

# Integrating Climate Change into Asset Management

2022 Climate Change & Asset Management Conference  
NWTAC

Nov. 30, 2022

# Agenda

**LOCAL CLIMATE TRENDS AND HAZARDS**

**COMMUNITY SERVICING**

**RESILIENCE**

**IMPORTANCE OF INTEGRATING CLIMATE CHANGE AND ASSET MANAGEMENT**

**HOW TO INTEGRATE CLIMATE CHANGE AND ASSET MANAGEMENT**

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## TRENDS:



Increase most significant in the **NORTH**,  
and even more  
in the  
**WINTER.**

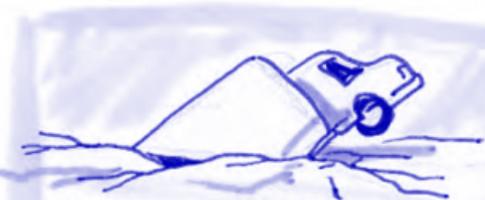




Costal erosion



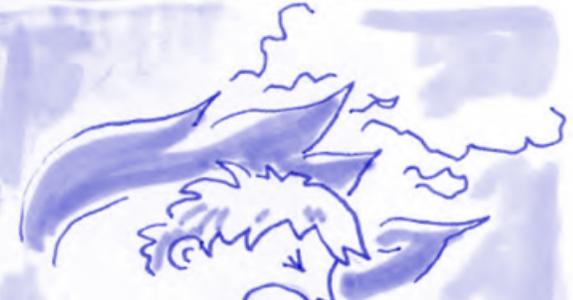
Permafrost thaw



Thinner Ice



MOOSE VS CARIBOU  
Impacts habitat



STICOUGH  
Active Fires

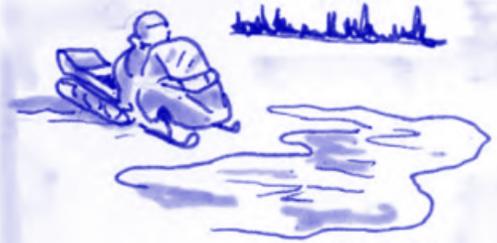


Warmer, wetter, heavier snow.

Plateau Shrinkage



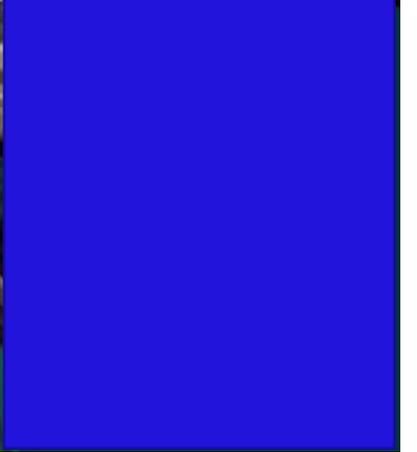
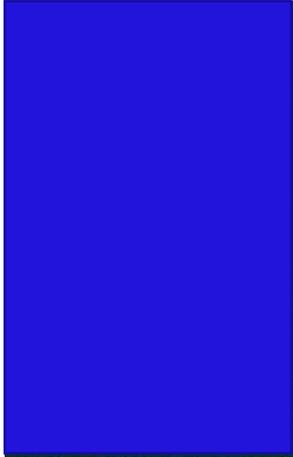
Opportunistic Species



Winter overland flow



Diesel over dams  
Low water levels







**Asset management** is about the application of **principles** that consider **present** and **future needs** of users, and the **services** being provided.

# Impact of Climate Change on Community Services

- Most existing infrastructure was built to perform in a climate that no longer exists (eg. stability of structures, capacity of systems, temperature thresholds, etc.)
  - Outcomes of climate risks are often irreversible
  - Horizons are longer and affect a broader range of systems
  - Past experiences can't be used to predict the future
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# Resilience

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# Resilience

The capacity of **individuals** , **communities** , **institutions** , **businesses** and **systems** to *survive*, *adapt*, and *grow* no matter what kinds of **chronic stresses** and **acute shocks** they experience.

## Shocks from disruptive events

- **Natural:** earthquakes, extreme heat / cold, hurricanes, tornados, wildfires
- **Floods:** natural / failing infrastructure
- **Terrorism:** chemical, cyber, biological, nuclear, radiological
- **Disease outbreaks / pandemics:** COVID-19
- **Supply chain problems**

## Stressors from long term trends

- **Natural:** climate change, sea level rise, coastal erosion, flooding
- Aging infrastructure
- Chronic food and water shortages
- Demand growth / capacity limitations
- High unemployment
- Poverty
- Social equity
- Regulation or market changes
- Redundant technology
- Aging population

# Climate Change Resilience

- Resilience improves by reducing risks
  - A resilient community can adapt quickly and effectively when faced with chronic stresses or acute shocks from a changing climate
  - Investment in climate resilience reduces exposure to climate risks, lowers social and GDP costs, and improves investor confidence
  - Northern communities have shown amazing resilience over centuries
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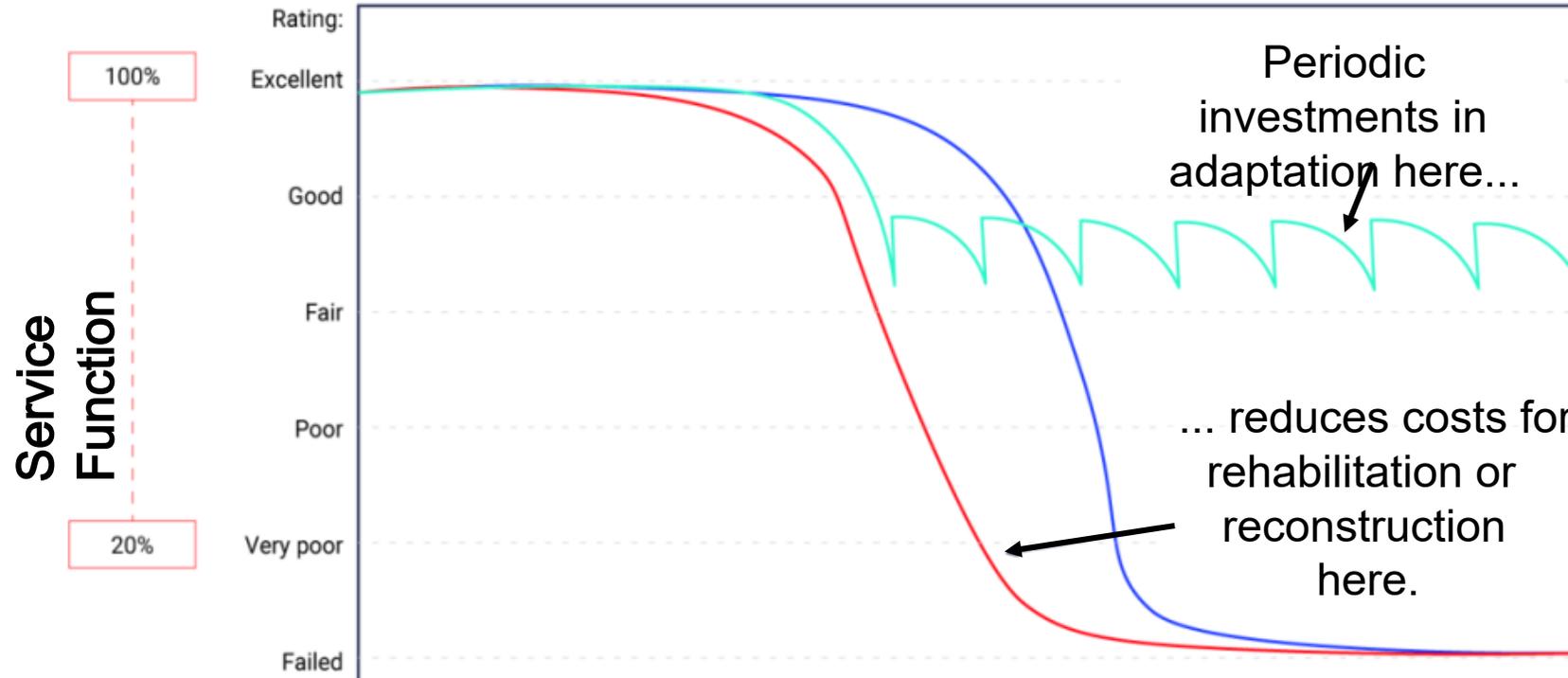
# Climate Change and Asset Management

*"Integrating climate change into the planning, maintenance, renewal and rehabilitation cycle of infrastructure assets ensures their longevity and helps to safeguard service levels for communities"*

*(Canadian Infrastructure Report Card, 2019)*

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# How Can Climate Affect Service?



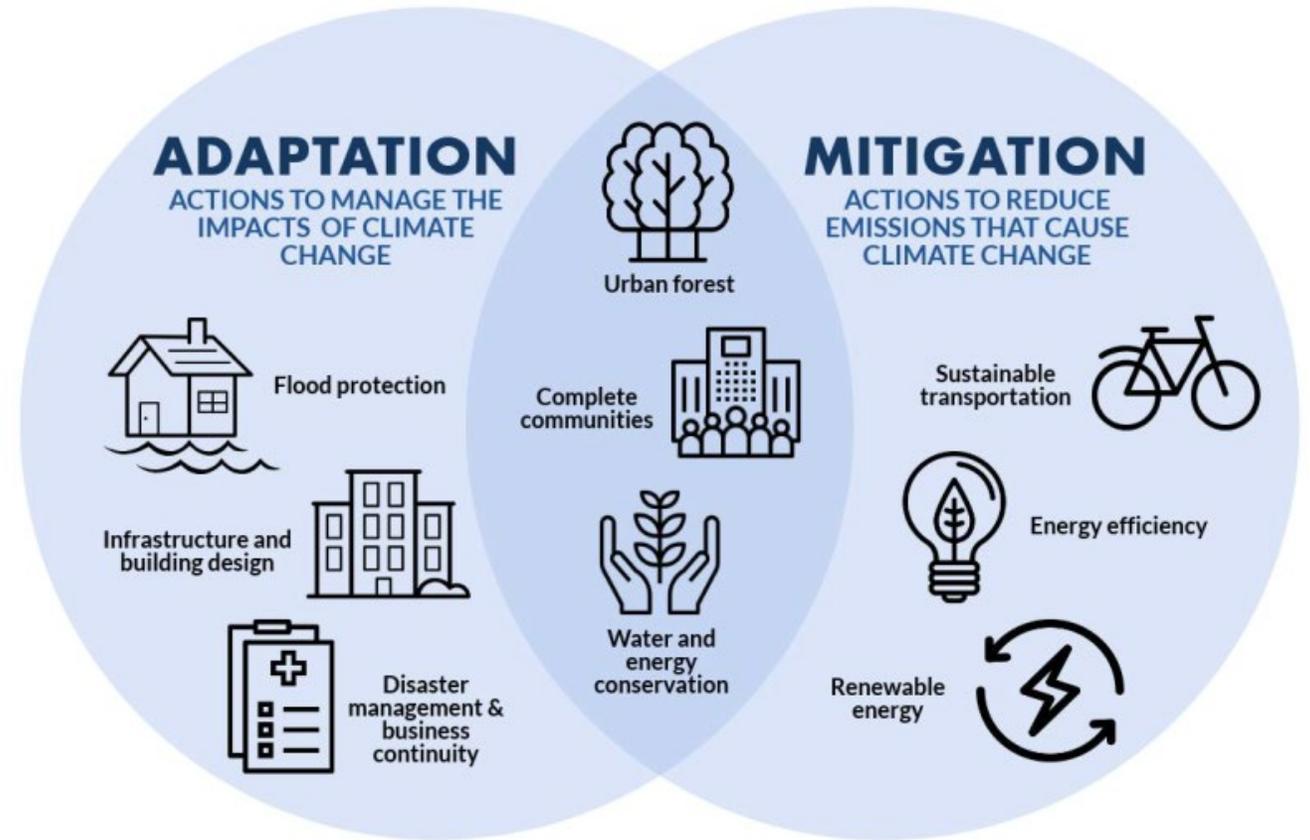
**Asset service life over time**

- Standard asset deterioration curve
- Asset deterioration curve under climate change— no adaptation
- Asset deterioration with investments in adaptation, continued monitoring and maintenance

# Asset Management is a Tool for Becoming More Resilient

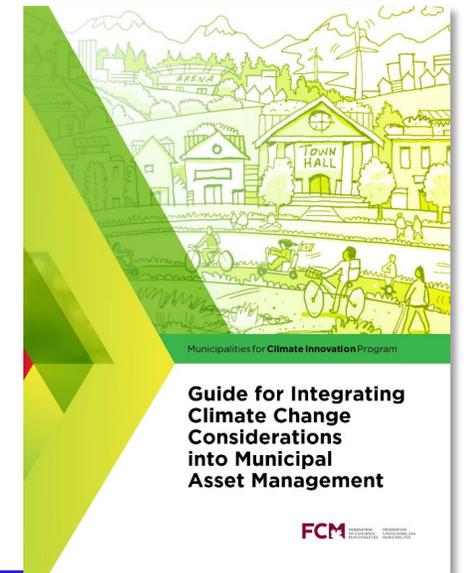
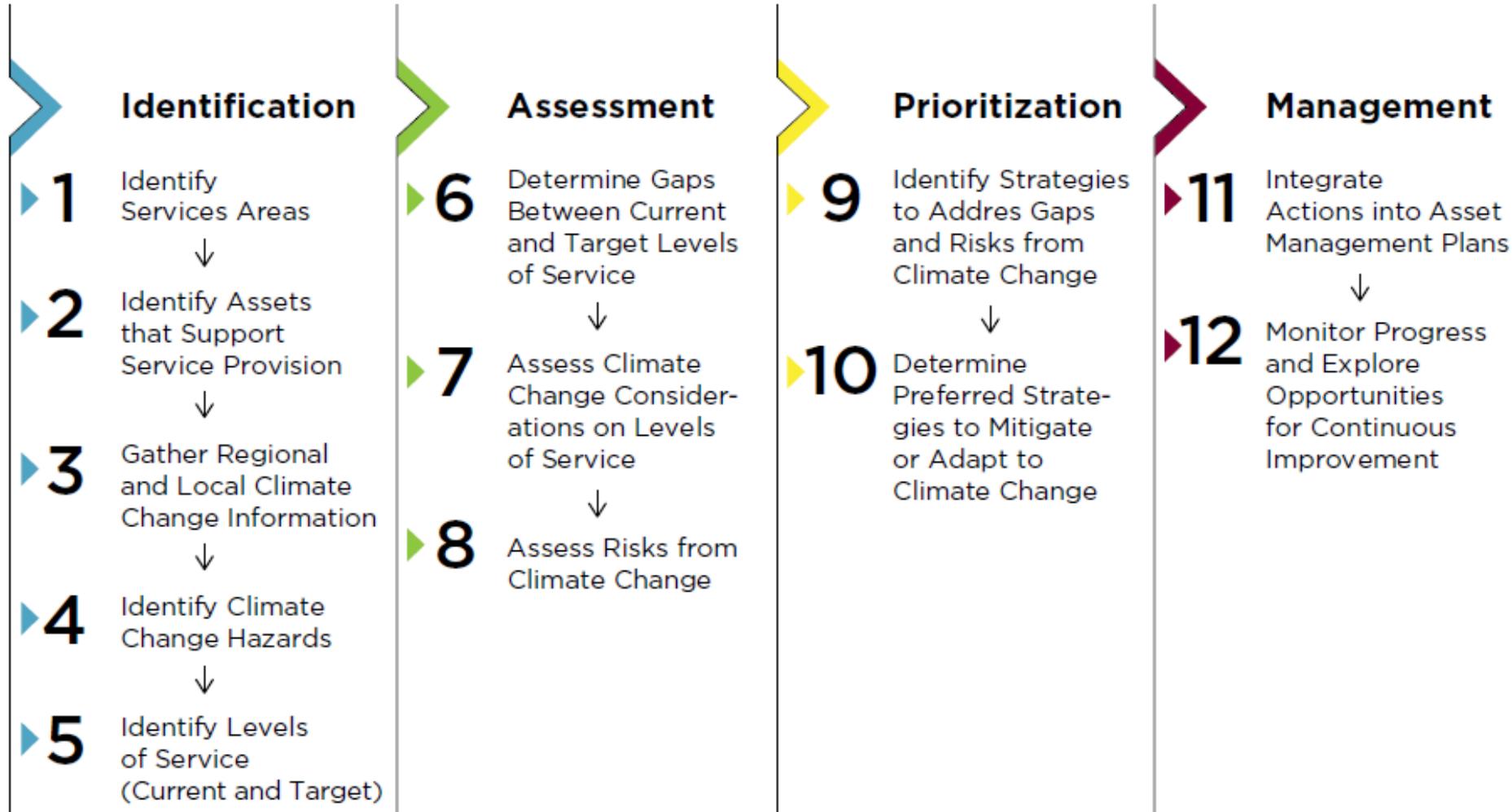
As we are planning new infrastructure, and renewing/replacing our aging infrastructure, how can we:

- 1) plan for a changing climate (adapt)
- 2) reduce our future impact (mitigate)



Source: ICLEI (2019)

# FCM Guide for Integrating Climate Change Considerations into Asset Management



# Activity



Identification



Assessment



Prioritization



Management



- 1. What is the most immediate climate -related threat to your community?**
  - Think first about the climate hazards your community experiences
  - Select the one that's top of mind, and write it on a sticky note
- 2. What would the effects be?**
  - Write the effects on a sticky note, thinking about the consequences should this climate event occur and interrupt your ability to provide services
- 3. Have you already put in place measures to reduce the potential impact?**
  - If so, write the measures on a sicky note
  - If not, what strategies could potentially be put into place? Think about all possibilities and write on a sticky note
- 4. Is there one or two potential strategies worth exploring further?**

# Discussion



- What is the **1 action** you are going to take when you return to your community to *start* addressing the service that's most vulnerable to a changing climate?
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# What's Next?

- Follow-through on the action you identified today
  - Climate Lens on the Asset Management Toolkit
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# Thank You!

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