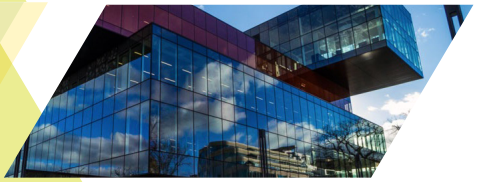
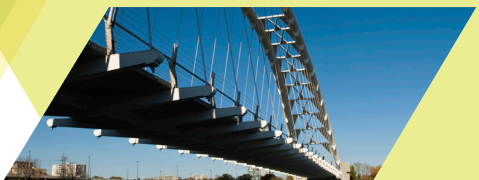
FCM FEDERATION OF CANADIAN MUNICIPALITIES FÉDÉRATION CANADIENNE DES MUNICIPALITÉS

Municipalities for **Climate Innovation** Program

Climate Adaptation Maturity Scale





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The Municipalities for Climate Innovation Program is a new five-year, $75-million program designed to encourage Canadian municipalities to better prepare for and adapt to the new realities of climate change as well as reduce greenhouse gas emissions. The program is delivered by the Federation of Canadian Municipalities and funded by the Government of Canada.

Canada

Climate Adaptation Maturity Scale

This maturity scale was developed with support from FCM's Municipalities for Climate Innovation Program (MCIP) to facilitate the self-assessment of your organization's institutional readiness and progress in adapting to climate change. The scale draws from publicly available adaptation literature and FCM's understanding of the processes needed to incorporate climate change risk into asset management, infrastructure investments and maintenance, and municipal organizational planning.

How do I use this maturity scale?

This scale is intended to help your municipality rapidly identify areas of potential improvement across three competencies:

- Policy: Putting in place policies and objectives related to the development of an environment and vision that supports local climate adaptation.
- Human resources and governance: Ensuring staff and council are equipped with the mandate, understanding, skills and knowledge needed to support local climate adaptation.
- Technical and risk management capacity: Preparing the tools needed to deliver adaptation initiatives and manage operations in a way that minimizes climate risk (e.g. software, hardware, maps, models, etc.).

Each competency within the Climate Adaptation Maturity Scale is broken down into five levels. These levels form a progressive scale from initial concept through to continuous improvement of climate change adaptation practices in regular municipal processes. The outcomes at each level show, in practical terms, what your municipality needs to achieve before progressing to the next level.

Your municipality is expected to progress through levels in one or more of the three competencies during the time span of your MCIP-funded initiative, at a pace that corresponds with your particular needs, size, and available resources. It is not necessary for progress to be the same across all competencies; movement of even one level in one competency is considered a success. Your municipality will be required to complete a self-assessment at the beginning of your FCM-funded initiative or technical assistance activity (this will serve as the baseline) and again following its completion.

Purpose of the Climate Adaptation Maturity Scale

The Climate Adaptation Maturity Scale was designed to serve the following purposes:

1. To help municipalities assess where they are on the climate adaptation spectrum: The scale allows municipalities to self-assess their level of maturity across the three competencies mentioned above, at both the beginning and completion of their MCIP-funded initiative. There is room for variance within the three competencies, meaning that municipalities may demonstrate different levels of advancement across the adaptation spectrum. For example, a municipality may have a vision and supportive policy environment, but little or no technical resources to follow up and implement the program.
2. To help FCM assess where municipalities are on the climate adaptation spectrum: The self-assessment provided by municipalities will help FCM better understand their progress in advancing through the various levels as they access FCM funding or participate in technical assistance activities.
3. As a reporting tool for FCM: FCM will review self-assessments at the beginning and end of MCIP-funded initiatives, and will use the findings to report to the federal government on improvements in municipal readiness to engage in climate adaptation.

Completing the self-assessment

Below are resources you can consult to help complete the self-assessment exercise. Depending on your organization's size and current level of climate adaptation maturity, gathering the resources and data needed to complete a self-assessment may take up to several days.

Competency	Supporting documents and information
Policy	• Council resolution • Adaptation policies or plans • Adaptation studies • Asset management plans or approved master plans that demonstrate the governance and supporting policy around climate change issues
Human resources and governance	• Changes related to the municipal organizational chart, or the staff roles and responsibilities • Reports on awareness campaigns (e.g. for staff, council or residents) • Commitment of staff or specific council members to climate change issues • Annual resolution from council supporting the climate adaptation steering committee • Annual report from the steering committee • Proof of participation in or support for climate adaptation projects led by community stakeholders (e.g. schools, school boards, watershed organizations, not-for-profit organizations, etc.)
Technical and risk management capacity	• Any resources created or used internally to deal with climate issues (e.g. tools, data, spreadsheets, guides, websites, maps, etc.) • Documented initiatives that were implemented to deal with climate change risks, including processes, maintenance practices, projects, etc. • List of consultants and experts hired/consulted • Information on data used by the municipality (e.g. origins, collection practices, etc.) and quality control practices • Information on established levels of service • Documentation related to overall climate change risk management practices

Competency: Policy

Putting in place policy and objectives related to the development of an environment and vision that supports local climate adaptation.

	1		2		3		4		5	
	Concept Level		**Preliminary Level**		**Implementation Level**		**Operational Level**		**Continuous Improvement Level**	
	Working on Level 1 ☐	Completed on Level 1 ☐	Working on Level 2 ☐	Completed on Level 2 ☐	Working on Level 3 ☐	Completed on Level 3 ☐	Working on Level 4 ☐	Completed on Level 4 ☐	Working on Level 5 ☐	Completed on Level 5 ☐
Maturity level →	We have set expectations for our work on climate adaptation. We have the support we need to begin preparing a policy.		We have drafted a climate adaptation policy and have prepared strategic guidelines that will inform the development of an adaptation plan and other adaptation initiatives.		We have adopted our climate adaptation policy and are using it to guide our actions, and have drafted an adaptation plan. We have established performance measures to monitor progress.		We have a climate adaptation plan in place and are managing climate risks. We are using performance measures to track the progress and outcomes of our climate adaptation initiatives.		We are continually improving our understanding of climate risks and our approach to managing these risks.	
Outcomes	You have achieved a specific maturity level when you can demonstrate evidence of the outcomes below.									
Policy and objectives	☐ We have looked into policy issues and constraints surrounding climate change adaptation within our community.		☐ We have developed a policy that details our organizational commitment to climate adaptation. ☐ Senior management and council have endorsed the policy.		☐ We are starting to use the policy objectives to guide our broader corporate plans and actions. ☐ We have drafted an adaptation plan detailing specific initiatives and processes.		☐ Senior management and council have endorsed the adaptation plan. ☐ Climate risks are managed in terms of levels of service, operations, and maintenance, in accordance with the policy.		☐ We are validating and refining corporate, service and adaptation objectives based on the evolving needs of our community.	
Strategy and framework	☐ We have defined objectives and committed to taking a concerted approach to managing climate risks.		☐ We have engaged senior leadership in identifying strategic-level climate risk categories across the municipality.		☐ We are beginning to integrate climate risk considerations into our asset management practices.		☐ There are clear links between the climate adaptation plan, asset management practices, and other strategic corporate efforts.		☐ We are continually improving our understanding and management of strategic-level climate risks.	
Measurement and monitoring	☐ We have articulated the expected benefits and outcomes of climate adaptation to council and internal stakeholders.		☐ We have developed guidelines and criteria for local or regional adaptation initiatives.		☐ We have established performance measures to monitor progress on climate adaptation, outcomes, and community benefits.		☐ We monitor progress on the climate adaptation plan and the implementation of adaptation initiatives.		☐ We are monitoring performance and using the feedback to prioritize and make ongoing refinements and improvements.	

Competency: Human resources and governance

Ensuring staff and council are equipped with the mandate, understanding, skills and knowledge needed to support local climate adaptation.

	1		2		3		4		5	
	Concept Level		**Preliminary Level**		**Implementation Level**		**Operational Level**		**Continuous Improvement Level**	
	Working on Level 1 ☐	Completed on Level 1 ☐	Working on Level 2 ☐	Completed on Level 2 ☐	Working on Level 3 ☐	Completed on Level 3 ☐	Working on Level 4 ☐	Completed on Level 4 ☐	Working on Level 5 ☐	Completed on Level 5 ☐
Maturity level →	We have council support[1] to establish a cross-functional climate adaptation team.[2]		We have established a clear mandate for our climate adaptation steering committee.[2] Council has approved use of funding for internal or external awareness raising regarding climate risks and potential adaptation initiatives.		Our climate adaptation steering committee and team[2] have clear responsibility and the support needed for preparing a draft climate adaptation plan.		Our climate adaptation plan is in place. Our climate adaptation team[2] is guiding and supporting climate adaptation on an ongoing basis, and has ongoing council support. Adaptation-related roles and responsibilities are operationalized.		Our staff and council are continually improving our understanding of climate risks and our approach to managing them.	
Outcomes	You have achieved a specific maturity level when you can demonstrate evidence of the outcomes below.									
Cross-functional groups	☐ We have appointed a climate adaptation team to examine current and future climate change risks and to identify potential adaptation opportunities or initiatives.		☐ We have appointed a cross-functional climate adaptation steering committee[2] to oversee planning and deployment of climate adaptation initiatives by the climate adaptation team.		☐ The climate adaptation team, with oversight from the steering committee, is developing and will manage a climate adaptation plan.		☐ Our climate adaptation team has been made permanent to provide ongoing communication, support and guidance on adaptation across the organization.		☐ Our climate adaptation team and steering committee support the continuous improvement of our climate adaptation initiatives.	
Aligned culture	☐ Staff/council have a basic understanding of risks posed by climate change to infrastructure, natural assets and operations.		☐ Our climate adaptation team raises awareness of local climate risks and builds buy-in for potential adaptation initiatives.		☐ Climate-adaptation-related roles and responsibilities are clearly identified and communicated for staff in key departments.		☐ Climate risks are managed in terms of levels of service across our organisation.		☐ Climate change considerations are influencing how we optimise decisions on assets and service delivery.	
Stakeholder engagement	☐ We have identified climate change and adaptation stakeholders within the community.		☐ We have completed some community consultation on our climate change vulnerability assessment and potential adaptation initiatives (see Level 2 of the Technical and Risk Management Capacity competency).		☐ We have completed community consultation on the climate change vulnerability assessment, potential adaptation initiatives, and climate impacts on levels of service.		☐ We communicate regarding climate change adaptation initiatives and progress on climate adaptation plan implementation, internally and externally.		☐ Staff or council members are recognized by peers and external stakeholders as adaptation resources, and engage with them to exchange knowledge. ☐ There are ongoing mechanisms through which the community can be engaged in discussions or activities relating to local climate adaptation.	

[1] Council support is defined as a formal council resolution or adoption of bylaws, studies, master plans or policies that confirm formal support from elected officials.

[2] Members of the climate adaptation team or steering committee may wear many hats within their organization, and may also hold responsibility for other initiatives (e.g. asset management). It is also recognized that in smaller municipalities, members may sit on both the climate adaptation team and climate adaptation steering committee. Some municipalities may choose to engage external stakeholders in their climate adaptation team or climate adaptation steering committee, or in both groups, but it is recommended that there be a strong level of internal representation.

Competency: Technical and risk management capacity

Preparing the tools needed to deliver adaptation initiatives and manage operations in a way that minimizes climate risk (e.g. software, hardware, maps, models, etc.).

	1		2		3		4		5	
	Concept Level		**Preliminary Level**		**Implementation Level**		**Operational Level**		**Continuous Improvement Level**	
	Working on Level 1 ☐	Completed on Level 1 ☐	Working on Level 2 ☐	Completed on Level 2 ☐	Working on Level 3 ☐	Completed on Level 3 ☐	Working on Level 4 ☐	Completed on Level 4 ☐	Working on Level 5 ☐	Completed on Level 5 ☐
Maturity level →	We are exploring our technical needs and data gaps so that we can take steps to better manage our assets and reduce their vulnerability to climate change.		We have defined our technical gaps and are acquiring the necessary data and tools to conduct a vulnerability assessment of our infrastructure-based services.		We understand the priority climate risks to key infrastructure systems and are planning our monitoring and management approach for addressing them.		We understand ongoing climate risks to our assets and levels of service, and are planning adaptation initiatives to address them. We have data collection and analysis processes in place to support risk management and adaptation initiatives.		We continually improve our approach to strategic adaptation planning and reducing climate risk over the longer term.	
Outcomes	You have achieved a specific maturity level when you can demonstrate evidence of the outcomes below.									
Data and performance management	☐ We are compiling available data and identifying gaps related to asset performance, as well as observed and expected local climate change impacts. ☐ We are conducting a needs assessment for an information system to manage and track asset and climate data.		☐ We are filling data gaps related to asset performance and local climate change impacts. ☐ We have established appropriate operational and customer levels of service for priority assets. ☐ We have completed the needs assessment for our information system, and are exploring suitable options.		☐ We have identified our priority assets for risk management, and are establishing processes for ongoing data collection on asset performance and climate change impacts. ☐ We have acquired an information system for managing and tracking data, and are currently implementing it and training relevant staff.		☐ We have implemented our information system, trained relevant staff, and established processes for ongoing data collection related to asset performance. ☐ Our approach to climate change risk management and ensuring levels of service is well-documented.		☐ We continually improve our approach to data collection and management; and practices and tools are in place to manage the quality and consistency of data. ☐ Flexibility is built into the processes and tools to make it easy to adapt them to a changing reality or changing conditions.	
Technical tools	☐ N/A		☐ We are conducting a needs assessment for other technical tools (e.g. models, software, maps, etc.) to support analysis of climate change impacts on established levels of service.		☐ We have acquired or developed other technical tools and have completed a vulnerability assessment of our assets. ☐ We are identifying measures to address climate risks to levels of service, operations and maintenance, and capital projects as needed.		☐ We are using our tools to monitor the effectiveness of our risk management practices and adaptation measures.		☐ We continually improve our tools for analyzing climate impacts on established levels of service and managing climate risk.	

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Economic considerations	☐ We are exploring costs for accessing relevant data sources or acquiring necessary technical tools and systems for conducting a climate risk assessment of our assets.	☐ We have allocated funding for acquiring relevant data, technical tools and systems, and/or training needed to conduct a detailed vulnerability assessment of our assets.	☐ We are assessing costs related to adaptation initiatives that address immediate risks to our assets or levels of service.	☐ We have allocated annual funding to implement priority adaptation initiatives and to manage operations in a way that reduces climate risks to our assets and service levels.	☐ Our climate adaptation initiatives are fully funded and our operations are managed in a way that minimizes climate risk to our assets and service levels over the longer term.

Glossary

For a full list of terms and acronyms used in FCM resources and application forms, please visit the FCM website.

Adaptation

The process of adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

Asset management

The coordinated activity of an organization to realize value from its assets. Asset management involves balancing of costs, opportunities and risks against the desired performance of assets to achieve objectives around levels of service. Analysis is needed to appropriately manage an asset over the different stages of its life cycle — from identification of the need for a particular asset through to its disposal, including managing potential post-disposal liabilities.

Capacity building

The process by which people, organizations and society develop their capacities over time to achieve social and economic goals, including through improvement of knowledge, skills, systems and institutions.

Climate change

A change in the state of the climate that can be identified by changes in the mean or variability of its properties and that persists for an extended period — typically decades or longer.

Governance

Governance determines who has power and accountability, who makes decisions, and how other players make their voices heard.

Implementation

The act or process of putting a plan or decision into action or effect; starting to use something; execution.

Infrastructure

Basic physical and organizational structures and facilities (e.g. buildings, roads, sewer network, treatment plants, etc.) needed for operation.

Integrated

A state of alignment and communication between systems, sectors, and institutional processes that promotes consistency in decision-making and facilitates more rapid responses by enabling systems to function collectively and achieve common outcomes.

Life-cycle cost analysis (LCCA)

A method for assessing a project's costs over its lifetime, including construction, operation and decommissioning. LCCA is especially useful in comparing the costs of alternative project design options. It integrates various measures that evaluate net savings, internal rates of return, payback periods, and savings-to-investment ratios.

Level of service

A measure of the adequacy or effectiveness of a service provided by an asset or a group of assets (e.g. frequency of outages per year, availability of library space, etc.), from a corporate, end-user, or asset or operational perspective.

Monitoring

Observing and checking the progress or quality of an activity over a period of time, keeping it under systematic review, and maintaining regular surveillance over it.

Organizational structure

The way in which an organization defines roles, responsibilities and supervision.

Plan

A detailed description or approach to implementation for an approved initiative, which is generally future-oriented. Typically, plans are approved by council for implementation or are amended into bylaws. Possible plans include climate adaptation plans, neighbourhood adaptation strategies, watershed management plans, natural asset management plans, urban forestry plans, infrastructure renewal plans for sewers in neighbourhoods with a high risk of backflow, transportation plans, and GHG reduction plans.

Policy

A set of basic principles and associated guidelines, formulated and enforced by the governing body of an organization, to direct and limit its actions in pursuit of long-term goals.

Resilience

In the municipal context, this refers to the ability of individuals, institutions, businesses and systems within a community to anticipate, mitigate, adapt and thrive no matter what kinds of climate-related and other chronic stresses and acute shocks they experience. Resilience is the result of a series of adaptive measures.

Risk

A combination of the likelihood (probability of occurrence) and the consequences of an adverse event (e.g. a climate-related hazard).

Risk assessment

A methodology to determine the nature and extent of risk by analyzing potential hazards and evaluating existing conditions of vulnerability that together could potentially harm exposed people, property, services, livelihoods, and the environment on which they depend.

Stakeholder

A person or an organization that has a legitimate interest in a project or entity, or would be affected by a particular action or policy.

Vulnerability

The characteristics and circumstances of a community, system or asset that make it susceptible to the damaging effects of a hazard. Vulnerability to climate change is the degree to which a system is susceptible to, and unable to cope with, adverse effects of climate change, including climate variability and extremes. Vulnerability to climate change is a function of the character, magnitude and rate of climate variation to which a system is exposed, its sensitivity, and its adaptive capacity.

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