



Weathering the Storm:

Asset Management and Climate Change



This initiative is offered through the Municipal Asset Management Program, which is delivered by the Federation of Canadian Municipalities and funded by the Government of Canada.

fcm.ca/assetmanagementprogram



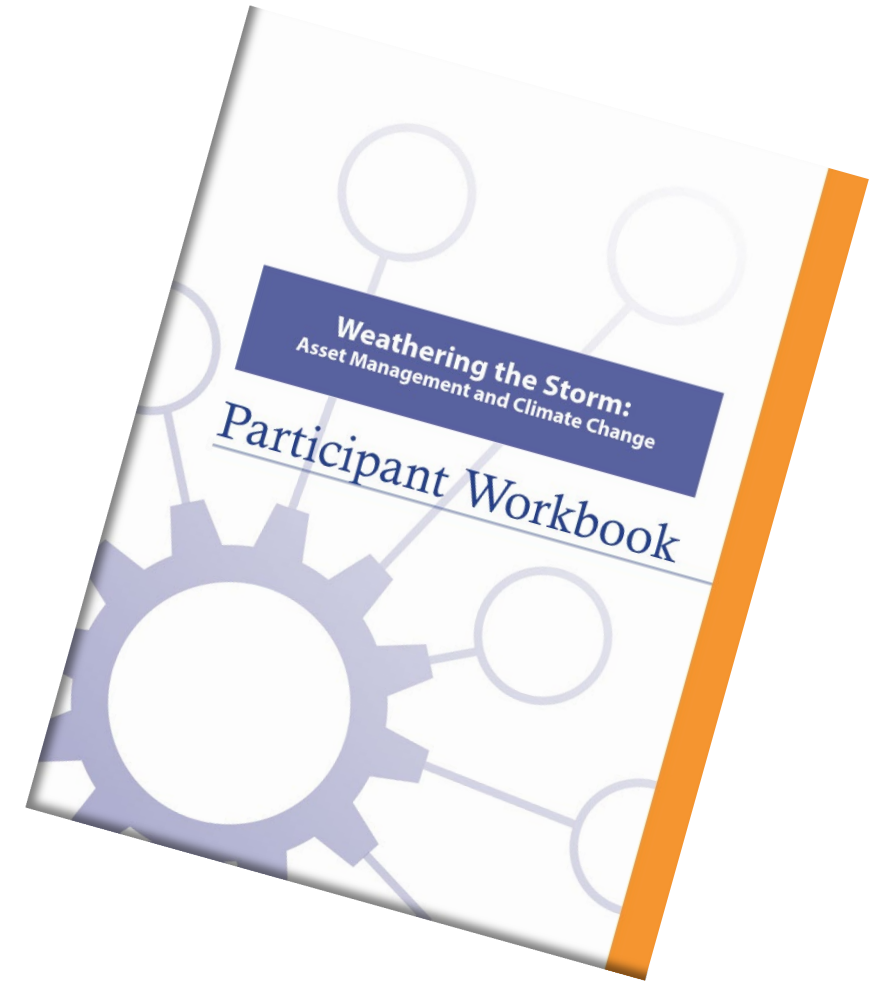
Asset Management and Climate Change



Welcome!

Why we're here:

- To develop our understanding of the connection between climate change and asset management.
- To develop our understanding of the ways through which asset management can support community goals related to climate change mitigation and adaptation.



FCM's Municipal Asset Management Program

- Funding for asset management activities
 - Assessments
 - Plans, policies, and strategies
 - Data collection and reporting
 - Training and organizational development
 - Knowledge Transfer
- Funds up to 80% of eligible costs to a maximum of \$50,000



Your Facilitators



 Asset Management and Climate Change



Using the Workbook



Schedule

	<i>Topic</i>
	Introductory Remarks
	<ul style="list-style-type: none">➤ Asset Management Refresh➤ Identify How Climate is Changing➤ Identify Vulnerabilities in Infrastructure and Risks to Service Delivery
	Refreshment Break
	<ul style="list-style-type: none">➤ Know the Basics of Asset Management and the Connection to Climate Change➤ Identify How Asset Management is Used to Identify, Prioritize, and Manage Climate Change Risks and Vulnerabilities➤ Identify How Asset Management is Used to Support Climate Change Mitigation
	Concluding Remarks



What Does Asset Management Mean to You?



 Asset Management and Climate Change



What is Asset Management?

“The process of **making decisions** about the use and care of infrastructure to **deliver services** in a way that considers current and future needs, manages risks and opportunities and makes the best use of resources”

Source: Building Community Resilience Through Asset Management: A Handbook & Toolkit for Alberta Municipalities



Asset Management

- It is not just for large communities - all municipalities make decisions about their services and assets.
- The systems and processes don't need to be extensively detailed or expensive.
- You can start where you are, building on existing processes.
- Asset management is about updating those processes to ensure they are systematic, documented, consider the right kind of information and take a long-term perspective.



Some Vocabulary...



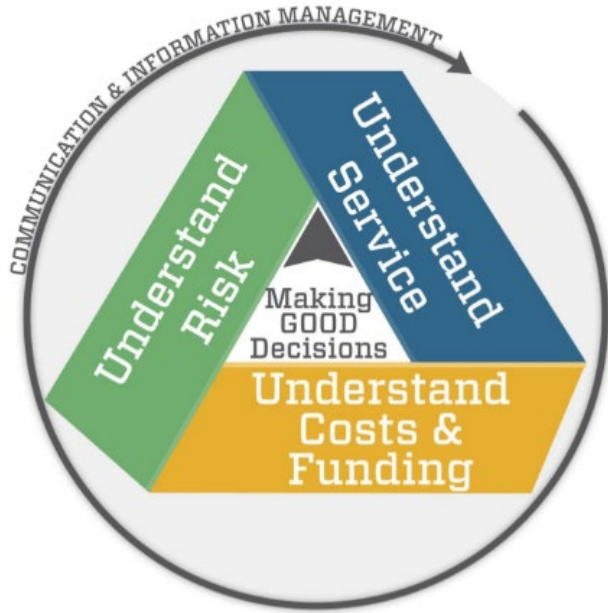
Asset management lens | Integrating asset management practices into decision making.

Asset management system | A set of processes and procedures that support asset management. Components may include a plan, policy, and/or strategy.

Sustainable service delivery | Process of ensuring that municipal services are delivered in a socially, economically, and environmentally responsible way.



Asset Management and Decision Making



- Municipal councils make decisions and set direction.
- Decisions require trade-offs between service, risk, and cost.
- Council must incorporate an asset management lens and understand these trade-offs to support decision making.

Source: Alberta Handbook and Toolkit



Service, Risk, and Cost Considerations

Service	Risk	Cost
<ul style="list-style-type: none"> • Types of services • Who benefits or doesn't benefit from a particular service • The current and desired level of service • Regulatory requirements • Service demands 	<ul style="list-style-type: none"> • Events that would have an undesirable impact on services • <u>Asset risk</u> describes the risk of an asset failing to perform the way you need it to deliver a service • <u>Strategic risk</u> describes a change that would affect your ability to achieve municipal objective • Risk management strategies 	<ul style="list-style-type: none"> • Replacement and capital costs • Operating and maintenance costs • Revenue sources • Partnerships



Did You Know?



- Asset management includes not only engineered assets but also natural assets, including aquifers, riparian areas, and wetlands.
- Asset management processes can be applied to these natural assets in support of sustainable service delivery.



Module 1—Identify Infrastructure and Service Delivery Vulnerabilities

Learning Goals:

- ✓ Identify how climate is changing
- ✓ Identify vulnerabilities in infrastructure and risks to service delivery



Some Vocabulary...



Weather | What we experience day-to-day.

Climate | Weather trend patterns over the long term.

Climate change | Change in the variability of weather patterns over the long term that can be “attributed directly or indirectly to human activity that alters the composition of the global atmosphere”.



Local Climate Change Information

- **The Prairie Climate Centre** | Provides information on the causes and impacts of climate change.
- **The Prairie Climate Atlas** | Provides maps of climate change impacts across AB, SK, MB by municipalities.



Anticipated Climate Change Impacts in Alberta

- Dependent on area
- Higher temperatures
- More frequent droughts and floods
- Extreme weather events

Source: Government of Alberta



Anticipated Climate Change Impacts in Alberta

- Specific impacts – like *when* a drought may occur – are unpredictable
- Like any major or persistent weather event, responding to climate change requires:
 - Long-term thinking
 - Advanced preparation
 - Contingency planning



Anticipated Climate Change Impacts in Alberta

- Agricultural production
- Ecosystems
- Forest fires
- Infrastructure

Source: Government of Alberta



Action on Climate Change

Mitigation | Efforts to reduce the contribution of human activities to climate change.

Examples:

- Green construction technologies
- Tree planting, expanding the forest canopy, preserving wetlands
- Lower-emission transportation and infrastructure options



Action on Climate Change

Adaptation | Efforts to manage the impacts of climate change on human and natural systems.

Examples:

- Hard infrastructure
- Green infrastructure
- Changing operations and maintenance activities
- Planning and bylaws
- Public education and incentives



Did You Know?

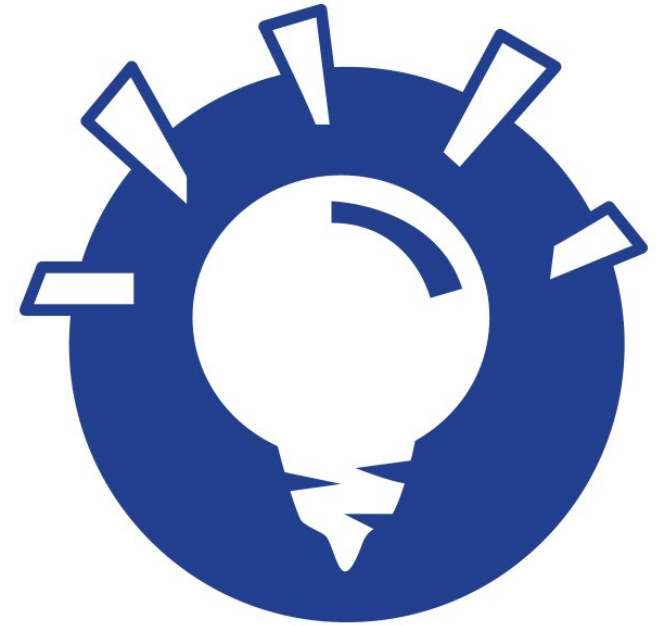


The Municipal Climate Change Action Centre is dedicated to helping Alberta municipalities reduce their greenhouse gas emissions and improve energy efficiency. For more information, visit their website at www.mccac.ca



Activity

See page 10 in Workbook



Some Vocabulary...



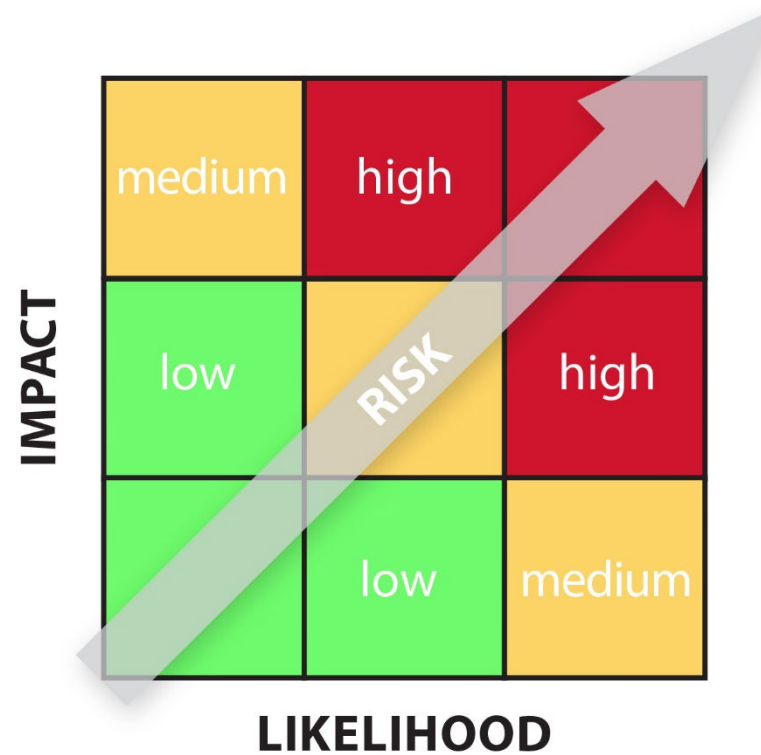
Vulnerability | Inability of a system to cope with the effects of climate change.

Asset Risk | Risk of an asset failing to perform the way that it is needed to deliver a service.

Strategic Risk | The change that would affect your ability to achieve municipal objectives.



Assessing Risk



Risk and Vulnerability Example 1

A community is facing increasing temperatures and changing rainfall patterns that may lead to more frequent or longer-lasting drought.



Risk and Vulnerability Example 2

A road is at risk of flooding during a large storm event if the storm exceeds the design capacity of the culvert. The culvert is a point of vulnerability.



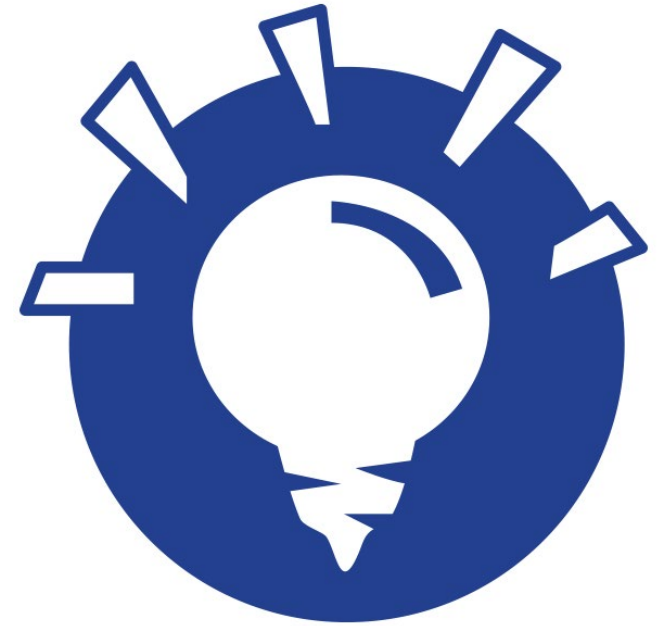
Service Delivery and Climate Change

Climate Change Impact	Vulnerability	Risk	Adaptation Options
Change in rainfall patterns, extreme rainfall events	Existing drainage and flood infrastructure may be vulnerable to failure if rainfall exceeds design standards.	<p>Flooding <u>consequences</u> will vary in severity but will likely influence road infrastructure, disrupt transportation, and damage property.</p> <p><u>Likelihood</u> of flooding will be different from previous years.</p>	<ul style="list-style-type: none"> • Increase drain clearing • Rehabilitate streams and ponds serving stormwater functions • Build larger pipes • Disallow development in floodplains



Activity

See pages 15- 16 in Workbook



Asset Management and Climate Change



Module 2 – Identify How to Use Asset Management to Prioritize and Manage Vulnerabilities

Learning Goals:

- ✓ Know the Basics of Asset Management and the Connection to Climate Change
- ✓ Identify How Asset Management is Used to Identify, Prioritize, and Manage Climate Change Risks and Vulnerabilities
- ✓ Identify How Asset Management is Used to Support Climate Change Mitigation



Asset Management – The Basics

Asset management means focusing on things like:

- Purpose of your organization and how assets support community goals
- Value, purpose, and long-term outcomes of assets
- Risk management
- Holistic approaches to budgeting
- Collaboration across services



Asset Management and Climate Change

- Design parameters
- Wear and tear
- Useful life
- Efforts made to maintain service levels



Climate Change Adaptation – Where Does Asset Management Fit In

- Asset management is a process, not a project
- Understanding risks, levels of service, and investment needs
- Keeping the focus on service delivery



Identifying Risks and Vulnerabilities

- Climate change should be integrated into overall risk management processes for assets and services
- Climate analysis may be needed to identify specific vulnerabilities and service risks
- Consider time frame (immediate vs. longer term)
- Consider that some infrastructure protects other infrastructure



Prioritizing and Managing Risks and Vulnerabilities

- Understand impact of risks and vulnerabilities on service delivery, and trade-offs in managing risks and vulnerabilities
- Consider how some infrastructure protects other infrastructure
- Identify potential adaptation strategies
- Understand return-on-investment; consider co-benefits of adaptation strategies
- Managing trade-offs and prioritizing investments and activities
- Consider climate change when considering infrastructure replacement and new infrastructure



Strategies for Managing Asset Vulnerability and Risk

Range of possible responses: do nothing, monitor, prevent/mitigate likelihood, prevent/mitigate consequences.

Examples:

- Improved roads operations and maintenance
- Improved drainage operations and maintenance
- Water use restrictions

*Not all strategies are capital projects, many of them are operations & maintenance solutions



Starting with a Conversation

When identifying climate change risks, ask:

- What are the expected impacts of climate change in our community?
- How will these events impact our infrastructure systems?
- What will the service impact be?
- Are there some areas that are more vulnerable than others?
- What can we do to mitigate these risks and vulnerabilities?



Peer Learning

- Municipalities in the same region likely face similar climate change impacts
- It may be practical to collaborate with neighbouring communities to develop strategies to address risk and vulnerabilities



Tools for Local Governments

- The Public Infrastructure Engineering Vulnerability Committee (PIEVC)
 - Protocol for assessing climate change impacts
- Building Adaptive & Resilient Communities Program
 - National program to support municipalities in responding to climate change impacts



Assessing Your Climate Adaptation Practices

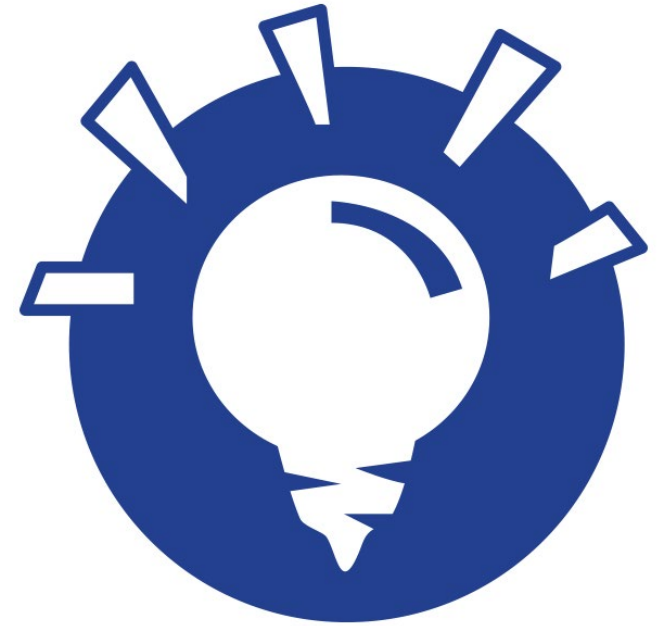
FCM's Climate Adaptation Maturity Scale helps you to:

- Evaluate current policy, staffing, and managing risks
- Practical outcomes
- Potential improvements



Activity

See page 21 in Workbook



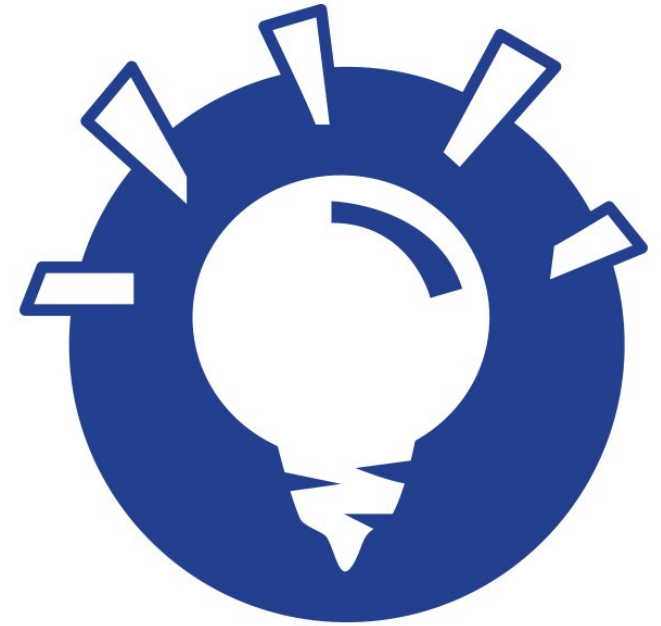
Asset Management and Climate Change Mitigation

- Not a single project
- Asset renewal and replacement
- Maintenance and operations



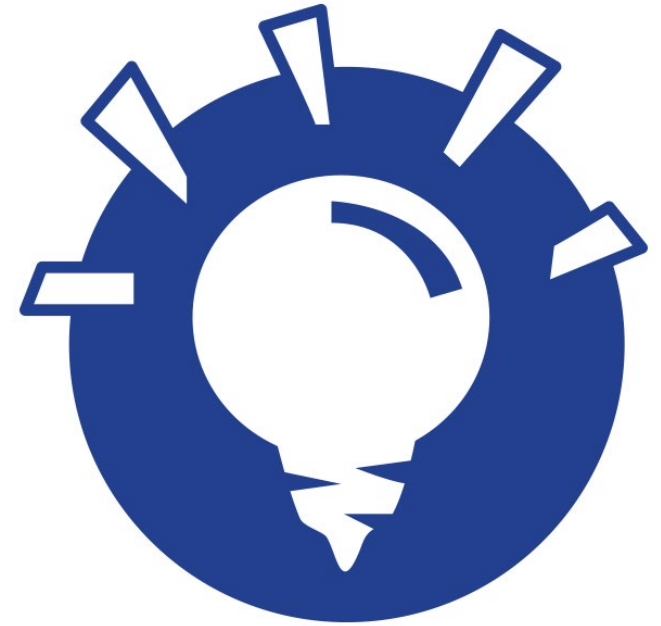
Activity

See page 22 in Workbook



Activity

See page 23 in Workbook



You've Made It!



 Asset Management and Climate Change



Asset Management Mindset Checklist

- Do we have the information we need to make a decision?
- Have trade-offs between cost, risk, and service been considered?
- Are we focusing on service delivery?
- What are the long-term implications?
- Have all the relevant disciplines been properly engaged in this decision (e.g., planning, engineering, public works, finance, etc.)?
- Are we thinking about both short- and long-term needs?



Half-Day Specialized Courses

- Boring Until It's Broken: Engaging the Public in Infrastructure Asset Management
- Risk: How Asset Management Can Help
- “I want a Five-Star Experience for a Two-Star Price”: Setting and Communicating Levels of Service
- It's Got Teeth but Doesn't Bite: Developing and Implementing an Effective Asset Management Policy
- Weathering the Storm: Asset Management and Climate Change



Questions?



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Evaluation Form



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