

## **Pilot Study – Environmental and Infrastructure Vulnerabilities to Climate Change – Implications for Natural Channels**

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There has been increased public awareness of damage caused by extreme weather events in Ontario, as a result of increased frequency of rainfall events, changes to climate seasonability, and increased temperature. This pilot project completed within the Spencer Creek Watershed in Hamilton focuses on an in-depth analysis of the relationship of future climate temperature, precipitation and hydrology/hydraulic characteristics to potential effects on riverine infrastructure (e.g., bridges) and four environmental features in the Spencer Creek Watershed.

The pilot project team consists of Matrix Solutions Inc. (Matrix), McMaster University, and the Ontario Climate Centre (OCC). This pilot project received funding support from the RBC Blue Water Project, the City of Hamilton, Hamilton Conservation Authority, and MITACs.

This study aims to:

- Characterize local future climates and create future climate change scenarios
- Apply possible future climate climates to existing calibrated Mike SHE hydrologic model of the Spencer Creek watershed.
- Compare baseline watershed and hydrologic conditions and future conditions
- Recommend adaptation measures to address the risks posed to the watershed by both current and future climate scenarios.

Potential effects on infrastructure may include increased unpredictability in managing reservoir functions, loss of channel stability and increasing erosion vulnerability, increased frequency of flood events, loss of bridge conveyance and potential structural damages.

The conclusions of this presentation will focus on impacts on natural channels and potential adaptation measures.