

Disaster Risk Assessment Briefing Note

Overview

The Disaster Risk Assessment (DRA) is a foundational activity that informs development of key strategies, policies, and programming focused on reducing disaster risk in order to increase societal resilience. The Corporate Disaster Risk Assessment (DRA) methodology has been developed based on the principles, framework, and process established within ISO 31000:2009 Risk Management.

Roles and responsibilities

The Calgary Emergency Management Agency (CEMA) coordinates the Disaster Risk Assessment (DRA) process, manages the Disaster Risk Register, and reports (in various forms) on disaster risk on behalf of The City of Calgary. Subject Matter Experts (SMEs) assess, manage, and treat risks associated to specific hazards and threats under their area of responsibility.

DRA Process

CEMA utilizes a three-step disaster risk assessment process (Figure 1) to identify, analyze, and evaluate risk. The output from this process is a comprehensive Disaster Risk Register and Disaster Risk Report that can assist key decision-makers research, evaluate, resource, and monitor risk treatment options. CEMA conducts the risk assessment every four years in alignment with the municipal budget cycle and undertakes annual monitoring in order to account for any significant material changes that may alter the assessment of risk year-over-year.

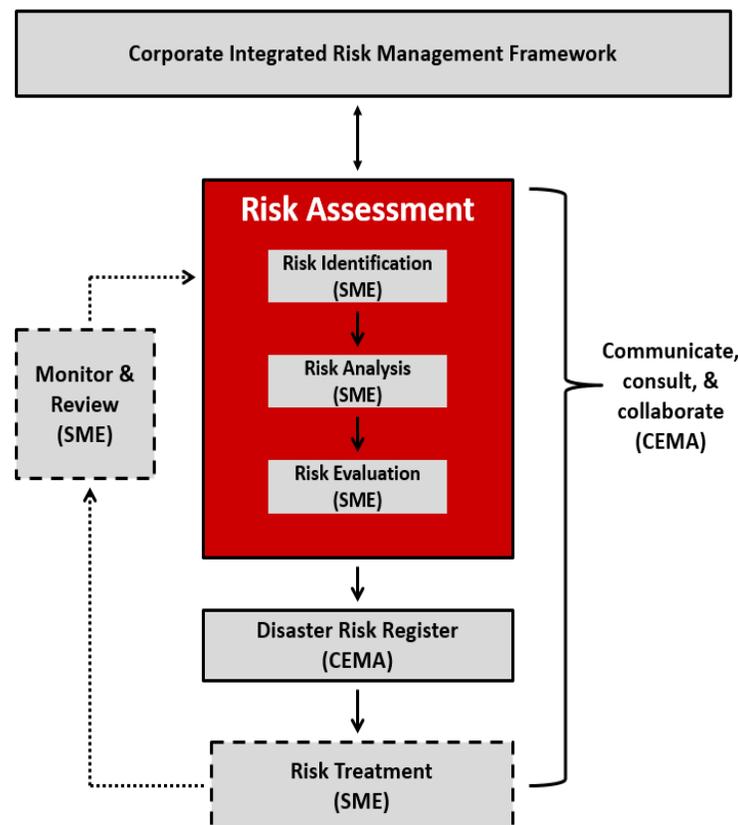


Figure 1: CEMA Disaster Risk Assessment Process

Disaster Risk Assessment Summary 2019

Risk Level	Hazard or Threat	Risk Level	Hazard or Threat
High	Catastrophic Riverine Flooding Bow River (> =1:100)	Medium	Major Transit Rail Incident
High	Catastrophic Riverine Flooding Elbow River (> =1:100)	Medium	Major Water Contamination - Distribution system
High	Extreme Cold	Medium	Major Water Contamination - Widespread Forest Fires
High	Major Critical Infrastructure Failure or Disruption	Medium	Major Wildland / Urban Interface Fire
High	Major Dam Breach - Bow River	Medium	Poor Air Quality
High	Major Hostage Incident	Medium	Severe Storm – Hail
High	Major Hydrological Drought	Medium	Severe Storm – Lightning
High	Major Mass Casualty Attack	Medium	Severe Storm - Thunderstorms
High	Major Rail Incident	Medium	Severe Storms – Wind
High	Severe Storm – Blizzard	Medium	Water Distribution Infrastructure Failure
High	Severe Storm - Heavy Rain	Low	Flooding Ice Jam
High	Severe Pandemic (CPIP scenario) *	Low	Major Aircraft Incident
High	Severe Storm - Winter Storms	Low	Major Cyber Attack - Technology as Target
High	Tornado	Low	Major Dam Breach - Elbow River
Medium	Extreme Heat	Low	Major Forcemain Failure (purple pipe)
Medium	Extreme Solar Storm (Carrington-level event)	Low	Major Forcemain Failure (sludge)
Medium	Loss of major transportation corridor	Low	Major Freezing Precipitation
Medium	Major Active shooter incident	Low	Major Gas Main Break
Medium	Major Basement Seepage Flooding	Low	Major Labour Action
Medium	Major Bomb Threat incident	Low	Major Pipeline Incident along AER regulated lines
Medium	Major Bridge Failure/Interruption	Low	Major Pipeline incident along the TNPL to Calgary Airport
Medium	Major Civil Disobedience	Low	Major Sanitary Failure Next to a Water Body
Medium	Major Cyber Attack - Technology as Instrument	Low	Major Water Contamination - Watershed Spills
Medium	Major Electric Power Blackout	Low	Major Water Shortage
Medium	Major Hazmat Incident	Low	Moderate Earthquake (Magnitude 4.0+)
Medium	Major Incident of Data Fraud/Theft	Low	Moderate Pandemic (CPIP scenario)
Medium	Major Industrial Accident	Low	Severe Fog
Medium	Major Mass Gathering Incident	Very Low	Treated Effluent Pump Station Failure (purple pipe)
Medium	Major Riot		
Medium	Major Road Accident		
Medium	Major Sanitary Forcemain Failure (Lift Station)		
Medium	Major Security Incident at City Facility		
Medium	Major Solar Storm (Quebec-level event)		
Medium	Major Stormwater Backup Flooding		
Medium	Major Structure Fire		
Medium	Major Supply Chain Interruption		
Medium	Major Telecommunications failure		

*Severe pandemic has been updated prior to release of the 2020 DRA due to the current COVID-19 pandemic.