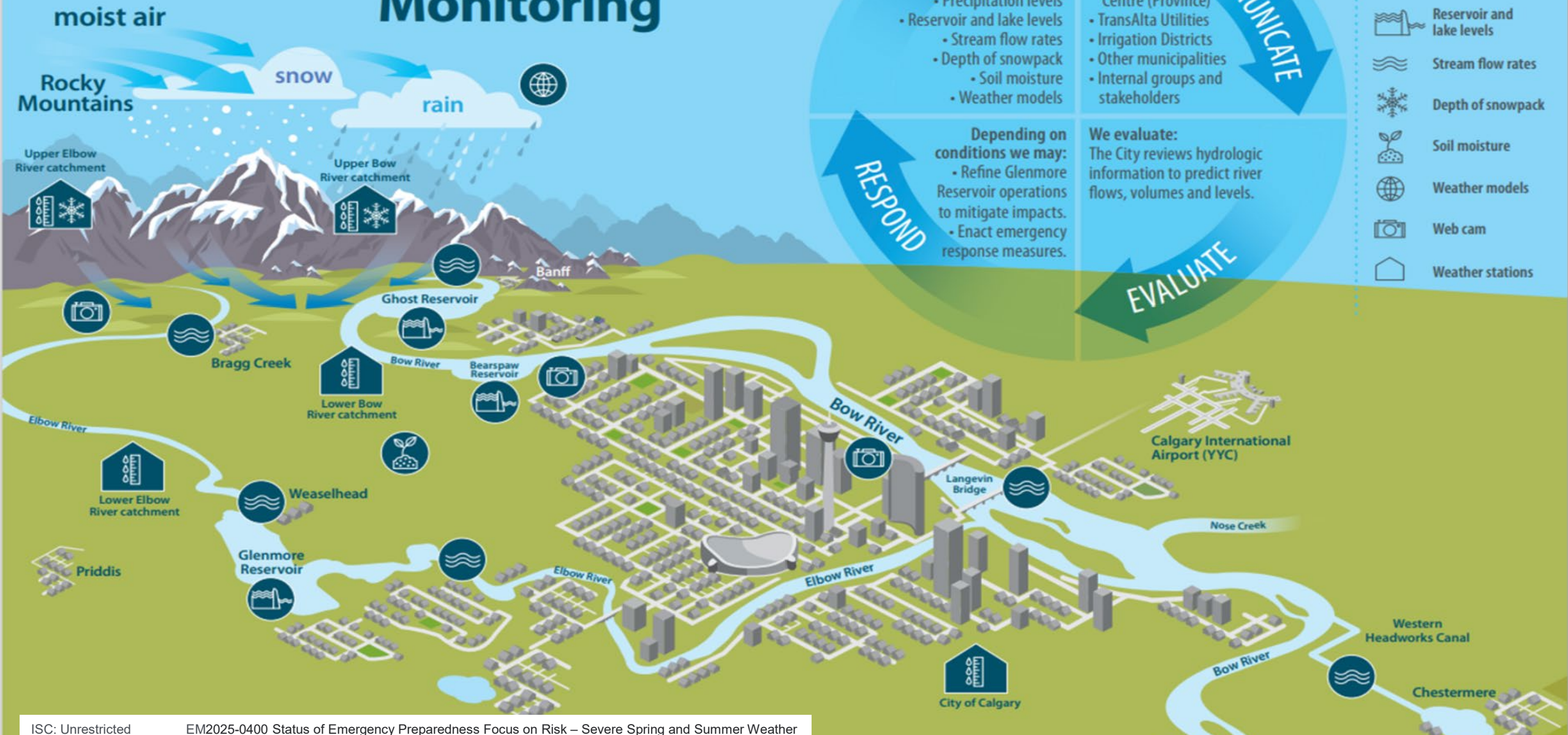
Climate & Environment

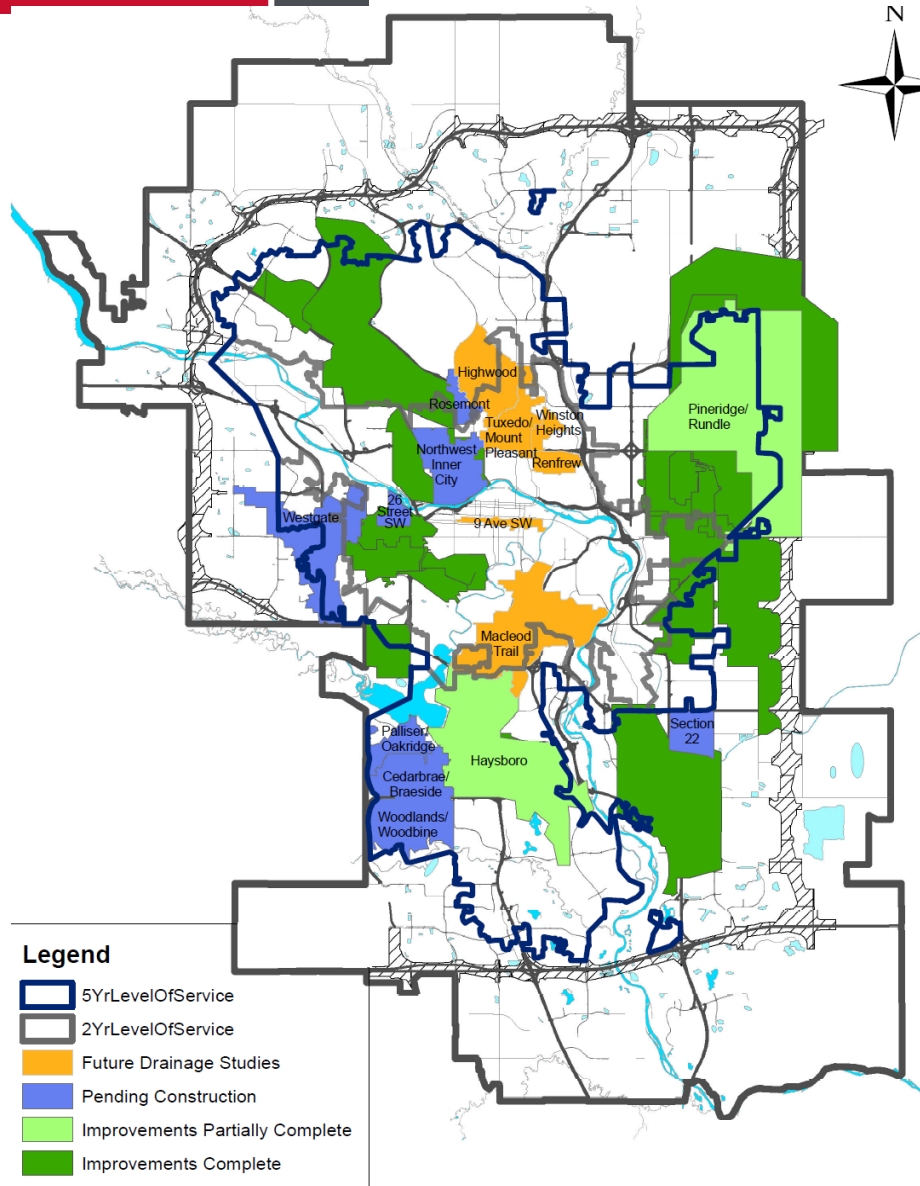
Frank Frigo – Manager, Environmental Management

Calgary



Understanding Flood and Drought Monitoring

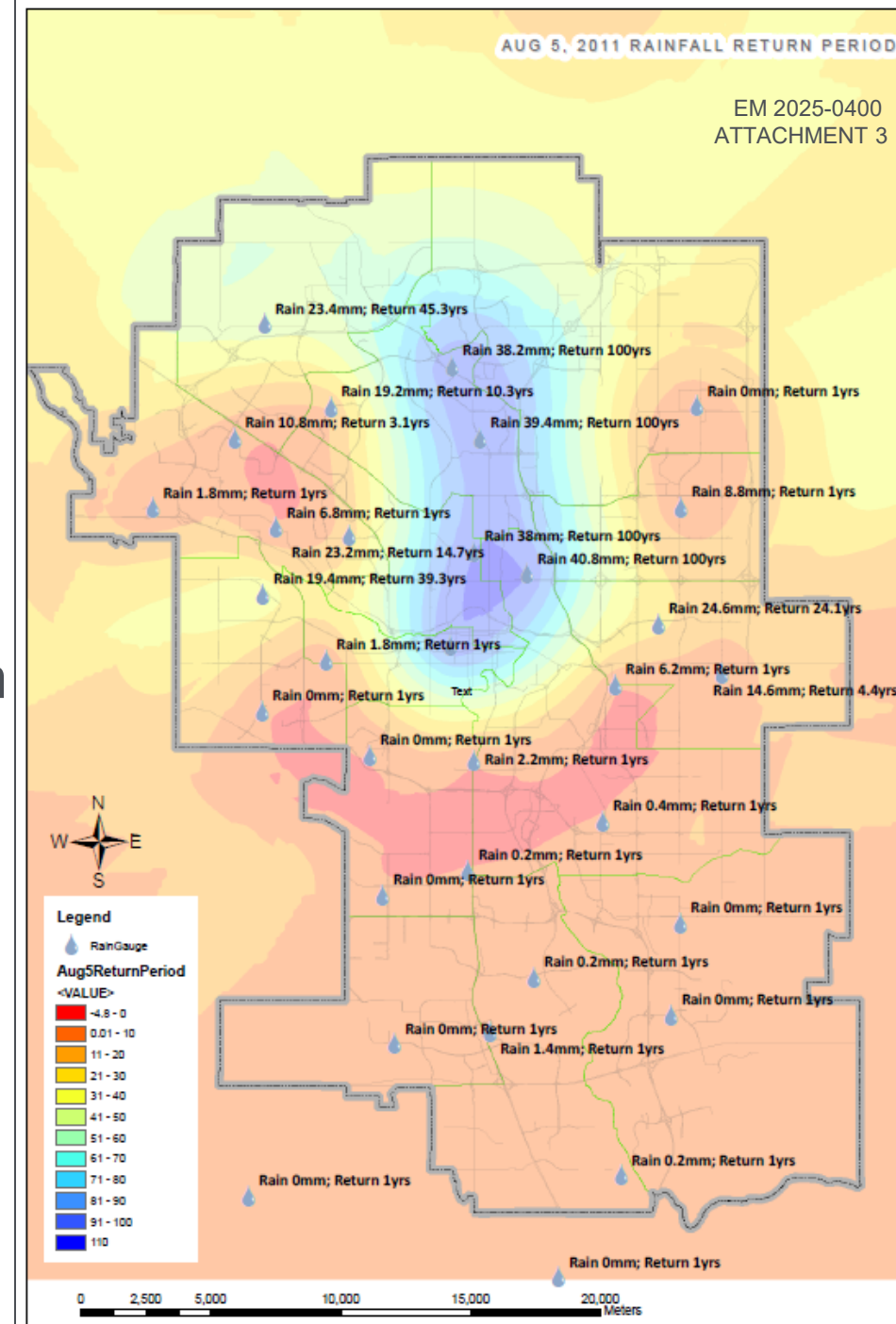




- Stormwater Management evolved over Calgary's history
- Infrastructure capacity reflects era of design
- Datasets on extreme storms were limited
- Intense storm hail can block inlets & pipes
- Runoff response happens in minutes
- Community Drainage Improvement Program & Local Drainage Improvement Programs continue to be key capital investment areas

Intense storm forecasting

- Intense storm cells are:
 - Very localized; 10-50 km²
 - Rapidly developing / Quick moving
- Forecasting / warning possible only at City-wide level
- Makes proactive response impractical & puts onus on infrastructure that operates automatically
- 2023 Stormwater Management Strategy - 4 keys:
 - Established community drainage systems,
 - Lifecycle operations & maintenance,
 - Green stormwater management approaches,
 - Service metrics/targets.





Community Strategies

Alanna Yontz – Business Continuity & Emergency Planner

Role in emergency response

- Non-Profit Liaison
- Connections with community & partners
- Understanding impacts to communities & populations experiencing vulnerability
- Strategic support for CEMA Emergency Social Services



Image source: 680 News

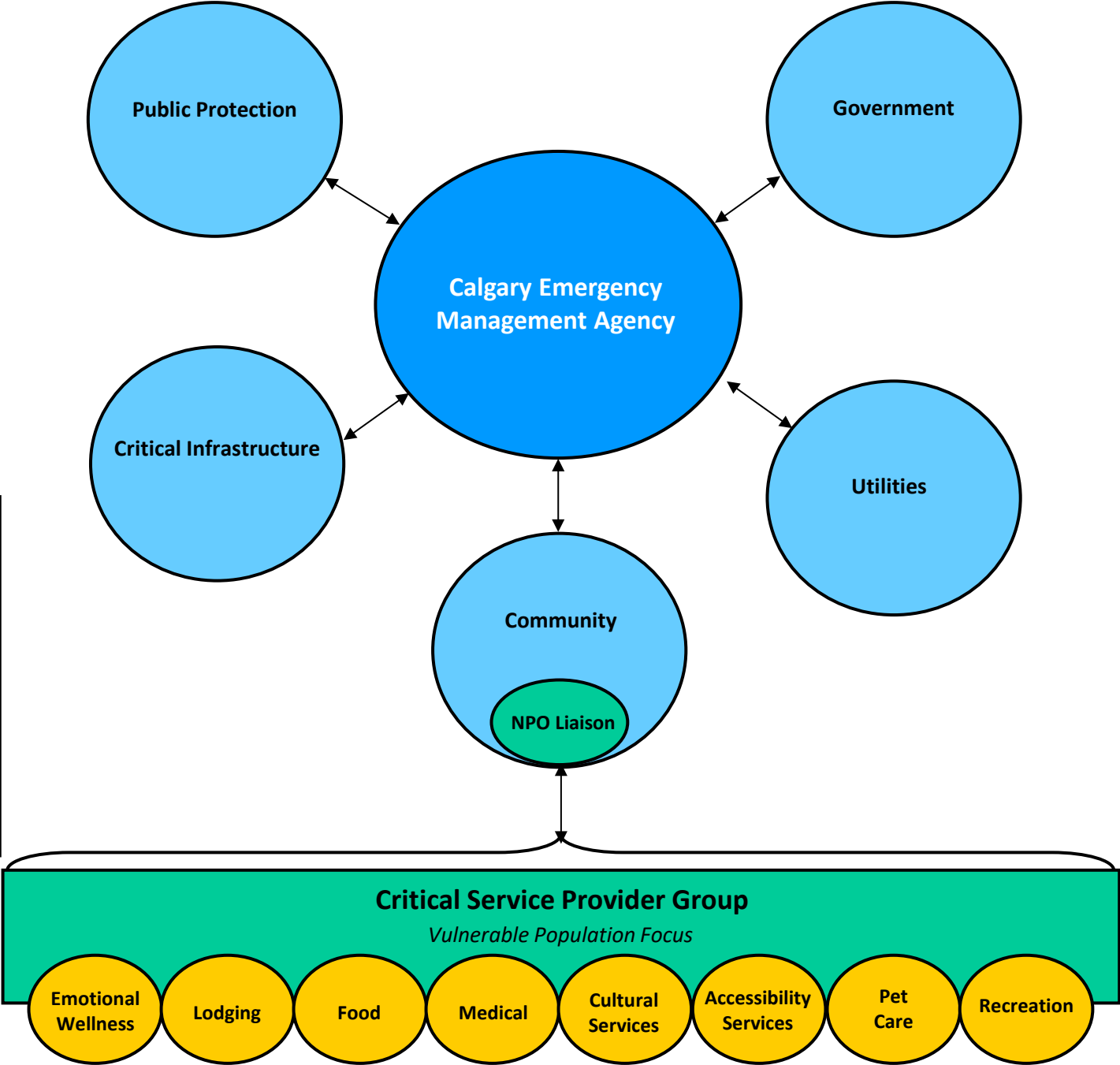
LEGEND

Calgary Emergency Management Agency

CEMA Sector & Agency Members

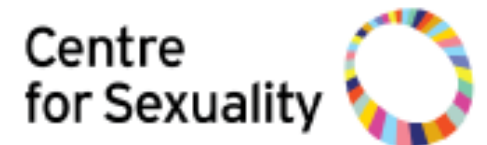
Non-Profit Organization Liaison

Critical Service Category



Emotional Wellness Response Team

- Provision of coordinated psychosocial wellness support to impacted individuals



Preparing for a severe weather event

- Connectivity, relationship building, networking
- Emergency response exercises
- Emergency preparedness best practices
- Integrated Non-Profit Business Continuity Project



Emergency Social Services & Emotional Wellness Response Team Exercise



Emergency Management Operations

Coby Duerr – Deputy Chief, Emergency Management Operations

Municipal Emergency Plan – Hazard Annexes



Spring & Summer Severe
Storm Incident Plan



Tornado Incident Response
Plan

of ESS
Members

150

- Emotional Wellness
- Indigenous Health
- Cultural Resources

of Business
Units

32



Severe Spring & Summer Weather preparedness

Calgary



Are you ready?

No one ever thinks a disaster will happen to them. Your best strategy in dealing with a disaster is to be as prepared as possible. The Calgary Emergency Management Agency invites you to take a few simple actions to be better prepared in case of an emergency.



SEVERE WEATHER

High Winds

Tornadoes



SHELTER AREA

**Example of BARA signage*



That the Emergency Management Committee recommend that Council receive this report for the Corporate Record