

Project Brief

Background

The Intergovernmental Panel on Climate Change issued a report in October 2018 that stated, “For some time, we have known that global warming is neither linear in growth nor equal in its impact across the globe”. Durham Region (“the Region”) currently has climate change (CC) projections which have served as the foundation of significant actions on CC mitigation and adaptation in the Region.

In late 2018, the Region of Durham’s Office of Sustainability, Planning and Economic Development and the Natural Environment Climate Change Collaboration (see list of partners under ‘Partners’) were successful in their application to the Greenbelt Foundation to update this climate change information.

Purpose

The purpose of this project is to address the Region’s now dated climate change (CC) projection methodology while providing a consistent data layer of CC projections across the Greenbelt municipalities and watersheds within the Region. The CC projections will be used in a variety of projects including: identifying vulnerable areas and potential adaptation restoration sites; the Region’s Municipal Comprehensive Review; watershed plan updates and/or equivalent studies; and support the implementation of the Greenbelt Plan and achievement of plan objectives. The methodology report from this project will also enable other Greenbelt municipalities to derive climate change projections using a consistent approach within their jurisdiction.

Approach

An ensemble approach has been cited as the preferred method for CC modelling by the Ontario Expert Panel on Climate Change Adaptation (Tomalty and Komorowski, 2011) and the Ontario Climate Consortium (OCC, 2018, 39). An ensemble approach can provide more representative range of projections of seasonal temperature and precipitation than any single climate model (Tomalty and Komorowski, 2011). It is anticipated that updating climate change projections using an ensemble approach will continue to reflect a “warmer, wetter and wilder” climate in the Region. However, this updated approach will include additional parameters; consider CC in the short, mid and long term timeframes, and enhance consistency across all Region municipalities.

The goal of this project is:

- A. To create an updated, ensemble approach model for CC analysis which allows for a full range of climate projections, including extremes and averages, to be captured for the Region.
- B. To provide the climate data to inform the Region’s Climate Adaptation Planning efforts, updated watershed planning documents for Provincial Plan conformity, other policies as well as official plan recommendations.
- C. To provide the methodology of the climate data analyses so that other Greenbelt municipalities and conservation authorities may replicate, adapt and build on the approach for their region.
- D. To complement and/or update existing CC projections for Toronto and Region and Lake Simcoe Region Conservation Authorities; the model will provide a baseline for Ganaraska Region, Central Lake Ontario and Kawartha Region Conservation Authorities who currently have no CC information. This will in turn

benefit the 8 municipalities within the Region (Note: The CA watershed boundaries extend beyond the boundaries of the Region and the Greenbelt).

- E. To provide a consistent approach across the Region that can be utilized by all 8 municipalities within the Region and CAs for decision making, mitigation and adaptation planning
- F. To serve as the foundational data for future projects that will identify risks and threats and to conduct vulnerability assessment which will further info decision making, policies and practice in the Region

Partners

A range of agencies and organizations, including the Region's 8 area municipalities (Brock Township, City of Oshawa, City of Pickering, Municipality of Clarington, Town of Ajax, Town of Whitby, Township of Scugog and Township of Uxbridge), the five conservation authorities whose jurisdiction includes parts of the Region (Central Lake Ontario Conservation Authority, Ganaraska Region Conservation Authority, Kawartha Region Conservation Authority, Lake Simcoe Region Conservation Authority, Toronto Region Conservation Authority), and the Region's Agricultural community will use the updated climate projections in their CC adaptation and mitigation work.

The Ontario Climate Consortium (OCC) has been selected by these partners to lead the technical portion of this analysis and support in the development of all deliverables.

The Region of Durham and the Greenbelt Foundation have committed funds to the project; the other partners will contribute in-kind contributions.

Application

The CC projections will be used to inform the Region's Municipal Comprehensive Review (MCR), watershed planning and other projects as well as at the technical level to identify sites for natural solutions to adapt for climate change vulnerable sites, enhancement of Conservation Authority natural heritage systems which inform Regional and municipal natural heritage systems. The completion of this climate information will support implementation of the Provincial Greenbelt Plan with respect to CC. This information will support the adoption and implementation of sustainable land uses, restoration and other green projects in keeping with the principles of the Greenbelt Plan to protect the long term viability of natural areas and agricultural lands for future generations that will rely on the productivity of these areas.



Possibility grows here.