

Status of

# Emergency Preparedness

in Calgary

2023

Calgary Emergency  
Management Agency

Calgary





## Chief's Message

On behalf of the 55 member organizations that make up the Calgary Emergency Management Agency (CEMA), I am pleased to introduce the 2023 Status of Emergency Preparedness report. This past year marked a transition to a "new normal" of emergency management that highlighted new complexities in our emergency management priorities.

An historical wildfire season began in the spring and continued through September. The Agency supported thousands of evacuees from Northern Alberta and the Northwest Territories. The cascading impacts of seemingly distant disasters were evident on a local scale here in Calgary. In total, the Emergency Operations Centre (EOC) was open for 54 days and Canada Task Force 2 (CAN-TF2) had a total of 14 deployments supporting other jurisdictions. In partnership with Calgary Police Service (CPS), CEMA also successfully provided operational planning support to the World Petroleum Congress, a major international event that saw Calgary host oil and gas dignitaries from across the globe. There were numerous other smaller activations that made 2023 one of the busiest years on record.

The impact of climate change means that we can no longer rely on the events of the past when assessing the risk and complexities of future disasters. This is the new normal moving forward. Thanks to our dedicated Agency members, we remain ready for this new risk landscape.

Chief Susan Henry  
Emergency Management & 9-1-1

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# Resilience In Calgary

The Calgary Emergency Management Agency (CEMA) has four core outcomes that are aligned to the Sendai Framework for Disaster Risk Reduction<sup>1</sup> and Emergency Management Strategy for Canada<sup>2</sup>.

These strategic priorities can be summarized as:

- Improve understanding of disaster risk.
- Enhance disaster risk reduction governance, policy, and practice.
- Strengthen community preparedness.
- Enhance disaster response capacity and coordination.

## DISASTER IMPACTS

**\$2.2B**

Per year average insured loss  
in Canada

**5X**

Increase in annual losses over  
previous 3 decades

Insured losses represents only 40-50% of total economic losses  
when a disaster occurs  
(on average)

Disaster Risk Reduction focuses on preventing new risk, reducing existing risk, and managing residual risk by increasing the resilience of people, communities, infrastructure, natural environments, and systems. At its core, Disaster Risk Reduction is focused on proactively managing risk in all its forms rather than only reactively managing consequences.



Saving lives and  
reducing negative  
health outcomes



Reducing economic  
losses and limiting  
business  
interruptions



Reducing future  
needs for response  
and recovery



Strengthening  
community  
partnerships and  
improving quality  
of life



Protecting natural  
assets and  
ecological  
systems



Fostering economic  
growth and future-  
proofing communities  
(e.g. build back better)

# Disaster Risk In Calgary

In 2023, The City of Calgary performed its annual review of the Disaster Risk Assessment. This report was created with input from Agency subject matter experts. It accounts for changes that may have altered the assessment of risk year-over-year and identifies new emerging risk. The Disaster Risk Assessment assesses 66 individual hazards and threats that pose a risk to Calgary. Understanding Calgary's risks, allows for effective planning and operations as well as the prevention and mitigation efforts of our Agency Members.

## CALGARY'S 16 HIGHEST RISKS



### Natural

Extreme Cold, Flood (Bow River), Flood (Elbow River), Heavy Rainfall, Hydrological Drought, Pandemic, Tornado, Winter Storm



### Technological

Critical Infrastructure Failure, Dam Breach (Bow River), Dam Breach (Elbow River), Rail Incident



### Human Induced

Active Assailant, Mass Attack, Mass Gathering Incident, Protest or Demonstration (Illegal)



### Risk Drivers

- Urbanization
- Interconnectivity
- Socioeconomic changes
- Increasing disaster losses
- Climate change
- Aging infrastructure

## PRESENTATIONS TO COUNCIL

Through 2020-2023, CEMA provided the Emergency Management Committee of Council with an in-depth understanding of Calgary's disaster risk environment and the work The City and Agency members are doing to address Calgary's high risks.



**Risks:**  
Critical infrastructure failure/disruption



**Risks:**  
Severe Summer Weather  
Rail Incident



**Risks:**  
Severe Winter Weather  
River Flooding



**Risks:**  
Heat Related  
Cyber

2020

2021

2022

2023

# Calgary's Risk Landscape

In addition to the 16 highest risks outlined on page 4, the Disaster Risk Assessment rated 50 other hazards and threats as medium, low, and very low risks. Risk is determined by the severity and frequency of an event, the number of people and assets exposed to the hazard, and socioeconomic, physical, and environmental factors. These factors are scored using an industry standard risk assessment methodology to determine risk level.



**MEDIUM RISKS**

- Basement Seepage Flooding
- Bomb Threat incident
- Bridge Failure/Interruption
- Cyber Attack (Data Fraud/Theft)
- Cyber Attack (Technology as Instrument)
- Cyber Attack (Technology as Target)
- Electric Power Blackout
- Extreme Heat
- Extreme Solar Storm
- Hailstorm
- Hazmat Incident
- Industrial Accident
- Lightning Storm
- Loss of Major Transportation Corridor
- Major Solar Storm
- Poor Air Quality
- Riot
- Road Accident
- Sanitary Forcemain Failure (Lift Station)
- Security Incident at City Facility
- Slope Failure/Landslide
- Stormwater Backup Flooding
- Structure Fire
- Supply Chain Interruption
- Telecommunications Failure
- Thunderstorm
- Transit Rail Incident
- Water Contamination (Distribution)
- Water Contamination (Downstream of Reservoirs)
- Water Distribution (Infrastructure Failure)
- Water Contamination (Wildfires)
- Wildland / Urban Interface Fire
- Windstorm



**LOW RISKS**

- Aircraft Incident
- Earthquake (Magnitude 4.0+)
- Flood (Ice Jam)
- Fog
- Forcemain Failure (Purple Pipe)
- Forcemain Failure (Sludge)
- Gas Main Break
- Hostage Incident
- Ice Accumulation
- Labour Action
- Moderate Pandemic
- Pipeline Incident (AER lines)
- Pipeline Incident (TNPL to YYC)
- Sanitary Failure (Water Body)
- Water Contamination (Spills)
- Water Contamination (Spills Upstream Glenmore)



**VERY LOW RISK**

- Pump Station Failure (Bonnybrook)

# Risks In Profile

## HEAT-RELATED RISKS

Presented to Emergency Management Committee of Council on May 4, 2023.



Heat-related risks include hydrological drought, water contamination from forest fires, extreme heat, wildland/urban interface fires, and poor air quality.

- Heat-related risks such as extreme heat and poor air quality could result in risk to life safety of Calgarians, with increased risk for vulnerable populations, particularly older adults or those with limited mobility living alone.
- Risks such as drought and water contamination could have severe economic and environmental impacts for Calgary.

- Climate change is expected to intensify heat-related events, with more frequent and intense heatwaves, contributing to increased drought and wildfire risk.
- Long-term Calgary-specific climate projections indicate that regional warming is expected to continue at an accelerated rate, resulting in shifting seasons and changes in precipitation, which can exacerbate drought, wildfire risk, and water quality concerns.

- The City's *Extreme Heat Plan* establishes actions including identification of public cooling locations and water fountains, water distribution strategies, communication and information sharing, and the activation of Emergency Social Services to provide cooling centres in exigent circumstances.
- The City's *Source Water Protection Plan* and *Drought Resilience Plan* include strategies for water management and protection of natural assets to support watershed resilience.



### KEY FACTORS



### TRENDS



### MITIGATION

## CYBER RISKS

Presented to Emergency Management Committee of Council on Nov 2, 2023.



Cyber risks are increasing for both Calgarians and the services Calgarians rely on for health and safety.

- Essential services provided by municipalities have become reliant on connectivity, creating increased vulnerability and potential impacts on public safety.
- Potential cyber security threats to The City include ransomware events, cloud services incidents, supply chain security risks, denial of services, and business email compromise.

- Although cyber risks can impact both individuals and organizations spanning all sectors, the Canadian Centre for Cyber Security has recently stated that essential critical infrastructure services are at a particular increasing risk.
- Governments faced a 40 per cent increase in cyberattacks in 2023.
- Technological innovation can create safer, more efficient cities; however, this also introduces potential vulnerabilities.

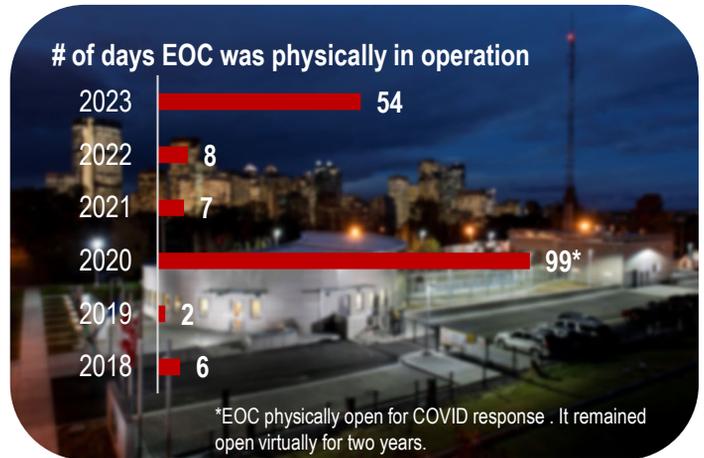
- Information Technology & Corporate Security at The City of Calgary have dedicated resources and management plans in the event of a cyber incident.
- Administration has a policy dedicated to business continuity planning, intended to ensure City services can continue operating during disruptions.
- The City manages a public/private partnership that ensures critical infrastructure owners and operators in Calgary have a common understanding of risks and are working towards more resilient systems.

# The New Normal

The impact of climate change means that we can no longer rely on the events of the past when assessing the risk and intricacies of future disasters. Disasters are becoming more complex, frequent, and costlier than ever before. This is the "new normal" of emergency management.

The City of Calgary has made a proactive investment in disaster preparedness, planning, response, and mitigation. These investments have made Calgary a leader in emergency management, but the complex risk environment or the "new normal" we see today and what we are expecting in the future requires that the Calgary Emergency Management Agency and The City remain adaptable.

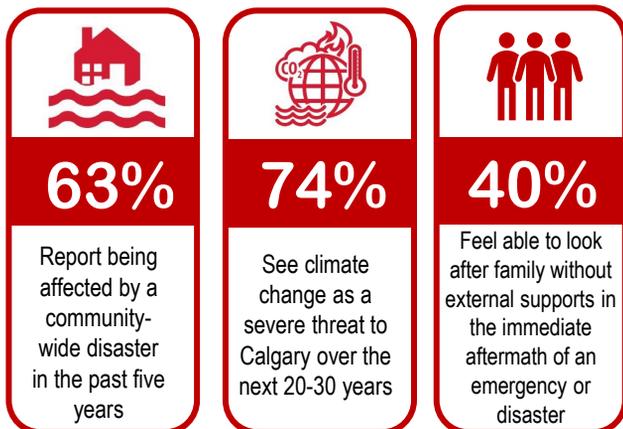
The Emergency Operations Centre (EOC) is the central coordination location for all 55 internal and external agency members. The EOC's mandate is to provide coordination and collaboration for large scale incidents or planned events, while maintaining situational awareness and City services. This year saw the EOC open for 54 days. This was the longest the EOC has been physically operational outside of the pandemic response in 2020.



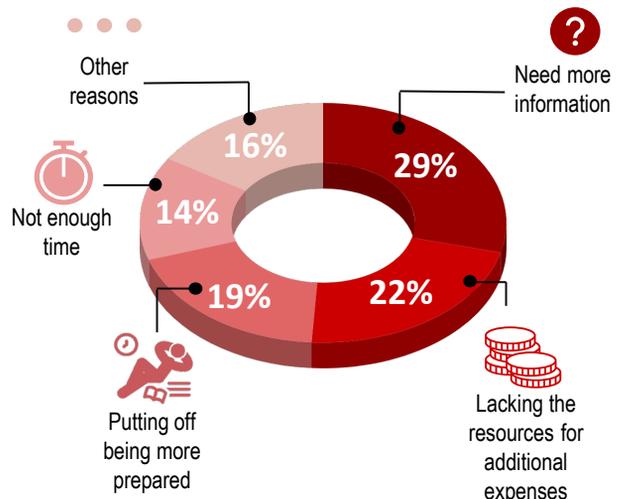
## ARE CALGARIANS READY?

Late 2022, the CEMA Community Preparedness team conducted a community survey to gauge the emergency preparedness and readiness of specific populations in Calgary. The team was interested in knowing how newcomers, older adults, people with disabilities, racialized community members, and urban Indigenous community members access and act on information related to hazards and disasters in Calgary. Nearly 1,700 people filled out the survey.

### Thoughts on Disaster Preparedness



### Barriers to Emergency Preparedness



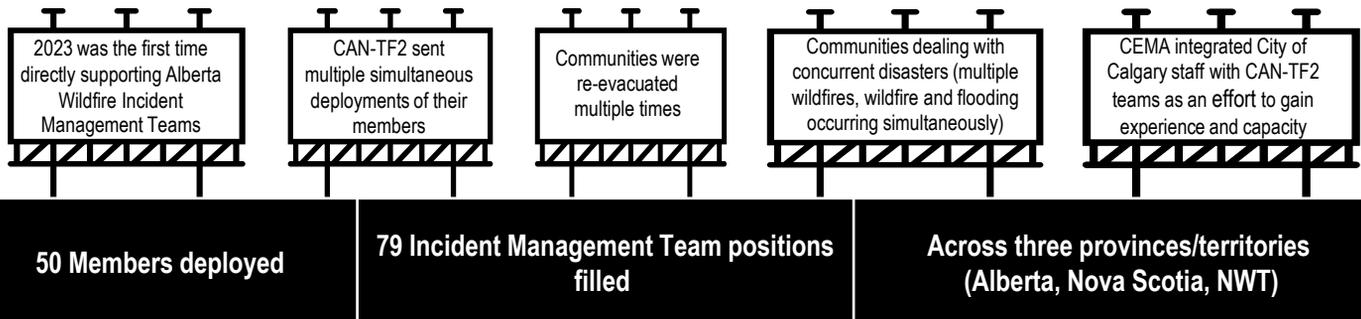
This year was the busiest year ever for Canada Task Force 2 (CAN-TF2). CAN-TF2 is a partnership between the federal and provincial governments along with The City of Calgary. It has an urban Search and Rescue mandate federally and an overall disaster response mandate provincially.



With unseasonably warm and dry spring conditions persisting throughout Alberta in April and May 2023, the Northern and Central regions of the province experienced temperatures ranging from the low to high 20s, minimal rain, and windy conditions. The 2023 Northern & Central Alberta Spring Wildfire incident began on April 28, 2023.

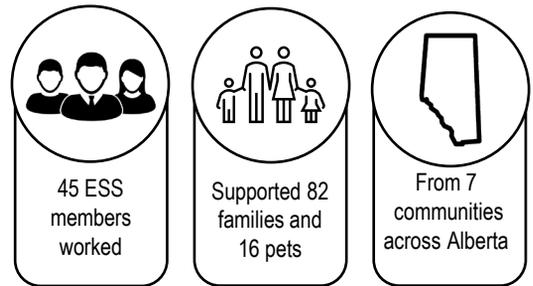
CAN-TF2 was sent on 14 different deployments to support other communities impacted by Canada's worst wildfire season in history.

## Complexity of Response



## Emergency Social Services:

Emergency Social Services (ESS) is a program in CEMA supported by a network of City employees and business units. CEMA and ESS opened a reception centre to provide services to meet the immediate physical and emotional needs of those affected by the Alberta wildfires and evacuated to the Calgary Area.



**"During 2023, we saw the largest area burned on record which was almost ten times more than the five-year average." (Alberta Wildfire)**

A Provincial State of Emergency was declared on May 6, 2023 to support a province-wide coordination to many out-of-control wildfires, assist local authorities with additional resources for evacuees, and support consistent public messaging. This Provincial State of Emergency remained in effect until its expiration on June 3, 2023.

## Provincial Statistics:



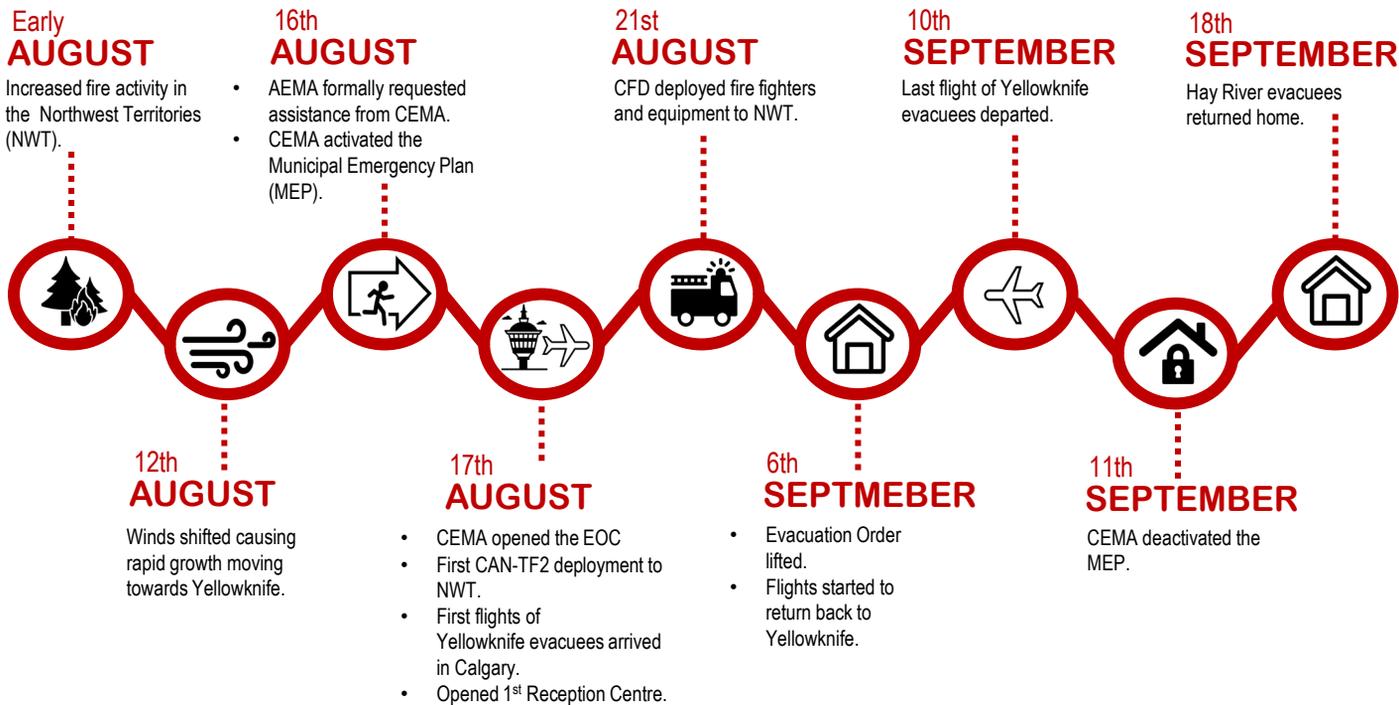
# Northwest Territories Wildfires

Following the trends from earlier in the summer across the country, unseasonably warm and dry weather led to significant drought conditions in the Northwest Territories. There were several raging fires in the territory which prompted 68% of the population to evacuate, including the City of Yellowknife.

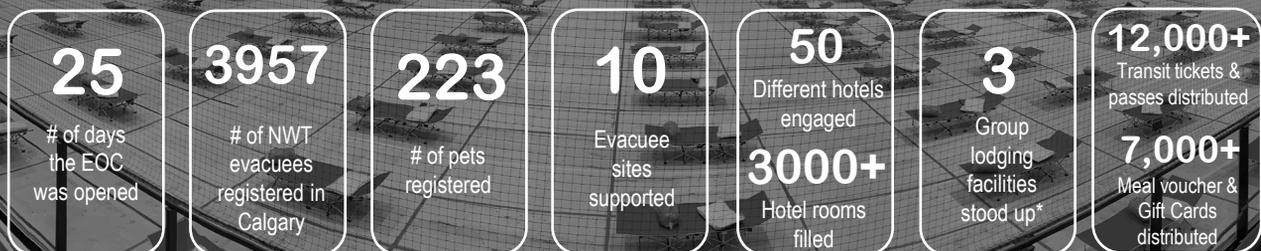
The Government of Northwest Territories (GNWT) sought support from the Alberta Emergency Management Agency (AEMA) both in the hazard region and for evacuees from Yellowknife and surrounding areas. CAN-TF2 responded with incident management team support for the City of Yellowknife and GNWT, while the Calgary Fire Department sent fire protection/response assets.

In mid-August, 22,000 residents were evacuated from Yellowknife. Reception centres were opened across the province from Grande Prairie south through to Calgary. CEMA opened its EOC on August 17th to support the almost 4,000 evacuees that were arriving primarily by air and vehicle to the City. The EOC was open for 25 days with ESS providing evacuee support including emotional wellness and Indigenous health and cultural resources.

## Timeline of Events



## NWT Supports At A Glance

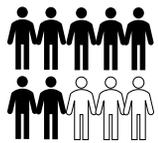


\*remained available for overflow

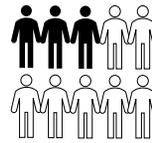
On June 13, 2013, Calgary experienced its largest flood since 1897. At the time it was the largest disaster in Canadian history. Approximately, 80,000 people were evacuated from 26 communities, 16 LRT stations and more than 20 bridges were closed and over 30,000 buildings were left without power.

Since the 2013 event, The City has prioritized flood mitigation measures. The results of a recent survey of 500 Calgarians demonstrated flood awareness ten years later, as demonstrated below.

## THOUGHTS ON FLOODING



7 in 10 Calgarians are concerned about the impact of extreme weather.



3 in 10 Calgarians expect more flooding from extreme rain or river flooding.

**47%**

Indicate concern about river flooding

**92%**

Feel safe from river flooding

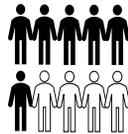
**83%**

Know their related risks

## PREPAREDNESS



Agree Calgary is in a better position to respond to flooding today than in 2013.

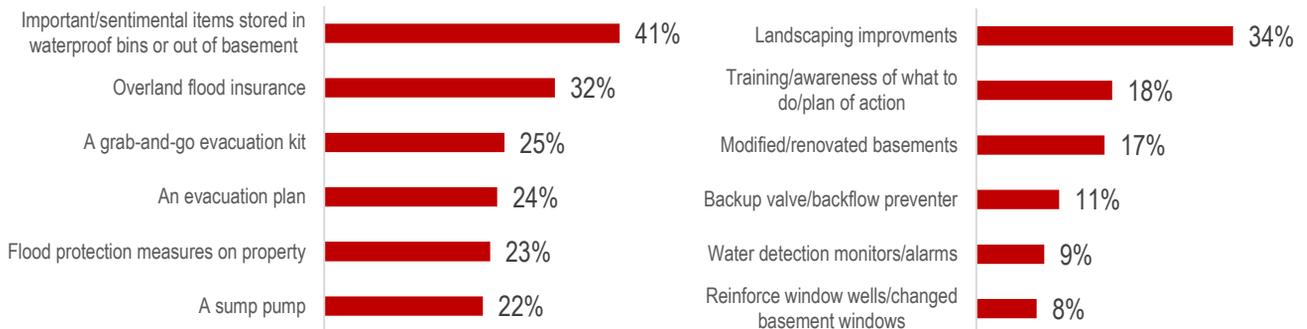


6 in 10 would like to do more to lower their risk of future flooding.



Cost is a factor in preventing Calgarians from taking further actions to lower flood risk.

### Flood mitigation measures taken



**20%** People who have lived in Calgary for less than 10 years are less likely to feel comfortable asking for help during an emergency

## COMMUNICATIONS

**92%**

Trust flood related information provided by the City of Calgary

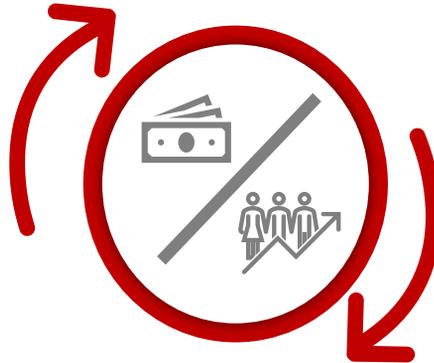
**77%**

Prefer getting flood related information from Calgary.ca as opposed to through an app, newsletters, regular mail, etc.

Disasters are costly and risky events that impact the people and businesses of Calgary every year. Fortunately, many of the impacts that pose safety and economic risk to Calgary can be engineered and designed away, through thoughtful urban and infrastructure design. To this effect, CEMA has a dedicated service, working as part of the local development authority, applying the understanding of disaster risk to projects and policies related to Calgary's built environment to ensure the city is more resilient to future disasters, protecting public safety and the economy.

## Investment

Studies have shown the return on investment for mitigation activities would generate average savings of \$6 for every \$1 invested in prevention.



## Returns

### Decrease in ...



- Cost of disasters in Calgary
- Frequency of disasters
- Disaster impact in Calgary

### Increased resilience of...



- Calgary's communities
- Calgary's critical infrastructure
- Calgary's businesses

## CEMA Supporting Calgary's Resilient Future



### Supporting Calgary's Development

CEMA is a part of the local development authority and speaks to development permits and policies with an aim to increase disaster resilience in Calgary.

CEMA helped establish guidelines for the development of waste management facilities and hydrogen fueling stations to ensure these increasingly common uses are built with a resilient Calgary in mind.



### Calgary's Future Resilient Communities

CEMA contributed to the Calgary Rivers Valleys Policy, planning the future of Calgary's river valley areas to support resilient river communities.



### Stronger Buildings and Infrastructure

CEMA developed guidelines to identify which buildings in Calgary are important for disaster recovery, ensuring communities will continue to have resilient facilities to assist them during disasters.

CEMA works with Calgary's Green Line team to ensure this important part of Calgary's future is engineered to reflect the disasters that occur in Calgary.

# Planning Focus: Community Resilience

## Major Community Events 2023

February

Teachers' Convention

March

Safety Expo

May

Emergency Preparedness Week

June

Mayor's Environmental Expo

June

Neighbour Day

July/August

Ready Squad Summer Camp Presentations

November

Conversations with Equity Groups

## COMMUNITY OUTREACH



**6000+**  
attendees

From **68** community events including **1500** from equity-deserving groups and **2900** youth



**3800**

Youth accessed Ready Squad e-course



**92%**

Participants who completed emergency preparedness programming who feel more prepared for emergencies



**11**

Conversations with equity deserving groups to understand needs and co-create new resources.

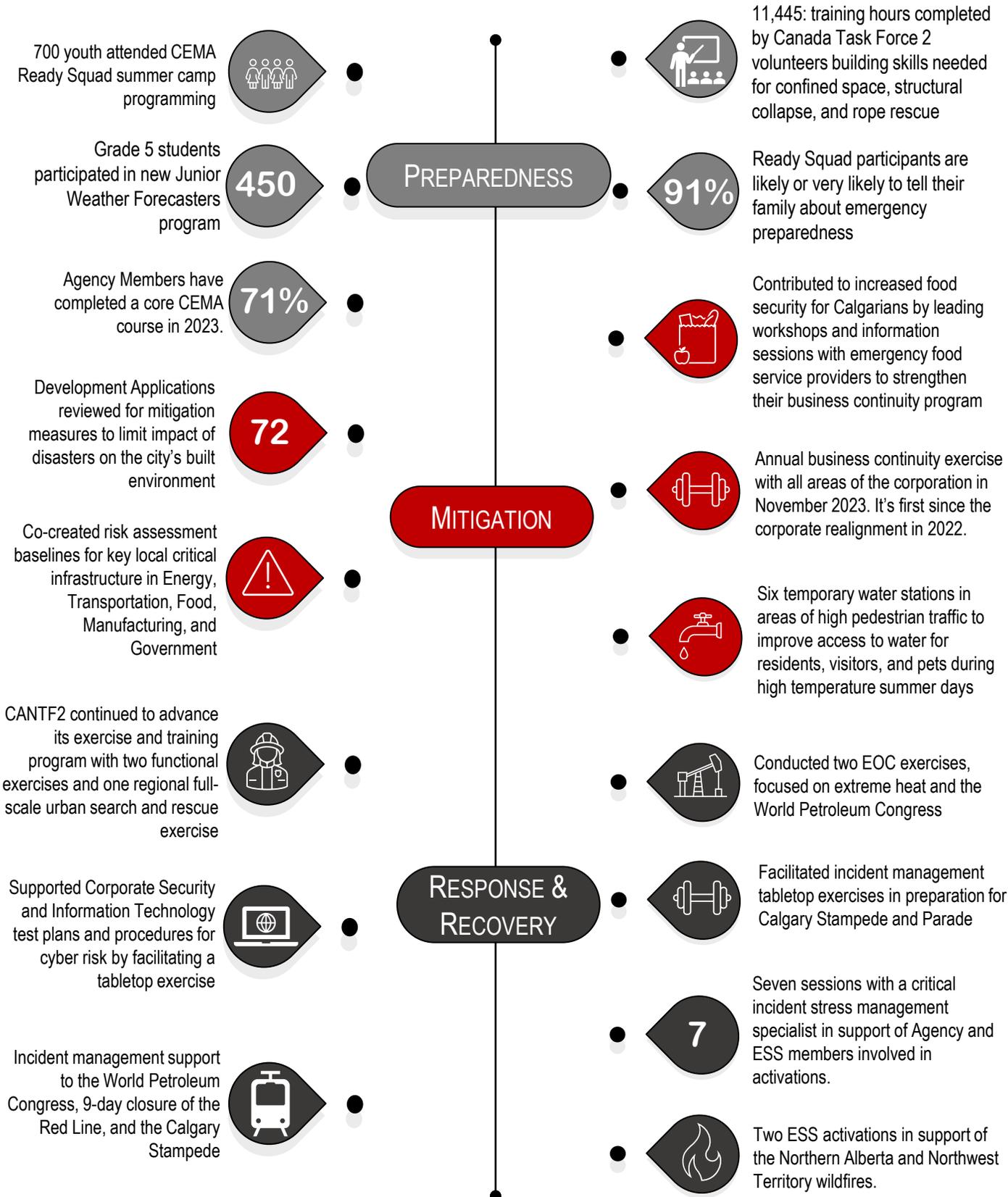
### Highlight: The Emergency Preparedness Event for Neighbour Day 2023

Over 500 hundred Calgarians attended the event and learned how to prepare their household for emergencies, met with local emergency/community service providers, and developed new connections within the community. Making these connections is important to building resiliency. During disasters, individuals and communities with strong social connections fare much better than those who are more isolated.

## EQUITY IN SERVICE DELIVERY

CEMA's Community Preparedness team received an Equity in Service Delivery grant to support service changes to better meet the needs of equity-deserving groups who are particularly vulnerable to the impact of disasters. These groups included newcomers, older adults, people with disabilities, urban Indigenous people, and Racialized community members. The goal of the project is to increase the capacity of these groups to prepare for emergencies by reducing barriers to accessing tools, resources, training, programs, and supports.





## BUILDING COMMUNITY RESILIENCE



CEMA will continue to collaborate with partners to proactively reduce risk within the built environment and critical systems that support the vitality of Calgary. This includes contributing to the City Building Program, which will review and update the policies and bylaws that govern how Calgary is built. CEMA will also initiate a three-year project with the University of Calgary, partnering with several faculties to research resilient design options for critical infrastructure in our city.

## ENHANCING DISASTER RESPONSE CAPACITY



Managing the frequency and complexity of disaster events requires a renewed focus on building additional capacity to respond. CEMA will be prioritizing a comprehensive review of the Emergency Social Services program that will include updating operational plans, recruiting and training new members, and developing new wellness supports. In addition, CAN-TF2 will continue to work with the federal government to advance the National Urban Search and Rescue (USAR) program towards an internationally recognized national accreditation.

## MODERNIZING OUR SERVICE



The needs and expectations of Calgarians are changing and service delivery must evolve with them. CEMA will collaborate with community partners to make our service more accessible to all Calgarians – especially equity-deserving groups. This will involve co-developing and implementing ideas identified by community members to improve our service. CEMA will also enhance current programming to focus on preparedness at the neighbourhood scale, using an asset-based community development approach where appropriate.

## STRENGTHENING THE AGENCY



Through exercises, education opportunities, communication, situational awareness and an annual symposium focused on the latest emergency management trends, CEMA will continue to build and maintain strong relationships with Agency members and partners, and engage in meaningful conversation. CEMA will also continue to be a leader in municipal emergency management.

## SUPPORTING CLIMATE ADAPTATION



The hazardous conditions experienced in Calgary the last few years brings the “new normal” of a changing climate into focus. CEMA will continue to support The City’s Climate Resilience Strategy by collaborating with the Climate Team on shared priorities. We will continue to integrate climate adaptation principles and projected modelling into existing emergency management strategies and broader disaster risk reduction objectives.



## References

1. The United Nations Office for Disaster Risk Reduction. (2015). *Sendai Framework for Disaster Risk Reduction 2015-2030*.
2. Emergency Management Policy and Outreach Directorate, Public Safety Canada. (2017). *An Emergency Management Framework for Canada: Third Edition*.