

Concept: How Might We Identify, Measure and Adapt to the Risks Associated with Climate Change?

Background:

In 2014, the Intergovernmental Panel on Climate Change (IPCC) published its latest assessment report on climate change. Each report synthesizes the latest scientific, technical and socio-economic information on climate change. Divided into three Working Groups (WG I, II & III), the assessment reports (AR) outline the physical discipline of climate science, the impacts induced by human activity and the strategies of response. While the report is considered a rigorous assessment of climate science research, studies show that the results from the reports are not universally understood, and as such, greenhouse gas emissions are continuing to rise.

A greenhouse gas (or GHG for short) is any type of gas that can absorb and/or radiate heat in the Earth's atmosphere for a long period of time. Though there are many different types of GHGs, three are of primary concern because they are closely related to human activity – they are carbon dioxide (CO₂), methane (CH₄) and nitrous oxide (N₂O). Sources of the aforementioned emissions include fossil fuel consumption such as coal, oil and natural gas (carbon dioxide), decomposition of organic material from landfills (methane) and the consumption of chemical fertilizers (nitrous oxide). For thousands of years these types of gases were considered to be stable, as there were natural processes that were able to remove as much carbon as they released. Oceans, forests and artificial deposits (i.e. chemical technologies and chemicals) have acted as 'carbon sinks', where they would absorb and capture excess carbon from the atmosphere and reduce high concentrations in the air. Conversely, due to increased human activity, massive quantities of GHG emissions have been released into the atmosphere and overall intensified the natural greenhouse effect. Today's atmosphere concentration contains approximately 42 percent more carbon dioxide than it did at the start of the Industrial Revolution and high concentrations of methane and carbon dioxide are the highest they have ever been in roughly half a million years.

In response to the IPCC's latest statement that they are "95 percent certain that humans are the main cause of current global warming," in 2015 the United Nations Framework Convention on Climate Change (UNFCCC) held an international Convention in Paris, France in hopes of bringing all nations into a common action plan to mitigate climate change and to adapt to its impacts. To this date, 185 Parties have ratified of 197 Parties to the Convention. This means the Parties are aware and have responded to the threat of climate change by agreeing to maintain a global temperature

rise below 2 degrees Celsius above pre-industrial levels, and to pursue efforts even further by limiting global temperature rise to 1.5 degrees Celsius through the Paris Agreement. On a national level, the Federation of Canadian Municipalities (FCM) and the International Council for Local Environmental Initiatives (ICLEI) have created the Partners for Climate Protection (PCP) program – a program that is specifically designed to assist municipal governments to take action against climate change. Through the provision of a five-step milestone framework, municipalities have the opportunity to create a GHG inventory, identify and set an emissions reduction target, and implement a local action plan that is uniquely catered to their geographical location. Once a municipality has successfully undergone the PCP’s framework, the FCM has assured that municipalities will save money, improve their community’s air quality and local population’s health.

As a municipality, the Town of Pelham has a responsibility to be leaders for the community. By taking action to combat climate change and adapt to its impacts, the Town has the opportunity to save money in municipal operations, lower energy costs for residents and businesses and increase investment in the local economy. Though the Town has already taken the initiative of adapting to the impacts of climate change through the creation and implementation of a Climate Change Adaptation Plan, it is therefore recommended that the Town is to endorse the PCP’s Joining Resolution and gain access to their Milestone Tool in order to enhance the accuracy of the GHG Emission Inventory. This Tool provides municipalities the opportunity to bind their GHG Emission reduction targets at the international, national and city levels, create ideal “business-as-usual” scenarios depending on the set emission reduction targets and promote regular municipal GHG Emission reporting.

The Climate Change Coordinator and the Manager of Engineering will have strict access to the Tool in order to secure accuracy and confidentiality. The tool is very “user-friendly” and it is free for PCP members. All that the FCM requests in favour of using the Tool is that the Town is to commit to carrying out the five-milestone framework within 10 years of joining the program, and to report on progress at least once every two years.

The Challenge:

The Pelham Town Council is to adopt and sign the Joining Resolution, and then send it back to FCM.

Our Recommended Solution:

**THAT Committee of the Whole receive the PCP Milestone Tool – Joining Resolution, May 6th 2019 and
THAT Committee recommend that Council confirms the municipality’s participation in the PCP Program to FCM**

Rationale:

The PCP Milestone Tool has an abundance of helpful features that will provide the Town the ability to input energy and emissions data for several inventory years, track progress and also compare performance for each building over time. There are approximately 350 municipalities participating in the PCP Program, and 180 local climate change action plans that have been prepared with the help of the PCP Milestone Tool. The two conditions required by the PCP Program to be met by the Town in order to have access to their Milestone Tool are currently satisfied through the role of the Climate Change Coordinator.

Furthermore, the Town of Pelham along with three other municipalities that have also secured funding through the FCM for a staff grant within the Niagara Region (i.e. Lincoln, St. Catharines and Niagara Falls) will be partnering with Brock University in their ‘Niagara Adapts’ program. Brock has recognized that climate change will affect municipalities in various ways, yet the impacts will be felt across the entire region. Together, municipalities will work collaboratively to take action for future climates through effective climate change adaptation planning. Niagara Adapts will be based out of Brock’s Environmental Sustainability Research Centre, where the partnership will support each municipality throughout their adaptation planning process, grant municipalities access to Brock’s special survey software to determine a baseline assessment of vulnerability adaptive capacity and also provide the opportunity to be part of an online learning network where members will be able to interact with their peers to share ideas, resources, approach and opportunities.

Measure of Success:

Success would be achieved if the Town is granted access to the Tool in order to accurately measure and monitor the Town’s GHG Emission Inventory. Following the completion of the GHG Inventory, the set emission reduction target and local action plan will truthfully reflect the Town’s current scenario, leading to an effective and efficient Climate Change Adaptation Plan. Likewise, the Town’s plan will also be successfully measured through the PCP’s five-step milestone framework.

Milestones:

N/A

Prepared by:
Jason Marr, P. Eng.
Director, Public Works & Utilities

Recommended by:
Teresa Quinlin, MBA, CPA, CA
Interim Chief Administrative Officer, Treasurer, Director of Corporate Services

This report was prepared by Deanna Allen, BA, MA, Climate Change Coordinator and in consultation with Derek Young, Manager of Engineering.