



Report: PDL-CPL-16-43

Region of Waterloo
Planning, Development and Legislative Services
Community Planning

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

Date: October 4, 2016 **File Code:** D06-80

Subject: **Status Report on Community Climate Adaptation**

Recommendation:

For Information.

Summary:

Regional Council recognized the importance of addressing the challenge of global climate change at a local level with specific actions included within Region's Strategic Focus 2015 – 2018, under the Environment and Sustainable Growth Focus Area. One of these strategic actions includes the development of a Community-scale Climate Adaptation Plan to address the risks associated with extreme weather and changing climate conditions. This report provides an overview of climate adaptation planning and an update on the progress made by staff towards developing a community-scale climate change adaptation strategy and action plan for Waterloo Region.

Since 2013, Regional staff have been working with various community partners on several local initiatives to help prepare Waterloo Region for climate adaptation planning. Staff continues to work with Area Municipalities and various other organizations to identify additional adaptation measures required to reduce adverse climate impacts. Ongoing research, consultation and training are raising local capacity and fostering collaboration. These efforts aim to establish the appropriate strategic approach to identify vulnerabilities and risks which in turn will inform the identification and prioritization of potential remedial actions by the respective stakeholders. Currently, the Region is approximately half-way through the strategy development stage and expects to provide a further progress update in 2017.

Report:**Background**

Climate change is a global issue that impacts our natural and built environment, people and the economy. Regional Council recognized the importance of addressing the challenge of global climate change at a local level by including four related actions within the Corporate Strategic Plan for 2015 – 2018 under the Environment and Sustainable Growth Focus Area. These actions include both a corporate and community focus on reducing greenhouse gas (GHG) emissions (also known as climate change mitigation) as well as climate adaptation to deal with local impacts of extreme weather events and changing weather conditions within Regional operations as well as the broader community.

The actions involving a community scope, by necessity, are dependent on collaboration with various community partners. One example of this type of collaboration is the Climate Action Waterloo Region initiative which involves area municipalities, local utilities and the leadership of two local non-governmental organizations, Sustainable Waterloo Region and REEP Green Solutions.

Mitigation efforts typically attempt to slow the progression of climate change by reducing emissions of GHGs into the atmosphere. However, despite progress made towards reducing GHG emissions, there is strong evidence that global and regional climates are already changing. Communities across Canada and internationally are working to understand and prepare for the potential ramifications of more severe changes still to come. This report provides an overview of climate change adaptation planning and an update on the progress made by staff towards developing a community-scale climate change adaptation strategy and action plan for Waterloo Region.

Corporate and Community Climate Adaptation

Climate change adaptation seeks ways to better protect communities from various climate impacts by reducing their vulnerability to potential risks. Climate adaptation strategies and actions can be divided into corporate-level and community-level initiatives. In the context of this report, corporate-level adaptation initiatives focus specifically on climate impacts that may adversely affect municipal operations and the delivery of programs and infrastructure services which are under direct municipal control such as Regional facilities, roads and water services. In contrast, community-level adaptation initiatives focus on areas beyond the operational control of an individual municipality or organization such as is the case with protecting community health and safety, flood preparedness or impacts to the built and natural environment as well as the local economy. Climate adaptation planning at a community-scale requires collaboration with various community partners to effectively address the wide range of potential risks associated with extreme weather and changing climate conditions.

Community-Scale Adaptation Planning

In the context of Waterloo Region, community-level climate change adaptation planning aims to address potential climate impacts in areas where the Region does not have direct control. This requires bringing together Area Municipalities and other key stakeholders such as the GRCA, local utilities, school boards and community agencies to be involved in the planning process. By collaborating with community partners, a range of potential climate change impacts, vulnerabilities and risks can be identified and assessed in a locally relevant manner. This in turn informs the identification of potential remedial actions and their prioritization by stakeholders in a position to manage the identified risks. This is the basis upon which an implementation plan can be developed to reflect the specific conditions and needs of Waterloo Region.

Research into the climate change adaptation planning efforts of other regional municipalities in Ontario indicates that adaptation planning often spans two main stages: 1) development of an adaptation strategy, and 2) the development of an adaptation action plan.

The strategy-building stage typically involves relationship-building with community partners and conducting research into climate projections and potential local impacts. This research informs a strategic document that communicates the need for climate adaptation and outlines a proposed process to develop an action plan involving local stakeholders and decision-makers. For a regional municipality, governance of a collaborative process involving multiple local governments and other agencies typically requires the development of a terms of reference or community charter document.

The climate adaptation action plan recommends specific measures to enhance the community's ability to develop resilience to climate change impacts and assigns agreed-upon responsibilities for undertaking related actions. An action plan should consider local conditions, vulnerabilities and risks identified through stakeholder consultations and technical assessments where necessary, involving those that would enable implementation as well as the monitoring and review of actions.

Based on the experiences of other regional municipalities in Ontario, creating an overall adaptation strategy can take approximately two years to complete, while the development and approval of a community action plan can take an additional two to four years depending on the breadth of risks addressed and the depth of the vulnerability and risk analyses conducted. Attachment A includes a Summary of Municipal Climate Adaptation Efforts to show the actual timelines experienced by several regional municipalities in Ontario. Currently, the Region is approximately half-way through the strategy development stage as further detailed below.

There are various frameworks and tools available to help Canadian municipalities undertake climate change adaptation. These range from issue-specific frameworks

focused on water resources, for example, to broader frameworks that provide high-level process guidance on a wider scope of issues but with less in-depth technical analysis. Generally, climate adaptation frameworks follow a similar root structure including the following main steps:

- Conducting preliminary research on regional climate projections, engaging stakeholders, and gaining necessary approvals to proceed with a defined planning process;
- Identifying and evaluating impacts, conducting vulnerability and risk assessments specific to a locale;
- Identifying practical and effective interventions or actions, prioritizing those that address the highest areas of risk;
- Identifying the necessary resources and seeking associated approvals for implementation of an action plan; and,
- Periodic monitoring and review for continual improvement.

Several tools are also available to offer more specific assistance with components of the climate change adaptation process. Examples of these tools include a protocol developed by Engineers Canada to assess the vulnerability of public infrastructure or a guidance framework developed by the World Health Organization for evaluating risk to human health. Tools that are topic-specific support a deeper investigation of potential vulnerabilities and risks, while the broader frameworks are useful for helping to coordinate the overall process, and more likely provide a simplified screening-level vulnerability and risk assessment suitable for scoping and prioritization of where to conduct more in-depth investigations.

Progress Towards Climate Change Adaptation in Waterloo Region

Over the past few years, Regional staff have been working with Area Municipalities and other community partners on several local initiatives to help prepare Waterloo Region for the climate adaptation planning tasks that lie ahead. A summary of these local achievements to date are included as follows:

- Establishing local research capacity and expertise at the University of Waterloo including the Interdisciplinary Centre on Climate Change (IC3), the Intact Centre on Climate Adaptation (ICCA) and Partners for Action Initiative (2012 – 2015);
- Development of a climate adaptation toolkit for residents which has been prepared by the non-profit KW Transition group and funded by the Region's Community Environmental Fund - available at the following website address: <http://www.transitionkw.com/initiatives/toolkit/> (2013/2014);
- A climate adaptation forum hosted by the University of Waterloo to raise awareness amongst Regional and Area Municipal staff (October 2014); and,

- Research on local Climate Projections as a collaboration between Area Municipalities, the Region and the University of Waterloo (PDL-CPL-15-58). The research was prepared as a detailed technical report as well as an infographic and video format all available through the following website address: <https://uwaterloo.ca/climate-centre/research-0/research-projects>.

In January 2016, Regional Council approved funding to support community climate adaptation planning consistent with the Region's Strategic Plan, specifically to hire two consecutive one-year full-time Masters Student Interns from May 2016 to April 2018. To date, the additional staff has conducted:

- Research into the climate adaptation strategies and action plans of several regional municipalities in Ontario.
- Research into climate change adaptation frameworks and risk assessment tools available to municipalities to help guide each stage of the planning process.
- A preliminary scan into existing local actions that may currently contribute to the ability of Waterloo Region to adapt to climate change and extreme weather.

Regional staff recently held a second Municipal Forum for Climate Adaptation in Waterloo Region on June 22nd, 2016. The event brought together staff from the Region and Area Municipalities, the GRCA and University of Waterloo (UW). UW researchers from IC3 and the ICCA initiative presented on the localized climate projections study for Waterloo Region and on several UW programs relevant to climate adaptation. Region of Waterloo staff presented their research into the adaptation planning experiences of other regional municipalities, the frameworks and tools available, and facilitated a discussion of a draft work plan and elements of the adaptation process in need of further collaboration. Follow-up conversations with forum attendees led to further considerations regarding potential governance models, use of tools/frameworks, timelines, addressing confusion on the difference between mitigation and adaptation and corporate versus community-scoping issues.

Most recently, Regional staff met with representatives from each of the three Cities to share updates on progress towards corporate and community climate adaptation. The Cities are in the very early stages of their corporate adaptation efforts and have differing staff resources to address climate adaptation. Efforts will also continue to engage representatives from the Townships to invite their involvement. As the Area Municipalities are key partners, it is essential that the Region's climate adaptation efforts integrate with Area Municipal climate change planning efforts, as this will have implications in areas with shared or overlapping responsibility. The Region will continue to facilitate discussions on community adaptation planning as well as encourage collaboration and coordination among stakeholders. Developing a common approach to addressing existing and potential adverse climate impacts within Waterloo Region is an essential first step to optimizing local adaptive measures.

Next Steps

The Region and the Cities of Cambridge, Kitchener and Waterloo are collaborating on arranging training and education workshops for municipal staff, intended to increase their awareness of how to incorporate climate change considerations within existing risk management frameworks. The training should help raise capacity to identify potential climate impacts and undertake screening-level vulnerability and risk assessments. Summary reports on the outcomes of these workshops will be included in the next community climate adaptation progress report in 2017.

Work to establish a terms of reference or project charter for community climate adaptation planning is ongoing. This document is envisioned to define the proposed scope for the plan, the goals, objectives and timelines for detailed assessments, and a governance structure outlining roles of involved stakeholders. An adaptation strategy document is currently planned for completion in the first half of 2017 for consideration by Regional and Area Municipal Councils. Attachment B: Community Climate Adaptation – Work Plan Summary provides an overview of the anticipated next steps and timeline for the overall community climate adaptation process.

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 with \$80,000 for 2016, \$77,000 for 2017 and \$15,000 for 2018. The funding covers graduate student intern costs as well as the Region's share of the training program costs referenced within this report.

Other Department Consultations/Concurrence

Staff within Transportation and Environmental Services along with the Corporate Services Department were consulted in the preparation of this report as they are involved in a parallel Corporate Strategic Plan Action regarding adaptation planning for Regional infrastructure and related services (3.4.1).

Attachments

Attachment A: Summary of Municipal Climate Adaptation Efforts

Attachment B: Community Climate Adaptation – Work Plan Summary

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Attachment A: Summary of Municipal Climate Adaptation Efforts

| Region | Approximate Timeline |
|------------------------|---|
| City of Toronto | 2007: Public consultations demonstrate support for climate adaptation 2008: Adaptation strategy 2011: Detailed climate projections 2013: Summary of climate projections presented to Council, separate recommendation for health & climate change strategy 2014: Climate change risk management policy 2015: New public health strategy specific to climate change impacts 2016: Three thematic working groups undertake vulnerability assessments (Transportation; Water, Wastewater and Storm Water; Utilities and Telecom) |
| Durham | 2012: Climate change Local Action Plan 2014: Climate projections study, broad adaptation strategy 2015: Stakeholder involvement in Expert Task Force groups 2016: Draft program design (action plan), seeking approval 2017: Anticipated implementation |
| Peel | 2010: Background research on climate adaptation, Peel conditions 2011: Broad adaptation strategy, Terms of Reference 2012 – 2015: Vulnerability assessments in various impact areas (i.e. health, natural heritage, public infrastructure), Peel-specific climate projections study, revised governance structure 2016: Synthesis report in progress (to include action plan) |
| York | 2009: Staff training on climate adaptation 2011: Draft adaptation strategy (not approved by Council) 2014 - Present: new bottom-up approach. Local municipalities use the same tools, share information, undertake individual actions instead of common regional effort. |
| Niagara | 2012: Broad adaptation strategy 2013: Combined mitigation and adaptation action plan (mostly mitigation) 2015: New council did not renew funding for climate change portfolio |

Attachment B: Community Climate Adaptation – Work Plan Summary

| Stage | Key Milestones and Tasks | Timeline |
|--|--|------------------------------|
| PART A - CREATE THE OVERALL ADAPTATION STRATEGY | | |
| 1 | Strategy Development (project planning, building partnership) and Launch | Jan. 2016 - June 2017 |
| | <ul style="list-style-type: none"> • Region / Cities discuss collaborative approach to developing strategy and action plan, as well as coordination with corporate adaptation activities • Compile background info on adaptation framework and approaches by other Ontario municipalities • Re-engage participants from the initial Oct. 2014 municipal climate adaptation forum and invite feedback from key stakeholders on draft work plan, planning framework and update list of existing local actions • Provide training for municipal staff regarding climate adaptation, vulnerability and risk assessment to inform the scope of community adaptation plan • Draft Community Charter / Terms of Reference for collaboration based on stakeholder feedback and commitment for participation • Prepare report to Regional/City Councils for approval of overall strategy and Terms of Reference then establish committees and task forces as required | |
| PART B - DEVELOP THE DETAILED ADAPTATION PLAN | | |
| 2 | Advance localized research and scoping | June 2017 - Jan. 2018 |
| | <ul style="list-style-type: none"> • Identify potential impacts on defined service areas based on climate projections and community conditions • Conduct detailed vulnerability and risk assessments; prioritize impacts to further address in stage 3 • Prepare and deliver interim report to Regional Council and update project website accordingly | |
| 3 | Action Planning | Feb. 2018 - Oct. 2018 |
| | <ul style="list-style-type: none"> • Identify options and actions to address priority areas (including stakeholder consultation) • Determine supplementary resource needs, financing plan, implementation schedule including stakeholder roles and responsibilities, indicators to monitor progress • Present overview of Plan to Regional and City Councils | |
| 4 | Approval of final strategy and resourcing implementation plan | Oct. 2018 - May 2019 |
| | <ul style="list-style-type: none"> • Prepare draft Adaptation Plan for final stakeholder/public consultation • Refine strategy from consultations as appropriate • Prepare and present final Adaptation Plan for approval by Regional/City Councils | |