



Report: PDL-CPL-17-16

Region of Waterloo

Planning, Development and Legislative Services

Community Planning

To: Chair Tom Galloway and Members of the Planning and Works Committee

Date: June 6, 2017 **File Code:** D06-80

Subject: **Strategic Framework for Community Climate Adaptation Planning**

Recommendation:

For Information.

Summary:

Regional Council previously approved the development of a Community-scale Climate Adaptation Plan as part of the Strategic Focus 2015 – 2018. This Plan, once completed, will identify practical measures to reduce local vulnerabilities and increase community resiliency to the risks associated with extreme weather and changing climate conditions across Waterloo Region. Over the past two years, staff at the Region of Waterloo have been working with various community partners to raise local awareness and capacity to understand the implications of local climate-related impacts and establish the strategic approach for the community climate adaptation planning process. Progress on strategy development was recently summarized in a report to Regional Council (See PDL-CPL-16-43, dated October 4, 2016, Status Report on Community Climate Adaptation).

This report describes a strategic approach that staff will use to guide the development of the Community Climate Adaptation (CCA) Plan based on preliminary stakeholder consultations and the research conducted to date. A widely-used and reputable climate adaptation framework has been selected by staff to guide the adaptation planning process which involves use of ICLEI Canada's BARC (Building Adaptive and Resilient Communities) program. As part of this program, future stakeholder consultations will involve a diversity of local organizations and individuals throughout the planning process. Stakeholder engagement activities will balance community perceptions of risk with the input of experts to look more deeply at complex issues in and between thematic

impact areas (e.g. water quality/quantity, extreme weather impacts on vulnerable populations, energy resiliency). The planning process is to formally begin using ICLEI's Climate Adaptation Framework and BARC program resources in June 2017, and is expected to be completed in late 2019 with the completion of a CCA Plan for Council consideration.

Report:

Background

Climate change is a global issue that is projected to impact Waterloo Region by changing local climatic and weather conditions. Increased extreme heat episodes, warmer winters, an overall increase in total precipitation, more intense rain and storm events, and increased occurrence of freezing rain are included in the projected local impacts of climate change. These projected conditions were a part of a research study recently conducted by the University of Waterloo (See PDL-CPL-15-58, dated December 8, 2015, Climate Adaptation Planning – Observations and Projections for Waterloo Region). ICLEI Canada's technical associates also identified very similar findings in terms of expected climatic conditions within this region over the next few decades.

Communities across Canada and internationally are working to understand and prepare for the anticipated consequences of climate change and extreme weather, including human health impacts, increased flooding, and damage to trees, power lines, private and public properties. Regional Council recognized the importance of addressing the challenge of global climate change at a local level, and included a strategic action to develop a Community-scale Climate Adaptation Plan in the Region's Strategic Focus 2015 – 2018. The purpose of this Plan is to help reduce local vulnerabilities and increase community resiliency to address the risks associated with extreme weather and changing climate conditions across Waterloo Region.

Strategy Development

Over the past two years, staff at the Region of Waterloo have been working with various community partners to identify a realistic strategic approach for the CCA planning process, as developing a strategy is a necessary prerequisite to undertaking the planning process. Developing a strategic approach for this type of complex planning is particularly important where there are multiple stakeholder interests to consider and implementation of the Plan will require broad support and leadership of various organizations. Simply put, no single organization can adequately protect Waterloo Region and effectively improve local resilience to climatic change without the involvement and buy-in of many community partners.

Progress on strategy development was recently summarized in a report to Regional Council (PDL-CPL-16-43, dated October 4, 2016, Status Report on Community Climate Adaptation). This current Report outlines the continued work of staff and stakeholders to establish a realistic approach to how the Region will facilitate the development of a Waterloo Region Community Climate Adaptation Plan for Council's consideration.

Since the most recent Report to Council in the fall of 2016, Regional staff organized several additional capacity-building and consultation events with local stakeholders. These events are summarized below.

- A workshop was held to inform area municipal staff about the PIEVC (Public Infrastructure Engineering Vulnerability Committee) Engineering Protocol in October, 2016. The PIEVC Engineering Protocol helps assess potential infrastructural vulnerabilities to projected climate-related changes and extreme weather. The purpose of this workshop was primarily to build local capacity with area municipalities, as this tool could help local partners consider how climate change might affect corporate assets.
- Building on two previous inter-municipal forums, a third CCA forum for was held in November 2016. This discussion with area municipal and GRCA staff included the decision to follow the ICLEI BARC adaptation framework, in addition to discussion on governance issues that will affect stakeholder involvement in CCA planning.
- The Region, and Cities of Cambridge, Kitchener and Waterloo participated in ICLEI Canada's Train-the-Trainer program. This program provided representatives from each municipality with training to identify climate-related impacts on ecological, physical, economic and social systems. Specifically, the training helped staff learn how to undertake vulnerability and risk assessments and how to hold stakeholder consultation workshops on these topics. Successful completion of the program required the Region to hold a local vulnerability and risk assessment workshop as a skills development practicum for staff. This workshop was held on March 8, 2017 involving a balance of area municipal and community partners. Attendees worked to complete vulnerability and risk assessment exercises for a sample of 20 climate impact statements relevant to this region. This exploratory workshop was very informative to Regional staff, and will help to improve the efficacy of future stakeholder consultations.

These initiatives have provided Regional staff with important input and feedback that have shaped the recommended CCA Planning process. The following sections outline a strategy that will guide the climate adaptation planning process to be appropriately scoped, effectively managed and that will facilitate stakeholder participation.

Climate Adaptation Planning Process

Numerous tools and frameworks to assist municipalities with the climate adaptation process have been reviewed by staff regarding their suitability for use in Waterloo Region. Based on stakeholder consultations and research conducted to date, Regional staff have identified a broad and flexible climate adaptation framework to follow that will enable involvement and buy-in of community partners as the plan is developed. Selection of specific tools for 'deep dive' assessments of local vulnerability and risk will be deferred to later in the planning process based on priority areas identified and consultation with subject experts as needed.

The adaptation planning framework selected by staff was developed by an organization known as ICLEI (International Council of Local Environmental Initiatives) which is an international network of more than 1500 local governments from around the world. This framework, titled "Changing Climate, Changing Communities: Guide and Workbook for Municipal Climate Adaptation", is perhaps the most widely known and used climate adaptation framework in Canada.

Regional staff selected this particular framework because of its prevalence and proven utility in municipalities across Canada, as well as for the added services and support that are available from the ICLEI Canada organization. The framework is also informally being followed by the Cities within Waterloo Region to guide the development of their corporate-scope climate adaptation plans. The framework is comprised of the following five Milestones, as listed below in **Table 1**, which will guide the CCA Plan process for Waterloo Region. A more detailed diagram in **Attachment A** provides additional information on the requirements of each milestone.

Table 1. Summary of ICLEI's Climate Adaptation Framework by Milestone

Milestone	Examples of Tasks
1) Initiate	Identify Stakeholders, Build Core Team, Inventory Existing Actions, Gain Initial Council Support
2) Research	Prepare Climate Projections, Identify Impacts, Conduct Vulnerability and Risk Assessments
3) Plan	Identify Options and Actions, Establish Baseline Indicators, Develop Implementation Plan
4) Implement	Secure Support from Community Partners and Local Councils, Implement Action Plan
5) Monitor and Review	Review and Revise Action Plan Periodically

To optimize use of the framework, the Region of Waterloo intends to utilize the ICLEI Canada's Building Adaptive and Resilient Communities (BARC) program. As a participant of ICLEI BARC, the Region will receive direct guidance and technical support from an ICLEI Canada liaison, access to a BARC Milestone tracking tool, periodic check-ins throughout the process along with additional service delivery in areas of facilitation and status reporting.

Work on developing the CCA Strategy over the past two years has already accomplished several ICLEI BARC tasks and more are in progress. **Table 2** outlines the Region's self-assessed current status of completion for each main ICLEI BARC task organized by Milestone. The adaptation strategy proposed within this report would be used to complete up to Milestone 3, development and approval of the Plan. This would by necessity include an implementation plan, identification of resources needed, roles and responsibilities along with recommendations on how to monitor progress.

Table 2: Current Status of ICLEI BARC Adaptation Framework Milestones

ICLEI BARC Milestone	Current Status
1) Initiate	75%
2) Research	33%
3) Plan	0%
4) Implement	0%
5) Monitor and Review	0%

Stakeholder Consultation

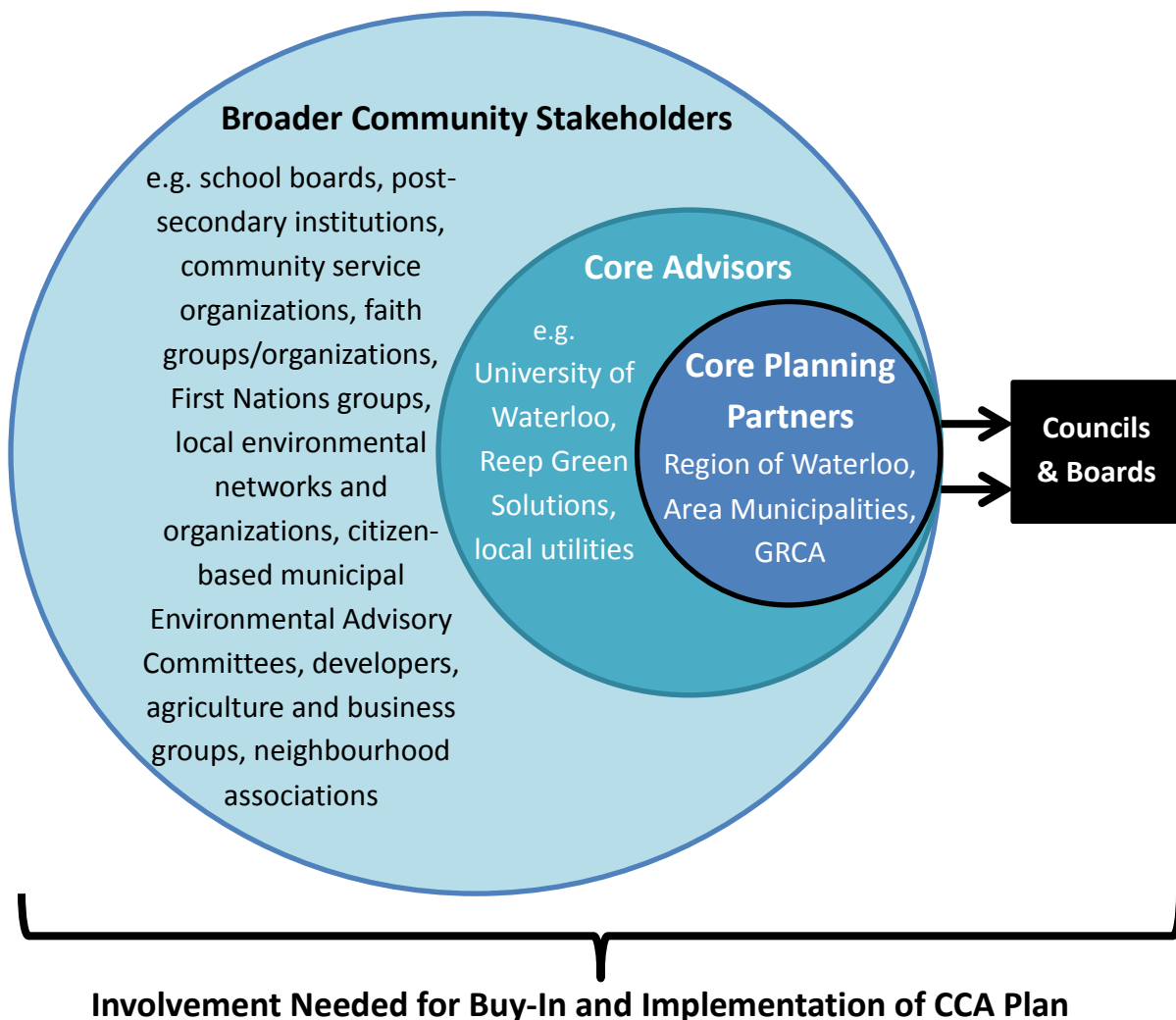
Adequate stakeholder consultation is necessary to cultivate ownership of a customized climate adaptation plan relevant to Waterloo Region and to improve the likelihood of successful implementation. ICLEI BARC's adaptation framework includes exercises to involve stakeholders and which help the core adaptation planning team learn about the community's perceptions of climate-related vulnerabilities and risks from those who may be directly or indirectly affected by extreme weather and changing climate conditions.

Stakeholder engagement activities will balance community perceptions of risk with the input of experts to look more deeply at complex issues in and between thematic impact areas (e.g. water quality/quantity, extreme weather impacts on vulnerable populations, energy resiliency). Contributions of stakeholders during the planning activities will inform prioritization of impacts based on vulnerability and risk assessments and identify adaptation actions that improve community resiliency, as well as identify methods of monitoring and evaluating the effectiveness of those interventions over time. The Plan

will then include those actions that come out of this process where there is expressed community interest and involvement to lead implementation.

Regional staff will continue to work closely with Area Municipal and Conservation Authority staff as core partners utilizing existing relationships. The adaptation planning process will establish new connections by reaching out to a number of key stakeholder groups across Waterloo Region's as indicated within the **Figure 1** diagram enclosed below:

Figure 1: Stakeholder Involvement



Engagement opportunities will be conducted in multiple formats, including events and workshops, surveys (online or phone), and other methods. Several workshops will invite specific stakeholder groups where representatives would be able to represent various interest of the community (see examples in Figure 1 above), but the planning process will also involve consultations with the broader public. Approaches such as Public Information Centres, online resources and surveys, or other methods may be used to

consult with members of the public based on discussions with ICLEI and the Core Planning Partners and Advisors. The engagement process will be made to include a diversity of stakeholders, as assessments of vulnerability or risk is dependent on various geographic, economic and/or social factors.

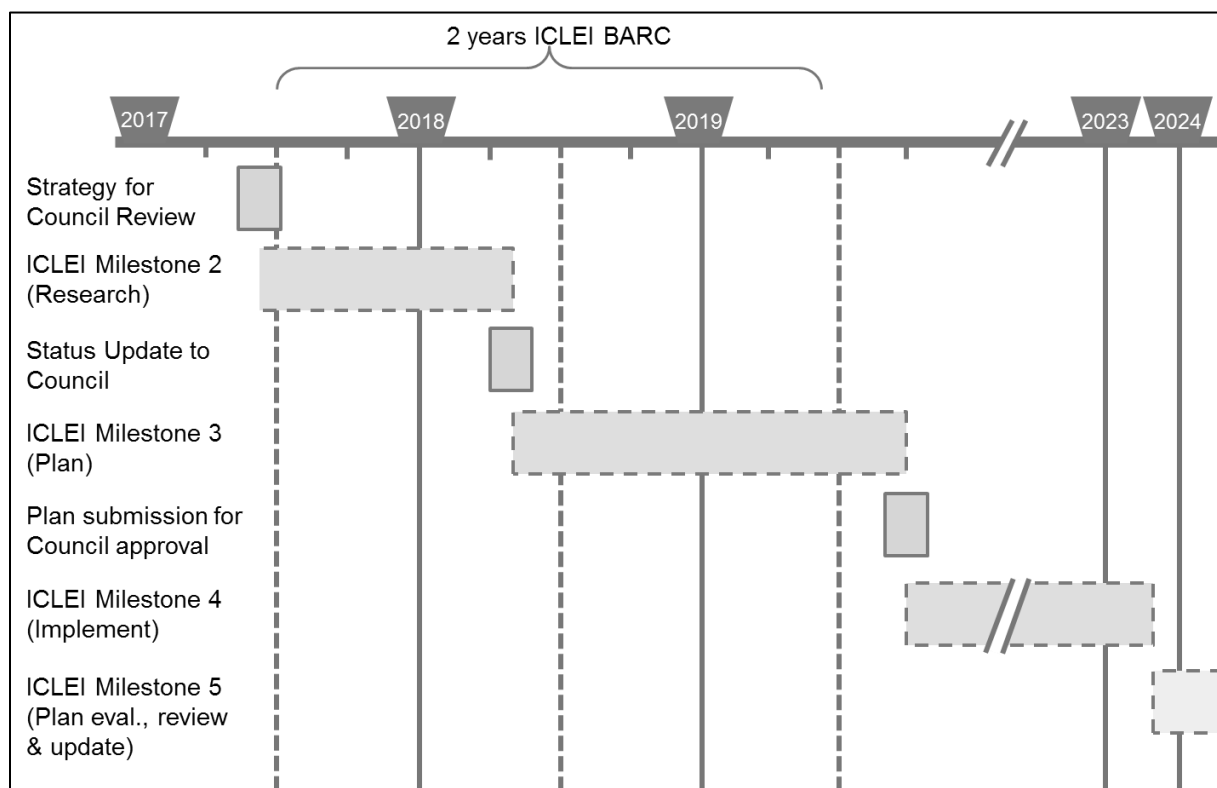
In addition to broad stakeholder consultations, local experts and additional issue-specific tools will contribute to our understanding and prioritization of climate-related impacts. The Region will form several 'Expert Task Force' groups (ETFs) by inviting local experts, action-leaders and other key stakeholders to review high-priority impacts as assessed in broader stakeholder consultations. Members of the ETFs will be engaged to contribute their own knowledge and make recommendations for any in-depth research or external tools that may be needed to fully understand high priority risks. They will also consider more complex issues, such as potential overlaps with other impact areas for example between flooding and public health. Compounding or cascading impacts that may occur where one system failure can lead to additional failures in connected systems will also be considered in the planning process. By balancing community perception with direct knowledge and research, ETFs will improve the quality of our understanding of local vulnerabilities and risks, as well as help to identify effective actions to recommend within the Plan.

Charter

The draft Waterloo Region Climate Adaptation Charter (see **Attachment B**) will be used as a guiding document for the development of the CCA Plan. This document will serve as a reference tool for project team members, partners, advisors, and the public. The draft Charter currently describes the purpose, scope and intent of the project, and lists several guiding principles that the planning process will follow. The Charter is expected to be modified as the adaptation planning process evolves, for example, when establishing goals and objectives within Milestone 3 of the ICLEI BARC framework. This will help enable the charter to be used as a document representing a collaborative commitment of engaged stakeholders to implement once the Plan has been fully developed.

Timeline

The final CCA Plan is expected to take approximately two years to develop, beginning with ICLEI BARC membership in June 2017 and finishing with stakeholder approval and public consultations on the draft Plan in April/May 2019. Finalization of the plan would include incorporation of stakeholder feedback, with the final Plan completed in August or September 2019. **Figure 2** enclosed below is a visual representation of the anticipated timeline for this project. It is recommended that a review and update of the plan is scheduled after the first five years of implementation.

Figure 2: Anticipated Timeline of Remaining CCA Planning Milestones

Resources and Next Steps

While the Region will seek the involvement of many municipal partners and community stakeholders throughout Waterloo Region, this project remains the responsibility of Regional staff to facilitate. The Region's Sustainability Specialist within the Planning, Development and Legislative Services department will continue to oversee the CCA Planning process. Existing budget resources have been utilized to conduct background research and preliminary consultations, raise awareness and understanding of adaptation planning as well as to establish the strategic approach to develop the adaptation plan. Staff are currently pursuing FCM funding to leverage additional capacity to complete development of the plan over the next two years.

Regional staff will continue to work with ICLEI Canada, area municipalities and the GRCA to develop a more comprehensive list of potential climate impact statements. Staff will also continue to consult with core planning partners and advisors on additional stakeholders to engage and to plan additional workshops to further assess local vulnerabilities and risks. Methods of how to advance the adaptation planning framework by addressing cascading effects of numerous concurrent climate-based impacts will also be considered.

Corporate Strategic Plan

This report addresses Strategic Objective 3.4 Improve the Region of Waterloo's resilience to climate change and/or severe weather, specifically Action 3.4.2 Collaborate with stakeholders to develop a community-wide Climate Adaptation Plan.

Financial Implications

As part of the 2016 budget, Council approved \$172,000 for 2016 - 2018 for the Community-wide Climate Adaptation Plan funded from the Tax Stabilization Reserve Fund. The funding covers graduate student intern costs up until April 2018 as well as part of the ICLEI BARC program fees and other costs involved in the planning process. To date, \$56,300 has been spent, leaving a budget of \$115,700 remaining.

The Region will be seeking additional funding through FCM's 'Municipalities for Climate Innovation Program' to supplement existing resources. If the grant application is successful, this funding will be used to fill the known gaps for additional staff assistance (two year T-FTE climate change coordinator), conduct more robust stakeholder engagement and support action planning on priority issues identified within the vulnerability and risk assessment process. Within the application to FCM, staff will identify existing budget resources for this project as the Region's required contribution (minimum 20%) to leverage an enabling grant (maximum 80%) to complete the adaptation planning process.

Other Department Consultations/Concurrence

Staff at the Cities of Cambridge, Kitchener and Waterloo were consulted in the preparation of the report and attachment.

Attachments

Attachment A: ICLEI's Climate Adaptation Framework

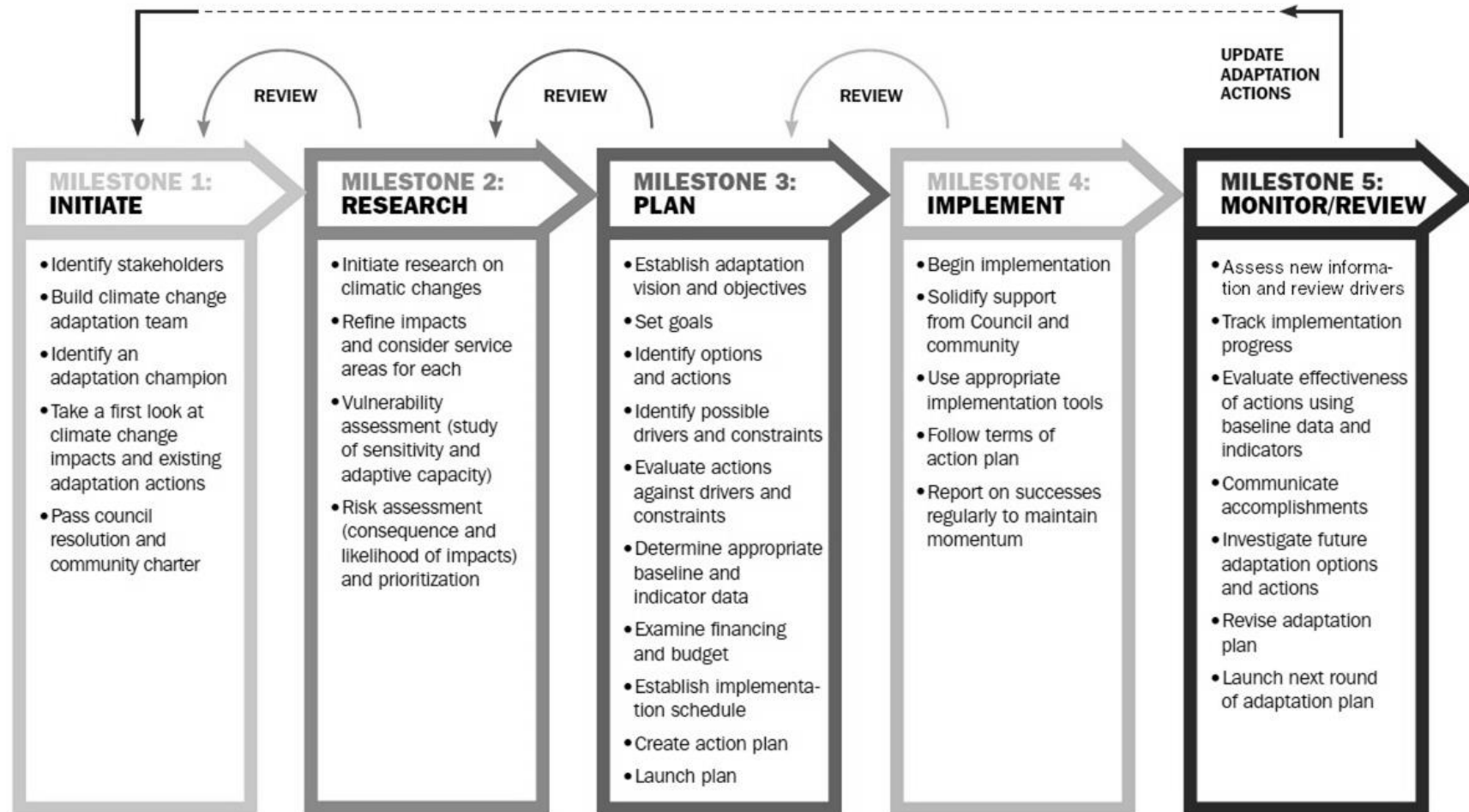
Attachment B: Draft Waterloo Region Community Climate Adaptation Charter

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Nicholas Cloet, Student Planner – Climate Change

Approved By: Rod Regier, Commissioner, Planning Development and Legislative Services

Attachment A: ICLEI's Climate Adaptation Framework



Attachment B: Draft Waterloo Region Community Climate Adaptation Charter

The draft Waterloo Region Climate Change Adaptation Charter is a document recognizing the following:

- Scientific evidence shows that climate change is a real and pressing concern for communities around the world, with important implications for Waterloo Region's residents, economy, infrastructure and environment.
- In addition to supporting local greenhouse gas (GHG) reduction efforts to combat climate change, Regional Council has acknowledged expressed community concern on the importance of addressing the challenges of global climate change at a local level by including the development of a Community-scope Climate Adaptation Plan in the Region of Waterloo's [Strategic Focus 2015 – 2018](#).
- The Region of Waterloo is using the ICLEI Building Adaptive and Resilient Communities program and by doing so joins communities across Canada and internationally that are working to understand and proactively prepare for the realized and anticipated consequences of changing climate conditions and extreme weather events.
- A [localized climate projections study](#) conducted by researchers at the University of Waterloo in 2015 anticipates conditions such as: an increase in extreme heat days, warmer winters, an overall increase in total precipitation, more intense rain and storm events, and increased freezing rain events. These projected changes are expected to worsen existing risks to the community and may lead to the development of new risks, including:
 - Overland and riverine flooding
 - Threats to human health and safety
 - Property damage caused by storms and high winds
 - Energy supply interruptions
 - Drought and decreased water quality
 - Changes to the natural environment
 - Challenges to agriculture and other economic sectors
 - Transportation/communications interruptions

The Charter builds awareness and encourages communication on climate change within Waterloo Region and can be used by individual citizens, organizations and businesses of all types and sizes.

The Region of Waterloo will facilitate a community-scope climate change adaptation plan to help Waterloo Region assess local vulnerabilities and risks to climate change

and extreme weather events, and to encourage collaboration among community stakeholders on actions to help reduce the magnitude and/or likelihood of the projected impacts by increasing local resilience and adaptive capacity.

Given the importance of climate change adaptation for Waterloo Region, the adaptation planning process will utilize the following strategic approach:

- Rely on sound climate science to inform local understanding of potential impacts, guide vulnerability and risk assessments, and support action-setting and the implementation process;
- Address a broad and meaningful selection of potential impact areas to improve the resilience of Waterloo Region's built and natural environment, local economy and residents' health and safety;
- Follow ICLEI Canada's "[Changing Climate, Changing Communities](#)" climate adaptation framework, which guides communities throughout Canada through a structured, five milestone adaptation planning process;
- Build on existing knowledge and progressive adaptive actions to date by consulting with a broad range of stakeholders from across Waterloo Region on the perceived implications of localized climate projections, including perceived vulnerabilities and prioritized risks, and ensure that public consultations and outreach are accessible by all stakeholders;
- Foster collaboration between municipal governments and agencies, the GRCA, local utilities, and other community stakeholders to design and implement solutions to any identified priority risk areas while complementing organization-scoped corporate adaptation plans that include infrastructure asset management and related service mandates as appropriate; and,
- Monitor and review the climate change adaptation plan periodically to ensure that local efforts are informed by the latest climate science, track progress made and explore new opportunities to improve local resiliency.

The impacts of climate change are expected to increase in severity over the coming decades, making climate adaptation a long-term commitment. The effectiveness of Waterloo Region's Community Climate Adaptation Plan will depend on the continued dedication of Regional Council, the cooperation and collaboration of key local stakeholders, and the support and involvement of the broader community. This strategic approach to develop the Community Climate Adaptation Plan is the beginning of an ongoing process to continually improve Waterloo Region's resilience to climate change impacts for the foreseeable future.