

A Framework for Assessing and Managing Climate Change Vulnerability and Risks in Ontario Communities – Applications to Infrastructure

Submitted by

Allan Douglas

Ontario Centre for Climate Impacts and Adaptation Resources

Committed future warming as a result of current greenhouse gas concentrations means imminent changes to the biophysical and socioeconomic aspects of Great Lakes communities. Because historic extreme weather events are no longer indicative of future climate scenarios, these changes will pose serious threats to engineered structures and ultimately the general population. These threats will call upon municipal engineers and planners to develop strategies to safeguard against new climatic threats. Climate variability and change will be most felt at the community level thus requiring sound strategies in order to build plans for increased resilience.

In responding to the increasing impacts of global climate change at local levels, the risk management approach is increasingly being seen as a method by which climate change adaptation may be incorporated into decision-making processes. Community leaders, engineers and planners, often already familiar with the risk management guideline for decision-making (CAN/CSA-Q850-97), can use this method to assess and manage risks associated with climate change.

This paper will present a slightly modified risk management process as a method for adapting to climate change (Bruce et al, 2001). This tool encompasses historic climate trends, future climate projections, existing community vulnerabilities and leads to management solutions and policy directives. As applied to infrastructure resilience, practitioners gain:

- 1) an understanding of climate change;
- 2) increased awareness of how their community is currently vulnerable to climate change and how climate change will impact their community into the future and;
- 3) an adaptation strategy suitable for their municipality or sector.

This paper will also review successful examples of where these approaches have been employed in Ontario and will highlight key linkages to policy development at the community level.